## Accounting Program Code 101011 | Associate Degree

Offered at the Green Bay and Marinette campuses. Most first year program courses available at Sturgeon Bay campus. For information in Green Bay: (920) 498-5444. For information in Marinette: (715) 7359361. For information in Sturgeon Bay: (920) 746-4900. Toll-free: (888) 385-6982

This program is fully eligible
for financial aid.

## Program Description

 Accounting prepares students for positions as accountants. Accountants business records prepare financial

## Program Outcomes

- Manage general ledger.
- Manage accounts receivable
- Manage accounts payable.
- Maintain inventory control.
- Prepare payroll.
- Prepare income taxes.
- Account for fixed assets.
- Perform job order cost accounting
- Perform process cost accounting.
- Perform standard cost accounting. - Analyze financial statements.
- Prepare budgets.
- Manage cash flows.
- Use corporate accounting procedures.
- Analyze accounting information to make appropriate decisions.
- Perform reconciliation procedures.
- Create spreadsheets.
- Perform accounting functions using computerized accounting packages.
- Demonstrate proficiency in math using table top calculator and T.I. Business Analyst calculator.
- Perform activity-based costing.


## Requirements for <br> Program Entry

- Completed application.
- High school transcript or equivalent. For a list of equivalents, go to www nwtc.edu/gettingstarted.
- Basic math (algebra recommended).
- Ability to use computer keyboard.
- As a requirement for program entry, an Academic Skills Assessment (Accuplacer)
with appropriate benchmark scores is necessary. Program Benchmarks are Arithmetic: 65; Reading Comprehension: 55; Sentence Skills: 75. Students not meeting these benchmarks or the equivalent will be required to establish an individualized academic plan. Students may have the opportunity to enroll in selected program core courses while completing their individualized plan. Upon completion of the plan, students will be eligible for all program courses. However, higher test scores will lead to greater success in core program courses. To learn more about these assessments and program benchmark 220) 498-5444 co counse a counser at


## Employment Potential

## A graduate of the program will

 have the potential for employment in the following areas:Accounts Payable/Receivable Accountant records and pays bills of the company, records receivables transactions, bills customers at regular intervals, records charges and payments.
Payroll Accountant: handles the payroll for a business; end-of-period reports; time cards; computes overtime, deduct taxes, and prepares payroll checks; and reconciles payroll accounts.
Inventory Control Accountant: record receipt and dispersal of goods using a perpetual inventory system, assigns costs using an inventory valuation method. Cost Accountant: determines cost of products manufactured; determines variations from standards in labor, materials, and overhead; prepares budgets; and prepares various management reports. Public Accountant: keeps records for small business; prepares payroll records prepares financial records, income statements, and balance sheets. Accountant: keeps financial records prepares financial records (income statements, balance sheets, budgets, and summary reports), and anal Tax Accountant: prepares tax returns for both state and federal governments, assists in tax planning and tax shelters, and files payroll reports and quarterly reports as required by government agencies.
Governmental/Nonprofit Accountant: keeps records of governmental/nonprofit agencies using the fund method of accounting.

## Gurriculum

Sudents following the study plan below
vill complete the Accounting associate degree in the number of semesters shown.

IRST SEMESTER
CREDITS
0-101-107 Accounting Applications/Proc 10-101-110 Accounting 1 0-103-121 Micro: Word-Intro 0-103-131 Micro: Excel-l-ntro 0-801-136 English Composition 1 0-804-123 Math w Business Apps 10-890-101 College 101

## ECOND SEMESTER

0-101-105 Accounting-Computer Ledger 10-101-120 Accounting 2 0-101-151 Accounting-Payroll 10-801-196 Oral/Interpersonal Comm 0-809-166 Intro to Ethics: Theory \& App
$0-809-199$ Psychology Of Human Relations SEMESTER TOTAL

## hird semester

0-101-131 Accounting-Intermediate
0-101-134 Accounting-Cost
10-101-154 Accounting-Personal Tax 10-101-189 Accounting-Applying Quickbooks 10-114-109 Credit-Policies/Procedures

OURTH SEMESTER
10-101-142 Accounting-Managerial 0-101-143 Accounting-Govern/Nonprofit 10-101-152 Accounting-Business Tax -101-153 Accounting-Computerized Tax 0-102-100 Bus and Info Tech Occi 0-809-172 Intro to Diversity Studies 0-809-195 Economics
TOTAL CREDITS
The credit for 10-890-101, College 101, $s$ an Institutional Requirement for of the program credit requirements.

With additional education and/or work experience, graduates may find other opportunities for employment. - Auditor

- Certified Public Accountant
- Comptroller
- Treasurer
- Trust Officer

The following certificates/technical diplomas may be applied toward this program:

- 311011, Accounting Assistant
-901011, Small Business
Bookkeeping Certificate


## COURSE DESCRIPTIONS

These courses provide an opportunity for students to develop the knowledge, skills, and understanding require for employment in this field.
10-101-105 ACCOUNTING-COMPUTER LEDGER ...applications on calculators or keypad such as addition, subtraction, computers using Microsoft Excel (Prerequisites: 10-101-110 Ace OR 10-101-101, Accou, Accounting 1 10-103-131, Micro. Excel-Intro; 10 103-132 Micro: Excel-Part 2)

10-101-107 ACCOUNTING APPLICATIONS AND PROCEDURES ..use of financial calculator, checkbook records, purchasing, shipping/receiving, credit charges, time value of money, depreciation methods, inventory methods, and financial statement analysis.
10-101-110 ACCOUNTING 1 ...accounting principles, financial statements, business transactions, accounting cycles/ systems, specialized journals, accounting for cash and receivables for sole proprietorships in service or merchandising businesses. 10-101-120 ACCOUNTING 2 ..inventories, fixed assets, current liabilities including payroll and notes payable, business formations, capita stocks, dividends, bonds, cash flow statements, and financial statement analysis. Prerequisite: 10-101-110, Accountin

10-101-131 ACCOUNTING INTERMEDIATE ...understand income statements, balance sheets, cash flow statements, cash and receivables, inventories and cost of goods sold, noncurrent operating assets, earnings per share, accounting changes nd corrections, financial statement analysis. (Prerequisite: 10-101-120, Accounting 2)

10-101-134 ACCOUNTING-COST ...contemporary cost environments and issues; selecting, analyzing, and tracking costs; production costing methods: job order, process, standard costs, byproduct, and joint costing. (Prerequisites: 10-101-105, Accounting-Computer Ledger; 10-101-120, Accounting 2)

0-101-142 ACCOUNTING MANAGERIAL ...cost behavioral patterns, cost-volume-profit relationships, segment eporting, profit planning, budgets and overhead analysis, decentralized operations, pricing decisions, capital investment decisions, and service department costing. (Prerequisite: 10-101-134, Accounting-Cost)

0-101-143 ACCOUNTING GOVERNMENTAL \& NONPROFIT ...use fundamental knowledge for understanding the operation of governmental and nonprofit entities, their accounting, and financial reporting practices and the tandards that shape their accounting and financial reporting systems. (Prerequisite 10-101-120, Accounting 2)
10-101-151 ACCOUNTING-PAYROLL ...payroll and personnel records, social security witholding tax, unemployme compensation, time sheets and time keeping records, and legal aspects of payroll. Prerequisite: 10-101-10, Accounting OR 10-101-101, Accounting Principles)

10-101-152 ACCOUNTING-BUSINESS TAX ...learners will be introduced to federal tax laws as they apply to business entities and will prepare business ncome tax returns. (Prerequisite: 10 101-154, Accounting-Personal Tax)

10-101-153 ACCOUNTINGCOMPUTERIZED TAX ...learners will prepare individual income tax returns using a commercial software package Requires completion of the Accounting Personal Tax course. (Prerequisite: 10-101-154, Accounting-Personal Tax)
10-101-154 ACCOUNTING-PERSONAL TAX ...history and research of tax law and regulations; preparation of feder individual income taxes including forms 1040, 1040A, and 1040EZ, and supporting schedules and forms.
0-101-156 ACCOUNTING-AUTOMATED APPLICATIONS ...Windows, file management, worksheet applications, database pplications, macros, evaluation of accounting oftware, installation of software, and conversion of manual accounting system to a omputerized system. (Prerequisites: 10-101 Computer Ledger; 10-103-121. Micro: Word Intro; 10-801-136, English Composition 10-804-123, Math w Business Apps)

0-101-189 ACCOUNTING-APPLYING QUICKBOOKS ...learners will be Qtroduced to basic and advanced features of Quickbooks and will apply skills in realistic business simulations including creating accounts, invoicing, budgeting, preparin ratements, journalizing and graphing. (Prerequisite: 10-101-110, Accounting 1

10-102-100 BUS AND INFO TECH CCUP PREP ...career exploration, self- exploration, career planning, areer placement, job seeking skills. This course should not be taken before he 3rd semester or completing at leas half of the core program courses.
0-103-121 MICRO: WORD NTRODUCTION ...word processing basics including creating, revising, formatting, rinting; sections, tabs, multiple-page umbering; manipulating text; creating adersfoot, raphics; and merging documents. Window experience improves success, consider Computer Basics.

0-103-131 MICRO: EXCEL-
INTRODUCTION ...creating a worksheet, enhancing worksheet appearance, moving and opying data, using formulas and functions, creating charts and using clip art. Windows xperience improves success: consider 10 -03-111, Windows/Computer Basics.

0-103-132 MICRO: EXCEL-PART ...advanced formatting techniques and functions, working with templates, ollaborating with multiple Excel users, creating macros, Excel's database eatures and analysis tools. (Corequiste 10-103-131, Micro: Excel-Intro)
10-114-109 CREDIT-POLICIES AND ROCEDURES ...credit/collection policie procedures, and law, credit investigations, evaluate credit worthiness, support cred decisions, create credit forms, fraud, bankruptcy, techniques to control and manage accounts receivable. (Prerequisite 0-101-110, Accounting 1 or 10-101 06, Accounting for Non-Accountants)

## Accounting Assistant

Offered at the Green Bay and Marinette campuses. Most first year program courses available at Sturgeon Bay campus. For information in Green Bay: (920) 498-5444. For information in Marinette: (715) 7359361. For information in Sturgeon Bay: (920) 746-4900. Toll-free: (888) 385-6982.

This program is fully eligible for financial aid.

## Program Description

Accounting Assistant prepares students for entry-level accounting positions. Accounting Assistants work with accounts receivable, accounts payable, inventory, and payroll.

## Program Outcomes

- Manage general ledger.
- Manage accounts receivable.
- Manage accounts payable.
- Maintain inventory control.
- Prepare payroll.
- Account for fixed assets.
- Analyze financial statements.
- Use corporate accounting procedures.
- Perform reconciliation procedures.
- Create spreadsheets.


## Requirements for Program Entry

- Completed application.
- High school transcript or equivalent. (For a list of equivalents, go to www.nwtc.edu/gettingstarted.)
- Basic math (algebra recommended).
- Ability to use computer keyboard.
- As a requirement for program entry, an Academic Skills Assessment (Accuplacer) with appropriate benchmark scores is necessary. Program Benchmarks are Arithmetic: 65; Reading Comprehension: 55; Sentence Skills: 75. Students not meeting these benchmarks or the equivalent will be required to establish an individualized academic plan. Students may have the opportunity to enroll in selected program core courses while completing their individualized plan. Upon completion of the plan, students will be eligible for all program courses. However, higher test scores will lead to greater success in core program courses. To learn more about these assessments and program benchmark scores, please contact a counselor at (920) 498-5444 or (888) 385-6982.


## Employment Potential

A graduate of the program will have the potential for employment in the following areas:

Accounts Payable/Receivable Accountant: records and pays bills of the company, records receivables transactions, bills customers at regular intervals, records charges and payments.

Payroll Accountant: handles the payroll for a business; end-of-period reports; time cards; computes overtime, deducts taxes, and prepares payroll checks; and reconciles payroll accounts.
Inventory Control Accountant: records receipt and dispersal of goods using a perpetual inventory system, assigns costs using an inventory valuation method.

With additional education and/or work

## Curriculum

Students following the study plan below will complete the Accounting Assistant technical diploma in the number of semesters shown.

## FIRST SEMESTER

CREDITS
10-101-107 Accounting Applications/Proc 2
10-101-110 Accounting 1
10-103-121 Micro: Word-Intro
10-103-131 Micro: Excel-Intro
10-103-132 Micro: Excel-Part 2
10-801-136 English Composition 1
10-804-123 Math w Business Apps
*10-890-101 College 101
SEMESTER TOTAL

## SECOND SEMESTER

10-101-105 Accounting-Computer Ledger 10-101-120 Accounting 2
10-101-151 Accounting-Payroll
10-101-189 Accounting-Applying Quickbooks 10-801-196 Oral/Interpersonal Comm SEMESTER TOTAL TOTAL CREDITS

## CURRICULUM NOTE

*The credit for 10-890-101, College 101, is an Institutional Requirement for graduation. Consequently, it is not part of the program credit requirements.
experience, graduates may find other opportunities for employment.

- Cost Accountant
- Accountant
- Tax Accountant

Note: These credits can be applied to the first year of the two-year Accounting program.

The following certificates/technical diplomas may be applied toward this program:

- 901011, Small Business Bookkeeping


## COURSE DESCRIPTIONS

These courses provide an opportunity for students to develop the knowledge, skills, and understanding required for employment in this field.

10-101-105 ACCOUNTING-COMPUTER LEDGER ...applications on calculators or keypad such as addition, subtraction, multiplication, division, percent, and computers using Microsoft Excel.
(Prerequisites: 10-101-110, Accounting 1 OR 10-101-101, Accounting Principles; 10-103-131, Micro: Excel-Intro; 10-103-132, Micro: Excel-Part 2 )

10-101-107 ACCOUNTING APPLICATIONS AND PROCEDURES ...use of financial calculator, checkbook records, purchasing, shipping/receiving, $\mathrm{A} / \mathrm{R}$, and $\mathrm{A} / \mathrm{P}$ systems, markups, discounts, credit charges, time value of money, depreciation methods, inventory methods, and financial statement analysis.

10-101-110 ACCOUNTING 1 ...accounting principles, financial statements, business transactions, accounting cycles/ systems, specialized journals, accounting for cash and receivables for sole proprietorships in service or merchandising businesses.

## 10-101-120 ACCOUNTING 2

...inventories, fixed assets, current liabilities including payroll and notes payable, business formations, capital stocks, dividends, bonds, cash flow statements, and financial statement analysis. (Prerequisite: 10-101-110, Accounting 1; 10-804-123, Math w/Business Apps)

10-101-151 ACCOUNTING-PAYROLL ...payroll and personnel records, social security, withholding tax, unemployment compensation, time sheets and timekeeping records, and legal aspects of payroll. (Prerequisite: 10-101-110, Accounting 1 OR 10-101-101, Accounting Principles)

10-101-189 ACCOUNTING-APPLYING QUICKBOOKS ...learners will be
introduced to basic and advanced features of Quickbooks and will apply skills in realistic business simulations including creating accounts, invoicing, budgeting, preparing statements, journalizing and graphing. (Prerequisite: 10-101-110, Accounting 1)

10-103-121 MICRO: WORD-
INTRODUCTION ...word processing basics including creating, revising, formatting, printing; sections, tabs, multiple-page numbering; manipulating text; creating headers/footers; creating/formatting tables, graphics; and merging documents. Windows experience improves success; consider 10-103-111, Windows/Computer Basics.

10-103-131 MICRO: EXCEL-
INTRODUCTION ...creating a worksheet, enhancing worksheet appearance, moving and copying data, using formulas and functions, creating charts and using clip art. Windows experience improves success; consider 10-103-111, Windows/Computer Basics.

10-103-132 MICRO: EXCEL-PART 2 ...advanced formatting techniques and functions, working with templates, collaborating with multiple Excel users, creating macros, Excel's database features and analysis tools. (Corequiste: 10-103-131, Micro: Excel-Intro)

Administrative Professional Program Code 101066 | Associate Degree

| campuses. Most first year program courses available at Sturgeon Bay campus. For information in Green Bay: (920) 498-5444. For information in Marinette: (715) 7359361. For information in Sturgeon Bay: (920) 746-4900. Toll-free: (888) 385-6982. | lead to greater success ie about these courses. To learn more assessments and program benchmark scores, please contact a counselor at (920) 498-5444 or (888) 385-6982 | following the study Il complete the Adr |
| :---: | :---: | :---: |
| This program is fully eligible for financial aid. | Employment Potential A graduate of the program will have the potential for employm | FIRST SEMESTER CREDITS <br> 10-103-111 Micro: Windows/Computer Basics <br> 10-103-121 Micro: Word-l-ltro |
| Program Description Administrative Professional students learn to be efficient and effective office employees through application of business procedures (proofreading, telephone messaging, records management, meeting and travel arrangements, communication, project management, Internet research, etc.) and software skills (Windows, word processing, spreadsheets, presentation graphics, web creation, electronic calendaring, and database). |  |  |
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|  | graphics, electronic calendaring, desktop publishing, web creation, and/or datal software, maintains confidentiality, and possibly supervises others. | SECOND SEMESTER <br> 10-103-131 Micro: Exce <br> 10-103-141 Micro: Acces 10-106-127 Admin Busi |
| All software materials assist in preparing students for the Microsoft Office Specialist (MOS) certification exams. | Serice Represenaive: |  |
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| With additional education and/ or work experience, students will be prepared for certification exams offered by the International Association of Administrative Professionals (IAAP). |  |  |
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|  |  | 10-103-163 Micro: Expression Web 10-105-103 Career Preparation |
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| Program Outcomes <br> - Demonstrate effective workplace |  |  |
| - Apply technology skills to business and administrative tasks. <br> - Perform routine administrative procedures. <br> - Manage administrative projects. <br> - Maintain business relationships. <br> - Model professionalism in the workplace. |  | FоURTH SEMESTER |
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|  | Office/Facilities Manager: coordinates various office support services, includ | 10-809-172 Intro to Dive 10-809-195 Economics SEMESTER TOTAL TOTAL CREDITS |
| Requirements for Program Entry |  |  |
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| - Completed application |  |  |
| - High school transcript or equivalent. For a list of equivalents, go to www.nwtc.edu/gettingstarted. |  |  |
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| - Keyboarding proficiency at 30 WPM using the TOUCH method is required. (Mandatory pre-admission keyboarding test to be taken at the NWTC Assessment Center.) |  |  |
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| - As a requirement for program entry, an Academic Skills Assessment (Accuplacer) with appropriate benchmark scores is |  |  |
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| necessary. Program Benchmarks are Arithmetic: 65; Reading Comprehension: |  |  |
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| 55; Sentence Skills: 75. Students not meeting these benchmarks or the equivalent will be required to establish an individualized academic plan. Students may have the opportunity to enroll in selected program core courses while completing their individualized plan. Upon completion of the plan, students will be eligible for all program |  | -Tam Leader |
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|  | With additional education and/or work experience, graduates may find other | ware |
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| COURSE DESCRIPTIONS <br> These courses provide an opportunity for students to develop the knowledge, skills, and understanding required for employment in this field. |  |  |
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| 10-101-103 ACCOUNTING PRINCIPLES- <br> APPLIED ...the accounting fundamentals, recording of business transactions, preparation of financial statements, accrual accounting, accounting for service enterprises and merchandising businesses, payroll, and use of Quickbooks software. | 103-111, Windows Computer Basice |  |
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|  | Eexperientaial learing introducid |  |
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| 10-103-111 MICRO: WINDOWS/ COMPUTER BASICS ...Windows desktop elements, help features, folder and file management (create, delete, move, find file), and Search strategies. Blackboard, internet, and e-mail usage. |  |  |
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|  | ${ }_{\text {10, }}^{\text {10-10-103 CAREER PREPARA }}$ | 127, Administrative Businesss forecedures 1 |
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| 10-103-121 MICRO: WORD- <br> INTRODUCTION ...word processing basics including creating, revising, formatting, printing; sections, tabs, multiple-page numbering; manipulating text; creating headers/footers; creating/formatting tables, graphics; and merging documents. Windows experience improves success; consider 10 -103-111, Windows/Computer Basics. | experiential learning proposil. (Prerem |  |
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|  | 10-106-102 |  |
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|  | computa | 10-103-151, Micro: PowerPoint-Intr 103-163. Micro: Expression Web) |
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| 10-103-122 MICRO: WORD-PART 2 ...advanced word processing features including working with headers/footers, inserting quick parts, themes, styles, sort and select; footnotes/endnotes, images, shapes, shared documents; specialized tables and indexes; forms; and sharing data. (Corequisite: 10-103-121, Micro: Word-Intro) | output devices, software, nomics, and data storage. |  |
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|  | soffurare Requires ouch keptoarding a 30 | keybarding skills, Windows adyanced |
|  | dents can learn touch keyboarding |  |
| 10-103-131 MICRO: EXCEL- <br> INTRODUCTION ...creating a worksheet, enhancing worksheet appearance, moving and copying data, using formulas and functions, creating charts and using clip art. Windows experience improves success; consider 10 -103-111, Windows/Computer Basics. | 10-106-125 SkIII | 10-10-122, Micto: Woral-arar 2) |
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| 10-103-132 MICRO: EXCEL-PART 2 ...advanced formatting techniques and functions, working with templates, collaborating with multiple Excel users, creating macros, Excel's database features and analysis tools. (Corequisite: 10-103-131, Micro: Excel-Intro) |  |  |
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| 10-103-141 MICRO: ACCESS- <br> INTRODUCTION ...creating/ modifying database tables, compacting a database, managing records, defining table relationships, creating queries, calculations, and aggregate functions, sorting, and using form/report wizards. Windows experience improves success; consider 10- 103-111, Windows/Complen 103-111, Windows/Computer Basics. |  |  |
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|  |  | studies, students will be exposed to ideas for practicing ethical workplace politics. |
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|  |  | SKILLS ...using the telephone effectiv efficiently in the world of work; telep |
| 10-103-142 MICRO: ACCESS-PART 2 ...creating advanced queries, custom forms, multi-page forms, custom reports, pivot tables, pivot charts, and labels. (Corequisite: 10-103-141, Micro: Access-Intro) |  | eiquete, messaging, and voice mail. |
|  |  | 10-106-199 ADMIIISTRATVE |
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| 10-103-151 MICRO: POWERPOINTINTRODUCTION ...presentation skills using: graphics, diagrams, design themes, sounds, animations, slide transitions, and integration with other software. Windows experience improves success; consider 10-103-111, Windows/Computer Basics. |  |  |
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|  |  | I; 10-804-123, Math w Business A 10-105-103, Career Preparation) |

## Advanced Emergency Medical Technician Program Code 305316 | Technical Diploma

Offered throughout the District. For information in Green Bay: (920) 498-5444. For information in Marinette: (715) 7359361. For information in Sturgeon Bay: (920) 746-4900. Toll-free: (888) 385-6982.

This program is not eligible for financial aid.

## Program Description

Advanced Emergency Medical Technician students are Wisconsin licensed EMTs seeking to upgrade their skills to the Advanced Emergency Medical Technician level. An Advanced EMT performs advanced pre-hospital patient care for the ill and injured on board a licensed Advanced Emergency Medical Technician level ambulance service. These skills are performed and compliant with the Wisconsin scope of practice.

## Program Outcomes

- Apply the preparatory aspects of Advanced Emergency Medical Technician care.
- Perform intravenous therapy.
- Perform clinical skill competencies.
- Demonstrate usage of basic pharmacological principles.
- Manage cardiac, diabetic and narcotic overdose cases using medications.


## Requirements for Program Entry

- Must be 18 years or older to enter training.
- Valid Wisconsin EMT license.
- Students are required to maintain a current American Heart Association (AHA) Healthcare Provider CPR certification to comply with affiliating agency requirements.
- Proof of current health status and immunizations.
- NWTC is required to comply with the Wisconsin Caregiver Law.
- Aptitudes required for work of this nature are good physical stamina, endurance, and body condition that would not be adversely affected by frequently having to walk, stand, life, carry, and balance at times, in excess of 125 pounds.


## Wisconsin Caregiver Law

NWTC is required to comply with the Wisconsin Caregiver Law (1997 WISCONSIN ACT 27). The completion of a caregiver background check includes the review of criminal records for convictions of serious crimes or a history of improper behavior. Students accepted into this program must complete a background check through www.CertifiedBackground. com. Information regarding this process is provided to students immediately upon acceptance into the program. Students with a criminal history may be denied access to placement at the discretion of the clinical or practicum site. Consequently, should a student have a history of convictions of serious crimes or a history of improper

## Curriculum

Students following the study plan below will complete the Advanced Emergency Medical Technician technical diploma in the number of semesters shown.

## FIRST SEMESTER

CREDITS
*30-531-303 Advanced EMT
SEMESTER TOTAL
TOTAL CREDITS

## CURRICULUM NOTE

- No final grade lower than a "C" is acceptable. A student who withdraws or receives a grade lower than a "C" in a program course may apply for re-entry into the program.
- Successful program completion prepares and entitles the student to take the state license examination. A graduate is licensed only after successful completion of the licensing examination and application for a state license.
behaviors, NWTC cannot guarantee clinical/practicum placement or guarantee graduation within typical program timing.


## Employment Potential

A graduate with an Advanced Emergency Medical Technician Technical Diploma will have the potential for employment as an Advanced EMT with a Wisconsin ambulance service licensed to provide Advanced Emergency Medical Technician level care. Ambulance services in Wisconsin are volunteer, private, fire based or hospital based.

## COURSE DESCRIPTIONS

These courses provide an opportunity for students to develop the knowledge, skills, and understanding required for employment in this field.

30-531-303 ADVANCED EMT... preparatory aspects, clinical decision-making, basic pharmacology, intravenous therapy, cardiovascular cases, diabetic, narcotic overdose, pediatrics, terrorism response and clinical skill competencies of Advanced EMT level care. (Prerequisite: 10-531-102, EMT and acceptance into AEMT program)

Offered at the Green Bay campus Offered at the Green Bay campus
For information: (920) 498-544 Toll-free: (888) 385-6982.

This program is fully eligible
for financial aid.

## Program Description

Careers in architectural technology allow you to pursue your passion for designing drawing, creating, sustainability, and problem solving. As an Architectural
Technology graduate, you'll be prepared to work in many fields related to to work in many fields related to
architecture and construction. These architecture and construction. These careers incluce architectural technician, building information modeling specialist, building materials salesperson, building
systems design technician, shop drawing systems design technician, shop drawing
draftsperson, structural draftsperson, and draftsperson, structural drattsperson, and residential designer or estimator. With you may become an architect, building you may become an architect, building
inspector senior draftsperson, commercia inspector senior draftsperson, commercial specification writer, or project manager.

## Program Outcomes

- Develop architectural drawings for commercial buildings using steel, concrete and masonry.
- Develop residential drawings to meet code and client criteria.
- Perform technical calculations and produce drawings for mechanical, produce drawings for mechanical,
electrical and plumbing systems.
- Produce structural drawings and details for residential and commercial buildings. - Explain the design and construction process.
- Speak and write effectively about architectural facts and ideas.
- Communicate architectural ideas graphically utilizing sketching techniques. - Display a positive attitude toward the profession.
- Apply mathematical principles, codes, manufacturers' standards, tables, and technical manuals in the design and production of construction documents.
- Evaluate structural elements
using the principles of statics and the strength of materials. - Choose appropriate materials for use in building construction. - Estimate materials required for construction.
- Operate computer based technologies currently used to prepare basic presentation drawings, and construction documents.
- Apply sustainable principles
- Apply sustainable principle
to building construction.
- Explain how loads are distributed
and transferred through the
and transferred through
structure of a building.


## Requirements for

## Program Entry

## - Completed application

- High school transcript or equivalent. (For a list of equivalents, go to www.nwtc.edu/gettingstarted.)
- As a requirement for program entry, an Academic Skills Assessment (Accuplacer) with appropriate benchmark scores is necessary. Program Benchmarks are Reading Comprehension: 55; Sentence Skills: 75; Elementary Algebra: 61. Students not meeting these benchmarks or the equivalent will be granted preprogram status and will be required to establish an individualized academic plan. Upon completion of the plan students will be eligible for all program courses. However, higher test scores will lead to greater success in core program courses. To learn more about these assessments and program benchmarks scores, please contact a counselor at
(920) 498-5444 or (888) 385-6
Proficiency with Word, Excel,

PowerPoint, Windows and the Internet.

## Employment Potential

Building information modeling specialist: coordinates development of specialist: coordinates development of
virtual building information models that integrate architectural, structural, and building systems to be used for construction coordination. Building Materials Sales Person: works in retail sales of building products in a building materials center. Building Systems Technician: works under the direction and supervision of an architect or professional engineer, preparing working drawings for hvacr, electrical and plumbing systems within a building. Shop Drawing Draftsperson: works under the supervision of a professional engineer, developing fabrication and erection drawings for components used in construction. Structural Draftsperson: works under the direction and supervision of an architect or professional engineer, preparing working drawings for steel,
concrete, and wood building systems Residential Designer: works independently designing and drafting homes for building materials centers or residential contractors.

## Curriculum

Students following the study plan below will complete the Architectura
Technology associate degree in the number of semesters shown.

## IRST SEMESTER

 10-614-210 Arch Principles 0-614-211 Arch Revit Intro -614-213 Bldg Materials 0-614-214 Building Green Introduction 0-614-222 Arch CAD Intro 10-804-118 Interm Algebra w Apps *10-890-101 College 101EmESTER TOTAL

## ECOND SEMESTER

0-614-215 Architecture Internship
0-614-231 Arch Revit Advanced 0-614-232 Structural Residential 0-614-240 Arch Residential 10-804-196 Trigonometry w Apps
10-809-198 Intro to Psychology SEMESTER TOTAL

## tHIRD SEMESTER

10-614-250 Arch Commercial Studio
10-614-252 Structural Analysis |
$10-641-252$ Structural Analysis I
10-614-253
Struct Commercial
10-801-197 Technical Reporting 10-804-195 College Algebra w Apps SEmESTER TOTAL

## FOURTH SEMESTER

10-614-251 Bldg Estimating
0-614-271 Struct Analysis II
10-614-272 Bldg MEP Systems
10-614-280 Arch Commercial Studio II 10-614-280 Arch Commercial Stucio oll
10-809-172 Intro to Diversity Studies Elective
SEMESTER TOTAL SEMESTER TOTAL
TOTAL CREDITS

## CURRICULUM NOTE

Students must earn a grade of "C" or better Students must earn a grade of """ or better in 10-801-197, Technical Reporting.
"The credil for 10-890-101, College 101, is an Institutional Requirement for graduation. Consequently, it is not pat
of the program credit requirements.

## SUGGESTED ELECTIVES

and Survey/Site Development, 10-607-106
Revit MEP, 10-614-295
Archi Construction Experience, 10-614-148

With additional education and/or work experience, graduates may find other opportunities for employment. - Architect

- Building Inspector
- Senior Draftsperson
- Commercial or Industrial Estimator
- Structural Engineer
- Specification Writer
- Project Manager


## COURSE DESCRIPTIONS

These courses provide an opportunity for students to develop the knowledge, skills, and understanding required for employment in this field.

10-614-210 ARCHITECTURAL PRINCIPLES ...establishes a background in graphic communication and the field of architecture. Creation, interpretation, and effective use of construction documents and specifications will be examined. Basic architectural sketches and drawings will be prepared.
10-614-211 ARCHITECTURAL REVIT INTRO ...introduces the parametric design software Autodesk Revit used for building information modeling. Basic design and documentation tools will be employed. A simple building design will be modeled that matches given specifications.
10-614-213 BUILDING MATERIALS ...considers material properties, processe of manufacture, installation procedures building syster and preds will bed evaluated Materials will be nired eval clasified based on be Construct Specification Intitute Master Forma

10-614-214 Building Green Introduction summarizes the history, technology and science underlying sustainable building practices. The human factor and the economics of sustainability will be discussed. Alternative energy including wind, solar, photovoltaic, geothermal and fuel cells will be researched.

10-614-215 ARCHITECTURE INTERNSHIP ...the application of theory, skills, and techniques in the architecture profession.
10-614-222 ARCHITECTURAL CAD INTRO ...incorporates the use of AutoCAD for generating construction drawings. Basic to intermediate techniques will be employed. Accurate architectural drawings adhering to given standards that incorporate symbols dimensions and notes will be created.

10-614-231 ARCHITECTURAL REVIT ADVANCED ...expands the implementation of additional features found in the parametric design software Autodesk Revit. Advanced modeling and locumentation tools will be explored. More complex building information models will be generated, edited and documented. (Prerequisite: 10-614-211, Arch Revit Intro) 10-614-232 STRUCTURAL
RESIDENTIAL ...highlights load distribution and coordination of structural components within residential buildings. Foundation systems, framing design and pplicable codes will be examined. Various or we in strue utirzed to select members 0 ul4 210 Arch Princips. 10-614 13 Bld Mreids 10 -614222, Ach CAD Into Corequites 10-614-231)

10-614-240 ARCHITECTURAL RESIDENTIAL ...emphasizes residential house styles, building codes, and design components related to the site and structure. Conceptual design drawings will be developed into construction drawings using 2D CAD and 3D BIM design software. (Prerequisites: 10-614-210 Arch Principles; 10-614-211, Arch Revit ntro; 10-614-213, Bldg Materials; Struct Residential; 10-614-222, Arch CAD Intro; Corequisites: 10-614-231, Arch Revit Adv; 10-614-232, Struct Residential)

10-614-250 ARCHI COMMERCIAL STUDIO I ...outlines working drawing documentation and the construction process of commercial projects. Advanced building information modeling tools will be applied o a steel frame and masonry structure. Plans, elevations, sections and details will be generated. (Prerequisites: 10-614-240, Arch Residential; 10-614-231, Arch Revit Adv; Corequisite: 10-614-253, Struct Commercial) 10-614-251 BUILDING ESTIMATING ...applies mathematics and the knowledge of building materials to the art of blueprint interpretation. Residential and commercial construction plans will be referenced. Manual and computerized methods will be Manual ad conpured miad wir surveys. (Prerequisites: 10-614-240, As Residential; 10-614-232, Struct Residential)

0-614-252 STRUCTURE ANALYSIS ...relates fundamental concepts of physics to architectural design and building construction. Critical thinking will be necessary to perform variou alculations. Physical properties of building materials and systems will be analyzed through demonstrations and experiments. (Prerequisites: 10-14-232, Struct Residential; 10 804-196, Trigonometry w Apps
0-614-253 STRUCTURAL COMMERCIAL ...interprets information necessary to communicate the structural design of commercial buildings. Concrete masonry and steel structural system will be compared. Engineering sketches, dustry manuals and computers lise (Prad to preparequred Arb Residential 10-614-232 Stre Residential; 10-614-231, Arch Rev Adv)

10-614-271 STRUCTURAL ANALYSIS II ...explains mathematical interaction between statics and strength of materials. Principles of structural theory will be applied to beam and column design. Basi calculations will be performed to relate concepts to actual wood member conditions Prerequisites: 10-804-195, College Algebra w Apps; 10-614-252, Struct Analysis I)

10-614-272 BUILDING MEP SYSTEMS ...correlates the relationship between a building and its mechanical, electrical and plumbing systems. Codes, space equirements and specifications will be elated to the building. MEP plans and necessary calculations will be prepared for a building. (Prerequisites: 10-614 222, Arch CAD Intro; 10-614-240, Arch Residential; 10-614-231, Arch Revit Adv

0-614-280 ARCH COMMERCIAL STUDIO II ...cultivates skills necessary STUDIO II ...cultivates skills necessa to solve design problems associated
with concrete structures. Current codes, with concrete structures. Current codes, guidelines will be stressed. Various construction documents will be coordinated construction documents will be coordin
within a building information model. Prerequisites: 10-614-250, Arch Commeri Studio I; 10-614-253, Struct Commercial)

## Auto Collision Repair

\& Refinishing Technician Program Code 324051 | Technical Diploma


## COURSE DESCRIPTIONS

 These courses provide an opportunityfor sududenst ot develop the newowledge,
skills, and understanding required for employment in this field.
10-405-100 INTRODUCTION TO
COLISION REPAR COLLISION REPAIR ...industry
professionalism, career opportunities
and certifications, personal and shop safty, collision repair industry terms and and analysis, use of basic hand and powe tools, identifying and using collision repair information and procedures, and basic repair
--405-101 InTRODUCTION TO UTOMOTIVE REFINISHING .industry career opportunities and
certifications, refinishing safery and environmental regularions, automotive 10-405-102 COLLISION REPAIR NON TRUCTURAL 1 ...removal, replacement, Id storage of interior and exterior triin disarming arming restraint systems,
adjustment to movalle glass, lamps, bumpers
and movable tops, and wind noise/water and movable tops, and wind noisel water
ceak diagnososis and repair (Prerequisite:
and 0-405-103 COLLISION REPAIR ON STRUCTURAL 2 ..identifying honstructural part identification, damage
nnalysis and developing a repair plan, time management, and replacing and aligning
the appropriate tools. (Corequisites: 10 -
$405-100$ Intro to Collision Repair, 105 -102 Coll Repair Non Structural 1) 0-405-104 COLLLSION REPAIR NON ocesses for straightening more complex types of colision damage to nonstructur
vehicle panels utilizing the eppropriate
tools. (Corequisitess 10-405-100 Intro Collision Repair, 10-405-102, Coll Collision Repair Non Structura 2)
0-405-105 COLLISION REPAIR NON SeactuRAL 4 ..removal and application nd various types of foams, replacing non ructural vehicle panels using panel bonding xterior panels. (Corequisites: 10-405-100, ntro to Collision Repair; 10-405-102,
Collision Repair Non Struct 1; 10-405-103 Collision Repair Non Struct 2; 10-405.
10-405-106 PLASTICS AND Pastic used on vehicles, making repair or replace decisions, repair techniques using plastic welding equipment and adhesives.
and refinishing techniques and materials.
0-405-107 COLLISION REFINISHING URFACE PREPARATIONS ...planning dentification, paint and rust removal, panel leaning, selecting proper sandpaper, sandin echniques, vehicle protection, masking
echniques, selecting and applying the orrect undercoats, and corrosion protection
products and usage. (Corequisite: $10-405$ 1 Introduction to Automotive Refinishing 1-405-108 COLLLSION REFINISHING
OPCOAT APPICATION OPCOAT APPLICATION ...locating and sealers, single-stage, and baseccoat/clearcong Sinishses, optimizizing transfer efficiency, and lending adiacent vehicle panels. (Corequisits -405-101, Intro to Auto Refinishing,

## scoserssent please contacta a counselor corres, please contact a counselor

## Employment Potentia

 A graduate of the program will have the potential forin the following areas: Auto Collision Repair Technician: Repairs maged bodies of cars and light trucks; ones, removes and replaces accessories, glass lectrical parts, and interior trim; repairs or replaces plastic or composite parts; and
straightens dents in sheet meal panels to restore the vehicle to pre-accident condition.
to Collision Refinishing Technician: Completes the refinishing phase of all pairs on cars, trucks, and fleet vehicles, sealing prior to the paint application; determines the type and color of paint o do the refinishing, is familiar with xing, tinting, and shading; as well nd buffs, polishes, stripes, and detail hicle to complete the repair $j$ ob. Structural Repair Technician: Repairs
unitized and full-frame vehicles by aalyzing, measuring, and pulling the nalyzing, measuring, and pulling the
trucurue to the proper dimensions $d$ replaces structural parts that are repairable using proper structural he vephicle to factory specifications. Collision Mechanical Technician: Removes, re-installs, repairs and replaces heating
and cooling brake, fuel, drivetrain, and teering and suspension components
elative to collision damagee diagnose and correct vehicle wheel alignment. Irim and Glas Installer: Removes, replaces, or repairs all types of glass of
glass-related problems on vehicles.

## Accreditation

- NATEF (National Automotive Technicians
Education Foundation) Certified Program I-CAR Automotive Stel GMA
(MIG) Welding Qualifcation MIG) Welding Qualification Test Administrators
CAR Industry Training Alliance Member continuing education provider.


## Credentials

All NWTC Auto Collision programs
are ASE Certified to NATEF (National tomotive Technicins Ed (Natio

Curriculum Curricuium
Students following the sudy y pan below
will complete the Auto Colision Repair \&\&
Refinishing Techicician techniack diploma
in the number of semesters shown.
 AUTO COLLISINO REINISHHNG SECOND SERIES

 31-800-385 Com
TOTAL C CEDITS



The credit or to 1 -890-10, College 10,
Is an Instituional Reaurement tor graduation. Consequenty, itis not paat
of the program credit reauirements.
oundation) Standards. Additionally, all Collision Programs are at a minimum, Master, ASE Certified Technicians.

## Associations

National Institute
Service Excellence
Wisconsin Auto Collision
Technicians Association
Bay Auto Body Association - Collision Repair Instructors Network
-405-109 REFINISHING TINTING stup considerations \& \& techniques spay elup considerations $\alpha$ techniques, sing
lending additives. Also included is an indepth study of color theory, color movement,
color evaluation, and color adjustment tools nd techniques. (Prerequisites: $10-405$ 01, Intro to Auto Refinishing; 10-405-
07 , Coll Refinish Sufface Prep; 10-405 , Coll Refinish Surface Prep; 10-405 0-405-110 COLLISION REFINISHING ADVANCED ...application and blending fautomotive multistage finishes, and use of waterborne refnishing materials.
Refinishing defect identification, diagnosis, and repair is also covered with emphasis
placed on learning how to avoid defect laced on learning how to wavoid defects while refnishing. (Prerequisites: 10-405-101
ntro to Auto Refinishing; $10-45-107$, Coll
net ntro to Auto Refinishing; 10-405-107, Col
Refinish Surface Prep; 10-405-108, Coll Refinish Topcoat Appl; Corequisite: $10-$
$405-109$, Refinishing Tinting \& Blending) 0 -405-111 COLLISION REPaIR TRUCTURAL 1 ...understanding collision forces, performing inspections of automotive
strucural components, and determine the extent of structural damage using measuring equipment. (Prerequisites: 10-405-100,
nutro to Collision Repair: 10-405-102, Intro to Collision Repair, 10-405-102,
Collision Repair Non Struct $1 ; 10-405-103$ Colisioion Repair Non Struct 1; 10-405-103
Collision Repair Non Struct 2; 10-405104, Collision Repair Non Struct 3; 10-
405-105, Collision Repair Non Struct 4)

0-405-112 COLLISION REPAIR TRUCTURAL $2 \ldots$...utilizing anchorì and pulling equipment for straightening,
cealigning, replacing and sectioning unibody strucurual componenents, sections and other
vehicl outer panels. Additionally sudents illle utilizer powerer.s. Addditionally students will utilize power and hand tools for cutting
welding, stress relieving, replacing corrosion protection, and stationary glass replacement. Prerequisises: Completion of Auto Collisio Repair First Series courses; Corequisites:
$0-405-146$, Collision Repair Welding 2 . 0-405-146, Collision Repair Welding 2;
$0-40-111$, Collision Repair Structural 1) 0-405-113 COLLISION REPAIR
TRUCTURAL 3 ...tili izing, ancho and pulling equipment for straightening, tealigning, reppacing and sectioning fullrame structural components. Additionally
students will utilize power and hand students will utilize power and hand
tools for cutting, welding, stress relieviig Corrosion protection, and stationary glas eplacement. (Prerequisites: Completion of 1st semester courses; Corequisite: 10 .
$405-146$ Collision Repair Welding 2 ; 0-405-111 Collision Repair Structural 10-405-112 Coll Repair Structural 2 10-405-114 COLLISION REPAIR ESTIMATING ...vehicle construction, mode dentification, damage analysis, parts sources landwritten damage reports, computerized
damage reports, and shop management.
10-405-120 COLLISION REPAIR
MECHANICAL HVAC ...locating, identifying, inspecting, testing and repairing or replacing both heating and cooling system components. Students
also diagnose both heating and cooling systems for leaks, bett and pulley alignment
and safely idenifif bel and saffly identify, label, store, evacuate, recharge, replace and recycle coolants
and reffigerants in accordance wint EPA regulations (Prerequiste: Accepted into regulations (Prerequisite: Accepted into
Auto Collision Repair \& Refinishing
Technolis Technology ynd/or A Auto collisision Repa
$\&$ Refinishing Technician program)

10-405-122 COLLISION REPAIR leating ifin fut diagnosing, repairing or replacing collision damaged brake system, divive train, fuel, and emission system
components (Prerequisite: Accepted into components (Prerequisiste: Accepted into
Auto Collision Repair $\&$ Refinishing
Technology and/or Auto Collisison Repair Technology and/or Auto Collision Rep
$\& \times$ Refinishing Technician program) 10-405-128 COLLISION REPAIR ELECTRICAL SYSTEN SEAS I..operation, rroubleshooting, diagnosis, and repair
of restraint and supplemenal restraint systems. (Corequisise: 10-602-125,
Electrical and Electronic Systems) 10-405-144 COLLISION REPAIR WELDING 1 ...welding safety; introduction to the GMAW (MIG) welding process and equipment; and
skills training in GMAW (MIG) welding on light gauge automotive steels. 10-405-146 Collision repair WELDING $2 \ldots$ oxy acerylene and plasma arc cutting, GMAW (MIG) welding Squeeze type resistance spot weldin
(STRSW), welding aluminum, and silicone bronze is also introduced to students in this course. (Prerequisite: 10 -
$405-144$ Collision Repair Welding 1) 10-405-147 AUTO REFINISHING, 10-405-147 AUYO REFNISHING
PRODUCTIVITY \& EMISSIONS
confined damage .. confined damage repair techniques,
improving cycle time during refnishing, EPA mproving cycte ume during refinishing
requirement for reffishing technciass,
and reducing VOC emissions during the and reducing VOC emisions during the
refnisising process. (Corequisites: $10-$ 405-109 Coll Refinish Tint and Blend;
10-405-110 Coll Refinishing Advanced) 10-405-148 AUTO REFINISHING, CUSTOM FINISHES \& GRAPHICS ..this course provides the opportunity
for he learner todevelop the knowledge
sill tkills process and understanding of using
airbushes, mixing and applying specialy airbrushes, mixing and applying speciatry
refinish coatings such as candies, plakes, and marbilizers, custom design techniques, and
application of adhesive style striping and application of adhesive style striping and
graphics. An introduction to paplying painted graphics. An introduction to applying painted
pinstripes will alo be included. (Corequisites:
$10-405-109$ Coll Refinisis Tint and Blend; pinstripes will alo be inith Tint and Blend;
$10-405-109$ Coll Refnis.
$10-405-110$ Coll Refinishing Advanced; 10-405-110 Coll Refinshing Advanced;
10-405-147 Auto Refinish Prod Emissions) 10-602-124 STEERING AND SUSPENSION SYSTEMS ...developing repair steering and suspension systems Inpais steering and suspension systems
inclurg whel liggment procedures.
(Corequisite: 10-602-107, Automotive Corequisite: 10-602-107, Automotive
Service Fundamenals or 10-405-100, Service Fundamentals or $10-405-1$
Introduction to Collision Repair) 10-602-125 ELECTRICAL AND ELECTRONIC SYSTEMS 1...develop repair electrical and electronic systems.
Learners spply Ohms L Law to basic lectrical
circui diglo ircuit diagnosis. (Prerequisites: Accepp
into the Automotive Technology and/ or Automotive Technician program; Corequisite: $10-620-107$, Automotive
Service Fundamentals or 10-405-100 Introduction to Collision Repair)

Auto Collision Repair
\& Refinishing Technology Program Code 104051 | Associate Degree


| SE DESCRIPTIO |  |  |
| :---: | :---: | :---: |
| urses provide an opportunity ents to develop the knowled d understanding required oyment in this field. | AND BLENDING ...advanced spray gu setup considerations \& techniques, using blending additives. Also included is an in deph study of color theory, color moven | ..locating, identifying, inspecting, diagnosing, repairing or replacing |
|  |  |  |
| COLLISION REPAIR ...industry |  |  |
|  |  |  |
| safety, collision repair industry term |  |  |
|  | - ADVANCED ...application a |  |
|  |  |  |
| dures for minor collision damag |  | systems. (Corequisite <br> Electrical and Electro |
|  |  |  |
| AUTOMOTIVE REFINISHING |  |  |
|  |  |  |
|  | 405-109, Refinishing Tinting \& Blend | skills training in GMAW (MIG) welding |
| 10-405-102 COLLISION REPAIR NON STRUCTURAL 1 ...removal, replacement, and storage of interior and exterior trim, disarming/arming restraint systems, adjustment to movable glass, lamps, bumpers and movable tops, and wind noise/water leak diagnosis and repair. (Prerequisite: 10-405-100 Intro to Collision Repair) | 10-405-111 COLLISION REPAIR <br> STRUCTURAL 1 ...understanding collision forces, performing inspections of automotive structural components, and determine the extent of structural damage using measuring equipment. (Prerequisites: 10-405-100, Intro to Collision Repair; 10-405-102, Collision Repair Non Struct 1; 10-405-103 Collision Repair Non Struct 2; 10-405104, Collision Repair Non Struct 3; 10-405-105, Collision Repair Non Struct 4) |  |
|  |  | 10-405-146 COLLISION REPAIR WELDING $2 \ldots$ oxy acetylene and plasma on structural grade automotive sted Squeeze type resistance spot welding (STRSW), welding aluminum, and silicone bronze is also introduced to students in this course. (Prerequisite: 10-405-144 Collision Repair Welding 1) |
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| 10-405-103 COLLISION REPAIRNON STRUCTURAL 2 ..identifying different types of vehicle construction, nonstructural part identification, damage analysis and developing a repair plan, time management, and replacing and aligning bolted and moveable exterior panels utilizing the appropriate tools. (Corequisites: 10-$405-100$ Intro to Collision Repair: 10 -405-102 Coll Repair Non Structural 1) |  |  |
|  |  | 10-405-147 AUTO REFINISHING, PRODUCTIVITY \& EMISSIONS ...confined damage repair techniques, improving cycle time during refinishing, EPA and reducing VOC emissions during the refinishing process. (Corequisites: 10-405-109 Coll Refinish Tint and Blend; 10-405-110 Coll Refinishing Advanced) |
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| 10-405-104 COLLISION REPAIR NON STRUCTURAL 3 ...repair sequences and tyees of collision damage to nonstiver vehicle panels utilizing the appropriate tools. (Corequisites: 10-405-100 Intro to Collision Repari 10-405-102, Coll Repair Non Structural 1; 10-405-103, Collision Repair Non Structural 2) |  | 10-405-148 AUTO REFINISHING, <br> CUSTOM FINISHES \& GRAPHIC <br> ..this course provides the opportunity for the learner to develop the knowledge skills process and understanding of using airbrushes, mixing and applying specialty refinish coatings such as candies, flakes, and marbilizers, custom design techniques, and application of adhesive style striping and |
|  | ${ }^{\text {(Prerequisisies: }}$ Com |  |
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|  |  |  |
|  |  |  |
|  | and pulling equipment for straighteni realigning, replacing and sectioning full |  |
| 10-405-105 COLLISION REPAIR NON STRUCTURAL 4 ...removal and application of sealers, undercoats, corrosion protection and various types of foams, replacing non structural vehicle panels using panel bonding and welding, and repairing aluminum exterior panels. (Corequisites: 10-405-100, Intro to Collision Repair; 10-405-102, Collision Repair Non Struct 1; 10-405-103 Collision Repair Non Struct 2; 10-405104, Collision Repair Non Struct 3) |  |  |
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|  |  | 10-405-147 Auto Refinish Prod Emissions) |
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|  |  | erations fromer |
|  |  |  |
| 10-405-106 PLASTICS AND COMPOSITES ...identifying types of plastic used on vehicles, making repair or replace decisions, repair techniques using plastic welding equipment and adhesives, and refinishing techniques and materials. |  |  |
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|  | COLLI |  |
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|  |  | Introduction to Collision Repair) |
|  |  | ELECTR |
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|  | Technology and/or Auto Collision Rep \& Refinishing Technician program) |  |
| 10-405-108 COLLISION REFINISHING TOPCOAT APPLICATION ...locating and mixing automotive color formulas, applying sealers, single-stage, and basecoat/ clearcoat finishes, optimizing transfer efficiency, and blending adjacent vehicle |  |  |
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|  |  |  |
|  |  | roduction to Colision Repair) |

panels. (Corequisitess 10-40an vehicl
Intro to Auto Refnishing; 10-405-
107, Coll Refinish Surface Prep)

## Automation Engineering

Technology Program Code 106641 | Associate Degree

| Offered at the Green Bay campus. For information: (920) 498-5444. | Requirements for Program Entry | Curriculum <br> Students following the study plan below will complete the Automations Engineering Technology associate degree in the number of semesters shown. |
| :---: | :---: | :---: |
| Toll-free: (888) 385-6982. |  |  |
| This program is fully eligible for financial aid | - High school transcript or equivalent (For a list of equivalents, go to |  |
| Program Description The Automation Engineering Technology program responds to industryis need for system-level technicians who can work with integrated machine systems that might involve industrial automation, robotics, mechanics, computers, industrial communications and/or electronics technology. These technicians are in high demand to coordinate the higher end control platforms and networking that support automated mechanical systems. |  | FIRST SEMESTER <br> Ren 0-620-101 Fluids 2: Basic Hydraulics 10-620-140 Machine Wiring and Safety 0-660-104 DC 1. Introduction 0-60-105 DC 2: Circuit 0-664-101 Autom Logic 0-804-118 Interm Algebra w Apps 0-809-198 Intro to Psychology 10-890-101 College 101 Elective TOTAL <br> SECOND SEMESTER |
|  | As a requirement for program enty, an |  |
|  |  |  |
|  | cessary, Program Benchmarks are |  |
|  | Rading Comprehension: 80; Sentenc |  |
|  | Skills: 75; Elementary Algebra: 61. |  |
|  | Student |  |
|  | valent will be granted pre- |  |
|  | program status and will be required to |  |
|  | establish an individualized academic plan. Upon completion of the plan |  |
|  | students will be eligible for all program courses. However, higher test scores will | SECOND SEMESTER <br> 10-660-101 Digital 1: Logic |
| Program Outcomes | lead to greater success in core program | 10-660-107 AC AProperticter |
| - Understand and apply knowledge <br> of electricity, electronics and motors <br> to industrial applications. |  | 10-664-102 Automation 3 : PLC |
|  | assessments and program benchmarks | A03 Auton |
|  | scores, please contact a counselor at $(920) 498-5444$ or (888) 385-6982. | (e-66-104 Automation 5 PPC |
| - Read and interpret technical specifications, detail and assembly drawings, schematics, and diagrams for machine control. | - Beginning courses require mastery of algebra skills. For a description of algebra skills, see the Basic Education section of this catalog. | 10-804-196 Trigonometry w Apps <br> 10-806-143 College Physics 1 <br> Elective <br> SEMESTER TOTAL |
| - Document technical information through descriptive writing, sketches/ diagrams, mathematical expression, computation, and graphs. |  | THIRD SEMESTER <br> 0-605-157 Power Electronics 1: Devices <br> 10-605-158 Power Electronics 2: Drives <br> 10-606-109 Automation CAD 1 |
|  | Employment Potential A graduate of this program will have the potential for employment in the following areas: |  |
| - Analyze electrical, mechanical, fluid control functions for proper machine programming and operation. |  | 10-606-110 Automation CAD 2 <br> 10-620-159 Power Electronics 3: Dr |
| - Apply a variety programming languages to the control of single manufacturing cells, programmable controllers, computer networks, industrial networks and information systems using a dynamic data exchange. - Construct ladder diagrams, flow charts, timing diagrams, and basic computer control algorithms for machine control. | - Controls Designer <br> - Automation Technician <br> - Controls Technician <br> - Engineering Technician <br> - Controls Engineer in Training <br> - Automation Engineer in Training | $10.820-162$ Power Electricity 2 :Motors |
|  |  | 10-664-151 Automation $8:$ HM |
|  |  | 10-664-152 Automation 9 : HM |
|  |  | ${ }^{10-664-160}$ Control 1 Discrerete Systems |
|  |  |  |
|  |  | (10.664-170 Saidety Devices and Application |
|  | The following certificates/technical diplomas may be applied toward this program: <br> -904621, Industrial <br> Maintenance Certificate | FOURTH SEMESTER <br> -620-170 Robotics -Introduction to |
| - Understand and apply computer hardware/software applications to industrial systems. <br> - Apply diagnostic tools to troubleshoot and resolve system problems. |  | 10-620-172 Robotic Vision Systems 10-664-150 Automation 7: PLC <br> 10-664-153 Automation 10: Network <br> 10-664-163 Control 4: Drive Performance |
|  |  | 10-664-164 Control 5 : Servo Systems |
|  |  |  |
| - Apply critical thinking skills to solving problems. |  |  |
|  |  | 10-809-172 Intro to Diversity Studies |
| - Effectively communicate and perform in a team en vironment. |  | SEMESTER TOTAL TOTAL CREDITS |
|  |  | CURRICULUM NOTE The creadit for 10-890-101, College 101 is an Institutional Requirement tor graduation. Consequentyly it is not part of the progaram creditit reaurements. |
|  |  | ** Students must earn a grade of "C" or better in 10-801-136, English Composition to enroll in 10-801-197, Technical Reporting. |
|  |  | SUGGESTED ELECTIVES <br> Fluids 3: Inter Hydraulics, 10-620-165 Fluids 4: Adv Hydraulics, 10-620-166 Mechanics 1: Basic, 10-620-121 <br> Mechanics 3: Systems, 10-620-123 |

## COURSE DESCRIPTIONS

 These courses provide an opportunityfor students to develop the knowledge kkills, and understanding require 0-605-157 POWER ELECTRONICS 1: DEVICES ...the device characteristics and d switching devices. (Prerequusiste: and switching devices. (Prerequis
10-660-107, AC 1: Properties)
10-605-158 POWER ELECTRONICS DRIVES ...power circuitry of AC
d DC drives and basic setup and pplication of an industrial DC and 0-606-109 AUTOMATION CAD ...computer aided drawing packages modification of of electrical schematics utilized or controls of manufacturing equipment. (... in-depth investigation of more vanced functions and capabilitites
elecrical drawing package. 0-620-100 FLUUDS 1: BASIC differentiate between hydraulics and neumatics, implement basic pneumatic dircuits, utilize schematics, apply Pascal's Lav control and hydraulics cylinder circuits.
0-620-101 FLUIDS 2: BASIC HDRAULICS ...hydraulic pumps, basic
ydralics actuator circuits, hydraulic schematics, apply Pascal's Law, summarize
hhe effects of fluds friction, define properties e energy, design hydraulic circuits ith directional control valves. (Corequisiste
$0-620-100$. Fluids $1:$ Basic Pneumatics 0-620-140 MACHINE WIRING AND AFETY ...introduction to machine wiring, hcluding basic documentation, labeling, and
wiring practices an overriew of NFP 70 wiring practices an overview of NFPA 70
machinery, safery and installation standards. 0-620-159 POWER ELECTRONICS DRIVES ...power circuitry of AC dives to AC motors. (Corequisite: 10 -55-158, Power Electronics 2: Drives)
10-620-161 POWER ELECTRICITY 1
MOTORS DC motors and generator OTORS ...DC motors and generator onfiguration, shunt, compound,
and permanent magner DC motor
performance and characteristics. 0-620-162 POWER ELECTRICITY 0-620-162 POWER ELECTRICI
MOTORS ...single and 3-phase 2: MOTORS ...single and 3-phase performance and charactecisitics, and threehase power systems.. (Corequisite: 10-
20-161, Power Electricity 1: Motors) 0-620-170 ROBOTICS ...introductory sudy of the application, operation, programming and tr
of industrial robots.

0-620-172 ROBOTIC VISION SSTEMS ..seting up user frames,
clibrating robot camerai idenafivin dibects with robotatic vision systems, creating programs using object identification. 0-660-101 DIGITAL 1: LOGIC peration using switch logic, ladder logic nd gate logic. Simplification methods using Boolean theorems and Karnau,
Mapss, and timing diagram analysis.

0-660-104 DC 1: INTRODUCTION .introduction to the concepts of DC
electricity and simple series circuits. Voltage, and Kirchoffs Voltage Law are defined.
0-660-105 DC 2: CIRCUITS ...analysis Paralel and series-parallel circuits. aw to paralle circuit combinations. htroduction of current sources and source conversions. (Corequisites: $10-10$
$04-118$, Interim Algebra w Apps OR -6060-107 AC 1. PROPERTIE Io-600-107 AC 1: PROPERTIES
.introduction to the properties of ca and inductors includiding typeres and bechavior swithg circuits. Inductor basics include astudy of magnetic fields. PPrerequisite:
0-660-105, DC 2: Circuits; Corequisite: $10-804-196$, Trigonometry w Apps) 0-660-108 AC 2: REACTANCE ...stud Esistive components behave in a circuit verage values of the sinewave are derived. Corequisite: 10-660-107, AC 1: Properties) 0-664-100 AUTOMATION 1: ONTROL LOGIC ...electric motor telays, starters, trans sformers, and safely ount and install motor and motor control components and perform related wiring and dieshooting of motor control circuits. 0-664-101 AUTOMATION 2: MOTOR mpone ....lectic motor control omponents such as sensors, timers nd counters. (Corequisite: 10-664 10-664-102 AUTOMATION 3: PLC ...basic programmable logic controlle
programming and troubleshooting.
0-664-103 AUTOMATION 4: PLC .troubleshooting a PLC system, applying Event Sequuncing, developing PLC
pplications, applying timer instructions d counter instructions. (Corequisite: 6-10-664-104 AUTOMATION 5: PLC ..application, troubleshooting, and
implementation of program control math and data move instructionss, analog
I/O modules, and producing a PLC $O$ modules, and producing a PLC program from specification. (Corequi
$10-664-103$, Automation 4 : PLC) 0-664-105 AUTOMATION 6: PLC ...programming a PLC system to
berate a discrete and analog process dhering to a functional specificatio Ir timing diagram. (Prerequisite: 10
$64-104$ Automation $5:$ PLC) 0-664-150 AUTOMATION 7: PLC .timers, counters, and math instruction program structure via written specification,
and modification of existing PLC program enhance operation utilizing advanced programming functions. (Prerequiste:
$0-664-104$, Automation $5: ~ P L C)$ 0-664-151 AUTOMATION 8: HMI the functions of Human Machine Interface, Operator Interface Terminal
software and generation of PLC offware and generation of PLC rogram and screens adhering to written erminal and PLC soffware. (Corequisit Torminal and PLC software. (Co
$0-664-152$ AUTOMATION 9: HMI advanced functions of Operator Interface
Terminals, differentiation between Human Operato Interface program, tags, and screen objects for Huma Machine Interface system. (Corequisite:
0-664-151, Automation 8: HMI) 0-664-153 AUTOMATION 10 : ETWORK ...industrial networks used nodays manufacturing environment and
their foundation, proper system hardware of an industrial network installation, and use of an industrial network to communicat
data via Industrial Ehhernet. (Corequisiste
. 10-664-152, Automation 9: HMI) SYSTEMS Cill I: DISCRET of motion feedback devices, force measurement devices, temperature Prerequisite: 10-664-102, Automation 3:
PLC OR 10-664-104, Automation 5: PLC)
0-664-161 CONTROL 2: PROCESS YSTEMS ...Open-loop versus closed-two-position control and its application
PID control and its applications, and ID control and its applications, and
relationship between process response and
. relarionship between process response an
proper mode of control (Corequiste:
$664-160$, Control 1 1 Discrete Systems)

OL 3: MOTION YSTEMS ...hydraulic and pneumatic proportional/servo valves, servo motors, configuration and programming of an
analog motion contros syse. (Corequiste:
10-664-161, Contro 2: Process Systems) 10-664-163 CONTROL 4: DRIVE
10 PERFORMANCE ...DC and AC drive system performance, specification of $A C$
and $D C$ drive control methods for plication, and integrataion of a drive Sppication, and integration of a drive
system into a control network. (Prerequiste.
10-644-161 0-664-161, Control 2: Process Systems
0-664-164 CONTROL 5: SERVO SYSTEMS ... motion control troubleshootin ad fault recovery, advanced motion control programming, integration of
motion control system and motion eontrol network. (Corequisite: 10-664-
163. Control 4. Drive Pefor 163, Control 4: Drive Performance)
10-664-165 CONTROL 6: SERVO
SYSTEMS development and verificar f motems ...development and verification of motion control components and programming given description of
operation, and leading technologies for dvanced motion control. (Corequisite: 0-664-170 SAFETY DEVICES AND APPLICATIONS ...introduction to the function of commonly used machinery
safery devices, wiring of these devices to complete safery circuits, overview of safery system design.( Prerequiuisies: 10-66
101, Automation 1: Control Logic) 101, Automation 1: Control Logic) O-GTEGRATITION ...coordination and application of automation technologies into an integrated and automated manuffact
system. (Prerequisites:10-620-159,
Power Flectronics 3 :Dives $10.620-16$, Power Electronicis 3:Drives; 10-620-162
Power Electricity 2: Motors $10-664-$ Power Electricicty $2:$ Motors; 10-664-1
152, Automation 9: HMI; 10-664-162, Control 3: Motion Systems, 10-62

Offered at the Green Bay and Marinette campuses. For information in Green Bay: (920) 498-5444. For information in Marinette: (715) 7359361. Toll-free: (888) 385-6982

This program is fully eligible for financial aid.

## Program Description

 Automotive Technician prepares students department. Students learn service department. Students learn to repair and service all mechanical parts of the to those in an actual repair facility.
## Program Outcomes

- Automotive Technician graduates will demonstrate technical aptitude and proficiency by diagnosis and repair of the following ASE service areas - A1 Engine Repair
- A2 Automatic Transmission/Transaxle
- A3 Manual Drive Train \& Axle
- A4 Suspension \& Steering
- A5 Brakes

A6 Electric/Electronic System

- A7 Heating \& A/C
- A8 Engine Performance


## Requirements for

## Program Entry

## Completed application

- High school transcript or equivalent (For a list of equivalents, go to www.nwtc.edu/gettingstarted) - NWTC Academic Skills Assessment or equivalent (See Academic Skills Assessment section details and equivalents)
- High school background in mathematics,
science, and technology education. science, and technology education. - As a requirement for program entry, an
Academic Skills Assessment (Accuplacer) with appropriate benchmark scores is necessary. Program Benchmarks are Arithmetic: 65, Reading Comprehension: 55; Sentence Skills: 60. Students not meeting these benchmarks or the equivalent will be required to establish an individualized academic plan. Students may have the opportunity to
enroll in selected program core courses while completing their individualized
plan. Upon completion of the plan, students will be eligible for all program
courses. However, higher test scores will courses. However, higher test scores will lead to greater success in core progran
courses. To learn more about these courses. To learn more about these
assessments and program benchmark assessments and program bench
scores, please contact a counselor scores, please contact a counselor
(920) 498-5444 or (888) 385-6982.


## Employment Potential

graduate of the program will have the potential for employment in the following areas:
Automotive Service Technician: Diagnoses vehicle malfunctions, performs appropriate repairs, and recommends conducts regular vehicle maintenance.
Automotive Electronics Specialist: Utilizes hi-tech equipment to troubleshoot complex lectrical and computer malfunctions. Replaces and reprograms engine, body and transmission controllers. Brake Specialist: Performs complete rake system safety inspections, diagnoses brake system concern and makes necessary repairs. Steering, Suspension \& Alignment pecialist: Diagnoses and repairs steering ampurized equipment to perform uspension and steering system adjustme Transmission and Drive Train Specialist: iagnoses and repairs concerns related automatic and manual transmissions, drive trains and differentials.
Engine Performance Specialist: Utilizes hi-tech equipment to diagnose and repair engine drivability concerns relating to engine mechanical, ignition and fuel systems.
Heating \& Air Conditioning Specialist: Diagnoses and repairs heating and ir conditioning control systems. Engine Repair Specialist: Diagnoses engine mechanical failure, disassembles, inspects, and measures engine components, recommends/ conducts component replacement.

With additional education and/or work experience, graduates may find othe pportunities for employment.

- Shop Supervisor
- Specialty Technician

Fleet Dispatcher
Specialty Repair Shop Owner

Curriculum
Students following the study plan
below will complete the Automotive
Technician technical diploma in

## first semester

FIRST SEMESTER
10-602-104 Brak Systems
10-602-107 Auto Service Fu
CREDITS
10-602-124 Steering \& Suspenamentals
10-602-124 Steerin \& Suspension System
$10-622-125$ Electricalalilectronic Systems 1
$10-602-199$ Alterativ Futr
10-602-199 Alternative Fuels Technology
10-804-107 College Mathen
${ }^{*} 10-890-101$ College 101
31-801--385 Communicating-Writing 31-801-385 Commu
SEMESTER TOTAL
SECOND SEMESTER
10-602-103 Engine Repair
${ }^{10}-602-127$ Electrical\&Electronic Systems 2
10-602-195 Advanced Chassis Systems
10-602-197 Engine Performance 1
31--42--350 Welding-Machine Trade SEMESTER TOTAL

## third semester

10-602-123 Engine Repair 2
10-602-128 Electrical\&Elecectronic Systems 3 10-602-196 Climate Control Systems
10-62-200 Diesel Fuel 10-602-200 Diesel Fuel Technology 10-602-201 Vehicle Computer Controlled Sy
10-80-197 Contemporary Amer Society SEMESTER TOTAL
FOURTH SEMESTER
10-602-109 Auto Transmission/Transaxle 10-602-149 Manual Drive Train and Axles 10-622-150 Automotive Certitication Prep 10-602-202 Advanced Vehicle Man Tech 10-602-203 Vehicle Body Mechanical Svc
$31-801-386$ Communicating Effectively SEMESTER TOTAL
total credits
*The credit for 10-890-101, College 101,
is an institutional Requirement for graduation. Consequently, it is not part

Automotive Instructor

## Accreditation

- All NWTC Automotive program are ASE Certified to NATEF Education Foundation) Standard - All instructional staff in the NWTC Automotive Programs are, at a minimum, Master, ASE Certified Technicians.
NATEF (National Automotive Technicians Education Foundation)


## COURSE DESCRIPTIONS

These courses provide an opportunity for students to develop the knowledge for employment in this field.

10-602-103 ENGINE REPAIR 1 ...develop the skills needed to diagnose, service and repair internal combustion engines. Emphasis is placed on in-vehicle repairs including engine cooling and lubrications. (Prerequisite: 10-602-107 Automotive Service Fundamentals)
10-602-104 BRAKE SYSTEMS ...develop the skills needed to diagnose, service and repair vehicle braking systems with an introduction to ABS. (ABS diagnosis, service and repair will be addressed in the Advanced Chassis course.) (Corequisite: 10-602107 Automotive Service Fundamentals)
10-602-107 AUTOMOTIVE SERVICE FUNDAMENTALS ...safety and the use of basic hand/power tools in accordance tom aromotive service incusty and lean to service information to perform basic underhood and under-car services. (Prerequisite: Accepted into the Automotive Technology and/or Automotive Technician program)

10-602-109 AUTOMATIC
TRANSMISSION/TRANSAXLE ...develop the skills needed to diagnose, service and repar automatic transmission/transaxles including overhaul procedures. (Prerequisite:10-602-127
Electrical and Electronic Systems 2)

10-602-123 ENGINE REPAIR 2 ...develop the skills needed to diagnose, service and repair internal combustion engines.
Emphasis is placed on out-of-vehicle engine repair including overhaul procedures. Prerequisite: 10-602-103 Engine Repair 1.)
10-602-124 STEERING AND SUSPENSION SYSTEMS ...developing the skills needed to diagnose, service and including wheel alignment procedure (Corequisite: 10-602-107 Automotive Service Funda ents or 10-405-100, Introduction to Collision Repair)

10-602-125 ELECTRICAL AND ELECTRONIC SYSTEMS 1...develop the skills needed to diagnose, service and repair electrical and electronic systems. Learners apply Ohm's Law to basic electrical circuit diagnosis. (Prerequisites: Accepted into the Automotive Technology or Auto Collision Refinishing \& Repair Technology/Technicia program; Corequisite: 10-602-107,
Automotive Service Fundamentals or 405-100, Introduction to Collision Repair)

10-602-127 ELECTRICAL AND ELECTRONIC SYSTEMS 2 ...develop the skills needed to diagnose, service and repair electrical and electronic systems, including batteries, starting, charging, and lighting systems, and computer control systems. (Prerequisite: 10-602125 Electrical and Electronic Systems 1)
10-602-128 ELECTRICAL AND ELECTRONIC SYSTEMS 3 ...develop the skills needed to diagnose, service and repair electrical and electronic systems including driver information, horn, wiper/washer, power accessories, cruise control, air bag, antitheft and radio systems (Prerequisite: 10-602-127, Electrical\&Electronic Systems2)
10-602-149 MANUAL DRIVE TRAIN AND AXLES ...develop the skills needed to diagnose, service and repair clutches, manual tran drivell wransaxle, differentials, dive axles. (Prerequiste: 10-602-127 Electrical and Electronic System 2)

10-602-150 AUTOMOTIVE CERTIFICATION PREPARATION ...this course provides an opportunity for students to develop the knowledge, skills and understanding required to successfully complete the Automotive Technician certification test. (Prerequisite: Accepted to the Automotive Technicia

10-602-195 ADVANCED CHASSIS SYSTEMS ...develop the skills needed to diagnose, service and repair antilock brake, vehicle stability enhancement, and electronic steering and suspension system. (Prerequisites: 10-602-104 Brake Systems; 10-602-124 Steering and Suspension Systen, 10-602-125 Electrical and Electronic Syst)
10-602-196 CLIMATE CONTROL
SYSTEMS ...develop the skills needed to diagnose, service and repair climate control systems including heating, cooling, and air istribution. (Prerequisite Electrical and Electronic Systems 2)

10-602-197 ENGINE PERFORMANCE ...develop the skills needed to diagnose service and repair powertrain control and ignition systems. Emphasis on diagnostic procedures and the problemsolving techniques associated with automotive engine performance and drivability. (Prerequisite: 10-602-103 Engine Repair 1; Corequisite: 10-602-
127 Electrical and Electronic Systems 2)

10-602-198 ENGINE PERFORMANCE 2 ...develop the skills needed to diagnose, service and repair fuel and emission control systems. Emphasis on diagnostic procedures, problem-solving techniques associated with automotive engine performance and drivability. (Corequisite: 10-602-197 Engine Performance 1) 10-602-199 ALTERNATIVE FUELS TECHNOLOGY ...develop the knowledge, skills, process, and understanding of Compressed Natural Gas (CNG) Systems, Automotive Hybrid Vehicles, Automotive Hybrid Safery and Emergency Response and Fuel Cells. (Prerequisite: Accepted to the Automotive Technician or Automotive Technology program)
10-602-200 DIESEL FUEL
TECHNOLOGY ...develop the knowledge, skills, process, and understanding of automotive diesel fuels diesel fuel system components, diesel fuel system testing and 602-199 Alternative Fuels Technology)

10-602-201 VEHICLE COMPUTER CONTROLLED SYSTEMS ...develop the knowledge, skills, process, and understanding of related electronic module sensor/switch testing, input/output data interpretation and testing components with scanner/ lab scope testers. (Corequisite: 10-602 128 Electrical and Electronic Systems 3) 10-602-202 ADVANCED VEHICLE MANUFACTURE TECHNOLOGY ...diagnose, service and repair intermittent drivability concerns, monitoring live PID data with scanner, graphing data with lab scope, fuel injection monitoring with scanner, graphing fuel injectors with lab scope, performing diagnostic snapshot/ recordings of live vehicle data, and playing back the recorded data to isolate the concern. (Prerequisites: 10-602198, Engine Performance 2; 10-602-128 Electrical and Electronic Systems

10-602-203 VEHICLE BODY skills, process, and understanding of internal door components/moveable glas body opening adjustments, exterior body components, seat removal/repair, sunroof repair, wind noise diagnosis, water leak diagnosis, and interior trim. (Prerequisite: Accepted to the Automotive Technician or Automotive Technology program) 31-442-350 WELDING-MACHINE TRADES ...oxyacetylene welding, brazing soldering; cutting, hardsurfacing, out-ofposition welding, arc welding of machine welding thin gauge, arc cutting, and heating

Offered at the Green Bay and Marinette campuses. For information
in Green Bay: (920) 498-5444 For in Green Bay: (920) 498-5444. For information in Marinette: (715) 735

This program is fully eligible for financial aid.

## Program Description

Automotive Technology prepares students for work in an automotive repair facility. tudents fearn to diagnose and service to an actual repair facility. Students vill develop repair facility management kills such as telephone etiquette, managing, and organization skills.

## Program Outcomes

Automotive Technology graduates will demonstrate technical aptitude and
proficiency by diagnosis and repair of the following ASE service areas:

- A1 Engine Repair

A2 Automatic Transmission/Transaxle
A3 Manual Drive Train \& Axle
A4 Suspension \& Steering
-A5 Brakes
A6 Electric/Electronic Systems

- A7 Heating \& A/C
- A8 Engine Performance

In addition, graduates will also be able to Communicate positively and effectively with the custome

- Communicate positively and Create and complete customer repair orders accurately - Organize a daily work schedule for him/herself and for team men - Tabulate a daily time she
technicians repair work


## Requirements for

Program Entry
High school transcript or equivalent. (For a list of equivalents, go to www.nwtc.edu/gettingstarted.) - As a requirement for program entry, an Academic Skills Assessment (Accuplacer) with appropriate benchmark scores is necessary. Program Benchmarks are: Arithmetic: 65, Reading Comprehension: 55; Sentence Skills: 75 . Students no meeting these benchmarks or the equivalent wil be required to estabish Students may have the opportunity Students may have the opportunity to
enroll in selected program core courses while completing their individualized
plan. Upon completion of the plan, students will be eligible for all progran courses. However, higher test scores wil lead to greater success in core program
courses. To learn more about these assessments and program benchmark scores, please contact a counselor at (920) 498-5444 or (888) 385-6982

- High school background in mathematics science, and technology education.


## Employment Potentia

 A graduate of the program will ave the potential for employment in the following areas:Automotive Service Technician Diagnoses vehicle malfunctions, performs appropriate repairs, and recommends Automotive Electronics Specialist: Utilizes Automotive Electronics Specialist: Utilizes
hi-tech equipment to troubleshoot complex electrical and computer malfunctions. Replaces and reprograms engine, body and transmission controllers. Brake Specialist: Performs complete brake system safety inspections, diagnoses brake system conce
and makes necessary repairs
Steering, Suspension \& Alignment Specialist: Diagnoses and repairs steering and suspension system concerns, utilizes computerized equipment to perform suspension and steering system adjustments. Transmission and Drive Train Specialist: Diagnoses and repairs concerns related o automatic and manual transmissions, drive trains and differentials.
Engine Performance Specialist: Utilizes hi-tech equipment to diagnose and repair engine drivability concerns elating to engine mechanical, gnition and fuel systems. Heating \& Air Conditioning Specialist: Diagnoses and repairs heating and ir conditioning control systems. Engine Repair Specialist: Diagnoses engine mechanical failure. Disassembles, inspects, and measures engine components. Recommends/ onducts component replaceme Shop Foreman: Works with the echnician and customer to $g$ vhicles repaired correctly. Parts Manager: Organizes and oversees he parts department. Works with he technicians to get the correct parts to repair the vehicles.
Warranty Claims Person: Calculates the amount of time spent repairing a vehicle compared to what the manufacturer will allow

Gurriculum
Sudents following the study plan Technology associate degree in the

## FIRST SEMESTER

${ }_{10}^{10-602-104}$ Brake Systems
CREDITS
3
0-602-107 Auto Service Fundamentals
$10-602-124$ Steering \& Suspension Systems
$10-602-125$
$10-602-125$
Electrical\&Electronic Systems
10-602-199 Alternative Fuels Technology

10-804-107 College Mathematios
*10-890-101 College 10

## second semester

SEOND
10-602-103 Engine Repair 1
$10-602-127$
Electrical \& Ilectronic Systems 2
0-602-195 Advanced Chassis Systen
0-602-197 Engine Performance 1
10-602-197
Engine Performance 1
10-602-198 Engine Performance 2
10-800-197 Contemporary Amer Society
SEMESTER TOTAL

## THIRD SEMESTER

0-602-123 Engine Repair 2
0-602-128 Electricali\&Electronic Systems
10-602-196 Climate Control Systems
10-602-200
10-602-200 Diesel Fuel Technology
$10-602-201$
vehicle Computer Controlled Sy
10-801-197 Technical Reporting
10-809-172 Intro to

## OURTH SEMESTER

10-602-109 Auto Transmission/Transaxle
10-602-149
10-62-149 Manual Drive Train and Axles
10-62-150 Automotive Certification Prep
10-602-202 Advanced V Vicicle Man Tech
1-602-203 Venicle Body Mechanich
10-602-203 Vehicle Body Mechanical S
$0-801-196$
Orall Interpersonal Comm
0-809-199 Psychology Of Human Relations $\quad 3$
SEMESTER TOTAL
SEMESTER TOTAL
TOTAL CREDITS

## CURRICULUM NOTE

The credit for 10-890-101, College
101, is an Institutional Requirement for
graduation. Consequently, it is not

Owner/Operator: Owns and operates his/her own repair facility, may have employees working for them

## Accreditation

- All NWTC Automotive program
are ASE Certified to NATEF
(National Automotive Technicians
Education Foundation) Standards.
Education Foundation) Standards.
- All instructional staff in the NWTC Automotive Programs are, at a minimur Master, ASE Certified Technicia NAIEF (National Automotive

The following certificates/technical diplomas may be applied toward this program: - 906021, Service Writer Certificat

## COURSE DESCRIPTIONS

These courses provide an opportunity
for students to develop the knowledge, kills, and understanding required for employment in this field.
10-602-103 ENGINE REPAIR 1 ...develop the skills needed to diagnose, engines. Emphasis is placed on in-vehicle repairs including engine cooling and lubrications. (Prerequisite: 10-602-107 Automotive Service Fundamentals
10-602-104 BRAKE SYSTEMS ...develop the skills needed to diagnose, service and epair vehicle braking systems with an introduction to ABS. (ABS diagnosis, service Chassis course.) (Corequisite: 10-602-107 Chassis course.)(Corequisite: 10-602

10-602-107 AUTOMOTIVE SERVICE FUNDAMENTALS ...safety and the use of basic hand/power tools in accordance automotive service industry and learn to use both comprehensive and manufacturer's service information to perform basic underhood and under-car services. (Prerequisite: Accepted into the Automotive Technology nd/or Automotive Technician program

10-602-109 AUTOMATIC TRANSMISSION/TRANSAXLE ...develop the skills needed to diagnose, service and repair automatic transmission/ (Prerequisite:10-602-127 Electrical (Prerequisite:10-602-127

10-602-123 ENGINE REPAIR 2 ...develop the skills needed to diagnose, service nd repair internal combustion engines. Emphasis is placed on out-of-vehicle engin pepair including overhaul procedures. ( 0-602-124 STEERING AND SUSPENSION SYSTEMS ...developing the skills needed to diagnose, service and repair steering and suspension systems
including wheel alignment procedures. Corequisite: 10-602-107, Automotive Service Fundamentals or 10-405-100 Introduction to Collision Repair)

10-602 125 ELECTRICAL AND ELECTRONIC SYSTEMS 1...develop the ski Learners apply Ohm's Law to basic electrical circuit diagnosis. (Prerequisi Accepted into the Automotive Technology or Auto Collision Repair and Refinishing Technology/Technician program; Corequisite: 10-602-107, Automotive Service Fundamentals or 10-405-100, Introduction to Collision Repair)

10-602-127 ELECTRICAL AND ELECTRONIC SYSTEMS 2 ...develop the skills needed to diagnose, service and repair electrical and electronic systems, including batteries, starting, charging, and lighting systems, and computer control systems. (Prerequisite: 10-602125 Electrical and Electronic Systems 1)

10-602-128 ELECTRICAL AND ELECTRONIC SYSTEMS 3 ...develop the skills needed to diagnose, service and repair electrical and electronic systems including driver information, horn, wiper/washer, power accessories, cruise control, air bag antitheft and radio systems (Prerequisite: 10-602-127. Electrical\&Electronic Systems2) 10-602-149 MANUAL DRIVE TRAIN AND AXLES ...develop the skills needed to diagnose, service and repair clutches, manual transmissions/transaxle, differentials, four wheel drive/all wheel drive, and drive axles. (Prerequisite: 10-602-127 Electrical and Electronic Systems 27 10-602-150 AUTOMOTIVE CERTIFICATION PREPARATION ...this course provides an opportunity for students to develop the knowledge, skills and understanding required to successfully complete the Aut Technician certification test.

10-602-195 ADVANCED CHASSIS SYSTEMS ...develop the skills needed to diagnose, service and repair antilock brake, vehicle stability enhancement, and electronic steering and suspension system. (Prerequisites: 10-602-104 Brake Systems; 10-602-124 Steering and Suspension System 10-602-125 Electrical and Electronic Syst)

10-602-196 CLIMATE CONTROL SYSTEMS ...develop the skills needed to diagnose, service and repair climate control systems including heating, cooling, and air distribution. (Prerequisite: 10-602-12
Electrical and Electronic Systems 2)

0-602-197 ENGINE PERFORMANCE 1 ...develop the skills needed to diagnose service and repair powertrain control and procedures and the problem-solving rechniques associated with automotive engine performance and drivability. (Prerequisite: 10 602-103 Engine Repair 1; Corequisite: 10-602-127 Electrical and Electronic Systems 2 )
10-602-198 ENGINE PERFORMANCE 2 ...develop the skills needed to diagnose ervice and repair fuel and emission ontrol systems. Emphasis on diagnostic procedures, problem-solving techniques associated with automotive engine performance and drivability. (Corequisit 10-602-197 Engine Performance 1)
10-602-199 ALTERNATIVE
FUELS TECHNOLOGY ...develop the knowledge, skills, process, and understanding of Compressed Natural Gas (CNG) Systems, Automotive Hybrid Vehicles, Automotive Hybrid Saferty and Emergency Response and Fuel Cells.
10-602-200 DIESEL FUEL
TECHNOLOGY ...develop the knowledge skills, process, and understanding of automotive diesel fuels diesel fuel system components, diesel fuel system testing and diesel engine operation. (Prerequisite: 10 602-199 Alternative Fuels Technology)
10-602-201 VEHICLE COMPUTER CONTROLLED SYSTEMS ...develop the nowledge, skills, process, and understanding festing input/output data interpretation nd testing components with scanner/ lab scope testers. (Corequisite: 10-602 128 Electrical and Electronic Systems 3)
10-602-202 ADVANCED VEHICLE MANUFACTURE TECHNOLOGY ..diagnose, service and repair intermitten ata with scanner, graphing data with ab scope, fuel injection monitoring with scanner, graphing fuel injectors with lab scope, performing diagnostic snapshot/ ecordings of live vehicle data, and playing back the recorded data to isolate he concern. (Prerequisites: 10-602Electrical and Electronic Systems 3)

10-602-203 VEHICLE BODY MECHANICAL SERVICE ...knowledge, skills, process, and understanding of hternal door components/moveable glass, body opening adjustments, exterio
body components, seat removal/repair, body components, seat removal/repai water leak diagnosis, and interior trin.

Broadcast Captioning Program Code 0101701 | Associate Degree

| A Lakeshore Technical College program offered at Northeast Wisconsin echnical College. For information call Toll-free: (888) 385-6982. <br> This program is eligible for financial aid ONLY through Lakeshore Technical College. | Requirements for Program Entry <br> - Broadcast Captioning is a collaborative program between LTC and NWTC. Application for this program must be completed through LTC. | Curriculum <br> Broadcast Captioning is a collaborative program between Lakeshore Technical College and Northeast Wisconsin Technical College. Students attend ITV classes sent from LTC to NWTC. Upon completion, a student will have earned 70 credits. |
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| Program Description <br> Youve read the scrolling captions for the <br> hearing-impaired on your TV screen <br> The person providing instantaneous <br> text of programs is trained and techer <br> These skills can also be used to provide <br> CART (Communication Access to Realtime <br> Translation) for hearing-impaired students <br> in educational as well as public settings. <br> If you're an excellent listener, have strong <br> language and communication skills, are <br> committed to accuracy and able to work on <br> deadline, a career in broadcast captioning <br> may be a perfect fit for your talents. <br> Program Outcomes <br> - Develop proficiency in machine <br> shorthand using realtime theory. <br> - Develop a personal dictionary, read, <br> translate, and edit transcripts using CAT <br> (computer-aided transcription) software. <br> - Demonstrate knowledge of proper <br> captioning procedures and responsibilities <br> for captioning and CART reporting. <br> - Demonstrate knowledge of the <br> professional reporting organizations and methods of gaining certification <br> as a Certified Broadcast Captioner. | Employment Potential <br> A graduate of the program will <br> have the potential for employment <br> in the following areas: <br> - Broadcast Captioner <br> - CART Reporter <br> - Internet Reporter <br> - Offline Captioner <br> - Conference and Convention Reporter <br> About Shared Programs <br> LTC offers its Broadcast Captioning <br> colleges across the state. As a broadcast <br> captioning student, you'll: <br> - Attend live, interactive TV classes and <br> labs at your local technical college. <br> - Take general studies classes and labs <br> at your local technical college. |  |


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| These courses provide an opportunity for students to develop the knowledge skills, and understanding required for employment in this field. |  |  |
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| 10-170-101 CAPTIONING/CART -...prepares the learner to write dictation at write new punctuation and symbols, new flagged alphabet characters, environmental sounds, web/Internet addresses, common/ proper names, common female and male first names, governmental/political terms, terms applicable to food, the names of animals, finger-spell words, increase vocabulary, use terms applicable to criminology, and manage dictionaries.(Concurrent registration in Captioning/ CART I Lab at students's campus is required. |  |  |
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|  |  | write multi-syllabic words; punctuation and special symbols, short forms and phrases, |
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| 10-170-105 REALTIME REPORTING II ...prepares the learner to write multi-syllabic words; punctuation and special syllabic words; punctuatosymbols, short forms and phrases, prefixes and suffixes; numbers, frequently used words and phrases, contractions using the Z-rule, the "Flagged Alphabet;"; apply realtime conflict elimination principles; apply realtime theory and write dictation using a realtime theory at a minimum speedof 110 wpm. Concurrent registration in Realtime Reporting 2 Lab is required. |  |  |
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|  |  | 2 or 1010610 Realtim |
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| 10-170-106 Realtime reporting 1...prepares the learner to use machine numbers, multi-syllabic words, multiconsonant words, punctuation and special symbols, short forms and phrases, words in their singular and plural forms, and prefixes and suffixes. Concurrent registration in Realtime Reporting 1 Lab is required. CONDITION: 101701 Broadcast Captioning or 101702 Court Reporting or 101061 Judicial Reporting program requirements met. |  |  |
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| SPEED DEVELOPMENT ...further develops skills acquired in Realtime Reporting 2 on literary, jury charge, and Scheduny material beginning at 120 wpm . Scheduled during the summer term, stmust pass two, 3-minute timings at a minimum speed of 110 words per minute. (Prerequisite: 10170105, Realtime Reporting 2 or 10106105 Realtime Reporting 2) |  |  |
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| 10-170-109 LITERARY I-ADVANCED ...prepares the learner to write literary material at 150 words per minute for 3 minutes and transcribe at least 3 timingswith a minimum of 05 percent accuracy, write and read back current events dictation, and prepare salable transcripts. Concurrent registration in Literary I Lab-Advanced is required. (Prerequisite: 10170113 Literary 1-Beginner or 10106113 Minimum of 130 WPM met) |  |  |
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| ...prepares the learner to write literarymaterial at 180 words per minute for 5 material at 180 words per minute for 5minutes and transcribe at least 3 timings with a minimum of 95 percent accuracy, write and read back current events dictation, and prepare salable transcripts. (Concurrentregistration in Literary II Lab-Advanced is required. (Prerequisite: 10170114 Literary2-Beginner or 10106114 Literary 2-Begine 2-Beginner or 10106114 Literary 2 -Beginner) |  |  |
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| 10-170-128 JURY CHARGE1-ADVANCED ...prepares the student to write jury charge material at 160 words per minute for 3 minutes and transcribe at least3 timings with a minimum of 95 percent accuracy and prepare salable transcripts. (Concurrent registration in Jury Charge I 10170121, Jury Charge 1-Beginner or 10106121, Jury Charge 1 -Beginner orCONDITION: Minimum of 130 WP |  |  |
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| 10-170-12 JURY Charge II- <br> AD NCED ....repares hhe learner to write jury charge material at 200 words per minutc for 5 minutes and transcribe at least 3 timings with a minimum of 95 percent accuracy and prepare salable transcripts. Concurrenc registration in Jury Charge II Lab-Advanced is required. (Pererequisite: 10170122 Jury Charge 2-Beginner or 10106122 Jury |  |  |
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## Business Management Program Code 101023 | Associate Degree

Offered at the Green Bay campus. Most first year program courses available first year program courses available
through out the District. For information in Green Bay: (920) 498-5444. For information in Marinette: (715) 735-9361 For information in Sturgeon Bay: (920) 746-4900. Toll-free: (888) 385-6982.
This program is fully eligible for financial aid.

## Program Description

The Business Management program provides learners with foundational skills needed to manage the operations of a business. Graduates prepare to successfully meet the challenges and opportunities encountered in today's dynamic business environment. Learners develop compe
in the business functions of planning, organizing, directing, and controlling.

General business managers are found in nearly all work settings in virtually every sector of the economy. Business management salaries vary by company and position. Most graduates begin in positions of limited responsibility and will advan through the ranks of the organization.
The purpose of the program is to develop business professionals who can grow with the needs of their employers. Program curriculum will develop or improve the core skills that are vital for success in the business world.

## Program Outcomes

- Plan the operations of a business across functional areas.
- Organize resources to achieve the goals of the organization.
- Direct individuals and/or processes
to meet organizational goals.
- Control business processes.
- Apply concepts, methods, and
processes in business operations.
- Understand the financial components of an organization.
- Apply marketing strategies.
- Apply current and emerging technologies to business situations. - Analyze and synthesize information
and make decisions that support the organization's mission and help the business to successfully adapt to a changing environment.


## Requirements for

## Program Entry

- Completed application.
- High school transcript or equivalent. For a list of equivalents, go to www.nwtc.edu/gettingstarted.
- As a requirement for program entry, an Academic Skills Assessment (Accuplacer) with appropriate benchmark scores is necessary. Program benchmarks are Arithmetic, 65; Reading Comprehension, 55: Sentence Skills, 75. Students not 55: Sentence Skills, 75 . Students n
meeting these benchmarks or the meeting these benchmarks or the equivalent will be required to establish an ndividualized academic plan. Students may have the opportunity to enroll in selected program core courses while completing their individualized plan. Upon completion of the plan, students will be eligible for all program courses. However, higher test scores will lead to greater success in core program courses. To learn more about these assessments and program benchmark scores, please contact a counselor at 920) 498-5444 or (888) 385-6982.


## Employment Potential

There are many job listings that would be appropriate for a graduate of the Business Management program. Small organizations typically require generalist skills and large organizations tend toward some specialization among their managers.
With additional education and/or work experience, a graduate may find employment opportunities as a manager of operations with increased responsibility, authority and commensurate pay. Note

- IT IS RECOMMENDED COURSES BE TAKEN IN THE ORDER LISTED. Many courses in this program are offered in a variety of formats such as accelerated, online, in person or video conference.
- Most credits from this degree can be transferred to some four-year


## Curriculum


below will complete the Business Management associate degree in the number of semesters shown.

## FIRST SEMESTER

CREDITS 10-102-158 Business Principles 10-103-121 Micro: Word-Intro 10-103-131 Micro: Excel-Intro 10-105-102 Career Planning 10-801-136 English Composition 1 10-804-123 Math w Business Apps *10-890-101 College 10
SEMESTER TOTAL

## SECOND SEMESTER

10-101-106 Accounting-for Non-Accountants
10-102-156 Operations Management 1
10-196-189 Team Building/Prob Solve
10-196-193 Human Resource Mgmt
10-809-103 Think Critically \& Creatively 10-809-195 Economic
SEMESTER TOTAL

## THIRD SEMESTER

10-101-184 Business Finance/Budgeting 10-101-190 Accounting-QuickBooks 10-102-157 Operations Management 10-105-103 Career Preparation 10-182-110 Lean Operations Mgmt 10-196-191 Supervision SEMESTER TOTAL

## FOURTH SEMESTER

10-102-150 Business Law \& Ethics
10-102-160 Global Business Mgmt 10-102-199 Bus Mgmt Career Experience
10-104-191 10-809-172 Customer Service 10-809-198 Intro to Diversity Studies 10-809-198 Intro to Psychology SEMESTER TOTAL
TOTAL CREDITS

CURRICULUM NOTE
*The credit for 10-890-101, College 101 is an Institutional Requirement for graduation. Consequently, it is not part of the program credit requirement.
colleges for learners interested in pursuing a bachelor's degree.

The following certificates/technical diplomas may be applied toward this program: - 901023, Business Operations Certificate - 901047, Promotions \& Events Management

## COURSE DESCRIPTIONS

These courses provide an opportunity for students to develop the knowledge skills, and understanding required for employment in this field.

10-101-106 ACCOUNTING-FOR NON-ACCOUNTANTS ...teaching nonaccountants to read, analyze, and interpret financial information for making informed business decisions. This class de-emphasize the use of debits, credits, journal entries and other accounting procedures.

10-101-184 BUSINESS FINANCE/ BUDGETING ...fiscal and monetar aspects of business. Each learner will demonstrate application of business types, cycles, forecasting, budgeting, expense control, and financial statement interpretation relevant to the supervisor as a non-accountant. (Prerequisite: 10-804-123, Math w/ Business Apps)
10-101-190 ACCOUNTINGQUICKBOOKS ...an introductory course in using QuickBooks to create vendor/employee accounts, invoices, budgets, profit/loss statements, balance sheets, $A / R, A / P$, journals, graphs.
10-102-150 BUSINESS LAW \& ETHICS ...common law contracts and sales contracts: formation, interpretation, performance, and discharge; the law of agency; corporations; and introduction to the American legal system: criminal and tort law, and global business issues. (Prerequisite: 10-801-136, English Composition 1)
10-102-156 OPERATIONS MANAGEMENT 1 ...a crossfunctional approach to operations management with an overview of safety, quality, and service. (Prerequisite: 10 102-158 Business Principles)
10-102-157 OPERATIONS MANAGEMENT 2 ...the process of evaluating alternative courses of action to given problems and arriving at the most suitable plan. Entails thorough analysis of the pros and cons of every alternative solution. (Prerequisites: 10 102-156, Operations Management 1; 10-801-136, English Composition 1)

0-102-158 BUSINESS PRINCIPLES ..economics and business; global business; thics and social responsibility; business wnership; entrepreneurship; business management; marketing; managing financial resources; legal issues impacting business; using technology to manage information.

0-102-160 GLOBAL BUSINESS MANAGEMENT ...globalization, cultural environment, global trade environment, politics and law, economic integration, global rade and investment theories, exporting, global human resource management, corporate social responsibility. (Prerequisite: 10-801-136, English Composition 1)

10-102-199 BUSINESS MANAGEMENT CAREER EXPERIENCE ...practical, hands on experience applying skills developed in the program at an approved site with supervisio by an employer and the instructor with related projects and discussion. (Prerequisites 10-801-136, English Composition I; 10-804-123, Math w Business Apps; 10-105-103, Career Preparation)

10-103-121 MICRO: WORD-
INTRODUCTION ...word processing basics ncluding creating, revising, formatting, printing; sections, tabs, multiple-page numbering; manipulating text; creating headers/footers; creating/formatting tables, graphics; and merging documents. Windows xperience improves success; consider 10
103-111, Windows/Computer Basics.
10-103-131 MICRO: EXCEL
NTRODUCTION ...creating a worksheet, enhancing worksheet appearance, moving and copying data, using formulas and functions, reating charts and using clip art. Windows xperience improves success; consider 10 03-111, Windows/Computer Basics.

0-104-110 MARKETING PRINCIPLES .marketing management, market egmentation, market research, consumer behavior, product decisions and management of distribution, pricing, promotional decisions for strategy planning

10-104-191 CUSTOMER SERVICE develop professional telephone etiquette, explore customer service work environments, dentify and analyze customer service failures, resolve problems cost effectively, set complaint policies, and develop communication echniques to handle complaining customers.

10-105-102 CAREER PLANNING ...experiential learning introduction. Learn how personal branding allows candidates to differentiate themselves from the competition through appearance, personality, and marketing competency. Career portfolio introduced. (Corequisite: 10-890-101, College 101)

10-105-103 CAREER PREPARATION ...create professional resume and cover letter, prepare for interviews, understand interviewing techniques, participate in a mock interview. Submission of experiential learning proposal. (Prerequisite: 10-105-102, Career Planning; 10 801-136, English Composition 1)

10-182-110 LEAN OPERATIONS MANAGEMENT ...lean operating concepts, total quality management, Six Sigma methodologies, continuous improvement tools/techniques, process mapping, 5 S principles, statistical process control/pull signals, cellular manufacturing, mixed-model production, human resource development.

10-196-189 TEAM BUILDING/ PROBLEM SOLVING ...benefits and challenges of group work, necessary roles in a team, stages of team development, meeting facilitation, different approaches to problem solving, consensus, data acquisition, analysis, developing alternative solutions, implementation and evaluation.

10-196-191 SUPERVISION ...front-line leadership including teamwork, setting goals, planning, delegation, controlling, communication, motivation, performance management, staffing, training, problem solving, and conflict management.

10-196-193 HUMAN RESOURCE MANAGEMENT ...impacts of EEOC writing job descriptions, recruitment, selection, conducting job interviews, orientation, developing policies and procedures, training, performance, procedures, training, performance,
counseling and development, and compensation and benefit strategies.

Offered at the Green Bay campus. For information: (920) 498-5444 Toll-free: (888) 385-6982.

## Program Description

The Advertising \& Promotions emphasis educates learners for careers as meeting planners, marketing specialists, sales personnel, convention service managers and event coordinators in lodging and food service operations, casinos, visitor and convention bureaus, a Chamber of Commerce, and nonprofit organizations

## Program Outcomes

- Plan the operations of a business across functional areas.
- Organize resources to achieve the goals of the organization.
- Direct individuals and/or processes to meet organizational goals.
- Control business processes.
- Apply concepts, methods, and processes in business operations. - Understand the financial components of an organization.
- Apply marketing strategies.
- Apply current and emerging technologies to business situations.
- Analyze and synthesize information and make decisions that support the organization's mission and help the business to successfully adapt to a changing environment.


## Requirements for

## Program Entry

- Completed application.
- To apply to Business Management Advertising \& Promotions Emphasis, choose the Business Management Program. You will declare your emphasis during your 1st semester.
- High school transcript or equivalent. For a list of equivalents, go to www.nwtc.edu/gettingstarted.

As a requirement for program entry an Academic Skills Assessment (Accuplacer) with appropriate benchmark scores is necessary. Program benchmarks are Arithmetic, 65; Reading Comprehension, 55: Sentence Skills, 75. Students not meeting these benchmarks or the equivalent will be required to establish an individualized academic plan Students may have the opportunity to enroll in selected program core courses while completing their individualized plan. Upon completion of the plan, students will be eligible for all program courses. However, higher test scores will lead to greater success in core program courses. To learn more about these assessments and program benchmark scores, please contact a counselor at (920) 498-5444 or (888) 385-6982.

## Employment Potential

There are many job listings that would be appropriate for a graduate of the Business Management program. Small organizations typically require generalist skills and large organizations tend toward some specialization among their managers.

With additional education and/or work experience, graduates may find other opportunities for employment.

Note

- IT IS RECOMMENDED COURSES BE TAKEN IN THE ORDER LISTED.
- Many courses in this program are offered in a variety of formats such as accelerated, online, in person or video conference.
- Most credits from this degree can be transferred to some four-year colleges for learners interested in pursuing a bachelor's degree.

The following certificates/technical diplomas may be applied toward this program: - 901023, Business Operations Certificate

## Curriculum <br> Students following the study plan below will complete the Business Management Advertising \& Promotions associate degree in the number of semesters shown.

## FIRST SEMESTER 10-102-158 Business Principles 10-103-121 Micro: Word-Intro 10-103-111 Micro: Excel-Intro 10-105-102 Career Planning 10-801-136 English Composition 1 10-804-123 Math w Business Apps *10-890-101 College 10

 CREDITS
## SECOND SEMESTER

10-101-106 Accounting-for Non-Accountants 10-102-156 Operations Management 1 10-104-176 Social Media Consumer Behavio 10-809-103 Think Critically \& Creatively 10-809-195 Economics SEMESTER TOTAL

## THIRD SEMESTER

10-101-190 Accounting-QuickBooks 10-102-157 Operations Management 2 10-104-101 Selling Principles 10-104-119 Social Media Marketing 10-196-191 Supervision 10-801-196 Oral/Interp 10-801-196 Oral/Interpersonal Comm

## FOURTH SEMESTER

10-102-150 Business Law \& Ethics 10-102-160 Global Business Mgmt 10-102-199 Bus Mgmt Internship Practicum 10-104-125 Event Marketing
10-809-172 Intro to Diversity Studies 10-809-198 Intro to Psychology SEMESTER TOTAL

CURRICULUM NOTE
*The credit for 10-890-101, College 10
is an Institutional Requirement for graduation. Consequently, it is not part of the program credit requirement.

## COURSE DESCRIPTIONS

These courses provide an opportunity for students to develop the knowledge, skills, and understanding required for employment in this field.

10-101-106 ACCOUNTING-FOR NON-ACCOUNTANTS ...teaching nonaccountants to read, analyze, and interpret financial information for making informed business decisions. This class de-emphasizes the use of debits, credits, journal entries and other accounting procedures.
10-101-190 ACCOUNTINGQUICKBOOKS ...an introductory course in using QuickBooks to create vendor/employee accounts, invoices, budgets, profit/loss statements, balance sheets, $A / R, A / P$, journals, graphs.

10-102-150 BUSINESS LAW \& ETHICS ...common law contracts and sales contracts: formation, interpretation, performance, and discharge; the law of agency; corporations; and introduction to the American legal system: criminal and tort law, and global business issues. (Prerequisite: 10-801-136, English Composition 1)

10-102-156 OPERATIONS MANAGEMENT 1 ...a crossfunctional approach to operations management with an overview of safety quality, and service. (Prerequisite: 10-102-158 Business Principles)
10-102-157 OPERATIONS MANAGEMENT 2 ...the process of evaluating alternative courses of action to given problems and arriving at the most suitable plan. Entails thorough analysis of the pros and cons of every alternative solution. (Prerequisites: 10-102-156, Operations Management 1; 10-801-136, English Composition 1)

10-102-158 BUSINESS PRINCIPLES ...economics and business; global business; ethics and social responsibility; business ownership; entrepreneurship; business management; marketing; managing financial resources; legal issues impacting business; using technology to manage information.
10-102-160 GLOBAL BUSINESS MANAGEMENT ...globalization, cultural environment, global trade environment, politics and law, economic integration, global trade and investment theories, exporting, global human resource management, corporate social responsibility. (Prerequisite: 10-801-136, English Composition 1)
10-102-199 BUSINESS MANAGEMENT CAREER EXPERIENCE ...practical, handson experience applying skills developed in the program at an approved site with supervision by an employer and the instructor with related projects and discussion. (Prerequisites 10-801-136, English Composition I; 10-804-123, Math w Business Apps; 10-105-103, Career Preparation)

10-103-121 MICRO: WORDINTRODUCTION ...word processing basics including creating, revising, formatting, printing; sections, tabs, multiple-page numbering; manipulating text; creating headers/footers; creating/formatting tables, graphics; and merging documents. Windows experience improves success; consider 10 -103-111, Windows/Computer Basics.

10-103-131 MICRO: EXCELINTRODUCTION ...creating a worksheet, enhancing worksheet appearance, moving and copying data, using formulas and functions, creating charts and using clip art. Windows experience improves success; consider 10-103-111, Windows/Computer Basics.

10-104-101 SELLING PRINCIPLES ...selling as a career; success factors in selling; personality development; product knowledge; and the sales process involving preparation, approach, presentationdemonstration, handling objections, and closing the sale successfully.

10-104-107 MARKETING COMMUNICATIONS-INTEGRATED ...creating, coordinating and integrating advertising, public relations and marketing activities for a specific customer or audience. A campaign will be developed and presented.
10-104-110 MARKETING PRINCIPLES ...marketing management, market segmentation, market research, consumer behavior, product decisions and management of distribution, pricing, promotional decisions for strategy planning.

10-104-119 SOCIAL MEDIA MARKETING ...understand the social media revolution. This course will provide students with the practical knowledge and insights needed to successfully plan, implement, manage and measure social media marketing efforts.

10-104-125 EVENT MARKETING.. planning, promotion execution, and evaluation of special events (entertainment, industry, meeting/convention). Students will work toward the actual staging of an event (will require time outside of the classroom setting).

10-104-176 SOCIAL MEDIA CONSUMER BEHAVIOR ...identify technology trends that impact media usage and its effectiveness.
10-105-103 CAREER PREPARATION ...create professional resume and cover letter, prepare for interviews, understand interviewing techniques, participate in a mock interview. Submission of experiential learning proposal. (Prerequisite: 10-105-102, Career Planning; 10-801-136, English Composition 1)
10-196-191 SUPERVISION ...front-line leadership including teamwork, setting goals, planning, delegation, controlling, communication, motivation, performance management, staffing, training, problem solving, and conflict management.

Offered at the Green Bay campus. Mos first year program courses available through out the District. For information in Green Bay: (920) 498-5444. For information in Marinette: (715) 735-9361 For information in Sturgeon Bay: (920) 746-4900. Toll-free: (888) 385-6982.

## Program Description

The Entrepreneurship emphasis educates learners on the opportunities and essence of entrepreneurship and how to start, run, and manage profitable businesses.

## Program Outcomes

- Plan the operations of a business across functional areas.
- Organize resources to achieve the goals of the organization.
- Direct individuals and/or processes to meet organizational goals.
- Control business processes.
- Apply concepts, methods, and processes in business operations. - Understand the financial components of an organization.
- Apply marketing strategies.
- Apply current and emerging technologies to business situations.
- Analyze and synthesize information and make decisions that support the organization's mission and help the business to successfully adapt to a changing environment.


## Requirements for

## Program Entry

- Completed application.
- To apply to Business Management Entrepreneurship Emphasis, choose the Business Management Program. You will declare your emphasis during your 1 st semester.
- High school transcript or equivalent. For a list of equivalents, go to www.nwtc.edu/gettingstarted.

As a requirement for program entry an Academic Skills Assessment (Accuplacer) with appropriate benchmark scores is necessary. Program benchmarks are Arithmetic, 65; Reading Comprehension, 55: Sentence Skills, 75. Students not meeting these benchmarks or the equivalent will be required to establish an individualized academic plan. Students may have the opportunity to enroll in selected program core courses while completing their individualized plan. Upon completion of the plan, students will be eligible for all program courses. However, higher test scores will lead to greater success in core program courses. To learn more about these assessments and program benchmark scores, please contact a counselor at (920) 498-5444 or (888) 385-6982.

## Employment Potential

There are many job listings that would be appropriate for a graduate of the Business Management program. Small organizations typically require generalist skills and large organizations tend toward some specialization among their managers.

With additional education and/or work experience, graduates may find other opportunities for employment.

Note

- IT IS RECOMMENDED COURSES BE TAKEN IN THE ORDER LISTED.
- Many courses in this program are offered in a variety of formats such as accelerated, online, in person or video conference.
- Most credits from this degree can be transferred to some four-year colleges for learners interested in pursuing a bachelor's degree.

The following certificates/technical diplomas may be applied toward this program:

- 901023, Business Operations Certificate


## Curriculum <br> Students following the study plan below will complete the Business Management Entrepreneurship associate degree in the number of semesters shown.

## FIRST SEMESTER <br> 10-102-158 Business Principles 10-103-121 Micro: Word-Intro 10-104-110 Marketing Principles 10-105-102 Career Planning 10-801-136 English Composition 1 10-804-123 Math w Business Apps *10-890-101 College 10

CREDITS

## SECOND SEMESTER

10-101-106 Accounting-for Non-Accountants 10-102-156 Operations Management 1 10-145-185 Organizing Your Small Business 10-145-186 Financial Management-Small Bus 10-809-103 Think Critically \& Creatively 10-809-195 Economics SEMESTER TOTAL

## THIRD SEMESTER

10-101-190 Accounting-QuickBooks
10-102-157 Operations Management 2 10-105-103 Career Preparation 10-145-187 Marketing Your Small Business 10-145-188 Entrepreneun Supervision 10-196-191 Supervision 10-801-16 Oral/nterpersonal Comm

## FOURTH SEMESTER

10-102-150 Business Law \& Ethics 10-102-160 Global Business Mgmt 10-102-199 Bus Mgmt Career Experience 10-145-189 Writing a Business Plan-Sm Bus 10-809-172 Intro to Diversity Studies 10-809-198 Intro to Psychology SEMESTER TOTA

CURRICULUM NOTE
*The credit for 10-890-101, College 101
is an Institutional Requirement for graduation. Consequently, it is not part of the program credit requirement.

COURSE DESCRIPTIONS
These courses provide an opportunity for students to develop the knowledge, skills, and understanding required for employment in this field.

10-101-106 ACCOUNTING-FOR NON-ACCOUNTANTS ...teaching nonaccountants to read, analyze, and interpret financial information for making informed business decisions. This class de-emphasizes the use of debits, credits, journal entries and other accounting procedures.

10-101-190 ACCOUNTINGQUICKBOOKS ...an introductory course in using QuickBooks to create vendor/employee accounts, invoices, budgets, profit/loss statements, balance sheets, $A / R, A / P$, journals, graphs.
10-102-150 BUSINESS LAW \&
ETHICS ...common law contracts and sales contracts: formation, interpretation, performance, and discharge; the law of agency; corporations; and introduction to the American legal system: criminal and tort law, and global business issues. (Prerequisite: 10-801-136, English Composition 1)

10-102-156 OPERATIONS MANAGEMENT 1 ...a cross-functional approach to operations management with an overview of safety, quality, and service. (Prerequisite: 10-102-158 Business Principles)
10-102-157 OPERATIONS MANAGEMENT 2 ...the process of evaluating alternative courses of action to given problems and arriving at the most suitable plan. Entails thorough analysis of the pros and cons of every alternative solution. (Prerequisites: 10-102-156, Operations Management 1; 10-801-136, English Composition 1)
10-102-158 BUSINESS PRINCIPLES ...economics and business; global business; ethics and social responsibility; business ownership; entrepreneurship; business management; marketing; managing financial resources; legal issues impacting business; using technology to manage information.

10-102-160 GLOBAL BUSINESS
MANAGEMENT ...globalization, cultura environment, global trade environment, politics and law, economic integration, global trade and investment theories, exporting, global human resource management, corporate social responsibility. (Prerequisite: 10-801-136, English Composition 1)

10-102-199 BUSINESS MANAGEMENT CAREER EXPERIENCE ...practical, handson experience applying skills developed in the program at an approved site with supervision program at an approved site with superv
by an employer and the instructor with related projects and discussion. (Prerequisites: 10-801-136, English Composition I; 10-804-123, Math w Business Apps; 10-105-103, Career Preparation)

10-103-121 MICRO: WORD-
INTRODUCTION ...word processing basics including creating, revising, formatting, printing; sections, tabs, multiple-page numbering; manipulating text; creating headers/footers; creating/formatting tables, graphics; and merging documents. Windows experience improves success; consider $10-$ 103-111, Windows/Computer Basics.

10-103-131 MICRO: EXCEL-
INTRODUCTION ...creating a worksheet, enhancing worksheet appearance, moving and copying data, using formulas and functions, creating charts and using clip art. Windows experience improves success; consider 10-103-111, Windows/Computer Basics.
10-104-110 MARKETING PRINCIPLES ...marketing management, market segmentation, market research, consumer behavior, product decisions and management of distribution, pricing, promotional decisions for strategy planning.

10-105-102 CAREER PLANNING ...experiential learning introduction. Learn how personal branding allows candidates to differentiate themselves from the competition through appearance, personality, and marketing competency. Career portfolio introduced. (Corequisite: 10-890-101, College 101)

10-105-103 CAREER PREPARATION ...create professional resume and cover letter, prepare for interviews, understand interviewing techniques, participate in a mock interview. Submission of experiential learning proposal. (Prerequisite: 10-105-102, Career Planning; 10-801-136, English Composition 1)

10-145-185 ORGANIZING YOUR SMALL BUSINESS ...the components of small business ownership; examining a variety of small business startup and operation scenarios. Assesses your own readiness to begin the entrepreneurial adventure.

10-145-186 FINANCIAL
MANAGEMENT-SMALL BUSINESS ...the importance of good recordkeeping systems, reports, and the records necessary for a small business. Financial analysis techniques are explored through handson Income statements and cash flow projections for small businesses.

10-145-187 MARKETING YOUR SMALL BUSINESS ...implement and evaluate a marketing plan for their small business. Students will develop a marketing plan for a selected small business. Components of the plan include market research, customer focus, quality, pricing, and advertising.

10-145-188 ENTREPRENEURIAL SERVICE MANAGEMENT ...the elements of your successful business with a strategic plan that focuses on servicing your customer with a winning attitude, performance, teamwork, and competition. 10-145-189 WRITING A BUSINESS PLAN-SMALL BUSINESS ...as a necessary component to beginning a small business, from addressing facets of the business plan, observing various types of plans, to realizing readiness to begin. Plan preparation/presentation are required.

10-196-191 SUPERVISION ...front-line leadership including teamwork, setting goals, planning, delegation, controlling, communication, motivation, performance management, staffing, training, problem solving, and conflict management.

## Business Management - <br> Global Supply Chain Emphasis

Offered at the Green Bay campus and most first year program courses available at Sturgeon Bay campus. For information in Green Bay: (920) 498-5444. For information in Sturgeon Bay: (920) 746-4900. Toll-free: (888) 385-6982.

## Program Description

The Global Supply Chain emphasis prepares students for all logistical activities involved in the flow of goods - from point of origin to the point of consumption.

## Program Outcomes

- Plan the operations of a business across functional areas.
- Organize resources to achieve the goals of the organization.
- Direct individuals and/or processes to meet organizational goals.
- Control business processes.
- Apply concepts, methods, and processes in business operations.
- Understand the financial components of an organization.
- Apply marketing strategies.
- Apply current and emerging technologies to business situations.
- Analyze and synthesize information and make decisions that support the organization's mission and help the business to successfully adapt to a changing environment.


## Requirements for

## Program Entry

- Completed application.
- To apply to Business Management Global Supply Chain Emphasis, choose the Business Management Program. You will declare your emphasis during your 1st semester.
- High school transcript or equivalent For a list of equivalents, go to www.nwtc.edu/gettingstarted.

As a requirement for program entry, an Academic Skills Assessment (Accuplacer) with appropriate benchmark scores is necessary. Program benchmarks are Arithmetic, 65; Reading Comprehension, 55: Sentence Skills, 75. Students not meeting these benchmarks or the equivalent will be required to establish an individualized academic plan. Students may have the opportunity to enroll in selected program core courses while completing their individualized plan. Upon completion of the plan, students will be eligible for all program courses. However, higher test scores will lead to greater success in core program courses. To learn more about these assessments and program benchmark scores, please contact a counselor at (920) 498-5444 or (888) 385-6982

## Employment Potential

There are many job listings that would be appropriate for a graduate of the Business Management program. Small organizations typically require generalist skills and large organizations tend toward some specialization among their managers.
With additional education and/or work experience, graduates may find other opportunities for employment.

Note

- IT IS RECOMMENDED COURSES BE TAKEN IN THE ORDER LISTED
- Many courses in this program are offered in a variety of formats such as accelerated, online, in person or video conference.
- Most credits from this degree can be transferred to some four-year colleges for learners interested in pursuing a bachelor's degree.

The following certificates/technical diplomas may be applied toward this program: - 901023, Business Operations Certificate

## Curriculum

Students following the study plan below will complete the Business Management Global Supply Chain associate degree in the number of semesters shown.

FIRST SEMESTER
10-102-158 Business Principles 0-103-121 Micro: Word-Intro 0-103-131 Micro: Excel-Intro 0-104-110 Marketing Principles 10-105-102 Career Planning 10-804-123 Math w/Business Apps 0-801-136 English Composition 1 0-890-101 College

## SECOND SEMESTER

0-101-106 Accounting-for Non-Accountants
10-102-156 Operations Management 1
0-104-148 Global Marketing
0-182-160 Global Supply Chain Mgmt 10-809-103 Think Critically \& Creatively 0-809-195 Economics
SEMESTER TOTAL

## HIRD SEMESTER

0-101-190 Accounting-QuickBooks 0-102-157 Operations Management 2 10-105-103 Career Preparation 10-182-131 Negotiations
10-182-162 Import/Export Compliance 10-196-191 Supervision 10-801-196 Oral/Interpersonal Comm SEMESTER TOTAL

## FOURTH SEMESTER

10-102-104 International Business Prac 10-102-150 Business Law \& Ethics 10-102-160 Global Business Mgmt 10-102-199 Bus Mgmt Career Experience 10-809-172 Intro to Diversity Studies 10-809-198 Intro to Psychology SEMESTER TOTAL TOTAL CREDITS

## URRICULUM NOTE

The credit for 10-890-101, College 101 an Institutional Requirement
of the program credit requirement.

## COURSE DESCRIPTIONS

These courses provide an opportunity for students to develop the knowledge, skills, and understanding required for employment in this field.

10-101-106 ACCOUNTING-FOR NON-ACCOUNTANTS ...teaching nonaccountants to read, analyze, and interpret financial information for making informed business decisions. This class de-emphasizes the use of debits, credits, journal entries and other accounting procedures.
10-101-190 ACCOUNTINGQUICKBOOKS ...an introductory course in using QuickBooks to create vendor/employee accounts, invoices, budgets, profit/loss statements, balance sheets, $A / R, A / P$, journals, graphs.

10-102-104 INTERNATIONAL BUSINESS PRACTICE FIRM ...(IBPF) students will start up their own business and sell and buy products in a virtual classroom environment. Each student will play the role of a manager. (Prerequisite: 10-801-136, English Composition 1)
10-102-150 BUSINESS LAW \& ETHICS ...common law contracts and sales contracts: formation, interpretation, performance, and discharge; the law of agency; corporations; and introduction to the American legal system: criminal and tort law, and global business issues. (Prerequisite: 10-801-136, English Composition 1)

10-102-156 OPERATIONS
MANAGEMENT 1 ...a cross functional approach to operations management with an overview of safety, quality, and service. (Prerequisite: 10-102-158 Business Principles)

10-102-157 OPERATIONS MANAGEMENT 2 ...the process of evaluating alternative courses of action to given problems and arriving at the most suitable plan. Entails thorough analysis of the pros and cons of every alternative solution. (Prerequisites: 10 102-156, Operations Management 1 10-801-136, English Composition 1)

10-102-158 BUSINESS PRINCIPLES ...economics and business; global business; ethics and social responsibility; business ownership; entrepreneurship; business management; marketing; managing financial resources; legal issues impacting business; using technology to manage information.
10-102-160 GLOBAL BUSINESS MANAGEMENT ...globalization, cultural environment, global trade environment, politics and law, economic integration, global trade and investment theories, exporting, global human resource management, corporate social responsibility. (Prerequisite: 10-801-136, English Composition 1)

10-102-199 BUSINESS MANAGEMENT CAREER EXPERIENCE ...practical, handson experience applying skills developed in the program at an approved site with supervision by an employer and the instructor with related projects and discussion. (Prerequisites: 10-801-136, English Composition I; 10-804-123, Math w Business Apps; 10-105-103, Career Preparation)

10-103-121 MICRO: WORDINTRODUCTION ...word processing basics including creating, revising, formatting, printing; sections, tabs, multiple-page numbering; manipulating text; creating headers/footers; creating/formatting tables, graphics; and merging documents. Windows experience improves success; consider 10 -103-111, Windows/Computer Basics.

10-103-131 MICRO: EXCEL
INTRODUCTION ...creating a worksheet, enhancing worksheet appearance, moving and copying data, using formulas and functions, creating charts and using clip art. Windows experience improves success; consider 10-103-111, Windows/Computer Basics.

10-104-110 MARKETING PRINCIPLES ..marketing management, market segmentation, market research, consumer behavior, product decisions and management of distribution, pricing, promotional decisions for strategy planning.

10-104-148 GLOBAL MARKETING ...tools necessary for the student to understand the risks, rewards, and the technical aspects of doing business in a global environment.

10-105-102 CAREER PLANNING ...experiential learning introduction. Learn how personal branding allows candidates to differentiate themselves from the competition through appearance, personality, and marketing competency. Career portfolio introduced. (Corequisite: 10-890-101, College 101)
10-105-103 CAREER PREPARATION ...create professional resume and cover letter, prepare for interviews, understand interviewing techniques, participate in a mock interview. Submission of experiential learning proposal. (Prerequisite: 10-105-102, Career Planning; 10 801-136, English Composition 1)
10-182-131 NEGOTIATIONS ...techniques and skills used in bargaining to maximize a company's profits and competitiveness. Appropriate for learners in any Business and Information Technology program as well as for non-program students. (Prerequisite: 10-801-136, English Composition 1)

10-182-160 GLOBAL SUPPLY CHAIN MANAGEMENT ...methods of foreign market entry, international contracts, INCOTERMS 2000, terms of payment, international commercial documents, international insurance, export packaging, customs clearance, and global supply chain logistics infrastructure
10-182-162 IMPORT/EXPORT COMPLIANCE ...develop import/ export-related documentation, examine import/export controls and licenses, and explore import/export related security. Examine compliance requirements related to importing/exporting goods in support of global operations and in response to case studies. (Prerequisite: 10-182-160, Global Supply Chain Management)
10-196-191 SUPERVISION ...front-line leadership including teamwork, setting goals, planning, delegation, controlling, communication, motivation, performance management, staffing, training, problem solving, and conflict management.

Offered at the Green Bay and Sturgeon Bay campuses. For information in Green Bay: (920) 498-5444. For information in Sturgeon Bay: (920) 746-4900. Toll-free: (888) 385-6982.

## Program Description

The Hotel \& Restaurant emphasis educates learners for mid-management careers in hotel management, food service operations and tourism.

## Program Outcomes

- Plan the operations of a business across functional areas.
- Organize resources to achieve the goals of the organization.
- Direct individuals and/or processes to meet organizational goals.
- Control business processes.
- Apply concepts, methods, and processes in business operations.
- Understand the financial components of an organization.
- Apply marketing strategies.
- Apply current and emerging technologies to business situations. - Analyze and synthesize information and make decisions that support the organization's mission and help the business to successfully adapt to a changing environment.


## Requirements for Program Entry

- Completed application.
- To apply to Business Management Hotel \& Restaurant Emphasis, choose the Business Management Program. You will declare your emphasis during your 1st semester.
- High school transcript or equivalent. For a list of equivalents, go to www.nwtc.edu/gettingstarted.

As a requirement for program entry, an Academic Skills Assessment (Accuplacer) with appropriate benchmark scores is necessary. Program benchmarks are Arithmetic, 65; Reading Comprehension 55: Sentence Skills, 75. Students not meeting these benchmarks or the equivalent will be required to establish an individualized academic plan. Students may have the opportunity to enroll in selected program core courses while completing their individualized plan. Upon completion of the plan, students will be eligible for all program courses. However, higher test scores will lead to greater success in core program courses. To learn more about these assessments and program benchmark scores, please contact a counselor at (920) 498-5444 or (888) 385-6982.

## Employment Potential

There are many job listings that would be appropriate for a graduate of the Business Management program. Small organizations typically require generalist skills and arge organizations tend toward some specialization among their managers.

With additional education and/or work experience, a graduate may find employment opportunities as a manager of operations with increased responsibility, authority and commensurate pay.

Note

- IT IS RECOMMENDED COURSES BE TAKEN IN THE ORDER LISTED
- Many courses in this program are offered in a variety of formats such as accelerated, online, in person or video conference.
- Most credits from this degree can be transferred to some four-year colleges for learners interested in pursuing a bachelor's degree.

The following certificates/technical diplomas may be applied toward this program: - 901023, Business Operations Certificate

## Curriculum Students following the study plan below will complete the Business Management Hotel \& Restaurant associate degree in the number of semesters shown.

FIRST SEMESTER
10-102-158 Business Principles 10-103-121 Micro: Word-Intro 10-103-131 Micro: Excel-Intro 10-104-110 Marketing Principles 10-105-102 Career Planning 10-109-114 Hotel Management ${ }_{*}^{10-801-136}$ English Composition SEMESTER TOTAL

## SECOND SEMESTER

10-101-106 Accounting-for Non-Accountants 10-102-156 Operations Management 1 10-109-168 Restaurant Management 10-804-123 Math w Business Apps 10-809-03 Think Critically \& Creatively 10-809-195 Economics

THIRD SEMESTER
10-101-190 Accounting-QuickBooks 10-102-157 Operations Management 2 10-105-103 Career Preparation 10-109-126 Hospitality Finance 10-109-127 Hospitality Facilities Mangement 10-196-191 Supervision 10-801-196 Oral/Interpersonal Comm SEMESTER TOTAL

## FOURTH SEMESTER

10-102-150 Business Law \& Ethics
10-102-160 Global Business Mgmt
10-102-199 Bus Mgmt Career Experience 10-104-125 Event Marketing 10-809-198 0-80-19 Intro to Psychology SEMESTER TOTA

CURRICULUM NOTE
*The credit for 10-890-101, College 10 is an Institutional Requirement for graduation. Consequently, it is not par of the program credit requirement.

## COURSE DESCRIPTIONS

These courses provide an opportunity for students to develop the knowledge, skills, and understanding required for employment in this field.

10-101-106 ACCOUNTING-FOR NON-ACCOUNTANTS ...teaching nonaccountants to read, analyze, and interpret financial information for making informed business decisions. This class de-emphasize the use of debits, credits, journal entries and other accounting procedures.
10-101-190 ACCOUNTINGQUICKBOOKS ...an introductory course in using QuickBooks to create vendor/employee accounts, invoices, budgets, profit/loss statements, balance sheets, $A / R, A / P$, journals, graphs.

10-102-150 BUSINESS LAW \& ETHICS ...common law contracts and sales contracts: formation, interpretation performance, and discharge; the law of agency; corporations; and introduction to the American legal system: criminal and tort law, and global business issues. (Prerequisite: 10-801-136, English Composition 1)

10-102-156 OPERATIONS
MANAGEMENT 1 ...a crossfunctional approach to operations management with an overview of safety quality, and service. (Prerequisite: 10-102-158 Business Principles)

10-102-157 OPERATIONS MANAGEMENT 2 ...the process of evaluating alternative courses of action to given problems and arriving at the most suitable plan. Entails thorough analysis of the pros and cons of every alternative solution. (Prerequisites: 10-102-156, Operations Management 1; 10-801-136, English Composition 1)

10-102-158 BUSINESS PRINCIPLES ...economics and business; global business; ethics and social responsibility; business ownership; entrepreneurship; business management; marketing; managing financial resources; legal issues impacting business; using technology to manage information.

10-102-160 GLOBAL BUSINESS
MANAGEMENT ...globalization, cultural environment, global trade environment politics and law, economic integration, global trade and investment theories, exporting, global human resource management, corporate social responsibility. (Prerequisite: 10-801-136, English Composition 1)
10-102-199 BUSINESS MANAGEMENT CAREER EXPERIENCE ...practical, handson experience applying skills developed in the program at an approved site with supervision by an employer and the instructor with related projects and discussion. (Prerequisites 10-801-136, English Composition I; 10-804-123, Math w Business Apps; 10-105-103, Career Preparation)

10-103-121 MICRO: WORDINTRODUCTION ...word processing basics including creating, revising, formatting, printing; sections, tabs, multiple-page numbering; manipulating text; creating headers/footers; creating/formatting tables, graphics; and merging documents. Windows experience improves success; consider 10-103-111, Windows/Computer Basics.

10-103-131 MICRO: EXCEL-
INTRODUCTION ...creating a worksheet, enhancing worksheet appearance, moving and copying data, using formulas and functions, creating charts and using clip art. Windows experience improves success; consider 10 -103-111, Windows/Computer Basics.

10-104-110 MARKETING PRINCIPLES ...marketing management, market segmentation, market research, consumer behavior, product decisions and management of distribution, pricing, promotional decisions for strategy planning.

10-104-125 EVENT MARKETING... planning, promotion execution, and evaluation of special events (entertainment, industry, meeting/convention). Students will work toward the actual staging of an event (will require time outside of the classroom setting).

10-105-102 CAREER PLANNING ...experiential learning introduction. Learn how personal branding allows candidates to differentiate themselves from the competition through appearance, personality, and marketing competency. Career portfolio introduced (Corequisite: 10-890-101, College 101)
10-105-103 CAREER PREPARATION ...create professional resume and cover letter, prepare for interviews, understand interviewing techniques, participate in a mock interview. Submission of experiential learning proposal. (Prerequisite: 10-105-102, Career Planning; 10-801-136, English Composition 1)

10-109-114 HOTEL MANAGEMENT ...lodging classification, ownership/ affiliation, hotel/front office organization, equipment, reservations, registration, guest services, guest accounting, credit monitoring, check-out/settlement, night audit, management functions, room statistics, yield management, staffing.

10-109-126 HOSPITALITY FINANCE ...purchasing/receiving controls, storing/ issuing controls, production controls, monitoring activities, sales controls, beverage controls, labor controls.
10-109-127 HOSPITALITY FACILITIES MGMT ...staffing housekeeping operations, facilities safety and security, cleaning routines, material selection, laundry operations, controlling costs in housekeeping and maintenance departments, facility systems.

10-109-168 RESTAURANT MANAGEMENT ...food/beverage industry, product classifications, responsible service; bar/kitchen equipment/organization; maintaining clean/sanitary facilities; staffing, training, supervising food/beverage employees; promotions planning; budgeting/ cost controls of food/beverage operations.

10-196-191 SUPERVISION ...front-line leadership including teamwork, setting goals, planning, delegation, controlling, communication, motivation, performance management, staffing, training, problem solving, and conflict management.

Offered at the Green Bay campus.
For information: (920) 498-5444.
Toll-free: (888) 385-6982.
This program is not eligible for financial aid.

## Program Description

The Certified Medication Assistant is a Certified Nursing Assistant employed in a nursing home who administers specific medications under the supervision of the nursing staff. The program provides an opportunity for students to develop the knowledge of standard practices related to administration of medications affecting multiple body systems.

## Program Outcomes

- Define the legal and ethical responsibilities associated with the role of medication assistant.
- Identify factors that influence the effects of medications on the individuals.
- Utilize guidelines common to administration of all medications.
- Utilize knowledge of systems of measurement when administering medications.
- Administer medications safely and efficiently by selected routes.
- Identify effects of common medications on each body system.
- Describe the effects of normal aging on pharmacokinetics.


## Requirements for Program Entry

- Be a current employee in a nursing home.
- Requirements for program entry must be completed prior to the start of the program.
- At least 18 years of age.
- High school transcript or equivalent. (For a list of equivalents, go to www.nwtc.edu/gettingstarted.)
- Be on the State of Wisconsin Nurse Aide Directory, with current Federal eligibility.
- Have at least 2000 hours experience in direct patient care within the last three years.
- Have worked a minimum of 40 hours, within the last 90 days, with the residents to whom the student will be administering medications.
- Submit a completed employer recommendation form.
Available upon request.
- As a requirement for program entry, an Academic Skills Assessment (Accuplacer or ACT) with appropriate benchmark scores is necessary. Accuplacer benchmarks are Arithmetic, 34; Reading Comprehension, 55: Sentence Skills, 60. Applicants not meeting these benchmarks are encouraged to contact an advisor or at (920) 498-5444 or (888) 385-6982.


## Employment Potential

A graduate of this program will have the potential for employment in the following area:
Certified Medication Assistant: maintain employment as a Certified Medication Assistant in a nursing home.

Note
A preceptor is an RN at the nursing

## Curriculum

The Certified Medication Assistant
Technical Diploma is a 100 -hour program
that includes 60 hours of theory/lab,
held at NWTC Green Bay Campus, and
40 hours of clinical, held at the nursing home where the student is employed. Upon graduation, a student will have completed three credits. Orientation will be done during the first class.

```
FIRST SEMESTER
    CREDITS
30-510-301 Certified Medication Assistant 3
SEMESTER TOTAL
TOTAL CREDITS
```

home where the student is employed. The preceptor acts as a mentor for the Medication Assistant student.

The vital role of the preceptor is to assist the learner in meeting the program outcomes. NWTC asks that the agency agree to the following requirements:

- While supervising students (maximum of 2 students) during the med pass, the preceptor will be dedicated to the med pass.
- Students will be assigned to the same wing/residents for the entire 40-hour clinical rotation.
- Med pass block of time is utilized for med pass skill development and medication education.

If your agency is unable to support these requirements, it is suggested you do not enroll students in this program.

## COURSE DESCRIPTIONS

These courses provide an opportunity for students to develop the knowledge, skills, and understanding required for employment in this field.

30-510-301 CERTIFIED MEDICATION
ASSISTANT....is a Certified Nursing
Assistant employed in a nursing home who administers selected medications under the supervision of the nursing staff.

Offered at the Green Bay campus. Toll-free: (888) 385-6982.

This program is fully eligible for financial aid.

## Program Description

Graduates of the Civil Engineering employment in the Engineering or Surveying field. Careers include positions
in Computer Aided Drafting and Design (CADD), construction administration and inspection, or surveying.

## Program Objectives

 Graduates will...- be technically competent and able to solve civil engineering technology problems using basic principles of mathematics, science and engineering technology.
be able to communicate effectively, both orally and in writing, using electronic tools and graphical representatio
- be effective team members. understand and appreciate diversity and professional behavior in engineering. - understand the value of life-long learning and engage in professional growth.


## Program Outcomes

- Students will utilize CAD and sketching techniques to
engineering documents engineering documents.
Students will be capable of performing - Students will be capable of performing
design and routine testing procedures design and routine testing proced
related to construction materials. These materials include soils, Portland cement concrete and hot mix asphalt.
- Students will be capable of understanding the legal aspects of land surveying and use land surveying instruments to collect data necessary to produce topographic maps,
establish horizontal and vertical control, establish horizontal and vertical control, and to lay out civil engineering projects. Students will demonstrate forces and - Stresses in elementary structural syst Students will estimate material
quantities for construction projects. - Students will understand operating systems, spreadsheets, word processing to solve technical problems. - Students will be able to apply elements of design to materials mixtures, roads, subdivision layout, and storm and sanitary sewer systems. -Students will be able to solve engineering, surveying, and materials testing problems using principles of mathematics, science, engineering and technology. - Students will be able to conduct, of experiments related to science and civil engineering materials. Students will have the ability to function effectively on teams.
- Students will develop problem solving capabilities.
Students will be able to communicate effectively by producing
written and oral reports.
Students will recognize the need to continue professional development by engaging in lifelong learning.


## COURSE DESCRIPTIONS

These courses provide an opportunity for students to develop the knowledge, kills, and understanding requ.

10-606-112 COMPUTER APPLICATION FOR TECHNICIANS...basics of a computer yystem, computer terminology, the Microsof Windows environment, file management

0-606-113 CAD (COMPUTER AIDED DRAFTING) ...computer aided drafting using AutoCAD software focusing on emplate settings; creating and manipulating layers, basic drawing, editing, and inquiry
commands; blocks and attributes; and plotting. (Corequisites: 10-607-119, Intro to Civil Engineering Technology OR 10-606-119, Technical Sketching OR 10-614-113, 2D Essentials)
10-607-102 LAND SURVEYING/ COMPUTER APPLICATIONS ...overview surveying for mapping, contouring and calculations. (Prerequisites: 10-607-12 Survey \& Mapping; 10-606-113, CAD)
10-607-110 CEMENTED AGGREGATE MIXTURES ...inspection/testing concepts, sampling procedures, aggregate properties,
PCC mix design methods, HMA design fiel laboratory quality control testing. ACI Grade I and WisDOT PCCTEC certifications are vailable through this course. (Corequisite 0-804-196, Trigonometry w Ap 0-607-119 INTRO TO CIVIL ENGINEERING TECHNOLOGY.. portfolio preparation, lettering and printing, chart plotting, resume creation, library research methods, measurement and scaling, drawing techniques, sheet work, orthographic projection, isometric drawings, and construction print reading. 10-607-121 SURVEYING/MAPPING ...basic surveying principles, history of making computations, and generating computerized maps. (Corequisites: 10 804-196, Trigonometry w Apps)

Students will acquire an understanding of professional,
ethical and social responsibilities
Students will have respect for rase
tudents will have respect for
thnic and diversity issues.
timelines and continuous improte quali

## Requirements for

Program Entry

- Completed application
- High school transcript or equivalent. (For a list of equivalents, go to
www.nwtc.edu/gettingstarted.) High school background in High school background in
mathematics, science, and CADD. As a requirement for program entry, an Academic Skills Assessment (Accuplacer) necessary. Program Benchmarks are: Reading Comprehension: 80; Sentence Skills: 75; College Math: 63. Students not meeting these benchmarks or the equivalent will be granted pre-program status and will be required to establish an individualized he plan students will be eligible for all program courses. However, higher test scores will lead to greater success in core program courses. To learn more about these assessments and program benchmark sores, please contact a counselor at 20) 498-5444 or (888) 385-6982 Students will be required to take
the Accuplacer College Level Math assessment. The benchmark grade for Civil Engineering Technology on the College Math assessment is 63 . An alternative to the College Level Math assessment would be a score of 24 on the Math portion of the ACT. Attendance at orientation or a planned


## Employment Potential

A graduate of the program will have the potential for employment in the following areas
Civil Construction Inspector: examines and interprets prints and specifications; confers contract specifications, building codes, and zoning ordinances; and also inspects soils, asphalt, concrete, building construction, and underground utilities at the project site. Civil Drafter: drafts detailed construction drawings, survey drawings, topographical profiles, related maps, and specification sheets used in planning construction of highways and streets, buildings, river and harbor improvements, landfills, flood control, drainage, rail roads, airports, water and sewer
systems, and other civil engineering projects using Computer Aided Drafting systems. Civil Soils-Materials Technician: samples and performs tests on soils, hot mix asphalt, concrete, aggregate, and othe asphat, concrete, aggregate, and other
construction materials; and identifies and classifies soil samples for foundation construction and environmental purposes. Survey Technician: obtains data and makes computations pertaining to angles, distances, elevations, points, contours, and other purposes using levels, total stations, data collectors, global positioning following approved surveying practices.

Curriculum
Sudents following the study plan below
will complete the Civil Engineering
Technology associate degree in the
FIRST SEMESTER CREDITS 0-600-112 Computer Apps for Technicians
$0.606-113$
CAD 2 $10-60-111$
10 Cemented Aggregate Mixtures
$10-607-119$
Intro to Civil Engr Technology $10-607-121$ Surveyin/ Mapping
$10-80-196$
Orall/nterpersonal Con $10-801-196$ Orallinterpersonal Com
10-80-196
Trigonometry
10-800-101
College 101 Yo-890-101 College 10
SEMESTER TOTAL

## ECOND SEMESTER

10-607-102
Land Surveving/Computer App
$10-67-125$
Civil Public Works Construct
$10-607-125$ Civil Public Work
$10-67-128$ Soil Mechanics
$10-801-136$ Enalish
10-801-136 English Composition 1
$10-804-195$ College Algebra w Apps 10-804-195 College Algebraw Apps
$0-806-154$ General Physics 1
SEMESTER TOTAL
SUMMER SEMESTER
10-607-191 Civii Engineering Internship
HIRD SEMESTER
${ }_{10} 0-607-131$ Surveying 2

$10-809-172$ intro to Diversity Studies

## FOURTH SEMESTER



## CURRICULUM NOTE

Sudents must have had two years of high schoo algebra, one year of high school geometry an
an anccoptable Academic Skills sssessment College Math score or have completed or tested out of Intermediate Algebra w Apps, course
$10-804-118$, before taking the following First $0-804-118$, before taking the following First
Semester program courses: -Soil Semester program courses. -Soin Mechanics
-
The credit for 10-890-101, College
san Institutional Requirement or
of the program requirements.

With additional education and/or work experience, graduates may find othe opportunities for employment. - Civil Engineer Construction Superintendent Building Inspector
Civil Designer
Construction Project Manager Surveyor

## Accreditation

The Civil Engineering Technology progran at NWTC is accredited by the Engineering Technology Accreditation Commission

## Board/Certification

Examinations
The program also meets the educational requirements to become a Licensed Land Surveyor in the state of Wisconsin.

0-607-125 CIVIL PUBLIC WORKS CONSTRUCT ... horizontal curves, sewer/ water systems, civil engineering mapping, feld inspector roles, and CAD applications. (Prerequisites: 10-606-113, CAD,
804-196, Trigonometry w Apps)
10-607-128 SOIL MECHANICS ...origins 0-607-128 SOIL MECHANICS ...orig oil classification systems, subsurface exploration, foundations, moisturedensity relationships, soil compaction, and groundwater. Certification in the use and ransfer of portable nuclear density gauges is available through this course. (Prerequisites:
10-607-110, Cemented Aggregate Mixtures; 10-804-196, Trigonometry w Apps)

10-607-131 SURVEYING 2 ...closed traverse measurements, traverse adjustments, data ollection, rectangular coordinate use, land area computation, topographic mapping,
and computer applications. (Prerequisites: nd computer applications. (Prerequisites:
$0-607-102$, Land Surveying/Computer Appl; 10-804-195, College Algebra w Apps)
10-607-134 SURVEYING DRAFTING .land record forms, legal descriptions, public and systems, survey map plat drawing,
certified survey map drawing, subdivision/ preliminary plat drawing, and basic use of AutoCAD and a software in the preparation of drawings. (Prerequisite: 10-607-102, Land Surveying/Computer Appl) 10-607-147 WATER TECHNOLOGY hydrostatic pressure, continuity of flow, conservation of energy, flow in pipes under pressure, open channel flow, sewer design, water quality, wastewater treatment, rainfall, and reservoirs. (Prerequisites: $0-806-154$, General Physics $1 ; 10-$ 804-195, College Algebra w Apps; 10
804-196, Trigonometry w Apps)

10-607-151 HIGHWAY SURVEYING ..vertical curves, road design, volume calculations, site planning, and construction staking. (Prerequisite
10-607-131, Surveying 2)

0-607-152 CONSTRUCTION
0-607-152 CONSTRUCTION SYSTEMS ...building components construction methods, construction materials, plans, specifications, and print reading. (Prerequisites: 10-607-110, Cemented Aggregate Mixtures; 10-60725, Civ1 Public Works Construction 0-607-128, Soil Mechanics)

10-607-153 GLOBAL POSITIONING YSTEMS ...introduction and history of GPS; latitude, longitude, and state plane coordinate systems; static, rapid static, and kinematic positioning systems. (Prerequisites 10-804-195, College Algebra w Apps)

10-607-154 LAND LAW 1 ...registration laws of Wisconsin, history of property law, aws of evidence, performing a property survey, adverse possession, unwritten righ
professional liability/stature and role of the land surveyor in court. (Prerequisite: 10-607-134, Surveying-Drafting)
10-607-191 CIVIL ENGINEERING NTERNSHIP... the application of theory, kills, and techniques in the civil engineering 0-607-234 AUTOCAD CIVIL 3D-INTRO working with survey, points, and surface site design features including parcels, lignments, profiles, assemblies, pipes, data. (Prerequisites: familiarity with a computer, knowledge and understand of civil engineering terminology and basic familiarity with AutoCAD is recommended. 10-607-235 STATICS/STRENGTH MATERIALS-CIVIL force analysis moments, resultant and equilibrant forces coplanar, concurrent, and nonconcurrent systems; static friction; basic relationships of stress and strain under axial, torsional, and ending loads; properties of construction materials. (Prerequisites: $10-806-154$, Genera Apps; 10-804-196, Trigonomerry w Apps)

Offered at the Green Bay and Marinette campuses. For information
in Green Bay: (920) 498-5444. For in Green Bay: (920) 498-5444. For 3361. Toll-free: (888) 385-6982

This program is fully eligible
for financial aid.

## Program Description

The Computer Support Specialist - IT program emphasizes problem solving using current software packages, programming in Visual BASIC, hardware onfigurations, networking, operating

## Program Outcomes

Develop attractive and effective slide show using PowerPoint presentation software - Develop professional letters and reports
using Word document processing software. using Word document processing software. - Develop professional and userExcel spreadsheet software
Excel spreadsheet sofware. - Develop business applications
which integrate and share different types of files or objects.

- Automate application software Automate application software
operations via macros and VBA operations via macros and
programming techniques.
- Develop relational database applications using database management software to code SQL statements and queries. - Design a normalized database and develop entity relationships. - Develop attractive and effective Web pages using HTML and CSS coding techniques. - Install, configure, and maintain computer hardware and peripherals Troubleshoot and repair computer hardware and operating systems problems. Develop computer programs to perform common business functions using the Visual BASIC programming language. - Perform basic computer system functions and operations using the command line and shell scripts.
- Configure and administer common
microcomputer operating systems.
- Automate Windows operations using common operating system scripting languages - Perform common help desk and end-user support functions using
current technologies and protocols.
- Plan and conduct computer | Plan and conduct computer |
| :--- |
| training sessions using appropriate |

tech - Develop effective lesson plans, training
materials, and assessment tools to materials, and assessment tools to - Develop technical documentation and "help" resources to support the use of computer facilities and services. - Apply job seeking skills to secure
employment in the computer field. employment in the computer field.

## Requirements fo

## Program Entry

Completed applicatio
High school transcript or equivalent. For a list of equivalents, go to One year of high sch algebra completed.
Ability to use compute
keyboard and mouse keyboard and mouse. As a requirement for program entry, an
Academic Skills Assessment (Accuplacer) with appropriate benchmark scores is necessary. Program benchmarks are Reading Comprehension: 55; Sentence Skills: 75; Arithmetic: 65. Students not meeting these benchmarks or the equivalent will be required to establish an individualized academic plan. Students may program core courses while completing program core coulized plan. Upon completion of the plan, students will be eligible for all program courses. However, higher test scores will lead to greater success in core program courses. To learn more about these assessments and program benchmark scores, please contact a counselor at

## Employment Potential

A graduate of the program will ave the potential for mployment in the following areas:
T Consultant: provides one-on ne problem solving for users. Help Desk/Support Specialist: develops customized user menus, installs software packages, administers networks, and is a upport technician for sofware packages.
PC Programmer: performs detailed program design, coding, testing, debugging,
documentation, and implementation f online or interactive systems. Computer Sales Representative:
makes customer calls, establishes makes customer calls, establishes
customer contacts, identifies custome needs, and prepares proposals. IT Trainer: trains employees on software ackages which enable the user to
robles was Network Assistant: helps to configure networks, installs hardware
software, and trains users.
software, and trains users. Desktop Application Developer: provides for the development, testing,
implementation, documentation, and support of customized desktop applications. PC Repair Technician: maintains and repairs hardware components of
desktop computers, network servers and devices, and peripheral equipment including printers and scanners.

With additional education and/or work experience, graduates may find

Curriculum
Students following the study plan
below will complete the Computer
Support Specialist associate degree in

FIRST SEMESTER CREDIT
countants 10-150-174 IT:Network:CCient OP Sy ${ }^{10}$ 10-154-160 IT:Support:Software-Intro *10-801-136 English Composition 1 10-804-133 Math \& Logic "10-890-101 College
SEMESTER TOTAL

## SECOND SEMESTER

SECOND SEMESTER
10-120-15 B Busines-Principles
10-152-163 IT:Program: Visual Basic

10-154-153 IT:Support:Oper Sys \& Data Com
10-154-190 IT:Support:Help Desk/User Sup

 | $10-801-196$ Orallinterpersonal |
| :--- |
| $10-801-197$ Technical Reporting | SEMESTER TOTAL

Th-102-100 Bus and Info Tech Occup Pion 10-102-100 Bus and Info Tech 0
10-107-194

$\mathrm{IT}:$ Documentation | 10-107-194 |
| :---: |
| IT:Documentation |
| 10-150-163 |
| IT:Network:Cisco 1 |

10-150-165 IT:Network:Microsoft Server 1 10-154-125 IT:Web:Database Developmen
10-154-157 $\pi T: S u p p o r t: A d v a n c e d ~ P r o i e c t s ~$
 10-809-172 Intro to Diversity Studies

## 10-107-195 |T:Training

10-152-184 IT:Web:Programming-SQ
10-152-184 1 IT:Web:Programming-SQL
10-152-185 10-152-185 W Website Ooding
$10-154-199$
IT:Support: Inter 10-809-195 E.Conomics
10-809-199 Psychology Of Human Relations 10-809-199 Psycho
SEMESTER TOTAL SEMESTER TOTAL

## CURRICULUM NOTE

A student desiring a strong financial background or a student planning to double
maior in Accounting is advised to substitute the maior in Accounting is advised to subsstitute t
four credit Accounting 1 (10-10-110) for th four credit Accounting $1(10-101-110)$ for the
three-credit Accounting for Non-Accountants (10-101-106). To discuss this further, please conta an NWTC counselor or academic adviso
"Students must earn a grade of "C" or better
in $10-801-136$, English Composition to enrol in 10-801-136, Engish Composition
in $10-801-197$, eechnical Reporting.
*The credit for 10-890-101, College 101 The credit for 10-890-101, College 10 ,
is an Institutional Requirement for graduation. Consequently, it is not part
of the program credit requirements.
other opportunities for employment.

- Network Administrator
- Internet Site Administrator
- Hardware Technician
- IT Department Supervisor

The following certificates/technical diploma may be applied toward this program:

- 311546, Computer Support

Technician - IT

- 901542, Computer Support Certificate - IT


## COURSE DESCRIPTIONS

These courses provide an opportunity kills, and understanding required for employment in this field.
10-101-106 ACCOUNTING-FOR NON-ACCOUNTANTS ...teaching nonaccountants to read, analyze, and interpret
financial information for making informed business decisions. This class de-emphasizes the use of debits, credits, journal entries and other accounting procedures. 10-102-100 BUS AND INFO TECH
OCCUP PREP exploration, career planning, career placement, job seeking skills. This course should not be taken before the 3rd semester or completing at least half of the core program courses. 10-102-158 BUSINESS PRINCIPLES .economics and business; global business; ethics and social responsibility; business
ownership; entreepreneurship; business management; marketing; managing financial resources; legal issues impacting business; using technology to manage informatio
10-107-194 IT:DOCUMENTATION ..plan documentation content and delivery written documentation, become familiar with ISO 9000 standards, package PDF files, and create compiled help modules. Proficiency using Word required. (Prerequisite: 10-80136, English Composition 1 or equivalent) 10-107-195 IT:TRAINING ...effective presentation skills, plan training content
and delivery methods, write lesson plans, provide training materials, conduct training sessions, and assess learners' grasp of stated objectives. (Prerequisites: 10-154-160,
IT:Support:Software-Intro AND 10 -154-150, IT:Support:Hardware-Intro)

10-150-163 IT:NETWORK:CISCO ...cable characteristics and termination, structured cabling systems, OSI reference model, IP addressing and subnetting, network architectures and router operation and configuration.

10-150-165 IT:NETWORK:MICROSOFT SERVER 1 ....Microsoft Server OS administration and implementation. Learner will install and configure the OS, Active Directory, Group Policies, IIS
and security ( Prerequisite: $10-150-174$, IT:Network:Client Operating Systems)

10-150-174 IT:NETWORK:CLIENT OPERATING SYSTEMS ...basic OS file management techniques, OS installation/configuration; configuratio of I/O and storage devices; basic network connectivity; standard system
maintenance procedures; command line introduction and batch file writing. 10-152-163 IT:PROGRAM:VISUAL BASIC ...introduction to programming using the Program definition and design, form design, and the coding, testing, and debugging of programs are covered. (Prerequisites: 10-150-174, IT:Network:Client Op Sys; 10-154-160, IT:Support:SoftwareIntro; 10-804-133, Math \& Logic)

10-152-184 IT:WEB:PROGRAMMINGSQL ...write queries in a relational databas creating tables, setting primary/foreign keys, populating tables, manipulating data and reporting. Explore join types, stored procedures, functions, and database administration SQL statements. (Prerequisite:
10-154-125, IT:Web:Database Development) 10-152-185 WEBSITE CODING ...create code for generating the structure, function, and design of static websites using standardsbased HTML5 and CSS3; validate code; test

10-154-125 IT:WEB:DATABASE DEVELOPMENT ...database uses, database terminology, analyzing information requirements, data models, database design phases, entity relationships, normalization processes, database management systems, database objects, development environments, creating tab
writing queries using SQL, testing.

10-154-150 IT:SUPPORT:HARDWAREINTRO ...computer network terminology, component identification, POST, computer peripheral configuration and maintenance basic operating systems concepts and installations, basic networkng concepts using the Cisco IT Essentials curriculum.

10-154-153 IT:SUPPORT:OPERATING SYSTEMS AND DATA COMMUNICATION ...core OS operation, configuration of desktop/
network OS, system security/audit policy, data communications, network topologies, convergence technologies, mobile applications, virtual desktop management and advanced scripting. (Prerequisites: 10-150-174, IT:Network:Client Op Sys; 10
154-150, IT:Support:Hardware-Intro) 154-150, IT:Support:Hardware-Intro) 10-154-157 IT:SUPPORT:ADVANCED ...PC hardware, software, O.S configuration, maintenance, 1.1 . resources,
malware, bootable and unattended install media, data backups, disaster recovery plans, troubleshooting, virtualization, RAID storage, server farm build, emerging technologies. (Prerequisites: 10-150-1
IT:Network:Client Op Sys; $10-154-$ 150, IT:Support:Hardware-Intro)
10-154-160 IT:SUPPORT:SOFTWAREINTRO ...an introductory course for the Computer Support Specialist program and covers the fundamental capabilitic and functions of Word, PowerPoint,
Excel, Email correspondence, Internet search engines, and file compression.

10-154-171 IT:SUPPORT:INTEGRATION VBA ...using Visual Basic for Applications to automate operations of the object models for Microsoft Word, Excel integration of these applications/objects; fundamental programming constructs and data manipulations. (Prerequisites: 10-154-160, IT:Support:Software-Intro 10-152-163, IT:Program:Visual Basic) 10-154-190 IT:SUPPORT:HELP DESK/ END USER SUPPORT ...describe the role END USER SUPPORI ...describe the re
of the help desk in technology support, of the help desk in technology support,
use terminology, processes, and tools, and demonstrate the use of business, technical communication, and self-management skill required for help desk support professionals. 10-154-199 IT:SUPPORT: INTERN PRACTICUM ...practical hands-on experience applying skills developed in the program at an approved site with supervi
by an employer and the instructor with related projects and discussion. (Prerequisites: 10-801-136, English Composition I; 10-804-133, Math \& Logic; Corequisite:
10-102-100, Bus and Info Tech Occup Prep)

## Computer Support Technician it Program Code 311546 | Technical Diploma

Offered at the Green Bay and Marinette campuses. For information in Green Bay: (920) 498-5444. For information in Marinette: (715) 7359361. Toll-free: (888) 385-6982.

This program is fully eligible for financial aid.

## Program Description

Computer Support Technician IT emphasizes problem solving using microcomputer hardware and software facilities including command line environment and Windows operating systems, Microsoft Word, and Microsoft Excel.

## Program Outcomes

- Develop attractive and effective slide shows using PowerPoint presentation software.
- Develop professional letters and reports using Word document processing software.
- Develop professional and userfriendly spreadsheets using Excel spreadsheet software.
- Develop computer programs to perform common business functions using the Visual BASIC programming language.
- Perform common help desk and end-user support functions using current technologies and protocols.
- Install, configure, and maintain computer hardware and peripherals.
- Perform basic computer system functions and operations using the command line and shell scripts.
- Configure and administer common microcomputer operating systems.
- Automate Windows operations using common operating system scripting languages.


## Requirements for Program Entry

- Completed application.
- High school transcript or equivalent. For a list of equivalents, go to www.nwtc.edu/gettingstarted.
- One year of high school algebra completed.
- Ability to use computer keyboard and mouse.
- As a requirement for program entry, an Academic Skills Assessment (Accuplacer) with appropriate benchmark scores is necessary. Program benchmarks are Reading Comprehension: 55; Sentence Skills: 75; Arithmetic 65. Students not meeting these benchmarks or the equivalent will be required to establish an individualized academic plan. Students may have the opportunity to enroll in selected program core courses while completing their individualized plan. Upon completion of the plan, students will be eligible for all program courses. However, higher test scores will lead to greater success in core program courses. To learn more about these assessments and program benchmark scores, please contact a counselor at (920) 498-5444 or (888) 385-6982.


## Employment Potential

A graduate of this program will have the potential for employment in the following areas:
IT Consultant: provides one-onone problem solving for users.
Computer Sales Representative: makes customer calls, establishes customer contacts, identifies customer needs, and prepares proposals.

With additional education and/or work experience, graduates may find other

## Curriculum

Students following the study plan
below will complete the Computer
Support Technician technical diploma
in the number of semesters shown.

FIRST SEMESTER CREDITS
10-101-106 Accounting-for Non-Accountants 3
10-150-174 IT:Network:Client Op Sys
10-154-150 IT:Support:Hardware-Intro
10-154-160 IT:Support:Software-Intro
*10-801-136 English Composition 1
10-804-133 Math \& Logic
*10-890-101 College 101
SEMESTER TOTAL

## SECOND SEMESTER

10-102-158 Business-Introduction 10-152-163 IT:Program:Visual Basic 10-154-153 IT:Support:Oper Sys \& Data Com 10-154-190 IT:Support:Help Desk/User Sup 10-801-196 Oral/Interpersonal Comm 10-801-197 Technical Reporting SEMESTER TOTAL TOTAL CREDITS

## CURRICULUM NOTE

* Students must earn a grade of "C" or better in 10-801-136, English Composition to enroll in 10-801-197, Technical Reporting.
${ }^{* *}$ The credit for 10-890-101, College 101, is an Institutional Requirement for graduation. Consequently, it is not part of the program credit requirements.
opportunities for employment.
- IT Trainer
- Network Assistant

Note
This can also be the first year of the twoyear Computer Support Specialist - IT program on the Green Bay campus.

The following certificates/technical diplomas may be applied toward this program:

- 901542, Computer Support Certificate


## COURSE DESCRIPTIONS

These courses provide an opportunity for students to develop the knowledge, skills, and understanding required for employment in this field.

10-101-106 ACCOUNTING-FOR NON-ACCOUNTANTS ...teaching nonaccountants to read, analyze, and interpret financial information for making informed business decisions. This class de-emphasizes the use of debits, credits, journal entries and other accounting procedures.

10-102-158 BUSINESS PRINCIPLES ...economics and business; global business; ethics and social responsibility; business ownership; entrepreneurship; business management; marketing; managing financial resources; legal issues impacting business; using technology to manage information.

10-150-174 IT:NETWORK:CLIENT OPERATING SYSTEMS ...basic OS functions; memory, CPU, device/ file management techniques, OS installation/configuration; configuration of I/O and storage devices; basic network connectivity; standard system maintenance procedures; command line introduction and batch file writing.

10-152-163 IT:PROGRAM:VISUAL BASIC
...introduction to programming using the Visual Basic.NET programming language. Program definition and design, form design, and the coding, testing, and debugging of programs are covered. (Prerequisites: 10-150-174, IT:Network:Client Op Sys; 10-154-160, IT:Support:SoftwareIntro; 10-804-133, Math \& Logic)

10-154-150 IT:SUPPORT:HARDWAREINTRO ...computer network terminology, component identification, POST, computer/ peripheral configuration and maintenance, basic operating systems concepts and installations, basic networking concepts and configurations and troubleshooting using the Cisco IT Essentials curriculum.

10-154-153 IT:SUPPORT:OPERATING SYSTEMS AND DATA COMMUNICATION ...core OS operation, configuration of desktop/ network OS, system security/audit policy, data communications, network topologies, convergence technologies, mobile applications, virtual desktop management and advanced scripting. (Prerequisites: 10-150-174, IT:Network:Client Op Sys;10-154-150, IT:Support:Hardware-Intro)

10-154-160 IT:SUPPORT:SOFTWARE-
INTRO ...an introductory course for the Computer Support Specialist program and covers the fundamental capabilities and functions of Word, PowerPoint,
Excel, Email correspondence, Internet search engines, and file compression.

## 10-154-190 IT:SUPPORT:HELP DESK/

 END USER SUPPORT ...describe the role of the help desk in technology support, use terminology, processes, and tools, and demonstrate the use of business, technical, communication, and self-management skills required for help desk support professionals.10-804-133 MATH \& LOGIC ...students will apply mathematical problem solving techniques. Topics will include symbolic logic, sets, algebra, Boolean algebra, and number bases. (Prerequisites: AccuplacerArithmetic score= 65 or ACT-Math score $=15$ or 10-834-109, Pre Algebra AND Accuplacer-Reading=55 or ACT-Reading=15 or 10-838-105, Intro to Reading \& Study Skills with "C" or better OR equivalent)

Construction Technolog

| Offered at the Green Bay campus． For information：（920）498－5444． Toll－free：（888）385－6982 | Employment Potential | Curiculum |
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| Program Entry |  | 为 |
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|  |  | 10－664－101，Automation 2：Motor Cont 10－664－102，Automation 3：PLC |

Cole

Court Reporting Program Code 101702 | Associate Degree


## COURSE DESCRIPTIONS



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syllabic vorst puncruato nan special



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Realime Reperting 2 Labis sequired.
10-170-106 Realtime reporting





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Minimum of 130 WPM met)
10-770-111 LITTERARY II-ADVANCED




10-170-128 JURY CHARGE
1-ADVANCED
cremer




 10106121, Jury Chare 1 -.Beginer or
CoNDITTON: Minimum of 130 WPM me






10-170-141 Court merat
10.-170-141 CourT Reporting
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 Court Reporining progatan requiremenns mel


 and deposition enviromenen under the
superevision of of workning reporerep pepare
 Intershiip experiencec in a a ararative ereort.
Prereçuisiste: 101060108 or 1010108 Prerequisite: 10106108 or 10170108
Realtime Rptg Speed Dev, 10106128 or Realtime Rpty Speed Dev, 10100128 or
101700128 Jury Chrg 1-Adv, 101061090 or 101710109 Lit 1 -Adv, 101066156 or
10170156 Test 1 Adv $\&$ Corequisite 0170156 Test 1 -Adv \& Corequisite:
0106129 or 10170129 Jury Chrg 2-Adv, 10106111 or 10170111 Litit2-Avv-and
10106157 or 10170157 Test 2 Adv$)$
10-170-156 TESTIMONY I-ADVANCED tertimony at 160 words per minute for 3 minutes and transcribib at least 3 timings and prepare salate trunscripts. Concurrent Cegistration in Testimony 1 Lab-Advanca
is required.) Preequisite: 10170133
. 10153 Cestimony 1 -Beginner or 10106153

Testimony 1 -Beginner or CONDITION or Minimum of 130 WPM met. -prepares he learner to write 2-voice estimony materaial ar 225 words percere minute with a minimum of 55 percent accuracy registration in in Testimony III Lab-Advanced | egistration in Tersimony II Lab-Advan |
| :--- |
| s required. (Prerequisite: 10170154 | Testimony 2 -Reginner or 10106154

TTestimony --eginner or CONDITON:
Mining Minimum of 190 WPM met)
10-170-159 REALTIME REPORTING
TECHNLOGY sudent to use CAT (Computer-Assisted Transcription) and real-time sofwware,
build personal dictionaiess and read,
 are introduced to real-time transstation
procedures in court depositions, captioning
and educational environments. 0-170-160 LEGAL TERMINOLOG .provides the student with the ability to ell, pond def legal terms
10-170-171 MEDICAL REPORTING \&
TERMINOLOGY ...prepares the sude ERMINOLOGY ...prepares he sudent 10 write medicial terminology in mach
shorthand using appropriate medical
Leminology foom material dictued terminology from material dictated ata
minimum speed of 150 wpm for 5 minutes minimum speed of 150 wpm for 5 minutes
with a minimum of 95 percent accurary. The student will research medicicu infocramation,
prepare salable transcripts and sumbit prepare salable transcripts, and submit
timings. (Precequisise: Totion 15 Testimo
1-Adv or 10106615 Testimony 1-Adv)
10-170-184 ENGLISH FOR REALTIME
REPORTERS REPRTTERS ...enhances hhe sutudnts atility to use proper English grammar, spelitig, punctuation, capitatization,
and vocabuly techniuses ine
ranscripuion of the spoken word.
10-170-804 Realtime reporting I AB...repares she learner to use machine shorthand to write consonants. vowels,
numbers, multi-syllabic words, multi-
consonan words punctuation and speci Consonant words, punctuation and special
symbols, short forms and phrases, words in symbols, short forms and phrases, words in
their singular and plural forms, and prefixes Cheir singular and plural forms, and prefixes
and suffixes. Concurrent registration in Realime enporting I is requirid. Corequiste
10170106 Realtime Reporing or or 100610 10170106 Realtime Reporting 1 or 1010011
Realtime Reporting 1 and CONDITION:


10-170-805 REALTIME REPORTING
IL LAB $\ldots$..expands the learners ability Ti. LAA...expands the learner's atility to
write multityllabic words; punctuation and
special symbols, short forms and phrases special symbols, shorr forms and phrases,
prefese and suffices; numbers, frequenty used words and phrases, contractions using
the $Z$-rule, he "Flagged Alphaber's" apply realime confict elimination principipss, apply
reallime thery realtime theory and write dicataion using
a realtime theory. Concurrent registration in Realime Reporting 2 is required.
(Corequisises 111070105 Realime Reporing
2 or 10101015 Realtime Reporting 2) 10-170-809 LITERARY I LABADVANCED ...expands the sudent's
ability to write literary material dictate ability to write literary material dictated
ata speed of 150 words per minute for 3
minutes and transcribe at least 3 timing
 with a minimum of 95 percent accuracy.
(Corequisite: 10170109 , Literary 1 IAvanced
or 10106109 , Literary 1 -Advanced) 10-170-811 Literary il labADVANCED ...expands the sudents
 words per minute for 5 minutes and
trancribe ac least three timings sinh
percent acurary. Concurrent regegrstration percent accuracy Concurrent registration
in Literary II-Advanced is required. Corequisite: 10170111 Literary 2-A
or 101060111 Literary 2-Avvanced or minimum of 160 WPM met) 10-170-828 JURY CHARGE I LAB-
ADVANCED .... prepares the student to wit ADVANCED ...prepares the sudent to wri
 ranscribe at least 3 timings with a minim
of 5 perentacuacy. Corequisite: of 95 percent accuracy. (Corequisite:
10170128 J Jury Charge 1 -Advanced or
10106128, Jury Charge 1 Aned 10106128, Jury Charge 1-Advanced)
10-170-829 URY CHARGE I LAB. 10-170-829 JURY CHARGE II LAB-
ADANCD ..expands he sudens sbility
oprite ury charge material ar 200 words to write jury charge material at 200 words
per minute for 5 minutes and dranscribe at
least three timing wit per minure for 5 minutes and transcribe at
least three timings with 95 percent accuraç
Concurrentreceistration Concurrent registration in Jury Charge
II-Advanced is required. (Corequisite: 1 Aldanced is required. (Corequisite.
10101229 Jury Chyry Charge 2 -ddanced or
2-Advanced) 10106129 Jury Charge 2-Advanced)
10-170-857 TESTIMONY II LABADVANCED ..expand the sudent's
ability to write 2-vaice textionona 225
Words per minute and transcribe with 9 ability to write 2 -voice testimony at 22,
words per minutand transcribe with 9
percent accuracy a minimum of three, 5 -minute, 2 -voice timings at 225 words per minute; complete a mock RPR Exam. Corncurent ereisitration in TTstimony
II-Advanced is required. (Corequisite: III-Avanced is required. (Corequisiste:
1017015 Testion 2 -Avanced or
10106157 Testimony 2 -Advanced)
10-170-859 TESTIMONY I LABADVANCED ...xpands the students
bility to write 2 -voice textimnnat 1 . ability to write 2 -vicice testimony a 160
words per min ure for 3 minutes and
ranscribe at least 3 timings with a minimu ranscribe at least 3 timings with a minin
of 05 percen accuracy. (Corequiste:
10170156, Testimony I-Advancel) 10170156, Testimony I-Advanced on
10106156 Testimony 1 -Advanced) 10-804-106 INTRODUCTION TO
COLLEGE MATH ...an introductory
 funcamental conceptso farithmetic,
algebragoemerty and
will be pe placed on consts. Emphasis and application oompratuational skilis,
problem solving skills with rambers;
atios. proportions, and percent; basic princip
 graphing. and staisistics measurement skills
in ... Cusorary natric Systems
and the use of calculatoror as as tool.

Offered at the Green Bay campus. For information: (920) 498-5444. Toll-free: (888) 385-6982.
This program is fully eligible for financial aid.

## Program Description

Credit Business Management prepares learners for careers in credit management. The learners will comprehend the concepts of leadership, demonstrating promotion, control, and collection of consumer and business transactions.

## Program Outcomes

- Adhere to internal credit policies and procedures.
- Process credit applications.
- Conduct credit investigations.
- Analyze business and consumer financial statements.
- Make credit decisions.
- Use credit related documents.
- Contact customers regarding outstanding balances.
- Negotiate payment proposals with customers.
- Resolve collection issues/problems.
- Resolve discrepancies in
customers' accounts.
- Assess how economic policies and changes in the level of business activity affect the credit industry.
- Deliver effective customer service.
- Evaluate the performance of a credit department.
- Demonstrate state and federal laws.
- Manage the work of other people in a team environment
- Use an electronic word processing computer program.
- Use an electronic spreadsheet computer program.
- Perform basic business math calculations.


## Requirements for

## Program Entry

- Completed application.
- High school transcript or equivalent. For a list of equivalents, go to
www.nwtc.edu/gettingstarted.
- Basic math.
- Ability to use computer keyboard. - As a requirement for program entry, an Academic Skills Assessment (Accuplacer) with appropriate benchmark scores is
necessary. Program Benchmarks are Arithmetic: 65; Reading Comprehension:
55: Sentence Skills: 75. Studen 55; Sentence Skills: 75. Students not meeting these benchmarks or the equivalent will be required to establish an individualized academic plan. Students may have the opportunity to enroll in selected program core courses while completing their individualized plan. Upon completion of the plan, students will be eligible for all program courses. However, higher test scores will lead to greater success in core program courses. To learn more about these assessments and program benchmark scores, please contact a counselor at (920) 498-5444 or (888) 385-6982.


## Employment Potential

A graduate of the program will have the potential for employment in the following areas:
Credit Manager Trainee: learns all phases of operating a business or financial institution credit department, usually in preparation for a management position.
Assistant Credit Manager: assists a department or branch manager in all phases of operation, including the extension, collection, and control of credit.

Credit Specialist: supports the credit process in the application of cash receipts, collection calls, and problem resolution.
Collection Specialist: contacts consumers or businesses to arrange payments and may become involved with legal aspects of collections.
Personal Banker: assists customers in opening accounts, explains bank services, and becomes involved in other financial institution services. Loan Officer: processes and investigates applications for credit and makes decisions on loan applications.
With additional education and/or work experience, graduates may find other opportunities for employment.

- Credit Manager
- Commercial Banker

Note

- Learners interested in double majoring in Accounting or Financial Institutions Management should consult with an instructor.
- Refer to the program website for information on accelerated learning and for helpful tips that will assist you


## Curriculum

Students following the study plan
below will complete the Credit Business
Management associate degree in the number of semesters shown.

FIRST SEMESTER
10-101-110 Accounting 1 10-103-121 Micro: Word-Intro 10-103-131 Micro: Excel-Intro 10-103-132 Micro: Excel-Part 2 10-801-136 English Composition 10-804-123 Math w Business Apps 10-890-101 College 101
SEmESTER TOTAL

## ECOND SEMESTER

10-102-150 Business Law \& Ethics
-105-102 Career Planning
10-114-166 Credit-Collection Methods 10-196-191 Supervision
0-801-196 Oral/Interpersonal Comm
SEMESTER TOTAL

## HIRD SEMESTER

10-102-158 Business Principles
10-105-103 Career Preparation
10-114-101 Credit-Business Applications 10-114-170 Credit-Law
10-809-195 Economics
0-809-199 Psychology Of Human Relations
SEMESTER TOTAL

## FOURTH SEMESTER

0-114-181 Financial Statement Analysis 10-114-199 Credit-Career Experience 10-809-166 Intro to Ethics: Theory \& App 10-809-172 Intro to Diversity Studies
SEMESTER TOTAL
OTAL CREDITS

## CURRICULUM NOTE

The courses beginning with course numbers 10 -114-xxx are delivered in an Accelerated Learning format. These courses have a compressed schedule. he competencies learned in an accelerated class are exactly the same as those in a traditional class. Students are expected to do most assignments outside of class time.
Core courses are primarily offered
during the evening.
*The credit for 10-890-101, College 101, is an Institutional Requirement for of the program credit requirements.

## SUGGESTED ELECTIVES

Any course in the Financial Institutions
Management or Accounting program.
in achieving the highest quality and most rewarding academic experience. - Most credits from this degree can be transferred to some four-year colleges for learners interested in pursuing a bachelorís degree.

## COURSE DESCRIPTIONS

These courses provide an opportunity for students to develop the knowledge, skills, and understanding required for employment in this field.

10-101-110 ACCOUNTING 1 ...accounting principles, financial statements, business transactions, accounting cycles/ systems, specialized journals, accounting for cash and receivables for sole proprietorships in service or merchandising businesses.

10-102-150 BUSINESS LAW \& ETHICS ...common law contracts and sales contracts: formation, interpretation, performance, and discharge; the law of agency; corporations; and introduction to the American legal system: criminal and tort law, and global business issues. (Prerequisite: 10-801-136, English Composition 1)

10-102-158 BUSINESS PRINCIPLES ...economics and business; global business; ethics and social responsibility; business ownership; entrepreneurship; business management; marketing; managing financial resources; legal issues impacting business; using technology to manage information.
10-103-121 MICRO: WORD-
INTRODUCTION ...word processing basics including creating, revising, formatting, printing; sections, tabs, multiple-page numbering; manipulating text; creating headers/footers; creating/formatting tables, graphics; and merging documents. Windows experience improves success; consider 10 103-111, Windows/Computer Basics.

10-103-131 MICRO: EXCELINTRODUCTION ...creating a worksheet, enhancing worksheet appearance, moving and copying data, using formulas and functions, creating charts and using clip art. Windows experience improves success; consider 10 -103-111, Windows/Computer Basics.

10-103-132 MICRO: EXCEL-PART 2 ...advanced formatting techniques and functions, working with templates, collaborating with multiple Excel users, creating macros, Excel's database features and analysis tools. (Corequiste: 10-103-131, Micro: Excel-Intro)
10-105-102 CAREER PLANNING ..experiential learning introduction. Learn how personal branding allows candidates to differentiate themselves from the competition through appearance, personality, and marketing competency. Career portfolio introduced. (Corequisite: 10-890-101, College 101)
10-105-103 CAREER PREPARATION ...create professional resume and cover letter, prepare for interviews, understand interviewing techniques, participate in a mock interview. Submission of experiential learning proposal. (Prerequisite: 10-105-102, Career Planning; 10-801-136, English Composition 1)

10-114-101 CREDIT-BUSINESS APPLICATIONS ...credit, sales, purchasing, shipping, receiving, accounts receivable, accounts payable, and collection procedures, prepare/analyze financial statements, use Excel to solve financia problems, amortization, breakeven, problems, amortization, breakeven, (Prerequisite: 10-101-110, Accounting 1)

10-114-109 CREDIT-POLICIES AND PROCEDURES ...credit/collection policies, procedures, and law, credit investigations, valuate credit worthiness, support credit decisions, create credit forms, fraud, decisions, create credit forms, fraud,
bankruptcy, techniques to control and bankruptcy, techniques to control and
manage accounts receivable. (Prerequisite: manage accounts receivable. (Prerequisit 10-101-110, Accounting 1 or 10-101-
106, Accounting for Non-Accountants)

10-114-111 CREDIT-CONSUMER ...the role of consumer credit, loan processes, collections, financial advising and counseling; loan, promotion, and bank policies; consumer, commercial mortgage loans, and credit cards.

0-114-166 CREDIT-COLLECTION
METHODS ...know your debtor, collection laws, pre-legal and legal methods used in collections, negotiating payment proposals, NSF checks, skip tracing, and bankruptcy. (Corequisite: 10-114-167, Finance-Commercial Lending or 10-114-109, Credit-Policies/Procedures)
10-114-170 CREDIT-LAW ...Uniform Commercial Code, credit regulations, Wisconsin Consumer Protection Law, collection law, and bankruptcy. (Prerequisite: 10-114-167, Finance-Commercial Lending or 10-114-109, Credit-Policies/Procedures; 10-801-136, English Composition 1)
10-114-181 FINANCIAL STATEMENT ANALYSIS ...types of financial statements, analyze financial statements, research company data, perform industry research, examine SEC $10-\mathrm{K}$ and annual report, and write financial analysis report. Highly recommended to be taken in the fourth semester or that the learner have applicable credit or accounting work experience. (Prerequisite: 10-101-110, Accounting 1)

0-114-199 CREDIT-CAREER EXPERIENCE ...practical hands-on experience applying skills developed in the program at an approved site with supervision by an employer and the instructor with related projects and discussion. (Prerequisites: 10-801-136, English Composition I; 10-804-123, Math w Business Apps; 10-105-103, Career Preparation)

10-196-191 SUPERVISION ...front-line leadership including teamwork, setting goals, planning, delegation, controlling ommunication, motivation, performance management, staffing, training, problem solving, and conflict management.

Criminal Justice-Corrections Program Code 105042 | Associate Degree

Offered at the Green Bay campus. Toll-free: (888) 385-6982.
This program is fully eligible for financial aid

## Program Description

 Criminal Justice - Corrections students relate theory to current practice trends, problems, and issues and also study correctional counseling, sociology, and security.
## Program Outcomes

- Analyze security procedures.
- Exercise interviewing techniques. - Examine the state and federal court structure.
- Apply restraints.

Outline the juvenile and adult criminal justice system

- Prepare reports.
- Interpret correctional law. - Summarize probation and parole procedures.
- Demonstrate oral communication skills.
- Compare numerous theories of criminal behavior.
- Contrast various components of
the criminal justice system.
- Distinguish numerous functions - Distinguish numerous func
of community corrections. - Identify the components that - Identify the componen
comprise corrections.
- Sumpmarize the administrative - Summarize the administrative
and managerial functions within and managerial function
- Be eligible to become a state - Be eligible to becom
- Apply basic math skills.
- Demonstrate keyboarding
and computer skills.
- Be eligible to become a state certified juvenile detention officer.


## Requirements for

## Program Entry

- Completed application
- Official high school transcript or equivalent. (For a list of equivalents, go to www.nwtc.edu/gettingstar
- To be eligible to participate in - To be eligible to participate in
core Criminal Justice courses, core Criminal Justice courses,
certification track students must have their student folder complete.
- Good writing and communication skills. - Strong organizational skills. - Students should have mastered basic math skills (whole numbers, fractions, decimals, percents, and measurements).
- As a requirement for program entry, an Academic Skills Assessment (Accuplacer) with appropriate benchmark scores is necessary. Program Benchmarks are Arithmetic, 65; Reading Comprehension 55: Sentence Skills, 75. Students no meeting these benchmarks or the equivalent will be required to establish an have the opportunity to enroll in selected have the opportunity to enroll in selected program core courses while completing
their individualized plan. Upon completion of the plan, students will be eligible for all program courses. However, higher test
scores will lead to greater success in cor program courses. To learn more about
these assessments and program benchmark these assessments and program bench scores, please contact a counselor at
(920) 498-5444 or (888) 385-6982


## Employment Potential

A graduate of the program will have the potential for employment in the following areas:
Correctional Officer: monitors, supervises, and informally counsels inmates under his/ her control; works cooperatively with other correctional staff; maintains order within searches inmates for contraband items such as weapons or drugs; transports inmates; mediates disputes between inmates; enforces discipline; and reports verbally and in writing bout inmate conduct and the quality and quantity of work done by inmates. Youth Care Worker: monitors he whereabouts and activities of clients under his/her responsibility, informally counsels, and guides proper personality development of clients. Secure Detention Worker: oversees and monitors juveniles within a secure detention facility, maintains order within the setting, cooperates with staff and law enforcement personnel, is responsible for oral and written communications with a variety of agencies and is knowledgeable about federal and state laws concerning juvenile rights.
Students Seeking a Certificate in Community Corrections Can Also: Understand substance abuse

- Compare numerous theorie
of offender treatment.
- Demonstrate methods of
computer crime investigation.
Students Seeking a Certificate in Alcohol \& Other Drug Abuse Can Also: - Identify and explain common purposes of group counseling. Plan and carry out a purposeful counseling group activity Explore the personal and professional characteristics of the counselor.

Students Seeking a Certificate in Jail and Juvenile Detention Can Also: - Apply principles of subject control. - Implement fire safety

With additional education and/or work xperience, graduates may find other opportunities for employment.

- Adult or Juvenile Administrator
- Institutional Case Worker or Social Worker
- Division of Community

Corrections Agent
Youth Counselor or Case Aide - Youth Detention Home Supervisor Note
Students should be aware that a previous criminal record will limit their opportunity to gain successful employment. Wisconsin Training and Standards requires a completed criminal background requires a completed criminal backgrou
check in order to successfully complete check in order to successfully complet
certifiability. Based upon results of the criminal background check, a student may be denied certifiability and

## Curriculum

Students following the study plan
below will complete the Criminal Justice-Corrections associate degree
in the number of semecters sher

## FIRST SEMESTER

CREDITS
10-504-114 Police-Nutrition/Fitness $\begin{array}{ll}\text { 10-801-136 } & \text { English } \\ \text { 10-801-198 } \\ \text { Speech }\end{array}$
$\begin{array}{ll}10-804-107 & \text { Speech } \\ \text { College Mathematics }\end{array}$ $\begin{array}{ll}\text { 10-809-166 } & \text { Intro to Ethics: Theory \& App } \\ 10-809-197 & \text { Contemprary }\end{array}$ ${ }^{10-809-197}$ Contemporary Amer Society "10-890-101 College
SEMESTER TOTAL

## SECOND SEMESTER

10-504-123 Correctional Institutions
$10-504-132$ 10-504-132 Courts/Jurisdiction 10-504-153 Ethics - Criminal Justice $* 10-504-900$ Intro to Criminal Justice
$* 10-504-931$ Communication Skills **10-504-931 Communication Skills SEMESTER TOTAL

## third semester

**10-504-128 PS-Job Interviews

$\begin{array}{ll}\text { 10-504-155 } & \text { Community Coll } \\ \text { 10-504-172 } & \text { Criminology }\end{array}$
**10-504-932 Adult Supervision
$* 10-504-934$ Correctional Law \& Code
*10-504-937 Juvenile Supervision $* 10-504-937$ Juven
SEMESTER TOTAL

## FOURTH SEMESTER

10-504-171 Corrections Internship $* 10-500-930$ Security Procedures

$* 10-504-935$
Correction *10-504-935 Corrections Summary Assessme $\begin{array}{ll}\text { 10-809-172 } & \text { Intro to Diversity Studies } \\ \text { 10-809-199 } \\ \text { Psychology Of Human Relation }\end{array}$ SEMESTER TOTAL
SEMESTER TOTAL
TOTAL CREDTS
CURRICULUM NOTE
*The credit for 10-890-101, College 101,
is an Institutional Requirement for graduation. Consequently, it is not part
of the program credit requirements.
*Students enrolled in either of the Associate Degree Criminal Justice programs planning to become certifiable must complete core criminal justice courses for the program within three years
The The clock starts for a college certification track student on the first day the student enters into obtain a "C" or better in all of these classes.

## SUGGESTED ELECTIVES

*Emergency Procedures, 10-504-936
Understanding Substance Abuse, 10-550-170 Fundamentals of Emergency Dispatch, 10-504-162
admission into or completion of the Jail and Juvenile Detention Certificate.
-Students seeking the certifiable jail officer track must successfully complete 12 credits of specific courses within the program, complete the student folder and background check before being eligible to take the following certification requirement courses in conjunction with the Jail and Juvenile Detention Certificate: PS Job Interview \& Resume Writing, 105-04-128; Correction Internship, 10-504-171; Communication Skills 10-504-931; Emergency Procedures, 10-504-936; and Correction (1) mary Asesten 10-504-935 Due to Department of Justice - Training
and Standards Bureaur requirement and Standards Bureau requirements, transfer of credits for core Climits The exception to this would be if the courses are from another Wisconsin Technical College who is authorized as certified Department of Justice - Training and Standards training academy

## COURSE DESCRIPTIONS

These courses provide an opportunity or students to develop the knowledge for employment in this field.

10-504-114 POLICE-NUTRITION/ FITNESS ...the course will provide an introduction to nutrition and eating correctly for maximum value. Also, an introduction to fitness for a criminal justice professional.
10-504-123 CORRECTIONAL INSTITUTIONS ...the evolution of punishment, devopment "pisons, era, prisoner movement, inmate groups, special offender groups, the female offender, prison programs, prison services.
10-504-128 PS-JOB INTERVIEWS \& RESUME WRITING ... Students will learn about the criminal justice hiring process from application and resume writing, oral interviews and the background investigation. (Corequisite

10-504-132 COURTS/JURISDICTIONS ..development of the American judicial system, the federal and Wisconsin court structure, Wisconsin judicial rules and procedures from complaint to sentencing as they impact police or correctional officers.
10-504-153 ETHICS - CRIMINAL JUSTICE ...in-depth study of ethical phe Law Enforcement Officerís Code of Ethics and professional performance in the field. Topics include morality, leadership, ethical decision-making actualization, ethics-based performance and the breakdown of ethical conduct.

10-504-155 COMMUNITY CORRECTIONS ...criminal justice system stages, community-based corrections, diversion programs, pre-trial release programs, restitution, community service, temporary release programs, halfway houses, female offenders, drug and alcohol abusing offenders, and juvenile programs.
10-504-171 CORRECTIONS INTERNSHIP...training in criminal and juvenile justice settings under supervised 10-504-900, Intro to Criminal Justice)
10-504-172 CRIMINOLOGY ...nature, extent, and distribution of crime in the United States; biological, psychological, and sociological aspects of crime causation; and legal and political implications frime prevention and control.

10-504-900 INTRO TO CRIMINAL JUSTICE ...criminal justice, crime picture criminal law, theories of crime, history of policing, police management, legal aspects, courts, corrections, correction facilities.
10-504-930 SECURITY PROCEDURES ...steps involved in receiving and releasing inmates and maintaining security, admission, release and search procedures, use of jail elth mangement and mitigation hostage type situations. (Corequisite: 10-504-900, Intro to Criminal Justice)

10-504-931 COMMUNICATION SKILLS ...apply correctional professional skills including mediation, arbitration, and crisis intervention in a correctiona setting. (Corequisite: 10-504-900, Intro to Criminal Justice)

10-504-932 ADULT SUPERVISION ...practice supervision skills including positive behavior control, dispute resolution, and incident debriefing. Explore belief systems, social pressure, moral problems, decision-making and the consequences of decisions. (Corequisite: 10-504-900, Intro to Criminal Justice)

10-504-933 CORRECTIONAL REPORT WRITING ...learn basic requirements, guidelines and skills for proper and professional documentation of setting. (Prerequisite: 10-801-136, English Comp 1; Corequisite: 10-504 900, Intro to Criminal Justice)
10-504-934 CORRECTIONAL LAW \& CODE ...concepts and principles underlying legal requirements for jail operations and
guidelines for protecting the legal rights guidelines for protecting the legal rights jail officer rules and standards governing correctional operations, structure of the cour system, overview of civil liability, and key system, overview of civil liability, and key 10-504-900, Intro to Criminal Justice)

10-504-935 CORRECTIONS SUMMARY ASSESSMENT ...refine previously learned skills and abilities by applying them to various case studies and simulated situations. (Corequisites: 10-504-900,
Intro to Criminal Justice $10-504-171$, Intro to Criminal Justice; 10-504-171,
Corrections Internship; 10-504-930, Security Procedures; Prerequisites: 504-XXX Corrections program courses)

10-504-937 JUVENILE SUPERVISION ...apply theories of adolescent development to develop strategies for effective supervision, protection, and discipline of juveniles. (Corequisite: 10 504-900, Intro to Criminal Justice)

Criminal Justice -
Law Enforcement program Code 105041 | Associale Degree

Offered at the Green Bay campus.
For information: (920) 498
This program is fully eligible
for financial aid.
Program Description
Criminal Justice - Law Enforcement students study the law enforcement field plus physical and behavioral sciences to meet the demands of the
police profession, including criminal investigation, traffic law, patrol procedures, and scientific crime laboratory practices.

## Program Outcomes

Qualify for entry level positions
in law enforcemen.

- Write reports.
- Apply courtroom testimony techniques.

Demonstrate knowledge of laws and principles of arrest, search, and seizure.
Demonstrate understanding
of relevant state statutes.
of criminal behavior.
Describe the structure and
procedures of the court system.
Describe the structure and procedures of the police organization,
procedures of corrections.
Describe the structure and
procedures of the juvenile system. Investigate an accident. Interview suspects and witnesses.

- Process a crime scene.
- Apply investigative techniques. Contrast the various police community relations programs. Make appropriate judgments on risk and other factors of police situations. Describe various patrol tactics. - Contrast major social institutions within American society. - Demonstrate effective
communication skills. - Apply basic math skills. - Demonstrate basic computer skills. Students seeking certification can also:
Operate vehicles in emergency situations. Demonstrate arrest, search, and seizure.


## Requirements fo

Program Entry
Official high school transcript or equivalent. (For a list of equivalents,
go to www.nwt. - Good writing and communication skills. Strong organizational skills.
Sudents should have mastered basic math skills. For a description of basic math, see the Basic Education section of this catalog. - As a requirement for program entry, an
Academic Skills Assessment (Accuplacer) Academic Skills Assessment (Accuplacer)
with appropriate benchmark scores is with appropriate benchmark scores is
necessary. Program Benchmarks are Arithmetic, 65; Reading Comprehension,

55: Sentence Skills, 75. Students not meeting these benchmarks or the
equivalent will be required to establis equivalent will be required to establis
an individualized academic plan. Students may have the opportunity to enroll in selected program core courses while completing their individualized plan. Upon completion of the plan, students will be eligible for all program courses. However, higher test scores wil lead to greater success in core progran
courses. To learn more about these assessments and program benchmark scores, please contact a counselor at (920) 498-5444 or (888) 385-6982.

## Employment Potential

A graduate of the program will have the potential for employment in the following areas: Police Officer: performs general traffic and law enforcement duties at the municipal level. Deputy Sheriff: performs general traffic and law enforcement duties, jailer, and telecommunications
responsibilities at the county level. DNR Officer: enforces fish, game, forest, and environmental laws at the teve leve. State Trooper: performs traffic and law
enforcement duties at the state level. Military Law Enforcement Officer: performs criminal investigations, is responsible for traffic assignments, patrol, and general law enforcement service at installations, forts, and bases. Private Investigator: conducts criminal private businesses and industries nd industries. Security Guard: patrols and investigates for retail business and private industrial plants. Correctional Officer: is assigned to security and general duties
a correctional institution.

With additional education and/or work experience, graduates may find other opportunities for employment.

- Police Administrator
- Chief Deputy
- State Agent
- Federal Agent
- Investigator

Note
*Students enrolled in either of the Associate Degree Criminal Justice programs looking to become certifiable must complete program within three years. The clock starts for a college certification track student on the first day the student enters into a core criminal justice course. These courses must be completed successfully within the 3 -year time frame
before a DOJ transcript before a DOJ transcript can be submitted. - Due to Department of Justice - Training and Standards Bureau requirements, Justice courses will not be accepted.

10-504-900 INTRO TO CRIMINAL JUSTICE ...criminal justice, crime picture, criminal law, theories of crime, history of policing, police management, legal aspects courts, corrections, correction facilitie 10-504-901 CONSTITUTIONAL LAW ....arrest and search and seizure of persons, places, and things with or without warrant; cause and procedure to obtain and execute warrants; exclusionary rule 0-504-900, Intro to Criminal Justice)

10-504-902 CRIMINAL LAW ...criminal law characteristics; terminology, history, principles, and philosophy of criminal law: use of the Wisconsin Statute Book, and
examination of selected criminal offenses and identifying elements. (Corequisite: 10-504-900, Intro to Criminal Justice)
0-504-903 PROFESSIONAL
COMMUNICATIONS ...process of crimina justice interviewing using basic skills model. ustice interviewing using basic skills model;
use of nonverbal and verbal communication; security admissible confessions that preserve individual's constitutional rights; ethics in riminal justice interviewing. (Corequisite $0-504-900$, Intro to Criminal Justice)
10-504-904 JUVENILE LAW ...as it relates to the field officer and the application of the law as it relates to juveniles in these situations. (Corequisite: 10-504-900, Intro to Criminal Justice) 10-504-905 REPORT WRITING. tationale and methods of law enforcement reporting, principles of effective report writing, organizing reports, writing operational law enforcement reports based on case studies. (Prerequisite: 10-01-136, English Comp 1; Corequisite 0-504-900, Intro to Criminal Justice)

0-504-906 CRIMINAL INVESTIGATION THEORY ...principles of criminal investigation; focus on techniques of an investigation from the preliminary investigation interview, evidence procedures, nd specific crime investigation. (Corequisit

Gurriculum


## FIRST SEMESTER

 CREDITS $\begin{array}{ll}10-504-114 & \text { Police-Nutrition/Fitiness } \\ 10-801-136 & \text { Engish Composition 1 }\end{array}$ | -34-107 | Collelese Matshematics |
| :--- | :--- |
| O9-160 | Intro to Ethics: Theory \& A | $\begin{array}{ll}\text { 10-809-166 } & \text { Intro to Ethics Sheory \& App } \\ 10-899-197 & \text { Contemporary Amer Society } \\ 10-80-101 & \text { College 101 }\end{array}$ '10-890-101 College 101

SEMESTER TOTAL

## 

10-504-128 PS-Job Interviews \& Resume Wri $\begin{array}{ll}\text { 10-504-132 } & \text { Courts/Jurisdiction } \\ 10-504-153 & \text { Ethics - Criminal Justic }\end{array}$ $* 10-504-900$ Ithics to Criminal Justice
$* *-50-901$ Constitutional Justice 10-504-901 Constitutional Law $10-504-903$ Professional Lommunications
t10-504-955 Report Writing 10-504-905 Repor
SEMESTER TOTAL

10-504-143 Forensic Application
"10-504-902
Criminal Len
"10-504-902 Criminal Law
$" 10-504-904$ Juvenile Law
10-504-904 Juvenile Law
"10-504-906 Criminal Investigation Theory
"10-504-907 Community Policing Strategies "10-500-907 Community Po
SEMESTER TOTAL


CURRICULUM NOTE
TThe credit for $10-890-10$
CThe cresit for No-880-101, College 101,
is an Instutuonal Requirement or graduation. Consequequenty, it is not part graduation. Consequently it is not part
of the program credit requirements.
"Students enrolled in either of the Associate Degree Criminal Justice programs looking to become courses for their program within three years. The Clock starts for a college certification track student on the first day the studdent enters into a core
criminal ustict ecourse These courses must criminal lustice course. These courses must be
completed successfully within the 3 -year time fra before a DoJ transcript can be sumbitted. Studen
must obtain a "C" or better in lo of these classes.

SUGGESTED ELECTIVES
TTactical Operations, 10-504-1
"Driving Operations, 10-504-158
"Police Traftic Radar, 10-504-182
*Law Entorcement Ithtersship, $10-504-176$
"-Scenario Assessment, 10-504-157
"Scenario Assessment, 10-504-157
Fundamentals of Emergency Dispatch, 10-504-162 Fundamental sof Emergency Dispatch, 10-504-16 Navigation Rules of the Road 10-473-153
Master of Vessel 100 Gross Ton, 10-473-157

The exception to this would be if the courses are from another Wisconsin Technical College authorized as a
certified Department of Justice - Training certified Department of Justice -
Studens who arr be rifabl
in Wisconsin must enroll in the
in Wisconsin must enroll in the

- Advanced Standing Certificate.

The following certificates/technical diplomas
mo5044 Cried toward this progran:
Enforcement-Advanced Standing

10-504-907 COMMUNITY POLICING TRATEGIES ...in this course, the learner will identify community resources available in your area, describe the role of an advocacy group in the criminal justice community,
demonstrate cultural self-awareness, interpret state and federal laws related to discrimination and diversity, utilize appropriate skills for interacting effectively and professionally with persons from culturally diverse backgrounds and lifestyles, identify and implement personal strategies that take into accoun cultural differences, identify the types of
situations and the characteristics of individual hat are likely to be encountered in crisis management situations, apply Wisconsi statutory requirements and general guidelines regarding emergency detentions and emergency protective placements of persons, dentify key concepts and elements associated with law enforcement response to people in
crisis, apply crisis intervention principles and techniques, articulate the decision-making process taken to manage persons in crisis, incorporate community policing strategies into the community, illustrate problemoriented policing strategies, evaluate other policing strategies, and apply principles of crime analysis and prevention. (Corequisite 0-504-900, Intro to Criminal Justice)

10-504-908 TRAFFIC THEORY ...in this course, the learner will enforce Wisconsin raffic laws, detect traffic violations, issue raffic citations, direct traffic, identify responsibilities of a first responding office hecessary steps to enable effective follow-up as needed, conduct an initial investigation t a crash scene, identify the mechanics of measuring and documenting traffic crash scenes, complete the Wisconsin Motor ehicle Accident Report, record the crash scene using photography, take appropriate gathered, and recognize and interpret indicators of impaired driving (Corequi) 10-504-900, Intro to Criminal Justice) 10-531-101 EMERGENCY RESPONSE . legal/ethical issues, initial medical variety of injuries and medical conditions CPR , defibrillation and response to hazardous materials. (Corequisite: 10 04-900, Intro to Criminal Justice)

## Criminal Justice -

Law Enforcement Academy progam Code sosoa4 | Tecchinical Diploma

Offered at the Green Bay campus.
For information: (920) 498-5444.
Toll-free: (888) 385-6982.
This program is not eligible for financial aid.

## Program Description

The full-time Criminal Justice Law Enforcement Academy is a 17-credit, 592hour, 13 -week program designed to produce thoroughly competent and confident officers. Students learn the many skills of modern-day law enforcement and practice these skills in realistic environments. The realism afforded by our tactical facilities is unmatched in providing scenario-based training. Graduates of the Academy begin their career with an unparalleled level of professionalism as well as the ability to confront threats of terror to our homeland security.

The Academy faculty comprises a crosssection of full-time educators, law enforcement officers, supervisors and administrators who are established as leaders in law enforcement training. Staff members recognize they are role models of what is being taught and mentors to those attending.

## Program Outcomes

- Will be certifiable as a law enforcement officer in the state of Wisconsin.


## Requirements for Program Entry

- Completed application.
- An Associate Degree in Criminal Justice, 60 college credits at an associate's degree level or higher, or current employment with a sponsoring law enforcement agency.
- Self-sponsored applicants must complete an NWTC application, form DJ-LE-327 (with essays completed), physician's assessment and have official high school and college transcript(s) sent to the NWTC Public Safety Office. These candidates must also submit
to a background check (at applicant's expense), physical fitness assessment and personal interview. Once accepted, these individuals must also complete a drug screen at their own expense.
- Currently employed officers must complete the NWTC application and provide contact information for their agency training officer who will be required to submit a copy of the officerís DJ-LE-303 form and complete additional paperwork. For further details on the application process for employed officers, contact the NWTC Public Safety Department at (920) 491-2627.


## Employment Potential

A graduate of the program will have the potential for employment in the following areas:
Police Officer: performs general traffic and law enforcement duties at the municipal level.
Deputy Sheriff: performs general traffic and law enforcement duties, jailer and telecommunications responsibilities at the county level.
DNR Officer: enforces fish, game, forest and environmental laws at the state level.

State Trooper: performs traffic and law enforcement duties at the state level.
Military Law Enforcement Officer: performs criminal investigations, is responsible for traffic assignments, patrol and general law enforcement duties in any branch of the military service at installations, forts and bases.

Private Investigator: conducts criminal and non-criminal investigations for private business and industry.

With additional education and/or work experience, graduates may find other opportunities for employment.

- Police Administrator
- Chief Deputy


## Curriculum

Students following the study plan below
will complete the Criminal Justice-Law
Enforcement Academy technical diploma
in the number of semesters shown.

| FIRST SEMESTER | CREDITS |
| :--- | ---: |
| 30-504-337 Policing in America | 1 |
| $30-504-338$ Legal Context | 1 |
| $30-504-339$ Tactical Skills | 3 |
| $30-504-340$ Relational Skills | 3 |
| $30-504-341$ Patrol Procedures | 3 |
| $30-504-342$ Investigations | 2 |
| $30-504-343$ OMVWI/SFST | 1 |
| 30-504-345 Police-Fit to Serve | 2 |
| 30-504-346 Scenario Evaluation | 1 |
| SEMESTER TOTAL | 17 |
| TOTAL CREDITS | 17 |

- State Agent
- Federal Agent


## Note

- Online application for this program is not available. For program details and application materials, visit: www.nwtc.edu/publicsafety
- Regardless of prior college credit, all courses must be completed to obtain certifiability with the Law Enforcement Standards Board of the Wisconsin Department of Justice.
- This program does not qualify for financial aid as it does not last an entire semester. Veteransí Benefits may be used to cover material and program fees. Contact Enrollment Services for details. A payment plan is also available.
- The credits earned through successful completion of this program do not count toward the 60 -credit requirement imposed by Wisconsin Administrative Code Section LES 2.01(1)(e) for employed officers. However, academy credits may be applied toward an Associate Degree in Criminal Justice to partially satisfy the college credit requirement.


## COURSE DESCRIPTIONS

These courses provide an opportunity for students to develop the knowledge, skills, and understanding required for employment in this field.

30-504-337 POLICING IN AMERICA... students learn rules and procedures of Academy; various elements of Criminal Justice System and the Role of Law Enforcement. Students explore belief systems, social pressures, moral problems, decision making.

30-504-338 LEGAL CONTEXT...students will learn the structure of Criminal Justice System including criminal procedure, arrest, use of force, search, and seizure, the limits on law enforcement activity, classification and elements of crimes.

30-504-339 TACTICAL SKILLS...students will learn the basis for and the limits to use of force by Wisconsin officers. The specific techniques for intervention will range from empty hands to use of firearms.

30-504-340 RELATIONAL SKILLS... students write law enforcement reports, role of communication while developing specific skills/strategies for handling emotionally disturbed people, legal basis for emergency placements, testifying in court, community policing strategies.

30-504-341 PATROL PROCEDURES... students study Wisconsin traffic laws \& how to enforce. Investigation of traffic crashes, crash scene management. Emergency vehicle operation, pursuit guidelines, conducting legal basis vehicle contacts. Arrest procedures, OWI, Emergency Medical Services.

30-504-342 INVESTIGATIONS ...students learn techniques, procedures for interviewing and interrogating. Learn to recognize and handle evidence, the correct law enforcement response to a victim of crime, statutory elements and procedures for sensitive crimes.

30-504-343 OMVWI/SFST ...students will learn to recognize and interpret evidence of OMVWI violation, administer and interpret standardized field sobriety tests, make appropriate enforcement decisions, prepare arrest reports and complete associated paperwork.

30-504-345 POLICE-FIT TO SERVE ... the course will provide an introduction to nutrition and eating correctly for maximum value. Also, an introduction to fitness for a criminal justice professional.

30-504-346 SCENARIO EVALUATION ...uses scenarios developed by the WI DOJ to evaluate six core abilities critical to success in law enforcement: decision making; tactical skills; emergency management; investigative skills; written and interpersonal communication.

Offered at the Green Bay campus
For information: (920) 498-5444 Toll-free: (888) 385-6982.
This program is fully eligible for financial aid.

## Program Description

The Dental Assistant program prepares Assisting Upor a professional career in Denta will be proficient in assisting during patient care in a dental office. The program is designed to provide students with the skills and knowledge necessary to become a valuable member of the dental team.

## Program Outcomes

- Collect diagnostic and treatment data.
- Manage infection and hazard control - Perform clinical supportive treatments. - Take diagnostic radiographs. - Perform dental laboratory procedures. - Provide patient oral health instruction. - Assist in managing medical emergencies. - Model professional behaviors, ethics, and appearance. - Carry out dental office procedures.


## Wisconsin Caregiver Law

 NWTC is required to comply with WISCONSIN ACT 27). The completion of a caregiver background check includes the review of criminal records for convictions of serious crimes or a history of improper behavior. Students accepted into this program must complete a background check through www.CertifiedBackground. com. Information regarding this process is provided to students immediately upon acceptance into the program. Students with a criminal history may be denied access to placemericum site Consequently should a student have a history of convictions of serious crimes or a history of improper behaviors, NWTC cannot guarantee clinical/practicum placement or guarantee graduation within typical program timing.
## Employment Potential

The program prepares graduates to work
The program prepares graduates to work
with dentists as they examine and treat patients. Dental assistants may carry out a variety of laboratory, clinical, and office duties, such as patient scheduling and bookkeeping functions. Dental assistants typically work in general or specialty dental offices. Some dental assistants may work for insurance companies, dental lab studios, or dental supply companies. The dental assistant may also find employment with federal agencies such as Health Services, the Armed Forces, or a state, county, or city health facility

Graduates may find employment as a:

- Dental Assistant
- Dental Office Manager
- Dental Laboratory Assistant - Dental Laboratory Technician - Dental Treatment Coordinato - Maxillofacial Dental Assistant
- Endodontic Dental Assistant - Prosthodontic Dental Assistan - Dental Receptionist
- Dental Practice Manager
- Dental Sales Representative
- Orthodontic Dental Assistant
- Pediatric Dental Assistant
- Periodontic Dental Assistant


## Clinical Experience

- Students will be required to purchas personal protection equipment/ clothes, pay for liability insuranc for dental clinical experience courses and provide their own
- Students are required to complete - Students are required to complete an American Heart Association during their first semester dir somester. Submit required immunization
documentation. A fee is charged for this service. Additional information will be provided acceptance into the program


## Accreditation

The Dental Assistant program is accredited
The Dental Assistant program is accre-
by the American Dental Association-
Commission on Dental Accreditation

## Board/Certification

Examinations
Graduates will be provided the opportunity to obtain the CDA credential.

## Requirements for

 Program Application- Completed application.
- High school transcript or equivalent. (For a list of equivalents, go to
- Admission Assessment, or equivalen Admission Assessment, or equivalent
or ACT assessment taken within the last five years. (For a list of equivalents, please contact a Counselor.)


## Requirements for

## Program Entry

As a requirement for program entry, an Academic Skills Assessment (Accuplacer or ACT) with appropriate benchmark scores is necessary. Accuplacer benchmarks are
Arithmetic, 65: Reading Comprehension, 78: Sentence Skills, 75 . ACT benchmark are Math, 15; Reading, 16; English, 16.

Curriculum
Students following the study plan below
will complete the Dental Assistant technical diploma in the number of semesters shown.
dite Start dates for the first semester
are June and September.

## FIRST SEMESTER

*10-508-101 Dental Health Safety
10-801-196 O Orall hnerpersonal Col 10-801-196 O Oal/ Interp

$* 10-890-101$ College 10

*31-508-307 Dental Assistant Professional
semester total

## SECOND SEMESTER

*10-508-103 Dental Radiography
*10-508-113
*10-508-113 Denta Materials
*10-508-120 Dental Office Mana
+10-508-120 Dental Office Managen
${ }^{*} 31-508-302$ Dental Chairside
${ }^{3} 31-5008-306$ Dental Assistant Clinicial

SEMESTER TOTAL

\section*{THIRD SEMESTER

T31-508-308 Dental C}
*31-508-308 Dental Chairside Advanced +31-508-309 Dental Laboratory Procedures
${ }^{\text {31 }}$
31-508-310
Dental Radiography - Advanced
 SEMESTER TOTAL

CURRICULUM NOTE
"No tinal grade lower than a "C" is acceptable in any of the courses marked with an asteris. than a "C" in a program course may apply for re-entry into the program. Consideration for re-entry will be at the discretion of the re-entry team. THE FOLLOWING COURSES WILL TRANSFER INTO THE DENTAL HYGIENE
ASSOCIATE DEGREE PROGRAM: 10-508-101, Dental Health Safety 10-508-103, Dental Readiographety Application 10-508-113, Dental Materials
$10-508-120$, Dental Office Management
**The credit for 10-890-101, College 101
is an Institutional Requirement for graduation. Consequently, it is not pa of the program credit requirements.

Applicants not meeting these benchmark or the equivalent will be required to establish an individualized academic plan. Upon completion of the plan, full program or waitlist status will be granted. To learn more about these assessments and program at (920) 498-5444 or (888) 385-6982. at (22) 08 ,

- Attend mandatory program orien check. A fee is charged for this service. Additional information will be provided upon acceptance into the program.


## Suggested Skills for Success

- Students are expected to have entrylevel computer and keyboarding skills. It is recommended that students coursework if deficient in this ar
A science bate area.
A science background with emphasis in Physiology is highly recommended.


## COURSE DESCRIPTIONS

These courses provide an opportunity for students to develop the knowledge, skils, and understanding requir
for employment in this field.

10-508-101 DENTAL HEALTH SAFETY... prepares dental auxiliary students to respond proactively to dental emergencies, control infection, prevent disease, adhere to OSHA Standards, and safely manage hazardous materials. Students also take patient vita signs and collect patient medical/dental histories. CPR certification is a prerequisite, certification before beginning the course. Prerequisite: Accepted into the Dental Hygiene or Dental Assistant Programs)

0-508-103 DENTAL RADIOGRAPHY APPLICATIONS ...prepares dental auxiliary students to operate x-ray units and expose bitewing, periapical, extra oral, and occlusal radiographs. Emphasis is placed on protection against x -ray hazards. Students also process, mount, and evaluate radiographs demonstrate competency on a manikin In addition, students expose bitewing radiographs on a peer, role-play patient (Prerequisites: 10-508-101, Dent Health Safety AND 10-508-102, Oral Anat \& Hist OR 31-508-304, Dental \& General Anat)
10-508-113 DENTAL MATERIALS... prepares dental auxiliary students to handle and prepare dental materials such as liners, materials, gypsum products, and impression materials. They also learn to take alginate impressions on manikins and clean removab appliances. (Prerequisites: 10-508-101, Dental Health Safety; 31-508-304, Dental $\&$ General Anatomy OR 10-508-102, Oral Anatomy, Embry, Histology)
10-508-120 DENTAL OFFICE MANAGEMENT...prepares dental auxiliary students to manage telephones, appointments, recall systems, and skills need to process accounts receivab and payable, collections, and third party reimbursements. (Prerequisite 10-508-101, Dental Health Safety)

31-508-302 DENTAL CHAIRSIDE... prepares dental assistant students to chart oral cavity structures, dental pathology, and estorations and to assist a dentist with basic dental procedures including examinations, pain control, amalgam restoration, and cosmetic restoration. Students will also develop the ability to educate patients about preventive dentistry, brushing and flossing echniques, and dental procedures, using lay terminology. Throughout the course, student will apply decoding strategies to the correct
use and interpretation of dental terminolog Prerequisites: 10-508-101, Dental Health Saferty; 31-508-304, Dental \& General Anatomy; Corequisite: 10-508-113, Dental Materials; All other 2nd semester classes)

31-508-304 DENTAL \& GENERAI ANATOMY...prepares dental assistant students to apply fundamentals of general nd with colleagues and patients. (Corequisites: 0 -508-101. Dental Health Safery: 31-08-307, Dental Asst Professionalism
31-508-306 DENTAL ASSISTANT CLINICAL...students apply skills developed in Dental and General Anatomy, Dental Healt Safety, Dental Chairside, Dental Materials, ental Radiography, and Professionalism in integration of core abilities and basic ccupational skills. (Prerequisites: 10-508 101, Dental Health Safery; 31-508-304, Dental \& General Anatomy; 31-508307, Dental Assistant Professionalism Corequisites: 31-508-302, Dental Chairside; 0-508-113, Dental Materials; 10-508 03, Dental Radiography Applications)
31-508-307 DENTAL ASSISTANT PROFESSIONALISM...prepares dental ssistant students for professional success in a dental practice or another dental health care environment. Students develop professional appearance and image. More importantly, the earn to work within ethical guidelines and legal frameworks. In preparation for entering he work force, dental assistants customize or develop their portfolios and lay out an ongoing rofessional development plan. (Corequisites: 0-508-101, Dental Health Safery; 31 508-304, Dental \& General Anatomy

31-508-308 DENTAL CHAIRSIDE ADVANCED prepares denta assistant students to adapt chairside skills to assisting with dental specialties as they are performed in general practice. Focuses on pediatric dentistry, orthodontics, oral maxillofacial surgery, endodontics, periodontic, and prosthodontics. Students will also develop the ability to assist with sealants, perform coron polishing, and apply topical fluoride and topical anesthetics. (Prerequisites: 31-508 Assistant Clinical; All other 2nd semester classes; Corequisite: 31-508-309, Dental La Procedures; All other 3rd semester classes)

31-508-309 DENTAL LABORATORY PROCEDURES...prepares Dental Assistant students to produce alginate impressions and fabricate diagnostic models, oral appliances, temporary restorations, and custom tray
Students also polish oral Students also polish oral appliances. (Prerequisites: 31-508-304, Dental \& Gen Anatomy; 10-508-113, Dental Materials; All other 2 nd semester classes;
Corequisite: $31-508-308$, Dental ChairsideAdvanced; All other 3rd semester classes)
31-508-310 DENTAL RADIOGRAPHY ADVANCED...builds on principles and skill developed in Dental Radiography. Dental assisting students expose full mouth series, extra-oral and specialized raciographs on protection against x-ray hazards. Students wils protection against x-ray hazards. Students wil
also process, mount, and evaluate radiograph also process, mount, and evaluate radiograph
for diagnostic value. In addition, they will for diagnostic value. In addition, they will
use radiographs to explain dental health and treatment plans to patients. (Prerequisite: 10-508-103, Dental Radiography Applications; All other 2nd semester classes; Corequisite: 31-508-311, Dental Assistant Clinical Advanced; All other 3rd semester classes)
31-508-311 DENTAL ASSISTANT CLINICAL - ADV ...Dental assisting students apply skills developed in Dental Chairside -Advanced, Dental Lab Procedures, Dent Radiography - Advanced, and Dental Office Emphasizes internical setting with patie and basic and advanced occupational skill (Prerequisite: 31-508-306, Dent Asst Clinical; All other 2nd semester classes; Corequisites: 31-508-308, Dental Chairside Advanced; 31-508-309, Dental Lab Procedures; 31-10-508-120, Dend Offe Manemert

Dental Hygienist Program Code 105081 | Associate Degriee

| Offered at the Green Bay campus For information: (920) 498-5444 Toll-free: (888) 385-6982. | - Dental Sales <br> - Dental Insurance Review Analyst | Curriculum <br> Students following the study plan below will complete the Dental Hygiene associate |
| :---: | :---: | :---: |
| This program is fully eligible for financial aid. | Clinical Experience | degree in the number of semesters sho |
|  | a uniform, instruments, pay for | SUMMER SEMESTER CREDITS |
| Program Description The Dental Hygienist program prepares students to perform oral prophylaxis, apply preventive agents, expose radiographs, and teach patients oral care | liability insurance, and cover any |  |
|  |  | -177 Geen Anatomy \& Physio |
|  | - Students will be required to submit | ** 10-890-101 College 101 SEMESTER TOTAL |
|  | harged for this service. Additio | FIRSTSEMEST |
|  | information will be provided upon | ${ }_{\text {- }}^{\text {- }}$ |
| Program Outcomes <br> - Model dental hygiene professional code of ethics |  |  |
|  |  |  |
| - Counsel clients/patie | Accreditation | UESTER TOTAL |
| duce | American Dental As | SECOND SEmESTER |
| - Provide community oral health | Commission on Dental Accreditation | ${ }^{10-508-103 ~ D e n t a l ~ R a c ~}$ |
| ces in a variety of settings. | 211 East Chicago Avenue | Der |
| - Manage infection and hazard control. | Chicago, IL 60611-2678 | ${ }_{-10-508-109}^{10-00-108}$ Carioal |
| - Assess data on all aspects of patient/ client health using methods consistent with dental hygienist scope of practice and legal principles. | (312) | *10-508-111 General \& Oral Pathology SEMESTER TOTAL |
|  | Board/Certification Examinations | SUMMER SEMESTER <br> *10-508-110 Nutrition and Dental Hea |
| - Formulate a comprehensive dental | Prior to licensure as a Registered Dental | ESTER Total |
| hygiene care plan in collaboration with the client and other health professionals. | Hygienist, a student is required to pass the Dental Hygiene National Board | THIRD SEMESTER <br> *10-508-112 Dental Hygiene Process 3 |
| - Provide preventive and therapeutic services that promote oral health according to the needs of the patient/client. | Examination and a Regional Practical Exam. | *10-508-113 Dental Materials <br> 10-508-114 Dental Pharmacology <br> 10-508-115 Community Dental Health |
| - Evaluate the effectiveness of the implemented client/patient dental hygiene care plan. |  |  |
|  |  |  |
|  | - Completed application. | semester |
|  | - High school transcript or equivale | ${ }^{110-508-116}$ Dental Pain |
| onsin Caregiver Lav | www.nwtc.edu/gertingstarted.) |  |
| Wisconsin Caregiver Law (1997 | - Admission Assessment or equivalent |  |
| WISCONSIN ACT 27). The completion of a caregiver background check includes the | or ACT assessment taken within the last five years. (For a list of equivalents, | semester total TOTAL CREDITS |
| 洨 of criminal records for convictions | please contact a Counselor.) | cun |
|  |  |  |
| ior. Sudents accepted into this | semester in College of: Algebra, Advance | matet |
| ram must complete a background | Math, Biology, |  |
| . Informh www.CertifiedBackgroun | component). All required course grades must be completed with a " C " or better. | entry into the program. Consideration for re-en |
|  |  |  |
| ptance into the program. Students with | Requirements for |  |
| placement at the discretion of the clinical | Program Entry |  |
| cricum site. Consequently should | - As a requirement for pr | than " "B" in these courses may apl\| |
| co |  | will be at the discretion of the re-entry tea |
| nes or a history of improp | ) with appropriate benchmark | *The credit for 10-890-101, |
| clinical/practicum placement or gu | tic, 80; Reading |  |
| duation within typical program timing | 90; Sentence Skills, 95; Algebra, 65. ACT benchmarks are Math, 18; Reading |  |
| Employment Potential <br> A registered Dental Hygienist may practice dental hygiene in a health department, private practice, long term care facility, or school. Graduates may find employment on a part-time or full-time basis. | English, 21. Applicants not me |  |
|  | chese benchmarks or the equivalent will | ${ }_{\text {DHP-Dental }}$ |
|  | be required to establish an individualized academic plan. Upon completion of the | Dental Hygien Summer Clinic, 10-50-185 |
|  | T | - Complete an American Heart Associat |
|  | $\begin{aligned} & \text { be granted. To learn more about these } \\ & \text { assessments and program benchmark } \end{aligned}$ | alth Care Provider C |
| With additional education and/or work experience, graduates may find other opportunities for employment. | scores, please contact an Advisor at (920) 498-5444 or (888) 385-6982. | maintain a current CPR card to comply with affiliating agency requirements. |
|  | - Attend mandatory spring |  |
| - Dental Hygiene Instructor <br> - Public Health Dental Hygienist | Progr | check. A fee is charged for this service. |
|  | - Complete a dental examin | ditional information will be provit |
| Dental Laboratory Technician |  | upon acceptance into the program. |

## COURSE DESCRIPTIONS

 These courses provid a a opporumityfor sudens of overlop the knowedge stills, and undestand ding required
for employment in tis fied.
10-508-101 DENTAL HEALTH SAFETY...
prepares dental auxiliary sudents to respond prepares dental auxiliary students so respond
proactively to denta emergencies, control infection, prevent disease, adhere to OSH
Standards, ndd safly managh hazardous
materials. Suddents also take pazient vital signs and collect patient medicil/dental
histories. CPR certification isa prerequisite, students will be required to show proof of
certicication befor beeinning the curse.
(Preecuisite: Accepedi int (Prerequisite: Accepted into the Dental
Hygiene or Dental Assistant Programs)
10-508-102 ORAL ANATOMY, prepares Dental Hygieniststudents to a...
depty
detiled knowledge about oral anatomy to planning, implementation, assessment, and
evaluation of patient care. Sudents identify distinguishing characaterisitics of normal and
abnormal dental head and abnormal dental, head, and neck anatomy
and its relationship to tooth development, and its relationship to tooth development.
eruption and health. (Prerequisites: 10 -
806-177. General Anatomy \& Physiology 806-177, General Anatomy \& Physi
10-508-101, Dental Health Safery) 10-508-103 DENTAL RADIOGRAPHY
APPIICATIONS...prepares dental auxiliary students to operate ex-xares units and axd expose
bitewing, periapical, extra oral, and Bitewing, periapical, extra oral, and
occlusal radiograph. Emphasis is placed on
proection asinstray protection against $x$-ray hazards. Sudents
also process, mount, and evaluate radiographs or diagnostic value. In this course studen!
demonstrate competency on a manikin. demonstrate competency on a manikin.
In addition, sudents expose bitewing radiographs on a peer, role-play patient.
(Prerequisites: $10-508-101$, Dent Health Safety AND 10-508-102, Oral Anaat \& Hist
OR 31-508-304, Dental \& General Anat) 10-508-105 DENTAL HYGIENE PROCESS 1...introduces Dental Hygiene students to
the basic technical/clinical skills required of practicing Dental Hyyienists including
use of basic dental equipment , examination of patients, and procedures within the
dental unit. Under the direct supervi dental unit. Under the direct supervision
of an instructor, students integrate hands-
on skills with entry-level critical thinking and problem-solving skills. The course also reinforces the application of Dental Healt
Safery skills. (Prerequisites: $10-806$-186, Safery skills. (Prerequisites: 10-806-186,
Intro to Biochemistry; 10-508-101, Dental Health Safecy; Corequisite $10-508-102$,
DH-Oral Anatomy, Embry \& Histology) 10-500-106 DENTAL HYGIENE
PROCESS 2...this clinical course buid PROCESS $2 \ldots$..this clinical course builds
on and expands the techncical clinical skills student dental hygienists began developing
in Dental Hygiene Process I. Under the direct supervision of an instructor, studen apply patient care assessment, planning,
implementation, and evaluation skills to provide comprehensive care for perio case
type 0, , , I, and II patients. (Prerequiste: 10 -
8-105, DH-Dental Hygiene Process 1)
10-500-107 DENTAL HYGIENE ETHICS
$\& \propto$ PROFESSIONALISM...helps sudent dental hyyienists develop... and alps sply
high professional and eftical standards Sutdents apply the laws that soveren the practice of dental hygiene to their work
with patienss, other members of a dental team and the community. Emphasis is Placed on maintaining confidentiality and
obtaining informed consent. Sudents enhance their ability to presesent a professional appearance. (Prerequisite: Accepted
in the Denal Hygienist Program)

10-508-108 PERIODONTOLOGY..this
course prepares sudent dental hyyienists to assess the periodontal health of patients, plan prevention and treatment of periodontal
disease, and to evaluate the effectiveness of disease, and to evaluate the e effectiveness of
periodontal treament plans. Emphasis
placed on the ecognition of the signs and Placed on the recognition of the signs and
causes of periodontal disease and on selection of treamens modalites that minimiece risk
and restore periodontal health. (Prerequisites
ind
 Anatomy, Embryology \& Histology; Anatomy, Embryology \& Histology;
Corequisites: $10-508-111$, General \& Oral
Pathology; 10 -508-103, Dental Radiography Pathology; 10-508-103, Dental Radiograph
10-508-106, Dental Hygiene Process 2 ) 10-508-109 CARIOLOGY...this course
focuses on the characteisico focuses 5 the characterisisis and
contributing factors of dental deay Hygien students help patients minimize caries risk by developing treatment plans,
communicating methods to patients, and communicating methods to patients, and
evaluating treatment results. Prerequisites:
10-806-186, Intro to Biochemistry 10 . 10-806-186, Intro to Biochemistry; 10-
806-197, Microbiology; Corequisite: 10-508-106, Dental Hygiene Process 2 )
10-508-110 NUTRITION AND DENTAL
HEALTH....Prepares student dental hygienist to counsel patients abour diet and its impact
 between balanced and unbalanced diets
and to constrect dies and to construct diets that meet the neds
of patients with compromised dental/oral health. Students also learn to counsel patients about the effect of eating disorders on dental
health. (Prerequisites: $10-508-109$, Cariology; 10-806-186, Intro to Biochemistry)
10-508-111 GENERAL \& ORAL PATHOLOGY...this course prepares the
student dental hygienist to determine when to consult, treat or refer clients with
various disease, infection or physilogical various disease, infection or physiological
conditions. Sudents learn to recognize the signs, causes, and implications of common pathological conditions including
inflammatory responses, immune disorders inflammatory responses, immune disorders
genetic disorders, developmental disorders of tissues and cysts, oral tissue trauma, and neoplasm of the oral cavity. (Prerequisites:
10-508-102, Oral Anatomy, Embryology $\&$ Histology: Corequisite: $10-505-1$
Dental Radiography Applications)
10-508-112 DENTAL HYGIENE PROCESS 3...this clinical course builds on and expands
the technical/clinical skills sudent dental hygienists developed in Dental Hygiene
Process II. In consultation with yge students apply independent problemstudents apply independent problem-
solving sikls in the course of proving
comprehensive care for perio case type 0, comprehensive care for perio case type $0, \mathrm{I}$,
II, and III patients. Dental Hygien Process
3 ind II, and III patients. Dental Hygiene Process
3 introduces root detoxification using hand
and and ultra-sonic instruments, manipulation of
files, selection of dental in files, selection of dental implant prophylax
treatment options, and administration of treatment options, and administration of
chemotherapeutic agents. Students also adapt
corer care plans in order to accommodate patients
with special needs. Prerequisistes: $10-508-$ with special needs. (Prerequisites: 10-508-
106, Dental Hygiene Process 2 ; 10-508-108, 106, Dental Hygiene Process $2 ; 10-508$
Periodonologyr $10-508-109$, Cariology;
$10-508-110$, Teriodontology, $10-508-109$, Cariology,
$10-508-110$, Nutrition $\&$ Dental Health)
10-508-113 DENTAL MATERIALS
prepares dental auxiliary students to handle
and prepare dental materials such as liners, bases, cements, amalgam, resin restorative
materials, yppum products and impression
materials. They also learn to take algigiate impressions on manikins and clean remo
appliances. (Prereauisises: $10-508$-101 appliances. (Prerequisites: 10-508-101,
Dental Health Safery; 31-508-304, Dental

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\& General Anatomy OR 10-508-102,
Oral Anatomy, Embry Histologin
& General Anatomy OR H0-508-102
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10-508-114 DENTAL PHARMACOLOGY..prepares student
dental hygienists to osecect safe and effective etaient premedidacaion, local
anesthetic, chemo therapuutic and antianestherit, chemo therapeutic and anti-
microbial agents within the scope of dental hyyiene practice. Sudents will also learn
to recognize potential pharmacological to recognize potential pharmacological
contraindications for specific patients and contraindications for specific patients and
to take measures to avoid negative impact
or alert other members of or alert onher members of fhe dentan l team
to possible negative impact. (Prerequistes: to possible negative impact. (Prerequisites: 806-197, Microbiology; Corequiste: 10 10-508-115 COMMUNITY DENTAL HEALTH...this course prepares the
Dental Hygienists sudent to play Dental Hygienists suddenct to olay a
proactive role in improving the dental proactive role in improving the dental
heald of community members of all ages.
Suudents perform and interpret dental Sudents perform and interper dental
health research to determine community healh research to determine community
dental health needs, they also participate denta healat needs, they also participat and evaluation of a community dental
health program. (Corequisite: $10-508$ health program. (Corequisite: 10 -
112, Dental Hygiene Process 3 ) 10-508-116 DENTAL Pain MANAGEMENT...this course prepares the
student dental hyggienist to work within the scope of dental hygiene practice to manage
pain for dental patienss. Sudents learn to prevent and manage common emergencies
related to administration of local anesthesia, prepare the armamentarium, and administe
local anesthesia. The course also addresses
the recommendation of alternative pain the recommendation of alternative pain
contor measures. (Prerequisites: $10-508-102$,
Oral
 10-508-114, Dental Pharmacology;
$508-112$, Dental Hygien Process 3 ) 10-508-117 DENTAL HYGIENE on and expands the technical/clinical skills student dental hygienists developed in
Dental Hygiene Process III. Wirt feedback Dental Hygiene Process III. With feedback
from the instructor, sudents manage all from the instructor, students manage all
aspects of cases in the course of providing
comprehensive te comprehensive care for perio case type 0 II, II,
and III patiens. Emphasizes maximization of clinical efficiency and effectiveness. Prepare
sudent dental hygienists to demonstrate studden dental hyienists to demonstrate
their clininal skills in a formal examination situation. (Prerequisites: $10-508-112$,
Denal Hygiene Process 3 ; Corequiste
10-50 Dental Hygiene Process 3; Corequisite
10-508-116, Dental Pain Managemeni)

## Design and Graphic Technology Program Code 101117 | Associate Degree

Offered at the Green Bay campus. For information: (920) 498-5444 Toll-free: (888) 385-6982.

This program is fully eligible for financial aid.

## Program Description

Design and Graphic Technology trains students in Graphic Design, Digital Print Media, and Web. Students complete a portfolio review session with the instructional team during each semester.

## Program Outcomes

- Create client based graphic
design solutions.
- Create and design graphic communications.
- Assemble and manage a
professional portfolio.
- Prepare and manage digital file solutions.
- Operate digital output devices.
- Apply color management solutions. - Select project appropriate software solutions.
- Select project appropriate output solutions.
- Implement typography strategies.
- Design and produce web graphics.
- Complete practical field experience.
- Develop professional
communication abilities
- Communicate valid solutions to projects.
- Demonstrate personal and project accountability.


## Requirements for

Program Entry

- Completed application.
- High school transcript or equivalent. For a list of equivalents, go to www.nwtc.edu/gettingstarted.
- Ability to use computer keyboard.
- Students should have mastered basic math skills. For a description of basic math, see the Basic Education section of this catalog. - As a requirement for program entry, an Academic Skills Assessment (Accuplacer) with appropriate benchmark scores is necessary. Program benchmarks are Arithmetic, 65; Reading Comprehension, 55: Sentence Skills, 75. Students not meeting these benchmarks or the equivalent will be required to establish an individualized academic plan. Students may
have the opportunity to enroll in selected program core courses while completing their individualized plan. Upon completion of the plan, students will be eligible for all program courses. However, higher test cores will lead to greater success in core program courses. To learn more about these assessments and program benchmark scores, please contact a counselor at (920) 498-5444 or (888) 385-6982.


## Employment Potential

A graduate of this program will have the potential for employment in the following areas:
Desktop Publisher: produces professional publications using electronic publishing software, scans graphic images, places text and graphics files onto the page, and operates output devices. Graphic Designer: develops advertising concepts and prepares art for the final presentations. Advertising Assistant: works with the ad director or store manager to plan and prepare advertising for print, radio, and TV use. Commercial Art Worker: prepares artwork and copy to be used in label production, package design, printed materials; prepares process separations; preflights electronic files; manages color control; and manages fonts. Digital Print Technician: prepares computer files for variable data printing or produce print on demand applications. Layout Designer: designs basic plans for print advertising, passes on work to a commercial artist or copywriter, and is responsible for final electronic files.
Printing Support Worker/Customer Service Representative: handles electronic and pre-press operations, making color separations, electronic scanning image editing, and color proofing. Public Relations Assistant: assists in public relations activities helping to produce brochures, press releases, displays, and newsletters; organizes and prepares materials for use in presentations, Pre-Press Technician: prepares computer documents for printing; trapping, font usage, picture usage, color management, clipping paths, and placing high and low resolution graphics into document. Website Designer: builds graphic elements for functional websites.

## Curriculum

Students following the study plan
below will complete the Design and below will complete the Design and in the number of semesters shown.

## FIRST SEMESTER

CREDITS
10-111-101 Macintosh-Image Editing 10-111-120 Macintosh Publishing
10-111-161 10-801-136 English Composition 1 10-809-103 Think Critically \& Creatively *10-890-101 College 101

## SECOND SEMESTER

10-111-110 Macintosh Image Editing-Adv 10-111-111 Graphic Design 1 10-111-125 Graphic Reproduction Tech 10-111-165 Typography
10-804-123 Math w Business Apps 10-809-199 Psychology Of Human Relations
SEMESTER TOTAL

THIRD SEMESTER
10-102-100 Bus and Info Tech Occup Prep 10-104-107 Marketing Comm-Integrated 10-111-121 Graphic Design 2 $\begin{array}{ll}\text { 10-111-130 } & \text { Presentation Graphics } \\ \text { 10-111-143 } & \text { Graphic Reproduction-Ad }\end{array}$ 10-204-110 Publishing Technologies 10-801-196 Oral/Interpersonal Comm SEMESTER TOTAL

## FOURTH SEMESTER

**10-111-199 Des/Graphic Intern Practicum 10-204-111 Digital Publishing Operatio
10-204-124 Variable Data Publishing 10-204-126 Digital Print Applications 10-809-172 Intro to Diversity Studies 10-809-195 Economics SEMESTER TOTAL
TOTAL CREDITS
${ }^{*}$ The credit for 10-890-101, College 101 is an Institutional Requirement for graduation. Consequently, it is not part of the program credit requirement.
*It is recommended that learners take the Design and Graphic Technology Internship Practicum course (10-111-199) in their last semester.

With additional education and/or work experience, graduates may find other opportunities for employment.

- Account Executive
- Art Director
- Design Supervisor
- Media Buyer

The following certificates/technical diplomas may be applied toward this program: - 906141, Applied Graphics for Prototype and Design

## COURSE DESCRIPTIONS

These courses provide an opportunity for students to develop the knowledge skills, and understanding required for employment in this field.

10-102-100 BUS AND INFO TECH OCCUP PREP ...career exploration, selfexploration, career planning, career placement job seeking skills. This course should not be taken before the 3rd semester or completing at least half of the core program courses.

10-104-107 MARKETING COMMUNICATIONS-INTEGRATED ...creating, coordinating and integrating advertising, public relations and marketing activities for a specific customer or audience. A campaign will be developed and presented.

10-111-101 MACINTOSH-IMAGE EDITING ...(Adobe Photoshop + Adobe Acrobat) scanning, editing, color correcting and creating composite montage photographs. Prepare images for publication in print. An introduction to manipulating bitmap images.
10-111-110 MACINTOSH IMAGE EDITING-ADVANCED ...Photoshop's tool box, layers, paths, channels, scans, color separations, photo retouching. Web pages, Web graphics, Web safe colors, HTML code, Adobe Dimensions, image mapping and interactive capabilities of software. (Prerequisites: 10-111 101, Macintosh-Image Editing)
10-111-111 GRAPHIC DESIGN 1 ...design and drawing for graphic reproduction, design trends, and applications; brochure, advertising, and corporate I.D. package created using basic design process of thumbnails, rough and comprehensive layout. (Prerequisites: 10-111-120, Macintosh Publishing)
10-111-120 MACINTOSH PUBLISHING ...develop page layout concepts utilizing document files, tools, guides, objects and shapes, text, colors, style sheets, images, master pages; manage output for printing; and apply copy elements.

0-111-121 GRAPHIC DESIGN 2 ...apply basic design techniques to an advertising campaign, illustration techniques, lettering nd typography, reproducing logos for print production, use color for advertising and preparation of a professional portfolio. Prerequisites: 10-111-111, Graphic Design ; 10-801-136, English Composition 1)

0-111-125 GRAPHIC REPRODUCTION TECHNIQUES ...basic process of reproducing images using offset lithography including electronic imaging, preflighting, trapping concepts, imposition, and collect for output. (Prerequisite: 10 111-120, Macintosh Publishing)

0-111-130 PRESENTATION GRAPHICS ..focuses on the development of graphics for the effective presentation of illustrations, diagrams and images for computerized presentation. Emphasizing delivery with integrated media techniques. (Prerequisites: 10-111-101, Macintosh-Image Editing; 10-111-161, Macintosh Illustration)

0-111-143 GRAPHIC
REPRODUCTION-ADVANCED ...various techniques used to print fourcolor process images including traditional and electronic separations; trapping, creating PDFs, proofing techniques; color correction; preparing files for flexo, gravure, and screen printing. (Prerequisites: 10-111125, Graphic Reproduction Techniques)

10-111-161 MACINTOSH LLUSTRATION ...create and paint basic shapes, draw, transform objects, work with type, blend shapes and colors, ork with layers, special effects, and olor separations. An introduction to manipulating vector based images.

10-111-165 TYPOGRAPHY ...typography history; type styles and nomenclature; type in design world; type usage in printing; paper nomenclature; paper types; papers ised for art, printing, and industry; and future of paper. (Prerequisite: 10-11-161, Macintosh Illustration)

10-111-199 DESIGN AND GRAPHIC INTERN PRACTICUM ...practical, handson experience applying skills developed in the program at an approved site with supervision by an employer and the instructor with related projects and discussion. (Prerequisites: 10-801-136, English Composition I; 10-804123, Math w Business Apps; Corequisite: 10-102-100, Bus and Info Tech Occup Prep)

10-204-110 PUBLISHING
TECHNOLOGIES ...introduction to printing process, electronic publishing, prepress operations, press operations, postpress operations, job logs, professional portfolios, and job seeking skills. (Corequisite:10-111-120, Macintosh Publishing)

10-204-111 DIGITAL PUBLISHING OPERATIONS ...press equipment, processors, inks, print quality, job tickets, standard operating procedures, densitometers, printing problems, and trapping situations. (Corequisite: 10 204-110, Publishing Technologies)

10-204-124 VARIABLE DATA PUBLISHING ...learn how to link database files to page layout applications. Create and manage correct variable channels in page layouts, apply text and image changes to layout to create a personalized printed page, research how the information is gathered to create personalized content. (Prerequisites: 10-111-120, Macintosh Publishing)

10-204-126 DIGITAL PRINT APPLICATIONS ...explain why the industry is in a state of transition towards digital printing; outline the proper time to select digital printing as a production tool; what type of project fits well into a digital print environment; identify what type of project fits the mold of digital printing. (Prerequisite: 10-204-110, Publishing Technologies 10-804-123, Math w Business Apps)

Diagnostic Medical Sonography Program Code 105262 | Associate Degree

Offered at the Green Bay campus.
For information: $(920)$ 498-544t. Toll-free: (888) 385-6982.
This program is fully eligible
for financial aid.

## Program Description

Graduates perform routine sonographic
(ultrasound) examinations of the body
include the abdomen, small parts, bstetrics, and gynecology. They work
losely with physicians and may assist he performance of invasive procedures

Program Outcomes
Adhere patient care and educatio
Adhere to the professional code
of ethics for sonographers.
Communicate with men
of the healthcare team.
Utilize medical technology for sonography.
Complete diagnostic sonographic exams.

## Wisconsin Caregiver Law NWTC is required to comply with

 he Wisconsin Caregiver Law (1997 WISCONSIN ACT 27). The completion of a caregiver background check includes thereview of criminal records for convictions f serious crimes or a history of improper ehavior. Sudents accepted into this program must complete a arackground
check through www.Certified Background. com. Information regarding this process com. Information regarding this process
is provided to students immediately upon is provided to students immediately upon criminal history may be denied access to lacement at the Corn the cinical or practicum site. Consequently, should
a sudent have a history of convictions of serious crimes or a history of improper
behaviors, NWTC cannot guarantee behaviors, NWTC cannot guarantee
dinical/practicum placement or guarantee clinica/practicum placement or guarantee

## Employment Potentia

A graduate of the Diagnostic Medical
Sonography program can choose to
work in a variety of health care settings ncluding clinics, hospitals, private erracice and laboratories performing examininations in their areas of specialization.
Career advancement opportunities esearch, and in commercial companies as education/application specialists, sales
representatives, and techpical advisors.

## Clinical Experience

Sudents will be required to purchase a uniform, pay for liability insurance
provide their own transportation to assigned sites, and cover any other expenses related to clinical experiences. Students may be expected to traa
distances for clinical experience Students are required to complete an
American Heart Association Health Carc Provider CPR course prior to clinical experiences. Students are required to
maintain a current CPR card to comply maintain a current C.R card to comply Students will be required to submit immunization documentation. A fee
is charged for this service. Additional information will be provided upon acceptance into the program proof of an annual flu vaccine.

## Accreditation

The Diagnostic Medical Sonography
program is accredited by the Commission
on Accreditation of Allied Health
Education Programs (CAAHEP) ${ }^{1361 \text { Park Street }}$ Clearwater, FL 3375
Clearwater, FL33
(727) $210-2350$

## Board/Certification

 Examinations Graduates are qualified to take the Onstertic/ Gynecology, Abdomeand Physics Boards through the Association of Registered Diagnostic
Medical Sonographers (ARDMS)

## Requirements for

 Program Application completed application and - As a requirement for program application, an Academic Skills Assessment (Accuplacer or ACT) with appropriatebenchmark scores is necessary prior to attending a pre-application informational Arithmetic, 80; Reading Comprehe 90; Sentence Skills, 95; Algebra, 65. ACT benchmarks are Math, 18; Reading, 21; English, 21. Applicants not meeting these benchmarks or the equivalent will
be required to establish an individualized academic plan. Upon completion of the plan, applicants may move to the next phase of program application, describ asessments and program benchm scores, please contact Admissions at (920) 498-7159 or (888) 385-6982 - Attendance at a mandatory pre-application
informational session will be required. To formational session will be required. To sign-up for 2 mandatory pre-applicatio
session, please contact Admissions at session, please contact Admissions at
$(920) 498-7159$ or (888) $385-6982$. High school transcript or equivalen. (For a list of equivalents, go to
www.nwtc.edul getringtated) www.nwtc.edu/gettingstarted.) Upon completion of the pre-application
information session, students will take the Health Educations Systems Inc. (HESI) A2 Exam. The HESI can only be taken after attendance at a preapplication information session. Test
topics include Math, Chemistry topics include Math, Chemistry, Anatomy
$\&$ Physiology, and Reading. To learn more about these assessment scores, please contact an admissions specialist
at (920) $498-7159$ or (888) $385-6982$, at (920) 498-7159 or ( 888 ) 385-6982, or view whe Related Links on the lower
right of the the DMS program webpage, http://www.nwtr.edu/academics/ degrees/health-sciences/Medical/Pagess
DiagnosticMedicalSonographysin DiagnosticMedicalSonography.aspx Two semesters in high school, or one
semester of college Algebra, Biology, semester of college Algebra, Biology,
and Chemistry (with a lab component) with a grade of "B" or better. Enrolled in Physics at time of application (See Requirements for
Entry for additional information.) Candidates submitting applications to the DMS program must also provide
an essay (no more than 1,000 words) completed on campus in the Assessment Center. The essay will follow a question
and answer format and will include ind answer format and will include why they are interested in and their knowledge of the profession, experience
in healthcare, specific skills and duties of a sonographer, and characteristics that make
them a good candidate for the program The DMS program follows a compecitive enrollment process whereby candidate applications are reviewed by a ranking process. Candidates are ranked in the
following categories: HESI scores and program essay. The highest soreres and program essay. The highest ranking
candidates will be offered a place on

Curriculum Sudents following the study plan
below will completethe Diagnostic

## SUMMER SEMESTER

$\begin{array}{ll}\text { 10-804-107 } \\ 10 .-100-143 & \text { College Mathematic } \\ \text { College Physics } 1\end{array}$
"10-890-101 College
SEMESTER TOTAL

स10-501-101 Medical Terminology
${ }^{10-526-200}$
Intro to DMS



 summer semester
 THIRD SEMESTER
 fourth semester

 SEMESTER TOTAL
TOTAL CREDITS

## CURRICULUM NOTE

"No tina grade lowe than "CC" is acceptatele in
any of the courses marked with an asterisk. A
 than " "N" in a program course may ypply for
re-entry int the program. Consideration for re.
entry will be at the entry will be at the discretion of the re-entry tean
and will be dependent on clinical availibility.
++ No final grade lower than "B" is accepta + No final Irade lower than "B" is acceep
in General Anatomy \& hysiology and
Advanced Anatony Advanced Anatomy \& Physilogy. $A$ A sudent
who withdraws or receives a grade lower than Who with draws or receives a arade lower than
a " $B$ "
is these courses may into the program. Consideration for re-entiy
will beat the discretion of the e e-entry tean
and will be at the discretion of the re-entry tean
and will be dependent on cinicical vavilability
"The credit for $10-890-101$, College 101,
is an instituional is an institutional Requirement for
gracauation. Consequenenty, it it s ot tar graduation. Consequeutity, tits not par
of the program creait requirements.
the program wait list. Remaining
candidates will be canceled and have an opportunity to re-apply with
the following year's applicants.

## Requirements for

Program Entry
Two semesters in high school, or one semester in college of Physi
with a grade of "B" or better. - Attend mandatory Spring program orientation. Complete caregiver background
check. A fee is charged for this check. A fee is charged for this service.
Additional information will be provided Additional information will be provided
upon acceptance into the program. - Complete mandatory four-- hourplete job shadow.

Suggested Skills for Succes students are expected to have entry-level computer skills. It is recommended that
students complete basic computer skills students complete basic computer skils
coursework if deficient in this area.

COURSE DESCRIPTIONS These courses provide an opportunity for students to develop the know
skills, and understanding required
for employment in this field. 10-501-101 MEDICAL TERMINOLOGY .focuses on the component parts of
nedical terms: prefixes, suffixes, and oot words. Students practice formatio nalysis and reconstruction of terms. pronunciation. Introduction to operative liagnostic, therapeutic and symptomatic terminology of all body systems, as well systemic and surgical terminology. 10-526-200 INTRO TO DMS ...introduces earners to the field of diagnostic med sonography. Explores the duties and
functions of the diagnostic medical soographer as well as the historical
ackground. Learners examine the other maging modalities as they relate to sonography. Includes principles of patient
care and legal and ethical isues related to sonography. (Prerequisite: Accepted into the
Diagnostic Medical Sonography Program)
0-526-203 SCANNING WITH WOFICIENCY...provides learners with the opportunity to enhance their
technical skills, accuracy, and proficiency in scanning the abdominal organs and
female pelvis of the human body. This is a canning course dedicated in continuing scanning course dedicated in continuing
to prepare the learner for their first clinical experience. (Prerequisites: 10-$526-207$, Abdominal Sonography; 10-
$526-208$ OB/GYN Sonography 1) 0-526-207 ABDOMINAL SONOGRAPHY ...prepares learners to perform ultrasounds of the abdominal ree, pancreas, spleen, urinary tract, orta and retroperitoneum. Practice scan sessions included. (Prerequisites: 10-526-200. Intro to DMS; 10-501-101,
Medical Terminology; $10-860-177$ G Anaticamy \& Physiology. Corequisitit: 10 nnatomy \& Physiology. Corequisite: 10 -
06-179, Adv Anatomy $\&$ Physiology

10-526-208 OB/GYN SONOGRAPHY 1 ...prepares learners to perform ultrasou
of the nongravid uterus and the firsttrimester pregnancy. Explores the anatomy,
physiology, and pathology of the female physiology, and pathology of he female reproductive system as well as intrauterinc and ectopic pregnancies. (Prerequisites:
$10-526-200$, Intro to DMS; 10-501-101, Medical Terminology; 10-806-177, Gen Anatomy \& Physiology; Corequisite: 10 -
806-179, Adv Anatomy \& Physiology) 10-526-209 DMS CLINICAL EXPERIENCE 1 ...opportunities to apply
scanning skills sin a clinical setting Student concentrate on ultrasound examinations of the abdominal organs. Participation in this course will take place at a hospital or clinic. (Prerequisites: $10-526-207$, , DMS-Abdominal Sonography; 10-526
208, DMS-OB/GYN Sonography 1)
-526-2 Cross sectional
10-526-210 CROSS SECTIONAL ANATOMY...introduces cross sectional
anatomy as related to Diagnostic Medical Sonography. Includes correlating images from other imaging modalities. (Prerequisite: Accepted into the Diagnostic
Medical Sonography Program.) edical Sonography Program. 10-526-211 SUPERFICIAL SONOGRAPHY ...investigates superficial
structure imaging. Includes anatomy, structure imaging. Includes anatomy,
pathophysiology, and sonographic eval Prepared learner to perform ultrasounds of the thyroid, breast, male reproductive system, musculoskeletal system, and GI Sonography; $10-526$-221, Sonography Sonography; 10-526-221, Sonography
Physicic 1; 10-526-222, Sonography Physic Physics $1 ; 10-526-222$, , Sonography Physics
2; $10-526-210$, Cross Sectional Anatomy) 10-526-212 OB/GYN SONOGRAPHY 2 ...prepares learners to perform ultrasounds
of the second and third-trimester pregnancy Explores the anatomy, physiology, and pathology of the female pelvis and the $526-208$, OB/GYN Sonography 1) 10-526-213 DMS CLINICAL in a clinical setting allows the student to continue to improve technical skills while accepting more responsibilities during scanning procedures. (Prerequisite: $10-$
$526-200$. DMS Clinical Experience 1 )

10-526-215 DMS CLINICAL EXPERIENCE 3 ...provides further opportunty for students to expand their
skills in a clinical setting. Students begin
to function as team members under the to function as team members under the
guidance of the instructor and authorized clinical personnel. (Prerequisite: $10-526$ 213, DMS Clinical Experience 2)
10-526-216 DMS CLINICAL EXPERIENCE 4...prepares the student to assume the role of a sonographer. This course enhances the student's scanning and employee skills through clinical Prudice. Serves as a transition berween
sumploye. (Corequisite: 10 -
526 , DMS Clinical Experience 3) $526-215$, DMS Clinical Experience
10-526-218 DMS CLINICAL EXPERIENCE 5 ...prepares the student
to assume the role of a sonographer. This course enhances the students scanning
and employee skills throub dinial and employee skills through clinical
practice. Serves as a transition between practice. Serves as a transition between
student and employee. (Corequisite: 10 student and employee. (Corequisite: 10
$526-216$, DMS Clinical Experience 4)
10-526-221 SONOGRAPHY PHYSICS ...introduces physics and instrumentation ...introduces physics and instrumentatio Learners explore how principles of
sound propagaion sound propagation in tissues create
a sonographic image. (Prerequisite a sonographic image. (Prerequisite:
$10-806-143$, College Physics 1 ) 10-526-222 SONOGRAPHY PHYSICS 2...continues the study of physics and medical sonography. The laboratory component of this course introduces the student to the concepts of ultrasound
instrumentation, an introduction to ultr instrumentation, an introduction to ultra
scanning technique, and maintenance scanning technique, and maintenance
of ultrasound equipment. (Prerequisite: 10-526-221, Sonography Physics 1 ) 10-526-223 VASCULAR IMAGING sonographic imaging. Learners perform
a variery of perioperal was. a variety of peripheral vascular arterial and venous duplex exams. (Prerequisistes.
$10-526-200$ Intro to DM ; $10-256$ ${ }^{10} 10$, Cross Sectional Anatomy; 10 210, Cross Sectional Anatomy; 10
$526-221$, Sonography Physics 1 ) 10-526-224 VASCULAR IMAGING 2...prepares learners to perform abdominal vascular and physiologic peripheral vascular exams. (Prerequis
$10-526-223$, Vascular Imaging 1)

## Diesel \& Heavy

Equipment Technician

Offered at the Sturgeon Bay campus For information: (920) 746-4900. Toll-free: (888) 385-6982.

This program is fully eligible for financial aid.

## Program Description

Prepares students to service and repair diesel powered equipment. Instruction covers repair of engine, engine systems driveline, steering, brakes, hydraulic systems, and chassis components.

## Program Outcomes

- Apply hydraulic systems fundamentals.
- Manage chassis, steering, and suspension systems.
- Explain diesel engine systems
- Explain diesel engine service fundamentals.
- Describe the mechanics of
track drive systems.
- Perform required preventative maintenance.
- Use welding and machine tools.
- Maintain brake systems.
- Analyze electronic/electrical systems.
- Manage heating - AC systems.
- Interpret schematic drawings.
- Comprehend power train systems.
- Diagnose engine systems.
- Service vehicle systems.


## Requirements for

## Program Entry

- Completed application.
- High school transcript or equivalent. (For a list of equivalents, go to www.nwtc.edu/gettingstarted.)
- Students should have mastered basic math skills
- As a requirement for program entry, an Academic Skills Assessment (Accuplacer) with appropriate benchmark scores is with appropriate benchmark scores is
necessary. Program Benchmarks are: Arithmetic: 65, Reading Comprehension: 55; Sentence Skills: 60. Students not meeting these benchmarks or the equivalent will be required to establish an individualized academic plan.

Students may have the opportunity to enroll in selected program core courses while completing their individualized plan. Upon completion of the plan, students will be eligible for all program courses. However, higher test scores will lead to greater success in core program courses. To learn more about these assessments and program benchmark scores, please contact a counselor (920) 498-5444 or (888) 385-6982

## Employment Potential

 Construction Equipment Technician: diagnoses, services, and repairs a variety of construction equipment uch as track type tractors, whe oaders, and back hoe loaders. Engine Technician: diagnose and repairs diesel engines. Farm Equipment Technician: diagnoses, services, and repairs a variety of dieselpowered agricultural equipment.Fuel Injection Technician: diagnoses, services, and repairs fuel injection systems. Service Technician: performs preventive maintenance and regularly scheduled maintenance on equipment to keep it in service. Truck Driver/Diesel Technician: owns or operates a small fleet and wants to perform his/her own regular and preventive maintenance.
With additional education and/or work experience, graduates may find other opportunities for employment.

- Diesel Equipment Mechanic Instructor
- Diesel Shop Owner
- Sales Representative
- Shop Supervisor
- Technical Service Representative
- Truck Fleet Operator


## Accreditation

The NWTC Diesel and Heavy Equipment Technician program is ASE Certified to NATEF (National Automotive Technicians Education Foundation) Standards. Additionally, all instructional staff in the NWTC Diesel and Heavy

## Curriculum <br> Suudens following the sudy plan below will complete the Dised \& Heavy Equipment Technician technical diploma in the number of semesters shown.

## FIRST SEMESTER

CREDITS 10-103-111 Micro: Windows/Computer 10-412-100 Diesel Lab Operations Tech 10-412-108 Inte Combust Eng Tech-Intro to 10-412-111 Diesel Engine Service Fund 10-412-112 Diesel Electrical Systems 1 Te 10-804-107 College Mathematics *10-890-101 College 101
32-442-352 Welding-Metal Working Proc SEMESTER TOTAL

## SECOND SEMESTER

10-412-120 Diesel-Chassis/Susp/Steer Tech 10-412-121 Diesel-Brake Systems Technolog 10-412-123 Diesel-Elect Systems Technolog 31-801-385 Communicating-Writing SEMESTER TOTAL

## THIRD SEMESTER

10-412-124 Diesel-Electric Eng System Tec 10-412-134 Diesel Engine Systems Technolo $\begin{array}{ll}\text { 10-412-136 } & \text { Diesel-Mobile Hydraulic Sys Te } \\ \text { 10-412-137 } & \text { Diesel-Schematic Interpret Tec }\end{array}$ 10-412-138 Diesel-Track Drive Systems Tec 10-412-142 Diesel Equip Service/Maint Tec 10-419-169 Hydraulics Technology 10-458-100 CDL License Training SEMESTER TOTAL

## FOURTH SEMESTER

10-412-140 Diesel Engine Troubleshoot Tec 10-412-141 Diesel-Power Trains Technology 10-412-145 Diesel-Refrig/AC Technology 10-809-197 Contemporary Amer Society 31-801-386 Communicating Effectively SEMESTER TOTAL
TOTAL CREDITS
${ }^{*}$ The credit for 10-890-101, College 101,
is an institutional Requirement for graduation. Consequently, it is not part of the program credit requirements.

Equipment Programs are, at a minimum, Master, ASE Certified Technicians

The NWTC Diesel and Heavy Equipment Technician program is an AED Foundation (Associated Equipment Dealers) Certified Program.

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## COURSE DESCRIPTIONS

These courses provide an opportunity for students to develop the knowledge, skills, and understanding required for employment in this field.

10-412-100 DIESEL LAB OPERATIONS TECHNOLOGY ...diesel shop safety, basic equipment operation, rigging and lifting, hand and power precision tools, fasteners and hazard material handling procedures.
10-412-108 INTERNAL COMBUSTION ENGINE TECHNOLOGY - INTRO TO ...basic internal combustion (IC) engine types, IC engine classifications and applications, IC engine theory and operation, IC engine construction and careers in IC engine service and repair.

10-412-112 DIESEL ELECTRICAL SYSTEMS 1 TECHNOLOGY ...will cover but not be limited to: electronic components, electrical safety, storage batteries, charging and starting systems Knowledge, skills and understanding required for employment in the diesel field.

10-412-120 DIESEL-CHASSIS/SUSP/ STEER TECHNOLOGY ...vehicular steering systems, heavy-duty axles, suspension systems, wheels and tires, coupling systems. (Corequisite: 10-412 100, Diesel-Lab Operations Tech)

10-412-121 DIESEL-BRAKE SYSTEMS TECHNOLOGY ...braking systems, drum brake principles, disc brakes, foundation brake systems, air brakes, anti-lock systems. (Corequisite: 10-412100, Diesel Lab Operations Tech)
10-412-122 DIESEL PREVENTIVE MAINT TECHNOLOGY ...safety terms, maintenance, inspection, lubricants, clutch, brakes, wheels and rims, steering, suspension, electrical, air system, and hydraulic system. (Corequisite: 10-412100, Diesel Lab Operations Tech)

10-412-123 DIESEL-ELECT SYSTEMS TECHNOLOGY ...will cover but not be limited to: electronic components, electrical safety, storage batteries, charging and starting systems. Knowledge, skills and understanding required for employment in the diesel field. (Prerequisite: 10-412 112, Diesel Electrical Systems 1 Tech) 10-412-124 DIESEL-ELECTRIC ENG SYSTEM TECHNOLOGY ...engine, drive train, chassis, and cab computer systems software.

10-412-134 DIESEL ENGINE SYSTEMS TECHNOLOGY ...shop safety, fuel system components, governors, nozzles, American Bosch systems, Robert Bosch systems, Lucas systems, Stanadyne systems, Cummins systems, Detroit Diesel systems, Caterpiller systems, and testing methods. (Prerequisite 10-412-111, Diesel Engine Ser Fund Tech) 10-412-136 DIESEL-MOBILE HYDRAULIC SYSTEM TECHNOLOGY ...mobile hydraulics system components safety principles of operation, diagnosis, and service. 10-412-137 DIESEL-SCHEMATIC INTERPRET TECHNOLOGY ...electronic hydraulic schematics, applications of schematics, system similarities, components, review of systems operation, practical applications in diagnosing system problems, use of special test equipment/schematics to solve problems. (Prerequisite: 10-412 123, Diesel Electrical Systems Tech II)

10-412-138 DIESEL-TRACK DRIVE SYSTEMS TECHNOLOGY ...track shop safety, track drive component parts, system operation, inspection, system diagnoses, system repair, system service, and system maintenance. (Corequisite: 10-412-100, Diesel-Lab Operations)

10-412-140 DIESEL ENGINE TROUBLESHOOT TECHNOLOGY ...diesel engine troubleshooting steps, major check points when inspecting or operating a diesel engine, causes of poor engine performance and failure, perform engine diagnostic tests, dyno test an engine. (Prerequisite: 10-412 111, Diesel Engine Ser Fund Tech)

10-412-141 DIESEL-POWER TRAINS TECHNOLOGY ...safety, power train components, coupling systems, hydraulic retarders, mechanical transmissions, drive shafts, final drives, gear reduction boxes, planetary gear sets, chain-type final drive, belt drive systems.

10-412-142 DIESEL EQUIP SERVICE/ MAINT TECHNOLOGY ...shop safety; service manuals; preventive maintenance forms; federal inspection policy; preventive maintenance for trucks, trailers, engine brakes/retarders, construction, and agricultural equipment; and electronic trouble shooting trees. (Corequisite: 10-412-100, Diesel Lab Operations Tech)

10-412-145 DIESEL-REFRIG/AC TECHNOLOGY ...safety; basics of air conditioning; refrigerants and oil; basic system and its functions; environmenta safety practices; inspection, diagnosing, and using service tools. (Corequisite: 10 412-100, Diesel-Lab Operations Tech)
10-412-146 POWER GENERATION 1 ...this course is designed to familiarize diesel technician students with the basics of home standby and commercial generators. Electrical fundamentals, alternators, permanent magnet generators, circuit breakers, generator switchgear, auto transfer switches and automatic voltage regulators will be covered emphasizing home standby and commercial use generators.

10-419-169 HYDRAULICS TECHNOLOGY ...will cover the following but not be limited to hydraulics principles, system schematics and symbols, pumps, valves, cylinders, motors, accumulators, filters, reservoirs, hydraulic seals, fluids, maintenance, and safety rules.

10-458-100 CDL LICENSE TRAINING ...this course is designed to prepare students for the Wisconsin Class A Commercial Drivers License (CDL) pre-trip inspection, air brake and skills test. Preparation will also be given for taking the State DOT written test including general knowledge, air brakes and combination vehicles.



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Offered at the Sturgeon Bay campus. For information: (920) 746-4900. Toll-free: (888) 385-6982.

This program is fully eligible
for financial aid.

## Program Description

Prepares students to service and repair diesel powered equipment and prepare graduates for management, ownership supervisory level positions and advanced educational options. Instruction incorporates repair of steering, brakes, hydraulic systems, and chassis components.

## Program Outcomes

- Apply hydraulic systems fundamentals
- Manage chassis, steering, and suspension systems
- Explain diesel engine systems
- Explain diesel engine service fundamentals
- Perform required preventive maintenance
- Maintain brake systems
- Analyze electronic/electrical systems
- Manage heating - A/C systems
- Comprehend power train systems
- Interpret schematic drawings
- Diagnose engine systems
- Service vehicle systems
- Communicate effectively with the customer
- Complete customer repair orders accurately
- Organize a daily work schedule
- Tabulate a daily time sheet of technician's repair work


## Requirements for

## Program Entry

- Completed application.
- High school transcript or equivalent. (For a list of equivalents, go to www.nwtc.edu/gettingstarted.)
- High school background in math, science and technology education would be beneficial.
- As a requirement for program entry, an Academic Skills Assessment (Accuplacer) with appropriate benchmark scores is necessary. Program Benchmarks are Arithmetic: 65, Reading Comprehension: 55; Sentence Skills: 75. Students not meeting these benchmarks or the equivalent will be required to establish an individualized academic plan. Students may have the opportunity to enroll in selected
program core courses while completing their individualized plan. Upon completio of the plan, students will be eligible for all program courses. However, higher test cores will lead to greater success in core program courses. To learn more about these assessments and program benchmark scores, please contact a counselor (920) 498-5444 or (888) 385-6982.


## Employment Potential

A graduate of the program will have the potential for employment in the following areas:
Diesel and Heavy Equipment Technician: diagnoses, services, and repairs a variety of heavy equipment ranging from over the-road trucks, off-road construction equipment, agricultural equipment, and potentially stationary power supply engines. Related Specialist Technician: diagnoses, services, and repairs fuel injection systems, hydraulics systems, trailer service and other specialty areas. Related Parts Support Manager: manages a parts department within a repair facility.
Industry Related Service ManagerSupervisor: manages technician performance, directs work flow, tracks work progress, coordinates service business profitability, reports to Operations level management. Industry Related Sales Representative: sales position within the diesel and heavy equipment industry or support business to the industry.
Business Owner: owns own business related to the diesel and heavy equipment or support business. Educational Trainer: With additional study and transfer to a four-year baccalaureate college, a graduate could pursue a fouryear degree in secondary, post-secondary or technical training industry.

## Accreditation

The NWTC Diesel and Heavy Equipment Technician program is ASE Certified to NATEF (National Automotive Technicians Education Foundation) Standards. Additionally, all instructional staff in the NWTC Diesel and Heavy Equipment Programs are, at a minimum, Master, ASE Certified Technicians.
The NWTC Diesel Equipment Technology program is an AED Foundation (Associated Equipment Dealers) Certified Program.

## Curriculum

Students following the study plan below will complete the Diesel Equipment
Technology associate degree in the Technology associate degree in thi
number of semesters shown.

## FIRST SEMESTER

CREDITS 10-412-100 Diesel Lab Operations Tech 10-412-100 Diesel Lab Operations Tech 10-412-111 Diesel Engine Service Fund 10-412-112 Diesel Electrical Systems 1 Te *10-801-136 English Composition 1 10-804-107 College Mathematics **10-890-101 College 101

## SEMESTER TOTAL

## SECOND SEMESTER

10-412-120 Diesel-Chassis/Susp/Steer Tech 10-412-121 Diesel-Brake Systems Technolog 10-412-121
Diesel-Brake Systems Technolog
10-412-122
Diesel Preventive Maint Techno 10-412-123 Diesel-Elect Systems Technolog 10-801-196 Oral/Interpersonal Comm SEMESTER TOTAL

## third semester

10-412-124 Diesel-Electric Eng System Tec 10-412-134 Diesel Engine Systems Technolo 10-412-137 Diesel-Schematic Interpret Tec 10-419-169 Hydraulics Technology 10-458-100 CDL License Training 10-809-172 Intro to Diversity Studies 10-809-199 Psychology Of Human Relations SEMESTER TOTAL

## FOURTH SEMESTER

10-412-140 Diesel Engine Troubleshoot Tec 10-412-14 10-801-197 Technical Reporting 10-809-197 Contemporary Amer Society SEMESTER TOTAL
TOTAL CREDITS

## CURRICULUM NOTE

"Students must earn a grade of "C" or better in 10-801-136, English Composition to enroll in 10-801-197, Technical Reporting.
**The credit for 10-890-101, College 101,
is an Institutional Requirement for graduation. Consequently, it is not part of the program credit requirements.

Note

- A three to five page paper or specialty assignments are required for courses applied to an associate degree. Individual instructor requirements will be received at program orientation and listed in each course syllabus.
- Diesel program students are able to enroll in a four-credit Power Generation program enhancement certificate. Please call (920) 746-4919 for more details.4
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## COURSE DESCRIPTIONS

These courses provide an opportunity for students to develop the knowledge skills, and understanding required for employment in this field.

10-412-100 DIESEL LAB OPERATIONS TECHNOLOGY ...diesel shop safety, basic equipment operation, rigging and lifting, hand and power precision tools, fasteners and hazard material handling procedures.

10-412-108 INTERNAL COMBUSTION ENGINE TECHNOLOGY - INTRO TO ...basic internal combustion (IC) engine types, IC engine classifications and applications, IC engine theory and operation, IC engine construction and careers in IC engine service and repair.
10-412-111 DIESEL ENGINE SERVICE FUNDAMENTALS ...diesel engine service procedures; lubrication, cooling, fuel intake and exhaust systems, bearings, seals and basic diesel engine diagnosis.

10-412-112 DIESEL ELECTRICAL SYSTEMS 1 TECHNOLOGY ...will cover but not be limited to: electronic components, electrical safety, storage batteries, charging and starting systems. Knowledge, skills and understanding required for employment in the diesel field.
10-412-120 DIESEL-CHASSIS/SUSP/ STEER TECHNOLOGY ...vehicular steering systems, heavy-duty axles, suspension systems, wheels and tires, coupling systems. (Corequisite: 10-412100, Diesel-Lab Operations Tech)

10-412-121 DIESEL-BRAKE SYSTEMS TECHNOLOGY ...braking systems, drum brake principles, disc brakes, foundation brake systems, air brakes, anti-lock systems. (Corequisite: 10-412100, Diesel Lab Operations Tech)

0-412-122 DIESEL PREVENTIVE MAINT TECHNOLOGY ...safety terms, maintenance, inspection, lubricants, lutch, brakes, wheels and rims, steering uspension, electrical, air system, and hydraulic system. (Corequisite: 10-412 100, Diesel Lab Operations Tech)
10-412-123 DIESEL-ELECT SYSTEMS TECHNOLOGY ...will cover but not be limited to: electronic components, electrical safety, storage batteries, charging and starting systems. Knowledge, skills and understanding required for employment in the diesel field. (Prerequisite: 10-412112, Diesel Electrical Systems 1 Tech)

10-412-124 DIESEL-ELECTRIC ENG SYSTEM TECHNOLOGY ..engine, drive train, chassis, and cab computer systems software.

10-412-134 DIESEL ENGINE SYSTEMS TECHNOLOGY ...shop safety, fuel system components, governors, nozzles, American Bosch systems, Robert Bosch systems, Lucas systems, Stanadyne systems, Cummins systems, Detroit Diesel systems, Caterpiller systems, and testing methods. (Prerequisite 10-412-111, Diesel Engine Ser Fund Tech)

0-412-136 DIESEL-MOBILE
HYDRAULIC SYSTEM
TECHNOLOGY ...mobile hydraulics system components safety, principles of operation, diagnosis, and service.

10-412-137 DIESEL-SCHEMATIC INTERPRET TECHNOLOGY ...electronic/ hydraulic schematics, applications of schematics, system similarities, components, review of systems operation, practical applications in diagnosing system problems, use of special test equipment/schematics o solve problems. (Prerequisite: 10-412 123, Diesel Electrical Systems Tech II)

10-412-140 DIESEL ENGINE TROUBLESHOOT TECHNOLOGY ...diesel engine troubleshooting steps, major check points when inspecting or operating a diesel engine, causes of poor engine performance and failure, perform engine diagnostic tests, dyno test an engine. (Prerequisite: 10-412111, Diesel Engine Ser Fund Tech)
10-412-141 DIESEL-POWER TRAINS TECHNOLOGY ...safety, power train components, coupling systems, hydraulic retarders, mechanical transmissions, drive shafts, final drives, gear reduction boxes, planetary gear sets, chain-type final drive, belt drive systems.

10-412-145 DIESEL-REFRIG/AC TECHNOLOGY ...safety; basics of air conditioning; refrigerants and oil; basic system and its functions; environmental safety practices; inspection, diagnosing, and using service tools. (Corequisite: $10-$ 412-100, Diesel-Lab Operations Tech)
10-419-169 HYDRAULICS TECHNOLOGY ...will cover the following but not be limited to hydraulics principles, system schematics and symbols, pumps, valves, cylinders, motors, accumulators, filters, reservoirs, hydraulic seals, fluids, maintenance, and safety rules.

10-458-100 CDL LICENSE TRAINING ...this course is designed to prepare students for the Wisconsin Class A Commercial Drivers License (CDL) pre-trip inspection, air brake and skills test. Preparation will also be given for taking the State DOT written test including general knowledge, air brakes and combination vehicles.
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#### Abstract




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Offered at the Green Bay campus. For information: (920) 498-5444. Toll-free: (888) 385-6982.

This program is fully eligible for financial aid.

## Program Description

The Digital Media Technology Program prepares students to compete in a global digital workforce including content conception, creation, and implementation. Learners will develop multimedia production skills using digital audio and video recording and editing, motion graphics, internet broadcasting (i.e., podcasting), and data transfer and conversion from analog to digital media. The program will provide learning opportunities for those desiring a business-related position or projectbased entrepreneurial contract work.

## Program Outcomes

- Create design for digital media
- Perform internet broadcasting.
- Assemble a digital media portfolio.
- Produce animation for video.
- Create interactive digital interfaces.
- Operate digital media studio.
- Interface digital media into websites
- Set the motion effects to

2D graphic designs.

- Write scripts.
- Conduct multi-track recording sessions.
- Compose audio scoring for video.
- Conduct live audio recording for video.
- Compose/edit/image both still and motion photography.


## Requirements for

## Program Entry

- Completed application.
- High school transcript or equivalent. For a list of equivalents, go to www.nwtc.edu/gettingstarted. - Computer familiarity and ability to use a keyboard and mouse. - Students should have mastered basic math skills. For a description of basic math, see the Basic Education section of the College Catalog. - As a requirement for program entry, an
Academic Skills Assessment (Accuplacer) Academic Skills Assessment (Accuplacer) with appropriate benchmark scores is
necessary. Program benchmarks are necessary. Program benchmarks are Arithmetic, 65; Reading Comprehension, 55: Sentence Skills, 75. Students not
meeting these benchmarks or the equivalent will be required to establish an individualized academic plan.

Students may have the opportunity to enroll in selected program core courses while completing their individualized plan. Upon completion of the plan, students will be eligible for all program courses. However, higher test scores will lead to greater success in core program courses. To learn more about these assessments and program benchmark scores, please contact a counselor at (920) 498-5444 or (888) 385-6982.

## Employment Potentia

Program graduates may work in this evolving Digital Media Technology field, and will be needed by the medi industry, as designers, developers, and technicians. For example, they will be hired or contracted as media creators and designers for video, interactive media, websites, and some will be New Media entrepreneurs expanding applications for the media arts in the 21 st century.

A graduate of this program will have the potential for employment in the following areas:
Digital Media Operator: develops multi-functional digital content for commercial, educational, and entertainment establishments. Researches and analyzes digital media utilization and functionality. Reviews digital media trends and effectiveness in marketing, advertising, training, creative services, and communications fields.

Motion Graphic Artist: performs detailed graphic compositing for broadcast, web, DVDs and mobile devices. Coordinates production of static and motion visuals and presentations for business, training, recreational and other applications. Video Editor: assists post-production department by performing asset management and non-linear video editing duties. Performs script-based synchronization of audio, video, special effects, titles and graphics.
Multimedia Production Assistant: assists in production, from concept through postproduction, of digital media clientpostproduction, of digital media client
based projects. Operational workflow duted projects. Operational workfow
dutclude assisting with concept planning, storyboarding, scriptwriting, production, editing, and delivery. Freelance Digital Media Producer: initiates entrepreneurial work with selfestablished client base. Acts as a fullservice digital media content creator and consultant. Provides customer with and other content for internal and external delivery methods and mediums.


FIRST SEMESTER
CREDITS
10-111-101 Macintosh-Image Editing
10-206-100 Digital Audio Overview 10-206-107 Internet Broadcasting
10-206-178 Film/Broadcast Scriptwritin 10-206-178 Film/Broadcast Scriptwriting *10-890-101 College 101
SEMESTER TOTAL

## SECOND SEMESTER

10-206-120 Music Production-Logic Studio
10-206-154 Macintosh Video Editing
10-206-180 Film/Broadcast Preproduction
10-206-183 Video Photography
10-801-196 Oral/Interpersonal Comm
10-804-123 Math w Business Apps
SEmester total

## THIRD SEMESTER

10-102-100 Bus and Info Tech Occup Prep 10-206-101 Soundtracks and Music
10-206-108 Internet Broadcasting-Advanced 10-206-174 Motion Graphics for Video 10-809-103 Think Critically \& Creatively 10-809-199 Psychology Of Human Relations SEMESTERTOTAL

## FOURTH SEMESTER

10-206-175 Motion Graphics Advanced
10-206-185 Macintosh Video Editing-Adv 10-206-199 Dig Media Internship Practicum 10-809-172 Intro to Diversity Studies
10-809-195 Economics
SEMESTER TOTAL
TOTAL CREDITS
CURRICULUM NOTE
*The credit for 10-890-101, College 101 is an Institutional Requirement for
graduation. Consequently it is not graduation. Consequenty, it is not part
of the program credit requirement.

## SUGGESTED ELECTIVES

10-152-185, Website Coding
10-206-102, Audio Engineering One

With additional education and/or work experience, graduates may find other opportunities for employment.

- Digital Media Operations Manager
- Internet Broadcaster
- Sound Recordist/Editor
- Video Production Coordinator
- Videographer
- Video Department Manager

The following certificates/technical diplomas may be applied toward this program:

- 902061, Internet Broadcasting
- 902062, Recording \& Audio Engineering


## COURSE DESCRIPTIONS

These courses provide an opportunity for students to develop the knowledge, skills, and understanding required for employment in this field.

10-102-100 BUS AND INFO TECH OCCUP PREP ...career exploration, self- exploration, career planning, career placement, job seeking skills. This course should not be taken before the 3rd semester or completing at least half of the core program courses.

10-111-101 MACINTOSH-IMAGE EDITING ...(Adobe Photoshop + Adobe Acrobat) scanning, editing, color correcting and creating composite montage photographs. Prepare images for publication in print. An introduction to manipulating bitmap images.

10-206-100 DIGITAL AUDIO OVERVIEW ...concept of analog to digital audio conversion; audio production with software including editing, processing, mixing and exporting. Creating radio imaging and advertising; producing various length content for distribution through multiple medium.

10-206-101 SOUNDTRACKS AND MUSIC ...utilize software applications to prepare audio for video including environment sounds, sound effects and Foley, dialogue replacement, and soundtrack creation. (Prerequisite: 10-206-100, Digital Audio Overview)

10-206-107 INTERNET
BROADCASTING ...plan, prepare and organize digital media content for online distribution and access. Pre- through post-production techniques including technical and commercial aspects of digital media content for internet delivery

0-206-108 INTERNET
BROADCASTING-ADVANCED ...advanced pre- through post-production techniques including technical/commercial spects of digital media content for internet delivery. Business fundamentals, target marketing, copy writing, commercial distribution, user-generated content (UGC) service/s. (Prerequisites: 10 206-107, Internet Broadcasting; 10-801-136, English Composition 1)

10-206-120 AUDIO PRODUCTION WITH LOGIC PRO ...covers the basic concepts of music production using Logic Pro; develops skills in portable audio, audio or video and advanced audio production of radio programming. (Prerequisite: 10-206-100, Digital Audio Overview)
10-206-154 MACINTOSH VIDEO EDITING ...media types including audio, video and graphics to create original commercial, educational and entertainment productions for delivery to broadcast, CD/ DVD and web. Final Cut Pro, LiveType and Photoshop software. (Prerequisite: 10-111-101, Macintosh-Image Editing)

0-206-174 MOTION GRAPHICS FOR VIDEO ...creating high impact, dynamic effects for video productions utilizing digital media including still and motion video, graphics, text and applied filters. Apple Motion, Adobe After Effects and Photoshop software. (Prerequisites: 10-206-154, Macintosh Video Editing; 10-111-101, Macintosh-Image Editing)

10-206-175 MOTION GRAPHICS ADVANCED ...advanced motion graphic content creation including motion racking, color correction, rotoscoping and advanced compositing. Adobe After Effects, Mocha AE and Media Encoder (Prerequisites:10-206-174, ncoder. (Freics for Video 10-801 36 . 1 Co 36, English Composition 1)

10-206-178 FILM AND BROADCAST SCRIPTWRITING ...research and development of writing and formatting stories adapted for film and broadcast. Covers applying three-part story structure, developing plot and theme, and identifying target audience.
10-206-180 FILM AND BROADCAST PREPRODUCTION ...beginning stage of production (planning, coordinating, budgeting). Revising scripts/scheduling, location scouting, hiring cast/crews, legal matters (copyright, model/location releases). Preparation of digital video production for multiple output devices.
10-206-183 VIDEO PHOTOGRAPHY ...technical aspects of capturing motion images including composition, lighting, exposure, filtration, and camera selection, Develop skills in pre-production through post-production of motion photography projects. (Prerequisite: 10-206-107 Internet Broadcasting)
10-206-185 MACINTOSH VIDEO EDITING-ADVANCED ...(Final Cut Studio) video production, planning/ scripting, digital transfers, advanced editing techniques, color correction/ output. Media, camera (SD, HD), file formats, encoding, compression/ delivery methods. Production of portfolio quality, commercially viable video. (Prerequisites: 10-206-154, Macintosh Video Editing; 10-801-136, English Composition 1)

10-206-199 DIGITAL MEDIA INTERNSHIP PRACTICUM ...practical, hands-on experience applying skills developed in the program at an approved site with supervision by an employer and the instructor with related projects and discussion. (Prerequisites: 10-801-136, English Composition I; 10-804-123, Math w Business Apps; Corequisite: 10-102100, Bus and Info Tech Occup Prep)

Early Childhood Education Program Code 103071 | Associate Degree

|  |  | Gurriculum |
| :---: | :---: | :---: |
| Toll-free: (888) 385-6982. | ises the assistant childcare teacher | n be |
| This program is fully eligible for financial aid. | children that promotes their physical, social, psychological, and intellectual development; and provides a flexible balance | Education associate degree in the number of semesters shown. Cour |
| Program Description <br> The Early Childhood Education program prepares students to work as teachercaregivers in early childhood settings. It combines hands-on fieldwork in area college. Graduates become responsible for the care and education of children in the birth-to-eight-years age range. They create and maintain safe and healthy play environments, guide behavior, plan and cooperatively with staff and parents. | of active and quiet activities, individual and group activities, indoor and outdoor activities, free choice, guided activities and conduct developmental assessments. | blended, and may be taken in any order as long as prerequisites are met. For additional course and certificate offerings, refer to the information in the Early Childhood Team Site in the Related |
|  | Family Childcare Provider/Teacher/ Owner: same functions as above only in a home setting. | Links area at the right of this page. |
|  | Childhood Program Director, | O7-148 ECE: Foundations |
|  | Day Camp Director Child Care Cen |  |
|  |  | 7-174 ECE: Pra |
|  |  |  |
|  |  | ECE: |
|  |  | En |
|  | Board of Directors for day-to-dy | TER Total |
| Program Outcomes |  | SECOND SEMESTER |
| - Apply child development theory to practice. | programming, facility, fiscal responsibilitiz | 10-307-151 ECE: Inf |
| - Cultivate relationships with children, family, and the community. <br> - Assess child growth and development. <br> - Use best practices in teaching and learning. <br> - Demonstrate professionalism. |  | -192 ECE: Pra |
|  |  | ECE: Math S |
|  |  | 10-809-188 Developmental Psychology 3 |
|  |  | 6 Intro to Sociology |
|  | cording to state requirements. |  |
|  |  |  |
| - Integrate health, safety, and nutrition practices. |  | ECE: Curricu |
|  | - A student who does not meet requirements for program ent |  |
|  | quired to consult an NWTC couns | -197 ECE: Practicum |
|  | out ways to make up any deficiencies | 112 Princip |
| Program Entry | through testing or course work. | 72 Intro to Diversity Stud |
| - Completed applicatio |  |  |
| - High school transcript or equivalent. (For a list of equivalents, go to www.nwtc.edu/gettingstarted.) | evidenced by a medical examination within three months prior to beginning practicum class. | FOURTH SEMESTER <br> 10-307-199 ECE: Practicum 4 <br> 10-307-204 Supervision/Administration <br> of ECE Programs |
| - Demonstrated suitability to the early childhood profession as indicated by completion of a functional ability checklist. | NWTC issued name tag, provide their own transportation to assigned sites and cover any other expenses related to practicum experiences. Students | 10-801-196 Oral/Interpersonal Comm <br> 10-809-195 Economics <br> Elective <br> SEMESTER TOTAL <br> TOTAL CREDITS |
| - Complete physical examination within three months prior to Practicum course. Maintain proper immunizations. | expected to travel distanc lity: Student Teaching ho | CURRICULUM NOTE <br> * Practicum courses require student te |
| - Completed an American Heart Association CPR course prior to program entry to include the AED component for infants and toddlers as well as adults. Students are required to maintain a current CPR card on a two-year renewal cycle. | will span between 6 a.m. 16 p.m. with the majority of the 90 hours occurring in the morning. <br> - Completion of a Wisconsin Technical Skills Attainment (TSA) portfolio is required to graduate from this program. | in the community, in addition to course work. NWTC Faculty arranges practicum settings for with students. Students are required to complete a minimum of 90 hours in each practicum placement. It is recommended that students take one practicum per semester. Students are required to achieve a grade of "C" or higher in the practicum courses to continue in or graduate from this |
| - Mastered basic math before entering this program. Basic math covers whole numbers, fractions, decimals, percents and measurements. <br> - Demonstrated proficiency in basic skills through a course placement assessment. | - NWTC offers credit-based courses, credentials and degree options that al with the YoungStar requirements. | program. Read more about Practicums online. <br> ** Blended online class requires two/three Saturday visits to the Green Bay Campus |
|  | The following certificates/technical diplomas may be applied toward this program: | ** The credit for 10-890-101, College 101, is an Institutional Requirement for graduation. Consequently, it is not part of the program credit requirements. |
| - As a requirement for program entry, an Academic Skills Assessment (Accuplacer) with appropriate benchmark scores is necessary. Program Benchmarks are Arithmetic, 34; Reading Comprehension, 55: Sentence Skills, 75. Students not meeting these benchmarks or the equivalent will be required to establish an individualized academic plan. | ges 0-2 Certif | If a studentis considering pursuing |
|  | - 9030710, Early Childhood: Licensing Basic Ages 3-5 Certificate | 4 -year degree, Intermediate Algebra w/ Apps,10-804-118, should be taken in place of Principles of Sustainability, 10-806-112 |
|  | - 9030711, Early Childhood: Preschool Certificate | SugGested electiv |
|  | - 903073, Early Childhood: Infant Toddler Certificate | - 10-307-109, ECE: School Age <br> - 10-307-110, ECE: Teacher/Fam Communic |
|  | - 9030714, Early Childhood Professional | - 10-307-171, ECE: Behavior |
| Students may have the opportunity to enroll in selected program core courses while completing their individualized plan. Upon completion of the plan, students will be eligible for all program courses. However, higher test scores will lead to greater success in core program courses. To learn more about these assessments and program benchmark scores, please contact a counselor at (920) 498-5444 or (888) 385-6982. | Development 1 Certificate (The combined 12 credits from the 9030715, Early | - 10-307-172, ECE: Special He |
|  | Childhood Professional Development |  |
|  | 2 Certificate and this certificate count toward 15 credits in the Early Childhood Education Program.) | check through www.CertifiedBackground. com. A fee is charged for this service. Information regarding this process is |
|  | - 9030715, Early Childhood Professional Development 2 Certificate (The combined 12 credits from the 9030714, Early Childhood Professional Development 1 Certificate and this certificate | provided to students immediately upon acceptance into the program. Students accepted into this program must complete a Background Information Disclosure form disclosing any acts, crimes, or convictions |
| - Complete Caregiver Background Check annually. A fee is charged for this service. Additional information will be provided upon acceptance into the program. | count toward 15 credits in the Early Childhood Education Program.) | prior to program entry and annually for the remainder of the program. The information provided in the Background Information |
|  | Note Wisconsin Caregiver Law | Disclosure form must be truthful and match any findings on the criminal record check. |
| Employment Potential <br> A graduate of this program will have the potential for employment in the following areas: | NWTC is required to comply with the Wisconsin Caregiver Law (2009 WISCONSIN ACT 76). The completion of a caregiver background check includes the review of criminal records for convictions | Students with a criminal history may be denied access to placement at the discretion of the practicum site. Consequently, should a student have a history of convictions of serious crimes or a history of improper |
| Early Childhood Teacher in Preschool or Group Childcare Centers/Head Start Teacher: plans and implements daily | of serious crimes or a history of improper behavior. Students accepted into this program must complete a background | behaviors, NWTC cannot guarantee practicum placement or guarantee graduation within typical program timing. |

## COURSE DESCRIPTIONS

## These courses provide an opportunity

 skills, and understanding requiredfor employment in this fiel.
10-307-148 ECE: FOUNDATIONS strategies that support diversity and anti-bias perspectives; summarize early childhood education settings, identify components of a
quality program; summarize responsibilities quality program; summarize responsibilities
of early childhood professionals; explore of early childhood professionals; explo
carly childhood curriculum models. early childhood curriculum models. DEVELOPMENT... infant and toddler setting. Development of infants/ toddlers; prenatal conditions and development;
child development theories; heredity child development theories; heredity
and the environment; culturally and and the environment; culturally and
developmentally appropriate environment

10-307-166 ECE: CURRICULUM PLANNING ...curriculum planning in
early childhood. Strategies that support arly childhood. Strategies that suppa iversity and anti-bias perspectives, appropriate environment; caregiving
routines; promoting child development and learning; early childhood curriculum odels. (Prerequisite: 10-307-194, ECE: Math, Science, Social Studies OR 10-307-
178, ECE: Art, Music, Language Arts) 10-307-167 ECE: HEALTH/SAFETY/ in early childhood settings. Anti-bias perspectives; governmental regulations and professional standards; safe, healthy, and nutritionally sound early childhood SIDS risk reduction: Shaken Baby Syndro

0-307-174 ECE: PRACTICUM 1 . learn/ practice skills in a child care setting. Includes documenting behavior, exploring diversity, mplement activities developed by the cooperating teacher, practicing caregiving outines, and positive professional and
interpersonal skills. (Prereauisite: Accepted interpersonal skills. (Prerequisite: Accepted
in Early Childhood Education program)
10-307-178 ECE: ART/MUSIC/ ANGUAGE ARTS ... beginning curriculum development in art, music, and language appropriate environment; promote child
development craegiving development; caregiving routines as curriculum; language, literature, and literacy ttivities, art/music, movement activities. 10-307-179 ECE: CHILD DEVELOPMENT...child development in the early childhood education setting.
Social, cultural, and economic influences on child development; child development heories; development of children age three to eight; child development

0-307-187 ECE: CHILDREN WITH IFFERING ABILITIES ...differing bilities in early childhood settings. Anti-bias perspectives, inclusion, ADA/IDEA, typical cognitive, health/medical, communication cognitive, health/ medical, communication,
and/or behavioral/emotional disorders, ommunity and professional resources; IEP/ SP, adapt cur oltivate partnership 10-307-188 ECE: GUIDING CHILDRENS EHAVIOR ...strategies to guide children's behavior in the early childhood setting.
Anti-bias perspectives, guidance principles Anti-bias perspectives, guidance principles,
factors affecting behavior, guidance strategies, individual needs, guidance philosophy.
10-307-192 ECE: PRACTICUM 2 ...learn/ practice skills in a child care setting. implement student developed activity plans, guidance strategies, professional behaviors, caregiving routines as curriculum, positive interpersonal skills with adults. Prerequisites:
Accepted in Early Childhood Education program; 10-307-174, ECE: Practicum 1 )

0-307-194 ECE. MATH/SCIENCE SOCIAL STUDIES ...beginning curriculum development in math, science social studies. Support diversity, role of play, developmentally appropriate
environment, activity plans that promote nvironment, activity plans that p earning, create appropriate marh,
science and social studies activities. 10-307-195 ECE: FAMILY/
COMMUNITY RELATIONSHIPS ...relationships with family/community is early childhood. Diversity and anti-bias perspectives in families and community;
family patterns, trends, relationships; family patterns, trends, relationships;
communication strategies, relationships communication strategies; reationsh families; community resources. 10-307-197 ECE: PRACTICUM 3 ...learn/ actice skills in a child care setting. Asses standards; curriculum; developmentally appropriate environment; guidance trategies, professional behaviors/practices lead caregiving routiness; interpersonal
skills with children/adults. (Prerequisites. Accepted in Early Childhood Education Accepted in Early Chilahood Education 10-307-199 ECE: PRACTICUM 4 ...learn practice skills in a child care setting. Growth/development, assessment, antipractices; curriculum, relationships, evaluating programs for quality, professional Actions in early childhood. (Prerequisites in Early Childhood Education program; 10-307-197, ECE: Practicum 3 )
10-307-204 SUPERVIIION/ ROGRAMS . roles and responsibilities of directors, coordinators, supervisors and other dministrators in early childhood programs.

Electrical
Engineering Technology program Code 10682? | Associale Degree


## COURSE DESCRIPTIONS

 10.65-158 POWER ELECTRONTCS
2: DRIVES....power circuirry of AC 2: DRIVES ...powe circuitry of AC
and DC drives and bascis seyup and
application of an industrial DC and application of an industrial DC and
$A C$ drives to DC and $A C$ motors.



 10--65-161 LINEAR ELECTRONICS
2: JFET AMPLIFIERS ...characterisics
 transistor amplifier and types of
commonly used fied effect transis



 active filers. Prerequisite: 10.605-1
Linear lectronic 2 : JFET Amps) 10-605-163 MICROPROCESSORS 1:
INTROUCTON ....se of simulation
software, fundamentals of C language
 10-605-164 MICROPROCESSORS
2:TECHNIQUE....itwise perations psecudo-pps, more C Programming
techniuuss, LCD display connuol oosic techniques, LCD display, control Iogic,
and contiuned uso simulution ostivare,
(Precequiste: $10-605-163$, Micro $1:$ Intro) 10.605-165 MICROPROCESSORS
3: INTEREACES ...more C language 3: INTERFACES ...more C language
programming for arrays, logicicand control, scaling, input and oupput,
softurare sandards, and continued use
 I0-605-169 ELECTRONICS DESIGN
INTEGRATION ...design, coordinate, INTEGRRTION ...design, coordinate,
and apply clectictil electonics andor
microporocessor skils into an an integrated
 Lincar Electronics 2:Filters; 10-605-17,
Datacomm 3 : Deta Modulation)
10-65-170 DATACOMM 1
INTRODUCTION
 amplitude modulation priciciples,
sampling signal ereonstuction, and and
paskecod sampling, signal reconstruction, and
pulse ocod modulution (Prereuusise:
10-60-103, Digitial $3:$ Regsisters
10-605-177 DATACOMM 2: PULSE
CODE MODULATION...introduction to time disioion multiplexiing eporaining
to pulse amplitude modulutaion and to pusce amplitide emodulation and
pulse ocde modulution samplign and
sigal reconstruction analog to digital


 MODLLATIIN ..introduction to delta
modulation, dela moduation prinipips,
sampling and sienn sampling and signal reconstruction,
frepunces and peudo code generation. Prerequisite)
$10-605-171$, Data
Comm 2: Puse Code $)$
 EFFECTS.....aracterisisico of nise in
communication systems and analye amplitude modulution. (Prerequisise: 10 -
$605-162$, Linear Electronics 3 : ilters) 10-605-181 ANATOG

COMMUNICATIONS SB ....characterisitics of single | deboard transmission and receiving |
| :--- |
| stems. (Prerequistect $10-605-180$, |


10.-605-182 ANALOG
COMMUNICATIONS 3: COMMUNICATIONS $3:$ EM
SYSTEMS... haracterisicic of freque SYSTEMS ...characterisiscs of frequency
moduluatio transmision and receiving Sysems. (Prerequisise: 10-605
Xnalog Corm 2: AM/SSB)
0-620-140 MACHINE WTRING AND SAFETY ...ntroduction wo madine AND
 10-620-161 POWER ELECTRRCCTY 1:
MOTORS.. DC motors and generator 10-20-161 POWER ELECTRICTY1:
MOTORS . DC motor and generator
configuration, shunt, compound, configuration shunt, compound,
and permanen manget DD motor
performance and chararcterisitics. 10-620-162 Power Electricity M Indoction ..single and 3 -phase performancioce and characacterisistics, and three Phase power systems. (Corequisite: 1 1)
(20-161, Power Ilectricity 1 : Moors)
 sody y fthe application operation
prognming and troublestootiing
Cindustim findustrial robot

 Laps, and timing diagsam analysis. 10-660-102 DIGGTTLL 2 : SEQUENTIAL
aporation and connection oflathes RS fip flops $J$ K fip-fopss, and D fipops sisngs, itining diagamam analysisis and some simple applications are studied.
(Corequisite: 0 0-60-101, Digital $1:$ Logic
Los. 10-660-103 DIGITAL 3: REGIITERS analyze and design asynchronous up
counters, down counters, presetable counters, down counters, presertable
countrs) ring countrs, and Johnson
counters, and andyes
 0-660-104 DC 1: INTRODUCTION Iintroduction no the conecest of DC
dectricitry and simple series circuits. Volaze current, resistance, Ohms Law, power 10-660-105 DC 2: CIRCUITs. ...analysi paralac and serirsparaticus
pplication of Kirchoffs Current Law to paralal circuit combinations.
Intoduction of currens sources and
source conversions. . Corecouisises: 10 Surce conversions. (Corecequisestess: 10 304-118, Interim Algebra w App OR
equivalent; 10-60-104, DC : Intro) 10-660-106 DC 3: CIRCUIT

 and node mechods are studied.E.Eight solution of circuit volages and circuits.
Corequisiste: $10-60-105$, DC 2: Circuits)

10-660-107 AC 1: PROPERTIES

 10-60-105, DC 2: Circuits Corequisi
$10-804-166$, Trigonomerty w Apps $10-660-108 \mathrm{AC} 2$ : REACTANCE ...sudy
of the way inductive, capacitive and of the way inductive, capacitive and
rexisivic omponent behave in a circit
excied by a sine waveform. Effective and
 10-660-109 AC 3 : RLL CIRCUUTs
..-Power how win complex AC circuis based
 Description of the power riangle and
power factor. Calculution of volatages


 (Precequisite: $10-600-105$, DC 2: Circuits
Corecquiste: $10-660-107$, AC $1:$ Propertics) 10-60-111 1LECTRONICS 2:
TRANIISTO-BASIC TRANSISTOR-BASIC. ..introduction
to the characecerisicic, bias and usage of
 are sudided. (Corequisiste: $10-660-$
110, Electronics $1:$ Diodes-
Baic)


 such as summers and fiters. (Corequisites
$10-600-111$ Electronics : Transisor-Basic) 10-660-113 DIGITTAL $4:$ ALU ....us igned
and sisned drithed
the construction of using binary numbers the construction of adder circuits and
subtraction circuits, and the analysis of
 10-660-11 D DIIITAL $5:$
CHARACTERITICS $\qquad$
 time, asynchronous siming consideratio
Schmitt triger devices oneshots
 10-662-12 DCIAC C .apply heverins
and Nortons Theorems in practical

 10-662-124 ELECTRONIC CIRCUI
ANAISIII...develop equation for and ANalyze ransistor amplifier circuits for bias,
anall
mall signal gein

 10-804.181 CALCULUS 2 ..continuation
of Calculus I covering integration techiques
inder



10-804-198, Calculus I with a "C" or or beter)

## Electrical Power Distribution

Offered at the Green Bay campus. For information: (920) 498-5444. Toll-free: (888) 385-6982.

This program is fully eligible for financial aid.

## Program Description

Electrical Power Distribution prepares students to install, maintain, and operate electrical systems to supply electric energy to residential, commercial, and industrial customers, and joint gas and electric underground generation facilities.

## Program Outcomes

- Assist in the construction of electric transmission systems.
- Opportunity to secure a (CDL) commercial driver's license.
- Relate electrical theory to electric power systems.
- Work comfortably at heights.
- Climb poles and towers.
- Be knowledgeable in personal protective equipment to safely perform specific work.
- Identify sub-station components.
- Install underground electric systems.
- Operate electrical power distribution equipment.
- Troubleshoot power distribution and transmission systems.
- Communicate technical information.
- Assist in the construction of power distribution systems.
- Identify methods of electrical generation.


## Requirements for Program Entry

- Completed application.
- High school transcript or equivalent. (For a list of equivalents, go to www.nwtc.edu/gettingstarted.)
- Be able to obtain a commercial driver's license.
- Place satisfactorily in the NWTC mathematics examination. Students should have mastered basic math skills. For a description of Basic Math, see the Basic Education section of catalog.
- As a requirement for program entry, an Academic Skills Assessment (Accuplacer) with appropriate benchmark scores is necessary. Program Benchmarks are Arithmetic: 65; Reading Comprehension: 55; Sentence Skills: 60. Students not meeting these benchmarks or the equivalent will be required to establish an individualized academic plan. Students may have the opportunity to enroll in selected program core courses while completing their individualized plan. Upon completion of the plan, students will be eligible for all program courses. However, higher test scores will lead to greater success in core program courses. To learn more about these assessments and program benchmark scores, please contact a counselor at (920) 498-5444 or (888) 385-6982.


## Employment Potential

A graduate of the program will have the potential for employment as a Line Technician, Lead Line Technician, Line Technician Supervisor, Cable TV Line Technician, Telephone Line Technician, Technician in an Electricity Generating Plant, or Installer/Maintainer of Underground Systems. Graduates in those jobs will perform construction, operations, and maintenance work on the electric power system and equipment.

With additional education and/or work experience, graduates may find other opportunities for employment.

- Line Coordinator
- Line Apprentice
- Safety Advisor
- Distribution Construction Designer
- Distribution Dispatcher
- Substation Electrician


## Curriculum

Students following the study plan
below will complete the Electrical
Power Distribution technical diploma
in the number of semesters shown.

## FIRST SEMESTER

CREDITS
*10-890-101 College 101
31-413-330 Line Elec Field Trng 1
31-413-353 Electricity-Basic
31-413-362 Line Elec-Safety 1
31-804-312 Math-Algebra/Trades SEMESTER TOTAL

## SECOND SEMESTER

10-103-121 Micro: Word-Intro
31-413-335 Line Elec-Const Standards
31-413-336 Line Elec Field Trng 2-A
31-413-337 Line Elec Field Trng 2-B
31-413-355 Electricity-Linepersons
31-413-364 Line Elec-Safety 2
31-801-385 Communicating-Writing
SEMESTER TOTAL

## THIRD SEMESTER

10-103-131 Micro: Excel-Intro
31-413-332 Line Elec Field Trng 3
31-413-361 Lineman-Safety/First Aid
31-801-386 Communicating Effectively SEMESTER TOTAL
TOTAL CREDITS

## CURRICULUM NOTE

*The credit for 10-890-101, College 101 is an institutional requirement for graduation. Consequently, it is not part of the program credit requirements.

Note

- Students who have completed the Electrical Power Distribution technical diploma program have the opportunity to fulfill the requirements for a Utility Management certificate and/or apply these credits toward a Leadership Development and/or an Individualized Technical Studies associate degree.
- Willingness to relocate may be an advantage for job opportunities.
- A clean driving record is required to obtain a CDL license.


## COURSE DESCRIPTIONS

These courses provide an opportunity for students to develop the knowledge, skills, and understanding required for employment in this field.

31-413-330 LINE ELECTRICIAN FIELD TRAINING 1 ...pole climbing, care of equipment/vehicle operation, setting and removing poles/line layout, pole framing, guys and anchors, conductor string, sagging, tying/transformers, operation, application, construction/safety.

## 31-413-332 LINE ELECTRICIAN

 FIELD TRAINING 3 ...protective grounds, transmission, substation operations and maintenance, metering tools, transmission hot stick use and safety, and stray voltage precautions, street lighting, and use of tree trimming methods and tools. (Prerequisite: 31-413337, Line Electrician Field Training 2-B)31-413-335 LINE ELECTRICIAN CONSTRUCTION STANDARDS ...distribution standards for overhead, underground, primary, secondary, clearances, work practices, material and safe work practices.

31-413-336 LINE ELECTRICIAN FIELD TRAINING 2-A ...transformer installation, underground installation and equipment, operation and maintenance; protective equipment use; map/diagram reading, code clearance requirements. (Prerequisite: 31-413-330, Line Electrician Field Training 1)

31-413-337 LINE ELECTRICIAN FIELD TRAINING 2-B ...operation, maintenance; regular, capacitor and OCR operation and maintenance, and pole top and buck truck rescue techniques. (Corequisite: 31-413336, Line Electrician Field Training 2-A)

## 31-413-353 ELECTRICITY-BASIC

...basic electricity: fundamental laws and circuit analysis. (Prerequisites: Accepted into Electrical Power Distribution)

31-413-355 ELECTRICITY-
LINEPERSONS ...electric power/energy, three-phase voltage generation, threephase circuit power, transformer operation principles, transformer connections, and safety practices in high voltage applications. (Prerequisite: 31-413-353, Electricity-Basic)

31-413-361 LINEMAN-SAFETY/FIRST AID ...first aid procedures, CPR, safety code analysis, recordkeeping, safety on the job, safety/accident analysis. (Prerequisite: Accepted into Electrical Power Distribution)

31-413-362 LINE ELECTRICIAN-SAFETY
1 ...general rules, definitions, applications, responsibility, reporting accidents, injuries, hand and power tools, ladders, scaffolds, handling materials, operation of company equipment. (Prerequisite: Accepted into Electrical Power Distribution; Corequisite: 31-804-312, Math-Algebra Trades)

31-413-364 LINE ELECTRICIAN-SAFETY
2 ...code and working clearances for electrical, line clearing, right-of-way maintenance, protective equipment, underground systems, and substations. (Prerequisite: 31-413-362, Line Electrician-Safety 1)

Offered at the Green Bay campus.
For information: (920) 498-5444.
Toll-free: (888) 385-6982.
This program is fully eligible
for financial aid.

## Program Description

Electricity prepares students to install, maintain, and service basic electrical equipment used in residential, commercial, and industrial settings. The credits from this program are transferrable to the Construction Technology associate degree.

## Program Outcomes

- Perform safe work practices.
- Apply National and Wisconsin State Electrical Codes to electrical installations.
- Install, maintain, and troubleshoot residential, commercial, and industrial electrical systems.
- Perform diagnostic testing on electrical systems.
- Apply basic calculations to electrical systems and installations.
- Demonstrate the operation of AC and DC motors.
- Install and troubleshoot basic motor control systems.
- Interpret electrical diagrams.


## Requirements for Program Entry

- Completed application.
- High school transcript or equivalent. (For a list of equivalents, go to www.nwtc.edu/gettingstarted.)
- Place satisfactorily in the NWTC mathematics and algebra examinations.
- Students should have mastered high school algebra skills (real numbers, algebraic expressions, equations and inequalities, word problems and measurements) and have a desire to learn
advanced algebra and trigonometry. - As a requirement for program entry, an Academic Skills Assessment (Accuplacer) with appropriate benchmark scores is necessary. Program Benchmarks are Arithmetic: 65; Reading Comprehension: 55; Sentence Skills: 60. Students not meeting these benchmarks or the equivalent will be required to establish an individualized academic plan. Students may have the opportunity to enroll in selected program core courses while completing their individualized plan. Upon completion of the plan students will be eligible for all program courses. However, higher test scores will lead to greater success in core program courses. To learn more about these assessments and program benchmark scores, please contact a counselor (920) 498-5444 or (888) 385-6982.


## Employment Potential

A graduate of this program will have the potential for employment in the following areas:
Construction Electrician: installs and services conduit, wire, cable, and equipment in new and existing residential, commercial, and industrial structures.
Industrial Maintenance Electrician: installs, maintains, and troubleshoots motors, motor controls, lighting, and other electrical systems in an industrial plant.

With additional education and/or work experience, graduates may find other opportunities for employment.

- Electrical Construction Supervisor
- Electrical Engineering Technician
- Journey-Level Electrician
- Electrical Contractor
- Electrical Maintenance Supervisor
- Voice Data Video Installer

Completers will be able to apply credits toward the following programs:

## Curriculum

Students following the study plan below will complete the Electricity technical diploma in the number of semesters shown.

## FIRST SEMESTER

10-413-314 DC Circuits
10-413-102 Residential Elec Code 1
10-413-317 Fundamentals of Electricity
10-413-319 Residential Wiring 1
10-413-103 Residential Elec Code 2
10-413-329 Residential Wiring 2
10-449-112 OSHA 30
*10-890-101 College 101
31-804-312 Math-Algebra/Trades
SEMESTER TOTAL

## SECOND SEMESTER

10-413-104 Industrial Code
10-413-105 Commercial Electrical Code 10-413-303 Industrial Controls 10-413-304 Electric Motor Contro 10-413-327 Commercial Wiring Techniques 10-413-328 Motors/Transformers 10-413-334 AC Circuits
31-801-385 Communicating-Writing 31-801-386 Communicating Effectively SEMESTER TOTAL TOTAL CREDITS

## CURRICULUM NOTE

*The credit for 10-890-101, College 101
is an Institutional Requirement for graduation. Consequently, it is not part of the program credit requirements.
The credits from this program are transferrable to the Construction Technology associate degree.

- 10-475-2, Construction Technology

Note

- A "C" or better in BOTH 31-801-385, Communicating-Writing and 31-801-386, Communicating Effectively will satisfy the Construction Technology Associate Degree requirement for 10-801-196, Oral/Interpersonal Communication.
- A "C" or better in 31-804-312,

Math-Algebra/Trades will satisfy the prerequisite to enroll in the Construction Technology Associate Degree course 10-804-107, College Mathematics.

## COURSE DESCRIPTIONS

## These courses provide an opportunity

 for students to develop the knowledge, skills, and understanding required for employment in this field.10-413-102 RESIDENTIAL
ELECTRICAL CODE 1 ...National Electrical Code, residential circuits, conductor sizes, branch circuits, box fill calculations, switch control, branch circuit overcurrent protection and calculations, and ground fault circuit interrupters.

10-413-103 RESIDENTIAL ELECTRICAL CODE 2 ...National Electrical Code, residential circuit layout and design, small appliance circuits, special purpose outlets, service entrance equipment, calculations and demand factors. (Corequisite: 10-413-102, Residential Electrical Code 1)

10-413-104 INDUSTRIAL CODE ...three-phase and single-phase systems, motor branch circuits, overcurrent and overload protections, power factor, hazardous locations, harmonics and National Electric Code. (Prerequisites: 10-413-102, Residential Elec Code 1; 10-413-103, Residential Elec Code 2; Corequisite: 10-413-105, Commercial Elec Code)

10-413-105 COMMERCIAL ELECTRICAL CODE ...commercial building plans and specifications, computing electrical loads and branch circuits, emergency systems, raceways, conduit fill, power and lighting circuits, motor \& appliance circuits. (Prerequisite: 10-413-103, Residential Electrical Code 2)

10-413-303 INDUSTRIAL CONTROLS ...electrical symbols, wiring diagrams, ladder diagrams, control logic, pilot devices, solenoids, relays, and time delay control (Corequisite: 10-413-345, Industrial Code)

10-413-304 ELECTRIC MOTOR CONTROL ...motor starters, overcurrent protection, overload protection, motor branch circuits, starting methods, troubleshooting motor circuits, and an introduction to PLC's. (Corequisite: 10-413-303, Industrial Controls)

10-413-314 DC CIRCUITS ...electron theory, electromotive force sources, voltage, current, resistance, power, Ohm's Law, series-parallel circuits and test equipment. (Corequisites: 31-804312, Math-Algebra/Trades; 10-413317, Fundamentals of Electricity)

10-413-102 RESIDENTIAL ELECTRICAL CODE 1 ...National Electrical Code, residential circuits, conductor sizes, branch circuits, box fill calculations, switch control, branch circuit overcurrent protection and calculations, and ground fault circuit interrupters.
10-413-103 RESIDENTIAL ELECTRICAL CODE 2 ...National Electrical Code, residential circuit layout and design, small appliance circuits, special purpose outlets, service entrance equipment, calculations and demand factors. (Corequisite: 10-413-102, Residential Electrical Code 1)

10-413-317 FUNDAMENTALS OF ELECTRICITY ...atomic structure, electrical quantities, Ohm's Law, magnetism, AC concepts. (Corequisite: 31-804-312, Math-Algebra/Trades)

10-413-319 RESIDENTIAL WIRING 1 ...residential electrical installation, national electrical code applications, residential circuits, box selection, conductor selector, receptacles, GFCI protection and switch control. (Corequisite: 10-413-102, Residential Elec Code 1, 10-449-112, OSHA 30)

10-413-327 COMMERCIAL WIRING TECHNIQUES ...raceways and fittings, conduit bending, wire pulling methods, fastening systems, lighting and lowvoltage wiring. (Corequisite: 10-413105, Commercial Electrical Code OR 31-448-364, Marine Electrical Codes)

10-413-328 MOTORS/TRANSFORMERS ...magnetism, electromagnetism, transformers, DC generators and motors, AC single-phase and three-phase motors, and an introduction to AC drives. (Corequisite: 10-413-334, AC Circuits)

10-413-329 RESIDENTIAL WIRING 2 ..residential circuit installations, National Electrical Code, application of residential design and layout, small appliance circuits and special purpose outlets. (Corequisites: 10-413-319, Residential Wiring 1; 10-413-103, Residential Electrical Code 2, 10-449-112, OSHA 30)
10-413-334 AC CIRCUITS ...AC theory, inductance, capacitance, impedance, series ad parallel AC circuits, AC power, power factor corrections, rectification of AC, diodes and silicon controlled rectifiers. (Corequisites: 10-413-314, DC Circuits, 31-804-312, Math-Algebra Trades)

10-449-112 OSHA 30 ...addresses OSHA 29CFR1926 rules and is approved by OSHA for construction workers, foremen, job supervisors, and anyone involved in construction trades. Successful participants receive 30-hour card from OSHA.

Electro-Mechanical Technology Program Code 106201 | Associate Degrie



Electronics (with optional
Biomedical specialty)

| Offered at the Green Bay camp Toll-free: (888) 385-6982. | Wisconsin Caregiver La the Wisconsin Caregiver Law (19 | rriculum |
| :---: | :---: | :---: |
|  | dora |  |
| Program Descripition |  | ALL STUDENTS COMPLETE FIRST SEMESTE 10-660-100 Electronic Fabrication - Intro |
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|  | placement at the discretion of the or practicum site. Consequently, |  |
| lomele |  |  |
| Program Outcomes |  |  |
|  |  | BIOMEDICAL TECHNOLOGY FIRST SEMESTER$* \times 10-806-134$ General Chemistry |
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|  | (en |  |
| - Ampresen onvor madine | Electronic Test Technician: tests |  |
|  | products (quality control testing). |  |
|  | Electronics Technician: maintains electroequipment including motor controllers,cables, communication equipment,computers, security systems, CNC |  |
|  |  | $* * 10-501-101$ Medical Terminology TOTAL CREDITS |
| b | computers, security systems, CNC equipment, programmable controllers |  |
| - |  |  |
|  | prototype devices; and evaluates and tests electronic devices and systems. |  |
|  | Field Service Technician: services and overhauls equipment in the customerís facility; works with sales |  |
|  | and overhauls equipment in the customerís facility; works with sales personnel; and demonstrates new |  |
|  | Cen | $\begin{array}{lr} \text { ELECTRONICS TECHNOLOGY THIRD SEMESTER } \\ \text { 10-806-143 College Physics } 1 & 3 \\ \text { TOTAL CREDITS } & 3 \end{array}$ |
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| meane daus |  |  |
|  | With additional education and/or work experience, graduates may find oth |  |
|  |  |  |
| $\underset{\substack{\text { Bio } \\ \text { Spre }}}{ }$ | experience, graduates may find otheropportunities for employment.- Computer Field Service Supervisor- Electronics Production Superintendent |  |
| y mad |  |  |
| - Ampure toublebor | The followingeratifaededechanied dipomas <br> -906052, Biomedical Electronics |  |
|  |  |  |
| hequirements for | Additional Requirements or Students Pursuing the omedical Track |  |
| Program Entry |  |  |
|  | Biomedical Track |  |
|  | the Wisconsin Caregiver Law (1997 WISCONSIN ACT 27.) The completion of a caregiver background check includes the | CURRICULUM NOTE |
|  | a caregiver background check includes the review of criminal records for convictions of serious crimes or a history of improper | *The credit for 10-890-101, College 101is an Institutional Requirement forgraduation. Consequently, it is not part |
|  |  |  |
|  | programs must complete a backgroundinformation form disclosing any acts,crimes, or convictions prior to program |  |
|  |  |  |
|  | entry. The information provided in the background information form must be truthful and match any findings on the |  |
| Patu | rumataland maxd any finings | SUGGESTED ELECTIVESAutomation 3: PLC, 10-664-102 |
| Comotoram | to clinical placement at the discretion of the clinical site. Consequently, should a |  |
|  |  | Control 1: Discrete Systems, 10-664-160 Control 2: Process Systems, 10-664-161 Control 3: Motion Systems, 10-664-162 |
|  |  | Control 4: Drive Performance, 10-664-163 Control 5: Servo Systems, 10-664-164 Control 6: Servo Systems, 10-664-165 |
|  |  |  |
|  |  |  |  |
|  | check. A fee is charged for this service. Additional information will be provided upon acceptance into the program. |  |

## cOURSE DESCRIPTIONS

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10.660-195 DC 2 : cricurrs ...anlyil






































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10-605-182 ANALOG
COMMUNCITITONS 3 :
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$10.620-140$ Machine wiring and
SAFRETY




 and an overievo of conecection and prined diricitit board construction.


## Emergency Medical Technician (EMT) Program Coode sossi3 $\mid$ Teemiceal Diploma

Offered throughout the District. For information in Green Bay: (920) 498-5444. For information in Marinette: (715) 7359361. For information in Sturgeon Bay: (920) 746-4900. Toll-free: (888) 385-6982.

This program is not eligible for financial aid.

## Program Description

Emergency Medical Technician (EMT) students perform emergency patient care and basic life support skills in compliance with the Wisconsin scope of practice including the transport of injured and ill patients to hospital emergency departments.

## Program Outcomes

- Apply preparatory aspects of emergency care.
- Perform airway management.
- Perform patient assessment.
- Manage medical, behavioral, and trauma patients.
- Adapt principles to pediatric cases.
- Perform field operations.


## Requirements for Program Entry

- Approved CPR certification as outlined under WI Chapter DHS 110. Students are required to maintain a current CPR status to comply with affiliating
agency requirements throughout the duration of this program.
- Proof of current health status and immunizations.
- NWTC is required to comply with the Wisconsin Caregiver Law.
- Aptitudes required for work of this nature are good physical stamina, endurance, and body condition that would not be adversely affected by frequently having to walk, stand, life, carry, and balance at times, in excess of 125 pounds.


## Wisconsin Caregiver Law

NWTC is required to comply with the Wisconsin Caregiver Law (1997 WISCONSIN ACT 27). The completion of a caregiver background check includes the review of criminal records for convictions of serious crimes or a history of improper behavior. Students accepted into this program must complete a background check through www.CertifiedBackground. com. Information regarding this process is provided to students immediately upon acceptance into the program. Students with a criminal history may be denied access to placement at the discretion of the clinical or practicum site. Consequently, should a student have a history of convictions of serious crimes or a history of improper behaviors, NWTC cannot guarantee clinical/practicum placement or guarantee graduation within typical program timing.

## Curriculum

Students following the study plan below will complete the Emergency Medical Technician technical degree in the number of semesters shown.
FIRST SEMESTER ..... CREDITS

*10-531-102 Emergency Medical Technician SEMESTER TOTAL
TOTAL CREDITS

## CURRICULUM NOTE

*No final grade lower than a "C" is acceptable. A student who withdraws or receives a grade lower than a " $C$ " in a program course may apply for re-entry into the program.

Successful program completion prepares and entitles the student to take the state license examination. A graduate is licensed only after successful completion of the licensing examination and application for a state license.

## Employment Potential

A graduate with an Emergency Medical Technician Technical Diploma will have the potential for employment as an Emergency Medical Technician (EMT). Ambulance services in Wisconsin are volunteer, private, fire based or hospital based.

## Note

- Completion of 10-531-108, Medical First Responder, prior to program entry is highly recommended.


## COURSE DESCRIPTIONS

These courses provide an opportunity for students to develop the knowledge, skills, and understanding required for employment in this field.

> 10-531-102 EMERGENCY MEDICAL TECHNICIAN ...preparatory aspects, airway management, patient assessment, medical/behavioral cases, trauma care, pediatric cases, and field operations in basic life-support emergency medical care. (Prerequisite: Accepted into EMT program)

Offered at the Green Bay campus
For information: (920) $498-5444$. Toll-free: (888) 385-6982.
This program is fully eligible

Program Description Energy Management Technology prepares sudents with the skills and knowledge of energy management. Emphasis will be placed on application of basic principles of physics, lectro-mechanical technology and of energy in today's building systems.

## Program Outcomes

Evaluate the energy use pattern
for commercial building and recommend energy efficiency and alternative energy solutions for high energy consuming building
Troubleshoot, upgrade and maintain the Energy Management Systems (EMS); - Monitor the efficiency of energy management operations, detecting,
where possible, equipment failures. Construct energy evaluation technical reports and make presentations for potential project implementation. Upload and download information from efficiency of energy management. Enhances energy management software and prepare program
documentation and flow charts.

Read and comprehend mechanical blueprints and control drawings. Respond to calls for heating, ventilating air conditioning, and exterior lighting
service independently; and determine whecher to dispatch appropriate staff or to resolve problems remotely via the energy management system.
Assict he writing of specifications for additional energy management systems. Write technical proposa for energy projects. Provide training to campus use
and facilities operations staff

## Requirements for

Program Entry
Completed application.
High school transcript or equivale
(For a list of equivalents, go to
www.nwtc.edu/geattingstarted.)
Courses required for mastery of
algebra skills (real numbers, algebraic
expressions, equations and inequalities, word problems and measurements). The student will either provide proof of having completed cours work in Windows, Word and
Excel or pass a proficiency tet Excel or pass a proficiency test. As a requirement for program entry, an
Academic Skills Assessment (Accuplacer) with appropriate benchmark scores is necessary. Program Benchmarks are Elementary Algebra: 61; Reading Comprehension: 80; Sentence Skills: 75 Students not meeting these benchmark or the equivalent will be required to Students may have the opportunity to enroll in selected program core courses while completing their individualized plan. Upon completion of the plan,
students will be eligible for all prog students will be eligible for all program
courses. However, higher test scores will lead to greater success in core program
courses. To learn more about these courses. 1o learn more about these assessments and program benchmark scores, please contact a counselor a

## Employment Potential

A graduate of the program will have he potential for employment for such diverse employers as engineering
frms, public and private utilities, nergy equipment companies, $f$ energy in the following areas energy in the following areas: Energy Auditor: conducts facility energy
audits/assessments and coppletes data collection to identify energy efficiency improvement opportunities and complete recommendations for energy conservation measures. Energy Management Consultant: conducts
facility energy audit/asessment facility energy audit/assessments and is esponsible for making recommendations egarding energy efficiency improvemen energy analysis and is accountable for building long term customer relationships. Energy Program Coordinator: evaluates he energy use patterns for buildings and recommends energy efficiency and alternative nergy solutions. Develops and implements a comprehensive energy program.
Works with administrative and facilities management to implement programs. Control System Specialist: analyzes heating, cooling and ventilating systems to determine optimum operating condition and procedures. Assists in the design and development of new or modified

10-481-110 ENERGY ACCOUNTING ...review of energy units, data gathering for energy accounting utility rates and schedules
energy data organization, adiusted baselines, energy data organization, adjusted baselines
cost avoidance, load factor, data analysis, data presentation, use of utility energy accounting sofware. (Prerequisites: 10-481-
109, Commercial HVACR Syytems 109, Commercial HVACR Systems Analysis 10-481-111, Energy Control Strategies,
10-481-115, Lighting Fundamentals
0-481-111 ENERGY CONTROL STRATEGIES ...topics include buildin system control concepts and devices; controls, emphasis is placed on identifying and understanding control strategies related to energy using systems and methods to estimate energy savings. (Prerequisite: 10-
481-114. Intro to Energy 481-114, Intro to Energy Management 10-481-113 ENERGY INVESTMENT ANALYSIS ...emphasis on simple payback and life-cycle cost analysis, time value of money, cash flow equivalence, costinflation and/or escalating fuel costs on energy investments and cost estimating (Prerequisistes: 10-481-109, Commercial HVACR Systems Analysis; 10-481111, Energy Control Strategies, 10
481-115, Lighting Applications) hting Applications)
10-481-114 INTRO TO ENERGY MANAGEMENT ...introduces the basic concepts of energy, utility systems and
utility rate structures; defines the need utility rate structures; defines the need
for energy management as an integral part of society at all levels. The course will present the various opportunities
wite available to energy management students. 10-481-115 LIGHTING FUNDAMENTALS ...light sources, luminaries, lighting controls, manufacturer lamp and ballast specifications, lighting power density, lighting-HVAC interaction retrofit opportunities, cost savings analysis will critically evaluate lighting systems, uminaries and associated components. Understand and perform various types of lighting calculations. (Prerequisite: 10 -0-620-100 FLUIDS 1: BASIC PNEUMATICS ...what fluid power is, differentiate between hydraulics and
pneumatics, implement basic pneumatic Pneumatics, implement basic pneematic
circuits, utilize schematics, apply Pascal's Law, define properties of fluids, implement airflow control and hydraulics cylinder circuits.
10-620-101 FLUIDS 2: BASIC 10-620-101 FLUIDS 2: BASIC
HYDRAULICS ...hydraulic pumps, basic hydraulics actuator circuits, hydraulic schematics, apply Pascal's Law, summarize the effects of fluids friction, define properties of hydraulic energy, design hydraulic circuits with directional control valves. (Corequisit
$10-620-100$, Fluids $1:$ Basic Pneumatics) 10-620-161 POWER ELECTRICITY 1: MOTORS ...DC motors and generato onfiguration, shunt, compound, performance and characteristics.

Curriculum suddents following the study plan belo
vill complete the Energy Management
Technology associate degree in the will complete the Energy Managem

## FIRST SEMESTER 10-480-101 Energy-Intro Renew \& Sustain  CREDI $10-660-105 \mathrm{DC} 2:$ : Crirouutition $10-804-118$  | ${ }^{10-800-143 \text { Collegeg Physics }} \begin{array}{l}10-890-101 \text { College } 101\end{array}$ |
| :--- | SEMESTER TOTAL <br> SECOND SEMESTER <br>   10-660-107 AC 1: Propertiu $10-660-108$ AC 2 : Reactan <br> 10-660-109 AC 3: RLC Circuits 10-66-110 Electronics 1: iododes-Basic 10-64-102 Automation 3 : PLC 

 SEMESTER TOTAL| third sem | ESTER |
| :---: | :---: |
| 10-403-100 | Blueprint Reading Intro |
| 10-481-109 | Commercial HVACR Analysis |
| 10-481-111 | Energy Control Strategies |
| 10-481-115 | Lighing Fundamentals |
| 10-620-100 | Fluids 1: Basic Pneumatics |
| 10-620-101 | Fluids 2 : Basic Hydraulics |
| 10-664-160 | Control 1: Discrete Systems |
| 10-664-161 | Control 2: Process Systems |
| -172 | Intro to Diversity Studies |
|  |  |

## FOURTH SEMESTER

 10-481-107 Builiding Energy Simulation$10-481-108$
Commercial Energy Analysis $10,41-108$ Commercial nerery Analys
$10-481-10$
$10-48-113$
Energy Accounting 10-48-1-13 Energy Accounting
10-801-197 Techy IVvestment An
Techical Reporting 10-801-197 Technical Reporting
$10-809-198$
Intro to Po Pychology SEMESTERTOTAL
CURRICULUM NOTE The credit for 10-890-101, College 101
is an instituional reaurement ort graduation. Consequenty, it is not part
of the program creditit requirements. "Students must earn a arade of "C"" or better in 10-801-197, Technical Reporting.

With additional education and/or work experience, graduates may find - Facility Manager - Facility Manager

- Certified Energy Manager
- Energy Engineer - Environmental Consultant

COURSE DESCRIPTIONS These courses provide an opportunity
for students to develop the knowledge skills, and understanding required
for employment in this field.

10-103-131 MICRO: EXCEL , copving data, using formulas and fuvecting and copying data, using formg clip art. Windows experience improves success; consider 1 .
103-111, Window/ Compute Basics. 10-196-187 PROJECT MANAGEMENT developing a project proposal, use of evant software, working with project teams, sequencing tasks, charting prograss
dealing with variations, budgets and
 NTRO ...develop the knowledge skills process and understanding of site plans, footings and foundations, foor plans, grade piping, isometric piping diagrams, lighting, ventilating, and air conditioning. 0-480-101 ENERGY-INTRO RENEW \& N ...an overview of vario nergy technologies and sustainable Emphasis will be placed on policies, renewable 0-481-106 INTRO TO WATER RESOURCES ...properties of water, basic hydrology, water quality; water consumption standards related to energy; stormwater, supply and demand management as well as emerging issues. (Prerequisites: 10-48
114, Intro to Energy Management) 10-481-107 BUILDING ENERGY SIMULATION ...course covers the variety of computer programs available for analyz
he energy performance of commercial buildings including BIN methodology, h
simulations and an overview of current programs on the market such as RETS and eQuest. (Prerequisites: 10-481-109 Commercial HVACR Systems Analysis; 10-481-111, Energy Control Strategies;
10-481-115, Lighting Fundamentals)
10-481-108 COMMERCIAL ENERGY ANALYSIS ...emphasis is on the analysis of energy use in commercial buildings
including utility bill analysis, audit data, identifying energy efficiency measures, energ
savings and investment calculations, audit feport writing. (Prerequisites: 10-481-109, Commercial HVACR Systems Analysis; 0-481-111, Energy Control Strategies, 0-481-115, Lighting Fundamentals)
0-481-109 COMMERCIAL HVACR stem types and the general energy use sstem types and the general energy
mpact of each type. Calculations of system equipment efficiencies will be used
to determine EER, SEER, AFUE, COP, to determine EER, SEER, AFUE, COP
combination and seasonal efficiency in boilers, balance point partial efficiency, BIN analysis. (Prerequisites: $10-481$ 14, Intro to Energy Management)

10-620-162 POWER ELECTRICITY 2: MOTORS ...single and 3 -phase performance and chars, specialty motor phase power systems. (Corequisite: 10 -620-161, Power Electricity 1: Motors) 10-660-104 DC 1: INTRODUCTION ...introduction to the concepts of DC current, resistance, current, resistance, Ohms Law, power
and Kirchoffs Voltage Law are defined.
10-660-105 DC 2: CIRCUITS ...analysis of parallel and series-parallel circuits. Application of Kirchoffs Current Law to parallel circuit combinations. Introduction of current sources and
source conversions, source conversions. (Corequisites: $10-$
804-118, Interim Algebra w Apps OR 804-118, Interim Algebra w Apps OR
equivalent; $10-660-104$, DC 1: Intro) 10-660-107 AC 1: PROPERTIES ...introduction to the properties of capacitors
and inductors including types and behavior in switching circuits. Inductor basics include a study of magnetic fields. (Prerequisite: 10-660-105, DC 2: Circuits; Corequisite: 10-804-196, Trigonometry w Apps) 10-660-108 AC 2: REACTANCE ...study of the way inductive, capacitive and resistive components behave in a circuit excited by a sine waveform. Effective and average values of the sinewave are derived.
(Corequisite: $10-660-107, \mathrm{AC} 1:$ Properties)
10-600-109 AC 3: RLC CIRCUITS ...power flow in complex AC circuits based on resistive and reactive components.
Description of the power triangle and power factor. Calculation of voltages and currents in complex AC circuits. (Prerequisite: 10-660-108, AC 2: Reactance) 10-660-110 ELECTRONICS 1: DIODES BASIC ...introduction to the characteristic
and usage of semiconductor diodes in rectifiers and linear power supplies. Specia diodes and diode circuits are also considered
(Prerequisite: 10-60-105, DC (Prerequisite: $10-660-105$, DC 2: Circuits
Corequisit: $10-660-107$, AC 1: Properties) 10-664-102 AUTOMATION 3: PLC ...basic programmable logic controller oubleshooting. 10-664-160 CONTROL 1: DISCRETE SYSTEMS ...applications and utilization of motion feedback devices, force sensors, and fluid measurement devices (Prerequisite:10-664-102, Automation 3 PLC OR 10-664-104, Automation 5: PLC 10-664-161 CONTROL 2: PROCES SYSTEMS ...Open-loop versus closedloop systems, industrial control systems, two-position control and its applications, PID control and its applications, and
relationship berween process relationship between process response and
proper mode of control. (Corequisite: 10proper mode of con 1ol. (iscrete Systems)
$664-160$, Control 1: Dis.

## Environmental Engineering-

Waste \& Water Technology Program Code 105062 | Associate Degree

Offered at the Green Bay campus. For information: (920) 498-5444. Toll-free: (888) 385-6982.

This program is fully eligible for financial aid

## Program Description

The Environmental Engineering-Waste and Water Technology program prepares learners to maintain the quality of water, air, waste, and other materials, through testing, analysis, and monitoring to keep the environment and community healthy and safe. This program will meet a need for environmental engineering technicians in Northeast Wisconsin.

## Program Outcomes

- Identify, monitor and evaluate
environmental hazards
- Examine the effects of pollution
- Determine strategies to minimize or prevent waste in order to reduce or prevent waste in order to
impact on the environment
- Create and maintain environmental reports in accordance with applicable standards
- Utilize applied science and mathematical skills to modify test and operate equipment used in the prevention, control and remediation of environmental issues, including waste and water treatment
- Perform periodic inspections in compliance with applicable standards
- Use effective oral and written - Use effective oran skills
- Utilize problem solving skills
- Perform safe work practices


## Requirements for

Program Entry

- Completed application.
- High school transcript or equivalent. (For a list of equivalents, go to www.nwtc.edu/gettingstarted.) - Courses required for mastery of algebra skills (real numbers, algebraic word problems and measurements).
- The student will either provide proof of having completed course work in Windows, Word and Excel or pass a proficiency test. - As a requirement for program entry, an

Academic Skills Assessment (Accuplacer) with appropriate benchmark scores is necessary. Program Benchmarks are College Math: 63; Reading Comprehension: 80; Sentence Skills: 75. Students not meeting these benchmarks or the equivalent will be required to establish an individualized academic plan Students may have the opportunity to enroll in selected program core courses while completing their individualized plan. Upon completion of the plan, students will be eligible for all program courses. However, higher test scores will lead to greater success in core program courses. To learn more about these assessments and program benchmark scores, please contact a counselor at (920) 498-5444 or (888) 385-6982.

## Employment Potential

A graduate of the program will have the potential for employment for diverse employers such as industrial facilities municipalities, utilities and governmental agencies in the following areas: Recycling coordinators establish, coordinate, and promote recycling programs and operations often turning old products and waste from industrial processes into useful, environmentally safe raw materials. Environmental Engineering Technicians apply theory and principles of environmental engineering to modify, test, and operate equipment and devices used in he prevention, control, and remediation of environmental problems, including waste treatment and site remediatio under the direction of engineering staff or scientist. May assist in the development Recycling and Resource Manager utilizes best management practices o manage organizational resources and recycling and resource programs impacting the culture, community and business practices of an organization. Water and Waste Water Treatment Plant and System Operators, operate or control an entire process or system of machines, often through the use of control boards, to transfer to treat water or wastewater
Water Resource Specialists design and implement programs and strategies related to water resource issues such as supply, quality, and regulatory compliance issues.

Curriculum
Students following the study plan
Students following the study plan
below will complete the Environmental Engineering-Waste \& Water echnology associate degree in the

## FIRST SEMESTER

CREDITS
10-403-100 Blueprint Reading Intro

| 1 |
| :--- |
|  |

10-403-100 Blueprint Reading Intro 10-506-146 Intro to Environmental Scien
10-506-147 Environmental Biology 10-804-118 Interm Algebraw Apps 10-806-134 General Chemistry ${ }^{*} 10-890-101$ College 10

SECOND SEMESTER
10-506-148 Environmental Chem Analysis 10-506-149 Intro to Environ Compliance 10-614-113 2D Essentials 10-620-100 Fluids 1: Basic Pneumatics 10-620-101 Fluids 2: Basic Hydraulics
10-620-165 Fluids 3: Inter Hydraulics ${ }^{10}$ *10-800-130-136 English Composition 1 10-804-196 Trigonometry w App 10-804-196 Trigon
SEMESTER TOTAL

## third semester

10-506-150 Environmental Microbiology 10-506-151 Wastewater Treatment \& Analy 10-506-152 Ind. Safety \& Emerg. Response 10-606-113 CAD
10-620-121 Mechanics 1: Basic
10-620-122 Mechanics 2: Intermediate 10-664-100 Automation 1: Control Logic
10-664-101 Automation 2: Motor Contro 10-801-197 Technical Reporting SEMESTER TOTAL

## FOURTH SEMESTER

10-506-154 Air Pollution Control System 10-506-154 Air Pollution Control Systen 10-506-156 Solid and Hazardous Wast 10-809-172 Intro to Diversity Studie 10-809-198 Intro to Psychology SEMESTER TOTAL

## CURRICULUM NOTE

*The credit for 10-890-101, College 101 is an institutional requirement for graduation. Consequently, it is not part
of the program credit requirements.
"* Students must earn a grade of "C" or English Composition enroll in 10-801-197, Technical Reporting.

With additional education and/or work experience, graduates may find other opportunities for employment

- Environmental Engineer
- Environmental Health and Safety Manager


## COURSE DESCRIPTIONS

These courses provide an opportunity for students to develop the knowledge skills, and understanding requ

10-403-100 BLUEPRINT READING INTRO ...develop the knowledge skills IN process and foung fand footings and foundations, foor plans, elevations, below-grade piping, above-
grade piping, isometric piping diagrams, schedules and details, electrical floor plans, lighting, ventilating, and air conditioning.

10-506-146 INTRO TO ENVIRONMENTAL SCIENCE ...an introduction to the basic principles of environmental science including ecology energy, resources, waste management, air, water, and soil pollution.

10-506-147 ENVIRONMENTAL BIOLOGY ...environmental problems are examined from scientific, ethical, economic and sociological perspectives. Emphasis is placed on protection of the environmental issues and environmentall related public health concerns.

10-506-148 ENVIRONMENTAL CHEM ANALYSIS ...laboratory techniques are performed to determine the suitability of supply sources and purification processes in the water and wastewater industries. (Prerequisite: 10-806-134, General Chemistry)
10-506-149 INTRO TO ENVIRONMENTAL COMPLIANCE ...an introduction to regulatory concepts and requirements for compliance with environmental regulations by governmental and non-governmental entities.
10-506-150 ENVIRONMENTAL MICROBIOLOGY...a study of the background and role of bacterial analysis. Sampling and analytic methods including quality control procedures and environmental parameters are studied and related to applicable standards. (Prerequisite: 10 506-147, Environmental Biology)

10-506-151 WASTEWATER TREATMENT \& ANALYSIS ...physical, chemical, and biological principles of operation of wastewater treatment systems. The basic unit processes, control parameters, and mathematical problem-solving related to collection systems and treatment facilities are introduced. Laboratory procedures and practices involved with operation of wastewater analysis and treatment including industrial wast treatment technologies. (Prerequisite: 10-506-148, Environmental Chem Analysis)

10-506-152 INDUSTRIAL SAFETY \& EMERGENCY RESPONSE ...state and federal regulations related to worker safety, industrial hygiene, and response to emergency situations. Emphasis is placed on response to releases of hazardous materials.

10-506-154 AIR POLLUTION CONTROL SYSTEMS ... air quality problems, federal and state regulatory mechanisms, and the types of emission control technology currently available. Monitoring emissions and ambient air quality are addressed.
10-506-155 WATER TREATMENT \& ANALYSIS ... Physical, chemical, and biological principles of operation of water treatment systems. The basic unit processes, control parameters, and mathematical problem-solving related to treatment facilities and distribution systems are introduced. Laboratory procedures and practices involved with operation of water analysis and treatment. (Prerequisite: 10 506-148, Environmental Chem Analysis)
10-506-156 SOLID AND HAZARDOUS WASTE ...identify the hierarchy of and regulations related to solid and hazardous waste, the waste stream, pollution prevention and disposal strategies. Learn detection techniques and prope transporting and handling methods.
10-606-113 CAD (COMPUTER AIDED DRAFTING) ...computer aided drafting using AutoCAD software focusing on template settings; creating and manipulating layers; basic drawing, editing, and inquir ploting (Coto aite 10-607-119, plotting. (Corequisites. 10-607-11), OR 10 - 06 -119 Th OR 10-614-113, 2D Es OR 10-614-113, 2D Essentials)

10-614-113 2D ESSENTIALS ... an introduction to technical communication, annotation, geometric construction, model, orthographic and pictorial, section and auxiliary views and dimensioning.

10-620-100 FLUIDS 1: BASIC PNEUMATICS ...what fluid power is, differentiate between hydraulics and pneumatics, implement basic pneumatic circuits, utilize schematics, apply Pascal's Law, define properties of fluids, implement airflow control and hydraulics cylinder circuits.
10-620-101 FLUIDS 2: BASIC HYDRAULICS ...hydraulic pumps, basic hydraulics actuator circuits, hydraulic schematics, apply Pascal's Law, summarize the effects of fluids friction, define properties of hydraulic energy, design hydraulic circuits with directional control valves. (Corequisite 10-620-100, Fluids 1: Basic Pneumatics)
10-620-121 MECHANICS 1: BASIC ...mechanical drive system components related to V-belt drives, chain drives, and gear drives.

10-620-122 MECHANICS 2 : INTERMEDIATE ...mechanical drive system components related to multiple shaft drives, heavy-duty V-belt drives, synchronous belt drives, lubrication, and alignment. (Corequisite: 10-620-121, Mechanics 1: Basic)

10-620-165 FLUIDS 3: INTERMEDIATE HYDRAULICS ...design of cylinder actuating circuits with pressurecompensated flow control valves, how to control pressure, pilot-operated check valve applications, accumulator operation and application, hydraulic motor types and applications. (Corequisite: 10-620 101, Fluids 2: Basic Hydraulics)

10-664-100 AUTOMATION 1 : CONTROL LOGIC ...electric motor control components such as switches, relays, starters, transformers; and safely mount and install motor and motor contro components and perform related wiring and troubleshooting of motor control circuits.

10-664-101 AUTOMATION 2: MOTOR CONTROL ...electric motor control components such as sensors, timers and counters. (Corequisite: 10-664100, Automation 1: Control Logic)

## Farm Business \&

For information, call the Green Bay campus: (920) 498-5444. Toll-free: (888) 385-6982.

This program is not eligible for financial aid.

## Program Description

Farm Business and Production Management covers basic farming production and business management principles needed to be an efficient farmer. Formal classes are delivered District-wide at locations convenient for the farmers.

## Program Outcomes

- Calculate farm business cost of production for forage, grain, beef, pork, and milk.
- Prepare and assess a livestock management plan that is environmentally friendly.
- Prepare and assess a business financial plan.
- Develop and assess a soil and crop management plan that is environmentally friendly.
- Own, operate, and/or be employed in an agriculture-related industry.
- Implement a business, soil, crop, and livestock management plan that is environmentally friendly.


## Requirements for Program Entry

- Completed application.
- High school transcript or equivalent. (For a list of equivalents, go to www.nwtc.edu/gettingstarted.)
- Communications: ability to listen, write complete sentences, spell accurately, and express ideas well verbally.
- Science: basic plant and animal biology, chemistry, and applied physics.
- Ability to use computer operating skills: keyboarding at 30 words per minute.
- Students should have mastered basic math skills. Basic math is defined as addition, subtraction, multiplication and division.
- As a requirement for program entry, an Academic Skills Assessment (Accuplacer) with appropriate benchmark scores is necessary. Program Benchmarks are Arithmetic: 34; Reading Comprehension: 55; Sentence Skills: 60. Students not meeting these benchmarks or the equivalent will be required to establish an individualized academic plan. Students may have the opportunity to enroll in selected program core courses while completing their individualized plan. Upon completion of the plan, students will be eligible for all program courses. However, higher test scores will lead to greater success in core program courses. To learn more about these assessments and program benchmark scores, please contact a counselor at (920) 498-5444 or (888) 385-6982.


## Employment Potential

A graduate of the program will have basic skills necessary to own and operate or be employed on a farm.
With additional education and/or work experience, graduates may find other opportunities for employment.

- Dairy Herdsperson
- General Farm Manager
- Farm Records Manager


## Curriculum

The Farm Business and Production Management Technical Diploma is a sixyear, part-time program. Upon graduation, a student will have completed 24 credits.

## FIRST SEMESTER

CREDITS
30-090-387 Farm Record/Business Analysis 4
30-090-388 Crop Management
30-090-391 Livestock Management
30-090-392 Livestock Nutrition
30-090-393 Soil Management
30-090-394 Farm Business Operation
SEMESTER TOTAL
TOTAL CREDITS

- Crop Supervisor
- Livestock Feeding Specialist
- Farm Equipment and Facilities

Maintenance Manager

- Farm Service Employee
- Field Equipment Operator


## Note

Tuition assistance is available through the Wisconsin Dept. of Agriculture and the Wisconsin Technical College Categorical Funding Tuition Assistance Grant; other local scholarships are available.

## COURSE DESCRIPTIONS

These courses provide an opportunity for students to develop the knowledge, skills, and understanding required for employment in this field.

30-090-387 FARM RECORD/BUSINESS ANALYSIS ...Farm Business mission, objectives, goals, use of farm credit, farm business arrangements, orderly farm transfer, farm estate planning, farm income tax preparation, computer records and Farm Business Analysis.

## 30-090-388 CROP MANAGEMENT

 ...economics, alternative crop strategies, production management, variety selection, maintenance fertilization, pest controls and weed chemicals, harvesting, storage, marketing and farm business analysis, specialty crops, government programs and developing crop budgets.
## 30-090-391 LIVESTOCK MANAGEMENT

...livestock selection, breeding management, herd health, young stock management, selection, operation and maintenance of milking, feeding, ventilation and manure handling systems, farm buildings, feed storage and farm business analysis.

## 30-090-392 LIVESTOCK NUTRITION

 ...nutritional terminology feeding management, economics of feeds, nutritional terminology requirements for maintenance, estimating feed consumption, feed tag labels for protein, energy, minerals and vitamins, evaluate feeding programs and metabolic diseases.
## 30-090-393 SOIL MANAGEMENT

...preparing and implementing a land use plan, soil testing procedures and reports, corrective fertilizers, soil conservation, tillage operations, nutrient management plan and implementations Farm Business business analysis.

30-090-394 FARM BUSINESS OPERATION ...farm organization, budgeting, cash flow, financial statements, record keeping systems, tax issues, business structure for farm operation, credit needs, farm business analysis, farm safety, employee management, marketing plan.

## Financial Institutions

Management Program Code 101144 | Associate Degree

Offered at the Green Bay campus and most first year program courses available at Sturgeon Bay campus. For information in Green Bay: (920) 498-5444. For information in Sturgeon Bay: (920) 746-4900. Toll-free: (888) 385-6982.

This program is fully eligible for financial aid.

## Program Description

Financial Institutions Management is designed for current or prospective employees of financial institutions seeking specialized training.

## Program Outcomes

- Analyze business and consumer financial documents.
- Ensure compliance with state and federal laws.
- Recommend appropriate financial products to customers.
- Use personal financial
planning techniques.
- Assess how economic policies and changes in the level of business activity affect the financial industry.
- Make loan decisions.
- Use an electronic word processing computer program.
- Use an electronic spreadsheet computer program.
- Contact customers regarding outstanding balances.
- Negotiate payment proposals with customers.
- Manage the work of other people in a team environment.
- Perform basic business math calculations.
- Deliver effective customer service.


## Requirements for

## Program Entry

- Completed application.
- High school transcript or equivalent. For a list of equivalents, go to www.nwtc.edu/gettingstarted.
- Basic math (whole numbers, fractions, decimals, percents, measurements). - Ability to use computer keyboard. - As a requirement for program entry, an Academic Skills Assessment (Accuplacer) with appropriate benchmark scores is necessary. Program Benchmarks are Arithmetic: 65; Reading Comprehension:

55; Sentence Skills: 75. Students no meeting these benchmarks or the equivalent will be required to establish an individualized academic plan. Students may have the opportunity to enroll in selected program core courses while completing their individualized plan. Upon completion of the plan, students will be eligible for all program courses. However, higher test scores will lead to greater success in core program courses. To learn more about these assessments and program benchmark scores, please contact a counselor at (920) 498-5444 or (888) 385-6982.

## Employment Potential

The curriculum is structured to provide a climate for the development of the functional skills needed by participants from entry-level through senior management.

A graduate of this program will have the potential for employment in the following areas:
Customer Service Representative (CSR): a primary contact person for customer services, identifies additional and appropriate financial services, guiding customers to the proper departments for specific products, and holds an influential position within a team environment.
Personal Banker: assists customers in opening accounts, explains bank services, and becomes involved in other financial institution services.
Loan Officer: processes and investigates applications for credit and makes decisions on loan applications.
With additional education and/or work experience, graduates may find other opportunities for employment.

- Commercial Banker
- Bank Officer

Note

- Learners interested in double majoring in Accounting or Credit Business Management should consult with an instructor.
- Refer to the program website for information on accelerated learning and for helpful tips that will assist you in achieving the highest quality and most rewarding academic experience.
- Most credits from this degree can be transferred to some four-year colleges for learners interested in pursuing a bachelor's degree.

Curriculum
Students following the study plan below
will complete the Financial Institutions Management associate degree in the number of semesters shown.

## IRST SEMESTER

$\begin{array}{ll}\text { 10-101-110 } & \text { Accounting } 1 \\ \text { 10-103-121 }\end{array}$
0-103-131 Micro: Excel-Intro
10-103-132 Micro: Excel-Part 2
10-114-111 Credit-Consumer
10-801-136 English Composition 1
0-804-123 Math w Business Apps 10-890-101 College 101

ECOND SEMESTER
$\begin{array}{ll}\text { SECOND SEM } \\ \text { 10-02-150 } & \text { Business Law \& Ethics } \\ \text { 10-114-151 } & \text { Finance-Banking Principles }\end{array}$ 10-114-166 Credit-Collection Methods 10-114-167 Finance-Commercial Lending 10-196-191 Supervision 10-801-196 Oral/IIterpersonal Comm SEMESTER TOTAL

## THIRD SEMESTER

10-114-101 Credit-Business Applications
$\begin{array}{ll}\text { 10-114-101 } & \text { Credit-Business App } \\ \text { 10-114-153 } & \text { Finance-Personal }\end{array}$
10-114-170 Credit-Law
10-809-195 Economics
10-809-199 Psychology Of Human Relations SEMESTER TOTAL

## FOURTH SEMESTER

10-114-125 Finance-Mortgage Lend/Serv 0-114-155 Finance-Trust Functions/Serv 0-809-166 Intro to Ethics: Theory \& 0-809-172 Intro to Diversity Studies Elective SEMESTER TOTAL TOTAL CREDITS

## CURRICULUM NOTE

The courses beginning with course numbers 10-114-xxx are delivered in an Accelerated Learning format. These courses have a compressed accelerated class are exactly the same as those in a traditional class. Students are expected to do most assignments outside of class time.
Core courses are primarily offered
during the evening.
*The credit for 10-890-101, College 101,
is an Institutional Requirement for
graduation. Consequently, it is not part
of the program credit requirements.
SUGGESTED ELECTIVES
Any course in the Credit Business
Management or Accounting program

## COURSE DESCRIPTIONS

These courses provide an opportunity for students to develop the knowledge, skills, and understanding required for employment in this field.

10-101-110 ACCOUNTING 1 ...accounting principles, financial statements business transactions, accounting cycles/ systems, specialized journals, accounting for cash and receivables for sole proprietorships in service or merchandising businesses.

10-102-150 BUSINESS LAW \& ETHICS ...common law contracts and sales contracts: formation, interpretation, performance, and discharge; the law of agency; corporations; and introduction to the American legal system: criminal and tort law, and global business issues. (Prerequisite: 10-801-136, English Composition 1)
10-103-121 MICRO: WORD-
INTRODUCTION ...word processing basics including creating, revising, formatting, printing; sections, tabs, multiple-page numbering; manipulating text; creating headers/footers; creating/formatting tables, graphics; and merging documents. Windows experience improves success; consider 10 103-111, Windows/Computer Basics.

10-103-131 MICRO: EXCELINTRODUCTION ...creating a worksheet, enhancing worksheet appearance, moving and copying data, using formulas and functions, creating charts and using clip art. Windows experience improves success; consider 10-
103-111, Windows/Computer Basics.
10-103-132 MICRO: EXCEL-PART 2 ...advanced formatting techniques and functions, working with templates, collaborating with multiple Excel users, creating macros, Excel's database features and analysis tools. (Corequiste: 10-103-131, Micro: Excel-Intro)

10-114-101 CREDIT-BUSINESS APPLICATIONS ...credit, sales, purchasing, shipping, receiving, accounts receivable, accounts payable, and collection procedures, prepare/analyze financial procedures, prepare/analyze financial
statements, use Excel to solve financial statements, use Excel to solve financia
problems, amortization, breakeven, depreciation, gain/loss, and inventory. (Prerequisite: 10-101-110, Accounting 1)
10-114-111 CREDIT-CONSUMER ...the role of consumer credit, loan processes, collections, financial advising and counseling; loan, promotion, and bank policies; consumer, commercial, mortgage loans, and credit cards.

10-114-125 FINANCE-MORTGAGE LENDING/SERVICING ...principles and practices involved in making and closing mortgage loans and servicing a sound mortgage portfolio, including the secondary mortgage market. (Prerequisite: secondary mortgage market. (Prer

10-114-151 FINANCE-BANKING PRINCIPLES ...U.S. banking history, organization, the Federal Reserve organization, the Federal Reserve
System, deposit functions, security issues, payment flow, credit functions, accounting, specialized services, marketing, and current issues and trends.
10-114-153 FINANCE-PERSONAL ...income and occupations, financial spending plan development, purchasing consumer goods and services, risk management plan development, investment plan development, retirement and estate planning, and financial advising.

10-114-155 FINANCE-TRUST FUNCTIONS/SERVICE ...trust functions; estate settlement; guardianships; trust services; performance of agencies, individuals, business organizations, charitable institutions; and trust administration.

0-114-166 CREDIT-COLLECTION
METHODS ...know your debtor, collection laws, pre-legal and legal methods used in collections, negotiating payment proposals, NSF checks, skip tracing, and bankruptcy. (Corequisite: 10-114-167, Finance-Commercial Lending or 10-114-109, Credit-Policies/Procedures)

10-114-167 FINANCE-COMMERCIAL ENDING ...functions of the loan interview and credit investigation, elements of the loan document and its loan functions, the structuring of commercial loans, and federal and state laws governing commercial lending. (Prerequisite: 10-114-111, Credit-Consumer)

10-114-170 CREDIT-LAW ...Uniform Commercial Code, credit regulations, Wisconsin Consumer Protection Law, collection law, and bankruptcy. (Prerequisite: 10-114-167, Finance-Commercial Lending or 10-114-109, Credit-Policies/Procedures; 10-801-136, English Composition 1)

10-114-180 FINANCE-MONEY/ BANKING ...economics and banking, commercial banking system, money supply, investments and loans, Federal Reserve System, and international monetary system. (Prerequisites: 10-809-195, Economics; 10-103-131, Micro: ExcelIntro; 10-114-111, Credit-Consumer; 10-804-123, Math w Business Apps)
10-196-191 SUPERVISION ...front-line leadership including teamwork, setting goals, planning, delegation, controlling, communication, motivation, performance management, staffing, training, problem solving, and conflict management.

Fire Medic Program Code 105s12 | Associate Degriee


Fire Protection
Engineering Technology Program Code 105033 | Associate Degriee

Offered at the Marinette campus. For information: (715) 735-9361
Toll-free: (888) 385-6982
This program is fully eligible for financial aid.

## Program Description

Fire Protection Engineering Technology
teaches students to design, install, and service automatic sprinkler, fire alarm, and special hazard fire suppression systems.

## Program Outcomes

Anlyze developments in the
fire protection field.

- Create fire protection system drawings. - Create written, technical, and oral presentations.
- Design fire alarm systems.
- Interpret construction blueprints.
- Evaluate automatic sprinkler systems.
- Classify fire protection hazards.
- Troubleshoot electrical components
- Troubleshoot electrical com
of fire protection systems. - Determine the most appropriate - Determine the most approprial
fire extinguishing method.
fire extinguishing method.
- Utilize project management techniques
- Design automatic fire sprinkler systems.
- Test to NICET Level II in
at least one subfield.
- Design special hazard fire suppression systems. - Critique historical and current fire incident case studies.
- Estimate fire protection systems costs.
- Install, service, and inspect
- Install, service, and inspet
fire protection systems.
- Apply local, state and national
codes and standards.


## Requirements for <br> Program Entry

- Completed application.
- High school transcript or equivalent. (For a list of equivalents, go to - Students should have mastered basic math skills. For a description of basic math, see the Basic Education section of this catalog. - High school background in mathematics, - High school background in mathen
science, and technology education. - As a requirement for program entry, an Academic Skills Assessment (Accuplacer) with appropriate benchmark scores is Arithmetic: 65; Reading Comprehension: 55; Sentence Skills: 75. Students not
meeting these benchmarks or the equivalent will be required to establish an may have the opportunity to enroll in selected program core courses while completing their individualized plan. Upon completion of the plan students will be eligible for all program courses. However, higher test scores will lead to greater success in core program
courses. To learn more about these courses. To learn more about these
assessments and program benchmark assessments and program benchmark
scores, please contact a counselor scores, please contact a counselor
(920) 498-5444 or (888) $385-6982$.


## Employment Potential

A graduate of this program will
have the potential for employment have the potential for employment in the following areas:
Fire Protection Systems Designer: prepares designs and layout drawings of new detection and suppression and industrial applications. Fire Protection Equipment Sales Representative: merchandises equipment for commercial, industrial, and residential applications. Fire Protection Systems Installer: iterprets the protection system design for on-site installation, operation, and
Industrial Safety Technician: assists the industrial safety manager in plant fire safety programs and procedures; and nsures compliance with federal, state and municipal codes and ordinances. experience, graduates may find other opportunities for employment. - Fire Protection Conployment. - Fire Protection Equipment Sales Manager - Industrial Safety Manager

- Municipal Safety Manager - Property Loss/Risk Management Specialist Note
- Learners interested in double majoring in Accounting or Credit Business Management should consult with an instructor. - Refer to the program website for information on accelerated learning and for helpful tips that will assist you in achieving the highest quality and most rewarding academic experience.
- Most credits from this degree can be transferred to some four-year colleges for learners interested in pursuing a bachelor's degree.

Curriculum
Students following the study plan
below will complete the Fire Protection
Engineering Technology associate degree
in the number of semesters shown.

## FIRST SEMESTER

$\begin{array}{ll}\text { 10-503-104 } & \text { Fire Protection Fundamentals } \\ 10-503-105 & \text { Fire Protection Fundamentals }\end{array}$ $\begin{array}{ll}10-503-105 & \text { Fire Protection Fundamentals } \\ 10-503-115 & \text { Fire Tech Prt Rdg/Sketching }\end{array}$ ${ }^{10-503-136}$ Sprinkler Systems 1 $\begin{array}{ll}10-606-115 & \text { CAD } \\ 10-801-196 & \text { Ora/lin }\end{array}$
10-801-196
Oral/IIterpersonal Comm
10-804-107 10-804-107 College Mathematics $* 10-890-101$ College
SEMESTER TOTAL

## SECOND SEMESTER

| SECOND SEMESTER |  |
| :---: | :---: |
| 10-503-120 | Special Hazards Systems 1 |
| 10-503-126 | Sprinkler Hydraulics-Auto |
| 10-503-132 | Fire Detection-Elec 1 |
| 10-503-137 | Sprinkler Systems 2 |
| 10-503-180 | Nicet-Basic |
| 10-606-128 | CAD-Fire Tech Advanced |
| **10 | English Composition 1 |
| SEMESTER | total |

## 有-801-136 English Composition 1

emester total

## THIRD SEMESTER 10-503-128 Fire Alarm System Design

 $\begin{array}{ll}\text { 10-503-128 } & \text { Fire Alarm System Design } \\ \text { 10-503-129 } & \text { Fire Alarm Systems Application }\end{array}$ 10-503-135 Fire Detection-Elec 2 10-503-138 Hazard Analysis AND/OR
*10-503-1XX NICET Advanced
10-809-199 Psch 10-503-1XX NCET Advanced
PE-80-199
SEMESTER TOTAL

O-503-140 Special Hazards Systom 10-503-148 Technical Project 10-503-148 Technical Project
${ }^{* 10-503-1 X X ~}$
NICET Advanced
${ }^{*}$ OR
${ }^{*} 10-503$
OR
*10-503-1XX NICET Advanced
OR
${ }^{\text {OR }} 10$-503
10-503-1XX NICET Advanced
10-801-197 Technical Reporting $\begin{array}{cc}\text { 10-809-172 } & \text { Iechnical Reporting } \\ \text { Intro to Diversity Studies }\end{array}$ 10-809-197 Contemporary Amer Society SEMESTER TOTAL
TOTAL CREDITS

## CURRICULUM NOTE

*Any three of the six NICET Advanced courses
must be taken prior to graduation
10-503-185 NICET Advanced Sprinklers
1,1 credit - offered third semester
$-10.53-187$

- 10-503-187 NICET Advanced Special Haz

1,1 credit - offered third semester
$-10-503-186$ NICET Advanced Sprink
2,1 credit - offered fourth semester

- 10-503-188 NICET Advanced Special Haz

2, 1 credit - offered fourth semester

- 10-503-189 NICET Advanced Alarms
creait - offered fourth semester
$-10-503$-190 NICET Advanced Alarms 1 credit - offered fourth semester
*The credit for 10-890-101, College
101 is an Institutional Requirement for 101 is an Institutional Requirement for graduation. Consequently, it is not part
of the program credit requirements. of the program creait requirements. **"Students must earn a grade of "C" or
better in 10-801-136, English Composition enroll in 10-801-197, Technical Reporting.


## COURSE DESCRIPTIONS

These courses provide an opportunity for students to develop the knowledge, skills, and understanding required for employment in this field.
10-503-104 FIRE PROTECTION FUNDAMENTALS 1 ...fire protection overview, fire science, fire extinguishers, extinguishing agents, fire sprinkler systems, fire alarm systems, explosion suppression, fire codes and standards.

10-503-105 FIRE PROTECTION FUNDAMENTALS 2 ...combustion processes, fire detection technology, fire suppression technology, historical fires, fire codes, building codes, contracts, liability, fire protection industry and career opportunities.
10-503-115 FIRE PROTECTION BLUEPRINT READING/SKETCHING ...reading floor plans, details, site plans, protection plans, performing and sketchi site surveys for fire protection, preparing bill of materials, and interpreting specifications.

10-503-120 SPECIAL HAZARDS SYSTEMS 1 ...carbon dioxide systems, the phase out of Halon systems, clean agents,
halocarbon systems, inert gas systems, dry halocarbon systems, inert gas systems, dry chemical systems, wet chemical systems, foan
systems, and explosion suppression systems. 10-503-126 SPRINKLER HYDRAULICSAUTOMATIC ...hydraulic calculations for tree, loop, and grid systems using manual and computerized methods; and testing and evaluating water supplies for fire protection.
10-503-128 FIRE ALARM SYSTEM DESIGN ...the operating principles, selection and application of automatic fire detectors; proper location and spacing of detectors; th selection and use of notification appliances; and various types of fire alarm systems.

10-503-129 FIRE ALARM SYSTEMS APPLICATIONS ...the interconnection of automatic fire detectors, notificarion appliances and fire alarm panels; addressability of devices; programming troubleshooting of addressable panels.

10-503-132 FIRE DETECTION ELECTRONICS 1 ...basic concepts of AC/DC electrical circuits, Ohm's Law insulators, batteries, and electro-mechanical induction used in fire protection.

10-503-135 FIRE DETECTION ELECTRONICS 2 ...electronic sensing and activating systems, detection, alarm and suppression systems, component parts, power sources, and testing and troubleshooting fire protection systems. (Prerequisite: 10-503-132, Fire Detection- Elec 1)
10-503-136 SPRINKLER SYSTEMS 1 ...automatic fire sprinkler systems emphasizing types of sprinkler systems and their application, hazard classifications, automatic fire sprinkler system components, and sprinkler system design approaches.
10-503-137 SPRINKLER SYSTEMS 2 ...fire protection requirements of automatic sprinkler systems, design pipe schedule and hydraulically calculated water suppression systems, foam systems and fire pump selection. (Prerequisit 10-503-136, Sprinkler Systems 1)
10-503-138 HAZARD ANALYSIS ...planning, surveying, and making professional recommendations regarding appropriate fire prevention, and suppression and detection systems for specified industrial fire hazards.
10-503-140 SPECIAL HAZARDS SYSTEMS 2 ...the design of special hazard systems emphasizing total flooding and loca application CO 2 systems, inert gas and halocarbon clean agent systems. (Prerequisite: 10-503-120, Special Hazards Systems 1 )
10-503-148 TECHNICAL PROJECT ...independent research report
or project utilizing technical and
communication skills from Fire Protection Engineering Technician program.
10-503-149 SPRINKLER SYSTEMS 3 .. high piled storage, rack storage, extended coverage, residential, and water spray sprinkler system design utilizing computer design software; specifying supplemental
water supplies for fire protection.

10-503-180 NICET-BASIC ...procedures, forms, standards, codes, and general knowledge necessary to successfully pass the ever work elements in leve - NIC Certification in Auto Sprinkler, Special Hazard, and Fire Alarm Systems Layouts. 10-503-185 NICET ADVANCED SPRINKLERS 1 ...certification preparation for Level I and Level II NICET work elements in the subfield of Automatic Sprinkler System Layout.
10-503-186 NICET Advanced Sprinklers 2 ...certification preparation for Level in the subfield of Automatic Sprinkler System Layout. (Prerequisite: 10-503185, NICET Advanced Sprinklers 1)

10-503-187 NICET ADVANCED SPECIAL HAZARDS 1 ...certification prepared for Level I and Level II NICET work elements in the subfield of Special Hazards Systems.
10-503-188 NICET ADVANCED SPECIAL HAZARDS 2 ...certification preparation for Level III and Level IV Special Hazards Systems. (Prerequisite: 10-503-187, NICET Advanced Spec Haz 1)

10-503-189 NICET ADVANCED ALARMS 1 ...certification preparation for Level I and Level II NICET work elements in the subfield of Fire Alarms.
10-503-190 NICET ADVANCED ALARMS 2 ...certification preparation for in the subfield of Fire Alarms. (Prerequisite: 10-503-189 NICET Advanced Alarms 1)

10-606-115 CAD (COMPUTER AIDED DRAFTING) ...entry level computer-aided graphics with AutoCAD software; using basic and advanced drawing, display, editing, dimensioning, and plotting commands.
10-606-128 CAD-FIRE TECH ADVANCED ...advanced definition and use of: blocks, user coordinate systems, external references, attributes, and layouts for drawing plotting; and drawing exchange

Offered at the Green Bay campus. For information: (920) 498-5444. Toll-free: (888) 385-6982.

This program is fully eligible for financial aid.

## Program Description

The Fire Science program trains basic fire behaviors, techniques used to control structural and related fire emergencies and life safety practices. This program will provide an overview to fire protection; career opportunities infire protection and related fields; philosophy and history of fire protection/service, fire loss analysis; organization and function of public and private fire protection/services; fire departments as a part of local government; laws and regulations affecting the fire service; and fire service nomenclature.

## Program Outcomes

- Prepare for incident response and Fire operations.
- Demonstrate fire protection skills associated with established standards and procedures for a variety of emergency based encounters.
- Communicate clearly and effectively both verbally and through written documentation with clients, coworkers, other agencies, and supervisors.
- Demonstrate professional behavior.
- Meet Wisconsin state and national competency requirements for fire credentialing.
- Demonstrate professional conduct by displaying personal code of ethics, positive work ethics, flexibility, teamwork skills, physical fitness, safe procedures, and sensitivity to diverse cultures and individuals.
- Perform fire prevention activities including preplanning, public education, inspection, and investigation.
- Apply incident management and mitigation skills to emergency incidents.
- Apply critical thinking skills to both emergency and non-emergency situations.


## Requirements for Program Entry

- High school transcript or equivalent. (For a list of equivalents, go to www.nwtc.edu/gettingstarted.)
- As a requirement for program entry, an Academic Skills Assessment (Accuplacer) with appropriate benchmark scores is necessary. Program Benchmarks are Arithmetic, 65; Reading Comprehension, 55: Sentence Skills, 75. Students not meeting these benchmarks or the equivalent will be required to establish an individualized academic plan. Students may have the opportunity to enroll in selected program core courses while completing their individualized plan. Upon completion of the plan, students will be eligible for all program courses. However, higher test scores will lead to greater success in core program courses. To learn more about these assessments and program benchmark scores, please contact a counselor at (920) 498-5444 or (888) 385-6982.
- Aptitudes required for work of this nature are good physical stamina, endurance, and body condition that would not be adversely affected by frequently having to walk, stand, life, carry, and balance at times, in excess of 125 pounds.


## Wisconsin Caregiver Law

NWTC is required to comply with the Wisconsin Caregiver Law (1997 WISCONSIN ACT 27). The completion of a caregiver background check includes the review of criminal records for convictions of serious crimes or a history of improper behavior. Students accepted into this program must complete a background check through www.CertifiedBackground. com. Information regarding this process is provided to students immediately upon acceptance into the program. Students with a criminal history may be denied access to placement at the discretion of the clinical or practicum site. Consequently, should a student have a history of convictions of serious crimes or a history of improper behaviors, NWTC cannot guarantee clinical/practicum placement or guarantee graduation within typical program timing.

## Curriculum

Students following the study plan below
will complete the Fire Science Technical
Diploma in the number of semesters shown.

## FIRST SEMESTER

CREDITS
*10-503-142 Fire Fighting Principles
4
*10-503-153 Hazardous Material Operations
*10-503-191 Principles of Emergency Svcs
**10-890-101 College 101
SEMESTER TOTAL

## SECOND SEMESTER

*10-503-155 Fire Protection Hydraulics
10-804-107 College Mathematics SEMESTER TOTAL
TOTAL CREDITS

## CURRICULUM NOTE

*No final grade lower than a iCî is acceptable in any of the core program courses. A student who withdraws or receives a grade lower than a iCî in a program course may apply for re-entry into the program.
**The credit for 10-890-01, College 101 is an institutional requirement for graduation. Consequently, it is not part of the program credit requirements.
Successful program completion prepares and entitles the student to take the state certification examination. A graduate is licensed only after successful completion of the certification examination and application for a state certification.
Graduates of the Fire Science technical diploma who complete their coursework with a "C" or better in their program courses and meet the program benchmark scores for the Fire Medic program,may qualify for advanced standing within the Fire Medic Associate Degree program.

## Employment Potential

A graduate of the program will have the potential for employment as a Fire Fighter, Fire Apparatus/Equipment Specialist, Industrial Fire Technician, Industrial Safety Technician, Fire Insurance Investigator, Industrial Fire Inspector, or additional careers applicable to fire sciences related occupations.

Note
Additional courses which may enhance your eligibility for employment:
-10-503-150, Fire Science Internship
-10-531-102, EMT

## COURSE DESCRIPTIONS

These courses provide an opportunity for students to develop the knowledge, skills, and understanding required for employment in this field.

## 10-503-142 FIRE FIGHTING

PRINCIPLES ...basic fire behavior, techniques for control structural, related fire emergencies, life safety practices; covers practical evolutions necessary to control and extinguish fires; satisfies all requirements for Firefighter 1 state certification. (Prerequisite: Acceptance to Fire Science or Fire Medic program; Corequisites: 10-503-191, Principles of Emergency Services; 10-503153, Hazardous Material Operations)

10-503-153 HAZARDOUS MATERIAL OPERATIONS ...prepares the participant to perform the minimum hazardous material incident operations associated with firefighting functions. Meets operational level competencies referenced in the JPRs in NFPA 1001, 4-1.1. (Corequisites: 10-503-142, Fire Fighting Principles; 10-503191, Principles of Emergency Services; OR Firefighter I State Certification)

10-503-155 FIRE PROTECTION HYDRAULICS ...provides a foundation of knowledge in order to understand the principles of the use of water in fire protection. Meets all of the requirements for the Driver Operator-Pumper certification with the State of Wisconsin. (Prerequisites: 10-503-191, Principles of Emergency Services and 10-503-142, Fire Fighting Principles OR Firefighter I State Certification; Corequisite: 10-804-107, College Mathematics)

10-503-191 PRINCIPLES OF EMERGENCY SERVICES ...provides an overview to fire protection; career opportunities in fire protection and related fields; philosophy and history of fire protection/service; fire loss analysis; organization and function of public and private fire protection services; fire departments as part of local government; laws and regulations affecting the fire service; and fire service nomenclature. (Corequisites: 10-503-142, Fire Fighting Principles and 10-503-153, Hazardous Material Operations OR Fire Fighter 1 State Certification)

## Gas Utility

Construction and Service

Offered at the Green Bay campus. For information: (920) 498-5444. Toll-free: (888) 385-6982.

This program is fully eligible for financial aid.

## Program Description

Gas Utility Construction and Service prepares students to install, maintain, and operate natural and propane gas distribution systems used to supply residential, commercial, and industrial customers.

## Program Outcomes

- Communicate technical information.
- Operate tools and equipment.
- Join pipe.
- Install propane gas distribution systems.
- Install natural gas distribution systems.
- Apply customer service skills.
- Maintain gas distribution systems.
- Operate pipeline excavation equipment.
- Service gas appliances.
- Opportunity to secure a commercial driver's license (CDL).


## Requirements for Program Entry

- Completed application.
- High school transcript or equivalent. (For a list of equivalents, go to www.nwtc.edu/gettingstarted.)
- Be able to obtain a commercial driverís license.
- Students should have mastered basic math skills. For a description of basic math, see the Basic Education section of this catalog.
- As a requirement for program entry, an Academic Skills Assessment (Accuplacer) with appropriate benchmark scores is necessary. Program Benchmarks are Arithmetic, 65; Reading Comprehension, 55; Sentence Skills, 60. Students not meeting these benchmarks or the equivalent will be granted pre-program status and will be required to establish an individualized academic plan. Upon completion of the plan, full program status will be granted. Students may have the opportunity to enroll in selected program core courses while completing their individualized plan. However, higher
test scores will lead to greater success in core program courses. To learn more about these assessments and program benchmark scores, please contact a counselor at (920) 498-5444 or (888) 385-6982.


## Employment Potential

A graduate of this program will
have the potential for employment in the following areas:
Propane Gas Delivery Person: delivers bulk propane gas to customers and interacts with customers.

New Customer Tank and Cylinder Installer: installs propane and connects piping to customer appliances.
Bulk Plant Operator: fills and maintains cylinders and fills bulk delivery trucks.
Gas Construction Mechanic: installs and maintains gas distribution and transmission pipelines using trenching, backhoe, underground road boring, plastic fusion, welding, mapping, and record keeping skills.
Gas Meter Mechanic: installs,
repairs, and maintains electronic and mechanical gas metering equipment.
Gas Service Mechanic: installs and maintains residential, commercial, and industrial gas piping, valving, pressure regulating, and overpressure protective equipment.
Gas Clerk-Estimator: develops specifications and related maps and records used in installing and maintaining gas distribution facilities. Records of this type are manual but are moving towards computer emphasis.
Gas Regulator Maintenance Mechanic: installs and maintains high pressure gas regulating, measuring, odorizing, heating, filtering, valving, and piping systems; electronically and mechanically operated equipment are involved. Gas Appliance Repair Mechanic: maintains and troubleshoots residential and/or commercial gas appliances and heating/cooling equipment. Underground Facilities Locator: locates and marks all underground facilities prior to excavation using various locating equipment.

With additional education and/or work experience, graduates may find other opportunities for employment.

## Gurriculum

Students following the study plan
below will complete the Gas Utility
Construction and Service technical diploma
in the number of semesters shown.

## FIRST SEMESTER

## 10-890-101 College 101

31-442-315 Welding-Gas Service 1
31-469-311 Gas Utility Field Trng 1 31-804-312 Math-Algebra/Trades SEMESTER TOTAL

## SECOND SEMESTER

31-413-348 Electricity-Basic
31-422-310 Metallurgy
31-442-325 Welding-Gas Service 2
31-469-320 Gas Utility Field Trng 2
31-469-331 Gas Utility Field Trng 3 31-801-385 Communicating-Writing SEMESTER TOTAL

## THIRD SEMESTER

31-413-358 Electricity-Gas Applianc 31-469-340 Gas Utility Field Trng 4 31-801-386 Communicating Effectively semester total total credits

## CURRICULUM NOTE

*The credit for 10-890-101, College 101 is an Institutional Requirement for graduation. Consequently, it is not part of the program credit requirements.

- Construction Crew Foreman
- Corrosion Technician
- Meter and Regulator Technician
- Utility Locating Supervisor
- Pipeline Welder
- Vendor Sales and Marketing

Note

- Students receive a certificate from the Midwest Energy Association. This certificate is recognized throughout the United States.
- Students also receive selected Pipeline Operator qualifications as mandated by the Federal Office of Pipeline Safety.
- Students who have completed the Gas Utility Construction and Service technical diploma program have the opportunity to fulfill the requirements for a Utility Management certificate and/ or apply these credits toward a Leadership Development and/or an Individualized Technical Studies associate's degree.


## COURSE DESCRIPTIONS

These courses provide an opportunity for students to develop the knowledge, skills, and understanding required for employment in this field.

31-413-348 ELECTRICITY-BASIC ...electron theory, electrical terms, Ohm's Law, DC and AC circuits, magnetism and magnetic devices, electrical measurements, inductance and capacitance, relays and transformers, motors and generators, circuit protective devices, electrical safety. (Prerequisite: Accepted into Gas Utility Construction \& Service.)

## 31-413-358 ELECTRICITY-GAS

APPLIANCE ...electrical sources/circuits in gas appliances, safe practices, test equipment, reading wiring diagrams, gas/ electrical control functions, ignition systems, sequence of operation and troubleshooting. (Prerequisite: 31-413-348, Electricity Basic)

31-422-310 METALLURGY ...manufacture of iron and steel, mechanical and physical properties of metals, metal identification, macro and microscopic grain structures, welding metallurgy, applied heat treating processes, and weld failures and fractures.

31-442-315 WELDING-GAS SERVICE 1 ...position pipe welding utilizing oxyacetylene and gas metal arc welding, welding safety, weld faults and causes, weld joint design, and fitup. (Prerequisite: Accepted into Gas Utility Construction \& Service; Corequisite: 10-804-312, Math-Algebra Trades)

31-442-325 WELDING-GAS SERVICE 2 ...position pipe welding utilizing gas metal arc welding and shielded metal arc welding processes, pipe fitup, and pipe weld testing according to API 1104 code. (Prerequisite: 31-442-315, Welding-Gas Service 1)
31-469-311 GAS UTILITY FIELD TRAINING 1 ...construction equipment safety and operation (trenching, backhoe, boring), equipment maintenance, gas and vehicular safety, field mapping. (Prerequisite: Accepted into Gas Utility Construction \& Service)

31-469-320 GAS UTILITY FIELD TRAINING 2 ...natural gas line installation standards for plastic pressure testing, fusion, leak detection procedures, general installation procedures and repair of plastic mains and services, introduction to propane gas systems and safety. (Prerequisite: 31-469-311, Gas Utility Field Training 1)

31-469-331 GAS UTILITY FIELD TRAINING 3 ...installation and repair of steel mains and services, applied field welding and maintenance, line testing and leak detection procedures, approved safety installation procedures using hand tools and supportive equipment. (Prerequisite: 31-469-320, Gas Utility Field Training 2)

31-469-340 GAS UTILITY FIELD TRAINING 4 ...installation, maintenance, and repair of residential gas appliances, venting codes, line stoppering equipment, corrosion control, regulators, metering, first aid, and customer service training. (Prerequisite: 31-469331, Gas Utility Field Training 3)

Offered throughout the District. For
information in Green Bays (r20) 498-5444.
For information in Marinette: (715) 735--
9361. For information in Sturgeon Bay:
9361. For information in Sturgeon Bay:
(920) 746 -4900. Toll-free: ( 888 ) 385 -6982.

This program is fully eligible
for financial aid.
Program Description The Gerontology program will prepare
learners with the theoretical knowledge and practical experience necessary to enter careers in service delivery roles as well as leadership roles in the gerontology field. Graduates of this program will possess an ature of gerontology, which includes psychological, sociological and physiological
phanges hhat occur during late adulthood.

## Program Outcomes

Provide recommendations for succe
aging and optimal quality of life.
Evaluate physical, social, psychological and spiritual aspects of aging. Identify and refer
to needed services.
Exhibit behaviors and conduct that reflect safe, legal, and ethical gerontological practices. Evaluate and advocate in the area of aging public policy. Exhibit professional communication Develop ethical and cultural wareness related to aging. Plan, develop, implement and
deliver appropriate activities to deliver appropriate activities to
meet physical, social, psychological needs of the aging population. Create a personal professional development plan.
Investigate and incorporate evidence based gerontology practice

## Requirements for

Program Entry
Completed application.
(For a listof equivalents, go to
www nwtc.edul gettingstarted.) www.nwtc.edu/gettingstarted.) As a requirement for program entry, an
Academic Skills Assessment (Accuplacer or ACT) with appropriate benchmark scores is necessary. Accuplacer Benchmarks are
Arithmetic, 65; Reading Comprehension, 78: Sentence Skills, 75. ACT benchmarks are Math 15, Reading 15, English 16. Applicants not meeting these benchmarks or the equivalent will be required to
establish an individualized academic establish an individualized academic
plan. Upon completion of the plan plan. Upon completion of the plan,
full program or waitist status will b granted. To learn more about these
assesments and program benchmark assessments and program benchmart
scores, please contact an advisor at scores, please contact an advisor at
(920) 498-5444 or (888) $385-6982$.

Attend a mandatory spring

## Wisconsin Caregiver Law

 NWTC is required to comply with the Wisconsin Caregiver Law (1997WISCONSIN ACT a caregiver background check includes the a caregiver background check includes the
review of criminal records for convictions of serious crimes or a history of improper of sehious crimes or a history of improp
behavior. Students accepted into this program must complete a background
check through www.CertifiedBackround check through www.CertifiedBackground com. Information regarding this process
is provided to students immediately upon acceptance into the program. Students with a criminal history may be denied access to placement at the discretion of the clinical or practicum site. Consequently should
a student have a history of convictions of serious crimes or a history of improper serious cimes or a history of improper
behaviors, NWTC cannot guarantee clinical/practicum placement or guarantee

## Employment Potential

 Direct Service Provider: Works "one on-one" with older persons and their families to assess needs, knowledgeresources and delivery of services. Program Planner and Evaluator: Surveys the community to gauge the interests and needs of older persons, designing programs to meet these needs, and evaluating the programs' effectiveness. Manager/Administrator: Supervises
and directs the daily operation of facilities encies prof facilities, agencies, or programs that
serve the aging population Marketing and Product Der Professional: Targets unmet product And service needs of older persons.
and Develops and implements solutions to enhance productivity and independence Educates and refers the aging population to creative technologies that
allow them to "age in place." Advocate: Fosters policies and programs
to benefit the aging based on knowledg to benefit the aging based on knowledge of unmet needs and the ability to communicate in public and private forums. Educator/Trainer: Develops and delivers educational programming responsive to serve them, including informal caregivers. Researcher: Studies the aging process Researcher: Studies the aging proces
and investigates the effectiveness of and investigates the effectiveness of
intervention programs and policies. Environmental Designer: Designn safe living wironments for the elderly populatio Financial Management/Legal Support
Service Provider: Serves as primary contact person for management of financial and legal issues for aging clients and their families.

## Internship

- Students will be required to pay for

Curriculum
Students following the study plan
below will complete the Gerontology
asow will complete the Gerontolog.
associate degree program in the associate degree program in the
number of semesters shown. IRST SEMESTER
10-103-121 Micro: Word-l-ntro
10-544-201 GERO: Introt oero CREDITS
1
 $10-544-202$ GeRR:Physical Aspects of of
$0-801-136$
$0-809-103$
Engish Composition
 410-890-101 College 10
SEMESTER TOTAL

## SECOND SEMESTER

10-544-203 GERO: Heathy Aging
$10-544-204$ GERO: Social Gerontoog
$\qquad$
 $10-809-188$ Develo
SEMESTER TOTAL

10-1010-106
Accounting-for Non
10-104-191
Customer Service




## fourth semester

10-104-110 Marketing Principles
10-19-191 Sunerision

 SEMESTER TOTAL
TOTALCREDTS

## CURRICULUM NOTE

No final grade lower than a "C" is acceptable A sty of the courses marked with an asteris lower than a "C" in a program course
apply for re-entry into the program. "The credit for 10-890-101, College 10 graduation. Consequenunty, itis ot part
liability insurance, provide their own transportation to internship sites, and cover any other expenses related to
internship experiences. Sudents may be internship experiences. Students may be
expected to travel distances to internhhips. Dependent on the site, students may bependent on the site, students may
be required to complete a 2 -step TB test and CPR certification prior to
their internship. Students may be their internship. Students may be
required by the internship site to complete a pre-clinical/internship health records form and/or provide proof of immunizations prior to interning. Students will be required to show
proof of an annual flu vaccine.

## Flexible Learning Option

The entire Gerontology program is offered online WITH THE EXCEPTION The program may be completed in part-time or full t-ime format

10-544-209 GERO: PROGRAMS AND SERVICES IN AGING ...an overview of social policy as it relates to aging and consumer. Students will learn the resources available in the community, eligibility criteria, and how to access and coordinate services for seniors. Supplementing social networking and enhancing mental health functioning for the aging population will
also be discussed. Students will explore different career fields within gerontology (Prerequisites: 10-544-206, GERO: Deat and Dying, 10-544-207, GERO: Legal and Ethical Issues of Aging, 10-544-210,
GERO: Generations \& Diversity Aging)
10-543-210 GERO: GENERATIONS AND DIVERSITY IN AGING ...generational uffect the value and societal expectations of each generation. Also covered will be diversity trends among the older dults inclucing but not imited to race, ethnicity, culture, sexual orientation and
physical, cognitive and developmental disabilitities. Focus on accommodations and accessibility for elderly. (Prerequisites 0-544-201, Intro to Gerontology 10-544-204, Social Gerontology)
10-544-212 GERO: GERONTOLO 10-544-212 GERO: GERONTOLOGY
INTERNSHIP..students integrate concepts INTERNSHIP..students integrate concepts framining in an appropriate setting and raining in an appropriate setting and
actual work experience and observation.
Learners will further develop their critical hhinking skills through communications and counseling experience, client assessment and Lase plan development and implementation provide feedback online throughout the ourse. (Prerequisites: 10-544-206, Death and Dying; 10-544-207, Legal and Ethical Issues of Aging; Corequisites: $10-543$-209, Programs and Services in Aging, 10-543-
210 , Generations and Diversity in Aging

## COURSE DESCRIPTIONS

These courses provide an opportunity skills, and understanding require
for employment in this field. 10-101-106 ACCOUNTING-FOR NON-ACCOUNTANTS ...teaching noninancial information for making inforperet usiness decisions. This class de-emphasizes he use of debits, credits, journal entries 103-121 MICRO: WORD NTRODUCTION ...word processing basics ncluding creating, revising, formatting, umbering; manipulataing text; creati headers/ footers; creating formatting tables, raphics; and merging documents. Windows experience improves successs; consider 1 .
03-111, Windows/Computer Basics.

0-104-110 MARKETING PRINCIPLES marketing management, market segmentation, market research, consumer
behavior, product decisions and management distribution, pricing, promo 0-104-191 CUSTOMER SERVIC ..develop professional telephone environments, identify and renvice work astomer service failures, resolve problens ,set complaint policies, and develop communication techniq 0-196-191 SUPERVISION ...front-line Eaadership including teamwork, setting communication, motivation, performance solving, and conflict management.
10-544-201 GERO: INTRO TO be $f$ ld demographic, biological, psychologia and social aspects of the aging process.
0-544-202 GERO: PHYSICAL ASPECTS OF AGING ...study of normal and pathological changes occurring in the aging human body with special emphasis on ageelated chronic diseases. Topics addressed include: analysis of biological theories
of aging, cultural and ethnic influence on aging pathologies, and other factors impacting the aging process. (Corequisites:
10-544-201, Intro to Gerontology; 10-10-544-201, Intro to Gerontology;
801-136, English Composition 1) 0-544-203 GERO: HEALTHY AGING .overview of practices to promote healthy ging. This course will address nutrition, physical activity and prevention practices
as well as an overview of medications commonly prescribed for the older adult. Emphasis will focus around the "well" elderly population and practices identified
to address current aging trends.

10-544-204 GERO: SOCIAL GERONTOLOGY ...view of aging in respect to social roles and processes. Iopics family relationships, social supports,
economics, retirement, widowhood, poverty and politics of aging. (Prerequisites: 10-544-201, Intro to Gerontology,

0-544-205 GERO: ALZHEIMER'S ND DEMENTIA DISEASE ...study dementia. Students will differentiate between stages of dementia and Alzheimer's disease. By analyzing normal brain processes and how these diseases affect brain function, students gain insight on best practices in asponding to the needs of this popula 10-544-206 GERO: DEATH AND DYING ..study of losses across the lifespan associated
with death and dying. Socieal and personal with death and dying. Societal and personal
views of death, dying, and bereavement and ecommendations for healthy transitions in coping with loss will be explored. 0-544-207 GERO: LEGAL \& ETHICAL ISSUES OF AGING ...covers concepts ethical realm of gerontology including
Power of Attorney for health care/finance ower of Attorney for Heall care)finance, uardianships, trusts, reallocation of assets benefits, supplemental insurance, Social Security, elder abuse/neglect, financial exploitation, reporting abuse/neglect and relevant governmental policy. Learne
will be able to apply knowledge by learning advocacy techniques to benefit enior populations on a community, ocal, and federal level. (Co/Prerequisites: 10-544-201, Intro to Gerontology) 0-544-208 GERO: DEVELOPING THE GERONTOLOGY PROFESSIONAL ..exploration of effective communicale
syles and interview techniques for developing rapport and relationships with aging populations. Other topics include ethics and boundaries, self-determination, case plan development and implemen
documentation skills, research and grant funding, and compassion fatigue. (Prerequisites: Prerequisites: 10-544-201,
GERO: Intro to Gerontology; 10-544-202, GERO: Intro to Gerontology; 10-544-202
GERO: Physical Aspects of Aging; 10-544GERO: Physical Aspects of Aging; 10-424 203, GERO: Healthy Aging; 10-544205, GERO: Alzheimer's and Dementia Disease; 10-544-206, GERO: Death and Dying; 10-544-207, GERO: Legal \& Ethical Issues Aging; 10-544-210, GERO enerations and Diversity in Aging)

A Waukesha County Technical College program offered at Northeast Wisconsin Technical College. For information call Toll-free: (877) 463-9282.

This program is eligible for financial aid ONLY through Waukesha County Technical College.

## Program Description

Global Business Specialist graduates are prepared to help their employers navigate in a global economy. Importing and exporting products and services is a key job responsibility along with coordinating global marketing, finance and logistics. Identifying regulations and understanding documents that facilitate the global supply chain are other duties you will perform. To prepare for this career, you can take advantage of WCTC's award-winning Global Trade Solutions seminars, workshops and other global business community services.

- Work toward your degree in stages by completing certificates in Export, Import, Global Business Management, International Marketing and Global Business.
- Prepare to take the NASBITE Certified Professional TM (NASBITE CGBP TM) credential exam.
- Evening completion options available.


## Program Outcomes

- Demonstrate the ability to complete an export trade.
- Utilize terms of sale to minimize the risk involoved in global trade.
- Analyze potential markets in order to develop an appropriate target market entry plan.
- Utilize letters of credit to minimize the risk involved in global trade.
- Demonstrate awareness of the effect of currency fluctuation as it relates to international transactions.
- Demonstrate the ability to function effectively as a member of a team.
- Communicate effectively with coworkers and international customers both verbally and in writing.
- Demonstrate awareness of the influence of cultures and languages involved in global trade.
- Demonstrate basic math and computer skills in order to function effectively in global business.


## Requirements for

 Program Entry- Global Business is a collaborative program between WCTC and NWTC. Application for this program must be completed through WCTC.


## Employment Potential <br> Wages of Recent Graduates:

- Average Salary: \$42, 000
- Average Hourly Wage: \$20.21
- Three-year average: $\$ 38,814$

Selected Job Titles of Recent Graduates:

- Account Executive, Exports, Others from DACUM?


## About Shared Programs

- Courses will be offered online
(NET) from WCTC.
- Contact WCTC for all benchmark scores.
- This program is fully eligible for Financial Aid only through Waukesha County Technical College.


## COURSE DESCRIPTIONS

These courses provide an opportunity for students to develop the knowledge, skills, and understanding required for employment in this field.

10-101-105 ACCOUNTING FUNDAMENTALS ...use a survey approach to learn the accounting process and to gain a general knowledge of the accounting principles and financial accounting procedures applied to business budgeting. This course is for non-accountants.
10-102-160 BUSINESS LAW 1 ...examine the legal and ethical environments of business, including positive law, criminal and tort law, contracts, sales law, business formation, government regulation, agency, bailment, property, ethics, and social responsibility.

10-102-100 CONTEMPORARY BUSINESS ...develop a basic understanding of the principles and terminology used in the business world, and gain insight into the fields of marketing, business management, data processing, and accounting.

10-104-102 MARKETING PRINCIPLES ...explore marketing principles as found in the American business system, with an emphasis on consumer behavior, consumer and industrial products, distribution, market research, market segmentation, promotion, pricing, and international marketing
10-104-191 CUSTOMER SERVICE MANAGEMENT ...explore the skills, attitudes, and thinking patterns required to manage customer satisfaction and loyalty. Develop the ability to lead and expand the customer service process, learn techniques for dealing with unhappy customers, and build skills for analyzing customer needs.

10-106-110 MICROCOMPUTER BUSINESS APPS 1 ...an overview of Microsoft Office software and its five major applications: Microsoft Word, Excel, Access, PowerPoint and Outlook. Also gain an understanding of the Windows operating system and Internet Explorer.

10-138-150 GLOBAL BUSINESS FUNDAMENTALS ...review the fundamentals of global business in an effort to understand how the environment, world history, and political systems impact the global trade arena. Discuss trading blocks, including NAFTA, Mercosor, the EC and the WTO, in the context of the global economy.

10-138-155 GLOBAL MARKETING ...analyze how commodities and industrial products are globally marketed, focusing on the concepts of distribution channels, trade patterns, competition, product planning and life cycle, advertising and promotion and market research.
10-138-165 GLOBAL SUPPLY CHAIN LOGISTICS ...develop an in-depth understanding of the flow of documents, ISO, and compliance issues in relationship to U.S. export control laws. Learn the basics of ocean/air rate calculations. Discuss trade treaties such as NAFTA and their impact on documents and transportation.

10-138-166 GLOBAL SUPPLY CHAIN SOURCING AND PROCUREMENT ...explore the process of identifying, qualifying and negotiating the purchase of goods and services from global sources of supply. Learners will examine the combination of cultural, logistical and financial factors encountered when purchasing offshore. Course competencies include an offshore. Course competencies include an
understanding of Incoterms, the harmonized system, import procedures, methods of payment, and conflict resolution. Course competencies align with the CGBP domain \#3 and selected task skills from domain \#1.

10-138-180 GLOBAL TRADE FINANCE ...examine the intricacy of the foreign market and hedging against fluctuations. Explore the global capital market, the development of the Euro, and major types of risk in export financing.

10-138-185 GLOBAL BUSINESS APPLICATIONS ...draw on the skills learned in past coursework while completing a project that incorporates international market research, international organization and planning skills, international correspondence and documentation, price calculations, and international transportation

## Curriculum <br> The Global Business Associate Degree is a two-year, four semester collaborative program between Waukesha County Technical College and Northeast Wisconsin Technical College. Upon completion, students will have completed 69 credits.

## FIRST SEMESTER

CREDITS 10-102-185 Contemporary Business 10-104-102 Marketing Principles 10-106-110 Microcomputer Business Apps 1 10-138-150 Global Business Fundamentals 10-801-195 Written Communication 10-804-123 Math w Business Apps SEMESTER TOTAL

## SECOND SEMESTER

10-101-104 Accounting Fundamentals 10-104-190 Customer Service Management 10-138-155 Global Marketing 10-138-165 Global Supply Chain Logistics 10-809-172 Intro to Diversity Studies 10-809-195 Economics
SEMESTER TOTAL

## THIRD SEMESTER

10-102-149 Business Law 1
10-138-166 Glbal Supp Chn Sourcng \& Proc 10-801-197 Technical Reporting 10-809-115 Global Cultural Awareness 10-809-199 Psychology Of Human Relations SEMESTER TOTAL

## FOURTH SEMESTER

10-138-185 Global Business Applications 10-138-186 Certified Global Business Prof 10-138-194 Import Compliance 10-138-195 Export Compliance 10-140-101 Global Cultural Experience OR
10-140-120 Study Abroad
O-801-196 Ora//Interpersonal Comm 10-809-116 Global Cultural Awareness II SEMESTER TOTA

## CURRICULUM NOTE

General Studies courses ( $10-8 \mathrm{XX}$-XXX) may be taken at NWTC if students meet NWTC benchmark scores. Written Communication, 10-801-195, is available only from WCTC. NWTC's Program Benchmarks are Arithmetic, 65 ; Reading Comprehension, 55; Sentence Skills, 75 for courses that begin with $10-8 \mathrm{XX}$-XXX.

10-138-186 CERTIFIED GLOBAL BUSINESS PROFESSIONAL (CGBP) REVIEW ...prepare for the national NASBITE CGBP certification exam in this course. Learners will review the four domains and key duties, tasks, and knowledge statements associated with the CGBP exam and answer mock certification exam questions developed by the instructor to help prepare for testing. The course also explores test-taking strategies, how to study for the exam, and where and how to signup. Individuals working in global business related occupations and preparing for the CGBP may benefit from this course.
10-138-194 IMPORT COMPLIANCE ...learners will examine compliance requirements related to importing goods in support of global business operations. Course competencies will include developing import related purchasing documentation, creating other import related documentation, examining import controls and licenses, and exploring import related security. Learners will develop an import compliance program in response to business case studies or scenarios.

10-138-195 EXPORT COMPLIANCE ...learners will examine compliance requirements related to exporting goods in support of global business operations. Course competencies will include developing export related sales documentation, creating other export documentation, examining export controls and licenses, and examining export related security. Learners will develop an export compliance program in response to business case studies or scenarios.

10-140-101 GLOBAL CULTURAL EXPERIENCE ...refer to www.wctc. edu for this course description.

10-140-199 STUDY ABROAD ...provides the opportunity for the learner to develop the knowledge, skills, process and understanding of international study abroad experiences. It applies theories of culture and explores a variety of concepts associated with international travel and interacting with people of other cultures.

Health Care Business Services Program Code 101601 | Associate Degree

Offered throughout the District. For
information in Green Bay:
(920)
 This program is fully eligible
for financial aid.

## Program Description

Health Care Business Services prepares a
student to work in the business office of
medical and
medical and dental clinics, hospititals, nursing
homes, related healthare faicitises and
health insurance settings in administative,
health insurance settings in administraa
financial, and customer sevvice roles.
Students who have an interest in the
business and information aspects of healthcare, but are unnure of their of
preferences in this srowing feld $h$ teve preferences in this srowingleed, have a
special opportunit to explor their opions.
The Health Information Technology and Health Care Business Services programs
share many courses throughout the share many courses throughout the
curricilum. This allows students to explo
opportunitites in both fields. This is a opportunities in both fields. This is a
unique opportunity within the College.

## Program Outcomes

Follow federal, state, and local
laws and regulations. Identify marketing methods and
benefits for health care facilities. Process patient accounts receivables.

- Schedule patient appointment:

Use medical terminology.
Use ICD and CPT/HCPCS coding Complete and process heal
insurance claim forms. Process medical records
and storage procedures. - Identify components of the U.S.
healthcare delivery ysstem. Apply computer skill s specific to
health care and health insurance. Record accounting and financial
transactions in a medical setting. transactions in a medical sed
Use a computer keyboard. - Invesigate effective telephone techniques. - Explore components of th
employment interview.

## Wisconsin Caregiver Law

 NWTC is required to comply withthe Wisconsin Caregiver Law (1997 the Wisconsin Caregiver Law (1997
WISCONSIN ACT 27). The completion of
a caregiver backround check includes the a caregiver background check includes the
review of criminal records for convictions of serious crimes or a history of improper
behavior. Students accepted into this program must complete a background com. Information regarding this process
is provided to sudents immediatly upon acceptance into the program. Students with
a criminal history may be denied access to
placement at the discretion of the clinical or practicum site. Consequently, should a student have a history of convictions of
serious crimes or a history of serious crimes or a history of improp
behaviors, NWTC cannot guarantee behaviors, Nicuc cannor guarantee
clinicul/
graduation within tacement or guaral program timing.

## Employment Potential

A graduate of this program will have
the potential for employment as:

- Admitting Representative
- Aplaims Analyst
- Insurance Billing Specialist


## COURSE DESCRIPTIONS

 These courses provide an opportunityfor students to develop the knowledge. Yor students to develop the kno
skills,
for emplonderstanding gequir
forn in this field. 10-101-106 ACCOUNTING-FOR accountants to read, analyye, and interpret financial information for making informed
business decisions. This class de-emphasizes the use of debits, credits, journal entries 0-103-111 MICRO: WINDOWs , desktop elements, help featuress follder
and file management (create, delete,
move, find file), and Search strategies. move, find file), and Search strategies.
Blackboard, internet, and e-mail usage.
10-103-121 MICRO: WORDINTRODUCTION ...word processing basics dinting: sections, tabs multiple-pase numbering; manipulating text; creating traphics; and merging documents. Windows 2perience improves successs consider 1
0-103-131 MICRO: EXCEL-
enhancing worksheet appearance, moving and copying data, using formpulas and moving fions, reating charts and using clip art. Windows experience improves successs consider 10 .
$103-111$, Windows/ Computer Basiss.
0-103-141 MICRO: ACCESS modifying database tables, compacting a daratabse, mamanaging recerorss dompactining table
relationships, creating queries, calculataions, relationships, creating queries, calculatio
and aggregate functions, sorting, and
using forman report wizards Windows and aggregate functions, sorting, and
using formmereport wizards. Windows
using experience improves successs consider 10
103-111, Windows/Computer Basics. 10-103-151 MICRO: POWERPOINTINTRODUCTION ...presentation skills using: graphics, diagrams, design
themes, sounds, animations, slide transitions, and integration with other software. Windows experience improves
success; consider 10-103-111, Windows/ Computer Basics. (Corequiste: 10 -
103-121, Micro: Word-Intro)
10-104-191 CUSTOMER SERVIC ...tevelop profesional telphone environments, identify and analyze work
customer service customer service failures, resolve problem
cost effectively, set complaint policies, cost effectively, set complaint policies
and develop communication techniq

Patient Services Representative
Provider Relations Associate Financial Counselor
Medical and Insurance Customes
Service Representative
Sure
Wperience, graduates may find or work pportunities for employment. Clinic Office Supervisor or Manager Hospital Administrative A - Nursing Home Administrator Nursing Home Administrative Assistant Patient Accounts Supervisor Cerif nsurance Supervisor/Traine Health Insurance Providist

Physician Relations Administrator

## Internship

 Sudents will be required to pay for cansportation to internship sites, andover any other expenses slated to cover any other expenses reated to
internship experiences. Sudents may be
expected to travel distances to internships. Students will be required to complete
a careviver backround check A fee
is charged for this service Additional information will be provided upon
acceptance into the program. Sudents will be required to show the past 12 months prios to their internship. A fee is charged for this service. Students nay be required by the internship site to
rovide proof of immunizations prior to provide proof of immunizations prior to
interning. Additional information will be
provided upon acceptance int Students will be required to show roof of an annual flu vaccine. an internship assignment. Students may petition by submitting a "Petition 10 Enter Internship" form to the
Health Sciences Department office Health Sciences Department office
according to the following schedule: Spring semester internship
deadline is September 30. Fall semester internship
deadline is February 28 . NWTC will make every effort to request. However, NWTC cannot guarantee an internship site assignmen
in the semester being requested.

## Requirements for

 Program Application
## High school transcript or equivalent.

 High school transcript or equivale(For a list of equivalents, go to
www..nwt.edul gettingstarted.) Admision Assessment or equivalent or ACT assessment taken within the please contact a Counselor.) Typing proficiency of 30 words per minute
(mandatory preadmission typing test to be aken at the NWTC Assessment Center).

## Requirements for

Program Entry
As a requirement for program entry, an
Academic Skills Assesment (Accuplacer) with appropriate benchmark scores is Acessary. Accuplacer benchmarks are

## Curriculum below will complete hhe Health Care Business Services associare degree on-

FIRST SEMESTER | CREDDTs |
| :---: |
| Basis |



 ${ }^{\text {"10-890-101 }}$ College 10 SECOND SEMESTER
$10-103-131$
Micro: Excol

 semestertotal THIRD SEMESTER
10-101-106 ACcounting-for Non-Accountants
10.103-141

 SEMESTER TOTAL

| FOURTH SEM |  |
| :---: | :---: |
| ${ }^{10} 10-160-140$ | HCBS Intersship |
| ${ }^{4} 10-160-167$ | HCBS Ca |
| +10-160-165 |  |
| 0-166 | Med |
| 9-172 |  |
| 10-809-195 | Economics |
|  | Intro to Sociology |
|  |  | TOTAL CREDTS

CURRICLLUM NOTE
 student who withdraws or reesives a gaded lower
than a accin in a program course may apply for
 "The credit or $10-890-101$, College
 A candidiate who does not meet the requirements
for program entry should meet with an NWTC
 any deficiencies through testing or course work.
 197) and CPT Coding (10-530-184) in place of
Diagnostiofrocoedure Cooding (10-530-155).

78; Sentence Skills, 90. Applicants not meeting these benchmaths or
the equivalent will be required to
establish an individulized academic plan. Upon completion of the plan,
full program or waitlist status will be fill program or waitists status wiil be
granted. To learn more about these assessments and program benchmark
scorses please contact an advisor at
or scores, please contact an advisor at
(920) 498 -544t or (888) $385-6982$.

## lexible Learning Option

- The majoritity of Health Care
Busisenss esivices program

The program may be completed it
a part-ime or full-time format.
The following certificatestrechnical diplomas 901041 , Health Care Business Services Certificate

SERVICES INTERNSHIP ...career planning, resumes, interviews, search strategy,
actual health care work experience, applied vorkplace improvements and ethical model Prerequisites: Accepted in the Health Care Business Services Program; 10-530-155, 0-160-166, Medical Billing Processes)
0-160-143 MEDICAL PRACTICE medical scheduling, admissions, medical rocessese, manageed care procedures, empati iversity, medical records, confidentiality, information systemst, regulation, office 103-111, Micro: Windows Intro; 10-103121, Micro: Word-Intro; 10-530-176, Health
Data Management; 10-530-155, Diagnostich Drat Managements; 10-30-30-155, Diagnostic
Procedure Coding; 10-100-161, Insurance Health Principles; Corequisite: 10-101-0-160-151 HEALTHCARE RELATION .financing of healthcare, managed care participants and products, integrated systems,
organizational structure, provider networks, purchasers, cost containment, quality of care, regulation, and accountability. (Prerequisite:
10-160-161, Insurance Health Principles)
0-160-161 INSURANCE HEALTH PRINCIPLES ...this course presents Common heath insurance terminology
Sudents are introduced to various insurance programs including: private health insurance, Workersí Compensation,
disbbility insurance hospital insur disability insurance, hospital insurance, government plans including: Medicare,
Medicaid and TriCare. (Corequiste: 10 -
$530-172$, Healthcare Delivery Systems)
0-160-165 HCBS ORGANIZATIONAL RESOURCES...a study of the principles of management to include planning, organizing and controlling as related to the health information department. (Corequisite: 0-100-166 MEDICAL BILLING PROCESSES...optimizing key billing and collection processess breaking down the
billing and collection process granting iilling and collection process, granting
credit in a medical facility, examine expected performance outcomes and advanced
billing practices. (Prerequisites: 10-101billing practices. (Prerequisites: 10-10100, Accounting for Non-Accountants,

10-160-167 HCBS CAPSTONE 10-160-167 HCBS CAPSTONE ...
aternative to the internhhip. . May include
an indepeph study of a healthcare provider, an in-depth study of a heald chare provider,
businesss career or ob shadowing.
(Prerequistes Accepted in the Healh (Prerequisites: Accepted in the Healh Care
Business Services program; 10-530-155, Diagnostic/Procecure Codings, Corequisiste: 10-501-101 MEDICAL TERMINOLOGY ...focuses on the component parts of
medical terms: prefixes, suffixes, and medical terms. prefixes, suffixes, and
root words. Sudents practice formation, analysis and reconstruction of terms.
Emphasis on spelling, definition and pronunciaion. Inroduction to operative,
diagnostic, therapeutic and symptomatic diagnostic, therapeutic and symptomaic
terminology of all body systems, as well
Is systemic and sugid as systemic and surgical terminology. 10-501-102 INTRODUCTION TO
DENTAL TERMINOLOGY introduces denal vocabulary and terms used in the dental office. Topiss include word $p$ p
root words and basic dental terminology. 10-530-155 DIAGNOSTIC/PROCEDURE of Diseases and Current Procedural Terminology with emphasis on coding
skills, use of this classification system in skills, use of this classification system in
health care settings, its application for statistical and reimbursement purposes.
(Prerequisites: 10-501-101, Medical Terminology; 10-806-189, Basic Anatomy) 10-530-172 HEALTHCARE DELIVERY
SYSTEMS....xamines the organization, financing, reegalation, and delivery of health care services. Includes the
study of healthcare professionals. 10-530-176 HEALTH DATA MANAGEMENT...introduces the use and
structure of health care data elements, data sets, data standards, their relationships to primary and secondary record systems and
health information processing. (Corequist health information processing. (Corequis
10-530-181, Intro to Health Record) 10-530-178 HealthCARE LAW \& ETHICS ...xamines regulations for the
content, use, confidentiality disclosure
and retention of heald inf and retention of health information. An
verview of the legal system and ethicl overview of the legal system and echical issues
are addressed. (Prerequiste: $10-530-176$, are addressed. (Prerequisite: 10-530-176,
Health Data Management; accepted in the Health Information Technology program,
Health Care Businsss Services program or Health Care Business Services program o
Medical Coding Specialist certificate) 10-530-181 INTRO TO THE HEALTH
RECORD ... illustrate the elow of health information in various health $c$ delivery systems and within the health
information department information department, retrieve data
from health records, professional e ethice from health records; professional ethics;
confidentiality and security of information.

Health Information Technology Program Code 10580| | Associate Degriee


##  



 10.103.121 MiCRO: WORD.
INTRODUCTION .word


 10-10-13-13. MICRO: EXCLI-
INTRODUCTION
..crating
 experience impores success conider 10.



 10-10.15-151 MICro: Powerpoint
INTRODUCTION ..ppesenation diliss
































Heating, Ventilation, Air Conditioning
and Refrigeration Technology Program Code 106011 | Associate Degree


## COURSE DESCRIPTIONS

 These courses provide an opportunityfor students to develop the knowledge,
sill skills, and understanding requir
for employment in this field.
10-103-111 MICRO: WINDOWS/ COMPUTER BASICS .... Windows
desktop elements help features folder
and fle manasement (create, deleter and file management (create, delete,
move, find file), and Search strategies
Blackboard internet, and e-mai usage.
10-103-121 MICRO: WORD INTRODUCTION ...word processing basic printing, sections, tabs, multiple-page numberings, manipulating text; creating
headers footers; creating/ formatting tables raphics; and merging documents. Windows experience improves success, consider
103-111, Windows/Computer Basics. 10-103-122 MICRO: WORD-PART hcluding working with headers/footers, inserting quick parts, themes, syles, sort and
select, footnotess end notes, images, shapes,
shared documents, specialized tables and indexess formss and sharing data. (Corequiste:
(0-103-121, Micro: Word-Intr) -103-121, Mico
10-103-131 MICRO: EXCEL NTRODUCTION ...creating a worksheet, enhancing worksheet appearance, moving and
copying data, using formula and functions,
creating charts and using clip art. Windows experience improves success; consider 1 .
10-103-132 MICRO: EXCEL-PART 2...advanced formatting techniques
and functions, working with templates
collaborating with multiple Excel sers, creating macros, Excel's database Eatures and analysis tools. (Corequis
$0-103$-131, Micro: ExcelIntro) 10-103-141 MICRO: ACCESSodifying database ...creates, compa database, managing receorsds, definining table
relationships, creating queries, calculations, relationships, creating queries, calcula
and aggregate functions, orting, and
using formm/report wizards. Windows experience improves successs consider 10
103 -111, Windows/Computer Basics.

0-103-142 MICRO: ACCESS-PART 2 ..creating advanced queries, custom forms,
multi-page forms, custom reports, pivot multi-page forms, custom reports, pivot
tables, pivor charts, and abess. (Corequis
10-103-1411, Micro: Access-Intro) 10-103-151 MICRO: POWERPOINT NTRODUCTION ...presentation skills using: graphics, diagrams, desigg
themes, sounds, animations, slide transitions, and integration with other software. Windows experience improves
success; consider 10-103-111, Windows $/$ Computer Basis.s. (Corequiste 0-103-160 MICRO: OUTLOOK .use email, distribution listss signatures,
attachments, and task lists, schedule Ppointments and meetings using the alendar; flag, filer, sort, and merge contacts, use message delivery
archive messages and folders.
10-601-111 HVAC/R ELECTRICAL FUNDMENTALS ...AC and DC principles to circuits, electrical power suplies, wiring materials, meter
peration, test and roubleshoot switching circuits using industry standard meters and techniques. (Prerequisite:

10-601-113 HVAC/R REFRIGERATION residential/light commercial reffigeration p, service, repair and troubleshooting sing industry standard tools and techniques, evacuation, recovery, charging
techniques, Federal certification preaparation. Prerequisites: 10-601-121, HVAC/R Heating Fundamentals and 10-601-127, VAC/R Control Circuits, Co-requisite 0-601-116 HVAC/R MECHANICAL standard first aid, CPR, OSHA 10 hour course, ladder safety, lockout/tagout
electrical procedures, mechanical math, wer tool usasa. (Prerecequisites: Accepted into the HVAC/R Technology Program. Co-requisites: $10-601-111$, HVAC/R HVAC/R Refrigeration Fundamentals) 10-601-121 HVACIR HEATING
UNDAMETALS...priciples of
OMDsion FUNDAMENTALS ...principles of
combustion for fossil fuels, burner set-up,
heating system basiss combustion teeting heating system basics, combustion testing
for residential systems, and basic mechanical or residential systems, and basic mechanic
heating service. (rreerequisites: $10-601-111$
HVAC/R Elecrical Fund; $10-601-133$, HAC/R Refigig Fund; 10-601-116, HVAC
 601-127, HVAC/R Control Circuits 10-
$001-159$, Mech Serv Apps \& Sheet Metal)
10-601-127 HVAC/R CONTROL IO-G01-127 HVAC/R RONTROL
CIRCUTTS. .relay and HVCC/R electrical
control circuit schematic development and malysis, wiring, testing and troubleshootiin
day and HVACR lay and $H V A C / R$ control circuits;
diagnose common HVAC/R system diagnose common HVAC system
probems by analying the control circuit.
Prerequisites. $10-601-111$ HVAC/R Precequisitess $10-601-111$, HVAC/R
Electrical Fund $10-001-133$ HVACR Refrig Fund; 10-601-116, HVAC/R Mect Refrig Fund; 10-601-116, HVAC/R Mech
Svc Fund \& Safery; Corequisites: $10-601$ 21, HVAC/R Heating Fund; $10-601$
59 Mech Sery Aps $\&$ Sheet Meal)
0-601-128 HVAC/R HEATING SYSTEM .heating controls, heating control circuit bssil fuel systems, wiring, start-up and ervice of residential furraces. (Prerequisites: 0-601-121, HVAC/R Heating ontrol Circuits; Co-requisite 10-601-1 VAC/R Refrigeration and AC Appl.)
10-601-131 HVAC/R HEATING SYSTEM APLLCATIONS ...interpreting control srvice and troubleshooting residential a Tooftops and split systems. (Prerequisiste:
00-601-132, HVAC/R Air Conditioning O-601-132, HVAC/R Air Conditioning
Appliacions; Corequiste: $10.61-147$, Applications; Corequisite: 10-601-147,
HVAC/R Motor Control Application) 10-601-132 HVAC/R AIR
CONDITIONING APPLICATIONS ...air properties, air system component
application fundamentals, indoor air quality fundamentals, system measurement
adjustment, and troubleshooting to control emperature and humbeshooting to control
Prerequisites: $10-601$-1113, HVAC/ systems Refrig Prerequisites: 10-601-113, HVAC/R Refrig) Cond Syst, 10 $\mathbf{C 1 - 1 2 8 , \text { HVAC/R }}$ Heating Systems; Corequisite: 10-601
147, HVAC/R Motor Contro Appl)
0-601-133 HVAC/R REFRIGERATION UNDAMENTALS ...principles of temperature, heat and pressure measuremen stem component operation, testing for
proper system operation using industry standard tools and practices. Prerequisites
Accepted into HVAC/R or Marine Accepted into HVAC/R or Marine
Construction program: Corequistes: $10-601$ Construction Program: Corequisistes: $10-601$
16, HVAC/R Mech Svc Fund \& S Sefey; $10-$
10

0-601-135 HVAC/R HYDRONIC YSTEM APPLICATIONS .... hydronic | Sindamentals, piping systems, pipe |
| :--- |
| sizing boiler applicatioss system design | fundamentals, system piping installation for conventional systems, radiant yssems, and forced air systems, system

component operation, sclection service and component operation, selection service and
troubleshooting. (Prerequisites: 10-601-131, HVAC/R Heating Systems Applications;
10-601-147. HVAC/R Motor/Control 0-601-147, HVAC/R Motor/ Control Applications; Corequisite 10-601-143
HVAC/R Refrigeration Applicaions)
10-601-139 HVAC/R BUILDING PLANS
AND SPECIFIATOTONS for reading various types of construction
drawings, specifications, and other related pes of drawings emphasis on the are commonly used in the HVAC trade Prerequisites: 10-601-131, Heating Sstem Applications; 10-601-147, Corequisites: $10-601-135$, HVAC/R Cydronic System Applications 10-601-
Hy, 10-601-141 HVAC/R SYSTEMS SERVICE analyze, set up, and troubleshoot ther
phase motor starting systems, damper
cuators, and economizers; advanced Service and troubleshooting of commerciad HVAC/R systems including rooftops, and
split systems. (Prerequisites: $10-601-143$, HVAC/R Refrigeration Applications; 10-601-135, HVAC/R Hydronic System Applications; Corequisite: 10-601-145
HVAC/R Control Systems Applications)
0-601-143 HVAC/R REFRIGERATION APPLICATIONS ...refrigeration system piping, load calculation, stizng, and
component selection, esvice, , roubleshoot
and repair commercial refrigeration systems and repair commercial refrigeration syste
including walk-in coolers freezers, reachincluding walk-in cooleresf feezers, in coolersffreezers and ice machines.
(Prereuusitess $10-601-113$, , Heating System
Applications; $10-601-147$, HVAC/R Motor Applicationss 10-601-147, HVAC/R Mo
Control Applications; Corequisite: 10-1-135 Hydronic System Applic 0-601-145 HVAC/R CONTROL
YSTEM APPLICATIONS ...HVAC dectric, electronic, preumatic, and Computerized control systems for hydronic
and air systems. Control application and air systems. Control apppicition
fundamentals, system wiring, start-up and troubleshooting. (Prerequisites: 10
$601-135$, HVAC/R Hydronic System Applications; 10-601-143, HVAC/R Refrigeration Applications Corequisite
O-601-141 HVAC/R System Service)
$0-601-147$ HVAC/R MOTOR CONTROL ngle-phase AC induction motors and notor starting componenns used in the
HVAC/R industry with an emphasis reffigerationdasir conditioning emphasis on
motessors and components. (Prerequisites: motors and components. Prerequisites:
no-601-113, HVAC/R Refrig/ Air Cond 10-601-113, HVAC/R Refrig/Air Co
Syst $10-601-128$. HVAC/R Heating Syst, 10-601-128, HVAC/R Heating Systemss; Corequisite: $10-601-132$,
HVCA/R Air Conditioning Applications) 10-601-159 HVAC MECHANICAL
SERVICE APPLICATIONS/SHEET METAL ...copper soldering and brazing, oxy-acetylene torch usage for welding
and brazing steel, sheet metal layout and and drazing steel, sheet metal layout and
fabrication, PVC assembly and black iron Piping procedures. (Prerequisitess $10-601-$
111, HVAC/R Electical Fundamenals 111, HVAC/R Electrical Fundesmentals;
10-601-133, HVAC/R Refriceration Fund; $10-601-1116$, HVCefrigeration
Fund $\&$ Sectery: Corequisite: $10-601-121$ Fund \& Safery; Corequisite: 10-601-121
HVAC/R Heating Fundamentals; 10HVAC/R Heating Fundamentals, 10
601-127, HVAC/R Control Circuits)

## Hotel \& Restaurant Management Program Code 101092 | Associate Degree

Offered at the Green Bay and Sturgeon Bay campuses. For information in Green Bay: (920) 498-5444. For information in Sturgeon Bay: (920) 746-4900. Toll-free: (888) 385-6982
This program is fully eligible for financial aid.

## Program Description

Hotel and Restaurant Management prepares students for a variety of mid management positions in lodging operations, food service operations, and tourism services. The program is grounded in experiential learning and involves
extensive internship requirements.

## Program Outcomes

- Develop a personal career plan
in the hospitality industry
- Maximize profits in the lodging
and food service industry.
- Manage cleaning and sanitation operations in the food service and lodging industry.
- Maximize facility productivity.
- Understand preventive maintenance and equipment service.
- Manage quality customer service systems.
- Apply product presentation principles in the hospitality industry


## Requirements for

## Program Entry

- Completed application.
- High school transcript or equivalent.

For a list of equivalents, go to
www.nwtc.edu/gettingstarted

- Students should have mastered basic math skills. For a description of basic math, see the Basic Education section of this catalog.
- As a requirement for program entry, an Academic Skills Assessment (Accuplacer) with appropriate benchmark scores is necessary. Program benchmarks are Arithmetic, 65; Reading Comprehension, 55: Sentence Skills, 75. Students not meeting these benchmarks or the equivalent will be required to establish an individualized academic plan. Students may have the opportunity to enroll in selected program core courses
while completing their individualized plan. Upon completion of the plan, students will be eligible for all program courses. However, higher test scores will lead to greater success in core program courses. To learn more about these assessments and program benchmark scores, please contact a counselor at (920) 498-5444 or (888) 385-6982.


## Employment Potential

Tourism is Wisconsinís fastest-growing industry and there are many interesting and challenging opportunities for relocating to work throughout Wisconsin the Midwest, and the United States.
A graduate of this program will have the potential for employment in the following areas:
Front Office Manager: coordinates the reception and control center for servicing guests, directs and supervises front office staff, and maximizes room revenue through room inventory control. Event Service Manager: coordinates activities of staff and personnel to make arrangements for group meetings and events.
Food Service Manager: coordinates food service activities of a hotel/restaurant or similar establishment, plans food service activities, schedules employees, oversees service, and controls costs. Executive Housekeeper: supervises housekeeping employees, trains new hires, housekeeping employees, trains new hires,
requisitions supplies, controls inventory, requisitions supplies, controls inventory,
and inspects personnel work assignments.
Sales Manager: plans and administers sales programs to generate sales in a hotel or tourism organization, organizes prospect files, plans and prepares advertising and promotional materials, and arranges for publicity.

With additional education and/or work experience, graduates may find other opportunities for employment.

- General Manager
- Marketing Director
- Restaurant Manager
- Catering Manager


## Curriculum

Students following the study plan below
will complete the Hotel \& Restaurant
Management associate degree in
the number of semesters shown.
FIRST SEMESTER
CREDITS
10-101-190 Accounting-QuickBooks 10-102-158 Business Principles 10-103-121 Micro: Word-Intro 10-103-131 Micro: Excel-Intro 10-105-102 Career Planning 10-801-136 English Composition 1
10-804-123 Math w Business Apps 10-890-101 College 10
SEMESTER TOTAL
SECOND SEMESTER
10-104-101 Selling Principles
0-109-126 Hospitality Finance
10-801-198 Speech
10-809-195 Economics
SEMESTER TOTAL

## HIRD SEMESTER <br> 0-102-160 Global Business Mgmt

0-104-110 Marketing Principles
10-104-119 Social Media Marketing
10-105-103 Career Preparation
10-109-127 Hospitality Facilities Mgmt 10-145-185 Organizing Your Small Business OR
0-196-145 Workplace Innovation

| 0-809-103 Think Critically \& Creatively |
| :--- |
| 3 |

## FOURTH SEMESTER

${ }^{10-102-150}$ Business Law \& Ethics 0-104-125 Event Marketing
10-109-168 Restaurant Management 10-109-199 Hosp Tour Career Experie 10-809-199 Psychology Of Human Relation SEMESTER TOTAL
TOTAL CREDITS
CURRICULUM NOTE
*The credit for 10-890-101, College 101
'The credit for 10-890-101, College 101
graduation. Consequently, it is not part of the program credit requirement.

The following certificates/technical diplomas may be applied toward this program:

- 901095, Hotel \& Restaurant

Management Certificate

## COURSE DESCRIPTIONS

These courses provide an opportunity for students to develop the knowledge, skills, and understanding required for employment in this field.
10-101-190 ACCOUNTINGQUICKBOOKS ...an introductory course in using QuickBooks to create vendor/employee accounts, invoices, budgets, profit/loss statements, balance sheets, $A / R, A / P$, journals, graphs.

10-102-150 BUSINESS LAW \& ETHICS ...common law contracts and sales contracts: formation, interpretation, performance, and discharge; the law of agency; corporations; and introduction to the American legal system: criminal and tort law, and global business issues. (Prerequisite: 10-801-136, English Composition 1)

10-102-158 BUSINESS PRINCIPLES ...economics and business; global business; ethics and social responsibility; business ownership; entrepreneurship; business management; marketing; managing financial resources; legal issues impacting business; using technology to manage information.

10-102-160 GLOBAL BUSINESS MANAGEMENT ...globalization, cultural environment, global trade environment, politics and law, economic integration, global trade and investment theories, exporting, global human resource management, corporate social responsibility. (Prerequisite:
10-801-136, English Cosple 10-801-136, English Composition 1)
10-103-121 MICRO: WORD-
INTRODUCTION ...word processing basics including creating, revising, formatting, printing; sections, tabs, multiple-page numbering; manipulating text; creating headers/footers; creating/formatting tables, graphics; and merging documents. Windows experience improves success; consider 10 -103-111, Windows/Computer Basics.
10-103-131 MICRO: EXCELINTRODUCTION ...creating a worksheet, enhancing worksheet appearance, moving and copying data, using formulas and functions, creating charts and using clip art. Windows experience improves success; consider 10-103-111, Windows/Computer Basics.

10-104-101 SELLING PRINCIPLES ...selling as a career; success factors in selling; personality development; product knowledge; and the sales process involving preparation, approach, presentationdemonstration, handling objections, and closing the sale successfully.

10-104-110 MARKETING PRINCIPLES ...marketing management, market segmentation, market research, consumer
behavior, product decisions and management of distribution, pricing, promotional decisions for strategy planning.
10-104-119 SOCIAL MEDIA MARKETING ...understand the social media revolution. This course will provide students with the practical knowledge and insights needed to successfully plan, implement, manage and measure social media marketing efforts.
10-104-125 EVENT MARKETING.. planning, promotion execution, and evaluation of special events (entertainment, industry, meeting/convention). Students will work toward the actual staging of an event (will require time outside of the classroom setting).
10-104-191 CUSTOMER SERVICE ..develop professional telephone etiquette, explore customer service work environments, identify and analyze customer service failures, resolve problems cost effectively, set complaint policies, and develop communication techniques to handle complaining customers.

10-105-102 CAREER PLANNING ..experiential learning introduction. Learn how personal branding allows candidates to differentiate themselves from the competition through appearance, personality, and marketing competency Career portfolio introduced (Corequisite: 10-890-101, College 101)

10-105-103 CAREER PREPARATION ..create professional resume and cover letter, prepare for interviews, understand interviewing techniques, participate in a mock interview. Submission of experiential learning proposal. (Prerequisite: 10-105-102, Career Planning; 10 801-136, English Composition 1)

0-109-114 HOTEL MANAGEMENT .lodging classification, ownership/ ffiliation, hotel/front office organization, equipment, reservations, registration, guest services, guest accounting, credit monitoring, check-out/settlement, night udit, management functions, room statistics, yield management, staffing.

10-109-126 HOSPITALITY FINANCE ...purchasing/receiving controls, storing/ ssuing controls, production controls, monitoring activities, sales controls, beverage controls, labor controls.

10-109-127 HOSPITALITY FACILITIES MGMT ...staffing housekeeping operations, facilities safety and security, cleaning routines, material selection, laundry operations, controlling costs in housekeeping and maintenance departments, facility systems.
10-109-168 RESTAURANT MANAGEMENT ...food/beverage industry, product classifications, responsible service; bar/kitchen equipment/organization; maintaining clean/sanitary facilities; staffing, training, supervising food/beverage employees; promotions planning; budgeting/ cost controls of food/beverage operations.

10-109-199 HOSPITALITY/TOURISM CAREER EXPERIENCE ...practical, handson experience applying skills developed in the program at an approved site with supervision by an employer and the instructor with elated projects and discussion. (Prerequisites: 0-801-136, English Composition I; 10-804-123, Math w Business Apps; 0-105-103, Career Preparation)

10-145-185 ORGANIZING YOUR SMALL BUSINESS ...the components of small business ownership; examining a variety of small business startup and operation scenarios. Assesses your own readiness to egin the entrepreneurial adventure.

10-196-145 WORKPLACE INNOVATION ...use of inventive thinking techniques and innovative methods to improve work processes in multiple workplace environments; research and analyze he use of technology in businesses to promote innovation in the workplace; develop an innovative, entrepreneurial and intrepreneurial mindset.

Offered throughout the District. For information in Green Bay: (920) 498-5444. For information in Marinette: (715) 7359361. For information in Sturgeon Bay: (920) 746-4900. Toll-free: (888) 385-6982.

This program is fully eligible
for financial aid.

## Program Description

The Human Resources Associate Degree program prepares the learner for success in the dynamic work environments of: employment law, training and development of employees, compensation and benefits administration, labor relations supporting bargaining agreements, and wellness and safety initiatives.

## Program Outcomes

- Define and describe the functions of human resource management and employee relations to include policies, complaints, and harassment issues.
- Administer human resource functions through technology and human resource information systems (HRIS).
- Develop and prepare reports necessary to carry out the functions of the human resource department.
- Provide assistance for the recruitment and retention of employees.
- Manage the interpretation and application of established human resource policies.
- Develop and evaluate effective training programs.
- Utilize a variety of compensation and benefit criteria.
- Utilize ethical and legal standards in human resource decision making.


## Requirements for

## Program Entry

- Completed application.
- High school transcript or equivalent (For a list of equivalents, go to www.nwtc.edu/getting started.)
- As a requirement for program entry, an Academic Skills Assessment (Accuplacer) with appropriate benchmark scores is necessary. Program Benchmarks are Arithmetic: 65; Reading Comprehension 55; Sentence Skills: 75. Students not meeting these benchmarks or the equivalent will be required to establish an individualized academic plan. Students may have the opportunity to enroll in selected program core courses while completing their individualized plan. Upon completion of the plan, students will be eligible for all program courses. However, higher test scores will lead to greater success in core program courses. To learn more about these assessments and program benchmark scores, please contact a counselor at (920) 498-5444 or (888) 385-6982

It is recommended that a student have basic computer skills in Word, Excel, and PowerPoint prior to entering the Human Resources program.

## Employment Potential

Human Resources Generalist
Hiring Coordinator
Payroll/Benefits Coordinator
Staffing Coordinator
Labor Relations Specialist
Compensation, Benefits, and Job Analysis Specialists
Training and Development Specialist
With additional education and/ or work experience, graduates may also find employment as a Human Resource Manager.
The following certificates/technical diplomas may be applied toward this program:

- 901161, Human Resource

Compliance Certificate
-901162, Organizational Safety and Health Certificate
901163, Employee Benefits, Relations, and Development Certificate

## Curriculum

Sudents following the sudy plan below will complete the Human Resources associate degree in the number of semesters shown. For alternate study plans, refer to the information in the Related Links area at the right of this page.

## FIRST SEMESTER

CREDITS
10-101-106 Accounting-for Non-Accountants
10-105-102 Career Planning
10-196-164 Supervisors-Personal Skills
10-196-193 Human Resource Mgm 0-801-136 English Composition 1 "10-890-101 College 101
SEMESTER TOTAL

## SECOND SEMESTER

0-116-110 Organizational Health/Wellness 10-196-134 Legal Issues-Supervisors 0-801-196 Oral/Interpersonal Comm 10-801-198 Speech
10-809-197 Contemporary Amer Society 0-809-198 Intro to Psychology
SEMESTER TOTAL

0-101-184 Business Finance/Budgeting 10-105-103 Career Preparation
10-116-111 Employee Recruitment/Retention 10-116-112 Compensation/Benefits Admin 0-196-136 Safety-Workplace 10-809-195 Economic
SEMESTER TOTAL
FOURTH SEMESTER
10-101-190 Accounting-QuickBooks 0-116-113 Labor Relations \& Negotiations 10-116-114 Training for Organizations 10-116-115 Legal Issues \& Compliance-Adv 10-116-199 Human Res Career Experience 10-196-169 Diversity in the Workplace SEMESTER TOTAL
total credits

## URRICULUM NOTE

*The credit for 10-890-101, College 101, is an Institutional Requirement for of the program credit requirements. of the program creait requirements.
Many courses in this program are offered in a variety of formats such as accelerated, nline, in person or video conferenc
Most credits from this degree can be transferred to some four-year colleges for learners interested in pursuing a bachelor's degree

## COURSE DESCRIPTIONS

These courses provide an opportunity for students to develop the knowledge, skills, and understanding required for employment in this field.

10-101-106 ACCOUNTING-FOR NON-ACCOUNTANTS ...teaching nonaccountants to read, analyze, and interpret financial information for making informed business decisions. This class de-emphasizes the use of debits, credits, journal entries and other accounting procedures.

10-101-184 BUSINESS FINANCE/ BUDGETING ...fiscal and monetary aspects of business. Each learner will demonstrate application of business types, cycles, forecasting, budgeting, expense control, and financial statement interpretation relevant to the supervisor as a non-accountant. (Prerequisite: 10-804-123, Math w/ Business Apps)
10-101-190 ACCOUNTINGQUICKBOOKS ...an introductory course in using QuickBooks to create vendor/employee accounts, invoices, budgets, profit/loss statements, balance sheets, $\mathrm{A} / \mathrm{R}, \mathrm{A} / \mathrm{P}$, journals, graphs.

10-105-102 CAREER PLANNING ...experiential learning introduction. Learn how personal branding allows candidates to differentiate themselves from the competition through appearance, personality, and marketing competency. Career portfolio introduced. (Corequisite: 10-890-101, College 101)
10-105-103 CAREER PREPARATION ...create professional resume and cover letter, prepare for interviews, understand interviewing techniques, participate in a mock interview. Submission of experiential learning proposal. (Prerequisite 10-105-102, Career Planning; 10-801-136, English Composition 1)

10-116-110 ORGANIZATIONAL HEALTH AND WELLNESS ...introduces the student to the concepts involved in organizational wellness programs and the impact from a financial and human asset standpoint. Learners will research wellness programs, develop proposed systems for district-based organizations, and calculate projected cost savings from the implementation of these programs. Insurance principles will also be examined by the learner.

10-116-111 EMPLOYEE
RECRUITMENT/RETENTION ...applies the skills and tools necessary to hire and retain qualified employees. Legal issues, testing, screening, interviewing, selecting and negotiating techniques will be demonstrated and assessed for each learner. (Prerequisite: 10-801-136, English Composition 1)

10-116-112 COMPENSATION/BENEFITS ADMIN ...applies the skills and tools necessary to design, implement and manage a compensation and benefits program as a tool for recruitment, retention and performance management of employees.

10-116-113 LABOR RELATIONS \& NEGOTIATIONS ...introduces the participant to the history of the labor movement and includes the legal collective bargaining processes while applying the learned skills with case studies, a mock negotiation of a realistic collective bargaining contract, and the imulation of a grievance arbitration

10-116-114 TRAINING FOR ORGANIZATIONS ...applies the skills and tools necessary to implement the training cycle of assessment, design, implementation and evaluation. Each learner will develop and present a complete training project based upon adult learning theory and instructional design techniques.

10-116-115 LEGAL ISSUES \& COMPLIANCE-ADV ...advanced legal issues compliance and recordkeeping; detailed overview and analysis of major employment laws. Learners will analyze and practice recordkeeping and compliance with the laws in the workplace such as FMLA, ADA, EEOC, OSHA, and other current relevant employment laws. (Pre-requisite: 10-196-134, Legal Issues-Supervisors)

10-116-199 HUMAN RESOURCES CAREER EXPERIENCE ...practical handson experience applying skills developed in the program at an approved site with supervision by an employer and the instructor with related projects and discussion. (Prerequisites 10-801-136, English Composition 1; 10-804-123, Math w Business Apps; 10-105-103, Career Preparation)

10-196-134 LEGAL ISSUESSUPERVISORS ...legal practices of recruiting, interviewing, hiring, selection, evaluation/promotion, employee discipline firing, EEOC and nondiscrimination employee privacy, workplace harassment FMLA, ADA and unions.

10-196-136 SAFETY-WORKPLACE ...safety awareness, federal/state/local compliance, inspections, risk analysis, workplace violence, substance abuse, health hazards, first aid, CPR, fire and electrical safety, and emergency preparedness.

10-196-164 SUPERVISORS-PERSONAL SKILLS ...time management and personal planning, emotional intelligence, effective communication, assertiveness and stress management related to the challenges of a supervisor.

10-196-169 DIVERSITY IN THE WORKPLACE ...analyze the effect of perceptions, attitudes, biases, and organization culture on diversity, dealing with barriers, measuring progress, and celebrating success.

10-196-193 HUMAN RESOURCE
MANAGEMENT ...impacts of EEOC, writing job descriptions, recruitment, selection, conducting job interviews, orientation, developing policies and procedures, training performance, counseling and development, and compensation and benefit strategies.

Human Services Associate Program Code 105203 | Associate Degree


## COURSE DESCRIPTIONS

 These courses provide an opportunityfor students to develop the knowledge, skills, and understanding requir
for employment in this field. 10-520-101 INTRODUCTION TO
HUMAN SERVICES HUMAN SERVICES ...examine the Distinguish the various types of human
service agencies and occupations available Service agencies and occupations avalable
in the field. Demonstrate the qualities of in the field. Demonstrate the qualities of
the field professionals. Complete 10 hours
of community service ata an asency of the field professionals. at an agency of
of community serive
learner's choice outside of class time. Assess 1earners choice outside of class time. Asses
boundaries and ethical issues commonly boundaries and ethical issues commonly
found in the human services professions
Apply reflective practitioner methods.
10-520-106 HUMAN SEXUALITY ...learners will evaluate human sexual
behavior across the lifespan. Evaluate the history of sex. Analyze sexology. Differentiate between gender roles. Identify psychological
differences between sexes. Explore differences differences between sexes. Explore differences in sexual orientation, sexually transmitted
diseases and methods of contraception. Analyze sexual abuse and sex for sale. Assess boundaries and sexual issues com monly found when discussing sexual issues with
clients. Apply reflective practitioner meth
10-520-109 CHILD AND ADOLESCENT BEHAVIOR ...Child and Adolescent Behavior is a course examining problematic behavior
issues offen encountered with children and adolescents in the field of human services. This examination is conducted in three parts.
An understanding the process of heallhy hild and adolescent development in engage understanding, the course then addresses
numerous problematic environmental, situational, and neurological issues that impede healthy development; and the diagnostic
results of these impediments. Finally, the course comprehensively addresses systematic,
therapeutic and medicial interventions for various diagnostic disorders. The course
focuses on strenght-based models trauma-sensitive approaches, and is solu trauma-sensitive approaches, and is solution-
based to prepare students for successful
integration integration to human services professions and/
or further study in the field. (Prerequisite: or further study in the fied. (Prerequisite:
10-809-188, Developmental Psychology)
10-520-119 ADVANCED COUNSELING THEORY ... This course is an extension
of skills already learned in classes such as Introduction to Counseling, Behavior Assessment, and Abnormal Psychology.
Students will learn about the skills and lechniques used in cognitive-belavioral
therapy, and will learn how to therapies to specific needs and mental health diagnoses. Students will also learn about
different theoretical orientations to mental health problems with a special emphasis on
the contrast between cognitive-behavioral and psychoanalytic theories. Crisis intervention techniques, skills and theory will be discussed in some depth with an emphasis on the as the helperís potential to folll victim to the effects of such experience. Modern film will be used to provide examples as well as material for
discussion during this course. (Prerequisies discussion during this course. (Prerequisites:
Accepted to Human Services-AODA prosem; scepted to Human Services-AODA progi 10-809-159, Abnormal Psychology)

10-520-121 FIELD EXPERIENCE $1 . .$. Field Experience 1 is a class designed to introduce
the sududent to the field AODA Human Services by providing the student with actual work experience in agency. Students will provide a minimum of
144 hours of service to the agency of their
choice, with direct supervision provided by choice, with diricect tupervisision provided by
the agency supervisor. The student will work the agency supervisor. The student will work
with the agency to define the individual with the agency to define the individual
learning objectives to be obtained during the course of the internship. The goal is
to failititate the sudents transition into to facilitate the students's transition into
the work world. Sudents will also have 18 the work world. Students will also have 18
hours of classroom lecture. (Prerequisites: hours of classroom lecture. (Prerequisite
Accepted into the Human Services Accepted into the Human Services
Program; 10-550-178, Introduction to Counseling 10-550-179, Merhod s AODA
Counseling; 10-50-12, Group Facilitation Counseling, 10-550-172, Group Facilitatio
succesful completion of background successful completion of background
check on www. CertifiedBackground. com and enter package code NF54.) 10-520-122 FIELD EXPERIENCE II ...Field Experience 2 is the second of two the sududent to the firses designed to inman Servicuuce by providing the student with actual work experience in a human service agency.
Students will provide Students will provide a minimum of 144
hours of service to the agency of their choice with direct supervision provided by the agency supervisor. Sudents will alo have 18
hours of lecture-based instruction. * Sudents must complete an application for this class.
The application and cut-off dates for Field 2 can be found at http://coursecontent..ntc. edu/humanservices /fieldexperiencel. The
suddent will work with the agency to define student will work with the agency to define
the individual learning objectives to be obtained during the course of the internship. The goal is to facilitate the student's
transition into the work world. (Prerequisites Accepted in the Human Services program;
10-520-121, Field Experience 1) 10-520-143 CRISIS INTERVENTION AND STRESS MANAGEMENT ...explore techniquues and approaches to
crisis intervention and stress manageme for providers in the human services field. Determine strategies for initial inservention,
diffusion and assessment, reas lution and difusion and assessment, resolution and/ psychological processes regarding the shortpsychological processes regarding the short-
and long-term approach to stress. Determin
secondary traumatizat secondary traumatization, burnout and remediation techniques. Evaluate critical
incident debriefing. Assess boundaries incident debriefing. Assess boundaries
and ethical issues commonly found with crisis intervention and stress management. Apply refective practitioner methods.
10-544-201 GERO: INTRO TO GERONTOLOGY ...a general overview
of the field of aging. Topics include of the field of aging. ...a genereral overview
demographic, bioiogogical, psychologicgical demographic, biological, psychological,
and social aspects of the aging process.
10-550-170 UNDERSTANDING SUBSTANCE ABUSE ...a holistic approac including epidemiology, etiology and
defintion definitions, prevention and treatment,
social and health care institutions and resource agencies and institutions and
issues in the legal issues in the helping profession with a
focus on self-attitudes, values and goals.

10-550-172 GROUP FACILITATIO ...learners are introduced to group counseling
techniques such as facilitating the process of forming a group, determining group type, purpose, size, leadership, establishing goals
and clarifying group rules (Corequisiee 10. and clarifying group rules. (Corequisite: 10
$550-179$, Methods of AODA Counseling) 10-550-173 PSYCHOPHARMACOLOGY concepts of psychopharmacology and concepts of psychopharmacology and
the function of the organs and systems of the human body and brain.
10-550-174 OVERVIEW OF MENTAL DISORDERS ...learners will be introduced to the symptomology and etiology and classification of
psychiatric disorders and treatmen. Psychiarric cisorders and treatment his course will introduce the person... his course will introduce the personal and
professional qualitites and responsibilities AODA counselors should incorporate into their practice. Learners will clarify
personal values and beliefs while examini personal values and beliefs while examini
their strengths and weaknesses. The their strengths and weaknesses. The
course content will include ethical issul. surrounding substance abuse counseling.
10-550-176 ETHICAL AODA CASE AND RECORD MANAGEMENT ...covers ethical case management, coordination of
integrative services for AODA clients and
the accurate mangen he accurate management of treatmen
records. (Prerequisite: $10-550-177$ records. (Prerequisite: $10-550-177$,
AODA Assessment and Diagnosis) 10-550-177 AODA ASSESSMENT AND
DIAGNOSIS ..learners develon a worki knowledge of gathering and interpreting Knowledge of gathering and interpreitis
information used in forming diagnoses
based on the criterio based on the criteria in the DSM-VIT TR.
Learners will explore various diagnostic Learners will explore various diagnostic tools
and determine the level of care utilizing the and determine the level of care utilizing
Wisconsin UPC. (Prerequisit: $10-550$ -
170, Understanding Substance Abuse) 10-550-178 INTRO TO COUNSELING THEORY ...learners are introduced to the basic counseling skills and will begin to examine the counseling theories util
in the human services professions.
10-550-179 METHODS OF AODA COUNSELING ...learners are introduce to a number of counseling theories and
techniques hat can be urilized in the human services profession. The theories will be explored in relation to substance abuse counseling. (Prerequisite: 10-5 178, Intro to Counseling Theory)

Offered at the Green Bay campus. For information: (920) 498-5444. Toll-free: (888) 385-6982.

This program is fully eligible for financial aid.

## Program Description

The Individualized Technical Studies program is intended for currently employed individuals who have a specific career objective that cannot be met by existing degree programs. By combining state board approved courses from two or more major areas of study, the student, along with an occupational advisor, designs an occupational degree program into a unique associate degree.

## Requirements for Program Entry

- Completed application.
- High school transcript or equivalent. (For a list of equivalents, go to www.nwtc.edu/gettingstarted.)
- Completion of all recommended activities to address math and reading skills deficiencies.
- As a requirement for program entry, an Academic Skills Assessment (Accuplacer) with appropriate benchmark scores is necessary. Program Benchmarks are Arithmetic: 20; Reading Comprehension: 20; Sentence Skills: 20. Students not meeting these benchmarks or the equivalent will be required to establish an individualized academic plan. Students may have the opportunity to enroll in selected program core courses while completing their individualized plan. Upon completion of the plan, students will be eligible for all program courses. However, higher test scores will lead to greater success in core program courses. To learn more about these assessments and program benchmark scores, please contact a counselor at (920) 498-5444 or (888) 385-6982.


## Employment Potential

With the growth of employment opportunities in small and mid-sized
firms, employers increasingly seek workers able to take on multiple tasks and roles that cut across traditional occupational categories. With the introduction of new kinds of technologies and work processes, occupational duties and the competencies needed in the workplace are constantly in flux.

To be productive and effective in todayís workplace, workers may need skills and knowledge drawn from a variety of traditional disciplines.

This program allows students to design a customized instructional program leading to an Associate of Applied Science Degree in Technical Studies. The individualized program will have a specific occupational focus designed by the student in consultation with an occupational mentor, district faculty, and career advising staff.

The program requires the identification of an occupation advisor who will assist the student in specifying skill competencies and occupational outcomes for a specific occupational area.
Note
Individualized Technical Studies
Degree Has Two Objectives:

- Provide flexibility in programming in order to meet the educational needs of individuals based on their particular career goals.
- Emphasize an individualís career goals that cannot be achieved through enrollment in any single instructional program currently available at the college.

As part of the educational process, each student is required to complete a personal program portfolio outlining his or her career objectives and the courses required to meet those objectives. This student portfolio, together with a completed application for admission, becomes part of the review process used by the NWTC Individualized Technical Studies committee to admit the student for a customized technical studies program.

## Note

Explore the possibility of Individual Technical Studies in areas such as:

## Curriculum

Total credits for the Individualized Technical Studies program will vary with a minimum of 60 credits.

## FIRST SEMESTER <br> CREDITS

10-801-136 English Composition 1
10-801-198 Speech
10-804-123 Math w Business Apps
10-809-172 Intro to Diversity Studies
10-809-195 Economics
10-809-196 Intro to Sociology
10-809-198 Intro to Psychology
10-999-939 Technical Studies-Occupational SEMESTER TOTAL TOTAL CREDITS

## Childcare Administration

Students who complete the 18 -credit Child Care Administration Certificate may wish to combine those classes with other classes in the Early Childhood or Supervision associate degree programs for an Individual Technical Studies-Child Care Administration Degree. Courses can be chosen to create a customized curriculum specific to the needs of the individual, with an emphasis on Administration, Special Needs, Infant/Toddler or other areas.

## Entrepreneurship

In todayís world, there is increasing desire among people of all ages to explore, develop, start and run their own businesses. But the knowledge, skills and abilities to start and successfully operate these businesses have never required the wearing of so many hats $\tilde{n}$ and to wear them well. Though the rewards are great, the risks are equally as great, thereby requiring that todayís entrepreneurs be more sophisticated and balanced in their planning and preparation. NWTC has carefully considered the needs of an entrepreneur, and have created four distinct Entrepreneurship Certificate tracks to consider. By pairing these certificates with general studies courses, you can create an Individualized Technical Studies Degree in Entrepreneurship.
For more information about these degrees and other exciting opportunities, please call (920) 498-5421.

## COURSE DESCRIPTIONS

These courses provide an opportunity for students to develop the knowledge, skills, and understanding required for employment in this field.

## 10-809-198 INTRODUCTION TO

 PSYCHOLOGY ...survey of theoretical foundations of human behavior such as sensation and perception, motivation, emotions, learning, personality, psychological disorders, therapy, stress, and human diversity in personal, social and vocational settings. (Prerequisite: Accuplacer-Sentence Skills $=60$ AND Accuplacer-Reading $=55$ OR ACT-English $=16$ AND ACT Reading $=15$ OR 10-838-105, Intro to Reading \& Study Skills or 10-831-103, Intro to College Writing w/ a "C" or better OR equivalent)
## Individualized Technical StudiesJourneyworker Program Code 104995 / Associate Degree

Offered at the Green Bay campus. For information: (920) 498-5444. Toll-free: (888) 385-6982.

This program is fully eligible for financial aid.

## Program Description

Individualized Technical StudiesJourneyworker is designed for journeyworkers from various trades who are interested in continuing their education and earning a degree customized to their career interests. Thirty-nine credits are granted toward the degree based upon completion of a Wisconsin Journey Certificate that includes 400 hours or more of instruction. With a college advisor, the journeyworker identifies the knowledge and skills required to achieve specific career goals. Existing NWTC courses become components of the journeyworkerís program of study. At a time when the workplace is continuously changing with advancing technology and flexible organizational practices, new and nontraditional skills are required of the successful worker.

## Requirements for Program Entry

- Completed application.
- High school transcript or equivalent.
(For a list of equivalents, go to www.nwtc.edu/gettingstarted.)
- Completion of all recommended activities to address math and reading skills deficiencies.
- As a requirement for program entry, an Academic Skills Assessment (Accuplacer) with appropriate benchmark scores is necessary. Program benchmarks are: Reading Comprehension, 55; Sentence Skills, 75; Elementary Algebra, 61. Students not meeting these benchmarks or the equivalent will be required to establish an individualized academic plan. Students may have the opportunity to enroll in selected program core courses while completing their individualized plan. However, higher test scores will lead to greater success in core program courses. To learn more about these assessments and program benchmark scores, please contact a Counselor at (920) 498-5444 or (888) 385-6982.


## Employment Potential

The individualized nature of this program allows students to take advantage of the skills they have acquired in the apprenticeship program, enhance those skills with coursework from an area of interest, and prepare for a wide variety of workplace opportunities.

## Curriculum

Upon graduation from the Individualized Technical Studies-Journeyworker program, a student will have completed 60 credits.

## FIRST SEMESTER

CREDITS
*10-801-136 English Composition 1
10-801-197 Technical Reporting
10-804-118 Interm Algebra w Apps
10-809-172 Intro to Diversity Studies
10-809-195 Economics
10-809-196 Intro to Sociology
10-809-198 Intro to Psychology
10-999-939 Technical Studies-Occupational
SEMESTER TOTAL
TOTAL CREDITS

## CURRICULUM NOTE

*Students must earn a grade of " C " or better in 10-801-136, English Composition to enroll in 10-801-197, Technical Reporting.

## Note

Advanced standing will be granted for the 39 credits with the completion of the apprenticeship if it includes a minimum of 400 hours of paid related training (day school).

## COURSE DESCRIPTIONS

These courses provide an opportunity for students to develop the knowledge, skills, and understanding required for employment in this field.

## 10-809-198 INTRODUCTION TO

 PSYCHOLOGY ...survey of theoretical foundations of human behavior such as sensation and perception, motivation, emotions, learning, personality, psychological disorders, therapy, stress, and human diversity in personal, social and vocational settings. (Prerequisite: Accuplacer-Sentence Skills $=60$ AND Accuplacer-Reading $=55$ OR ACT-English $=16$ AND ACT Reading $=15$ OR 10-838-105, Intro to Reading \& Study Skills or 10-831-103, Intro to College Writing w/ a "C" or better OR equivalent)Offered at the Green Bay campus. For information: (920) 498

This program is fully eligible for financial aid.

## Program Description

The Instructional Assistant Degree is an
Associate of Applied Science Degree, which Associate of Applied Science Degree, whi prepares qualified individuals to work directly with students under the supervision of a licensed teacher. The duties include assisting children with math, reading, and lassroom management supporting students with special needs, clerical and other tasks related to instruction. This program meets Title I and No Child Left Behind paraeducator requirements.
Duties may also include monitoring student activities, assisting with reading or math, orrecting papers, tutoring, one-on-one ddition, instruction gracilitation. In classroom, displays, assist children with computers and media, provide educational and personal hygiene support to meet individual student needs, and supervise arious classoom and other school events. Instructional Assistants may be hired to from pre-kindergarten through age 21, from pre-kindergarten through age 21 ,
however, the focus of this program is on preparing graduates to work primarily in elementary and middle level schools.

## Program Outcomes

- Support all learning based on Identify developmentally appropriate Identify developmentally appropria
child/adolescent physical, social/ emotional, intellectual, and language characteristics and their developmental and environmental impact on learning.
Adapt instruction to meet the
diverse needs of all learners.
- Utilize a variety of instructional strategies, media, and technology to foster the development of critica
thinking and problem solving thinking and problem solving. - Use proactive classroom management
techniques to promote a positive techniques to promote a positive
class climate, intrinsic motivation, and optimal learning.
- Demonstrate effective written and verbal

Demonstrate effective written and verbal
communication in working collaboratively within the school setting and interactions with students and families.

- Assist in planning and implementing instructional strategies that reflect the learning cycle.
Utilize informal assessment strategies to collect data for the support of student learning. Incorporate the reflective process to promote student learning and professional growth. Assume professional responsibility for ethical, moral, and legal policies and procedures Provide for health and safery
needs of students.


## Requirements for <br> Program Entry

High shool transcript or equivalen. (For a list of equivalents, go to www.nwtc.edu/gettingstarted.)

Demonstrated proficiency in basic skills through a course placement assessment. It is necessary to show good health as evidenced by a medical examination within one year prio Students should har Students should have mastered basic
math before entering this program. math before entering this program. For
a description of basic math, see the Basic Education section of this catalog. As a requirement for program entry an As a requirement for program entry, an
Academic Skills Assessment (Accuplacer) with appropriate benchmark scores is necessary. Program Benchmarks are Arithmetic, 65; Reading Comprehension 55; Sentence Skills, 75. Students not meeting these benchmarks or the equivalent will be required to establish an individualized academic plan, Students may have the opportunity to enroll in selected program core courses
while completing their individualized plan. Upon completion of the plan, students will be eligible for all program courses. However, higher test scores will lead to greater success in core program courres. To learn more about these assessments and program benchmart (920) 498-5444 or (888) 385-6982.

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Check. A fee is charged for this
Check. A fee is charged for this service.
Additional information will be provided upon acceptance into the program.

## Employment Potential

 A graduate of this program will have the potential for employment as an instructional assistant or educational paraprofessional schools from the pre-kindergarten through high school level. Instructional Assistants work with children in preschools, elementary schools, middle schools, and ork with children with special needs.Most job opportunities in this field coincide with the public school system with regard to workdays, holidays, summe and many positions are part-time. Graduates Work As: Teacher assistants, instructional assistants, paraeducators, paraprofessionals, specialized aides in reading, math, computers, or specia ducationsm therap Typical Activities Include: Preparing classroom displays, using computers, supervising classroom and playground
activities, giving tests, monitoring students, reading and telling stories, assisting with small and large group activities, managing student behavior, supporting managing student behavior, supporting
individual needs of all students, following reacher lesson plans, and supporting individual personal hygiene needs.
The following certificates/technical diplomas may be applied toward this program: 905222, Intro to Instructional Assistant Careers Certificate - 905221, Supporting Children's Learning Certificate - 905224, Special Education Certificate Note
Wisconsin Caregiver Law NWTC is required to comply with the Wisconsin Caregiver Law (2009 WISCONSIN ACT 76). The completion of a caregiver background check
includes the review of criminal re includes the review of criminal records history of improper behavior. Students

Curriculum


## first semester <br> CREDITS $\begin{array}{ll}\text { 10-522-103 } & \text { IA: Intro to Educ Practices } \\ \text { 10-52-104 } & \text { IA: Technology Media Rsrces }\end{array}$ $\begin{array}{lll}\text { 10-522-104 } & \text { IA: Technology/Media Rstrces } \\ \text { 10-801-198 } \\ \text { Speech } \\ \text { 10-809-188 } & \text { Deevelopmental Psychology }\end{array}$ 10-809-195 Economics <br> *10-890-101 College 10

## sECOND SEMESTER

| 10-522-102 | A: Techniques/Readg/Lang Ar |
| :---: | :---: |
| 10-522-106 | IA: Child \& Adolescent Devel | 10-522-107 IA: Overview of special Ed | 10-522-111 A: A: Gididing \& Mnging Behavior |
| :---: |
| $=1$ 10-52-12 | 10-809-196 Intro to Sociolog

SEMESTER TOTAL

## THIRD SEMESTER

$\begin{array}{ll}\text { 10-522-101 } & \text { IA: Teamwork in School Setting } \\ \text { 10-52-118 } & \text { A: Techniques for Math }\end{array}$ $\begin{array}{lll}\text { 10-801-136 } & \text { A.: Techniques for Malsh Composition 1 }\end{array}$ $\begin{array}{ll}10-809-172 & \text { Intro to Diversity Studuies }\end{array}$ Elective
SEmESTERTOTAL

## FOURTH SEMESTER


SEMESTER TOTAL
CURRICULUM NOTE
The credit for $10-890-101$, College 101
is an nnstitutiona Requirement or graduation. Consequently, it is not part
*Required 108 hours in classroom under "Required 108 hours in classroom under
supervision of $K-12$ teacher. NWTC Faculty
arranges practicum settings formwith students. arranges practicum settings forwith students.
Students are required to achieve a grade of ic Students are required to achieve a grade offici
or higher in the practicum courses to continue or higher in the practicum courses to contine
in or graduate from this program. Completed Criminal record check and medical exam are
required prior to starting the practicum courses ***This course does not articulate to
a four-year college. Seek assistance a frour-year colege. Seek assistan
from counselof for math options.
accepted into this program must complete a background check through www.CertifiedBackground.com. A fee regarding this process is provided to regarding this process is provided to
students immediately upon acceptance into the program. Students accepted into this program must complete a Background Information Disclosure form disclosing any acts, crimes, or convictions prior to program entry and annually for the remainder of the program. The information provided in the Background Information Disclosure form must be
truthful and match any findings on the truthful and match any findings on the criminal record check. Students with
criminal history may be denied access to placement at the discretion of the practicum site. Consequently, should a student have a history of convictions of serious crimes or a history of improper behaviors, NWTC cannot guarantee graduation within typical program timing - Completion of a Wisconsin Technical Skills Attainment (TSA) portfolio is required to graduate from this program.

## COURSE DESCRIPTIONS

 These courses provide an opportunity skills, and understanding required for employment in this field. 10-522-101 IA: TEAMWORK IN SCHOOL SETTINGS ...working together is paramount in helping all children lean ole and responsibilities of the instructional assistant. School and educational policies, ethical and moral responsibilities, group dynamics and Wisconsin tribal rights will also be explored. Emphasis placed on collaborating with a team comprised of diverse members. Service Learning ours will be required for this course. 10-522-102 IA: TECHNIQUES READING/LANGUAGE ARTS ...focus on best practices in working with children in their development of reading and language arts as well as the roles of the teacher and the instructional assistant. The student will gain an understanding of how to workwith all children and reinforce instruction individually and in groups through individually and in groups through scaffolding techniques. Current classroom materials plus enrichment and support
activities will be examined and created.
10-522-103 IA: INTRODUCTION 10-522-103 IA: INTRODUCTION ...fundamentals of teaching methodologies, history of education, issues in trends, learning styles, instructional cycle, characteristics of diverse classroom, questioning techniques and assessment practices.
10-522-104 IA: TECHNOLOGY/ MEDIA RESOURCES ...develop knowledge and skills in the area of media and computer resources as it relates to gain experience creating and using web ools including electronic portfolios.

10-522-106 IA: CHILD \& ADOLESCENT DEVELOPMENT...growth and development birth through adolescence. Acquaints the
learner with the fundamental tasks of learner with the fundamental tasks of physical, motor, perceptual, cognitive socia emotional and language developme
10-522-107 IA: OVERVIEW OF SPECIAL EDUCATION ...overview of the Special Education Law; special education classifications and associated causes and characteristics will be explored as well as state and federal qualification criteria will be examined. Societal responses to students a student with special needs on family dynamics will also be covered in this cours

10-522-111 IA: GUIDING 8 MANAGING BEHAVIOR ...proactive preventive classroom management,
research-based concepts and strateg research-based concepts and strategie used to prevent behavior problems,
creating positive classroom climate, creailding positive classroom student relationhips, enhancing motivation, responding to inappropriate behavior will be emphasized.
10-522-118 IA: TECHNIQUES FOR MATH ...techniques for the Instructional Assistant in assisting the classroom teacher in math; current practice including manipulatives, problem solving and assessment will be covered within the
framework of state and national standards. framework of state and national standar 10-522-120 IA: TECHNIQUES FOR
SCIENCE ...introduction to the content processes of science. Strategies of teaching processes of science.
science will be studied and practiced and will prepare you in assisting the classroom teacher in group and individual activities in science. Current science processes, strategies, procedures, assessment options and factors affecting science learning will be explored.

10-522-122 IA: ADVANCED READING LANGUAGE ARTS ...explore how to integrate reading and writing within the content areas. Students will also gain the knowledge and skills needed to support and encourage children as independent, strategic readers as well as techniqes to support children through the writing process.
Children's and Young Adult literature, poetry and personal writing will be explo and integrated throughout this course. 10-522-124 IA: SUPPORT STUDENTS WITH DISABILITIES ...services delive to students with special education needs,
supportive and related services, law, indivi educational programs, various instructional formats, and alternative instructional techniques and programs. (Corequisite: 10-
522-107, IA: Overview of Special Education) 10-522-129 IA: PRACTICUM 1 ...introduces the student to a diverse classroom setting at an elementary, middle or high school
level. The student will observe children and practice techniques under the guidance of practice techniques under the guidance of
a DPI certified teacher. 108 hours in the classroom under supervision of K - 12 teacher.
10-522-131 IA: PRACTICUM 2 ...apply the skills learned in previous program courses in a school setting while under the supervisio
of a DPI certified teacher. Students support children with special education needs and programming. Job search skills will be addressed and a professional portfolio will be completed. 108 hours in the classroom under supervision of K-12 teacher. (Prerequisite: 10-522-129, IA: Practicum 1) 10-522-132 IA: POSITIVE CLASSROOM MANAGEMENT TECHNIQUES divorce, alcoholism, child abuse, youth suicide, stress, violence and gangs on behavior in the classroom. Conflict resolution techniques and de-escalation strategies and with an emphasi on prevention will also be examined.

## Offered at the Green Bay campus.

 For information: (920) 4982.Toll-free: (888) 385-6982.

This program is fully eligibl for financial aid.

Program Description
The Landscape Horticulture program prepares a student for employment in the brticulture industry. Instruction will focus on landscape designing, plant instal
maintenance and hardscape skills.

## Program Outcomes

Communicate within the
horticulture industry.

- Justify the selection of the appropriate woody plant $(s)$ under the given
circumstances for the project at circumstances for the project at hand Justify the selection of the appropriate circumstances for the project at hand
circumstances for the project at hand.
Execute IPM (Integ.
Pest Management
Prescribe and execute proper
landscape maintenance plans
landscape maintenance plans.
Determine nutritional requireme
of turf grasses and ornamentals.
- Analyze soil and its influence on plant life.
- Analyze soil and its infuence o
- Implement a landscape
- Implement a landscape
construction design plan.
- Operate a transit.

Use carpentry hand and power tools.
-Safely operate landscape equipment
Operate computer hardware system
Develop and deliver a landscape design presentation.
Use CAD (Computer Aided Design). - Receive training for Wisconsin Pesticide Certification exam. Propagate and grow horticulture plants

- Use masonry hand and power tools.
- Design and install irrigation equipment
- Diagnose and treat pest problems
on ornamental plants.
- Identify and maintain
tropical indoor plants.
- Utilize sustainable practices
and biorational controls.

COURSE DESCRIPTIONS
These courses provide an opportunity for students to develop the knowledge, skills, and understanding required 0-001-108 PLANT PROPAGATION ..plant propagation and production techniques. (Prerequisite: 10-001110, Intro to Horticulture)
10-001-109 LANDSCAPE INSTALLATION-ADVANCED...builds upon landscape construction methods learned in Introduction to Landscape
Installation. Possible projects include mixed material patios, retaining walls, water features, sustainable landscape elements, rain gardens, roof gardens, wooden Landscape Installation-Introduction)

10-001-110 HORTICULTUREINTRODUCTION ...explore the horticulture industry, plant culture, identification, propagation, physiology,
selected aspects of horticulture industry including fruits, vegetables, ornamentals, greenhouse systems, landscape techniques, home gardens, and turf.
10-001-115 LANDSCAPING-APPLIED ..provides the opportunity for the learner and understanding of applying the course work learned throughout the two years of the Associate Degree program. (Prerequisites 10-001-170, Integrated Pest Management:
10-001-172, Landscape Maintenance; 10-10-001-172, Landscape Maintenance; 10 -
$001-174$, Prin of Landscape Design/Graph) 001-174, Prin of Landscape Desig 10-001-122 FUNDAMENTALS OF plant nutrition, identification and analysis of the nutritional needs of plants; covers he selection of appropriate materials and application rates $\&$ methods. (Prerequisite
0-001-130 PLANT INTERIOR how identify indoor tropical plants and blooming plants that are used in interior plantscaping. Includes identification, plant varieties, pests, diseases, and cultural requirements. Also designing with houseplants. (Prerequisite: 0-001-110, Horticulture-Introduction) 0-001-141 HORTICULTURAL FRAIIONS ...explore the operations of a business oble enterprise. The focus will be on record keepinctives, regulations, estimating, record keeping, equipment and accepted practices. Sustainability, supervision and
industry credentialing will also be examined.

## Requirements fo

Program Entry

- Completed application.

High school transcript or equivalent. (For a list of equivalents, go to Students should have mastered basic math skills (whole numbers, fractions decimals, percents, measurents).
As a requirement for program entry, an Academic Skills Assessment (Accuplacer) with appropriate benchmark scores is necessary. Program Benchmarks are Arithmetic: 65; Reading Comprehensio
55; Sentence Skills: 75. Students not 55; Sentence Skills: 75 . Students not
meeting these benchmarks or the equivalent will be required to establish an individualized academic plan. Students may have the opportunity to enroll in selected program core courses while completing their individualized plan. Upon completion of the plan, students will be eligible for all program
courses. However, higher test scores will lead to greater success in core program. courses. To learn more about these assessments and program benchmark scores, please contact a counselor at (920) 498-5444 or (888) 385-6982.

## Employment Potential

graduate of the program will ave the potential for employment in the following areas:
Landscape Horticulture Technician: performs pencil sketching of common deas, designs landscapes; builds and installs ardscapes and plants; writes cost estimates fr labor and materials, performs ground nd construction equipment. Has working nowledge of the safe use of pesticides.
With additional education and/or work xperience, graduates may find other potunies for employment.
Grounds Manager

- Sales Representative
- Garden Center Manage

Pest Control Specialist
Garden Center Specialist
Gol Course Maintenance Assistant
Lawn Care Equipment Operator Turf Technician or Interior Plantscaper
The following certificates/technical diplomas may be applied toward this program: 000012, Greenhouse Growers Certificate
Management Certificate

Gurriculum
Students following the study plan
below will complete the Landsape
Horticulture associate degree in the

## FIRST SEMESTER

10-001-110 Ho
$10-001-110$ Horticulture-Intro
$10-01-158$ Pant-Wody
$10-001-159$ Floweramental -Herbaceous
10-000-159
10-606-112
Fowers-Herbaceous
Computer Apps for -606-127 Lomputer Apps for Technicians
 $-801-196$ Oral/Interpersonal Comm 10-809-197 Contemporan
$\begin{aligned} & \text { } 10-890-101 \\ & \text { SOllege } 101\end{aligned}$
SEMESTERTOTAL SEMESTER TOTAL
SECOND SEMESTER
10-001-122 Fundamentals Plant nol 10-001-153 Prant and Soil Science
10-001-154 Turf Management 10-001-154 Turf Management
10-001-180 Landscape Instalation Intro 10-01-1.10 Landscape Instalation Intro
$10-606-125$ Landscapee Design Technology 10-804-123 Math w Business Apps 10-809-199 Psychology Of Human Relations
SEMESTER TOTAL

## summer semester

10-001-151 Landscape/Hort Internship
third semeste THIRD SEMESTER
10-001-109 Landscape Installation-Adv ${ }_{\text {OR }}^{10-001-108}$
${ }^{10-001-108}$ Plant Propagation
10-001-170 Integrated Pest Management
10-001-172
Landscape Maintenance
10-001-172 Landscape Maintenance
10-104-191 Customer Service
10-801-136 English Composition
SEMESTER TOTAL
FOURTH SEMESTER
10-001-115 Landscaping-Applied
$10-001-141$ Horticultural Operations
10-001-141 Horticultural Operaraitions
10-001-184 Landscape Design Studio-Adv
10-001-1
OR
$10-001-1$
10
10-001-130
10-890-12 Plant Interior
10-809-172 Intro to Diversity Studies
10-809-195 Economics 10-809-195 Economic
SEMESTER TOTAL SEMESTER TOTAL
TOTAL CREDITS

## CURRICULUM NOTE

${ }^{*}$ The credit for 10-890-101, College 101 is an institutional requirement for
graduation. Consequently it is not part graduation. Consequenty, it is not part
of the program credit requirements.
SUGGESTED ELECTIVES
Golf Course Management, 10-001-150 Golf Course Management, 10
Spanish $1,10-802-101$ Greenhouse Grower I, 10-001-111
Plant Heath Care, 10-001-123 Greenhouse Grower II, 10-001-112 Organic Gardening, 10-090-121

10-001-151 LANDSCAPE/ HORTICULTURE INTERNSHIP ...job opportunities in the field, applying scholastic nowledge to practical applications, and Accepted with an employer. (Prerequisites: Accepted to the Landscape Horticulture Orogram; 10-001-158, Plant-Woody Ornamental; 10-001-159, Flowers-
Herbaceous : 10-001-122. Fundamental Plant Nutrition; 10-001-153, Plant and Soil Cience; 10-001-154, Turf Management; 10-001-180, Landscape Installation Intro)
10-001-153 PLANT AND SOIL SCIENCE ...addresses the unique interactions of healthy plants \& soils; examines the physical, chemical, organic \& biological characteristic \& functions of plants. (Prerequisite: 10-$001-110$, Horticulture Introduction)
10-001-154 NATURAL TURF MANAGEMENT...identification of turf grasses; course will examine natural
low-maintenance turf, residential lawns and high intensity applications (i.e., golf and high intensity applications (i.e., golf
courses, athletic fields). (Prerequisite: 10 -$001-110$, Horticulture-Introduction)
10-001-158 PLANT-WOODY ORNAMENTAL ...physiology, culture, dentification, and use of primarily appropriate for landscapes in northeastern Wisconsin. (Corequisite: 10-001110, Horticulture-Introduction)
10-001-159 FLOWERS-HERBACEOUS ..annuals/perennials/roses; using flowers/ foliage effectively in the landscape; care foliage effectively in the landscape; care o best utilize each flower; groundcover/ vines included. (Corequisite: 10-001 110, Horticulture-Introduction) 10-001-170 INTEGRATED PEST MANAGEMENT...various methods to combat plant pests in an environmentally esponsible manner; using biorational echniques and strategies. (Prerequisite: 0-01-11, Horticulture-Introduction)
10-001-172 LANDSCAPE
MAINTENANCE ...identifying problems and cultural challenges in the landscape: pruning techniques, insect/disease problems, weed identification; soil fertility; resolve situations in the field. (Prerequisites: 10-001-110, Horticulture-Introduction; 0-001-153, Plant and Soil Science; 10-001 entals of Plant Nutrition)

10-001-174 PRINCIPLES OF LANDSCAPE DESIGN AND GRAPHICS...residential design methods utilizing outdoor room concepts: function design principles, and composition in developing a landscape plan; drafting, site
analysis, graphics. (Prerequisites: 10-001110, Horticulture-Introduction; 10-606-12 andscape Design Studio Introduction)

10-001-180 L ANDSCAPE INSTALLATION INTRODUCTION ..investigate techniques used in landscape construction practices. These include the use of specific landscape tools, plan implementation methods, preliminary
site survey methods, proper planting, equipment operations $8<$ installations of basic landscape features (Prerequisite: 10-606-127, Landscape Design Studio Introduction.)

10-001-184 LANDSCAPE DESIGN STUDIO-ADVANCED ...exploration of design elements through individual practicum; survey of landscape design history, land-use planning, topographic design, structural planning of retaining wals
ornamental ponds, bioretention, lighting ornamental ponds, bioretention, lighting
theory, sustainable practices and bidding procedures. (Prerequisite: 10-001-174, Principles of Landscape Design and Graphics)
10-104-191 CUSTOMER SERVICE ...develop professional telephone etiquette, explore customer service wor customer service failures, resolve problen cost effectively, set complaint policies, and develop communication techniques to handle complaining customers.
10-606-112 COMPUTER APPLICATIONS FOR TECHNICIANS...basics of a computer system, computer terminology, the Microsoft Windows environment, file management, Microsoft Word and Microsoft Excel.
10-606-125 LANDSCAPE DESIGN TECHNOLOGY ...using computer and computer aided design software as tools
for design communication. It is intended to be an introduction to the fundamental components of CAD in landscape design. Property lines, topography, site planning, hardscapes, planting plans, and section view graphics will be covered. (Prerequisite: 10-606-127, Landscape 112, Computer Apps for Technicians)

10-606-127 LANDSCAPE DESIG STUDIO INTRODUCTION ...introduction to the techniques of hand drafting and rendering through studio include architectural lettering, isometric include architectural lettering, isometric using scales, rendering procedures, etc.

Offered throughout the District. For information in Green Bay: (920) 498-5444 For information in Marinette: (715) 735 9361. For information in Sturgeon Bay:
(920) 746-4900. Toll-free: (888) 385-6982.

This program is fully eligible
for financial aid.

## Program Description

The Leadership Development program provides educational experiences to individuals preparing for, or already engaged in, leadership positions. The program is offered on an accelerated, flexible, part-time or full-time schedule to accommodate working adults.

## Program Outcomes

- Demonstrate effective leadership skills.
- Practice ethical leadership.
- Perform in team environments
- Facilitate effective meetings.
- Value diversity.
- Demonstrate workplace
communication skills.
- Understand the financial components of an organization.
- Utilize performance management techniques.
- Apply project management skills.
- Demonstrate professionalism in management of time, stress and assertiveness.
- Advocate for organizational change.
- Apply continuous improvement processes.
- Affect workplace safety positively.
- Apply current legal workplace standards.
- Demonstrate innovative and creative thinking.


## Requirements for <br> Program Entry

- Completed application.
- High school transcript or equivalent. For a list of equivalents, go to www.nwtc.edu/gettingstarted.
- As a requirement for program entry, an Academic Skills Assessment (Accuplacer) with appropriate benchmark scores is necessary. Program Benchmarks are Arithmetic: 65; Reading Comprehension: 55; Sentence Skills: 75. Students not meeting these benchmarks or the equivalent will be required to establish an individualized academic plan. Students may have the opportunity to enroll in selected program core courses while completing their individualized
plan. Upon completion of the plan, students will be eligible for all program courses. However, higher test scores will lead to greater success in core program courses. To learn more about these assessments and program benchmark scores, please contact a counselor at
(920) 498-5444 or (888) 385-6982. (920) 498-5444 or (888) 385-6982
- It is recommended that a student have a minimum of two years' work experience and basic computer skills in Word, Excel, and PowerPoint prior to entering the Leadership Development program.


## Employment Potential

This program is designed to attract persons who are already engaged in, or are preparing for, leadership roles in an organization. A student who is already in a leadership or other management level position will be able to expand his/ her level of effective leadership skills.
A student not currently in a first level management role will develop leadership skills and increase the chance of promotion.

Traditionally, a supervisor plans, organizes, directs, and coordinates activities of non-management employees in various occupational settings; train and evaluates employees under her or his authority; implements policy decisions and work systems established by upper management; and facilitates communication and work flow.
In addition to traditional supervisory skills and practices, todayís leaders must understand system(s), variation, and continuous improvement process be facilitators rather than bosses effectively manage work place diversity; help organizations adapt to change
and encourage innovation; display and encourage innovation; display leadership skills; use critical thinking skills; and use communication skills appropriate to a team environment.

## Note

- The 13 technical studies courses, beginning with course number 10-196 1 xx , are delivered in a variety of formats. - Some courses have a compressed schedule of seven weeks each. The competencies learned in an accelerated class are exactly the same as those in a traditional class. Students do much of the learning and assignments outside of class time.
- Various Leadership Development Certificates are available. Refer to the program website for information
- Program Website: http://leadershipdev.nwtcbit.com/leadership_dev/


## Curriculum



GROUP
10-196-164 Supervisors-Persona CREDITS 10-196-189 Team Building/Pronal Skills 10-196-191 Supervision
10-801-136 English Composition 1 10-801-198 Speech
10-804-123 Math w Business Apps *10-890-101 College 101
TOTAL CREDITS
GROUP 2
10-101-106 Accounting-for Non-Accountants
10-105-102 Career Planning
10-196-134 Legal Issues-Supervisors
10-196-193 Human Resource Mgmt
10-801-196 Oral/Interpersonal Comm
10-809-197
Contemporary Amer Society
TOTAL CREDITS

## GROUP 3

10-105-103 Career Preparation
10-196-169 Diversity in the Workplace
10-196-188
10-196-188 Project Mgmt Fundamentals
10-196-190
Leadership Develo
10-196-199
Business Ethics
10-809-195 Economics
10-809-199 Psychology Of Human Relations

| OR |
| :--- |
| 10 |
| 10 |

10-809-198 Intro to Psychology
TOTAL CREDITS
10-101-184 Business Finance/Budgeting
*10-196-101 Leadership Dev Career Exp
10-196-136 Safety-Workplace
10-196-145 Workplace Innovation
TOTAL CREDITS
total program credits

## CURRICULUM NOTE

*The credit for 10-890-101, College 101
is an insturional Requirement for
of the program credit requirements.
*It is strongly recommended that 10-196-101, *"It is strongly recommended that Experience, 10-196-101, be taken in th final semester of program courses.

The following certificates/technical diplomas may be applied toward this program: - 901961, Supervision Certificate

- 901962, Ethical Leadership Certificate - 901969, Utility Management Certificate
- 901968, Quality Improvement
and Innovation Certificate
- 901967, Health Care

Leadership Certificate

- 9019610, Health Care Leadership Advanced Certificate


## COURSE DESCRIPTIONS

These courses provide an opportunity for students to develop the knowledge skills, and understanding requ

10-101-106 ACCOUNTING-FOR NON-ACCOUNTANTS ...teaching nonaccountants to read, analyze, and interpret financial information for making informed business decisions. This class de-emphasizes the use of debits, credits, journal entries and other accounting procedures.

10-101-184 BUSINESS FINANCE/ BUDGETING ...fiscal and monetary aspects of business. Each learner will demonstrate application of busines types, cycles, forecasting, budgeting expense control, and financial statement interpretation relevant to the supervisor as a non-accountant. (Prerequisite: 804-123, Math w/ Business Apps)
10-105-102 CAREER PLANNING ...experiential learning introduction. Learn how personal branding allows candidates to differentiate themselves from the competition through appearance, personality, and marketing competency. Career portfolio introduced (Corequisite: 10-890-101, College 101) 10-105-103 CAREER PREPARATION ...create professional resume and cover letter, prepare for interviews, understand interviewing techniques, participate in a mock interview Prisisite 10-105-102, C (Prerequisite: 10-105-102, Career Planning, 10-801-136, English Composition 1)

10-196-101 LEADERSHIP DEVELOPMENT CAREER EXPERIENCE ...practical hands-on experience applying spproved site with supervision by approved site with supervision by an employer and the instractor projects and discussion. (Prerequisites 10-804-123, Mar
 10-105-103, Career Preparation

10-196-134 LEGAL ISSUES-
SUPERVISORS ...legal practices of recruiting, interviewing, hiring, selection, evaluation/promotion, employee discipline, firing, EEOC and nondiscrimination, employee privacy, workplace harassment FMLA, ADA and unions.

10-196-136 SAFETY-WORKPLAC ...safety awareness, federal/state/local compliance, inspections, risk analysis, workplace violence, substance abuse, health hazards, first aid, CPR, fire and electrical safety, and emergency preparedness.
10-196-145 WORKPLACE INNOVATION ...use of inventive thinking techniques and innovative methods to improve work processes in multiple workplace environments; research and analyze the use of technology in businesses to promote innovation in the workplace; develop an innovative, entrepreneurial, and intrepreneurial mindset.

10-196-164 SUPERVISORS-PERSONAL SKILLS ...time management and personal planning, emotional intelligence,
effective communication, assertiveness and stress management related to the challenges of a supervisor.

10-196-169 DIVERSITY IN THE WORKPLACE ...analyze the effect of perceptions, attitudes, biases, and organization culture on diversity, dealing with barriers, measuring progress, and celebrating success.

10-196-188 PROJECT MANAGEMENT FUNDAMENTALS ...the role of project management, developing a project proposal, demonstration of relevant software, working with project teams, sequencing tasks, charting progress, dealing with variations, budgets and resources, implementation, and assessment.

10-196-189 TEAM BUILDING PROBLEM SOLVING ...benefits and challenges of group work, necessary roles in a team, stages of team development, meeting facilitation, different approaches to problem solving, consensus, data acquisition, analysis, developing alternative solutions, implementation and evaluation.

0-196-190 LEADERSHIP DEVELOPMENT ...leadership effectiveness and organization requirements, individual and group motivation strategies, vision, mission and goals, ethical behavior, leadership style and adaptation, impacts of power and influence, employee development, coaching, managing change and conflict resolution. (Prerequisite: 10-801-136, English Composition

10-196-191 SUPERVISION ...front-line leadership including teamwork, setting goals, planning, delegation, controlling, communication, motivation, performance management, staffing, training, problem solving, and conflict management.

10-196-192 MANAGING-QUALITY ..developing a personal philosophy of quality dentifying all stakeholder relationships, meeting/exceeding customer expectations, managing a quality improvement project, measuring effectiveness, lean thinking, Six Sigma, and systems thinking.

10-196-193 HUMAN RESOURCE MANAGEMENT ...impacts of EEOC writing job descriptions, recruitment, selection, conducting job interviews, orientation, developing policies and procedures, training, performance, counseling and development, and compensation and benefit strategies.

10-196-199 BUSINESS ETHICS ...ethical points-of-view, morality/ethical theory, utilitarianism, Kantian ethics, justice and the market system, whistle-blowing trade secrets/conflict of interest, privacy, advertising, product safety, corporate socia responsibility, international business.

Machine Tool - CNC Technician Program Code 324441 | Technical Diploma


## COURSE DESCRIPTIONS

These courses provide an opportunity
for students to develop the knowledge, skills, and understanding required
for employment in this field. for employment in this field. 10-420-100 CNC INTERFACE the learner the opportunity to develop
and learn the computer interface skills needed to operate and program CNC hrough the machines' HMI (Human Machine Interface) and CAM (Computer Aided Manufacturing) system.
31-420-336 INTRO TO CNC MILLING illing machines, CNC milling machine controls and preparing basic $G$-Code milling programs. (Prerequisite: Accepted
into Machine Tool Operation or CNC; into Machine Tool Operation or CNC;
Corequisite: 10-804-104, Math 2-Trades) 31-420-337 INTRO TO G-CODE coordinate systems, G-Code programs
for milling machines, using a personal computer to create geometry and programs using CAD CAM systems for CNC milling machines. (Prerequiste: Accepted
into Machine Tool Operation or CNC; Corequisites: 10-420-100, CNC Interface Methods; 10-804-104, Math 2-Trades) 31-420-339 INTRO TO CNC TURNING
OPERATIONS ning machines, CNC turning machine controls, preparing basic $G$-Code lathe rograms, set up, and operation of CNC in the Machine Tool Operation, CNC or Machine Tool Technics program; 31-42036, Intro to CNC Milling Operations; G-Code and CAM 1 1-420-340 INTRO TO G-CODE \& CAM 2...computer controlled milling machines manufacturing (CAM) systems, fundamental rogramming of computer numerically ontrolled (CNC) milling machines, and turning machines. (Prerequisites: Accepted
in the Machine Tool Operation, CNC or Tachine Tool Technics program; 31-420Machine Tool Technics program; 31-420331, Intro to CNC Milling Operations;
31-420-337, Intro to G-Code and CAM 1) 31-420-341 MACHINE TOOL SETselection, loading and unloading tools, work olding, setting part zero, fixture offsets, setting length and dial offsets, boring bars, doar feeding. (Prerequisite: Accepted Corequisites: 10-804-102, Math 2-Trades) 31-420-345 MACHINE SHOP 1. ...shop sfety, measuring toolsliayout, power saw of drilling machines, bench work, basic engine lathe operation, basic vertical,
horizontal, CNC milling machine, surface grinder. (Prerequisite: Accepted orequisite: 10-804-104, Math 2-Trades
31-420-346 MACHINE SHOP 2 ...safety, neasuring tools/layout, power saw operation,
drilling machine operation basic/theory and peration of engine lathes, basic theoo machines, CNC milling, lathe operation surface grinder operations. (Prerequisite: Accepted into Machine Tool Operation of NC; Corequisites: 31-420-345, Machi hop 1: 10-804-104, Math 2-Trades)

31-420-347 CUTTING TOOL TECHNOLOGY ...tool materials, tool geometry, lathe tools, milling cutters, cutting
speeds ffeeds, drills, reamers, taps, threading specds, carbide inirserts, and diamond,
teors,
cermic ceramic, Cermet and polycrystalline cutting tools. (Prerequisite: Accepted
Machine Tool Operation or CNC) 31-420-356 MACHINE SHOP 3 ...shop safery, measuring tools/layout, power saws, drilling machine operation,
intermediate engine lathed operation and vertical horizontal, CNC milling machin operation, theory/operating grinding machines, operating CNC turning centers.
(Prerequisites: Accepted into Machine Tool Operation or CNC program; 31-420-346, Machine Shop 2; 31-420-336, Intro to CNC Milling Operations; $31-$
$420-337$, Intro to $G$-Code and CAM
31-420-357 MACHINE SHOP 4 ...shop safety, measuring tools, power saw
operation, drilling machines, bench work and maintenance, advanced engine lathe operation, advanced vertical horizontal and CNC milling operation, grinding machine operation, and CNC turning centers
(Prerequisite: Accepted into Machi Tool Operation or CNC Machi 31-420-356, Machine Shop 3) 31-421-352 BLUEPRINT READING SKETCHING-MACHINE ...fundamentals of sketching, orthographic projection, auxiliary views, sectional views,
dimensioning pecisich dimensioning, precision and non-precision 31-421-362 BLUEPRINT READING SKetching machinetrades ...blueprint reading, tolerancing, surface welding symbols, casting, stamp gearing and CAM drawing, stamp, and basic
geometric tolerancing geometric tolerancing and dimensioning
(Prerequisise: $31-421-352$ Bluerint (Prerequisite: 31-421-352, Blueprint
Reading Sketching-Machine Trades D)
31-422-359 METALLURGY FOR MACHINIST ....manufacture of iron and identification, applied heat treating processes 31-442-361 WELDING-MACHINE TRADES ...oxyacetylene, brazing, soldering,
cutting and hardsuffacing beads and types of joints, plasma arc cutting, gas
metal arc, tungsten men 32-420-300 MOLD DIE CONSTRUCT ...squaring plates, boring/ milling turning components, grinding/polishing operations, heat treating, fitting ejector systems,
heating cooling heating/cooling systems, applying fasteners,
engraving/stamping, RAM EDM machining, engraving/stamping, RAM EDM machis
molding machine setup. (Prerequisite: Accepted in the CNC program; completion
of Machine Tool Operation program) 32-420-301 FIXTURE AND TOO MAKING ...performing various machining heat-treating, and assembly operations used in a typical manufacturing process. (Prerequisites: Accepted in the CNC program; completion of the Machine Tool Operation program; Corequisite: 32 -
$420-303$, Fixture and Tooling 32-420-303 FIXTURE AND TOOLING DESIGN ...interpreting tool and fixturing prints, designing a tool or fixture to be
used in a typical manufacturing process. used in a typical manufacturing process
(Prerequisites: Accepted in the CNC program; completion of the Machine Tool Operation program; Corequisite:

32-420-306 STAMPING DIE
CONSTRUCTION ...machine die blocks, punches, punch plates, gages, stops, CNC mills, CNC wire EDM; assemble components into a working die set; set-up
on punch press. (Prerequisites: Accepted on punch press. (Prerequisites: Accepted
in the Machine Tool Operation or CNC program; 31-420-357, Machine Shop 4)
32-420-307 EDM \& WATERJET MACHINING ...electrical discharge machining (EDM), high speed machining concepts, rapid setup and quick change
over procedures, abrasive wateriet abair flow, chemical machining, laser and plasma palletizing systems. (Prerequisites: Accepted paltetizing systems. (Prerequisites: Accepe
into CNC;
Completion of the Machine Tool Operation program; Corequisites:
32-420-337, 3D CAM Programming; 420-306, Stamping Die Construction)
32-420-308 QUALITY CONTROL APPLICATIONS ..ISO 9000 concepts and applications, coordinate measuring and applications, coordinate measuring
machine setup and applications, surface texture measurement concepts, and applications for geometric dimensioning an
tolerancing (GD\&T), optical comparator and high amplification techniques. and high amplifcation techniques.
(Prerequisite: Accepered in the Machine Tool Operation or CNC program)
32-420-310 CNC TECHNIQUES-ADV ... Mill 4th and 5 th multi-axis programming parametric programming, 3D surface machining, productivity optimization, lathe
live tooling, and c-axis control. (Prerequisites Accepted into CNC program; 32-420-335, CNC Turning Operation; 32-420-336, CNC Machining Center Oper; Corequisite: $32-1$ - $420-342$, Multi-Axis CAM Programming

32-420-312 CNC MACHINE MECHANICS ...CNC machine hydraulics, pneumatics, control, and
drive systems. (Prerequisite: Accepted in the CNC program or completion of the the CNC program or completion
Machine Tool Operation program) 32-420-335 CNC TURNING OPERATION ...equipment overview, production planning, machine start-up,
control panel operations, CNC control tools, operational codes and functions, operation modes adene code generation
(Prerequisites: Accepted into Machine Tool Operation or CNC; Completion of the Machine Tool Operation program) 32-420-336 CNC MACHINING CENTER OPERATION ...equipment overview, production planning, machine start-up, control panel operations, CNC
control tools, operational codes and control tools, operational codes and
functions, operation modes and CNC code generation. (Prerequisite: Accepted
in the CNC program or completion of in the CNC program or completion of
the Machine Tool Operation program) 32-420-337 3D CAM PROGRAMMING ...basic AutoCAD, CNC production planning, advanced 2D programming, 3D surface programming, computer--
assisted CNC prooramming (Prerequin 31-420-349, G-Code \& CAM 2) 32-420-342 MULTI-AXIS CAM modeling, 4th axis indexing, advanced CNC lathe programming, 4th axis CNC wire EDM programming,
and CNC fabrication punch/burner programming applications. (Prerequisites 420-337, 3D CAM Programming)

Offered at the Green Bay and
Marinette campuses. For information in Green Bay: (920) 498-5444. For information in Marinette: (715) 7359361. Toll-free: (888) 385-6982.

This program is fully eligible for financial aid.

## Program Description

Machine Tool Operation prepares students to operate machine tools such as engine lathes, milling machines, drill presses, and computer numerical control machines.

## Program Outcomes

- Safely set up and operate drill presses.
- Safely set up and operate engine lathes.
- Safely set up and operate horizontal and vertical milling machines.
- Safely set up and operate grinding machines.
- Safely set up, operate, and
program computer numerical
control milling machines.
- Safely set up, operate, and program computer numerical control turning machines.
- Use semi-precision and precision measuring tools to create parts that meet dimensional specifications shown on part prints.
- Accurately read and interpret blueprints. - Make mathematical calculations related to machine trades.
- Use a computer-aided manufacturing program to create part profiles and machine code.
- Set up and operate milling machines.
- Set up and operate sawing machines.
- Know and apply basic metallurgy.
- Know and apply shop safety practices.
- Understand and apply cutting tool speeds and feeds.
- Perform 2-D CAM operations. - Use EIA/ISO G \& M codes for CNC programming.


## Requirements for

 Program Entry- Completed application.
- High school transcript or equivalent.
(For a list of equivalents, go to www.nwtc.edu/gettingstarted.)
- Students should have mastered basic math skills (whole numbers, fractions, decimals, percents and measurements).
- As a requirement for program entry, an Academic Skills Assessment (Accuplacer) with appropriate benchmark scores is necessary. Program Benchmarks are Arithmetic: 65; Reading Comprehension: 55; Sentence Skills: 60. Students not meeting these benchmarks or the equivalent will be required to establish an individualized academic plan. Students may have the opportunity to enroll in selected program core courses while completing their individualized plan. Upon completion of the plan students will be eligible for all program courses. However, higher test scores will lead to greater success in core program courses. To learn more about these assessments and program benchmark scores, please contact a counselor (920) 498-5444 or (888) 385-6982.


## Employment Potential

 A graduate of the program will have the potential for employment in the following areas:CNC Operator: sets up and operates computer numerical controlled machine tools working from blueprints and setup sheets, sets up fixturing and tooling, produces and inspects parts, and edits CNC programs on lathes and machine centers.
Machine Set-Up Operator: sets up and operates a variety of machine tools such as radial drill presses, lathes, milling machines, and grinders; machines metal work pieces, tool, or die parts; analyzes specifications; and determines tooling.
Machine Tool Operator: shapes metal to precise dimensions by using machine tools and operates machines such as lathes, milling machines, drill presses, and computer numerical controlled (CNC) machine equipment.

Machinist: analyzes specifications; lays out metal stock; sets up and operates machine tools; and operates a variety of machine tools such as radial drill presses, lathes, milling machines, and grinders to machine a variety of metal work pieces.

## Curriculum <br> Students following the study plan below will complete the Machine Tool technical diploma in the number of semesters shown.

CREDITS 10-420-100 CNC Interface Methods 10-804-104 Math 2-Trades
*10-890-101 College 101
31-420-336 Intro to CNC Milling Operations 31-420-337 Intro to G-Code and CAM 1 31-420-341 Machine Tool Set-Ups 31-420-345 Machine Shop 1 31-421-352 Blueprint Rdg/Sket-Mach 1 SEMESTER TOTAL

## SECOND SEMESTER

31-420-339 Intro to CNC Turning Operation
31-420-340 Intro to G-Code \& CAM 2 31-420-347 Cutting Tool Technology 31-420-356 Machine Shop 3 31-420-357 Machine Shop 4 31-422-359 Bueprint Rdg/Sket-Mach 2 31-422-359 Metalurgy for Machinist SEMESTER TOTAL
TOTAL CREDITS

## CURRICULUM NOTE

*The credit for 10-890-101, College 10 is an Institutional Requirement for graduation. Consequently, it is not part
of the program credit requirements. of the program credit requirements.

Maintenance Machinist: sets up and operates a variety of machine tools and fits and assembles parts to fabricate or repair machine tools and to maintain industrial machines.

With additional education and/or work experience, graduates may find other opportunities for employment.

- All-Around Machinist

Journeylevel Machinist

- Pattern Maker
- Set-Up Machinist
- Shop Supervisor
- Tool and Die Maker

Note

- Graduates of the Machine Tool Operation program have the option of continuing with the second year of the Machine Tool - CNC Technician program


## COURSE DESCRIPTIONS

These courses provide an opportunity for students to develop the knowledge, skills, and understanding required for employment in this field.
10-420-100 CNC INTERFACE METHODS ...this course provides the learner the opportunity to develop and learn the computer interface skills needed to operate and program CNC (Computer Numerical Control) machines, through the machines' HMI (Human Machine Interface) and CAM (Computer Aided Manufacturing) system.
31-420-336 INTRO TO CNC MILLING OPERATIONS ...shop safety around CNC milling machines, CNC milling machine controls and preparing basic G-Code milling programs. (Prerequisite: Accepted into Machine Tool Operation or CNC; Corequisite: 10-804-104, Math 2-Trades)

31-420-337 INTRO TO G-CODE AND CAM 1 ...CNC basics, Cartesian coordinate systems, G-Code programs for milling machines, using a personal computer to create geometry and programs using CAD CAM systems for CNC milling machines. (Prerequisite: Accepted into Machine Tool Operation or CNC; Corequisites: 10-420-100, CNC Interface Methods; 10-804-104, Math 2-Trades)
31-420-339 INTRO TO CNC TURNING OPERATIONS ...shop safety around CNC turning machines, CNC turning machine controls, preparing basic G-Code lathe programs, set up, and operation of CNC turning machines. (Prerequisites: Accepted in the Machine Tool Operation, CNC or Machine Tool Technics program; 31-420336, Intro to CNC Milling Operations; 31-420-337, Intro to G-Code and CAM 1)

31-420-340 INTRO TO G-CODE \& CAM 2 ...computer controlled milling machines, basic programming on computer aided manufacturing (CAM) systems, fundamental programming of computer numerically controlled (CNC) milling machines, and turning machines. (Prerequisites: Accepted in the Machine Tool Operation, CNC or Machine Tool Technics program; 31-420336, Intro to CNC Milling Operations; 31-420-337, Intro to G-Code and CAM 1)
31-420-341 MACHINE TOOL SETUPS ...CNC mill and lathe-tool holder selection, loading and unloading tools, work holding, setting part zero, fixture offsets, setting length and dial offsets, boring bars, and bar feeding. (Prerequisite: Accepted into the Machine Tool Operation or CNC; Corequisites: 10-804-102, Math 2-Trades)

31-420-345 MACHINE SHOP 1 ...shop safety, measuring tools/layout, power saw heory/operation, basic theory, operation of drilling machines, bench work, basic engine lathe operation, basic vertical horizontal, CNC milling machine, surface grinder. (Prerequisite: Accepted into Machine Tool Operation or CNC; Corequisite: 10-804-104, Math 2-Trades)

31-420-346 MACHINE SHOP 2 ...safety, measuring tools/layout, power saw operation, drilling machine operation basic/theory and peration of engine lathes, basic theory/ peration vertical/horizontal milling machines, CNC milling, lathe operation, urface grinder operations. (Prerequisite: Accepted into Machine Tool Operation or CNC; Corequisites: 31-420-345, Machine Shop 1; 10-804-104, Math 2-Trades)
31-420-347 CUTTING TOOL TECHNOLOGY ...tool materials, tool geometry, lathe tools, milling cutters, cutting speeds/feeds, drills, reamers, taps, threading tools, carbide inserts, and diamond, ceramic, Cermet and polycrystalline cutting tools. (Prerequisite: Accepted into Machine Tool Operation or CNC)

31-420-356 MACHINE SHOP 3 ...shop safety, measuring tools/layout, power saws, drilling machine operation, intermediate engine lathed operation and vertical horizontal, CNC milling machine operation, theory/operating grinding machines, operating CNC turning centers. (Prerequisites: Accepted into Machine Tool Operation or CNC program; 31-420-346, Machine Shop 2; 31-420-336, Intro to CNC Milling Operations; 31-420-337, Intro to G-Code and CAM 1)

31-420-357 MACHINE SHOP 4 ...shop safety, measuring tools, power saw operation, drilling machines, bench work and maintenance, advanced engine lathe operation, advanced vertical horizontal and CNC milling operation, grinding machine operation, and CNC turning centers. (Prerequisite: Accepted into Machine Tool Operation or CNC; Corequisite: 31-420-356, Machine Shop 3)
31-421-352 BLUEPRINT READING/ SKETCHING-MACHINE 1 ...fundamentals of sketching, orthographic projection, auxiliary views, sectional views, dimensioning, precision and non-precision measurement, and general print reading.

31-421-362 BLUEPRINT READING SKETCHING-MACHINE TRADES 2 ...blueprint reading, tolerancing, surface finishes, fits (inch \& metric), basic welding symbols, casting, stamping, gearing and CAM drawings, and basic geometric tolerancing and dimensioning. (Prerequisite: 31-421-352, Blueprint Reading Sketching-Machine Trades I)
31-422-359 METALLURGY FOR MACHINIST ...manufacture of iron and steel, basic composition of metals, metal identification, applied heat treating processes.

Manufacturing Engineering Technology
Program Code 106233 | Associate Degree

Offered at the Green Bay campus
including UW-Stout coursework.
This program is fully eligible
for financial aid.
Program Description he Manufacturing Engineering Technology program prepareses students to work in the
manufacturing sector assisitige engineering
and management in the design and development of new productict and in the
improvement of production processes
This program will transfer into University
of Wisconsin-Stoutís Bachelor of Science degree in Manufacturing Engineering
offered in Green Bay on the NWTC campus. The third and fourth years
of the bacheloris program will be of the bachelorís program will be
taught by UW-Stout instructors on NWTC Green Bay campusus. To oview
the third and fourth years, visit the Manufacturing Engineering Technology
program page on the NWTC website.

Program Objectives
Be employed in the
manufacturing industry
Particicpate in life-long learning
and engage professional rowth Provide problem-solving skills in a team
environment within manufacturing

## Program Outcomes

Apply the principles of mathematics
science and lean principles to solve
manufacturing related problems.
Apply proper engineering principles
to design for manufacturability.
Determine production process
improvements by application
improvements by app
related experiments.
Explain the principles of material
selection and application.
Assist in the design of products
and manufacturing systems.
Communicate effectively.

- Function effectively in team
or group settings.
Display attitudes con
Display attitudes con
with the profession.
Utilize moded ling soffware tools in Utilize modeling software tools in
the design of prototpes, proudct or
components for selecteta ppplications.
- Apply automation principles along
with the use of programmable logic with the use of programmable logic
controller techniuues for design and
control of manufacturing processes.


## Requirements for

 Program EntryHigh school transcript or equivalen. (For a list of equivalents, go to
www.nwtr.edulgettingstarted.) One year high school algebra or one year
advanced math (Geometry, Algebra II, or Trigonomerty) or equivilent passed wit
ar" "Co grade or better in each semeser

## - As r requirement for program entry an Academic Skills Assessment (Accuplace with appropriate bencher with appropriate benchmark scores is necessary. Program Benchmarks are Reading Comprehension: 80, Sentence Skills: 75; College Math: 63. Sudents not meeting these Manh: bencharks or the equivalent will be granted pre-progran stautu and will be required to establish statu s anv will be required to establish an individualized academic plan. UPo completion of the plan students will be e eligible for all program courses be eligible for all program courses. However, higher test scores will lead to greater success in core program courses. To learn more about these assessments and program benchmarks scores, please contact a counselor at (920) $498-5444$ or ( (888) 385-6982.

## Employment Potential

 A graduate of the program will havethe potential for employment in the manufacturing sector as a technologist in Manufacturing Engineering, Indugstrial
Engineering, Productivity Improvement or Continuous Improvement, assisting engineering and management in the
design and production of products design and production
as efficiently as possible. Note

- Students who choose to take Physics Calculus and Chemistry courses at
other higher education institutions mus be aware of prerequisite requirements and must meet with the Acacemic
Advisor of Manufacuing Advisor of Manufacturing Engineering
Technology prior to course entry. Students should have an aptitude for science and mathematics. Students should take as many upper level math
and science courses in high school as possible, includuing algebra, trigonomerry pre-calculus, physics and chemistry.
Students must have an acceptable Academic
Skills Assessment College Math score ( 63 or higher) or equivalent assessment, or have completed or tested out of 10-80
118 , Intermediter 118, nitermediate Algebraw Apps, before
taking the following first semester program
courses $10-623-170$ Engineering Materials coursess 10-623-170, Engineering Matrerials
10-804-197, College Algebra \& Trig w 10-804-197, College Algebra \& Trig w
Apps and 10-806-135, College Chemistry.
Students must have completed one year
of high school Chemistry (with lab component) within the past five years with
a " B " or better, OR $10-806-134$, General a " B " or better, $\mathrm{OR} 10-806-134$, General
Chemisty, before taking first semester Chemistry, before taking first semester
course, $10-806-135$, College Chemistry. - Sudents will also need to have mastered basic computer skills in
Windows, Word and Excel including
fiecesion - file crudeation and managagement. manual drafting or sketcthing or need to take 10-614-13,2D Essentials prior to
or concurrent with 10-606-113, CAD.

Gurriculum



SECOND SEMESTER
10-600-13 CAD
CAD
$\qquad$



##  10.-623-166 Manutacturing Engr Internship SEMESTER TOTAL

 THIRD SEMESTER10-420-170



fourth semeste

| -168 | Comester Cided Mantiacturing |
| :---: | :---: |
| ${ }_{\text {cole }}^{10-420-168}$ | Computer Aded |
| 10-623-169 | Lean Manutacturing Syst |
| 10-62-173 | Enginering Me |
| 10-664-102 | Automation 3 P P |
| .664-103 | Automation 4 PLC |
| -104 | Automation 5: PLC |
| - | Calauls |
|  |  |

CURRICULUM Note
-The revitit to 0 0.-890-10, College 10 Is an instuturnar euairement or of the program reauirements. The folowing UW-Stout courses are reauired
for Bachelor of SCience Degree completion: SuMmer after semester fou MATH-250 Ditierentid Equations/
 semester five
 MECH-294 Mechanics of Materiali( 3 ( r redifit)
PHYS-282
University SEMESTER SIX

 INMGT-422 Quality Engineering (3 3 reed | SUMMER A ATTRR SEMESTER SIX |
| :--- |
| GEN ED |
| Humantities (3 creditit |

## SEMESTER SEVEN MFGE-35 Mifg. Pro <br> 


MFGE-441 Systigniginn (iscreraiti)
SUMMER AFTTR SEMESTER SEVEN

SEMESTER EIGHT



 GGE-52 Mifg. Process E Engineering || 1 (3 creadi) For furthe detail, goto:
$h$ htp://wwwnuwte:eduaca
hitip///ww...wtc.eduacadediciss ProgTeansites

## COURSE DESCRIPTIONS

 These courses provide an opportunityfor students to develop the knowledge, skills, and understanding required
for employment in this field. 10-420-168 COMPUTER AIDED
MANUFACTURING MANUFACTURING ..effects of product
mix and demand patterns on manufacturing mix and demand patterns on manufacturing
system design and selection of process
control methods. Introductions to quick changeover strategies, reprogrammable
automation, numerical control, robotics and other computerized processing
techniques. (Perequisites: 10-623-172, Material Removal/ Formis: 10-606-126,
Geomertic Dimensioning/Tolerance)
10-420-170 MATERIAL REMOVAL
AND FORMING PROCESSES tool concepts providing an operational
knowledge of machining and metal orming processes. Analysis and application of primary and secondary processing
methods for the manufacture of products. Mechods or the manufacture of products.
Measurement principles and practice
Development of process designs appropriate for product specifications. (Prerequisite:
10-623-170, Engineering Marerials-Intro)
10-606-113 CAD (COMPUTER AIDED
DRAFTING) ...computer aided drafting using AutoCAD sof tware focusing on
template settings creating and manipulation template settings, creating and manipulating
layers basic drawing, editing, and inquiry
commands; locks and attributes; and ploting. (Corequisites: $10-607-119$, Intro to Civil Engineering Technology
OR 10-606-119, Technical Sketching OR 10-606-111, Technical Sketc
OR 10-614-13, 2D Essentials) 10-606-126 GEOMETRIC .review of stand material condition symbonsis, tolerances of of form and profie, tolerances of orientation and run
out, location tolerances and virtual condition.
IPrecer [Pereceuisistes: $10-6066$-113, CAD, OR 10-
$606-157$, Solidworks Fund and Drawings OR 606-157, Solidworks Fund and Drawings OR
(10-606-162, Solidworks Fundamentals and (10--006-162, Solidworks Fundamentals; and 10-606-164, Solidworks Assemblies D Draw)] 10-606-157 SOLIDWORKS
FUNDAMENTALS AND D FUNDAMENTALS AND DRAWINGS
..terminology soffware operation and ...terminology, soffware operation and
interface basics, creating basic models, creating casting and forging models, revolved
features, Solidworks drawing environment featurus, Solididworks drawing envirironment
and fully dimensioned orthogenghi and fully dimensioned orthographic
drawings. (Corequisite: 10-606-119, drawings. (Corequisite: 10-606-119,
Skertching-Technical, OR $10.6141113,2 \mathrm{D}$
Essentials Sketching Technical; Prerequisite:

10-620-170 ROBOTICS study of the applicito ...introductory programming and and roubleshooting 10-623-166 MANUFACTURING
ENGINERRING INTERNSHIP application of theory, skills, and techniques in the manufacturing engineering profess (Prerequisite: instructor approval) 10-623-167 ENGINEERING ECONOMY ... using source and application of funds; cost
control, valuation, depreciation, replacement theory and taxation to analyyze and assist in making management decisions. (Prerequistity
$10-80-4-197$, College Algebra \& Prig w 10-804-197, College Algebra \& Trig w
Apps OR 10-804-195, College Algebra w Apps SR 10-804-195, College Algebra w
Apps AND 10-804-196, Trigonometry w Apps; proficiency with advanced functions
of Excel strongly recommended)
10-623-169 LEAN MANUFACTURING SYSTEMS 1 ...introduction to productio manufacturing system design for engineer Emphasis is given to analysis and design
of of production systems, facility layout, and
globalization. (Prerequisites: 10-84-197, globalization. (Prerequisites: 10-804-197,
College Algebra \& Trig w Apps OR 10 -804-195, College Algebra w/ Apps AN
1-804-196, Trigoonometry w/ Apps 10-804-196, Trigonomerty w/ Apps)

- INTRO ...exposure to engineering materials, their properties, and behavior.
Topics will indudec mateinl testing, mechanical propereritises haes, matereatian en
and materials selection. (Perequistes: and materials selection. (Prerequisites:
$10-806-135$, College Chemistry; $10-804-$
197 College Alebe 10-806-135, College Chemistry $10-804-$
17, College Algebra \& Trive Appp OR
10-804-195, College Algebra w Apps AND 10-804-196, Trigonometry w App

$$
\begin{aligned}
& \text { 10-623-171 P PLYMER AND } \\
& \text { COMPOSTE PROCESES. } \\
& \text { moterils Ind nroneris }
\end{aligned}
$$

$$
\begin{aligned}
& \text { COMPOSITE PROCESSES...polymer } \\
& \text { materials and properties, material testing, } \\
& \text { product desigg and evaluation, processing }
\end{aligned}
$$ product design and evaluation, processing,

methods, machine setup and operation. Course requirements include a trip to
UW-Stuof for lab work. . Prerequisite: 10 UW-Stout for lab work. (Prerequisite: 10-
623-170, Engineering Materials-Intro) 10-623-173 ENGINEERING MECHANICS ...fore systems and
equilibrium in two and three dimensi free body diagrams, trusses, frames, friction,
kinematic analysis of particl and rigid bod translation, rotation, and general place crantation, rotation, and general plane
motion, force-acceleration analysis, work-
energy
energy analysis, impulse momentum analysis,
impact, damped and undamped vibrations,
and forced vibrid impact, damped and undamped vibration
and forced vibrations. (Pereceuisiste: 10 -
$806-286$. C 806-286, Calculus Sased Physiscs 1)

10-623-175 CASTING AND JOINING
PROCESSES...welding of mealls, ceramic and plastic. Brazing and soldering of approppriate metals, setup and operate
welding equipment. Thermal effects and
destructive eestit. welding equipment. Thermal effects and
destructive esting Evaluation of adhesives
and mechanical fasteners. Weldining destructive testing. Evaluation of an
and mechanical fasteners. Welding
codes and ATTM standard comparat codes and ASMM standard comparative
processing cost. Prerequisise 10-623-
170 , Engineering Materials-Intro) 10-664-102 AUTOMATION 3: PLC 10-664-102 AUTOMATION 3: PLC
...basic programmable logic controller
programming and troubled programming and troubleshooting. 10-.664-103 AUTOMATION 4: PLC
Freubleshooting a PLC system applying Event Sequencing, developing PLC
applictions applying timer instructions applications, applying timer instructio
and counter instructions. (Corequisite:
$10-664-102$ A Atoman 10-664-102, Automation 3: PLC) 10-664-104 AUTOMATION 5: PLC
..application, troubleshooting, and ..application, troubleshooting, and
implementation of program control,
math and data move minstructions, anal math and data move instructions, analog
I/O modules, and producing a PLC program from specification. (Corequis
10-664-103, Automation 4: PLC) 10-804-181 CLCULUS 2 ...continuation
of Calculus I covering integration techniques, of Calculus I covering integration techniques
indeterminate forms, improper integrals, indeterminate forms, improper inteerals,
techniques of integration, applications
to the physical sciences techniques of inteeration, applications
to the physical sciences, first order linear
differentile equation if differential equations, Infinite eseries including
Maccuarin, Tralor, and Furier. (Prereuxiste:
10-804-198, Calculus I with a "C" or better) 10-806-135 COLLEGE CHEMISTRY 10-806-135 COLLEGE CHEMIS
nomenct measurement, chemical
nemical reactions
 thermochemistry, chemicalu bonding and and
solution chemistry, Prerequiste: One year of
high school Chemist solution chemistry. (Prerequisite: One year of
high school Chemistry
withith thin the past 5 yearas with a ${ }^{\text {an }}$ " or beterter within the past 5 years with a "B" of better
OR 10-806-134, General Chemisty with a "C" orb better within the pants years.
Corequiste: 10-804-197, College Algebra Corequisite: 10-804-197. College Algebra
and Trig w/Apps, OR 10--84-195, College
Algebra w/Apps AND $10-804-196$ Algebra w/Apps AND 10-804-196,
Trigonomerty w/Apps or equivalent.)

## Manufacturing Operations

Management Program Code 1019085 | Associate Degree

For information, call the Green Bay campus: (920) 498-5444. Toll-free: (888) 385-6982.

This program is fully eligible
for financial aid.

## Program Description

Manufacturing Operations Management is a unique associate degree program designed by local industry to meet the needs of the workplace through a combination of supply chain, automation, quality, lean leadership, and supervisory skills. Graduates of this program are prepared to provide leadership in manufacturing industries. Upon graduation, a student will have completed 69 credits.

## Program Outcomes

- Demonstrate effective leadership skills.
- Perform in team environments.
- Value diversity
- Demonstrate workplace communication skills.
- Understand the financial components of an organization
- Utilize performance
management techniques.
- Apply project management skills.
- Apply continuous improvement processes.
- Affect workplace safety positively.
- Monitor customer service, quality, and cost performance.
- Demonstrate knowledge of the application of supply chain management concepts.
- Understand the overall operation and control of machines.
- Apply electrical skills to troubleshoot control and operator panels.
- Apply programming languages to the control of single programmable controllers and industrial networks.


## Requirements for

## Program Entry

- Completed application
- High school transcript or equivalent. For a list of equivalents, go to www.nwtc.edu/gettingstarted.
- As a requirement for program entry, an Academic Skills Assessment (Accuplacer)
with appropriate benchmark scores is necessary. Program Benchmarks are Arithmetic: 65; Reading Comprehension: 55; Sentence Skills: 75. Students not meeting these benchmarks or the equivalent will be required to establish an individualized academic plan. Students may have the opportunity to enroll in selected program core courses while completing their individualized plan. Upon completion of the plan, students will be eligible for all program courses. However, higher test scores will lead to greater success in core program courses. To learn more about these assessments and program benchmark scores, please contact a counselor at (920) 498-5444 or (888) 385-6982.
- It is recommended that a student have basic computer skills in Word, Excel, and PowerPoint prior to entering the Manufacturing Operations Management program.


## Employment Potential

A graduate of this program will
have the potential for employment in the following areas:
Team Lead
Performance Leader
Reliability Coach
With additional education and/or work experience, graduates may find other opportunities for employment.

- Supervisor of Maintenance, Shop, Production, Department.

Note

- The 11 technical studies courses, beginning with course number 10-196xxx, are delivered in a variety of formats.
Some courses have a compressed schedule of seven weeks each. The competencies learned in an accelerated class are exactly the same as those in a traditional class. Students do much of the learning and assignments outside of class time.

The following certificates/technical diplomas may be applied toward this program: - 901961, Supervision Certificate - 901962, Ethical Leadership Certificate - 901969, Utility Management Certificate

## Gurriculum <br> Students following the study plan <br> below will complete the Manufacturing Operations Management associate degree in the number of semesters shown.

FIRST SEMESTER 10-196-164 Supervisors-Personal Skills 10-196-189 Team Building/Prob Solve 10-196-191 Supervision
10-801-136 English Composition 1 10-801-198 Speech
10-804-123 Math w Business Apps *10-890-101 College 10

## SECOND SEMESTER

10-101-106 Accounting-for Non-Accountants
10-105-102 Career Planning
10-182-110 Lean Operations Mgmt
$\begin{array}{ll}\text { 10-196-134 } & \text { Legal Issues-Supervisors } \\ \text { 10-801-196 } & \text { Oral/Interpersonal Comm }\end{array}$
10-809-197 Contemporary Amer Society
SEMESTER TOTAL

## THIRD SEMESTER

10-105-103 Career Preparation
10-196-169 Diversity in the Workplace
10-196-190 Leadership Development
10-196-199 Business Ethics
$\begin{array}{ll}10-664-100 & \text { Automation 1: Control Logic } \\ \text { 10-664-101 } & \text { Automation 2: Motor }\end{array}$
10-809-195 Economics
10-809-198 Intro to Psychology
OR
10-809-199 Psychology Of Human Relations
SEMESTER TOTAL

## FOURTH SEMESTER

10-101-184 Business Finance/Budgeting
10-196-105 Manufacturing Op Career Exper
10-196-136 Safety-Workplace
10-196-188 Project Mgmt Fundamentals
10-196-192 Managing-Quality
10-664-102 Automation 3: PLC
SEMESTER TOTAL
curriculum note
*The credit for 10-890-101, College 101, is an Institutional Requirement for graduation. Consequently, it is not part
of the program credit requirements.

- 901968, Quality Improvement and Innovation Certificate
-901967, Health Care
Leadership Certificate
- 9019610, Health Care Leadership Advanced Certificate


## COURSE DESCRIPTIONS

These courses provide an opportunity for students to develop the knowledge, skills, and understanding required for employment in this field.

10-101-106 ACCOUNTING-FOR NON-ACCOUNTANTS ...teaching nonaccountants to read, analyze, and interpret financial information for making informed business decisions. This class de-emphasizes the use of debits, credits, journal entries and other accounting procedures.

10-101-184 BUSINESS FINANCE/ BUDGETING ...fiscal and monetary aspects of business. Each learner will demonstrate application of business types, cycles, forecasting, budgeting, expense control, and financial statement interpretation relevant to the supervisor as a non-accountant. (Prerequisite: 10-804-123, Math w/ Business Apps)

10-105-102 CAREER PLANNING ...experiential learning introduction. Learn how personal branding allows candidates to differentiate themselve from the competition through appearance, personality, and marketing (Corequisite: 10-890-101, College 101)

10-105-103 CAREER PREPARATION ...create professional resume and cover letter, prepare for interviews, understand interviewing techniques, participate in a mock interview. Submission of experiential learning proposal. (Prerequisite: 10-105-102, Career Planning; 10 801-136, English Composition 1) 10-182-110 LEAN OPERATIONS MANAGEMENT ...lean operating concepts, total quality management, Six Sigma methodologies, continuous improvement tools/techniques, process mapping, 5 S principles, statistical process control/pull signals, cellular manufacturing, mixed-mode production, human resource development.

10-196-105 MANUFACTURING OPERATIONS MANAGEMENT CAREER EXPERIENCE ...practical hands-on experience applying skills developed in the program at an approved site with supervision by an employer and the instructor with related projects and discussion. (Prerequisite: 10-105-103, Career Preparation)
10-196-134 LEGAL ISSUESSUPERVISORS ...legal practices of recruiting, interviewing, hiring, selection, evaluation/promotion, employee discipline, fring, EEOC and nondiscrimination, employee privacy, workplace harassment, FMLA, ADA and unions.

10-196-136 SAFETY-WORKPLACE ...safety awareness, federal/state/local compliance, inspections, risk analysis, workplace violence, substance abuse, health hazards, first aid, CPR, fire and electrical safety, and emergency preparedness.

10-196-164 SUPERVISORS-PERSONAL SKILLS ...time management and personal planning, emotional intelligence, effective communication, assertiveness and stress management related to the challenges of a supervisor.

10-196-169 DIVERSITY IN THE WORKPLACE ...analyze the effect of perceptions, attitudes, biases, and organization culture on diversity, dealing with barriers, measuring progress, and celebrating success.
10-196-188 PROJECT MANAGEMENT FUNDAMENTALS ...the role of project management, developing a project proposal, demonstration of relevant software, working with project teams, sequencing tasks, charting progress, dealing with variations, budgets and resources, implementation, and assessment.

10-196-189 TEAM BUILDING/PROBLEM SOLVING ...benefits and challenges of group work, necessary roles in a team, stages of team development, meeting facilitation, different approaches to problem solving, consensus, data acquisition, analysis, developing alternative solutions, implementation and evaluation.

10-196-190 LEADERSHIP
DEVELOPMENT ...leadership effectiveness and organization requirements, individual and group motivation strategies, vision, mission and goals, ethical behavior, leadership style and adaptation, impacts of power and influence, employee development, coaching, managing change, and conflict resolution. (Prerequisite 10-801-136, English Composition 1

10-196-191 SUPERVISION ...front-line leadership including teamwork, setting goals, planning, delegation, controlling, communication, motivation, performance management, staffing, training, problem solving, and conflict management.

10-196-192 MANAGING-QUALITY ...developing a personal philosophy of quality, identifying all stakeholder relationships, meeting/exceeding customer expectations, managing a quality improvement project, measuring effectiveness, lean thinking Six Sigma, and systems thinking.

10-196-199 BUSINESS ETHICS ...ethical points-of-view, morality/ethical theory utilitarianism, Kantian ethics, justice and the market system, whistle-blowing, trade secrets/conflict of interest, privacy, advertising, product safety, corporate social responsibility, international business.
10-664-100 AUTOMATION 1 : CONTROL LOGIC ...electric motor control components such as switches, relays, starters, transformers; and safely mount and install motor and motor control components and perform related wiring and troubleshooting of motor control circuits.

10-664-101 AUTOMATION 2: MOTOR CONTROL ...electric motor control components such as sensors, timers and counters. (Corequisite: 10-664100, Automation 1: Control Logic)

10-664-102 AUTOMATION 3: PLC ...basic programmable logic controller programming and troubleshooting

Marine Construction



Program Description
The Marine Consruction Tch




## Program Outcomes


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## Requirements for Program Entry






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 scorcses please contact a counsclor
$(920) 498-5444$ or 888$)$ (85-6982

Employment Potential A graduate of fhe rogram will have
the potential for enplomentin in the
 Marine Welder. employment in Structural
WWeding, Welderf fabricator, and Pipe
WWer





 Marine Electician: employment in
insalling and servicicing oonduit,



 opporunitesece, for eraduates mants fund onhe
Electical Engineering Technician, Electrical
 Note
 other Marine Constuction sudents hax
the option to otake either $31-421-334$,


Curriculum
Sudenss followi



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| COURSE DESCRIPT |  |  |
| :---: | :---: | :---: |
| These courses provide an opportunity for students to develop the knowledge skills, and understanding required for employment in this field. |  |  |
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| 10-182-111 LEAN OPERRTIONS ...understanding of materials and operations management, systems approach productivity attainment, forecasting, quality management, quality control, six sigma process analysis and process redesign. | 31-422-310 METALLURGY ...manufacture f iron and steel, mechanical and physical properties of metals, metal identification, macro and microscopic grain structures, welding metallurgy, applied heat treating processes, and weld failures and fractures. |  |
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|  |  | 362 MARINE WELDING |
| 10-413-304 ELECTRIC MOTOR CONTROL ...motor starters, overcurrent protection, overload protection, motor branch circuits, starting methods, troubleshooting motor circuits, and an introduction to PLC’s. (Corequisite:10-413-303, Industrial Controls) 10-413-303, Industrial Controls) | 31-422-301 MATERIAL CUTTING APPLICATIONS...visual inspection of weld and cut edges, manual and machine oxy fuel gas cutting, air carbon arc cutting, plasma arc cutting, and mechanical cuttinmethods. (Prerequisite: Accepted into Welding or Marine Construction program) |  |
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| 10-413-314 DC CIRCUITS ...electron theory, electromotive force sources, voltage, current, resistance, power, Ohm's Law, series-parallel circuits and 312, Math-Algebra/Trades; 10-413317, Fundamentals of Electricity) | 31-422-337 METAL FABRICATION I (LAYOUT)...course provides the opportunity skills, process, and understanding of basic line and angle construction along with fat patterndeveloment for radial line, parallel line, and development for radial line, paraliel ine, andtriangulation (Prerequisite: Accepted into Welding or Marine Construction program) |  |
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|  | 31-442-338 Metal fabrication II (EQUIPMENT) ...course provides the opportunity for the learner to develop the knowledge, skills, processand understanding of general fabricatio equipment, safety and operation used for sawing, bending, shearing, drilling and punching. (Prerequisite: Accepted intoWelding or Marine Construction program |  |
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|  |  |  |
| 10-413-328 MOTORS/TRANSFORMERS ...magnetism, electromagnetism, AC single-phase and three-phase motors, and an introduction to AC drives. (Corequisite: 10-413-334, AC Circuits) |  |  |
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|  | 31-442-348 GAS METAL ARC WELDING 1 ...course provides the opportunity for the learner to develop the knowledge, skills in the flat and horizontal positions, <br> fillet, pipe to plate and groove welds on <br> plain carbon steel. (Corequisite: 31-442 <br> 301, Material Cutting Applications) | 31-448-366 FIBER AND MATRIX LAYUP ...this course covers the materials. processes and tools used to build a fiberglass part and their role in the openand closed molding laminating processes.$\qquad$ |
| 10-413-334 AC CIRCUITS ...AC theory, inductance, capacitance, impedance, serie ad parallel AC circuits, AC power, power factor corrections, rectification of AC diodes and silicon controlled rectifiers.(Corequisites: 10-413-314, DC Circuits, 31-804-312, Math-Algebra Trades) |  |  |
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|  | 31-442-349 METAL FABRICATION RIGGING ...course provides the opportunity for the learner to develop the knowledge, skills, process and understanding of general fabrication rigging that would be used in a shop and job site application.(Prerequisite: Accepted into Welding or Marine Construction program) |  |
| 10-442-102 INTRO TO MARINE PRODUCTION ....asasic tooling, basic blueprint reading, basic layout assembly practices, basic steel welding, basic aluminumwelding, basic stainless stel welding g, basic stainless steel welding. |  |  |
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| 10-448-210 INTRO TO MARINE-BASIC ...industrial safety, maritime technology, basic HVAC, intro to composites, basic marine propulsion, basic rigging basic electricity, project management, quality and team building skills. |  |  |
|  | 31-422-356 GAS METAL ARC WELDING 2 ...course provides the opportunity for the process and understanding of welds in the vertical and overhead positions, fillet, pipeto plate and groove welds with and without backing on plain carbon steel. (Corequisites: 31-442--301, Material Cutting Applications;31-442-348, Gas Metal Arc Welding 1) |  |
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| 10-664-100 AUTOMATION 1: CONTROL LOGIC ...electric moto control components such as switches,relays, starters, transformers; and safely mount and install motor and motor control components and perform related wiring and troubleshooting of motor control circuits. |  |  |
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|  | 31-442-358 GAS METAL ARC WELDING 3. ..course provides the opportunity forthe learner to develop the knowledge. skills, process and understanding of welds in the flat and horizontal positions onT-Joints (1F \& 2F) and prove welds with backing (1G \& 2G) on plain carbon steel using the spray mode of transfer and on aluminum. (Corequisites: 31 -31-421-356, Gas Metal Arc Welding 2) |  |
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| 10-664-101 AUTOMATION 2: MOTOR CONTROL ...lectric motor control components such as sensors, imersand counters. (Corequisise: $10-644$ 100, Automation 1: Control Logic) |  |  |
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| 31-413-339 INDUSTRIAL CONTROLS ...electrical symbols, wiring diagrams, ladder diagrams, control logic, pilot devices, (Corequisite: 31-413-345, Industrial Cod |  |  |
|  |  | 31-448-371 QUALITY CONTROL ...how to check incoming materials to ensure they meet specifications and how to monitor the building process by having quality control inspection during the building process toeliminate warranty problems in the field eliminate warranty problems in the field. |
|  |  |  |
|  | knowledge, skills, process and understanding <br> of GTAW equipment set-up as well as <br> the basic skills needed to make welds on <br> plain carbon steel. Weld quality will be discussed but this course is only used to <br> discussed but this course is only used to understand the basics of the GTAW process. <br> (Prerequisites: Accepted into Welding or <br> 301, Material Cutting Applications) |  |
| 31-421-335 BLUEPRINT READING FOR WELDERS 1 ...course provides the opportunity for the learner to developthe knowledge and understanding of orthographic projection, sketching, dimensioning, section and auxiliary views, structural shapes, metric conversation andinterpretation of fabrications from prints (Prerequisite: Accepted into Welding or Marine Construction program) |  |  |
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|  | 31-442-362 GAS TUNGSTEN ARC WELDING 2 ...course provides the opportunity for the learner to develop theknowledge sills process and unders knowledge, skills, process and understandingof making grove and fillet weld on sheet meal with plain carbon steel, 3 XX stainless stel. Weld quality will be emphasized with all lab assignments Prerecquiste: $31-242$ andMaterial Cutting Applications; Corequiste: 31-442--59, Gas Tungsten Arc Welding 1) |  |
| provides the opportunity for the learner to develop the knowledge and understanding of welding symbols AWS and ISO, weld joint nomenclature and welding joint Welding or Marine Construction program |  |  |
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Offered at the Green Bay and Marinette campuses. For informatio in Green Bay: (920) 498-5444. For information in Marinette: (715) 735 9361. Toll-free: (888) 385-6982.

This program is fully eligible for financial aid.

## Program Description

The Marine Engineering Technology Associate Degree will prepare learners with programming specific to marine skills. Marine Engineering Technicians will assist the management team by designing marine systems and components. The program will provide a skilled workforce of engineering technicians who are able to design integral marine systems.

## Program Outcomes

- Display proficiency with the use of CAD-based design software/procedures.
- Develop from design drawings the process drawings for the production floor.
- Apply mathematical reasoning .
- Perform safety evaluation of the designated worksite or assigned evolution.
- Analyze stresses caused by forces acting on bodies at rest.
- Analyze forces acting on bodies at rest. - Interpret basic mechanical and/ or electrical blueprints.
- Verify quality control and workmanship metrics.
- Maintain files on a personal computer
- Use relevant industry terminology.
- Use materials according to application.
- Use appropriate measurin systems in the industry
- Function effectively in team or group settings.
- Display attitudes consisten with the profession.
- Communicate with coworkers and supervisors.

Requirements for Program Entry

- Complete Application.
- High School transcript or equivalent. For a list of equivalents, go to www.nwtc.edu/gettingstarted.
A high school background in mathematics, science and industrial education.
- High school algebra or equivalent. - As a requirement for program entry, an Academic Skills Assessment (Accuplacer) with appropriate benchmark scores necessary. Program Benchmarks are Reading Comprehensions: 80; Sentence Skills: 75; College Level Math: 63. Students not meeting these benchmarks or the equivalent will be required to establish an individualized academic plan Students may have the opportunity to enroll in selected program core courses while completing their individualized plan. Upon completion of the plan, students will be eligible for all program courses. However, higher test scores will lead to greater success in core program courses. To learn more about these assessments and program benchmark scores, please contact a counselor (920) 498-5444 or (888) 385-6982.

Students will be required to take the Accuplacer College Level Math assessment instead of the Algebra assessment. The benchmark grade for Marine Engineering Technology on the College Level Math assessment is 63 .
The student will either provide proof of having completed course work in Windows, Word, and Excel or pass a proficiency test.

## Employment Potential

A graduate of this program will have the potential for employment in the marine manufacturing sector of building boats, to yachts, to ships as a Marine Engineering Technician, a Mechanical Design Technician, a Mechanical Drafter, or an Electro-Mechanical Designer.
With additional education and/or work experience, graduates may find other opportunities for employment as a Naval Architect, Marine Engineer, Project Engineer or a Lead Designer.

Students must have had two years of high

## Curriculum


will complete the Marine Engineering number of semesters shown.

## FIRST SEMESTER

CREDITS
10-442-102 Intro to Marine Production 10-448-210 Intro to Marine-Basic 10-606-113 CAD
10-606-157 Solidworks Fund and Drawing 10-614-113 2D Essentials
10-801-196 Oral/Interpersonal Comm ${ }_{*}^{10-804-196}$ Trigonometry w Apps *10-890-101 College 10
SEMESTER TOTAL
10-442-153 Prototype Metal Fabricatio 10-606-103 2D CAD - Advanced 10-606-122 CAD-Fabrication \& Assembly 10-606-126 Geometric Dimension/Toleran 10-804-195 College Algebra w Apps SEMESTER TOTAL

## THIRD SEMESTER

10-448-204 Naval Architecture
10-448-206 Navial Architecture
10-606-135 Machine Members-Strength 10-606-158 Solidworks Advanced 10-606-159 Materials Science SEMESTER TOTAL

## FOURTH SEMESTER

10-448-205 Naval Architecture II
10-606-141 Design Problems
10-620-101 Fluids 2 : Basic Hydrautics
10-620-165 Fluids 3 : Inter Hydraulics
10-801-136 English Composition 1
10-809-172 Intro to Diversity Studies 10-809-199 Psychology Of Human Relations SEMESTER TOTAL
TOTAL CREDITS

CURRICULUM NOTE
*The credit for 10-890-101, College 101, is an Institutional Requirement for graduation. Consequently, it is not part of the program credit requirements.
school algebra, one year of high school seometry and an acceptable Academic Skills Assessment College Math score or have completed or tested out of Intermediate Algebra w Apps, course 10-804-118, before taking the following First Semester program course: 10-804-196, Trigonometry w/Apps.

## COURSE DESCRIPTIONS

These courses provide an opportunit for students to develop the knowledge skills, and understanding required for employment in this field.
10-442-102 INTRO TO MARINE PRODUCTION ...basic tooling, basic blueprint reading, basic layout assembly practices, basic steel welding, basic aluminum welding, basic stainless steel welding.
10-442-153 PROTOTYPE METAL FABRICATION...ferrous and non-ferrous metals, oxyacetylene gas, tungsten arc gas metal arc, and metal fabrication.
10-448-204 NAVAL ARCHITECTURE I ...lines plan, static stability, hydrostatic curve, determination of areas, volumes, displacement, buoyancy of damaged vessel and stability criteria, launching of ships. (Prerequisites: 10-804-195, College Algebra w/Apps; 10-804-195, Trigonometry w/Apps)
10-448-205 NAVAL ARCHITECTURE II ...continuation of Naval Architecture I covering shipbuilding materials, stresses, loading, propulsion, resistance, speed and power calculation of a vessel. (Prerequisites: 10-448-204, Naval Architecture I; 10-448-206, Ship Constructor)
10-448-206 SHIP CONSTRUCTOR ...ship constructor terminology, software operations, interface basics, creating virtual ship models, revolved features, ship constructor drawing environment and fully dimensioned assembly drawings. (Prerequisite: $10-$ 606-103, 2D CAD ñ Advanced)
10-448-210 INTRO TO MARINE-BASIC ...industrial safety, maritime technology, basic HVAC, intro to composites, basic marine propulsion, basic rigging, basic electricity, project management quality and team building skills.
10-606-103 2D CAD-ADVANCED ...primary and successive auxiliary views; intersections and developments; intersections of planes and dihedral angles; piercing points; angles between lines and planes; revolutions; vectors. (Prerequisite: 10-606-113, CAD)

0-606-113 CAD (COMPUTER AIDED DRAFTING) ...computer aided drafting using AutoCAD software focusing on template settings; creating and manipulating layers; basic drawing, editing, and inquiry commands; blocks and attributes; and plotting. (Corequisites: 10-607-119, lntro to Civil Engineering Technology OR 10-606-119, Technical Sketching OR 10-614 113, 2D Eseriab)

10-606-122 CAD-FABRICATION \& ASSEMBLY ...sheet metal drawing as applied to brackets, enclosures \& guarding; welding drawings; threads $\&$ fasteners; stock components; working drawing documentation. (Prerequisite: 10-606-113, CAD)

10-606-126 GEOMETRIC DIMENSIONING/TOLERANCING ...review of standard dimensioning, datums, naterial condition symbols, tolerances of form and profile, tolerances of orientation arm run out, location tolerances and virtual condition. [Prerequisites: 10-60613, CAD; OR 10-606-157, Solidworks Fund and Drawings OR (10-606-162, olidworks Fundamentals; and 10-606 163 , Solidworks Intermediate; and 10-606-164, Solidworks Assemblies/Draw)]
10-606-135 MACHINE MEMBERSTRENGTH ...force analysis, moments, russ and frame analysis, simple stress, properties of materials, joint design, centroids and moments of inertia, beam design, shafting design, combined stresses, columns. (Prerequisites: 10-806-154, General Physics ; 10-804-196, Trigonometry w Apps)
10-606-141 DESIGN PROBLEMS ...data gathering, mathematics, document standard practices, project management and teamwork. Prerequisites: 10-606-126, Geometric Dimensioning/Tol; 10-606-135, Machine Members-Strength; 10-606-103, 2D CAD Adv; (10-606-158, Solidworks Adv OR 10-606-160, Solidworks Sheet Metal AND 10-606-166, Solidworks Loft \& Surface)]

10-606-157 SOLIDWORKS FUNDAMENTALS AND DRAWING ...terminology, software operation and interface basics, creating basic models, creating casting and forging models, revolved features, Solidworks drawing environment and fully dimensioned orthographic drawings. (Corequisite: 10-606-119 Sketching-Technical, OR 10-614-113, 2D Essentials Sketching-Technical; Prerequisite Familiarity with Windows file management)

10-606-158 SOLIDWORKS ADVANCED ...sweeps, equations, configurations, draft, base and derived parts, assemblies, assembly drawings, auxiliary, section and special views, sheet metal, lofting, surfacing, and core and cavity. (Prerequisite: 10-606 157. Solidworks Fund and Drawings OR 10-606-163, Solidworks-Intermediate)

10-606-159 MATERIALS SCIENCE ...engineering materials, material selection, the relationship between material structure and properties, and failure analysis for design improvement. Materials covered include: metallic, polymeric, ceramic, and composite/exotic.

10-614-113 2D ESSENTIALS ... an introduction to technical communication, annotation, geometric construction, model, orthographic and pictorial, section and auxiliary views and dimensioning.

10-620-100 FLUIDS 1: BASIC PNEUMATICS ...what fluid power is, differentiate between hydraulics and pneumatics, implement basic pneumatic circuits, utilize schematics, apply Pascal's Law, define properties of fluids, implement airflow control and hydraulics cylinder circuits.
10-620-101 FLUIDS 2: BASIC
HYDRAULICS ...hydraulic pumps, basic hydraulics actuator circuits, hydraulic schematics, apply Pascal's Law, summarize the effects of fluids friction, define properties of hydraulic energy, design hydraulic circuits with directional control valves. (Corequisite: 10-620-100, Fluids 1: Basic Pneumatics) 10-620-165 FLUIDS 3: INTERMEDIATE HYDRAULICS ...design of cylinder actuating circuits with pressure-compensated flow control valves, how to control pressure, pilotoperated check valve applications, accumulator operation and application, hydraulic motor types and applications. (Corequisite: 10 620-101, Fluids 2: Basic Hydraulics)

|  |  | Curiculum |
| :---: | :---: | :---: |
| most first year program courses available at Sturgeon Bay campus. For information in Green Bay: (920) 498-5444. For information in Sturgeon Bay: (920) 746-4900. Toll-free: (888) 385-6982. | Employment Potential <br> A graduate of this program will have the potential for employment |  |
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| This program is fully eligible for financial aid. |  |  |
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| Program Description |  |  |
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| Program Outcomes |  |  |
| - Recommend apricing plan. |  |  |
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| - Concrate mankecing informion |  |  |
|  |  | Stemele |
| - Apply continuous improvement strategies to solve marketing problems. |  |  |
| - Assess emerging trends in global trade that impact business and marketing. |  |  |
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| - Manage cresurces and insts to ontribuc |  |  |
|  | Marker Reearch Assisaner feearches |  |
| - Manage marketing within an enterprise. <br> - Apply technology to marketing and marketing information systems. |  |  |
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| - mankecing intomaxion sysems. |  |  |
|  | erport |  |
| - Develop long-term strategic marketing plans. |  |  |
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| - Formulate sling straegies |  |  |
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| - Design a promotion plan. <br> - Generate social media strategies to meet marketing and promotional objectives. |  |  |
|  |  | 10-104-174 Social Media Analytics |
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| Requirements for |  |  |
| Program Entry <br> - Completed application |  | Pro |
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| - High school transcript or equivalen |  |  |
| For a list of equivalents, go to www.nwtc.edu/gettingstarted. |  |  |
| - Ability to use computer keyboard. |  |  |
| - Students should have mastered basic math skills (whole numbers, fractions, decimals, percents, measurements). |  |  |
|  | - Markeing Informaion Manager |  |
| - As a requirement for program entry, an Academic Skills Assessment (Accuplacer) |  |  |
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| with appropriate benchmark scores is necessary Program Benchmarks are |  |  |
| Arithmetic, 65; Reading Comprehension, <br> 55; Sentence Skills, 75. Students no |  |  |
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| meeting these benchmarks or the equivalent will be required to establish |  |  |
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| Students may have the opportunity to enroll in selected program core courses | tions ${ }^{\text {d }}$ | Sulais |
|  | 0, Social Media Ma |  |
| while completing their individualized plan. Upon complecion of the plan, sudents will be e ligible for all program courses. However, higher test scores will lead to greater success in core program courses. To learn more about these |  |  |
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|  | al. The |  |
| COURSE DESCRIPTIONS <br> These courses provide an opportunity for students to develop the knowledge, skills, and understanding required for employment in this field. | Ns |  |
|  | Powerepoin as a sool to crearee effective, | branding llows yout oor |
|  | professional.looking makkcing pra |  |
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| 10-101-106 ACCOUNTING-FOR NON-ACCOUNTANTS ...teaching nonaccountants to read, analyze, and interpret financial information for making informed business decisions. This class de-emphasizes the use of debits, credits, journal entries and other accounting procedures. |  |  |
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|  | 10-104-154 PROFESSIONAL SALES: evolution of consultative | 104-182, Personal Brand-Development) |
| 10-102-100 BUS AND INFO TECH OCCUP PREP ...caree exploration, selfexploration, career planning, career placement, job seeking skills. This course should not be taken before the 3rd semester or completing at least half of the core program courses. |  |  |
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|  <br> ETHICS ...common law contracts and sales contracts: formation, interpretation, performance, and discharge; the law of agency; corporations; and introduction to the American legal system: criminal and tort law, and global business issues. (Prerequisite: 10-801-136, English Composition 1) | STRATEGY AND PREPARATION ...prepare to sell with deep knowledge of |  |
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|  | 10-104-158 Professional sales: |  |
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|  | how to create a good first <br> and choose the approach at best fits the selling situatio |  |
| 10-103-131 MICRO: EXCEL- <br> INTRODUCTION ...creating a worksheet, enhancing worksheet appearance, moving and copying data, using formulas and functions, creating charts and using clip art. Windows experience improves success; consider $10-$ 103-111, Windows/Computer Basics. |  |  |
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|  | miqucs and asing the right qi | to handle complaining cusumess. |
|  |  | 10-104-198 MARKET RESEARCH ...identifying problems and formulating |
|  |  | $\begin{aligned} & \text { probl } \\ & \text { infor } \end{aligned}$ |
| 10-104-101 SELLING PRINCIPLES ..selling as a career; success factors in selling; personality development; product knowledge; and the sales process involving preparation, approach, presentationdemonstration, handling objections, and closing the sale successfully. |  |  |
|  |  |  |
|  | CLOSING TECHNIQUES ...identify, sel and apply techniques to effectively close sal | $\begin{aligned} & \text { con } \\ & 10- \end{aligned}$ |
|  | , | 10-104-199 MARKETING INTER |
| 10-104-107 MARKETING COMMUNICATIONS-INTEGRATED ...creating, coordinating and integrating advertising, public relations and marketing activities for a specific customer or audience. A campaign will be developed and presented. | $\underset{\substack{\text { TOMER } \\ \text { avinwin }}}{ }$ | ${ }_{\text {PRP }}^{\text {PRp }}$ |
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|  | niques to overcome objectio |  |
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| 10-104-110 MARKETING PRINCIPLES ...marketing management, market |  | 10.102-10, , |
|  | long basting cusometer exationsips | 10.80-10. 0 Thinking criticaliy |
| segmentation, market research, consumer behavior, product decisions and management of distribution, pricing, promotional decisions for strategy planning. <br> 10-104-119 SOCIAL MEDIA MARKETING ...understand the social media revolution. This course will provide students with the practical knowledge and insights needed to successfully plan, implement, manage and measure social media marketing efforts. <br> 10-104-120 MARKETING <br> INFORMATION MANAGEMENT <br> ...opportunity analysis, marketing research processes and data sources, forecasting sales of new and established products, master plan for a marketing strategy, and implementation and control of marketing programs. (Prerequisite: 10-801-136, English Composition 1) | 10-104-172 SOCIAL MEDIA CONTE MANAGEMENT ...create and manage |  |
|  | that meter makketing bobeciuvs. |  |
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Offered at the Green Bay campus. For information: (920) 498 -
Toll-free: (888) 385-6982.

This program is fully eligible for financial aid.

## Program Description

 Mechanical Design Technology prepares learners for employment asmachine designers. Mechanical Design Technicians assist Product Engineers by detailing sections of the design. Detailing includes selecting standard parts such as bearings, couplings, and
fasteners, sizing machine members; and preparing necessary documentation for preparing necessary documentation
detail and assembly drawings. Most of the work is done on a computer

## Program Outcomes

Draw principal, auxiliary
and sectional views.
Identify the general characteristic of metals, polym
and composites.

- Apply lean manufacturing principles to component design.
- Analyze cost of components.
- Participate as a member of a

Participate as a memb

- Evaluate material options and select

Evaluate material options and select
materials for machine components.

- Use mechanical, architectural, metric and civil scales to plo scalable prints of drawings.
- Research information on the Internet.
- Maintain files on a personal computer.
- Operate word processing and spreadsheet programs.
- Analyze displacement, velocity and Analyze displacement, velocity and
acceleration of machine members. - Analyze stresses caused by forces acting on bodies at rest.
- Analyze forces acting on bodies at rest.
- Sketch orthographic and isometric views. - Use catalogs or Internet sites to select Use catalogs or internet sites to select
standard components in machine design.
- Dimension mechanical drawings standards and GDT standards.
- Draw weldments and sheet metal layouts.
- Create cams using a parametric modeler and CNC program.
- Calculate gear train ratios.
- Create basic models using a parametric modeler
- Design simple mechanical devices.
- Draw detail and assembly drawings.
- Prepare electrical/electronic

Prepare electrical/electronic
documentation for machine contro

- Understand application of Understand application of
electromechanical devices and servos.
- Display attitudes consistent
- Display attitudes con
with the profession.
- Work in an organized manner,
documenting work performed.
Use Machinery's Handb
as a reference source.

Apply various manufacturing methods and techniques as the relate to Mechanical Design.

## Requirements for <br> Program Entry

High school transcript or equivalent. (For a list of equivalents, go to
www. inwtc.edu/gettingstarted.)
As a requirement for program entry, an Academic Skills Assessment (Accuplacer) with appropriate benchmark scores is necessary. Program Benchmarks are Reading Comprehension: 80; Sentence
Skills: 75; Elementary Algebra: 61. Skills: 75; Elementary Algebra: 61. Students not meeting these benchmarks or
the equivalent will be granted pre-program the equivalent will be granted pre-program
status and will be required to establish an individualized academic plan. Upon completion of the plan, full program status will be granted. Students may have the opportunity to enroll in selected program core courses while completing
their individualized plan. However, higher their individualized plan. However, higher test scores will lead to greater success in
core program courses. To learn more abo core program courses. To learn more about
these assessments and program benchmark scores, please contact a counselor (920) 498-5444 or (888) 385-6982

Students will be required to take the Accuplacer College Level Math assessment instead of the Algebra assessment. The benchmark grade for Mechanical Design Technology on the College Math assessment is 50 . A high school background in mathematics,
science and industrial education. science and industrial education. High school algebra or equivalen Familiar with Microsoft Wor and File Management.

## Employment Potentia

A graduate of this program will
have the potential for employment have the potential for employment in the following areas
Detailer: produces detailed drawings of parts of machines from supplied information on CAD, and make drawing changes to comply Engineering Change Requests (ECRís). Mechanical Design Technician: applies nowledge of mechanical engineering test new or revised machinery; assists in component selection and sizing of machine members; has duties split between design and drafting and may specialize in a specific type of machine or product. Most work is performed on a computer. Mechanical Drafter: has the principal duty of preparing working drawings of machinery and mechanical devices using CAD systems to draft detail and assembly drawings dicating dimensions and tolerances, materials, surface finishes, joining

With additional education and/or work experience, graduates may find other opportunities for employment.

Gurriculum
Students following the study plan
below will complete the Mechanical Decow wil complece the Meccianical
Design Technology associate degree
in the number of semesters shown.

FIRST SEMESTER
10-606-111 Mechanical Design-Exploring
$10-606-113$ CAD $10-600-113$ CAD
$10-606-157$
10-6014-113
SolidWorks Fund and Drawnitils 10-606-157 Solial Works Fur
10.614 Essentials 10-80-196 Orall Interpersonal Comm
10-804-118 Interm Algebra w Apps 10-804-118 Interm Algebra w Apps
10-809-199 Psychology Of Human Relation ${ }^{\text {10-809-199 Psychology }}$
SEMESTER TOTAL
SECOND SEMESTER
10-442-153 Prototype Metal Fabrication
10-60-103 2 CDAD - Advanced
10-606-103 2 DCAD CAdvanced
10-600-122 CAD-Fabrication \&Assembly
$10-606-126$ Geometric Dimension/Toleran
10-000-120 Geometric Cimension
Trigonometry $10-800-154$ General Physics 1
10-800-154 Goneral Physics 1
SEMESTER TOTAL

## THIRD SEMESTER

10-606-135 Machine Members-Strength
10-600-139 Machine Members-Stectrical Control
10-606-158 SolidWorks Advanced
10-606-158 SolidWorks Advance
10-606-159 Materials Science
10-620-100 Fluids 1: Basicice Pneumatics 10-620-101 Fluids 2: Basic Hydraulics
10-620-165 Fluids 3 : Inter Hydraulics SEMESTER TOTA

## FOURTH SEMESTER

10-420-115 CNC-Mechanical Design
10-606-141 10-606-141 Design Problems
$10-606-143$ Meghanisms 10-600-143 Mechanisms
10-801-136 English Compositio 10-801-136 English Composition 1
10-809-172

Intro to Diversity Studies | SEMESTERTOTALAL |
| :--- |
| Tlotal |

TOTAL CREDITS
CURRICULUM NOTE
The credit for 10-890-101, College 101 ,
is an Institutional Reauirement for graduation. Consequently, it is not par of the program credit requirements.

## suggested electives

10-660-104, DC 1: Introduction
10-660-105, DC 2: Circuits
10-660-105, DC 2: Circuits
10-660-107, AC 1: Properties

- Mechanical Designer (Product Designer) - Lead Designer
- Project Engineer
- Technical Sales/Service Representative

The following certificates/technical diploma may be applied toward this program: - 906061, CAD (Computer
Aided Drafting) Certificate Aided Drafting) Certificate -906062, Parametric Modeling Certificate
Note
The following five courses can be taken in place of 10-606-157, SolidWorks Fund and Drawings and 10-606158; SolidWorks Advanced:

- 10-606-162, SolidWorks Fundamentals; - 10-606-163, SolidWorks Intermediate; - 10-606-164, SolidWorks
- 10-606-165, SolidWorks Sheet Metal; and - 10-606-167, SolidWorks Loft/Surface.


## COURSE DESCRIPTIONS

These courses provide an opportunity kills, and understanding required for employment in this field.
10-420-115 CNC-MECHANICAL importing files; mold making. (Prerequisites 10-606-113, CAD; 10-606-157, Solidworks Fund and Drawings OR 10-606-164, Solidworks-Assemblies/Draw)
10-442-153 PROTOTYPE METAL FABRICATION...ferrous and non-ferrous metals, oxyacetylene gas, tungsten arc, gas metal arc, and metal fabrication.
10-606-103 2D CAD-ADVANCED ...primary and successive auxiliary views; intersections and developments; intersections angles between lines and planes, revolutions vectors. (Prerequisite: 10-606-113, CAD)

10-606-111 MECHANICAL DESIGN EXPLORING ...philosophy/organization procedure of the Mechanical Design Technology Program, brief overview of
the engineering profession by involvement in a design project to illustrate basic concepts/methods of machine design.

10-606-113 CAD (COMPUTER AIDED DRAFTING) ...computer aided drafting using AutoCAD software focusing on layers; basic drawing, editing, and inquiry commands; blocks and attributes; and plotting. (Corequisites: 10-607-119, Intro to Civil Engineering Technology OR 10-606-119, Technical Sketching OR 10-614-113, 2D Essentials)
10-606-122 CAD-FABRICATION ASSEMBLY ...sheet metal drawing as applied to brackets, enclosures \& suarding; welding drawings; threads warkening drawing dock documentation (Prerequisite: 10-606-113, CAD)

10-606-126 GEOMETRIC DIMENSIONING/TOLERANCING ...review of standard dimensioning, datums, material condition symbols, tolerances of form out, location tolerances and virtual condition. [Prerequisites: 10-606-113, CAD; OR 10-606-157, Solidworks Fund and Drawings O (10-606-162, Solidworks Fundamentals; and 10-606-163, Solidworks Intermediate; and 10-606-164, Solidworks Assemblies/Draw)]
10-606-135 MACHINE MEMBERSSTRENGTH ...force analysis, moments truss and frame analysis, simple stress, properties of materials, joint design, ce
and moments of inertia, beam design, shafting design, combined stresses, columns. (Prerequisites: 10-806-154, General Physics 1; 10-804-196, Trigonometry w Apps)

10-606-139 CAD-ELECTRICAL CONTROL ...draw block and flow diagrams, logic diagrams; introduction to programmable controi; fundamentals of
electronics; motors and control circuits; sheet metal chassis and panel drawings. (Prerequisite: 10-606-113, CAD)

10-606-141 DESIGN PROBLEMS ...data gathering, mathematics, document standard practices, project management and teamwork [Prerequisites: 10-606-126, Geometric Dimensioning/Tol; 10-606-135, Machine Members-Strength; 10-606-103, 2D CAD Adv; (10-606-158, Solidworks Adv OR 10-606-166 Solidworks Lef \& Suffee)]

10-606-143 MECHANISMS ...study of motion, vector equations and sense notation, basic motion concepts, kinematic drawing and displacement, velocities in mechanisms accelerations in mechanisms, CAM motions, General Physics 1; 10-606-113, CAD. 10-804-196, Trigonometry w Apps)
10-606-157 SOLIDWORKS
FUNDAMENTALS AND DRAWINGS ...terminology, software operation and interface basics, creating basic models,
creating casting and forging models, revolved features, Solidworks drawing environment and fully dimensioned orthographic drawings. (Corequisite: 10-606-119 Sketching-Technical, OR 10-614-113, 2D Essentials Sketching-Technical; Prerequisite Familiarity with Windows file management

10-606-158 SOLIDWORKS ADVANCED ...sweeps, equations, configurations, draft, base and derived parts, assemblies, assembly drawings, auxiliary, section and special core and cavity. (Prerequisite: 10-606157, Solidworks Fund and Drawings OR 10-606-163, Solidworks-Intermediate)
10-606-159 MATERIALS SCIENCE ...engineering materials, material selection, and properties, and failure analysis and properties, and fallure analysis covered include: metallic, polymeric ceramic, and composite/exotic.
10-614-113 2D ESSENTIALS ... an introduction to technical communication, model, orthographic and pictorial, sect and auxiliary views and dimensioning

10-620-100 FLUIDS 1: BASIC PNEUMATICS ...what fluid power is, differentiate between hydraulics and circuits, utilize schematics, apply Pascal's Law
and define properties of fluids, implement airflow control and hydraulics cylinder circuits. 10-620-101 FLUIDS 2: BASIC HYDRAULICS ... hydraulic pumps, basic hydraulics actuator circuits, hydraulic schematics, apply Pasca's Law, summarize
the effects of fluids friction, define properties of hydraulic energy, design hydraulic circuits with directional control valves. (Corequisite: 10-620-100, Fluids 1: Basic Pneumatics) 10-620-165 FLUIDS 3: INTERMEDIATE HYDRAULICS ...design of cylind actuating circuits with pressurecompensated flow control valves, how to control pressure, pilot-operated check and application, hydraulic motor types and applications. (Corequisite: 10-620 101, Fluids 2: Basic Hydraulics)

Offered at the Green Bay campus. For information: (920) 498-
Toll-free: (888) 385-6982.

This program is fully eligibl for financial aid.

## Program Description

Provides students with the introductory skills necessary to begin a career in the mechanical construction field. Students will acquire the entry-level skills (alignment, rigging, bearings, plumbing and power transmission) necessary to and power transmission) necessary to from this program will transfer to the Construction Technology associate degree.

## Program Outcomes

- Perform technical calculations and produce drawings for mechanical, produce drawings or mectrical and plumbing systems.
ele
- Display a positive attitude toward the profession.
- Interpret the elements of mechanics.
- Use measuring devices.
- Use hand, stationary, and portable power tools.
- Prepare mounting bases for machine installation.
- Identify and use threaded fasteners and various locking and holding devices.
- Identify types of structural steel shapes.
- Apply safety requirements
to rigging an object.
- Classify valves used in a piping system.
- Describe the difference between
machine, carbon and alloy steels
- Identify and maintain types of bearings. - Apply lubricants.
- Demonstrate parallel shaft alignment.
- Maintain chain drive component systems.
- Identify types of gears.
- Identify types of couplings.
- Replace and test electrical motors.
- Identify pipe systems, demonstrate correct pipe assembly and installation procedures. - Maintain and repair hydraulic systems.
- Understand basic plumbing.
- Understand basic HVAC.


## Requirements for

## Program Entry

- Completed application
- High school transcript or equivalent. For a list of equivalents, go to www.nwtc.edu/gettingstarted
- As a requirement for program entry, an Academic Skills Assessment (Accuplacer) with appropriate benchmark scores is necessary. Program Benchmarks are Arithmetic: 34; Reading Comprehension: 55; Sentence Skills: 60. Students not meeting these benchmarks or the equivalent will be required to establish an individualized academic plan. Students may have the opportunity to enroll in selected program core courses while completing their individualized plan. Upon completion of the plan, students will be eligible for all program courses. However, higher test cores will lead to greater success in core program courses. To learn more about these assessments and program benchmark scores, please contact a counselor at (920) 498-5444 or (888) 385-6982.


## Employment Potential

A graduate of this program will have the potential for employmen in the following areas:
Plumber's Helper: will assist plumber in installing and maintaining water/ plumbing systems in residential and industrial applications.
Industrial Mechanic: prepares students to evaluate machine performance, identify trouble areas, and repair systems.
General Laborer: performs basic yet important physical work tasks at building construction sites.

With additional education and/or work experience, graduates may find other opportunities for employment.

- Plumber
- Millwright
- HVAC/R Technician

Completers will be able to apply credits toward the following programs:

- 10-475-2, Construction

Technology associate degree

## Curriculum <br> Students following the study plan Systems technical diploma in the Systems technical der shown. number of semesters shen

## FIRST SEMESTER

CREDITS
10-442-162 Material Cutting Applications
10-442-161 Gas Metal Arc Welding 10-449-112 OSHA 30
10-462-102 Fabrication and Layout 10-462-105 Piping and Water Systems 10-462-106 HVAC Basics 10-462-109 Pumps \& Compressors 10-462-111 Blueprint Reading 10-620-100 Fluids 1: Basic Pneumatics *10-890-101 College 101 31-801-385 Communicating-Writing SEMESTER TOTAL

## SECOND SEMESTER

10-413-112 Electricity-Basic 10-462-100 Mechanical Power Transmission 10-462-101 Bearings
10-462-103 Couplings and Alignment
10-462-107 Input/Output Devices
10-462-108 Motor Control Circuits
10-462-110 Preventive Maintenance
10-620-101 Fluids 2: Basic Hydraulics
10-804-101 Math 1-Trades
31-801-386 Communicating Effectively SEMESTER TOTAL

CURRICULUM NOTE
*The credit for 10-890-101, College 101, is an Institutional Requirement for graduation. Consequently it is not of the program credit requirements.

## COURSE DESCRIPTIONS

These courses provide an opportunity for students to develop the knowledge, skills, and understanding required for employment in this field.
10-413-112 ELECTRICITY-BASIC ...this course introduces the fundamental concepts of electricity and electron flow. Emphasis is placed on Ohmís law, magnetism as it relates to electricity, DC/AC circuits, electrical components, operations of test equipment, and electrical safety precautions.

10-442-161 GAS METAL ARC WELDING ...course provides the opportunity for the learner to develop the knowledge, skills, process and understanding of welding in the flat and horizontal positions, fillet, pipe to plate and groove welds on plain carbon steel. (Corequisite: 31-442301, Material Cutting Applications)

10-442-162 MATERIAL CUTTING APPLICATIONS...visual inspection of weld and cut edges, manual and machine oxy fuel gas cutting, air carbon arc cutting, plasma arc cutting, and mechanical cutting methods.

10-449-112 OSHA 30 ...addresses OSHA 29CFR1926 rules and is approved by OSHA for construction workers, foremen, job supervisors, and anyone involved in construction trades. Successful participants receive 30 -hour card from OSHA.

10-462-100 MECHANICAL POWER TRANSMISSION ...students will learn how power moves through machines to accomplish the necessary tasks. (Corequisites: 10-462-101, Bearings; 10-462-103, Couplings \& Alignment; 10-462-110, Preventive Maintenance)

10-462-101 BEARINGS ...students will examine bearing types and applications and compare equipment bearings. Students will also develop skills related to bearing inspection, selection, removal, mounting, lubricating, and diagnosing failure. (Corequisite: 10 -462-110, Preventive Maintenance)

0-462-102 FABRICATION AND LAYOUT course compares types of sheet metal, tools and uses. Students will develop skills lated to the fabrication skills rel products. Students will work from aing through layout and lignent drawing through layout and alignment and demonstrate the safe and proper use of Cond actes 10-462111 Bluprint R Corequisites: 10-462-111, Blueprint Reading 0-462-104, Equipment Installation)

10-462-103 COUPLINGS AND ALIGNMENT ...course compares different coupling types and examines common misalignment problems. Students will develop skills related to inspecting, oubleshooting and preparing couplings or removal and installation. (Corequisite: 0-462-110, Preventive Maintenance)

0-462-104 EQUIPMENT
NSTALLATION ...students will layout equipment installations, plan for moving quipment and set and level equipment. Corequisites: 10-462-111, Blueprint Reading; 10-462-102, Fabrication \& Layout; 10-462-105, Rigging Systems)
10-462-105 PIPING AND WATER SYSTEMS ...students will analyze flow haracteristics in piping systems, relate pipe sizing to requirements and apply the correct piping to related situations.
10-462-106 HVAC BASICS ...heating, ventilation and air conditioning technology provides students with the basics to control air flow in respect to heating and cooling structures.
10-462-107 INPUT/OUTPUT DEVICES this course examines the devices used in control circuits. Students will identify pushbuttons, rotary switches, limit switches, proximity switches, photoelectric switches, relays, motor starters, and annunciators. Emphasis will be placed on proper installation and troubleshooting. Corequisites: 10-413-112, Basic Electricity; 10-462-108, Motor Control Circuits)
10-462-108 MOTOR CONTROL CIRCUITS ...this course presents the students with common designs of motor control circuits. Students will design multiple circuits that will start, contro the speed, reverse, brake, and stop motors. Corequisite: 10-413-112, Basic Electricity; 10-462-107, Input/Output Devices

10-462-109 PUMPS \& COMPRESSORS ...this course compares different pump types and their applications. Students will complete a field inspection of pumps and learn how to troubleshoot, remove, overhaul, install and perform preventative maintenance on pumps.

10-462-110 PREVENTIVE
MAINTENANCE ...this course examines both preventive and predictive maintenance concepts as they apply to mechanical work processes and machine maintenance. Students will develop skills related to assessing machine conditions and equipment breakdowns using correct troubleshooting procedures (Corequisites: 10-462-101, Bearings; 10 462-103, Couplings \& Alignment; 10-462100, Mechanical Power Transmission)

10-462-111 BLUEPRINT READING ...this course explores all elements of engineering and manufacturing technology print reading from sketching methods and measurement techniques to reading specialty prints. Students develop skills in print reading, visual perception, technical communication, and problem solving. It includes the fundamentals of orthographic projection, dimension techniques, welding and electrical symbols, and section views.
10-620-100 FLUIDS 1: BASIC PNEUMATICS ...what fluid power is, differentiate between hydraulics and pneumatics, implement basic pneumatic circuits, utilize schematics, apply Pascal's Law, define properties of fluids, implement airflow control and hydraulics cylinder circuits.
10-620-101 FLUIDS 2: BASIC HYDRAULICS ...hydraulic pumps, basic hydraulics actuator circuits, hydraulic schematics, apply Pascal's Law, summarize the effects of fluids friction, define properties of hydraulic energy, design hydraulic circuits with directional control valves. (Corequisite: 10-620-100, Fluids 1: Basic Pneumatics)

10-620-105 RIGGING SYSTEMS 1 ...the basic skills of rigging, employment of hoists, slings, lifts, wire rope, and chain slings as part of rigging system.

Medical Assistant Program Code 315091 | Technical Diploma


## COURSE DESCRIPTIONS

 These courses provide an opportunityfor students to develop the knowledge, skills, and understanding required
for employment in this fiel. 1-509-301 MEDICAL ASSISTANT ADMINISTRATIVE PROCEDURES. office manageement, business adminisistratio and the electronic medical record (EMR) schedule appointments, perform filing record keeping, telephone and reception
duties and communicate effectively with patients and other medical office staff, and keep an inventory of supplies. (Prerequisite. Accepted into Medical Assistant program
or shared LTC Ophthalmic Medical Assistant program; Corequisites: 10-501 or any other computer course)
31-509-302 HUMAN BODY IN HEALTH DISEASE ...focuses on diseases that are frequently first diagnosed and treated
in the medical office setting. Students learn to recognize human body anatomy diseases of the major body syptems diseases of the major body systems as
well as the diagnostic procedures, usual treatment, prognosis and prevention of
common diseases. (Prerequisite/Corequisit common diseases. (Prerequisite/Corequisi 0-501-101, Medical Terminology) 31-509-303 MEDICAL ASSIITANT LABORATORY PROCEDURES $1 . .$. introduces medical assistant students
to laboratory procedures commonly o laboratory procedures commonly
performed by medical assistants in a medical office setting. Sudents perform CLIA waived routine laboratory procedures commonly performed in the ambulatory
care setting. Students follow laboratory sfery requirements and federal regulation while performing specimen collection and processing, microbiology and urinalysis
testing. (Prerequisite: Accepted into Medica testing. (Prerequisite: Accepted into Medical 101, Medical Terminology; 10-501-107, Intro to Healthcare Computing; 31-509-302 Human Body in Health/Disease; 31-50901, MA Administrative Procedures; 31-

31-509-304 MEDICAL ASSISTANT medical PROCEDURES 1 ...introduce medical assistant students to the clinical
procedures performed in the medical office setting. Students perform basic examining setung. Students perform basic examining
room skills including screening, vital signs, patient history, minor surgery and patient preparation for routine and specialty exams in the ambulatory care setting. (Prerequisite
Accepted into Medical Assistant Program; Accepted into Medical Assistant Progran
Pre/Corequisites: 10-501-101, Medical Terminology; 10-501-107, Intro to Healthcare Computing; 31-509-301, MA
Administrative Procedures; 31-509-302, Administrative Procedures; 31-509-302, Human Body in Health and Disease; 31-
$509-303$, Medical Asst Lab Procedures 1)
31-509-305 MEDICAL ASSISTANT ATORY PROCEDURES 2... prepares students to perform phlebotomy
and CLIA waived hematology, chemistry, immunology, and laboratory procedures
commonly performed by medical commonly performed by medical
assistants in the ambulatory care settion assistants in the ambulatory care setting.
(Prerequisites: 31-509-303 Medica Assista Laboratory Procedures; 10-501-101 Medical Terminology; 10-501-107 Intro to Health Care Computing; 31-509-304 Medical Asst Admin Procedures; 31-509-302 Human Body in Health \& Disease; Pre/Corequisites 31-500-306 Med Asst Clin Proced 2; 31-
505-307 Med Office I Insurane \& Finace. 509-307 Med Office Insurance \& Finance;
31-509-309 Medical Law Ethics \& Profess 31-509-309 Medical Law, Ethics \& Profess
31-509-310 Medical Assistant Practicum) 31-509-306 MEDICAL ASSISTANT CLINICAL PROCEDURES 2 ...prepares medical assistant students to perform
patient care skills in the medical office setting. Students perform clinical procedures
including administering medications including administering medications,
performing an electrocardiogram performing an electrocardiogram, assisting
with respiratory testing, educating patients community, assisting with emergency preparedness in an ambulatory care setting (Prerequisites: 31-509-301 Medical Asst
Admin Procedures: 31-509-304 Medic Asst Clin Procedures $1 ; 31-509-303$ Medical Asst Lab Procedures 1; 31-509-302 Human Body in Health \& Disease; 10-501-101
Medical Terminology Medical Terminology; 10-501-107 Intro to
Healch Care Computing: Pre-Corenisites Health Care Computing: Pre/Corequisites:
31-509-305 Med Asst Lab Procedures $2 ; 31$ $509-307$ Med Office Insurance $\&$ Finance; 31-509-308 Pharm for Allied Healh;
$31-509-309$ Medical Law 31-509-309 Medical Law, Ethics \& Profes
$31-509-310$ Medical Assistant Practicum)

31-509-307 MEDICAL OFFIC INSURANCE \& FINANCE ...introduces medical assistant students to health insurance
and finance in the medical office. Sudents perform bookkeeping procedures, apply perform bookkeeping procedures, apply
managed care guidelines, and complete insurance claim forms. Students use medical coding and managed care terminolog to perform insurance-related duties.
(Prerequisites: 31-509-301, Medical Assistant (Prerequisites: 31-509-301, Medical Assistat
Administrative Procedures; 31-509-302 Human Body in Health \& Disease; 10-501
101, Medical Terminology; $10-501-107$ 101, Medical Terminology; 10-501-107
Intro to Healthcare Computing Intro to Healthcare Computing (or any other
computer course); Corequisites: $31-509-305$
Medical Assisant Lab Procedures $2 \cdot 31-509$ 306, Medical Assistant Clinical Procedures 2; 31-509-308 Pharm for Allied Health) 31-509-308 PHARM FOR ALLIED HEALTH ...introduces students to classifying medications into correct drug categories
and applying basic pharmacology principles. and applying basic pharmacology princip
Students apply basic pharmacodynamics to identifying common medications, medication preparation, and administration of medications used by the major body systems. (Corequisites: 10-501-101,
Medical Terminology; 31-509-302, Medical Terminology; 13-509-302,
Human Body in Health/Disease) 31-509-309 MEDICAL LAW ETHICS \& PROFESSIONALISM...prepares sudents to
display professionalism and perform within display professionalism and perform within
ethical and legal boundaries in the health care setting. Sudents maintain confidentiality,
examine legal aspects of the medical rec examine legal aspects of the medical record,
perform quality improvement procedure perform quality improvement procedures
examine legal and bioechical issues, and demonstrate awareness of diversity.
31-509-310 MEDICAL ASSISTANT PRACTICUM ...requires medical assistant students to integrate and apply knowledge and skills from all previous medical assistant
courses in actual courses in actual ambulatory health care settings. Learners perform medical ass
administrative, clinical, and laboratory duties under the supervision of trained mentors to effectively transition to the role
of a medical assistant. This is a of a medical assistant. This is a supervised
unpaid, clinical experience. CAAHEP unpaid, clinical experience. CAAHEP
required practicum. (Prerequisite: Successfuu completion of all Medical Assistant courses.)

## Medical Laboratory Technician Program Code 105131| Associate Degree

Offered at the Green Bay campus. Toll-free: (888) 385-6982.

This program is fully eligible for financial aid.

## Program Description

Technicer entry, the Medical Laboratory Technician will be able to perform routin kills will extend to frequent inmunication with members of the healthcare team, external relations, customer service and patient education. The level of analysis anges from waived and point of care testing to complex testing encompassing all major areas of the medical laboratory. The Medical Laboratory Technician will have diverse functions in areas of preanalytical, analytical, post-analytica Technician will have responsibilities for information processing, training, and quality control monitoring wherever medical laboratory testing is performed.

## Program Outcomes

Apply modern clinical methodologies incuading problem solving and trouble shooting accord
Collect and process biological specimen Correlate laboratory results to diagnosis of clinical conditions and/or diseases. - Monitor and evaluate quality
control in the laboratory.
Practice laboratory safety and
regulatory compliance
regulatory compliance.
Perform information processing
in the clinical laboratory. ethics, and appearance.

## Wisconsin Caregiver Law

NWTC is required to comply with WISCONSIN ACT 27). The completion of caregiver background check includes the eview of criminal records for convictions of serious crimes or a history of improper behavior. Students accepted into this program must complete a background com Inform regin this process is. Information regarding this process acceptance into the program. Students with a criminal history may be denied access to placement at the discretion of the clinical or practicum site. Consequently, should student have a history of convictions of serious crimes or a history of improper
behaviors, NWTC cannot guarantee linical/practicum placement or guarante graduation within typical program timing

## Employment Potentia

 Most Medical Laboratory Technicians work in hospitals or clinic labs. Some Medical or veterinary laboratories, industrial labs, insurance companies, research facilities nvironmental labs, or public health. Medical Laboratory Technician: applicknowledge of test procedures and
quality control methods in the areas
of hematology, chemistry, serology, of hematology, chemistry, serology,
urinalysis, blood bank, microbiology phlebotomy; performs tests accuratately phlebotomy; performs tests accurately
and efficiently using both automated and manual methodology; evaluates the clinical significance of test results.

## Clinical Experience

tudents will be required to purchase uniform, pay for liability insurance, rovide their own transportation to assigned sites, and cover any other expenses related to clinical experiences. Dependent on availability
of sites, students may need to travel distances for clinical experiences. Students are required to maintain current American Heart Association Healthcare Provider CPR card to comply with affiliating agency requirements. Students will be required to show proof of annual flu vaccine.
Students will be required to submit immunization documentation. A fee is charged for this service. Additional information will be provided upon
acceptance into the program.

## Accreditation

The Medical Laboratory Technician program is accredited by the Natio
Accrediting Agency for Clinical Accrediting Agency for Clinical 5600 N River Road, Suite 720 Rosemont, IL 60018, (847) 939-3597

## Board/Certification

Examinations
Graduates are qualified to take the Board of Certification examination from the American Society for Clinical Pathology.

Requirements for Program Application - Completed application. High school transcript or equivalent (For a list of equivalents, go to Admission Skills Assessment or equivalent or ACT assessment taken within the last five years. (For a list of equivalents, please contact a Counselor.) Two semesters High School, or one semester in College of Algebra and Advanced Math, Two semesters High School, or on Two semesters High School, or one
semester in College of Biology and Chemistry (with a lab component) completed with a grade of "C" or better.

## Requirements for

## Program Entry

As a requirement for program entry, an Academic Skills Assessment (Accuplacer or ACT) with appropriate benchmark scores
is necessary. Accuplacer benchmarks are Arithmetic, 90; Reading Comprehension, 90; Sentence Skills, 95; Elementary Algebra, 65. ACT benchmarks are Math, 18; Reading, 21; English, 21. Applicants not meeting these benchmarks or the

Curriculum
Students following the study plan
below will complete the Medical Laboratory associate degrece in the
umber of semester

## FIRST SEMESTER

## $\begin{array}{ll}\text { 10-501-101 } & \text { Medical Terminology } \\ 10-513-110 & \text { Basic Lab Skills }\end{array}$

 $\begin{array}{ll}* 10-513-111 & \text { Phasichobotom } \\ \times 10-513-113 & \text { OA } \\ { }^{*} \text { ab Math }\end{array}$ $\begin{array}{ll}\text { 10-151-3113 } & \text { Qhebotomy } \\ \text { QA La Math }\end{array}$
 "10-800-101 College
SEMESTERTOTAL

## SECOND SEMESTER

10-513-109 Blood Bank
$\begin{array}{ll}\text { 10-513-114 } & \text { Urinalysis } \\ { }^{* 10-513-120} & \text { Basic Hematology } \\ 110-513-121 & \text { Coagulation }\end{array}$ $\begin{array}{ll}\text { 10-513-121 } & \text { Coagulation } \\ 10-801-136 & \text { Engish Composition } 1\end{array}$


## SUMMER SEMESTER

 $\begin{array}{ll}\text { 10-801-196 } & \text { Orall Interpersonal Comm } \\ \text { 10-809-198 } & \text { Intro to Psychology }\end{array}$ 10-809-198 Intro to Psychology mest "10-513-132
"10.5131-133
Clinial Chemistry 2
Cinical Microstiology *10-513-140 Adva
SEMESTER TOTAL

## fourth semester

10-513-151 Clinical Experience 1
$-10-53-152$
Clinical Experience $110-513-152$
$-10-513-153$
Clinical Experience 2

Clinical Experience 3 | 10-809-172 | Intro to Diversity Studies |
| :--- | :--- |
| SEEESTERTOTAL | 3 |
| TOTAL CREDITS | 14 |
|  | 68 |
|  |  |

## CURRICULUM NOTE

*No final grade lower than a aici is acceptable in
any of the courses marked with an asterisk. A any of the eocurses marked witis an asterisis. A
student who withdraws or receives a grade lower student who withdraws or receives a grade lower
than a ici i i a program course may apoly for than aici in a program course may apply for
reeentry into the program. Consideration for reentry will be at the discretion of the re-entry tean and will be dependent on clinical availability.
$++N$ No final grade lower than a " B " is acceptable
 Giocheralistanatomy \& Physiology, Intro to
Bnd Microbiology. Astudent Who withdraws or receives a grade lower than a "B" in these courses may apply for re-entry
into the program. Consideration for re-entry will be at the discretion of the re-entry team and will be dependent on clinical availability.
The credit for 10-890-101, College is an instiutional Requirementit or
graduation. Consequenty, tis not tat
of the program credit requirements.
of the program credit requirements.
equivalent will be required to establish an individualized academic plan. Upon completion of the plan, full program o waitlist status will be granted. To learn more about these assessments and program at (920) 498-5444 or (888) 385-6982. Complete caregiver background check. A fee is charged for this service Additional information will be provided pon acceptance into the program. Complete mandatory four-
hour job shadow.
Attend mandatory spring
program orientation.

## COURSE DESCRIPTIONS

These courses provide an opportunity
for students to develop the knowledge, kills, and understanding required for employment in this fiel

0-513-109 BLOOD BANK ...focuses on blood banking concepts and procedures including blood typing, compatibility esting, work ups for adverse reaction 10 transtusions, disease states and donor Lab Skills. 10-513-113, QA Lab Math; 10-513-115, Basic Immunology Concept
10-513-110 BASIC LAB SKILLS ...explores health career options and the fundamental principles and procedures performed in medical terminology and basic laboratory equipment. Learners will follow required safery and infection control procedures and perform simple laboratory tests. (Prerequisite) Accepted into Medical Laboratory Technicia program or Phlebotomy certificate)

0-513-111 PHLEBOTOMY ...this course provides opportunities for learners to per
routine venipuncture, routine capillary puncture and special collection procedures.
(Corequisite: $10-513-110$, Basic Lab Skills) 10-513-113 QA LAB MATH ...focuses on performing the mathematical calculations routinely used in laboratory settings.
Learners will explore the concepts of Learners will explore the concepts of quality control and quality assurance
in the laboratory. Learners will review regulatory compliance requirements, and certification and continuing educato Medical Laboratory Technician program) 10-513-114 URINALYSIS ...prepares learners to perform a complete urinalysis microscopic analysis. Learners will explore renal physiology and correl urinalysis results with clinical conditions. (Prerequisites: 10-513-110, Basic Lab Skills and 10-513-113, QA Lab Math

0-513-115 BASIC IMMUNOLOGY CONCEPTS ...provides an overview of the mmune system including laboratory testing disorders, viral and bacterial infections. (Corequisite: 10-513-110, Basic Lab Skills)
10-513-120 BASIC HEMATOLOGY covers the theory and principles of blood ell production and function, and introduces the learner to basic practices and procedures in the hematology laboratory. (Prerequisites: 10-513-110, Basic Lab Skills; 10-513-113, QA Lab Math; 10-513-111, Phlebotomy, 0-513-115, Basic Immunology Concepts) 0-513-121 COAGULATION ...introduces the theory and principles of coagulation and explores mechanisms involved in coagulation disorders. Emphasis is placed upon laboratory techniques used to diagnose disease and monitor treatment. (Prerequisites: 10-513Ma, 10-513-115, Bio Im-13, QA Concepts; 10-513-111, Phlebotomy; Corequisite: 10-513-120, Basic Hematology) 10-513-130 ADVANCED HEMATOLOGY .explores mechanisms involved in the masis is pled upon labonisorde echniques used to diagnose disorders and monitor treatment. (Prerequisite: 10-513-120, Basic Hematology) 0-513-131 CLINICAL CHEMISTRY 1 introduces Clinical Chemistry techniques and procedures for routine analysis using photometric, potentiometric and separation echniques. Topics in this course include pathophysiology and methodologies for arbohydrate, lipids, proteins, renal function and blood gas analysis. (Prerequisites: 10Cab Math; 10-513-114, Urinalysis; 10-06-177, General Anatomy \& Physilog 0-806-186, Intro to Biochemistry) 10-513-132 CLINICAL CHEMISTRY 2...a continuation of Clinical Chemistry 1 , rechniques and procedures for analysis using
sophisticated laboratory instrumentation Topics include pathophysiology and methodologies for hepatic, bone, cardiac markers, tumor markers, endocrine function, fetal function, miscellaneou ody fluids, and toxicology. (Corequisite:
10-513-131, Clinical Chemistry 1)

0-513-133 CLINICAL MICROBIOLOGY presents the clinical importance of he appropriate collection, handling and identification of clinically relevant bacteria Disease states, modes of transmission and methods of prevention and contro including antibiotic susceptibility testing, are
also discussed. (Prerequisites: $10-806-197$. so discussed. (Prerequisites: 10-806-197, $0-513$-133, Basic Immunology Concepts)
0-513-140 ADVANCED MICROBIOLOGY ...overview of acid fast organisms, fungi, parasites, and pachophysiology he organisms, their and conditions that they cause, laboratory methods of handling, culturing and identification will be discussed. (Corequisite: 10-513-133, Clinical Microbiology)
10-513-151 CLINICAL EXPERIENCE 1 ...clinical applications of knowledge and rocedures in hematology/ coagulation, urinalysis, microbiology, blood bank, certification examinations. (Prerequisite: 10-
$513-132$, Clinical Chemistry 2 . Coreewisites 13-132, Clinical Chemistry 2; Corequisites: 10-513-153, Clinical Experience 3)

0-513-152 CLINICAL EXPERIENCE ...clinical applications of knowledge and procedures in hematology/coagulation, rinalysis, microbiology, blood bank, chemistry/serology, preparation for MLT
certification examinations. (Prerequisite: 10 -513-132, Clinical Chemistry 2; Corequisites: 0-513-151, Clinical Experience 1 . 10-513-153, Clinical Experience 3) 10-513-153 CLINICAL EXPERIENCE 3 ...clinical applications of knowledge and urinalysis, microbiology, blood bank, chemistry/serology, preparation for MLT certification examinations. (Prerequisite: 10-13-132, Clinical Chemistry 2; Corequisites:

Offered at the Green Bay campus.
For information: (920) 498-5444. Toll-free: (888) 385-6982.

This program is fully eligible
for financial aid.

## Program Description <br> Network Specialist - IT teaches

 students to design, install, configure, and maintain computer networks.
## Program Outcomes

- Design a local area network
(LAN) per specifications.
- Construct a local area network using the required physical components.
- Install network hardware including interface cards and cabling.
- Create effective user environments using Microsoft and UNIX/
LINUX operating systems.
- Install and configure network and desktop operating system software.
- Install and configure application software.
- Design, implement, and maintain a secure network environment - Exercise structured problem solving techniques.
- Develop technical documentation for network configuration and security.
- Communicate technical
information effectively.
- Assess the impact of emerging technologies.
- Maintain computer hardware and peripherals.
- Implement and configure wide
area network (WAN) services.


## Requirements for <br> Program Entry

- Completed application.
- High school transcript or equivalent. For a list of equivalents, go to www.nwtc.edu/gettingstarted.
- One year of high school algebra completed.
- User level familiarity with one or more computer operating environments.
- Ability to interact with a computer system (keyboarding or assist device).
- As a requirement for program entry, an Academic Skills Assessment (Accuplacer) with appropriate benchmark scores is necessary. Program benchmarks are Reading Comprehension: 55; Sentence Skills: 75; Arithmetic: 65. Students not meeting these benchmarks or the equivalent will be required to establish an individualized academic plan. Students may have the opportunity to enroll in selected program core courses while completing their individualized plan. Upon completion of the plan, students will be eligible for all program courses. However, higher test scores wil lead to greater success in core program courses. To learn more about these assessments and program benchmark cores, please contact a counselor at (920) 498-5444 or (888) 385-6982.


## Employment Potential

A graduate of this program will have the potential for employment in the following areas:
Network Support Specialist: designs and configures networks, installs hardware and software components, and maintains network performance Network Administrator: develops security procedures, assigns access rights, installs application software and configures user profiles.
Successful completion of the course work in this program will also prepare a student to pursue vendor certification as a Network Engineer.

With additional education and/or work experience, graduates may find other opportunities for employment.

- Cable Installer
- UNIX/LINUX Administrator
- PC Support Specialist
- Help Desk Technician
- IS Certifications, such as MSCE, A+, Network+, Linux+, Security + VCP-DCV, and CCNA,
- Network Analyst
- Microsoft Network Administrator


## Curriculum <br> Students following the study plan below will complete the Network Specialist associate degree in the number of semesters shown.

## FIRST SEMESTER

CREDITS
10-150-163 IT:Network:Cisco 1 10-150-174 IT:Network:Client Op Sys 10-154-150 IT:Support:Hardware-Intro 10-801-136 English Composition 1 10-804-133 Math \& Logic
10-809-199 Psychology Of Human Relations *10-890-101 College 10
SEMESTER TOTAL
SECOND SEMESTER
10-150-157 IT:Network:UNIX/LINUX-Intro 10-150-165 IT:Network:Microsoft Server 10-150-168 IT:Network:Cisco 2
10-150-182 IT:Network: Virtualization 10-801-196 Oral/Interpersonal Comm 10-809-195 Economics
SEMESTER TOTAL

## THIRD SEMESTER

10-102-100 Bus and Info Tech Occup Prep 10-107-194 IT:Documentation
10-150-145 IT:Network:Security Fund 10-150-186 IT:Network:Microsoft Server 10-150-197 IT:Network:Apps-Linux 10-809-172 Intro to Diversity Studies SEMESTER TOTAL

## FOURTH SEMESTER

10-150-170 IT:Network:Capston
10-150-173 IT:Network:Cisco 3
10-150-199 IT:Network: Apps-Microsoft 10-809-166 Intro to Ethics: Theory \& App 10-809-166 Intro to Ethics: Theory \& App SEMESTER TOTAL TOTAL CREDITS
CURRICULUM NOTE
*The credit for 10-890-101, College 101, is an Institutional Requirement for of the program credit requirements.
SUGGESTED ELECTIVES
IT:Network:Firewall Inst/Conf, 10-150-146 ITNetwork:Computer Fors, 10-150-169 IT:Program:Visual Basic, 10-152-163 IT:Support:Advanced Projects, 10-154-157

The following certificates/technical diplomas may be applied toward this program: - 901502, Networking Certificate

## COURSE DESCRIPTIONS

These courses provide an opportunity for students to develop the knowledge skills, and understanding required for employment in this field.

10-102-100 BUS AND INFO TECH OCCUP PREP ...career exploration, self- exploration, career planning, career placement, job seeking skills. This course should not be taken before the 3rd semester or completing at least half of the core program courses.

10-107-194 IT:DOCUMENTATION ...plan documentation content and delivery methods; develop online, context-sensitive written documentation, become familiar with ISO 9000 standards, package PDF files, and create compiled help modules. Proficiency using Word required. (Prerequisite: 10-801136, English Composition 1 or equivalent)

10-150-145 IT:NETWORK:SECURITY FUNDAMENTALS ...examine common security vulnerabilities and defenses used to protect network resources. Included is a discussion of security policies, user awareness training, network monitoring, and secure network design. (Prerequisites 10-150-157, IT:Network:UNIX/LINUX Intro; 10-150-165, IT:Network:Microsoft Server 1; 10-150-168, IT:Network:Cisco 2; 10-801-136, English Composition 1)

10-150-157 IT:NETWORK:UNIX/LINUXINTRO ...an introductory look at Unix/ Linux administration and implementation. The learner will install, configure, and administer a Unix/Linux server, populate the system with users/groups, write scripts, and troubleshoot system failures. (Prerequisites: 10-150-163, IT:Network:Cisco 1 and 10-150174, IT:Network:Client Operating Systems)

10-150-163 IT:NETWORK:CISCO 1 .cable characteristics and termination structured cabling systems, OSI reference model, IP addressing and subnetting, network architectures and basic protocols, Ethernet switches, basic router operation and configuration
-150-165 IT:NETWORK-MICROSOFT SERVER 1 ...Microsoft Server OS administration and implementation. Learner will install and configure the OS, Active Directory, Group Policies, IIS and security. (Prerequisite: 10-150-174, IT:Network:Client Operating Systems)

10-150-168 IT:NETWORK:CISCO 2 ...basic routing and packet-forwarding concepts; understanding, configuring and troubleshooting dynamic routing protocols; IP addressing with VLSM; tatic routes. (Prerequisite: 10-150163, IT:Network: Cisco 1)

0-150-170 IT:NETWORK:CAPSTONE ..individual case studies to review and consolidate the knowledge and skills gained in previous classes. Course is intended to be taken during the student's ast semester. (Prerequisites: 10-150-145, T:Network:Security Fundamentals; 10-150-186, IT:Network:Microsoft Server 2;10-150-197, IT:Network:Apps-Linux)

10-150-173 IT:NETWORK:CISCO 3 ...layer $2 \& 3$ switching, switch configuration, management and security, configure and manage VLANs, trunking inter-VLAN routing, access control lists and other advanced Cisco topics. (Prerequisite: 10-150-168, IT:Network:Cisco 2)
10-150-174 IT:NETWORK:CLIENT OPERATING SYSTEMS ...basic OS functions; memory, CPU, device/file management techniques, OS installation/ configuration; configuration of I/O and storage devices; basic network connectivity; standard ystem maintenance procedures; command ine introduction and batch file writing.

10-150-182 IT:NETWORK: VIRTUALIZATION ...designing, implementing, and securing aspects of virtualization environments including, but not limited to, storage technologies, virtual network infrastructure, and virtual machine installation, configuration, and migration. (Prerequisites: 10-150-163, IT:Network:Cisco 1; 10-150-174, IT Network: Client Operating Systems)

10-150-186 IT:NETWORK•MICROSOFT SERVER 2...remote workstation installation and administration, DHCP, DNS, IPsec, and VPN. Enterprise software deployment, Terminal Services, multi domain management and migration. Administration scripting, performance monitoring, and network security. (Prerequisites: 10-150 165, IT:Network:Microsoft Server 1; 10-150-168, IT:Network:Cisco 2)

10-150-189 IT:NETWORK: APPLICATIONS-MICROSOFT ...fundamentals of project management, software installation in a network environment, application launching options application and data security, Groupware applications, Network utility software, and effective user support. (Prerequisites: 10-150-186, IT:Network:Microsoft Server 2; 10-150-168, IT:Network:Cisco 2)

10-150-197
IT:NETWORK:APPLICATIONS-LINUX ...designing, implementing, and securing various network applications and services in a Linux-based network including Web, Email, Infrastructure, and Databas services. These services will be implemented using both physical and virtualized Linux servers. (Prerequisite: 10-150-157, IT:Network:UNIX/LINUX-Intro)

10-150-199 IT:NETWORK: INTERN PRACTICUM ...practical hands-on experience applying skills developed in the program at an approved site with supervision by an employer and the instructor with related projects and discussion. (Prerequisites 10-801-136, English Composition I; 10-801-133, Math \& Logic; Corequisite: 10-102-100, Bus and Info Tech Occup Prep)

10-154-150 IT:SUPPORT:HARDWAREINTRO ...computer network terminology, component identification, POST, computer/ peripheral configuration and maintenance, basic operating systems concepts and installations, basic networking concepts and configurations and troubleshooting using the Cisco IT Essentials curriculum.

A Lakeshore Technical College program offered at Northeast Wisconsin Technical College. For information call Toll-free: (888) 385-6982.

This program is eligible for financial aid ONLY through Lakeshore Technical College

## Program Description

The increasing use of radiation and radioactive materials in today's world has created a demand for nuclear technicians. This demand is expected to remain high for years to come. The Nuclear Technology program offers students a unique opportunity to obtain the specialized training in demand by business and organizations licensed to utilize radioactive materials. It is also an excellent springboard for a four-year degree in th high-demand fields of Health Physics, Radiation Safety and Nuclear Engineering.
Nuclear technicians have a variety of career opportunities at businesses such as nuclear power facilities, radioactive wast handling facilities, radiopharmaceutical companies, universities and national laboratories, medical facilities, U. S. Department of Energy sites, hospitals, or emergency management organizations.
The Nuclear Technology program is a shared program between Lakeshore Technical College (LTC) in Cleveland, WI, and Northeast Wisconsin Technical College (NWTC) in Green Bay, WI. Classes are offered in a traditional classroom setting using Interactive Television (ITV) methods to link the two Technical Colleges. For flexibility, some classes may be taken in an online format through LTC using established distance learning methods. The Nuclear Technology program is closely linked with the Radiation Safety Technician Certificate program at LTC.

## Program Outcomes

- Work safely within industrial and
radiological hazard areas
- Understand and communicate nuclear technology-related concepts effectively in both oral and written formats.
- Diagnose equipment requiring electrical or mechanical repair and carry out preventive maintenance procedures.
- Perform radiological surveys for radiation and radioactive contamination.
- Follow procedures for operating and maintaining systems and equipment at nuclear facilities.
- Participate in applying nuclear technologies to a variety of industrial, medical, and research processes.
- Apply your knowledge in a variety of related occupational jobs, such as in reactor plant operations, maintenance, quality assurance, etc.


## Requirements for

## Program Entry

- Completed application at Lakeshore Technical College. Go to www. gotoltc.edu or call (888)468-6582


## Employment Potentia

- Nuclear Power Facilities
- Radioactive Waste Handling Facilities
- Radiopharmaceutical Companies - Universities and National Laboratories - Medical Facilities
- U.S. Department of Energy Sites
- Hospitals
- Emergency Management


## About Shared Programs

- NWTC will offer in-person courses at the Green Bay campus, with the following exceptions: courses denoted with (*) are delivered to NWTC from LTC via ITV/VC; courses denoted with $(* *)$ are offered only at LTC with ( $)$ are offed ony at LIC - Contact Lakeshore Technical
College for all Benchmarks.


## Curriculum

The Nuclear Technology Associate Degree is a two-year, six semester collaborative
program between Lakeshore Technical College and Northeast Wisconsin Technical College. Students will attend classes on the Green Bay campus and classes on the Green Day campus and
will take part in ITV classes sent from LTC to NWTC. Upon graduation a student will have completed 71 credits.

FIRST SEMESTER

## CREDITS

10-620-100 Fluids 1: Basic Pneumatics
10-620-101 Fluids 2: Basic Hydraulics
10-624-105 Health Physics Calculations 10-624-110 Nuclear Technology and Regs 10-660-104 DC 1: Introduction 10-660-105 DC 2: Circuits
10-801-136 $\begin{array}{ll}\text { 10-801-136 } & \text { English Composition } 1 \\ \text { 10-804-118 } & \text { Interm Algebra w Apps }\end{array}$ SEMESTER TOTAL
SECOND SEMESTER
10-624-114 Nuclear Systems and Sources
10-624-122 Radiation Physics
10-624-123 Radiation Physics-Lab
10-660-107 AC 1: Properties
10-660-108 AC 2: Reactance
10-801-196 Oral/Interpersonal Comm 10-804-196 Trigonometry w Apps SEMESTER TOTAL

## SUMMER SEMESTER

10-624-118 Radiation Biology 10-806-134 General Chemistry SEmESTER TOTAL

## THIRD SEMESTER

*10-624-132 Radiological Emergencies *10-624-133 Radioactive Material Mgmt *10-624-134 Radiation Shielding 10-624-135 Radiation Shield-Lab *10-624-149 Reactor Plant Components 10-806-154 General Physics 1 10-80-STER TOntemporary Amer Society SEMESTER TOTAL

FOURTH SEMESTER
${ }^{*}$ *10-624-140 Radiochemistry
*10-624-145 Applied Health Physics 10-624-156 Nuclear Technology Internship OR
10-624-146 Applied Heath Physics-Lab 10-809-198 Intro to Psychology SEMESTER TOTAL
SUMMER SEMESTER
10-624-148 Reactor Theory and Operations
SEMESTER TOTAL TOTAL CREDITS

## COURSE DESCRIPTIONS

These courses provide an opportunity for students to develop the knowledge, skills, and understanding required for employment in this field.
10-620-100 FLUIDS 1: BASIC PNEUMATICS ...what fluid power is, differentiate between hydraulics and pneumatics, implement basic pneumatic circuits, utilize schematics, apply Pascal's Law, define properties of fluids, implement airflow control and hydraulics cylinder circuits.

10-620-101 FLUIDS 2: BASIC HYDRAULICS ...hydraulic pumps, basic hydraulics actuator circuits, hydraulic schematics, apply Pascal's Law, summarize the effects of fluids friction, define properties of hydraulic energy, design hydraulic circuits with directional control valves. (Corequisite: 10-620-100, Fluids 1: Basic Pneumatics)

10-624-105 HEALTH PHYSICS CALCULATIONS AND STATISTICS ...prepares the learner to solve linear and exponential equations, logarithms, plot graphs, determine counting statistics and reliability, and work with geometry and trigonometry problems.

10-624-110 NUCLEAR TECHNOLOGY AND REGULATIONS ...introduces the learner to atomic and nuclear structure; radioactivity and half-life; regulations standards; and Title 10 Parts 19, 20, 30 and 35 of the Code of Federal Regulations.

10-624-114 NUCLEAR SYSTEMS AND SOURCES ...introduces the learner to the major components of accelerators, lasers, isotope generators, nuclear gauging devices, X-ray tubes, nuclear reactors, and natural/background sources and the radiation hazards associated with them.

10-624-118 RADIATION BIOLOGY ...prepares the learner to convert measuring units and activity to dose rates, predict the effect of radiation on living cells and human organs, evaluate radiation risk, and calculate internal doses.

10-624-122 RADIATION PHYSICS ...introduces the learner to health physicsrelated physics, properties of radiation, detection and measuring radiation, and gas-filled and solid-state detectors.

0-624-123 RADIATION PHYSICS-LAB ..expands the learner's ability to perform calculations, select instruments, and nalyze samples. This course is associated with 10-624-122, Radiation Physics.

0-624-132 RADIOLOGICAL EMERGENCIES ...prepares the learner o plan and assist in emergencies involving adioactive material and radiation by calculating projected doses, collecting nvironmental samples, following emergenc plans, and managing affected personnel.

10-624-133 RADIOACTIVE MATERIAL MANAGEMENT ...introduces the learner to the proper methods used to dispose of adioactive waste in liquid, solid, gaseous forms; determine waste classification, package Gbel requirements, proper type of transport ontainer, shipment quantity classification, torage distance for people and film during hipments by rail/vessel/public roads, proper shipping name and UN number; completion of proper shipping papers; document material inventory/shipments; evaluate methods used to process low level and high level waste.
10-624-134 RADIATION SHIELDING ...provides the learner with the skills o calculate radiation attenuation from various geometric radioactive sources, determine the effect of neutron radiation on materials, and estimate the exposure rate from various sources.
10-624-135 RADIATION SHIELD AB ...expands the learner's ability to perform shielding of ionizing radiation sources and to measure the penetration of alpha beta and gamma radiation.
10-624-140 RADIOCHEMISTRY ..prepares the learner to separate dissolved, suspended, iquid, and ionic radioactive components; perform qualitative and quantitative analysis of samples; and prevent he production of radioactive material by using proper chemical control.
10-624-145 APPLIED HEALTH PHYSICS ...prepares the learner to issue dosimetry, alculate neutron dose, monitor persona exposure, calculate radioactive airborne activity concentration, estimate radioactive, airborne concentration, issue respirators, determine contamination levels, recommend protective clothing, reduce the spread of contamination, conduct an ALARA audit, reduce the total radiation exposure, maintain records and estimate exposure to internal organs.

10-624-146 APPLIED HEALTH PHYSICSLAB ...expands the learner's ability to perform applied health physics tasks as covered in Applied Health Physics, 10-624-145. This course is associated with 10-624-145.

10-624-148 REACTOR THEORY AND OPERATIONS ...introduces the learner to the basic reactor types, the fission process, reactivity/criticality, reactor kinetics, heat removal, residual/decay heat, basic reactor types, nuclear plant water chemistry, and reactor thermodynamics.

10-624-149 REACTOR PLANT COMPONENTS ...introduces basic mechanical and electrical components used by nuclear power plants such as different types of piping, valves, pumps, ejectors, filters, turbines, heat exchangers, compressors, lubrication systems, valve actuators, breakers, transformers, relays, and other equipment.

10-624-156 NUCLEAR TECHNOLOGY INTERNSHIP ... internship enhances the student's ability to apply technical skills to work productively, communicate effectively, and demonstrate appropriate ethics and behavior in a professional workplace environment.
10-660-104 DC 1: INTRODUCTION ...introduction to the concepts of DC electricity and simple series circuits. Voltage, current, resistance, Ohm's Law, power and Kirchoffs Voltage Law are defined.
10-660-105 DC 2: CIRCUITS ...analysis of parallel and series-parallel circuits. Application of Kirchoffs Current Law to parallel circuit combinations Introduction of current sources and source conversions. (Corequisites: $10-$ 804-118, Interim Algebra w Apps OR equivalent; 10-660-104, DC 1: Intro)
10-660-107 AC 1: PROPERTIES ...introduction to the properties of capacitors and inductors including types and behavior in switching circuits. Inductor basics include a study of magnetic fields. (Prerequisite: 10-660-105, DC 2: Circuits; Corequisite: 10-804-196, Trigonometry w Apps)
10-660-108 AC 2: REACTANCE ...study of the way inductive, capacitive and resistive components behave in a circuit excited by a sine waveform. Effective and average values of the sinewave are derived. (Corequisite: 10-660-107, AC 1: Properties)

## Nursing Assistant

Offered throughout the District. For information in Green Bay: (920) 498-5444. For information in Marinette: (715) 7359361. For information in Sturgeon Bay: (920) 746-4900. Toll-free: (888) 385-6982.

This program is not eligible for financial aid.

## Program Description

The Nursing Assistant program prepares students for employment as nursing assistants. The program also prepares Nursing Assistant students with some of the skills needed for the first semester of the Nursing program. During the 120 hour course, students will be required to demonstrate the following skills under the supervision of a licensed nurse: communication, basic nursing assistant and personal care skills, attention to clientís rights; and care of clients with dementias. The program is recognized by the Wisconsin Department of Health Services as a nurse-aide training program. Upon successful completion of the program, the student is eligible to take the Wisconsin Nursing Assistant competency evaluation for employment in nursing homes, hospitals, home health agencies, hospices, CBRF's, assisted living centers and homes for the developmentally disabled.

## Program Outcomes

- Apply for competency testing to be placed on the Wisconsin Nurse Aide Registry.
- Obtain employment as a Nursing Assistant.
- Display behavior which supports and promotes residents' rights.
- Perform basic nursing/personal care skills.
- Assist residents in attaining and maintaining independence.
- Interact effectively with residents experiencing dementias.
- Interact on a one-to-one-basis with residents, with sensitivity to their emotional, social, and mental health.


## Requirements for Program Entry

- Be at least 16 years old.
- Push, pull, lift, and/or support up to 50 pounds of weight.


## Wisconsin Caregiver Law

NWTC is required to comply with the Wisconsin Caregiver Law (1997 WISCONSIN ACT 27). The completion of a caregiver background check includes the review of criminal records for convictions of serious crimes or a history of improper behavior. Students accepted into this program must complete a background check through www.CertifiedBackground. com. Information regarding this process is provided to students immediately upon acceptance into the program. Students with a criminal history may be denied access to placement at the discretion of the clinical or practicum site. Consequently, should a student have a history of convictions of serious crimes or a history of improper behaviors, NWTC cannot guarantee clinical/practicum placement or guarantee graduation within typical program timing.

## Employment Potential

A graduate of this program will have the potential for employment in the following areas:
Nursing Assistant: performs basic nursing tasks under the supervision and direction of the Registered Nurse in a nursing home, home health environment, or hospital setting.

## Note

- All textbook and Blackboard assignments must be completed before attending clinical.
- Class requirements include work on the Internet. Access to high speed Internet is highly recommended.
- This course is completed within six to eight weeks and will meet at least one to two days a week.
- Classroom and clinical attendance is mandatory. Any missed classroom and clinical hours must be made up.


## Clinical Experience

Students will be required to purchase a nametag, gait belt, and uniform,

## Gurriculum

The Nursing Assistant Technical Diploma is a 120 -hour program that includes skill pre-work, lecture, lab and clinical. Upon graduation, a student will have completed three credits. Orientation will take place during the first class.

## FIRST SEMESTER

CREDITS
30-543-300 Nursing Assistant
TOTAL CREDITS
pay for liability insurance, provide their own transportation to assigned sites, and cover any other expenses related to clinical experiences. Students may be expected to travel distances to meet clinical requirements.

## Requirements for Program Application

- NWTC requires an entrance skill inventory for all program students.
- Requirements for program entry must be completed prior to the start of the program.
- As a requirement for program entry, an Academic Skills Assessment (Accuplacer or ACT) with appropriate benchmark scores is necessary. Accuplacer benchmarks are Reading Comprehension, 55. Applicants not meeting these benchmarks are encouraged to contact an advisor at (920) 498-5444 or (888) 385-6982.
- Submit clinical requirements. A fee is charged for this service. Additional information will be provided upon acceptance into the program.
- Students will be required to show proof of an annual flu vaccine.
- Prior to registering for class, meeting Functional Abilities Inventory requirements (accessible at www.nwtc.edu).
- Complete caregiver background check. A fee is charged for this service. Additional information will be provided upon acceptance into the program.


## COURSE DESCRIPTIONS

These courses provide an opportunity for students to develop the knowledge, skills, and understanding required for employment in this field.

## 30-543-300 NURSING ASSISTANT...

 basic nursing/personal care skills, principles of communication skills, resident rights and team work with other care givers under the supervision of a licensed nurse. (Prerequisite: Accepted in the Nursing Assistant program. Call 1-888-385-6982, ext. 7159 or go to http://www.nwtc.edu/ NursingAssistant_Admissions for directions.)Nursing
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Offered at the Green Bay, Marinette and Sturgeon Bay campuses. For information in Green Bay: (920) 498-5444. For information in Marinette: (715) 735-9361 For information in Sturgeon Bay: (920) 746-4900. Toll-free: (888) 385-6982.

This program is fully eligible for financial aid.

## Program Description

Office Professional students are prepared for entry-level office positions. Skills are developed in word processing, spreadsheet, presentation graphics, database, document creation, telephone messaging, records management, office procedures, and keyboarding. Credits earned in the program can be applied toward the Software Level 1 and/or Software Level 2 certificates and the Administrative Professional Associate Degree program.

## Program Outcomes

- Demonstrate effective workplace communications.
- Apply technology skills to business and administrative tasks.
- Perform routine administrative procedures.
- Manage administrative projects.
- Maintain business relationships.
- Model professionalism in the workplace.


## Requirements for <br> Program Entry

- Completed application.
- High school transcript or equivalent. For a list of equivalents, go to www.nwtc.edu/gettingstarted.
- Basic math.
- Keyboarding proficiency at 30 WPM using the TOUCH method is required. (Mandatory pre-admission keyboarding test to be taken at the NWTC Assessment Center.)
- As a requirement for program entry, an Academic Skills Assessment (Accuplacer)
with appropriate benchmark scores is necessary. Program Benchmarks are Arithmetic: 65; Reading Comprehension: 55; Sentence Skills: 75. Students not meeting these benchmarks or the equivalent will be required to establish an individualized academic plan. Students may have the opportunity to enroll in selected program core courses while completing their individualized plan. Upon completion of the plan, students will be eligible for all program courses. However, higher test scores will lead to greater success in core program courses. To learn more about program courses. To learn more about
these assessments and program benchmark these assessments and program bench
scores, please contact a counselor at (920) 498-5444 or (888) 385-6982.


## Employment Potential

A graduate of this program will have the potential for employment in the following areas:
Office Professional: performs a variety of duties related to keyboarding, filing, word processing, telephoning, making appointments, recordkeeping, setting up meetings, handling customer relations, entering data, and handling incoming and outgoing mail.
Records Coordinator: works in offices with a great volume of records in which indexing, cross-referencing, filing, retrieving, and charging-out records are important job functions. Front Desk Coordinator: manages the company's lobby area; greets and directs all visitors, including vendors, clients, job candidates and customers; ensures completion of paperwork, sign-in and security procedures; handles special administrative projects, as well as overflow work from department and executive assistants; depending on the size of the firm, also may answer incoming calls.

With additional education and/or work experience, graduates may find other opportunities for employment.

Curriculum
Sudents following the sudy plan
bulew will complere se Office below will complete the Office Professional technical diploma in the number of semesters shown.

## FIRST SEMESTER

CREDITS 10-103-111 Micro: Windows/Computer Basics 10-103-122 Micro: Word-Intro
10-103-151 Micro: PowerPoint-Intro
10-103-102 Info Process Principles $\begin{array}{ll}\text { 10-106-102 Info Process Principles } \\ \text { 10-106-107 } & \text { Keyboard-Speed Building }\end{array}$ 10-106-131 Proofreading/Editing Essen 1 10-106-153 Professional Profile
10-801-136 English Composition 1 10-890-101 College 101
SEMESTER TOTAL

## SECOND SEMESTER

10-102-100 Bus and Info Tech Occup Prep 10-102-100 Bus and Info Tech
10-103-131
Micro: Excel-Intro 10-103-141 Micro: Access-Intro
10-106-127 Admin Business Procedures 1 10-106-132 Proofreading/Editing Essen 2 10-106-142 Software Projects
10-106-154 Records Management
10-106-172 Telephone/Messaging Skills
10-106-197 Office Prof Intern Practicum 10-804-123 Math w Business Apps SEMESTER TOTAL

CURRICULUM NOTE
*The credit for 10-890-101, College 101, is an Institutional Requirement for graduation. Consequently, it is not part of the program credit requirements.
Portfolio: Students are required to complete a program portfolio prior to graduation.

- Administrative Professional
- Executive Assistant
- Team Leader
- Office Manager

The following certificates/technical diplomas may be applied toward this program: - 901031, Software Level 1 Certificate

## COURSE DESCRIPTIONS

These courses provide an opportunity for students to develop the knowledge, skills, and understanding required for employment in this field.

10-102-100 BUS AND INFO TECH OCCUP PREP ...career exploration, selfexploration, career planning, career placement, job seeking skills. This course should not be taken before the 3rd semester or completing at least half of the core program courses.
10-103-111 MICRO: WINDOWS/ COMPUTER BASICS ...Windows desktop elements, help features, folder and file management (create, delete, move, find file), and Search strategies. Blackboard, internet, and e-mail usage. 10-103-121 MICRO: WORDINTRODUCTION ...word processing basics including creating, revising, formatting, printing; sections, tabs, multiple-page numbering; manipulating text; creating headers/footers; creating/formatting tables, graphics; and merging documents. Windows experience improves success; consider 10-103-111, Windows/Computer Basics.

10-103-122 MICRO: WORD-PART 2 ...advanced word processing features including working with headers/footers, inserting quick parts, themes, styles, sort and select; footnotes/endnotes, images, shapes, shared documents; specialized tables and indexes; forms; and sharing data. (Corequisite: 10-103-121, Micro: Word-Intro)
10-103-131 MICRO: EXCELINTRODUCTION ...creating a worksheet, enhancing worksheet appearance, moving and copying data, using formulas and functions, creating charts and using clip art. Windows experience improves success; consider 10-103-111, Windows/Computer Basics.

10-103-141 MICRO: ACCESS INTRODUCTION ...creating/ modifying database tables, compacting a database, managing records, defining table relationships, creating queries, calculations, and aggregate functions, sorting, and using form/report wizards. Windows experience improves success; consider 10-103-111, Windows/Computer Basics.

10-103-151 MICRO: POWERPOINTINTRODUCTION ...presentation skills using: graphics, diagrams, design themes, sounds, animations, slide transitions, and integration with other software. Windows experience improves success; consider 10-103-111, Windows/ Computer Basics. (Corequisite: 10-103-121, Micro: Word-Intro)

10-106-102 INFORMATION PROCESSING PRINCIPLES ...an introduction to the information processing cycle including new technology, computer system unit, Internet research, input and output devices, software, networks, ergonomics, and data storage.
10-106-107 KEYBOARD-SPEED BUILDING 1 ...skill development on the alphabetic keyboard using analytic/diagnostic software. Requires touch keyboarding at 30 wpm. Students can learn touch keyboarding method in 10-106-145, Keyboarding.

10-106-127 ADMINISTRATIVE BUSINESS PROCEDURES 1 ...today's business environment includes management of prioritization and organizational skills, workplace mail and copying, meeting coordination, and creating effective business communication using appropriate formats and variety of application tools. (Prerequisites: 10-106-131, Proofreading/ Editing Essentials 1; 10-106-102, Information Processing Principles; Corequisite: 10-106-142, Software Projects)

10-106-131 PROOFREADING/EDITING ESSENTIALS 1 ...develop skills for using, identifying, and correcting grammar, spelling, punctuation, capitalization, numbers and abbreviations to creat errorfree business documents. Introduction to and use of reference resources and portfolio guidelines. (Corequisite: 10-801-136, English Composition 1)

10-106-132 PROOFREADING/EDITING ESSENTIALS 2 ...apply advanced proofreading, editing and composition kills in electronic and business documents using reference manuals and other resources. Multitasking and decision-making skills are enhanced through proofreading abilities. (Prerequisite: 10-106-131, Proofreading/Editing Essentials 1)

10-106-142 SOFTWARE PROJECTS ...applying Windows and Word features to manage and format business documents while exercising decision-making, increasing efficiency, and enhancing keyboarding skills. Windows, advanced Word, and minimum 45 wpm is highly recommended. (Prerequisite: 10-106-107, Keyboard-Speed Building 1; Corequisite: 10-103-122, Micro: Word-Part 2)

10-106-153 PROFESSIONAL PROFILE ...developing a professional image and attitude, including study of business ethics and etiquette; goal setting; anger, stress, and time management; understanding of diverse cultures; and development of platform skills.
10-106-154 RECORDS MANAGEMENT ...major systems of filing classification: alphabetic, numeric, geographic and subject; retention and disposition of records; records equipment and technology.

10-106-172 TELEPHONE/MESSAGING SKILLS ...using the telephone effectively and efficiently in the world of work; telephone etiquette, messaging, and voice mail.

10-106-197 OFFICE PROFESSIONAL INTERN PRACTICUM ...hands-on experience applying skills developed in the program at an approved employment site with employer supervision and discussion with the instructor. Course should be taken during the last semester. (Corequisites: 10 102-100, Bus and Info Occup Prep; 10-106127, Administrative Business Procedures 1; 10-801-136, English Composition 1; 10-804-123, Math w Business Apps)

A Lakeshore Technical College program offered at Northeast Wisconsin
Technical College. For information call Toll-free: (888) 385-6982.

This program is not eligible for financial aid.

## Program Description

The Ophthalmic Medical Assistant program prepares students for employment in ophthalmologic and optometric practices and in retail optical settings. Students apply technical skills to perform prescreening and specialty testing; assist with dispensing glasses and contact lenses; and perform office management duties, including maintaining patient information and billing and insurance processes.

## Program Outcomes

- Apply technical skills to perform eye care prescreening and specialty testing procedures on patients accurately and efficiently.
- Apply technical skills to educate and assist patients with glasses and/or contact lenses to meet their eye health and visual needs.
- Perform business office procedures such as maintaining appointment schedules, maintaining patient records, processing insurance reimbursement, and bill patients.
- Demonstrate professional ethics, honesty, and respect when dealing with doctors, patients, and co-workers.
- Communicate clearly and professionally in both written and oral formats.


## Requirements for Program Entry

- Work with Admission Specialists to:
- Submit Application and \$30 Fee
- Schedule an Assessment for

Placement (Accuplacer or ACT)

- Submit Official Transcripts (High

School and Other Colleges)

- *Meet with Program Advisor/Counselor to Discuss Program Details


## Employment Potential

- Optometric Assistant
- Ophthalmic Assistant
- Optical Assistant
- Contact Lens Technician


## Gurriculum

The Ophthalmic Medial Assistant
Technical Diploma is a three semester
collaborative program between Lakeshore
Technical College and Northeast Wisconsin
Technical College. Upon graduation, a
student will have completed 43 credits.

FIRST SEMESTER
CREDITS
10-501-101 Medical Terminology
10-501-104 Healthcare Customer Serv.
10-501-107 Intro to Health Care Computing
31-501-301 Learning Strategies for Health
31-516-306 Basic Ocular Science
SEMESTER TOTAL

## SECOND SEMESTER

10-809-199 Psychology Of Human Relations
31-509-302 Human Body in Health \& Disease
31-516-302 Optical Dispensing
31-516-303 Optical Concepts
31-516-304 Ophthalmic Pre-Testing
SEMESTER TOTAL
THIRD SEMESTER
31-509-301 Medical Asst Admin Procedures 31-509-307 Med Office Insurance \& Finance 31-509-309 Medical Law, Ethics \& Profess
31-516-312 Contact Lenses
31-516-330 Ophthalmic Clinical Procedures 31-516-343 Ophthalmic Clinical Experience SEMESTER TOTAL TOTAL CREDITS

Suggested 1st Semester Course: 31-501-301 Learning Strategies for Health Care, 1 credit

## COURSE DESCRIPTIONS

These courses provide an opportunity for students to develop the knowledge, skills, and understanding required for employment in this field.

10-501-101 MEDICAL TERMINOLOGY
...focuses on the component parts of medical terms: prefixes, suffixes, and root words. Students practice formation, analysis and reconstruction of terms. Emphasis on spelling, definition and pronunciation. Introduction to operative, diagnostic, therapeutic and symptomatic terminology of all body systems, as well as systemic and surgical terminology.

31-509-301 MEDICAL ASSISTANT ADMINISTRATIVE PROCEDURES... introduces medical assistant students to office management, business administration and the electronic medical record (EMR) in the medical office. Students learn to schedule appointments, perform filing, record keeping, telephone and reception duties and communicate effectively with patients and other medical office staff, and keep an inventory of supplies. (Prerequisite: Accepted into Medical Assistant program or shared LTC Ophthalmic Medical Assistant program; Corequisites: 10-501107, Intro to Healthcare Computing or any other computer course)

31-509-302 HUMAN BODY IN HEALTH \& DISEASE ...focuses on diseases that are frequently first diagnosed and treated in the medical office setting. Students learn to recognize human body anatomy and the causes, signs, and symptoms of diseases of the major body systems as well as the diagnostic procedures, usual treatment, prognosis and prevention of common diseases. (Prerequisite/Corequisite: 10-501-101, Medical Terminology)

31-509-309 MEDICAL LAW ETHICS \& PROFESSIONALISM...prepares students to display professionalism and perform within ethical and legal boundaries in the health care setting. Students maintain confidentiality, examine legal aspects of the medical record, perform quality improvement procedures, examine legal and bioethical issues, and demonstrate awareness of diversity.

31-516-302 OPTICAL DISPENSING Öintroduces learners to frame definition, parts and types of frames, measurement of frames and lenses, alignment of frames, inserting and removing lenses, introduction to dispensing of eyewear and frame repairs. (Corequisites: 31-516-303, Optical Concepts; 31-516-304, Ophthalmic PreTesting; 31-516-306, Basic Ocular Science. Condition: 31-516-1, Ophthalmic Medical Assistant program requirements met)

31-516-303 OPTICAL CONCEPTS
Öbegins the study of the neutralization and verification of spectacle lens powers, to include spherical, cylindrical and prism lenses. Also included are the properties of light and the function of a lens in vision correction as well as a review of basic math needed in vision care and the physiological aspects of vision. (Corequisite: 31-516-302, Optical Dispensing)

31-516-304 OPHTHALMIC PRETESTING Öcovers the history of optometry, relationships between optometry, ophthalmology and optician and various paraprofessional careers in vision care. The course involves the study of and practical experience in patient pre-testing such as case history, visual acuity, color vision, pupil evaluation and depth perception as well as the specialized testing procedures such as keratometry and blood pressure. (Corequisite: 31-516-302, Optical Dispensing)

31-516-306 BASIC OCULAR SCIENCE ... introduces learners to the structures, microscopic anatomy, and functional aspects of the eye and visual system. Clinical application emphasizes diseases, disorders and common treatments including pharmacological. (Prerequisite: 315164, Ophthalmic Medical Assistant program requirements met.)

31-516-312 CONTACT LENSES Öprovides the student in-depth exposure to the technical aspects of clinical contact lens practice. Lecture and laboratory experiences emphasize lens verification, patient education and evaluation. (Prerequisite: 31-516-302, Optical Dispensing and Corequisite: 31-516-343, Ophthalmic Clinical Experience)

31-516-330 OPHTHALMIC CLINICAL PROCEDURES SPECIALTY TESTINGÖprovides the student experience and knowledge in areas of special vision care procedures: subjective refraction, visual field testing, slit lamp, Goldmann and non-contact tonometry, ultrasound, basic concepts of orthoptics and the treatment of eye diseases including instillation of eye medications and eye patching. Patient instruction and assistance are emphasized in laboratory sessions. (Prerequisite: 31-516-302 Optical Dispensing and Corequisite: 31-516-343, Ophthalmic Clinical Experience)

## 31-516-343 OPHTHALMIC CLINICAL

 EXPERIENCE Öwill have students participate in assigned clinical experience beginning with vision screenings on patients from the college and continues in an optometric, ophthalmology or optical setting. Class discussions are held analyzing the results of the screening as well as the students' performance. The student is expected to achieve specific educational objectives determined for this experience. (Prerequisite: 31-516-302, Optical Dispensing; Corequisites: 31-516-312, Contact Lenses; 31-516-330, Ophthalmic Clinical Procedures and Specialty Testing)Paralegal Program Code 101101 | Associate Degree

Offered at the Green Bay campus.
For information: 9200 4 49854444 . Toll-free: (888) 385-6982.
This program is fully
for financial aid.

## Program Description

 A Legal Assistant or Paralegal is a personqualified by education, training, or work experience who is employed or retained by a lawyer, law office, corporation, Sovernmental agency, or other entity who performs specificilly designated substantive
legal work for which a lawyer is usponsible.
loter

## Program Outcomes

- Communicate effectively orally
and in writing within the context
of a legal enyironment. demonstrating profeessionalism,
individulit Apply ethical principles and critical Apply ethical priniciples and critica
thinking skills to solve problems in a legal environment. Conduct accurate, effective and efficient legal research using both traditional and
computerized research techniques. Generate work product in various fields of
law, using computer software applications law, using computer software applications
typical in a modern legal environment.


## Requirements fo

## Program Entry

High school transcript or equivalent. For school transcript or equii
Fww.nwtc.equivivalettins, go to
worted. Ability to use Windows and
Microsoft Word proficiently Microsoff Word proficiently. Successful completion of reading and
language assessment prior to admission. Students should have mastered basic math skills. For a description of basic math, see
the Basic Education section of this catalog. Remediation will be strongly recommended for those students not
meeting the program benchmarks. As a requirement for program entry, an
Academic Skills Assesment (Accuplacer) with appropriate benchmark scores is necessaryy. Program benchmarks are
Arithetic, 5 ; Reading Comprehension, 55: Sentence Skills, 75. Students not meeting these benchmarks or the equivalent will be required to establish an
individualized academic plan. Sudents may individualized academic plan. Students may
have the opportunity to enroll in selected
program core courses while compleing program core courses while completing
thieir individuaized plan. Upon completion
of the plan suldents will be eligibe for af the plan, suadents s sill be leligiblef or
all program courses. However, higher test
scores will lead to greater success in core
program courses. To learn more about these assessments and program benchmark
scores, please contact 2 scores, please contact a counselor at
$(920) 498-5444$ or (888) $385-6982$.

## Employment Potential <br> Aaralegals perform work under the

 supervision of a lawyer in a variety ofsettings. Paralegals are not authorized to practice law. A graduate may be employed
by a private law firm, insurance company, corporation, bank, private business, legal clinic, government agency, legal aid office,
law department, special interest group, law department, special interest group,
public defender's office, prosecutor's office, public defenders s ffice, prosecuturs
service company, or consulting firm.
With additional education and/or work experience, graduates may find othe
opportunities for employment.
Law Office Administrator
Law Office Manager

- Paralegal Supervisor
- Coralegal Instructor Compliance Officer

Corporate Compliance O
Regulatory Specialist

## Credentials

The Paralegal Program is approved by
the American Bar Association (ABA) and is also a member of the American
Association for Paralegal Education Association for Paralegal Education.
American Bar Association American Bar Association
541 North Fairbanks Ct . Chicago, IL 60611
Phone: (312) $988-5617$ A Special Note to Learners
Holding a Bachelor's Degree
Learners holding a bachelorís degree from Learners holding a bachelorís degree from an accredited institution have the option of
pursuina a Pos-Baccalaureate Certificate
for Paralegal. For more information, contact Enrollment Services at 888-385-6982.
A Special Note to Those A Special Note to Those
Learners Taking Olline Courses
The ABA requires each learner to tal The ABA requires each learner to take a
minimum of four legal specialty couses minimum of four legal specialty courses
in a live, synchronous
real time" format. NWTC requires you to take Civil
itigation ( (10-110-102) and Civil titiation 1 (10-10-102) and Civil legal specialty courses of yourc chooce, ${ }^{\text {, }}$,
fom NWTC in a live, yychronous, ${ }^{\text {real }}$ ime" format. NWTC has designated the ollowing courses as legal specialty courses:
Required Legal Specialty Course 10-110-102 Civil Litigation 1 10-110-104 Legal Resear 10-110-105 Legal Writing 10-110-107 Legal Aspects/Business Org.

## Curriculum 

 SECOND SEMESTER
$\qquad$
 10-110-110 Real Estate Law
(or"r choice below (or"choice below)
10-110-175 Leaga Computer Applications
SMEETER TOTAL

## third semester

THIRD SEMESTER
10-110-103 Ciilitigation
$10-110-106$ Law-Family

 $\begin{array}{lll}\text { OR } & 3 \\ \text { 10-80-198 } & \text { Introto Psychology } & 3 \\ \text { Elective }\end{array}$ SEmESTER TOTALAL FOURTH SEMESTER
10-110-105 Legal Writit


 ${ }^{10} 0-800-172$ Intro to Diversity Studies SEMESTER TOTAL
TOTAL CREDITS
CURRICULUM NOTE
CURRICULUM NOTE

+ Agrade of "C" Orbeter must be a achieved
in 10-10-101
 - The credit for $10-890-101$, College 10 is an Institutional Requirement tor
graduation Consequunty, it s ot tpa gracuation. Consequentyly, it it not pat
of the program credit requirement. "Students must take 4 of 8 le
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$-10-10-114$ Estates and Probate is only yffered it the Fall
$10-110-115$ Adminstrative Law 10-110-115 Administrative Law
i. ooly offered in the
- $10-110$
 is only offered in the Spring
10-110-160 Employment Law is only oftereden inther Fall
$10-10-162$ nternaional
 10-110-165 Contracts 8 Insurance
Law is only ffered in the Spring
 is only offered it the Spring
- $10-110-169$ ndian Law is on only offered in the Fall



10-110-165 CONTRACTS AND INSURANCE LAW ...explore contract
formation, breach of contract, defenses to contract, parol evidence rule, statue of frauds, and warranties. Examine insurance
law including insurable interests, insurer law including insurable interests, insurer's
duty to defend, subrogation, and bad fait duty to defend, subrogation, and bad faa
claims. (Prerequisite FOR PROGRAM Claims. (frerequisite Legal Ethics with iCî or better. Corequisite
FOR CERTIFICATE ONLY: 10-110101, Paralegal Intro/Legal Ethics)
10-110-168 PARALEGAL CRIMINAL procedural crimininal law, the role of paralegals in both the prosecution and defense of criminal actions, emphasis on investigations and preparation of legal
documents. (Prerequisite FOR PROGRAM Occuments. (Prerequisite FOR PROGR Legal Ethics with iCi or better. Corequisite FOR CERTIIICATE ONLY: 10-110101, Paralegal Intro/Legal Ethics) 10-110-169 INDIAN LAW ...Wisconsin
Indians, tribal sovereignty, federal/Indian Indians, tribal sovereignty, federal/Indian
relations, tribal governments, tribal courts relations, tribal governments, tribal court
treaty making, removal/reservation life, treaty making, removal reservation ifife,
assimilation, reorganizaztion, termination self-determination, gaming, and other contemporary issus. (Prerequisite FOR
PROGRAM ONLY: $10-110-101$, Paralegal Intro/Legal Ethics with iCi or better.
Corequisie FOR CERTIFICTE ONL Corequisite FOR CERTIFICATE ONLY
10-110-101, Paralegal Intro/Legal Ehics) 10-110-175 LEGAL COMPUTER APPLICATIONS ...legal applications and
ethics relating to: PC hardware, software, ethics relating to: PC hardware, softw
technology; Microsoft Office Suite; calendaring, timekeeping/billing, and case
management software; Internet/e-mail; e-filing management sof ware, Internete--mali, e--1in; presentation/trial graphics. (Corequisite
$10-110-101$, Paralegal Intro/Legal Ethics) 10-110-197 PARALEGAL FIELD approved by the instructeror with related approved ay the instructor with reated
projects and discussion. May include in-depth study of an industry, business, Career, or job shadowing. (Prerequisites:
10-102-100, Bus $\&$ Info Tech Occup 10-102-100, Bus \& Info Tech Occup
Prep; 10-801-136, English Composition
I; 10-804-107, College Mathematics 10-110-199 PARALEGAL INTERNSHIP 10-110-199 PARALEGAL INTERNSHI
PRACTICUM ...practical, hands-on experience applying skills developed in the program at an approved site with supervision
by an employer and the instructor with by an employer and the instructor with
related projects and discussion. (Prerequisite related projects and discussion. (Prerequ
$10-102-100$, Bus $\&$ Info Tech Occup Prep; 10-801-136, English Composition
I: 10-804-107 College Mer I; 10-804-107, College Mathematics)
10-809-103 THINKING CRITICALL) 10-809-103 THINKING CRITICALLY
\& CREATIVELY ...instruction in realistic/ practical methods of thinking, including
decision making problem solving andyring decision making, problem solving, analyzing
ideas, troubleshooting, argumentation, ideas, troublestooting, aryumentation,
persuasion, creativity, setting goals objec Students apply strategies /ools sin a ariety of
situations. (Prereauisite: Accuplacer-Sentence situations. (Prerequisite: Accuplacer-Senten
Skills $=60$ AND Accuplacer-Reading $=55$ Skills $=60$ AND Accuplacer-Reading $=55$
OR ACT-English $=16$ AND ACT Readi $=15$ OR 10-838-105, Intro to Reading \& Sudy skills or 10-831-103, Intro to Coliege

Paramedic Program Program Code 315511 | Technical Diploma

Offered at the Green Bay campus.
For information: (920) 498-5444. For information: (920) 498-
Toll-free: (888) 385-6982.
This program is fully eligible
for financial aid.

## Program Description

Paramedic students will learn to manage seriously ill and critically injured patients in the out-of-hospital setting using structured patient assessment techniques along with
critical care thinking, applying emergency medical treatment protocols based on national scopes of practice, and packaging ransporting patients compliant with Wisconsin approved standards and practices

Successful completion of the Paramedic program prepares and entitles the student to take the National Registry certification examination for Paramedics. The National Registry certification is
in the state of Wisconsin.

## Program Outcomes

- Prepare for incident respon
and EMS operations.
- Integrate pathophysiology principles and assessment findings for a variety of patient encounters.
- Demonstrate paramedic skills associated with established standards and procedures for a variety of patient encounters. Communicate clearly and effectively both verbally and through written documentation with clients, coworkers, other agencies, and supervisors.
- Demonstrate professional behavior
- Meet Wisconsin state and national competency requirements for paramedic credentialing.


## Requirements for

## Program Entry

## Completed application.

- High school transcript or equivalent. (For a list of equivalents, go to
www.nwtc.edu/gettingstarted.)
www.nwtc.edu/gettingstarted.) - Currently licensed as an Emergen
Medical Technician (EMT) in Medical Technician (EM
the state of Wisconsin.
- Maintain a current AHA Health Provider CPR card on a twoyear renewal cycle to comply with
affiliating agency requirements.

Students are required to complete their field experience throughout the duration of the program that would permit the completion of field experience necessary to qualify for licensure. First priority for admission is given to applicants sponsored by a Wisconsin icensed ambulance service. Unsponsored applicants are admitted after all ponsored students are admitted Aptitudes required for work of this nature are good physical stamina, endurance, and body condition that would not be adversely affected by frequently having times, in excess of 125 pound.

## Wisconsin Caregiver Law

 NWTC is required to comply with the Wisconsin Caregiver Law (1997 WISCONSIN ACT 27). The completion of review of criminal records for convictions of serious crimes or a history of improper behavior. Students accepted into this program must complete a background program must complete a backgroundcheck through www.CertifiedBackground. com. Information regarding this process is provided to students immediately upon acceptance into the program. Students with a criminal history may be denied access to placement at the discretion of the clinical or practicum site. Consequently, should a student have a history of convictions of serious crimes or a history of improper behaviors, NWTC cannot guarantee clinical/practicum placenter guarantee graduation within typical program timing.

## Employment Potential

A graduate of the program will have the potential for employment as a Paramedic Emergency Room Technician, EKG Monitoring Technician, Advanced Cardiac Ire Technician, or other healthcare settings

Note

- Transfer of credits will be evaluated on a case-by-case basis only.
- Graduates of the Paramedic technical diploma who complete the following courses with a "B" or better, meet the program benchmark scores for the Nursing-Associate Degree program, AND successfully complete the General Studies courses for the Nursing-Associate Degree program may apply to that program for advanced standing:


## Curriculum <br> Students following the study plan below will complete the Paramedic technical

## FIRST SEMESTER

CREDITS
10-531-911 EMS Fundamentals
$10-531-912$ Paramedic Medical Principles
$10-531-913$ Adv. Patient Asses. Principles ${ }^{110-531-914}$ Adv.tPre-Hospital Pharmacolog. 10-531-915 Paramedic Cespiratory $M$
$10-531-916$ 10-531-916 Paramedic Cardiology
-10-531-17 Paramedic Clinical/Field 10-531-918 Adv. Emergency Resuscitation EmESTER TOTAL

## SECOND SEMESTER

*10-531-919 Paramedic Medical Em
*10-531-920 Paramedic Trauma
$10-531-920$ Paramedic Trauma
10-531-921 Special Patient Po
10-531-921 Special Patient Populations
$\times 10-531-922$ EMS Operations $10-5311-922$ EMS Operations
$10-531-923$ Paramedic Capstone
10-531-922 Paramedic Capstone
10-531-924 Paramedic Clinical/Field 2 SEMESTER TOTAL
TOTAL CREDITS

## CURRICULUM NOTE

No final grade lower than a iCCi is acceptable $n$ any courses. A student who withdraws or
eceives a grade lower than a ict in a program course may apply for re-entry into the program. Students who enter the program with limited Emergency Medical Service experience will be strongly encouraged to complete $10-531-103$, EMS Field Internship (72 clinical hours).

- 10-543-127, Paramedic to ADN Theory 1,3 cr. 10-543-128, Paramedic to ADN Theory 2, 3 cr. 10-543-129, Paramedic to ADN Clinical, 2 cr.
10-543-130, Paramedic to ADN Skills, 2 cr.
Refer to the program information for Nursing-Associate Degree on this website for benchmark scores and required General Studies courses.
- Graduates of the Paramedic techni diploma who complete their coursework with a "C" or better and meet the program benchmark scores for the Fire Medic program, may qualify Medic Associate Degree program.


## COURSE DESCRIPTIONS

These courses provide an opportunity
for students to develop the knowledge, skills, and understanding required for employment in this field.
10-531-911 EMS FUNDAMENTALS ..this course provides the paramedic student with comprehensive knowledge of EMS systems, safety, well-being, legal issues, and ethical issues, with the intended outcome of improving the health of EMS personnel, patients, and the communit knowledge of public health principles and epidemiology as related to public health emergencies, health promotion, and illness/ injury prevention. Introducing students to comprehensive anatomical and medical terminology and abbreviations will foster the development of effective written and other health care professionals. (Prerequisit Acceptance in the Paramedic or Fire Medic program; completion of Health Assessment; Corequisites: all 10-531XXX courses in the current semester)
10-531-912 PARAMEDIC MEDICAL PRINCIPLES ...this course addresses the complex depth of anatomy, physiology, and pathophysiology of major human systen while also introducing the paramedic students to the topics of shock, immunology, XXX courses in the current semester)

10-531-913 ADVANCED PATIENT ASSESSMENT PRINCIPLES ...this course teaches the paramedic student to integrate scene and patient assessment findings with knowledge of epidemiology and pathophysiology to form a field impression By utilizing a structured and organized assessment process with knowledge of anatomy, physiology, pathophysiology, life span development, and changes that occur will learn to develop a list of differential diagnoses through clinical reasoning along with the ability to modify the assessment as necessary to formulate a treatment plan for their patients. (Corequisites: all 10-531 XXX courses in the current semester)
10-531-914 ADVANCED PRE-HOSPITAL PHARAMACOLOGY ...this course provides the paramedic student with the comprehensive knowedge of pharmacology pharmacological treatment plan intended mitigate emergencies and improve the overall health of the patient. (Corequisites: all 10 -531-XXX courses in the current semester)

0-531-915 PARAMEDIC RESPIRATORY MANAGEMENT...this course teaches the MANAGEMENT...this course teaches the paramedic student to integrate complex ashophysiology into the assessment to develop and implement a treatment plan with the goal of assuring a patient airway, adequate mechanical ventilation, and respiration for patients of all ages. Specific knowledge pertaining to the respiratory system is also provided to ensure the student is prepared to formulate a field impression and implement a comprehensive treatment plan for a patient with a respiratory complaint. (Corequisites: all 10-531 XXX courses in the current semester)
10-531-916 PARAMEDIC CARDIOLOGY ...this course teaches the paramedic student to integrate assessment findings with principles of cardiovascular anatomy, physiology, epidemiology, and pathophysiology o formulate a field impression and implement a comprehensive treatment plan for a patient with a cardiovascular omplaint. (Corequisites: all 10-531XXX courses in the curn
10-531-917 PARAMEDIC CLINICAL/ FIELD 1 ...this course provides the student with the opportunity to enhance his or her earning through the practice of paramedicine in field and health care environment experiences with actual patients under the supervision of instructors or approved preceptors. Students may also have the opportunity to participate in formal highfidelity human patient simulator experiences as a part of this course. (Corequisites: all 10-531-XXX courses in the current semester) 10-531-917 ADVANCED EMERGENCY RESUSCITATION ...by teaching Advanced Cardiac Life Support (ACLS) and Pediatric Advanced Life Support (PALS) methodologies and protocols, this course prepares the paramedic student in the integration of comprehensive knowledge of causes and pathophysiology into the management of shock, respiratory failure, respiratory arrest, cardiac arrest, and periarrest states with an emphasis on early intervention to prevent respiratory and/or ardiac arrest if possible. (Corequisites: all es in current semester)

10-531-919 PARAMEDIC MEDICAL EMERGENCIES ...this course teaches the paramedic student to integrate assessment findings with principles of anatomy, physiology, epidemiology, and pathophysiology to formulate a field impression and implement a comprehensive reatment plan for a patient with a medica complaint. (Prerequisites: completion of prior semester coursework; Corequisites: al -531-XXX courses in current semester)

0-531-919 PARAMEDIC TRAUMA .this course teaches the paramedic sudent to integrate assessment finding with principles of anatomy, physiology, epidemiology, and pathophysiology to formulate a field impression and implem cutely injured patient. (Corequisites: a $10-531-\mathrm{XXX}$ courses in current semester)
0-531-921 SPECIAL PATIENT POPULATIONS ...this course teaches he paramedic student to integrate assessment findings with principles of anatomy, physiology, epidemiology, and
pathophysiology to formulate a field impression and implement a comprehensi reatment plan for patients with special reatment plan for patients with special with special considerations in trauma are also included within this course. (Corequisites: all 10-531-XXX courses in current semester)
10-531-922 EMS OPERATIONS ...this course provides the paramedic student with the knowledge of operational roles and Id EMS pre $0-531$ XXX couse in

0-531-923 PARAMEDIC CAPSTONE ...this course provides students with inal opportunity to incorporate their cognitive knowledge and psychomotor kills through labs and scenario-based practice and evaluations prior to taking he National Registry written and practical TSA) form. Te hical skill sattainment ISA) for each student will be compiled required by the DHS-approved paramedic criculum. (Corequistes all 10-531 XXX courses in current semester)

0-531-924 PARAMEDIC CLINICAL FIELD 2 ...this course provides the student with the opportunity to enhance is or her learning through the practice of paramedicine in field and health care environment experiences with actual patients nder the supervision of instructors or approved preceptors. Students may also have high-fidelity human patient simulator experiences as a part of this course. Successful completion of this course requires the student oo meet all clinical and field competency requirements at the paramedic level as defined by WI DHS EMS. (Corequisites: all 0-531-XXX courses in current semester)

Pharmacy Technician Program Code 315361 | Technical Diploma

A Lakeshore Technical College program
offered at Northeast Wisconsin
Technical College. For information call Toll-free: (888) 385-6982.

This program is eligible for financial aid ONLY through Lakeshore Technical College.

## Program Description

If you're ill or injured, you have access to an enormous variety of therapeutic medications, and you trust your pharmacy to correctly interpret and fill your prescriptions. Pharmacy technicians contribute to our safety by assisting pharmacists in a variety of technical taks. If you're attentive to detail, organized, a good communicator, and like math, science, and working with people, a career as a pharmacy technician may be your prescription for success.

## Program Outcomes

- Package and label drugs for prescription dispensing.
- Prepare and deliver unit dose to the nursing services of hospitals or nursing homes.
- Prepare parenteral admixtures under aseptic and sterile conditions.
- Receive and inventory drug shipments.
- Maintain records, including
drug shipments.
- Facilitate communications for third-party reimbursement.
- Compound solutions, ointments, lotions, suppositories, and other medications.
- Comprehend and utilize medical and drug terminology common to the pharmaceutical environment.
- Practice ethical standards and recognize legal implications of your actions as they relate to yourself, the pharmacist, and the pharmacy.


## Employment Potential

Home IV Specialist
Pharmacy Technician employed at:

- Community Pharmacies
- Hospital Pharmacies
- Nursing Home Pharmacies


## About Shared Programs

LTC offers its Pharmacy Technician program in cooperation with technical colleges across the state. As a pharmacy technician student, you'll:

- Attend live, interactive TV classes sent from LTC to your local technical college.
- Receive laboratory training
in local pharmacies.
- Participate in real-world, hands-on training during a 4 -week clinical program.
- Take general studies classes at your local technical college.


## Requirements for <br> Program Entry

- Application
- Application Fee
- Entrance Assessment Scores
- Transcripts
- Background Check
- Program Advising Session
- Health/TB/Tetanus Form
- Signature Page Form Student Program Handbook
- Functional Abilities Statement of Understanding Form

Note
Graduation Requirements
Students must attain a "C" or better in all required classes and maintain a grade point average of 2.0 or above to be eligible for graduation.

## Curriculum

The Pharmacy Technician Technical Diploma is a two-semester collaborative program between Lakeshore Technical College and Northeast Wisconsin Technical College. Students attend ITV classes sent from LTC to NWTC. Upon graduation, a student will have completed 36 credits.

## FIRST SEMESTER

CREDITS 10-501-101 Medical Terminology 10-501-102 Health Insurance \& Reimburse 10-536-110 Pharmaceutical Calculation 10-536-113 Pharmacy Business Apps
10-536-115 Pharmacy Law
10-536-120 Fundamentals of Reading Prescr 10-536-122 Pharmacology
SEMESTER TOTAL
SECOND SEMESTER
10-536-125 Pharmacy Drug Distribution 10-536-126 Pharmacy Parenteral Admixtures
10-536-139 Pharmacy Community Clinical
10-536-141 Pharmacy Computer Lab
10-536-143 Pharmacy Hospital Clinica
10-801-196 Oral/Interpersonal Comm
10-809-198 Intro to Psychology
SEMESTER TOTAL
TOTAL CREDITS

## CURRICULUM NOTE

Program start dates vary; check with
your counselor for details.

- Curriculum and program acceptance
requirements are subject to change.


## Functional Abilities

Functional abilities are the basic duties that a student must be able to perform with or without reasonable accommodations. At the postsecondary level, students must meet these requirements, and they cannot be modified.

Placement Scores
Accuplacer/ACT scores will be used to develop your educational plan. Please contact your program counselor/ advisor at 920-693-1109.

## COURSE DESCRIPTIONS

These courses provide an opportunity for students to develop the knowledge, skills, and understanding required for employment in this field.

10-501-101 MEDICAL TERMINOLOGY ...focuses on the component parts of medical terms: prefixes, suffixes, and root words. Students practice formation, analysis and reconstruction of terms. Emphasis on spelling, definition and pronunciation. Introduction to operative, diagnostic, therapeutic and symptomatic terminology of all body systems, as well as systemic and surgical terminology.

10-501-102 HEALTH INSURANCE AND REIMBURSEMENT ...introduces the learner to federal, state, and private health insurance plans and managed care systems; and surveys the coding, submission and processing cycle of claims, as well as reimbursement methods used by payers. It provides application of information to ambulatory settings, pharmacies, hospitals, and long term care. 10-536-110 PHARMACEUTICAL CALCULATIONS ...prepares the learner to enlarge and reduce formulas and solve proportions, dilutions, allegations, and other calculations pertinent to the preparation of pharmaceuticals using metric, apothecary, avoirdupois, and household measuring systems. (Condition: 315361 Pharmacy Technician Admission Requirements Met)

10-536-113 PHARMACY BUSINESS APPLICATIONS ...prepares the learner to utilize pharmaceutical business terminology, procedures, customer service, record keeping, purchasing procedures, inventory control systems, pricing, merchandising, reference materials, ethics, roles, responsibilities, and relationships with patients and coworkers. (Condition: 315361 Pharmacy Technician program requirements met)

10-536-115 PHARMACY LAW ...introduces the learner to federal and state regulations that apply to pharmacy practice. (Condition: 315361Pharmacy Technician Admissions Requirements Met)

10-536-120 FUNDAMENTALS OF READING PRESCRIPTIONS ...prepares the learner to work in a community or hospital pharmacy by exploring the role of a pharmacy technician within the healthcare team; examining each step in the prescription filling process; and identifying the top 200 drugs by brand and generic name and therapeutic class. (Condition: 315361Pharmacy Technician Admissions Requirements Met)

10-536-122 PHARMACOLOGY ...appropriately in the pharmacy by learning how drugs work through examination of the anatomy, physiology, pathophysiology, and drug therapy for each of the major systems. (Condition: 315361Pharmacy Technician Admissions Requirements Met)

10-536-125 PHARMACY DRUG DISTRIBUTION SYSTEMS ...is an introductory study of the basic drug distribution systems used in community and institutional pharmacy, including automation technology, pharmacist and pharmacy technician roles, and dispensing considerations. (Condition: 315361 Pharmacy Technician Admissions Requirements Met)

10-536-126 PHARMACY PARENTERAL ADMIXTURES ...provides the learner with the skills to utilize aseptic technique in vertical and horizontal laminar flow hoods for preparation of solutions and medications to be administered intravenously, intramuscularly, subcutaneously, and intradermally to patients. (Prerequisite: 10-536-110, Pharmacy Calculations or 10-536-183, Calculations for Working Pharmacy Technicians and Condition: 315361 Pharmacy Technician Admissions Requirements Met)

10-536-139 PHARMACY COMMUNITY
CLINICAL ...provides hands-on experience in a community pharmacy for 108 hours during quarter two. Areas of instruction include interpretation of prescriptions, entering prescriptions on computer, patient profiles, correctly filling and labeling prescriptions, billing patient and third parties, customer service, over-the-counter medications, purchasing, checking in deliveries, and inventory control, compounding and patient confidentiality. (Prerequisites: 10-536-110 Pharmaceutical Calculations; 10-536-120, Fund of Reading Prescriptions; 10-501102, Health Insurance \& Reimbursement; 10-536-112, Pharmacy Business Applications; Condition: 315361, Pharmacy Technician program requirements met)

10-536-141 PHARMACY COMPUTER LAB...expands the learner's ability to enter prescription orders and familiarizes learner with a variety of pharmacy software features, including updating pharmacy data bases, running reports, and billing. This course is offered in a self-paced format. (Prerequisite: 10-536-120, Fundamentals of Reading Prescriptions; Condition: 315361 Pharmacy Technician Admissions Requirements Met)

10-536-143 PHARMACY HOSPITAL CLINICAL ...provides the learner with the skills to prepare parenteral admixtures, fill medication carts and unit-dose drawers, control inventory, package medications, and maintain patient records in the hospital setting. (Prerequisites: 10-536-139, Pharmacy Community Clinical; 10-536-110, Pharmacy Calculations; Corequisites: 10-536-126, Pharmacy Parenteral Admixtures 10-536-141, Pharmacy Computer Lab; Condition: 315361, Pharmacy Technician Admissions Requirements Met)

Offered at the Green Bay campus. For information: (920) 498-5444 Toll-free: (888) 385-6982.

This program is fully eligible for financial aid.

## Program Description

The Digital Photography program is designed to equip graduates for success as an entrepreneur, an employee in a photography studio or in a corporate setting. The program will help students develop an individual style, give students hands-on experience with the latest digital technologies and help students acquire business skills necessary to succeed. In addition to camera operations, the student will learn digital workflow, perform advanced image editing techniques, and obtain experience in photography specialty areas. Graduates will also be able to apply their skills in event photography, fine art photography, and photojournalism.

## Program Outcomes

- Operate a Macintosh computer.
- Capture professional digital still images.
- Critique and effectively
communicate with images.
- Construct and direct a
professional photo shoot.
- Set up and operate professional digital, still and video cameras.
- Edit images effectively and efficiently. - Edit images at a professional level with commercial quality.
- Plan and present a business plan.
- Manage finances for a small business. - Rate, organize, and archive image and data files.


## Requirements for Program Entry

- Completed application.
- High school transcript or equivalent. (For a list of equivalents, go to
www.nwtc.edu/gettingstarted.)
- Computer familiarity and ability to use a keyboard and mouse.
- Students should have mastered basic math skills (whole numbers, fractions, decimals, percents, measurements).
- As a requirement for program entry, an Academic Skills Assessment (Accuplacer) with appropriate benchmark scores is necessary. Program As a requirement for program entry, an Academic Skills Assessment (Accuplacer) with appropriate benchmark scores is necessary. Program benchmarks are Arithmetic, 65; Reading Comprehension, 55: Sentence Skills, 75. Students not meeting these benchmarks or the equivalent will be required to establish an individualized academic plan. Students may have the opportunity to enroll in selected program core courses while completing their individualized plan. Upon completion of the plan, students will be eligible for all program courses. However, higher test scores will lead to greater success in core program courses. To learn more about these assessments and program benchmark scores, please contact a counselor at (920) 498-5444 or (888) 385-6982.


## Employment Potential

graduate of this program will have the potential for employment in the following areas:
Portrait Photographer
Wedding Photographer
Photojournalist
Nature Photographer
Sports Photographer
Event Photographer
Commercial Photographer
Digital Imaging Specialist
Video Production Crew
Freelance Photographer: initiates entrepreneurial work with self-established client base. Carries out assignments under

## Curriculum <br> Students following the study plan below will complete the Digital Photography technical diploma in the number of semesters shown.

## FIRST SEMESTER

CREDITS
10-111-101 Macintosh-Image Editing
10-145-185 Organizing Your Small Busines 10-203-104 Photography-Digital 10-804-123 Math w Business Apps
*10-890-101 College 101
31-801-386 Communicating Effectively SEMESTER TOTAL

## SECOND SEMESTER

10-104-119 Social Media Marketing
10-203-120 Photography-Landscape/Nature 10-203-122 Photography-Sports/Events 10-203-125 Photography-Night/Low Light 10-203-178 Photography-Digital Advanced 10-203-180 Photography-Digital Workflow 10-203-187 Photography-Digital Editin SEMESTER TOTA

10-145-189 Writing a Business Plan-Sm Bus 10-203-100 Photography-Career Preparatio 10-203-121 Photography-Portrait 10-203-123 Photography-Commercia 10-203-124 Photography-Wedding 10-203-126 Photography-DSLR Video 10-203-127 Photography-Print \& Color Mgmt 10-203-189 Photography-Digital Editing Ad SEMESTER TOTA

## CURRICULUM NOTE

*The credit for 10-890-101, College 101
is an Institutional Requirement for
graduation. Consequently, it is not part
of the program credit requirement.
direct contract with clients including image capture, editing, and final production. Coordinate appointments. Specializes in one or two areas listed above.

The following certificates/technical diplomas may be applied toward this program:

- 902031, Digital Photography Certificate 902032, Digital PhotographyAdvanced Certificate


## COURSE DESCRIPTIONS

These courses provide an opportunity for students to develop the knowledge, skills, and understanding required for employment in this field.

10-104-119 SOCIAL MEDIA MARKETING ...understand the social media revolution. This course will provide students with the practical knowledge and insights needed to successfully plan, implement, manage and measure social media marketing efforts.
10-111-101 MACINTOSH-IMAGE EDITING ...(Adobe Photoshop + Adobe Acrobat) scanning, editing, color correcting and creating composite montage photographs. Prepare images for publication in print. An introduction to manipulating bitmap images.

10-203-100 PHOTOGRAPHY-CAREER PREPARATION ...present a business plan, pricing structure and portfolio, design business documents and marketing materials, setup computer business files and digital image file structures, explore job opportunities and create application materials. (Prerequisite: 10-203-178 Photography-Digital Advanced; Corequisites: 10-145-189 Writing a Business Plan-Small Business)

10-203-104 PHOTOGRAPHY-DIGITAL ...capturing digital images, exposure, shutter speed, aperture, composition, camera operations, lenses, lighting, camera accessories, types of photography, photo challenges, importing, editing and storing images. Access to a digital camera required.

10-203-120 PHOTOGRAPHYLANDSCAPE AND NATURE ...photograph landscapes, wildlife, plant, waterways, close-ups of natural scenes and textures emphasizing aesthetic value Techniques involved depth-of-field, shutter speed, lenses, lighting, HDR, editing. Topics include equipment, focal length, and ethics. You must have access to an SLR digital camera. (Prerequisite: 10-203-104, Photography Digital)

10-203-121 PHOTOGRAPHY-PORTRAIT ...photograph individuals, couples, and groups of all ages. Techniques and topics include lighting, flattering posing, directing subjects, portraiture styles. You must have access to an SLR digital camera. (Prerequisite 10-203-178, Digital Photography Advanced)
10-203-122 PHOTOGRAPHY-SPORTS AND EVENTS ...photograph a variety of sports and events for editorial and advertising purposes. Techniques involved aperture, shutter speed, lighting, focal lengths, bursting. Topics include equipment, location, storytelling, photojournalism, vernacular photography, etiquette. You must have access to an SLR digital camera. (Prerequisite: 10-203-104, Photography Digital)

10-203-123 PHOTOGRAPHYCOMMERCIAL ...photograph consumer products to meet layout specifications for promotions and publications. Techniques include set design, lighting three-dimensional objects. Topics include tabletop photography, food, and digital enhancement. You must have access to an SLR digital camera. (Prerequisite: 10-203178, Digital Photography Advanced)
10-203-124 PHOTOGRAPHY-WEDDING ...photograph weddings in a digital world. Techniques include lighting, posing, photographic elements, traditional versus photojournalistic. Topics include equipment, indoor and outdoor locations, wedding day workflow, etiquette, and post-even workflow. You must have access to an SLR digital camera. (Prerequisite: 10-203178, Digital Photography Advanced)

10-203-125 PHOTOGRAPHY-NIGHT AND LOW LIGHT ...photograph outdoor and indoor low-light situations and at night, including start trails, painting with light, street scenes, fireworks, parties, lightning. Techniques involved filters, exposure, color temperature, editing, and special effects. You must have access to an SLR digital camera. (Prerequisite: 10-203-104, Photography Digital)

10-203-126 PHOTOGRAPHY-DSLR VIDEO ...video resolution and frame rates, DSLR video camera functions, achieving correct exposure and white balance, achieving good audio, composition and story development, video editing, creating a movie, movie delivery formats.

10-203-127 PHOTOGRAPHY-PRINT \& COLOR MGMT ...visual and digital color, gamut and color spaces, calibration and profiling techniques, color management workflow for photographers, choosing a printer, paper, printing labs, preparing and printing images.

10-203-178 PHOTOGRAPHY-DIGITAL ADVANCED ...advanced camera operations, lighting techniques, portraiture and posing, post editing production, location and studio photography, critique images, web based portfolio. You must have access to an SLR digital camera. (Prerequisite: 10-203-104 Photography-Digital)

10-203-180 PHOTOGRAPHY-DIGITAL WORKFLOW ...(Apple Aperture) photo editing, image retouching, proofing, publishing, archiving. Techniques for sorting, ranking, organizing images, display images for client review, apply metadata, keep up-to-date online portfolio, color manage your workflow.
10-203-187 PHOTOGRAPHY-DIGITAL EDITING ...(Adobe Photoshop) digital editing through advanced tool usage and masking. Non-destructive editing through RAW and smart objects. Color adjustments, advanced retouching, automation, photorealism, creating reusable presets/compositions. (Prerequisite: 10-111-101 Macintosh Image Editing)

10-203-189 PHOTOGRAPHY-DIGITAL EDITING ADVANCED ...this course will cover advanced functions of Adobe Photoshop image editing. (Prerequisite: 10-203-187, Photography-Digital Editing)

Offered at the Green Bay and
Marinette campuses. For information information in Marinette: (715) 735 9361. Toll-free: (888) 385-6982.

This program is fully eligible for financial aid.

Program Description The Physical Therapist Assistant program rehabilitation programs under the supervision of a licensed physical therapist.

## Program Outcomes

- Demonstrate effective
communication with patients
families, and health care team
Exhibit behaviors and conduct that reflect respect and sensitivity according to physical therapy practice standards. - Function under the supervision of a physical therapist in legal, ethical manner
Produce documentation to support the delivery of physical therapy services. Demonstrate critical thinking skills of care under the direction and of care under the direction terapiss
supervision of a physical therap
Perform technically competent data collection under the direction and supervision of the physical therapist.
Perform technically competent physical and supervision of the physical therapist. Educate patients, families, and other health providers.
Integrate components of administrative, operational, and fiscal practices of physica Implemen a seff drecte f ser career development, credentialing career development, cred
and lifelong learning.


## Wisconsin Caregiver Law

 NWTC is required to comply with WISCONSIN ACT 27). The completion of caregiver background check includes the review of criminal records for convictions of serious crimes or a history of imprope behavior. Students accepted into this heck through www.CertifiedBackground. com. Information regarding this process is provided to students immediately upon acceptance into the program. Students with a criminal history may be denied access to placement at the discretion of the clinical or practicum site. Consequently, should serious crimes or a history of improper serious crimes or a history of improperbehaviors, NWTC cannot guarantee dinical/practicum placement or guarante graduation within typical program timing.

## Employment Potential

A graduate of this program will have
the potential for employment as a Physical Therapist Assistant. The State
of Wisconsin does require a license to practice as a physical therapist assistant
Physical Therapist Assistant: assists the hysical therapist in the provision of physical therapy, performs physical therapy
interventions and related tasks, carries out operational functions, makes modifications
within the scope of the established plan
of care, performs documentation and of care, performs documentation and supervision of a physical therapist

## Clinical Experience

- Students will be required to purchase a uniform, pay for liability insurance,
provide their own transportation to assigned sites, and cover any other expenses related to clinica experiences. Students may be expected to travel distances and participate in weekend rotations. Students are required to complete an American Heart Association Health Care Provider CPR course prior to clinical
experiences. Students are required to maintain a current CPR card to comply with affiliating agency requirements. Students will be required to submit immunization documentation. A fee is charged for this service. Additional information will be provided upon acceptance into the program. Students will be required to show
proof of an annual flu vaccine. proof of an annual flu vaccine. Students may be required to complete drug testing and/or fing printing by clinical agencies.


## Accreditation

The Physical Therapist Assistant Program at Northeast Wisconsin
Technical College is accredited by the Commission on Accreditation in Physical Therapy Education (CAPTE) 1111 North Fairfax Street, Alexandria, VA 22314 Telephone: 703-706-3245 Email: accreditation@apta.org
Website: http://www.capteonline.or

## Board/Certification

 Examinations Graduates are eligible to take the Physical Therapist Assistant Examinatio Therapy Examination (NPTE)
## Requirements for

## Program Application

Completed application.
High school transcript or equivalent. (For a list of equivalents, go to Admissions Assessment or equivalent or ACT assessment taken with the last five years. (For alist of equivalents, please contact a Counselor.) Two semesters High School, or on semester in College of: Algebra and Chemistry (with a lab component) All required course grades must be ompleted with a "C" or better.

## Requirements for

Program Entry
As a requirement for program entry, an Academic Skills Assessment (Accuplacer or ACT) with appropriate benchmark scores is necessary. Accuplacer benchmarks are Arithmetic, 90 ; Reading Comprehension 0; Sentence Skills, 95 ; Algebra, 65. A1; English, 21. Applicants not meeting these benchmarks or the equivalent will



CREDITS $\begin{array}{ll}\text { "10-524-139 } & \text { PTA Patient Interventions } \\ -10-524-100 & \text { PTA Professional Issues } 1\end{array}$ | $10-801-196$ | Prall Ioterepsersonal Issues 1 |
| :--- | :--- | ${ }_{\text {"10-890-101 }}^{+ \text {Gen Anatom }}$ "10-890-101 Colleg

| SECOND SEmESTER |  |
| :---: | :---: |
| *10-524-141 | PTA Kinesiology 2 |
| *10-524-142 | PTA Therapeutic Exercise |
| *10-524-143 | PTA Therapeutic Modalities |
| 10-801-136 | English Composition 1 |
| 10-809-196 | Intro to Sociology |
| SEMESTER | OTA |
| SUMMER SEMESTER |  |
| *10-524-155 | PTA Pediatrics |
| 10-809-172 | Intro to Diversity Studies |
| 10-809-198 | Intro to Psychology |
| SEMESTER TO | otal |
| THIRD SEMESTER |  |
| *10-524-144 | PTA Princ of Neuro Reh |
| *10-524-45 | PTA Princ of Musculo Rehab |
| *10-524-146 | PTA Cardio \& Integ Mgmt |
| 10-809-188 | Developmental Psychology |

## OURTH SEMESTER

$\begin{array}{ll}10-524-147 & \text { PTA Clinical Practice } 1 \\ \text { 10-524-148 } & \text { PTA Clinical Practice }\end{array}$ $\begin{array}{ll}10-524-148 & \text { PTA Clinical Practice } 2 \\ 10-524-149 & \text { PTA Renab Accross the Lifespan }\end{array}$ $\begin{array}{ll}\text { *10-524-150 } & \text { PTA Professional Issues } 2 \\ { }^{*} 10-524-151 & \text { PTA Clinical Practice } 3\end{array}$ SEMESTER TOTAL

## CURRICULUM NOTE

No final grade lower than a "C" is acceptable
n any of the courses marked with an asterisk A in any of the courses marked with an asterisk. A
student who withdraws or receives a grade lower student who withdraws or receives a grade fower
than a a c" " in a program course may apply for re-entry into the erragram. Consideration for re-
entry will be at the discretion of the e eeentry team entry will be at the discretion of the re-entry team
and will be dependent on clinical availabilty.
$++N o$ final grade lower than a "B" is accent $++N$ No final grade lower than " "B" is acceptable
in General Anatomy \& hysioiogy. A student who withdraws or receives a gradel lower than a "B" in this course may apply for re-entry into
the program. Consideration for re-entry will the erogram. Consideration for re-entry will
be at the discretion of the re-entry team and
will will be dependent on clinical avaiabbility. -The credit for 10-890-101, College graduation. Consequently, it is not $p$ pat
of the program credit requirements.
be required to establish an individualized academic plan. Upon completion of the be granted. To learn more about these assessments and program benchmark scores, please contact an advisor at (920) 498-5444 or (888) 385-698

Attend mandatory spring program orientation.
Complete caregiver background check. A fee is charged for this service. Additional information will be provided
upon acceptance into the program. upon acceptance into the program. Complete 16 hours of mandatory job
shadow time within rehab settings.

## Suggested Skills for Success

 Students are expected to have entry-levelcomputer skills. It is recommended that students complete basic computer skills coursework if deficient in this area.

## COURSE DESCRIPTIONS

These courses provide an opportunity skills, and understanding required or employment in this field. 10-524-138 PTA KINESIOLOGY 1 introduces basic principles of musculoskeletal natomy, kinematics, and clinical assessment. dents locate and identify muscles, joints, and other landmarks of the lower quadrant in addition to assessing range of motion and strength. (Prerequisite: Admission to

10-524-139 PTA PATIENT
INTERVENTIONS...an introduction to basic skiils and physical therapy intervention performed by the physical therapist assistant. (Prerequisite: Admission to the

10-524-140 PTA PROFESSIONAL ISSUES 1...introduces the history and development of the physical therapy program, legal and thical issues, the interdisciplinary health are team, and professional communication Physical Therapist Assistant program)

10-524-141 PTA KINESIOLOGY 2. applies basic principles from PTA Kinesiolog. 1 to the axial skeleton and upper quadran muscles, joints and other landmarks. Integra analysis of posture and gait. (Prerequisite: 10-524-138, PTA Kinesiology 1) 10-524-142 PTA THERAPEUTIC implementation of a variety of therapeutic exercise principles. Learners implement, educate, adapt, and assess responses to herapeutic exercises. (Prerequisites: 10-806-177, General Anatomy \& Physiology; 10-524-138, PTA Kinesiology 1)
10-524-143 PTA THERAPEUTIC MODALITIES...develops the knowledge numerous therapeutic modalities likely to be utilized as a PTA. (Prerequisites: Admission to the Physical Therapist Assistant progran 0-524-139, PTA Patient Interventions)

10-524-144 PTA PRINCIPLES O NEUROMUSCULAR REHAB...integrates oncepts of neuromuscular pathologies, collection in patient treatment. (Prerequisites 0-524-142, PTA Therapeutic Exercise; 0-524-141, PTA Kinesiology 2; 10-24-139, PTA Patient Interventions 10-524-155, PTA-Pediatrics)
0-524-145 PTA MUSCULO REHAB. integrates concepts of musculoskeletal pathologies, physical therapy intervention and data collection in patient treatment. (Prerequisites: 10-524-142, PTA Therapeutic Exercise; 10-524-141, PTA Kinesiology 2; 10-524-139, PTA Patient terventions; 10-524-155, PTA-Pediatrics)

0-524-146 PTA MANAGEMENT OF CARDIOPULMONARY \& INTEGUMENTARY CONDITIONS.. integrates concepts of cardiopulmonary and integumentary pathologies, physical therapy reatment. (Prerequisites: 10-524-139 PTA Patient Interventions; 10-524-142 PTA Therapeutic Exercise; 10-524-141 PTA Kinesiology 2; 10-524-155, PTA-Pediatrics) 10-524-147 PTA CLINICAL PRACTICE ....provides a part-time clinical experience apply foundational elements, knowledg herapy practice. (Prerequisites: 10-524 14 PTA Principles of Neuromuscula Rehab; 10-524-145 PTA Principles of Musculoskeletal Rehab; 10-524-146 PTA Management of Cardiopulmonary \& Integumentary Conditions, Corequisites: 10-524-151 PTA Clinical Practice 3)
0-524-148 PTA CLINICAL PRACTICE 2...provides another part-time clinical experience to apply foundational elements
knowledge, and technical skills required of the entry level physical therapist assistant in various practice settings. (Corequisite: 0-524-147, PTA Clinical Practice 1 , 10-524-151 PTA Clinical Practice 3)

0-524-149 PTA REHABILITATION ACROSS THE LIFESPAN.... capstone physical therapy interventions and data Physical therapy interventions and data
collection across the lifespan. The PTA's collection across the lifespan. The PTA
role in health, and physical therapy interventions for special patient populations. Prerequisites: 10-524-144, PTA Principles of Neuromuscular Rehab; 10-524-145, PTA Principles of Musculoskeletal Rehab; 10-524 146, PTA Management of Cardiopulmonary \& Integumentary Conditions; Corequis

0-524-150 PTA PROFESSIONAL ISSUES ...incorporates professional development, dvanced legal and ethical issues, healthcare management and administration, and further development of professional communi
strategies. (Prerequisite: $10-524-140$, pTA Professional Issues 1; Corequisite 0-524-148, PTA Clinical Practice 2) 10-524-151 PTA CLINICAL PRACTICE ...provides a full-time clinical experience apply foundational elements, knowledg evel physical therapist assistant in various practice settings. (Prerequisites: 10-524144, PTA Principles of Neuromuscular Rehab; 10-524-145, PTA Principles of Musculoskeletal Rehab; 10-524-146, PTA Management of Cardiopulmonary \& 10-524-147 PTA Clinical Practice 1, 0-524-148, PTA Clinical Practice 2) 0-524-155 PTA PEDIATRICS...normal ad abnormal human development, pediatric pathologies and dysfunctions, (Prerequisites: 10-524-141, PTA Kinesiology 2; 10-524-142, PTA Therapeutic Exercise; 10-524-143, PTA Therapeutic Modalities)

Offered at the Green Bay, Marinette and Sturgeon Bay campuses and at the West information in Green Bay: (920) 4985444. For information in Marinette (715) 735-9361. For information in Sturgeon Bay: (920) 746-4900. For
information in Shawano: (715) $524-1$ 2418. Toll-free: (888) 385-6982.

This program is fully eligible
or financial aid.

## Program Description

 Practical Nursing graduates workin hospitals, nursing homes, clinics ommunity health agencies, and private homes. They give bedside care to patient and assist the Registered Nurse or docto in the care of the acutely ill person.

## Program Outcomes

Implement ones role as a nurse in ways
that reflect integrity responsibility that reflect integrity, responsibility
ethical practices, and an evolving echical practices, and an evolving
identity as a nurse committed to caring, advocacy, and quality care while adhering to evidence-based practice. Demonstrate appropriate written, verbal, and nonverbal communi
in a variety of clinical contexts. - Integrate knowledge of social, mathematical, and physical sciences, pharmacology, and disease processes while Provide patient centered care under Provide patient centeread care und
supervision by participating in supervision by participating in
the nursing process across diverse populations and healthcare settings. Minimize risk of harm to patients, members of the healthcare team, and self through safe individual performance and participation in system effectiveness. Collaborate as an active member of the multidisciplinary health care care throughout the lifespan. Use information and technology to communicate, manage data, mitigate error, and assist with decision-making

## Requirements for

## Program Entry

Attend mandatory orientation documentation. A fee is charged for this service. Additional information will be provided upon acceptance into the program. Complete caregiver background
check. A fee is charged for this Additional information will be provided upon acceptance into the program. Complete an American Heart Association Health Care Provider CPR course. Students are required to maintain a current CPR card to comply with affiliating agency requirements. Recommend taking between prog
orientation and program start. orientation and program start.
All students must successfully complete

DHS approved Nursing Assistant course prior to program entry

## Wisconsin Caregiver Law

 NWTC is required to comply with WISCONSIN ACT 27). The completion of a caregiver background check includes the review of criminal records for convictions of serious crimes or a history of improperbehavior. Students accepted into this program must complete a background program must complete a a ackground
check through www.CertifiedBackground. com. Information regarding this process is provided to students immediately upon acceptance into the program. Students with a criminal history may be denied access to or practicum site. Consequently, should a student have a history of convictions of serious crimes or a history of improper behaviors, NWTC cannot guarantee linical/practicum placement or guarantee

## Employment Potential

## graduate of this program will

 have the potential forin the following areas:
Licensed Practical Nurse: administers care to individuals whose conditions are relatively stable; administers care to the acutely ill under the direct supervision of an RN or MD; teaches basic hygiene, nutrition, and aspects of good health; administers first
aid; and assists with health assessment and basic health teaching in a variety of settings under the supervision of an RN or MD. Health Insurance Claims Approver: processes insurance claims on a computer terminal.

## Clinical Experience

- Students will be required to purchase a uniform, pay for liability insurance, provide their own transportation to assigned sites, and cover any other expenses related to clinical experiences.
Students may be expected to travel Students may be expected to travel
distances, and participate in p.m. clinicals. - Students will be required to show proof of annual flu vaccine.


## Accreditation

The Practical Nursing program is accredited by: Wisconsin Department of Safety nd Professional Services ept of Regulation \& Licensing 1400 East Washi
pO Box 8935 Madison WI 53708-893 (608) 266-2112

## Board/Certification

## Examinations

Graduates of the program are eligible to take the NCLEX-PN Examination for

Flexible Learning Option A part-time program format is available.

Gurriculum
Suadents following the study plan below
will complete the Practical Nursing
echnical diploma in the number of semesters shown. For alternate study plat
refer to the information in the Related
Links area at the right of this pagce.

FIRST SEMESTER
CREDTS

| FIRST SEMESTER |
| :--- |
| $\begin{array}{l}10-801-136 \\ \times 10-800-101 \\ \text { English Composition } 1\end{array}$ |



## SECOND SEMESTER

SECOND SEMESTER
10-809-188
Developmental Psychology




HIRD SEmESTER




CURRICULUM NOTE
The credit for 10-890-101, College 10 The crevit for $10-800-101$, College
is an Institutional Requirement for
ord graduation. Consequently, it is not part
of the program credit requirements.
"No final grade lower than a "C" is acceptabl
in $31-806-312$, Anatomy
"No final grade lower than a "B" is acceptable in the nursing courses marked with a triple asterisk. $A$
student must repeat the particular course with "B" student t must repeat the earricular course with "B " or
better fina grade to continue in or graduaae trom this program. II the course is sequential, the successtiu etake must occur before continuing the sequenc - Individuals with criminal records may be ineligibl
for icensure. Individuals with abuse records may for itiensure. Individuals winh abuse eceords mat
be ineligible for employment in uursing homes.

- It s suggested that a Medical Terminology course
$(10-501-101)$ be taken prior to entering the program.

This option is scheduled over five semesters cluding two summer semesters.

## Requirements for

## Program Application

High school transcript or equivale (For a list of equivalents, go to Aww.nwtc.edu/gettingstarted.) As a requirement for program entry, an
Academic Skills Assessment (Accuplacer o ACT) with appropriate benchmark scores is necessary. Accuplacer benchmarks are Arithmetic, 80; Reading Comprehension, 78: Sentence Skills, 90 . ACT benchmarks are Math, 18 ; Reading, 16 E English 21. Applicants not meeting these required to establish an individualized academic plan. Upon completion of the plan, full program or waitlist status wil be granted. To learn more about these
ascessments and program benchmark assessments and program benchmark scores, please contact an advisor at
(920) $498-5444$ or (888) $385-698$

## COURSE DESCRIPTIONS

These courses provide an opportunity
for students to develop the knowledge. kills, and understanding required for employment in this field.
31-543-301 NURSING FUNDAMENTALS .focuses on basic nursing concepts to
provide evidenced-based care to diverse patient populations across the lifespan. Current and historical issues impacting ursing will be explored within the scope of nursing practice. The nursing process will
be introduced as a framework for organizing the care of patients. (Prerequisites: Accepted into Practical Nursing Program; 10-801136, English Composition 1; 31-806-312, Anatomy Structure/Function; Corequisites: 43-303, Nursing Pharmacology)

1-543-302 NURSING SKILLS ...focuses on development of evidence-based clinical skills and physical assessment across the calculations and conversions related to clinical skills. In addition the course incl techniques related to obtaining a health history and basic physical assessment skills using a body systems approach. (Prerequisites Accepted into Practical Nursing Program; 10-801-136, English Composition 1;31-3
806-312, Anatomy Structure/Function Corequisites: 10-809-188, Developmental Psych; 31-543-303, Nursing Pharmacology 31-543-101, Nursing Fundamentals;
31-543-304, Intro to Clinical Practice)

31-543-303 NURSING PHARMACOLOGY ...this course introduces the principles of pharmacology, including drug classifications and their effects on the body. Emphasis is on the process when administering medications (Prerequisites: Accepted into Practical Nursing Program; 10-801-136, English Composition 1; 31-806-312, Anatomy Structure/Function; Corequisites: 31-543-301, Nursing Fundamentals,

31-543-304 NSG: INTRO TO CLINICA PRACTICE ...this introductory clinical course emphasizes basic nursing skills and application of the nursing process in meeting
the needs of diverse clients across the lifespan. Emphasis is placed on perfor basic nursing skills, the formation of nurse -client relationships, communication, data collection, documentation, and medication administration. (Prerequisites: Accepted int Practical Nursing Program; 10-801-136 Structure/Function: Corequisites: 10-809 188, Developmental Psych; 31-543-303, Nursing Pharmacology; 31-543-101, Nursing Fundamentals; 31-543-302, Nursing Skills)

31-543-305 NURSING HEALTH ALTERATIONS ... elaborates upon the basic concepts of health and illness as presented in Nursing Fundamentals. It applies theories of nursing in the care of patients through the lifespan, utilizing problem solving and critical thinking. study conditions affecting different body systems and apply evidence-based nursing interventions. It will also introduce concepts of leadership and management. (Prerequisite 10-809-188, Developmental Psych; 31-
543-301, Nursing Fundamentals; $31-543$ 302, Nursing Skills; 31-543-303, Nursing Pharmacology; 31-543-304, Intro to Clinical Practice; Corequisites: 10-801-196, Oral/ Interpersonal Communication; 31-543-306, Health Promotions; 31-543-307, Nursing: Intro to Clinical Care Management)
31-543-306 NURSING HEALTH PROMOTION ...this course focuses on topic related to health prouh the lifespan. We
and families throughout will cover nursing care of the developing family, which includes reproductive issues, pregnancy, labor and delivery, post-partum, the newborn, and the child. Recognizing the spectrum of healthy families we will discern patterns associated with adaptive and
maladaptive behaviors applying mental health principles. An emphasis is placed on teaching and supporting healthy lifestyles choices for and supporting healthy ifestyles choices stress management, empowerment, and risk reduction practices are highlighted. Study of
the family will cover dynamics functios the family will cover dynamics, functions (Prerequisites: 10-809-188, Developmenta Psych; 31-543-301, Nursing Fundamentals 31-543-302, Nursing Skills; 31-543-303, Nursing Pharmacology; 31-543-304, Intro to Clinical Practice; Corequisites: 10-801-196, 307, Nussing. Clinical Care Across Ifespan)

1-543-307 NSG:CLIN CARE ACROSS IFESPAN ...this clinical experience inplies nursing concepts and therapeutic It also provides aints across the lifespan It also provides an introduction to concep
of teaching and learning. Extended care to include the family is emphasized. (Prerequisites: 10-809-188, Developmental Psych; 31-543-301, Nursing Fundamentals 31-543-302, Nursing Skills; 31-543-303, Nursing Pharmacology; 31-543-304, Intro 196, Oral/Interpersonal Communication; 31-543-306, Health Promotions)
31-543-308 NSG: INTRO CLINICAL CARE MGT ...this clinical experience applies
nursing concepts and therapeutic nursing nursing concepts and therapeutic nursing
interventions to groups of patients across the lifespan. It also provides an introduction to leadership, management, and team building (Prerequisites: 10-809-188, Developmental Psych; 31-543-301, Nursing Fundamental Nursing Pharmacology; 31-543-304, Intro to Clinical Practice; Corequisites: 10-801196, Oral/Interpersonal Communication; 31-543-305, Health Alterations; 31-543306, Health Promotions; 31-543-307, 31-806-312 ANATOMY/STRUCTUREFUNCTION ...human body systems, structural formation. (Prerequisite: $=15$ OR 10-838-105 and Study Skills OR equivalent)

Offered at the Green Bay campus. For information: (920) 498-5444. Toll-free: (888) 385-6982.

This program is fully eligible for financial aid.

## Program Description

The Print Technology program trains students in pre-press operations, offset presswork, computer-to-plate imaging, finishing processes, electronic publishing, and digital print applications.

## Program Outcomes

- Analyze jobs for operations and materials costs.
- Perform electronic pre-press operations.
- Lay out jobs and generate CTP (computer-to-plate) production.
- Create press proofs.
- Set up and operate digital printing presses.
- Maintain a safe work environment.
- Create machine operation procedures.
- Pre-flight jobs for various printing processes.
- Perform finishing operations on printed jobs.
- Set-up and operate wide format inkjet equipment.


## Requirements for Program Entry

- Completed application.
- High school transcript or equivalent. (For a list of equivalents, go to www.nwtc.edu/gettingstarted.)
- Communication skills.
- Students should have mastered basic math skills (whole numbers, fractions, decimals, percents, measurements).
- As a requirement for program entry, an Academic Skills Assessment (Accuplacer) with appropriate benchmark scores is necessary. Program benchmarks are Arithmetic, 65; Reading Comprehension, 55: Sentence Skills, 75. Students not meeting these benchmarks or the equivalent will be required to establish an individualized academic plan. Students may have the opportunity to enroll in selected program core courses while completing their individualized plan. Upon completion of the plan, students will be eligible for all program courses. However, higher test scores will lead to greater success in core program courses. To learn more about these assessments and program benchmark scores, please contact a counselor at (920) 498-5444 or (888) 385-6982.


## Employment Potential

A graduate of this program will have the potential for employment in the following areas:
Digital Output Operator: produces print communication using digital output devices and computer workflow systems. Manages print quality on full color and monochrome projects.
Offset/Press Operator: sets up, prepares and operates presses; loads paper, installs printing plates, adjusts guides and control for machine operations.
Offset/Press Assistant: prepares press for run; runs press proof; adjusts plate, paper feed, tension of paper; ink and water flow.
Large Format Output Operator: produce large format signage on different substrates.

Bindery/Finishing Operator: operates machines that cut, fold, collate, staple, stitch, trim, and bind pages.

## Curriculum

Students following the study plan below will complete the Print
Technology technical diploma in
the number of semesters shown.

## FIRST SEMESTER

CREDITS
10-111-120 Macintosh Publishing
10-111-161 Macintosh Illustration
10-204-110 Publishing Technologies
10-204-111 Digital Publishing Operations
10-804-123 Math w Business Apps
*10-890-101 College 101
SEMESTER TOTAL

## SECOND SEMESTER

10-111-101 Macintosh-Image Editing
10-111-125 Graphic Reproduction Tech
10-204-124 Variable Data Publishing
10-204-126 Digital Print Applications 10-204-130 Wide Format Graphics 10-801-136 English Composition 1
SEMESTER TOTAL
TOTAL CREDITS

## CURRICULUM NOTE

*The credit for 10-890-101, College 101 is an Institutional Requirement for graduation. Consequently, it is not part of the program credit requirement.

With additional education and/or work experience, graduates may find other opportunities for employment.

- Graphic Designer
- Pre-Press Technician
- Print Production Supervisor/Manager
- Estimator
- Pre-Flight Specialist
- Customer Service Representative

The following certificates/ technical diplomas may be applied toward this program:

- 902042, Digital Print Technology


## COURSE DESCRIPTIONS

These courses provide an opportunity for students to develop the knowledge, skills, and understanding required for employment in this field.

## 10-111-101 MACINTOSH-IMAGE

EDITING ...(Adobe Photoshop + Adobe Acrobat) scanning, editing, color correcting and creating composite montage photographs. Prepare images for publication in print. An introduction to manipulating bitmap images.

10-111-120 MACINTOSH PUBLISHING ...develop page layout concepts utilizing document files, tools, guides, objects and shapes, text, colors, style sheets, images, master pages; manage output for printing; and apply copy elements.

## 10-111-125 GRAPHIC REPRODUCTION

 TECHNIQUES ...basic process of reproducing images using offset lithography including electronic imaging, preflighting, trapping concepts, imposition, and collect for output. (Prerequisite: 10-111-120, Macintosh Publishing)

## 10-111-161 MACINTOSH

ILLUSTRATION ...create and paint basic shapes, draw, transform objects, work with type, blend shapes and colors, work with layers, special effects, and color separations. An introduction to manipulating vector based images.

10-204-110 PUBLISHING TECHNOLOGIES ...introduction to printing process, electronic publishing, prepress operations, press operations, postpress operations, job logs, professional portfolios, and job seeking skills. (Corequisite:10-111-120, Macintosh Publishing)

10-204-111 DIGITAL PUBLISHING OPERATIONS ...press equipment, processors, inks, print quality, job tickets, standard operating procedures, densitometers, printing problems, and trapping situations. (Corequisite: 10-204-110, Publishing Technologies)

10-204-124 VARIABLE DATA PUBLISHING ...learn how to link database files to page layout applications. Create and manage correct variable channels in page layouts, apply text and image changes to layout to create a personalized printed page, research how the information is gathered to create personalized content. (Prerequisites: 10-111-120, Macintosh Publishing)

10-204-126 DIGITAL PRINT APPLICATIONS ...explain why the industry is in a state of transition towards digital printing; outline the proper time to select digital printing as a production tool; what type of project fits well into a digital print environment; identify what type of project fits the mold of digital printing. (Prerequisite: 10-204-110, Publishing Technologies; 10-804-123, Math w Business Apps)

## 10-204-130 WIDE FORMAT GRAPHICS

 ...successfully set-up and pre-flight electronic files for large format output; accurately produce large format graphics for both indoor and outdoor usage including finishing processes; install vinyl graphics on multiple surfaces. (Prerequisite: 10-204-110 Publishing Technologies)Offered at the Green Bay campus. For information: (920) 498-5444. Toll-free: (888) 385-6982.
This program is fully eligible for financial aid.

## Program Description

The Prototype and Design program provides students with a unique combination of hand skills and fabrication techniques
focusing on the construction aspect of the design and engineering process. Students will learn to build a variety of three dimensional prototypes and models for use in product development models for use in product development,
manufacturing, consumer products, and other related fields. These professionals may also build three dimensional models used for architectural design, mechanical design, and industrial design. Graduates of the Prototype and Design program are skilled in hand fabrication, high quality painting and finishing, 3D drawing software, CNC machining, RTV mold making, and welding with an emphasis on problem solving, and critical thinking. Career opportunities include product development, prototype model builder, engineering design, architectural moder builder, RT mold maker, rapid

## Program Outcomes

- Develop planning strategies necessary to translate two-dimensional information into a three- dimensional prototype. - Use critical thinking and problem solving techniques in the construction of a prototype - Create a variety of computer aided drawings using AutoCAD and SolidWorks.
- Create programs to be used on CNC (computer numerical control) milling machines using Surf CAM software.
- Construct 3D models using a variety of rapid prototyping processes.
- Produce highly detailed and accurate parts using the laser machining center - Fabricate silicone rubber molds and rigid molds suitable for casting. - Build patterns and molds to be used for vacuum forming.
- Create jigs and fixtures necessary for special machining operations.
- Select and apply a variety of industrial finishes on various materials.
- Effectively estimate the time and cost to design and fabricate a prototype.
- Manage computer files and utilize a variety of technically related software. - Work efficiently as a part of a team, or independently. - Safely operate all hand tools,
metalworking, and woodworking equipment typically used in a professional model shop.
- Effectively select appropriate materials and adhesives and understand their properties.
- Use proper sanding and finishing techniques on various materials.
Understand various design and eng Prototype \& Design Industry


## Requirements for

## Program Entry

- Completed application.

High school transcript or equivalent. (For a list of equivalents, go to www.nwtc.edu/gettingstarted.)

- High school background in mathematics and science.
- High school algebra or equivalent. - As a requirement for program entry, an Academic Skills Assessment (Accuplacer) with appropriate benchmark scores is Arithmetic, 65; Reading Comprehension 55; Sentence Skills, 75. Students not meeting these benchmarks or the equivalent will be required to establish an individualized academic plan. Students may have the opportunity to enroll in selected program core courses while completing their individualized plan. Upon completion of the plan students will be eligible for all program courses
However higher test scores will lead However, highertest scores will lad to greater success in core program
courses. To learn more about these assessments and program benchmarks scores, please contact a counselor at (920) 498-5444 or (888) 385-6982 (920) 98 -544 and File Management.


## Employment Potential

A graduate of this program will ave the potential for employment the following areas:
Product Development: develops and designs new products through the use of prototypes. Prototype Model Builder: provides research and development on new products, works with molding, and makes models for all types of industries, such as toy and automobile manufacturers, so that he prototype will look like the finished product before production begins. Engineering Design: translates engineering data and vendor information into scale rototypes or CAD models for use with Rapid Prototyping Processes. Usually mployed in design and development of new products or systems.
Architectural Model Builder: translates, to scale, all architectural drawings using plot

Gurriculum
Students following the study plan
below will compete the Prototype
below will compete the Prototype and
Design Technician associate degree
in the number of semesters shown.

## FIRST SEMESTER

10-420-151 Prototype Machine Tool
10-606-113 CAD $\begin{array}{ll}10-606-113 \\ \text { 10-641-113 } & \text { CAD Essentials }\end{array}$ 10-614-152 Prototyping--Introduction to 10-801-196 Oral/Interpersonal Comm 10-804-107 College Mathematics *10-890-101 College 101
SEMESTER TOTAL

## SECOND SEMESTER

 10-442-153 Prototype Metal Fabrication$10-606-162$ SolidWorks Fundamentals 10-606-163 SolidWorks-Intermediate 10-606-166 SolidWorks Loft/Surface 10-614-233 Architectural Model Design
10-614-235 CNC Mach/2D Prog-Intro 10-804-118 Interm Algebraw wpps SEMESTER TOTAL

THIRD SEMESTER 10-614-234 Molding Process \& Techniques 10-614-236 Rapid Prototype \& Additive Mig 10-614-276 Model Finishing 10-809-172 Intro to Diversity 1 SEMESTER TOTAL

## FOURTH SEMESTER

10-614-143 Prototyping Solutions Advanced
$\stackrel{\text { OR }}{10-614}$
10-614-139 Prototype \& Design Internship 10-614-174 Models-Machin
10-64-231 Engineering \& Mfg Processes 10-809-198 Intro to Psychology SEMESTER TOTAL
TOTALCREDITS

CURRICULUM NOTE
"The credit for $10-890-101$, , College 101,
is an institution is an institutional Requirement for of the program requirements.
plans, elevations, sections, and details to construct three dimensional models using a wide variety of materials and processes.
Rapid Prototype Technician: Creates models with the use of rapid prototype technologies. Pattern and Mold Maker: fabricates oood, plastic, or metal patterns and molds for casting parts.

With additional education and/or work experience, graduates may find other opportunities for employment.
Mechanical Prototype Designer

- Model Shop Supervisor

Computer Numerical Control Machinery Programmer/Operator Rapid Prototyping Operator - Architectural Designer/Model Builder - Freelance Model Builder

## COURSE DESCRIPTIONS

These courses provide an opportunity for students to develop the knowledge, skills, and understanding requ
for employment in this field.

10-420-151 PROTOTYPE MACHINE TOOL ...introduction to machine shop fundamentals using precision measuring instruments; performing machine tool horizonal milling machines and sufice grinders, and basic foundry applications.

10-442-153 PROTOTYPE METAL FABRICATION...ferrous and non-ferrous metals, oxyacetylene gas, tungsten arc, gas metal arc, and metal fabrication.
10-606-113 CAD (COMPUTER AIDED DRAFTING) ...computer aided drafting using AutoCAD software focusing on emplate settings; creating and manipulating layers; basic drawing, editing, and inquiry commands; blocks and attributes; and plotting. (Corequisites: 10-607-119, Intro to Civil Engineering Technology OR 10-606-119, Technical Sketching OR 10-614-113, 2D Essentials
10-606-162 SOLIDWORKS FUNDAMENTALS ...terminology, software operation and interface, creating basic models, casting and forging models.
(Corequisite: $10-606-119$ Sketching Corequisite: 10-606-119, Sketchingfamiliarity with Windows file management

10-606-163 SOLIDWORKSINTERMEDIATE ...creating and manipulating intermediate models using SolidWorks software. Course content includes models requiring the use of revolved and swept features, equations, and thin walled parts. (Prerequisite: 10 606-162, SolidWorks Fundamentals)

10-606-166 SOLIDWORKS LOFT/ manipulate lofted and surface componen parts using SolidWorks software. Course content includes lofting, sweeping complex contours, and surfaces. (Prerequisite: 10-606-163, SolidWorks-Intermediate)

10-614-113 2D ESSENTIALS ... an introduction to technical communication, annotation, geometric construction, model, orthographic and pictorial, section and auxiliary views and dimensioning
10-614-138 CNC MACHININGADVANCED ...create three-dimensional prototypes on the CNC machining center using SolidWorks and SurfCAM software with a focus on 3 axis surface machining and multiple part setups and an emphasis on problem solving and critical thinking. (Prerequisites: 10-614235, Intro to CNC Mach/2D Prog; 10 606-166, SolidWorks Loft/Surface)
10-614-139 PROTOTYPE \& DESIGN INTERNSHIP ...an introduction to model building, safety, tools, materials, flexible mold making, casting, limited run production, techniques and practices as on-the-job training 10-614-143 PROTOTYPING SOLUTION ADVANCED ...comprehensive overview of the design and development process using the skills acquired throughout the program to build a team focused project with an emphasis on project management, critical thinking, problem solving, time managemen 234 Molding Prose

10-614-152 PROTOTYPINGINTRODUCTION TO ...introduction to the prototype \& design industry using a variety of shop tools and equipment, machin processes, and fabrication techniques with an emphasis on shop safety, hand skills, accuracy professionalism, and working within specifie tolerances to build three dimensional models.
10-614-174 MODELS-MACHINE ...moving models, preliminary through final prototype; plastic mechanisms, motions, characteristics, combinations, mechanical advantages, fits, clearances, threads, gears, levers, cams, moto fasteners, and methods. (Prerequisite: 10 614-235, Intro to CNC Mach/2D Prog)
10-614-233 ARCHITECTURAL MODEL DESIGN ...planning and construction of architectural models focusing on layout, fabrication, material selection, painting, attention to details, project planning (Prerequisites: 10-614-152 Prot Introduction to: 10-606-113, CAD)

10-614-234 MOLDING PROCESS \& TECHNIQUES ...utilizing proper RTV, plaster, and rigid molding techniques and procedures in the creation of deta replicas; estimating costs and time of projects. (Prerequisite: 10-614-152, 166, SolidWorks LoftSurfee)

10-614-235 CNC MACH/2D PROGRAM INTRODUCTION TO ...introduction to CNC machining and programming using computer drawing software such as AutoCAD and SurfCAM, to produce three dimensional models from 2D geometry with an emphasis on machining materials used in the prototype \& design industry. (Prerequisites: 10-606-113, CAD; 10-614-152, Prototyping-Introduction to)

10-614-236 RAPID PROTOTYPE \& ADDITIVE MANUFACTURING ...research and use of rapid prototyping models, from SolidWorks or from other sources, overview upcoming technologies in the rapid prototyping field, estimating time and cost of build, finishing FFM/SLS/SLA rapid prototype parts for secondary step, and client/provider relationships. (Prerequisite: 10-614-152 Prototyping-Introduction to; 10-606-166, SolidWorks Loft/Surface)

10-614-237 ENGINEERING \& MANUFACTURING PROCESSES ...an introduction into the manufacturing \& production environment, illustrating the basic concepts of machine setup and fixture design, pattern making, material selection, thermoforming, die making, short run production molds. (Prerequisite: 10-614-234, Molding Process/Tech; 10-614-138, CNC Machining-Advanced)
10-614-276 MODEL FINISHING ...using a variety of spray guns and air brushes to apply par sanding, masking, and vinyl stenciling procedures will be covered as well as correct clear coat buffing and polishing

Radiography Program Code 105261 | Associate Degree


| COURSE DESCRIPTIONS <br> These courses provide an opportunity for students to develop the knowledge, kills, and understanding required for employment in this field. | OGRAPH | 10-526-195 RADIOGRAPHIC QUALITY |
| :---: | :---: | :---: |
|  | HOLOGY...prepares radiography | LYSIS....prepares radiography stu |
|  |  |  |
|  | conditions. Students classify trauma related to site, complications, and | determine the causes of image probl including equipment malfunctions |
| 10-526-149 RADIOGRAPHIC <br> PROCEDURES 1 ...prepares radiography students to perform routine adiogegic <br> students to perform routine radiologic procedures on various parts of the body including the upper body, hip, pelvis and ankle. Students aply knowledge of human anatomy to position the patient correctly Enrolled in Radiography program; 10-806 <br> 177, General Anatomy \& Physiology) | progosis and locate the radiograph |  |
|  | appearance of pathologies (Prerequisit Enrolled in Radiography program) | Radiography progr |
|  | 26-190 RADIOGRAPHY CLIN | radiography students to imaging |
|  | 5 ...this fifth level clinical course prepare | modalities with an emphasis in com |
|  | procedures on patients with some supervision. Students apply radiation protection and standard precautions | (Prerequisite: Enrolled in Radiography program or consent of program director) |
|  |  | 10-526-197 RADIATION PRO \& BIOLOGY ...prepares radiog |
| 10-526-158 INTRODUCTION TO <br> RADIOGRAPHY ...introduces students to the role of radiography in health care Students apply medical terminology, legal and ethical considerations to patient care and pharmacology in the radiologic sciences. (Prerequisite Enrolled in Radiography program) | legal and ethical guidelines. Stu | studens to protect themselves |
|  | encouraged to demonstrate independer | others from exp |
|  |  | of radiation and how radiati |
|  | 199, Radiography Clinica | cell biology. Students apply standards and guidelines for radiation exposure. |
|  | 10-526-919 RADIOGRAPHIC PROCEDURES $2 . .$. Prepares radiograp | (Prerequisite: Enrolled in Radiography |
| 10-526-159 RADIOGRAPHIC IMAGING <br> 1 ...introduces radiography students to the process and components of analog imaging. Students determine the factors that affect image quality including contrast, density, detail, and distortion. (Prerequisite: Enrolled in Radiography program) | students to perform routine radiologic |  |
|  |  | $6 . .$. this final clinical course requires stit |
|  | systems. Students apply knowledge of human anatomy to position the patient correctly to achieve the desired result. (Prerequisites | the production of high quality images in the clinical setting. Sudents aply radiation protection and |
|  | Enroled in Radiography program; 10-0 | standard precautions in the production |
| 10-526-168 RADIOGRAPHY CLINICAL 1 ...this beginning level clinical course prepares radiography students to perform radiologic procedures on patients with extensive supervision and direction. Students apply radiation protection and standard precautions in the production of radiographs in the health care setting while adhering to legal and ethical guidelines. An emphasis of the course is the development of communication and critical thinking skills appropriate to the clinical setting. (Prerequisites: Enrolled in Radiography program; 10-806-177, General Anatomy \& Physiology; Corequisites: 10-$526-158$, Introduction to Radiography; 10-526-149, Radiographic Procedures 1; 10-526-159, Radiographic Imaging) | 177, General Anatomy \& Physiology) | of images in a health care setting while adhering to legal and ethical guidelines. |
|  | R | Students are encouraged to demonst |
|  |  | dgm |
|  | procedures on patients with extensive | $10-$ |
|  | supervision and direction. Students app | 10-526-199 RADIOGRAPHY CLINICA |
|  | radiaion protection and standard in the prouuction of radiograph in | 4...this fourth level clinical course pre |
|  | health care setting while adhering to legal | radiography students to perform radiologic |
|  | course is the development of communicatio | direction. Students apply radiation pro |
|  | and critical thinking skills appropriate |  |
|  | 168 | of radiographs in a healtic care setung w adhering to legal and ethical suidelines. |
|  | 10-526-193 RADIOGRAPHY CLINICAL <br> 3...this third level clinical course prepares | Students are encouraged to demonstrate independent judgment in the performan of clinical competencies. (Prerequisite: |
| 10-526-170 RADIOGRAPHIC IMAGING 2 ...explores film processing components as well as the principles and operation ofdigital imaing ystems found in diagnostic radiology. Factors that impact image acquisition, display archiving and ertrieval are discussed. Guidelines for selecting exposure factors and evaluating images within analog and digital systems. Principles of digital system quality assurance and maintenance are presented. (Prerequisites Enrolled in Radiography program; 10$526-159$, Radiographic Imaging 1) | radiography students to perform radiolog | 26-193, Radiography Clinical 3) |
|  | and direction. Students apply radiation |  |
|  | protection and standard precautions in the |  |
|  | Uuction of radiographs in a health care |  |
|  | setting while adhering |  |
|  | gudeines. An emph |  |
|  | and critical thinking skills appro |  |
|  | to the clinical setting. (Prerequisite: 10 - |  |
|  | 526-192, Radiography Clinical 2) |  |
|  | 10-526-194 IMAGING EQUIPMENT OPERATION ...introduces radiography |  |
| 10-526-174 ARRT CERTIFICATION <br> SEMINAR....provides preparation for the national certification examination prepared by the American Registry of Radiologic Technologists. Emphasis is placed on the weak areas of the individual students. Simulated registry examinations are utilized. (Prerequisite: Enrolled in Radiography | students to the principles and applicatio |  |
|  | of x-ray technology. Students analyze h |  |
|  | corrective actions necessary for common |  |
|  |  |  |
|  | Enrolled in Radiography program) |  |
|  |  |  |
|  |  |  |
|  |  |  |

## Respiratory Therapist program Code 1055151 | Associate Degree

Offered at the Green Bay campus.
Tor information: (888) 385-6982.
This program is fully eligible
or financial aid.
Program Description
The Respiratory Therapist program trains students in the evaluation, iagnosis, treatment, and rehabilitatio disease of the heart and lungs.

## Program Outcomes

 - Apply respiratory therapy conceptsPractice respiratory therap Practice respiratory therapy
according to established professional and ethical standards.
Demonstrate technical proficiency required to fulfill the role of a Respiratory Therapist.

## Wisconsin Caregiver Law

 NWTC is required to comply with the Wisconsin Caregiver Law (1997 WISCONSIN ACT 27). The completion of a caregiver background check includes thereview of criminal records for convictions of serious crimes or a history of improper behavior. Students accepted into this
program must complete a background
check through www.CertifiedBackground om. Information regarding this process provided to students immediately upon acceptance into the program. Students with a criminal history may be denied access to
placement at the discretion of the clinical or practicum site. Consequently, should a student have a history of convictions of serious crimes or a history of improper ehaviors, NWTC cannot guarantee linical/practicum placement or guarantee

## Employment Potential

A graduate of this program will have the
nursing home, and homecare setting as a:

- Staff Therapist
- Pulmonary Rehabilitation Therapist
- Perinatal/Pediatric Therapist

Pulmonary Function Technologis
Sleep Disorder Center Technician - Shift Supervisor

- Department Manager

Home Care Therapist/Manager
Nursing Home Therapist
Respiratory Care Educator
Medical Equipment and Supplies
Sales Representative

## Clinical Experience

Students will be required to purchase a uniform, pay for liability insurance, assigned sites, and cover any expenses
elated to clinical experiences Sudents may be expected to travel
distances, participate in p.m. distances, participate in p.m.
clinicals, or weekend rotations.
Students will be required to show proof of an annual flu vaccine. Students will be required to submi immunization documentation. A fee is charged for this service. Addition information will be provided upon acceptance into the progran. Students are required to take n ACLS Provider course prior

## Accreditation

The Respiratory Therapist program Accreditation for Respiratory Care (CoARC) 1248 Harwood Road Bedford, TX 76021-4244 (817) 283-2835

## Board/Certification

Examinations
Graduates are eligible to take the
National Board for Respiratory Care Credentialing Examinations.

## Requirements for

## Program Application

- High school transcript or equivalen. (For a list of equivalents, go to www.nwtc.edu/gettingstarted.)
Admission Assessment or equivalent or ACT assessment taken within the last five years. (For a list of equivalents, please contact a counselor.) Two semesters in high school, or one
semester in college of the following. Algebra, Biology, Chemistry (with a component), and Advanced Math (or Physics). All required course grades mus be completed with a "C" or better.


## Requirements for

Program Entry
As a requirement for program entry, an Academic Skills Assessment (Accuplacer or ACT) with appropriate benchmark scores is necessary. Accuplacer benchmarks are Arithmetic, 90; Reading Comprehension, 0; Sentence Skills, 95 ; Algebra, 65. 1; English, 21. Applicants not meeting 21; English, 21. Applicants not meeting be required to establish an individualized cademic plan. Upon completion of the plan, full program or waitlist status will e granted. To learn more about these assessments and program benchmark (920) 498-5444 or (888) 385-6982.

Attend mandatory spring
program orientation.
Health Care Provider CPR course.

Curriculum

## audents following the study plan dow will complete the Respiratory

Therapist associate degree in the

|  | Gen Anatomy \& Physiolog College 101 OTAL |
| :---: | :---: |
| FIRST SEMES |  |
| *10-501-101 | Medical Terminolog |
| *10-515-111 | Respiratory Survey |
| 10-800-196 | Ora/Interpersonal Comm |
| ++10-806-197 | Microbio |
|  |  |

## ,

## 10-515-171 Respiratory Therapeutics  $\begin{array}{ll}\text { 0-801-136 } & \text { Ressiratory/Cardiac } \\ \text { Engish Compositio } \\ \text { SEMESTERTOT }\end{array}$

## SUMMER SEMESTER

10-515-172 Respiratory Therapeutics 10-515-175 Respiratory Clinical 1

\section*{THIRD SEMESTER <br> 

10-515-13 Respiriatory Lifire Support

${ }^{*}{ }^{*} 10-515-178$ Respiratory Clinical 2
$\begin{array}{ll}\text { 10-515-179 } & \text { Respiratry Clinica } \\ \text { 10-80-196 } \\ \text { Intro to Sociology }\end{array}$
SEMESTER TOTAL

## ${ }_{1}$ FOURTH 1055 -164 Clinica

 ${ }^{* 10-515-180}$
${ }^{* 10-515-181}$
${ }^{* 10-515-182}$
Respiratory Neo/Peds Care
Respiriatoryry Clininical 4 $\begin{array}{ll}* 10-515-183 & \text { Respiratory Clinical } 5 \\ \text { 10-80--172 } & \text { Intro to Diversity Studies }\end{array}$ SEMESTER TOTAL
TOTAL CREDTSS

## CURRICULUM NOTE

- No tinal grade lower than a "C" is acceptable in any of the courses marked with a a asterisk. A
student who withraws or receives a grade lower than a "C" " in a program course may apply for re-entry into the program. Consideration for re entry will be at the discretion of the re-entry te
and will be dependent on clinical availability.
++ No final grade lower than a " $B$ " s sacceptable in General Anatomy \& Physiology and Microbioiology. General A Anatomy \& Physiology and Microbioiog
A student who withdraw or receives a grade lower than " "B" in these courses may apply for
re-entry into the program. Consideration for re entry will be at the discretion of the re-entry tean and will be dependent on clinical availabil
-"The credit tor 10 "The credit for 10-890-101, College 101,
is an institutional requirement tor graduation. Consequently, itis not par of the program credit requirements.

Students are required to maintain a current CPR card to comply with
affiliating agency requirements. Complete caregiver background heck. A fee is charged for this service. ddrtional is in on the be provid apon acceptance into the strongly encouraged. - Complete a Functional Abilities Inventory

## COURSE DESCRIPTIONS

These courses provide an opportunity
for students to develop the knowledge, fills, and understanding required skils, and understanding requ
10-501-101 MEDICAL TERMINOLOGY dial tern oot words. Students practice formation analysis and reconstruction of terms. Emphasis on spelling, definition and pronunciation. Introduction to operative, diagnostic, therapeutic and symptomatic terminology of all body systems, as

0-515-111 RESPIRATORY SURVEY ..examines the role of the respiratory herapist within the health care community Reviews the ethica, legal, and regula diverse populations. Introductory patian assessment and critical thinking processes used in the development of respiratory care plans are explored. (Prerequisite: Accepted to Respiratory Therapy program) 10-515-112 RESPIRATORY AIRWAY MANAGEMENT ...provides a comprehensive exploration of airway management concep espirato (Prerequisites: $10-515-172$ 74 Rory therapeutics 2 ; $10-515$ 10-515-175, Respiratory Clinical 1) 10-515-113 RESPIRATORY LIFE SUPPORT ...focuses on management of adult ventilatory support. (Prerequisites: 10-515-172, Respiratory Therapeutics 2 ; 10-515-175, Respiratory Clinical 1)

10-515-164 CLINICAL SIMULATION REVIEW ...diagnosis, management, and reatment received by cardiopuimonary patients. This course prepares student For the testing processes utilized by the testing processes will be reviewed utilizing appropriate content. (Prerequisite: 47-531-462, ACLS Provider; Corequisites 10-515-182, Respiratory Clinical 4; 0-515-183, Respiratory Clinical 10-515-171 RESPIRATOR THERAPEUTICS 1 ...introduces the topics of medical gas administration and humidity and aerosol therapy. The learner will apply physics, math and patient and humidity. (Prerequisites: 10-515-111 Respiratory Therapy Survey; 10-806177, General Anatomy \& Physiology)

0-515-172 RESPIRATORY THERAPEUTICS 2 ...introduces therapeutic rocedures including arterial puncture, bronchial hygiene, lung expansion therapy and pulmonary rehabilitation. (Prerequisit
10-515-171, Respiratory Therapeutics 1)

0-515-173 RESPIRATORY
HARMACOLOGY...examines basic pharmacology principles, drug dosage, and alculations. Medications for inhalation ncluding mucolytivs, bronchodilators, anti nflammatories. Also includes cardiac drugs nd antimicrobials. (Prerequisite: 10-806177, General Anatomy \& Physiology)
10-515-174 RESPIRATORY/CARDIAC PHYSIOLOGY provides the student with HYSIOLOGY...provides the student with function of the respiratory and circulatory sstems necessary to function as a competent espiratory Therapist. (Prerequisite: 10-806-177, General Anatomy \& Physiology) 0-515-175 RESPIRATORY CLINICAL 1. troduces respiratory therapy practice in the ospital setting. Includes the development f skills such as basic therapeutics, patient ssessment, medical record review, afery practices, patient interaction and complete program competency list. At the omplete program competency list. At the
ompletion of this clinical learners must demonstrate competence in a minimum f five (required and/or simulated) competencies. The instructor may identify pecific competencies to be addressed during this or any clinical. (Prerequisites: 10-51571, Respiratory Therapeutics 1: Corequisite 0-501-101, Medical Terminology; 10-15-172 Respiratory Therapeutics 2 ) 10-515-176 RESPIRATORY DISEASE ...exploration of signs, symptoms, causes, ogression and iffectious diseases or disorder of the body that affect the respiratory stem. (Prerequisites: 10-515-111, Respiratory Therapy Survey; 10-806 77, General Anatomy \& Physiology
10-515-178 RESPIRATORY CLINICAL ...continued development of Respiratory Therapy clinical skills including respiratory herapeutics. Focuses on monitoring, analyzing and interpreting data to make appropriate modifications in patient care.
This course includes the complete This course includes the complete program
competency list. At the completion of this clinical learners must demonstrate ompetence in a minimum of 12 (required nd/or simulated) competencies. (Prerequisite: $0-515-175$, Respiratory Clinical 1)

10-515-179 RESPIRATORY CLINICAL ...continued development of Respiratory Therapy clinical skills including respiratory therapeutics. Focuses on monitoring, analyzing and interpreting in patient care. This course includes in patient care. This course includ list. At the completion of this clinical learners must demonstrate competence in a minimum of 19 (required and/or simulated) competencies. (Corequisite: 10-515-178, Respiratory Clinical 2)

10-515-180 RESPIRATORY NEO/PEDS
CARE....provides a comprehensive orientatio to the field of neonatal and pediatric respiratory care to include fetal developme birth, neonatal physiology, pulmonary conditions, diseases, noninvasive and invasive therapeutic interventions. (Prerequisite: 10-515-113, Respiratory Life Support ) 10-515-181 RESPIRATORY/ CARDIO DIAGNOSTICS ...advanced invasive and noninvasive diagnostic pulmonary function, hemodynamics and rescue medicine. (Prerequisites: 10-515-173, Respiratory Pharmacology; $0-515-176$, Respiratory Disease; 10 15-113, Respiratory Life Support)

10-515-182 RESPIRATORY CLINICAL 4 ...continued development of Respiratory Therapy clinical skills including respiratory therapeutics. Focuses o monitoring, analyzing and interpreting
data to make appropriate modifications in patient care. This course includes the complete progra conpetency the complete program competency
list. At the completion of this clinical learners must demonstrate competence in a minimum of 26 (required and/or simulated) competencies. (Prerequisite 10-515-179, Respiratory Clinical 3) 10-515-183 RESPIRATORY CLINICAL
..focuses on the completion of respiratory therapy competencies and transition to employment. This course includes the complete program competency
list. At the completion of this clinical learners must demonstrate competence in all of the (required and required/ simulated) competencies. (Corequisite: 10-515-182, Respiratory Clinical 4)

## Software Developer Program Code 101521 | Associate Degree

Offered at the Green Bay campus. For information: (920) 498-5444. Toll-free: (888) 385-6982.
This program is fully eligible for financial aid.

## Program Description

This two-year program prepares
its learners to design, develop and its learners to design, develop and test business application software using various leading programming
languages. Graduates will be proficien in HTML, CSS, C\#, Java, ASP.NET, and SQL along with various supporting technologies in Agile development, database and web development, mobile applications, documentation and system analysis and design.
Graduates will be prepared to support the software development needs of businesse in a wide variety of industries. Training blends general education development with required IT technical skills. All courses are offered in an in-person format and some are also offered online for additional flexibility.

## Program Outcomes

- Develop logical problem solving skills that incorporate critical thinking, and programming utilities. - Develop software applications that employ object-oriented principles ava programming languages Java prograing languages - Develop, build, and configure
dynamic and interactive Web pages dynamic and interactive Web pat
using HTML, CSS, JavaScript, asing ASP coding techniques. - Develop and deploy user-- Develop and deploy user-
friendly mobile applications. friendly mobile applications.
- Design a normalized database an develop entity relationships. - Develop relational database application using database management software to code SQL statements and queries. - Develop technical documentation to support the use of software applications. - Plan and conduct computer training sessions using appropriate training materials, assessment tools, technologies, and delivery methods. - Communicate effectively and work collaboratively within a software development team. - Incorporate best practices of the Agile software development methodology.
- Perform entry-level systems analysis and design work to solve business problems.

Participate in the System Development Life Cycle tasks of an information system from an initial request through and object-oriented methodologies.

## Requirements for

## Program Entry

Completed application.
High school transcript or equivalent. For a list of equivalents, go to
www.nwtc.edu/gettingstarted. www.nwtc.edu/gettingstarted.
One year of high school algebra completed.
Ability to use computer keyboard and mouse.

- As a requirement for program entry, an Academic Skills Assessment (Accuplacer) with appropriate benchmark scores is necessary. Program benchmarks are Reading Comprehension: 55; Sentence Skills: 75; Arithmetic: 65. Students not meeting these benchmarks or the equivalent will be required to establish an individualized academic plan. Students may have the opportunity to enroll in selected program core courses while completing their individualized plan. Upon completion of the plan, courses. However higher alt program will couses. Howere, his in cost pror lead to greater success in core prog ascessments and program benchar scores please contact a counselor (920) 498-5444 or (888) 385-6982.


## Employment Potential

A graduate of this program will ave the potential for employment in the following areas:
Programmer: Create, modify, and test the code, forms, and script that allow computer applications to run. Work rom specifications drawn up by software developers or other individuals. May assist software developers by analyzing user need and designing software solutions. May develop and write computer programs o store, locate, and retrieve specific Software Developer: Develop, create, and modify general computer applications software or specialized utility programs. Analyze user needs and develop software solutions. Design software or customize oftware for client use with the aim of optimizing operational efficiency with a mas a design databases within an application area, working

Curriculum
Students following the study plan
below will complete the Software Developer associate degree in the number of semesters shown.

| FIRST SEMESTER CRE |  |
| :---: | :---: |
| 10-105-102 | Career Planning |
| 10-152-140 | 1T:Program:Logic-Intro |
| 10-152-173 | IT:Program:Part 1 (C\#) |
| 10-152-185 | Website Coding |
| 10-154-125 | IT:Web:Database Development |
| *10-801-136 | English Composition 1 |
| 10-804-133 | Math \& Logic |
| "10-890-101 College 101 |  |
|  |  |

## SECOND SEMESTER

10-152-174 IT:Program:Part 2 (C\#) $\begin{array}{cl}\text { 10-152-180 } & \text { IT:Web:Scripting-JavaScript } \\ \text { 10-152-184 } & \text { IT:Web:Programming-SQL }\end{array}$ 10-801-196 Oral/hiogramming-SQL 10-801-197 Technical Reporting 10-809-199 Psychology Of Human Relations
SEMESTER TOTAL

## THIRD SEMESTER

10-105-103 Career Preparation
$\begin{array}{ll}\text { 10-152-141 } & \text { IT:Program:Part 3 (Java) } \\ \text { 10-152-150 } & \text { IT:Program:Systems Analy/Des }\end{array}$ $\begin{array}{ll}\text { 10-152-150 } & \text { IT:Program:Systems Analy/D } \\ \text { 10-152-151 } & \text { IT:Program:SQL-Advanced }\end{array}$ 10-152-153 IT:Program:Team Software Dev $10-809-1$
OR
10-809-103 Think Critically \& Creatively SEMESTER TOTAL

## FOURTH SEMESTER

10-107-195 IT:Training
10-152-142 IT:Program:Part 4 (Java)
10-152-154 10-152-154 IT:Program:Mobile Apps De 10-152-183
IT:Web:Scripting-ASP.Net
10-152-199 $\begin{array}{ll}\text { 10-152-99:-99 } & \text { ITrogram:Career Experien } \\ \text { 10-809-172 } & \text { Intro to Diversity Studies }\end{array}$ SEMESTER TOTAL
TOTAL CREDITS

## CURRICULUM NOTE

"Students must earn a grade of "C" or better in 10-801-136, English Composition 1 to enroll in 10-801-197, Technical Reporting. *The credit for 10-890-101, College 101
is an Institutional Requirement for graduation. Consequentily, it is not par of the program credit requirements.
individually or coordinating database development as part of a team. May supervise computer programmers.
With additional education and/or work experience, graduates may find other opportunities for

- Systems Analyst
- Database Administrator
- Software Architect
- Software Consultant/Trainer


## COURSE DESCRIPTIONS

These courses provide an opportunity skills, and understanding required for employment in this field.

10-105-102 CAREER PLANNING ...experiential learning introduction. Learn how personal branding allows candidates to differentiate themselves from the competition through appearance, personality, and marketing competency. Career portfolio introduced (Corequisite: 10-890-101, College 101)
10-105-103 CAREER PREPARATION ...create professional resume and cover letter, prepare for interviews, understand interviewing techniques, participate in a learning proposal. (Prerequisites: 10-105-102, Career Planning; 10-801136, English Composition 1)

10-107-195 IT:TRAINING ...effective presentation skills, plan training content and ding methods, write lesson plans, provide training materials, conduct training sessions,
and assess learners' grasp of stated objectives.

10-152-140 IT:PROGRAM:LOGICINTRO ...techniques for developing computer programs to solve business problems; includes logic, structure flowcharting, comparing, looping variables, arrays, file processing, data validation, testing procedures.
10-152-141 IT:PROGRAM:PART 3 (JAVA) ...apply programming and object-oriented design concepts using the Java language. Design concepts and programming tools will be integrated with an emphasis on 10-152-173, IT: Progra.Patt (CH))

10-152-142 IT:PROGRAM:PART 4 (JAVA) ...focuses on the server side of application programming for the Web. Topics include: inheritance, exception handling, rray lists. (Presplications, app-180, IT:Web:Scripting-Javascript; 10-152-141, IT:Program:Part 3 (Java))

10-152-150 IT:PROGRAM:SYSTEMS ANALYSIS AND DESIGN ...apply
the steps of systems analysis and design including preliminary investigations, setting objectives, establishing costs/benefits, and collecting data. Develop specifications for outputs, inputs, files, procedures, and controls of business systems. (Prerequisites: 10-152-184, Web:Programming-SQL 10-152-174, IT:Program:Part 2 (C\#)
10-152-151 IT:PROGRAM:SQLADVANCED ...write advanced SQL write Extract, Transfer, Load (ETL) processes. Additional topics includ database transformations, alternate database technologies, emerging database trends and database administration/security. (Prerequisite 10-152-184, IT:Web:Programming-SQL)
10-152-153 IT:PROGRAM:SOFTWARE DEVELOPMENT ...introduces Agile software development methodology using small teams to take an application through its entire life cycle including gathering, analysis, design, developmen unit/regression testing deployment and maintenance. (Prerequisites: 10-152-184, IT:Web:Programming-SQL• 10-152-174 IT:Program: Part 2 (C\#))

10-152-154 IT:PROGRAM:MOBILE APPLICATION DEVELOPMENT ...design and construct programs/applications for mobile devices such as the iPhone, Droid, and/or others. Hands-on activities using an SDK (software development kit), along with instructions and guidelines for application deployment. (Prerequisites: 10-152-180 IT:Web:Scripting-Javascript; 10-152-141, IT:Program: Part 3 (Java))

10-152-173 IT:PROGRAM:PART 1 (C\#) ...provides a foundation of syntax/semantics of C\# .NET programming language to develo
Windows-based/ Web-based applications. Covers the architecture of Microsof's .NET platform where C \# is the native language.
10-152-174 IT:PROGRAM:PART 2 (C\#) ...object-oriented concepts and C\# WET syntax, focus on file/data access and Windows Presentation Foundation (W) applications which incorporate $n$-tier desitializers, XML streams, serializa encryption and LINQ (Prerequisites: 10 154-125, IT:Web:Database Development 10-152-173, IT:Program:Part 1 (C\#))

10-152-180 IT:WEB:SCRIPTING JAVASCRIPT ...integrate JavaScript into interactive HTML5 pages, create user-defined functions, complete form validation, use objects within the Document Object Model, debug code, and test browser compatibility. (Prerequisite: 10-152-185, Website Coding) 10-152-183 IT:WEB:SCRIPTING-ASP. NET ...build interactive, database-drive websites with ASP.NET and C\# with Visual Studio, handling web form evens using ASP.NET controls, designing master using AS, managing state, and interacting with databases with ASP.NET data-bound controls. (Prerequisites: 10-154-125, IT:Web:Database Development; 10-152 180, IT:Web:Client Script-Javascript)
10-152-184 IT:WEB:PROGRAMMINGSQL ...write queries in a relational database creating tables, setting primary/foreign keys, populating tables, manipulating data and reporting. Explore join types, stored procedurs, Euctions, and catabase 10-154-125, IT:Web:Datens. (Frerequisite

10-152-185 WEBSITE CODING ...create code for generating the structure, function, and design of static websites using standard based HTML5 and CSS3; validate code; test multi-browser and multi-device functionality.
10-152-199 IT:PROGRAM:CAREER EXPERIENCE ...practical hands-on experience applying skills developed in the program at an approved site with instructor with related projects and discussion. (Prerequisites: 10-801-136 English Compsition I; 10-804-133, Ma \& Logic; 10-105-103, Career Preparation)

10-154-125 IT:WEB:DATABASE DEVELOPMENT ...database uses, database terminology, analyzing information requirements, data models, database design phases, entity relationships, normalization processes, database management systems, database objects, development environments, creating tables writing queries using SQL, testing

## Solar Energy Technology Program Code 104824 | Associate Degree

Offered at the Green Bay campus. For information: (920) 498-5444. Toll-free: (888) 385-6982.
This program is fully eligible for financial aid.

## Program Description

Solar Energy Technology prepares students with a combination of electro-mechanical principles and knowledge of solar energy technologies to meet the needs of the emerging green energy workforce. The program will provide a skilled workforce of technicians who are able to design, install, operate and maintain solar electric and olar thermal systems for both residentia and light commercial applications.

## Program Outcomes

- Evaluate the energy use of commercial and residential buildings and perform site assessments for solar electric and solar thermal systems.
- Generate technical project proposals and estimates for solar electric and solar thermal systems.
- Read and comprehend
mechanical blueprints.
- Upload and download information from remote and local networks to aid in the operation and maintenance of systems.
- Facilitate distributed generation - agreements and connection to local utilities.
- Obtain zoning regulations - Obtain zoning regulatio
and building permits. - Design, install and maint - Design, install and ma
solar electric systems. - Design, install and maintain solar thermal systems.
- Ensure compliance with the national electrical code. - Provide training to user upon project completion.
- Install, troubleshoot, repair and modify mechanical and electrical systems including programmable controllers.


## Requirements for

Program Entry
Completed application

- High school transcript or equivalent. (For a list of equivalents, go to www.nwtc.edu/gettingstarted.) - Courses required for mastery of algebra skills (real numbers, algebraic expressions, equations and inequalities,
word problems and measurements). - The student will either provide work in Windows, Word and Excel or pass a proficiency test.
As a requirement for program entry, an As a requirement for program entry, an
Academic Skills Assessment (Accuplacer) with appropriate benchmark scores
is necessary. Program Benchmarks are College Math: 63; Reading Comprehension: 80; Sentence Skills: 75 . Students not meeting these benchmarks or the equivalent will be required to establish an individualized academic plan. Students may have the opportunity to enroll in selected program core courses while completing their individualized plan. Upon completion of the plan, students will be eligible for all program courses. However, higher test scores will lead to greater success in core program courses. To learn more about these assessments and program benchmark scores, please contact a counselor at


## Employment Potential

A graduate of the program will have the potential for employment for diverse employers, such as renewable energy businesses, energy companies, equipment supply companies, oil and gas field service companies and tilities in the following areas - Solar Electric Energy Technician: designs, estimates, installs, troubleshoots, repairs and modifies residential and/ or commercial solar electric systems.

- Solar Site Assessor: conducts facility energy audit/assessments; is responsible for making recommendations regarding solar energy systems. Prepares cost estimates, energy analysis; is accountable for building long-term customer relationships.
- Solar Sales Representative: provides consultations and assessments to potential customers. Manages the pipeline of contacts and opportunities within an assigned territory and deliver compelling presentations. Acts as the project manager for installation of systems and coordination of closeout.
With additional education and/or work experience, graduates may find other pportunities for employment.
Energy Analyst
Journeyperson: Plumber, Electrician Project Manager
- Energy Engineer

Curriculum
Students following the study plan
below will complete the Solar Energy Technology associate degree in the
number of semesters shown.

## FIRST SEMESTER

CREDITS
10-442-150 Machine Fabrication 1 10-480-101 Energy-Intro Renew \& Sustain 10-482-126 Intro to Solar $10-620-100$ Fluids 1: Basic Pneumatics
$10-620-101$ Fluids : Be $\begin{array}{ll}10-620-101 & \text { Fluids } 2 \text { : Basic Hydraulics }\end{array}$ 10-660-104 DC 1: Introductio
10-660-105
DC 2. Circuits 10-660-105 DC 2: Circuits 10-804-118 Interm Algebraw Apps *10-890-101 College 101
SEMESTER TOTAL

## SECOND SEMESTER

${ }^{10-482-132}$ Photovoltaics-Design \& Site 10-482-132 Photovoltaics-Design \& Site
$10-620-140$
$10.660-101$
Machine Wiring and Safety 10-660-101 Digital 1: Logic
$10-660-102$ 10-660-102 Digital 2: Sequential
$10-660-107$ AC 1 Proprties 10-660-07 AC 1: Properties
$10-60-108$
AC 2 : Reactance 10-660-110
AClectronics 1: Diodes-Basic 10-664-100 Automation 1: Control Logic
10-664-101 10-664-101 Automation 2: Motor Control
10-804-196 Trigonometry w Apps 10-804-196
Trigonometry w Apps
10-806-143
College Physics 1 SEMESTER TOTAL

## THIRD SEMESTER

10-403-100 Blueprint Reading Intro
$\begin{array}{ll}\text { 10-403-100 } & \text { Bueprint Reading Intro } \\ \text { 10-481-114 } & \text { Intro to Energy Managemen }\end{array}$ $\begin{array}{ll}\text { 10-482-133 } & \text { Photovoltaics-Advanced } \\ 10-483-107 & \text { Solar Thermal }\end{array}$ 10-483-107 Solar Thermal Design \& Site
10-605-157 Power Electronics 1: Devices 10-605-157
Power Electronics $1:$ Devices
10-605-158
Power Electronics 2: 2 Drives *10-801-136 English Composition 1 SEMESTER TOTAL

## OURTH SEMESTER <br> 10-483-106 Solar Advanced System Design

 $10-483-108$ Solar Thermal-Advanced 10-801-197 Technical Reporting 10-809-172 Intro to Diversity Studie 10-809-198 Intro to Psychology SEMESTER TOTALTOTAL CREDITS

## CURRICULUM NOTE

${ }^{*}$ The credit for 10-890-101, College 10
is an institutional requirement for
graduation. Consequently, it is not part
of the program credit requirements.
"Students must earn a grade of "C" or better
in $10-801-136$ English Camposition to enroll in 10-801-136, English Composition to
in 10-801-197, Technical Reporting.

- Environmental Consultant

The following certificates/technical diplomas may be applied toward this program: - 904821, Renewable Energy-

Solar Electric Certificate

- 904822 , Renewable Energy-

Solar Thermal Certificate

10-483-106 SOLAR ADVANCED SYSTEM DESIGN ... troubleshooting and repairing renewable thermal and electric equipment; diagnosing faulty equipment; selecting replacement parts; preparing a detailed work order. (Prerequisites: 10-483-107, Solar Thermal Design \& Site; 10-482-132, Photovoltaics-Design \& Site; 10-483-108, Solar Thermal Advanced)

10-483-107 SOLAR THERMAL DESIGN \& SITE ...learn steps to performing a site audit prior to installation of a solar thermal system. Focus on defining the solar window, system site placement and sizing, lead analysis and energy efficiency (Prerequisite: 10-482-126, Intro to Solar)
10-483-108 SOLAR THERMALADVANCED ...topics include safety, system design and collectors plumbing selection, mounting collectors, plang and insulatio copper pipe, storage tank installation, (Prerequisite: 10-482-126, Intro to Solat

10-605-157 POWER ELECTRONICS 1: DEVICES ...the device characteristics and applications of thyristors, power transistors, and switching devices. (Prerequisite: 10-660-107, AC 1: Properties)
10-605-158 POWER ELECTRONICS 2: DRIVES ...power circuitry of AC and DC drives and basic setup and application of an industrial DC and AC drives to DC and AC motors.

10-620-100 FLUIDS 1: BASIC PNEUMATICS ...what fluid power is, differentiate between hydraulics and pneumatics, implement basic pneumatic circuits, utilize schematics, apply Pascal's Law, define properties of fluids, implement airflow control and hydraulics cylinder circuits.
10-620-101 FLUIDS 2: BASIC HYDRAULICS ...hydraulic pumps, basic hydraulics actuator circuits, hydraulic schematics, apply Pascal's Law, summarize schematics, apply Pascals Law, summarize
the effects of fluids friction, define properties of hydraulic energy, design hydraulic circuits with directional control valves. (Corequisite 10-620-100, Fluids 1: Basic Pneumatics)
10-620-140 MACHINE WIRING AND SAFETY ...introduction to machine wiring, including basic documentation, labeling, and wiring practices; an overview of NFPA 70 machinery, safety and installation standard.

10-660-101 DIGITAL 1: LOGIC ...AND, OR, NOT, NAND, NOR, logic operation using switch logic, ladder logic, and gate logic. Simplification methods using Boolean theorems and Karnaugh Maps, and timing diagram analysis.
10-660-102 DIGITAL 2: SEQUENTIAL ...operation and connection of latches, RS flip-flops, JK flip-flops, and D flipflops using timing diagram analysis, and fops using timing diagram analysis, and
some simple applications are studied. (Corequisite: 10-660-101, Digital 1: Logic)
10-660-104 DC 1: INTRODUCTION ...introduction to the concepts of DC electricity and simple series circuits. Voltage, current, resistance, Ohm's Law, power and Kirchoffs Voltage Law are defined.
10-660-105 DC 2: CIRCUITS ...analysis of parallel and series-parallel circuits. Application of Kirchoffs Current Law to parallel circuit combinations. Introduction of current sources and source conversions. (Corequisites: 10-804-118, Interim Algebra w Apps OR equivalent; 10-660-104, DC 1: Intro)
10-660-107 AC 1: PROPERTIES ...introduction to the properties of capacitors and inductors including types and behavior in switching circuits. Inductor basics include a study of magnetic fields. (Prerequisite: 10-804-196, Trigonometry w Apps)

10-660-108 AC 2: REACTANCE ...study of the way inductive, capacitive and resistive components behave in a circuit excited by a sine waveform. Effective and (Corequisite: 10-660-107, AC 1: Properties)
10-660-110 ELECTRONICS 1: DIODES BASIC ...introduction to the characteristics and usage of semiconductor diodes in rectifiers and linear power supplies. Special (Prerequisite: 10-660-105, DC 2. Circuits Corequisite: 10-660-107, AC 1. Properties)

10-664-100 AUTOMATION 1: CONTROL LOGIC ...electric moto control components such as switches, relays, starters, transformers; and safely mount and install motor and motor control components and perform related wiring and troubleshooting of motor control circuits.
10-664-101 AUTOMATION 2: MOTOR CONTROL ...electric motor control components such as sensors, timers 100, Automation 1: Control Logic)

## Structural Systems Program Code 314754 | Technical Diploma

Offered at the Green Bay campus. For information: (920) 498-5444. Toll-free: (888) 385-6982.

This program is fully eligible for financial aid.

## Program Description

The graduates of Structural Systems will be the people that build the body of the building. They will be the carpenters, masons and concrete workers. These students will have entry level skills pertaining to the structural elements within the construction field. Credits from this program will transfer to the Construction Technology associate degree.

## Program Outcomes

- Produce structural drawings and details for residential and commercial buildings.
- Explain the design and construction process.
- Display a positive attitude towards the profession.
- Choose appropriate materials for use in building construction.
- Estimate materials required for construction.
- Interpret structural layouts.


## Requirements for Program Entry

- Completed application.
- High school transcript or equivalent. For a list of equivalents, go to www. nwtc.edu/gettingstarted.
- As a requirement for program entry, an Academic Skills Assessment (Accuplacer) with appropriate benchmark scores is necessary. Program Benchmarks are Arithmetic: 34; Reading Comprehension: 55; Sentence Skills: 60. Students not meeting these benchmarks or the equivalent will be required to establish an
individualized academic plan. Students may have the opportunity to enroll in selected program core courses while completing their individualized plan. Upon completion of the plan, students will be eligible for all program courses. However, higher test scores will lead to greater success in core program courses. To learn more about these assessments and program benchmark scores, please contact a counselor at (920) 498-5444 or (888) 385-6982.


## Employment Potential

A graduate of this program will have the potential for employment in the following areas:
Carpenter Helper: will assist Carpenters in all areas of building construction; installs interior and exterior finish surface materials, interior floor and ceiling specialties, rough framing, building layout, stair construction, and interior trim.

Mason Helper: will assist Mason with brick and/or other types of masonry to construct foundations, walls, fireplaces, smokestacks, arches and similar structures.
Concrete Finisher Helper: assists
Concrete Finisher with placing, finishing, protecting and repairing concrete in engineering and construction projects.
General Laborer: performs basic yet important physical work tasks at building construction sites.

With additional education and/or work experience, graduates may find other opportunities for employment.

- Carpenter
- Mason
- Concrete Finisher

Completers will be able to apply credits toward the following programs:

- 10-475-2, Construction

Technology associate degree

## Curriculum <br> Students following the study plan below will complete the Structural Systems technical diploma in the number of semesters shown.

## FIRST SEMESTER

CREDITS
10-403-101 Blueprint Reading 1 2 10-410-101 Site Development 10-410-102 Footing Systems 10-410-103 Foundation Systems 10-410-104 Floor Framing Systems 10-449-112 OSHA 30 10-804-101 Math 1-Trades *10-890-101 College 101
31-801-385 Communicating-Writing 31-801-386 Communicating Effectively SEMESTER TOTAL

SECOND SEMESTER
10-403-102 Blueprint Reading 2
10-408-100 Masonry
10-410-105 Wall Framing Systems
10-410-106 Roof \& Ceiling Framing Systems
10-410-107 Stair Systems
10-410-108 Uniform Building Code
10-410-109 Material Estimating
SEMESTER TOTAL
TOTAL CREDITS

## CURRICULUM NOTE

*The credit for 10-890-101, College 101, is an Institutional Requirement for graduation. Consequently, it is not part of the program credit requirement.

## Note

- A iCî or better in BOTH 31-801-385,

Communicating-Writing and 31-801-386, Communicating Effectively will satisfy the Construction Technology Associate Degree requirement for 10-801-196, Oral/Interpersonal Communication.

- A iCî or better in 10-804-101, Math 1-Trades will satisfy the prerequisite to enroll in the Construction Technology Associate Degree course 10-804-107, College Mathematics.


## COURSE DESCRIPTIONS

These courses provide an opportunity for students to develop the knowledge, skills, and understanding required for employment in this field.

10-403-101 BLUEPRINT READING 1 ...drawing development/equipment, blueprints, plot and building layout, scaling and dimensioning practices, symbols, specs, codes, materials and uses.

10-403-102 BLUEPRINT READING 2 ...blueprints as they relate to the mechanical trades and applied specifications and codes to blueprints; emphasis on residential and commercial. (Prerequisite: 10-403-101 Blueprint Reading 1)

10-408-100 MASONRY ...this course will give students basic understanding of mason trades with emphasis on brick, cement and safety for the trade. Careers in masonry will also be discussed.

10-410-101 SITE DEVELOPMENT ...students will understand the basics of building layout including heights and surveying and what the startup phase in construction entails.

10-410-102 FOOTING SYSTEMS ...footings with an emphasis on construction and different types of footings; layout and format are also included. (Corequisite: 10-410-101, Site Development)

10-410-103 FOUNDATION SYSTEMS
...foundation walls with an emphasis on the construction of foundation walls, different types of foundations (block, concrete, wood), insulation and water proofing of foundation walls. ICF will also be covered. (Corequisites: 10-410-101, Site Development; 10410102, Footing Systems)

10-410-104 FLOOR FRAMING SYSTEMS ...this course teaches all aspects of floor construction and flooring system construction. (Corequisites: 10-410-101 Site Development; 10-410-102 Footing Systems; 10410103, Foundation Systems)

10-410-105 WALL FRAMING SYSTEMS
...this course will cover wall building and wall systems from standard wood or metal framing to tip-up pre-cast panels. (Prerequisite: 10-410-104, Floor Framing Systems)

10-410-106 ROOF \& CEILING FRAMING SYSTEMS ...course will encompass all roof and ceiling systems from trusses to steel to pre-cast concrete. (Corequisite: 10-410-105, Wall Systems)

10-410-107 STAIR SYSTEMS ...the stair framing course will encompass all aspects of stair construction. (Corequisites: 10-410-105, Wall Systems; 10-410-106, Roof \& Ceiling Framing Systems)

10-410-108 UNIFORM BUILDING CODE ...this course will teach the basic requirements for the erection of buildings inhabited by the public for living, work and pleasure.

10-410-109 MATERIAL ESTIMATING ...perform material and labor cost estimates of building foundations, floor systems, superstructures, and exterior and interior finish systems.

10-449-112 OSHA 30 ...addresses OSHA 29CFR1926 rules and is approved by OSHA for construction workers, foremen, job supervisors, and anyone involved in construction trades. Successful participants receive 30 -hour card from OSHA.

Offered at the Green Bay campus and most first year program courses available
at Sturgeon Bay campus. For information in Green Bay: (920) 498-5444. For information in Sturgeon Bay: (920) 746-4900. Toll-free: (888) 385-6982.
This program is fully eligible
or financial aid.

## Program Description

Supply Chain Management prepares of goods from the point of origin to the point of consumption. Specific areas include rransportation, inventory control, materials management, operations management, purchasing, international trade, custom service, and logistics management.

## Program Outcomes

Compare transportation modes and mak decisions on fuel and oil price changes Plo resource planning (ERP) implementation best practices.
Provide cost-effective requests for transportation services.
Develop a global supply chai management perspective.

- Apply legal and ethical standards Monitor customer service, quality and cost performance.
Demonstrate knowledge of the application of supply chain management concepts. Review and interpret importing and
exporting documents and commercial exporting documents and commerci transportation documents for
global supply chain shipment. global supply chain shipment.
Provide environment sustainabi Provide environment sustainabil
analysis within a supply chain. analysis within a supply chain.
Incorporate marketing and financial Incorporate marketing and financial
instruments to describe payment terms instruments to describe payment te
with global financial transactions.


## Requirements for

## Program Entry

- Completed application

High school transcript or equivalent For a list of equivalents, go to - Ability to use computer keyboard - Students should have mastered basic m Students should have mastered basic math the Basic Education section of this catalog. As a requirement for program entry, an c Skills Assessment (Accuplacer) with appropriate benchmark scores is
necessary. Program benchmarks are Arithmetic, 65; Reading Comprehension, 55: Sentence Skills, 75. Students no meeting these benchmarks or the equivalent will be required to establish an
individualized academic plan. Students may have the opportunity to enroll in selected program core courses while completing progran core courses while completing
their individualized plan. Upon completio of the plan, students will be e eligible for all program courses. However, higher test

## sores will lead to greater success in cor program courses. To learn more about cores, please contact a counselor at (920) $498-5444$ or (888) 385-6982

## Employment Potential

A graduate of this program will
have the potential for employment have the potentia for
Buyer/Planner: coordinates activities between purchasing and manufacturing scheduling. Claims Analyst: performs duties in the risk management process including ove short, and damage incidents and claims Customer Service Representative communicates with customers in order to match customer needs with vehicle and driver availability, deals with customer inquiries, expedites freight, and tracks orders.
Dispatcher: assigns freight to routes, assigns vehicles and routes to
drivers, and handles exception Ths, and handles exceptions. Inventory Analyst: compiles and manages information of amount, kind,
and value of merchandise, material, or stock on hand to obtain optimum inventory balance, price, and costs. Inventory Control Specialist: coordinates inventory issues with purchasing, production, and marketing; tracks current and forecasted levels of inbound and finished goods inventory Logistics Technician: communicates effectively with carriers and customers in 3PL environment, manages trailer needs, provides carrier assignments, monitors
and traces customer shipments, and and traces customer shipments, and participates in carrier evaluation proces
Materials Planner: coordinates and Materials Planner: coordinates and
expedites flow of manufacturing materia expedites flow of manufacturing materials
parts, and assemblies with or between production and shipping schedules. M Pron Master Production Scheduler: creates orders; establishes priorities for current and orders, establishes priorities or current and
forecasted customer demand; establishes availability or capacity of workers, parts, machinery, and equipmen. Purchasing Assistant: performs basic activities related to supplier evaluation and selection, product specifications, order quantities, and Shipping and Receiving Specialist: coordinates the flow of raw materials and finished goods to meet production and customer requirements and works with transportation carriers to assure timely
and accurate pickup and delivery. Transportation Planner/Coordinator: in resolving pricing and delivery issues in 3PL environment, optimizes order consolidation and carrier selection considering cost, lead time, carrier capacity and warehouse space constraints.
 <br> \section*{FIRST SEMESTER <br> \section*{FIRST SEMESTER <br> 10-103-121 Micro: Word-}

| 10-103-131 | Micro: Excel-Intro |
| :---: | :---: |
| 10-103-141 | Micr: Access-Intro |
| 10-103-151 | Micr: PowerPoint-lntro |
| 10-104-148 | Global Marketing |
| 10-104-191 | Customer Service |
| 10-105-102 | Career Planning |
| 10-182-157 | Logisitics/Supply Chain Mgmt |
| 10-801-136 | English Composition 1 |
| *10-890-101 | College 101 |
| SEMESTER | TOTAL |

## SECOND SEMESTER

| 01-106 | Accounting-for Non-Accountants |
| :---: | :---: |
| 10-102-160 | Global Business Mgmt |
| 10-182-110 | Lean Operations Mgmt |
| 10-182-127 | Purchasing |
| 10-182-160 | Global Supply Chain Mgmt |
| 10-804-123 | Math w Business Apps |

10-804-123 Math W
SEMESTER TOTAL

## THIRD SEMESTER

 (1-809-172 Intro to

## FOURTH SEMESTER

## 0-102-104 International B

10-1024-122 International Busis
Event alrketing
O-182-131 Negotiations
 SEMESTER TOTAL
OTAL CREDITS
CURRICULUM NOTE
The credil for 10-890-101, College 101
is an Institutional Requirement for
graduation. Consequently, it is not par
of the program credit requirement.

Warehouse Specialist: manages the flow of inventory into and out of a storage facility or distribution center, and work with owners of the inventory to meet With additional education and/or work experience, graduates may find other opportunities for employment.

- Account Manager
- Logistics Manager
- Materials Manager
- Production and Inventory

Control Manager

- Purchasing Manager
- Traffic Manager

The following certificates/technical diploma may be applied toward this program: - 901825, Supply Chain Management 908094, Leadership in Human Relations 901821, Global Business

## COURSE DESCRIPTIONS

These courses provide an opportunity
for students to develop the knowledge, kills, and understanding requir for employment in this fiel

0-101-106 ACCOUNTING-FOR NON-ACCOUNTANTS ...teaching noninancial information for making informed business decisions. This class de-emphasize the use of debits, credits, journal entris
and other accounting procedures.

10-102-104 INTERNATIONAL BUSINESS PRACTICE FIRM ...(IBPF) students will start up their own business and sell and buy products in a virtual play the role of a manager (Prerequisite: 10-801-136, English Composition 1)
10-102-160 GLOBAL BUSINESS MANAGEMENT ...globalization, cultural environment, global trade environment, trade and investment theories, exporting global human resource management, corporate social responsibility. (Prerequisite: 10-801-136, English Composition 1)
10-103-121 MICRO: WORD
NTRODUCTION ...word processing basic cluding creating, revising formattin numbering; manipulating text; creatin headers/footers; creating/formatting tables, graphics; and merging documents. Windows experience improves success; consider

10-103-131 MICRO: EXCEL
INTRODUCTION ...creating a worksheet, enhancing worksheet appearance, moving and copying data, using formulas and functions, creating charts and using clip art. Windows experience isproos siccess, cor Baics.

0-103-141 MICRO: ACCESS INTRODUCTION ...creating modifying database tables, compacting a database, managing records, defining table and agoregate functions, sorting and using form/report wizards. Windows experience improves success; consider 10 103-111, Windows/Computer Basics.

0-103-151 MICRO: POWERPOIN kills using: graphics, diagrams, desig hemes, sounds, animations, slide ransitions, and integration with other software. Windows experience improves success; consider 10-103-111, Windows/ Computer Basics. (Corequiste: 10 03-121, Micro: Word-Intro) 10-104-125 EVENT MARKETING. planning, promotion execution, and evaluation of special events (entertainment, industry, meeting/convention). Students will work toward the actual taging of an event (will require tin utside of the classroom setting).

0-104-148 GLOBAL MARKETING ..tools necessary for the student ounderstand the risks, rewards, and the technical aspects of doing business in a global environment. 0-104-191 CUSTOMER SERVICE ..develop professional telephone etiquette, explore customer service work environments, identify and analyze customer service failures, resolve problem cost effectlep, set complant policies, handle complaining customers.
10-105-102 CAREER PLANNING ..experiential learning introduction Learn how personal branding allows fom the competition through appearance, personality, and marketing competency. Career portfolio introduced. (Corequisite: 10-890-101, College 101)
10-105-103 CAREER PREPARATION ..create professional resume and cover interviewing techniques, participate in a mock interview. Submission of experiential learning proposal. (Prerequisite: 10-105-102, Career Planning; $10-$ 01-136, English Composition 1)

0-182-110 LEAN OPERATIONS MANAGEMENT ...lean operating concepts, otal quality management, Six Sigma methodologies, continuous improvement tools/techniques, process mapping, 55 principles, statistical process control/pull production human resouce develop-model

0-182-120 ENTERPRISE RESOURCE plandCONTROL ...enterprise resource anning (ERP), benefits of ERP implementation in an organization, business echnology and international consideratio successful change management, and ERP project management. (Prerequisite: 10 01-136, English Composition 1)

10-182-127 PURCHASING ...role of purchasing in business, industry, spects of purnity; legal and ethical staffing, price/cost analysis, contract dministration, and dealing with vendors. 0-182-131 NEGOTIATIONS ...techniques and skills used in bargaining to maximize Appropriate for learners in any Business and Information Technology program as well as for non-program students. (Prerequisite
10-801-136, English Composition 1) 10-801-136, English Composition 1)
0-182-157 LOGISTICS/SUPPLY CHAIN MANAGEMENT ...integrated ogistics supply chain, dimensions of ogistics and supply chain management, demand management and customer service, logistics, inventory management, warehousing transportation and third-party logistics.
10-182-160 GLOBAL SUPpLY CHAIN MANAGEMENT ...methods of foreign market entry, international contracts, international commercial documents, international insurance, export packaging customs clearance, and global supply chain logistics infrastructure.
10-182-162 IMPORT/EXPORT COMPLIANCE ...develop import/exportrelated documentation, examine import/expo controls and licenses, and explore import/ export related security. Examine compliance requirements related to importing exporting goods in support of global operations and in 160, Global Supply Chain M 160, Global Supply Chain Management)
10-182-199 SUPPLY CHAIN CAREER EXPERIENCE ...practical, hands-on experience applying skills developed in the program at an approved site with supervision by an employer and the instructor with elated projects and discussion. (Prerequisites 0-801-136, English Composition 1; 0-105-103, Career Preparation)

Offered at the Green Bay campus. For information: (920) 498-5444. Toll-free: (888) 385-6982.
This program is fully eligible for financial aid.

## Program Description

The Surgical Technologist prepares and maintains a sterile field before and during surgery, passes instruments and supplies to the surgeon, provides safe patient care, and prepares instruments for operative procedures. The goal of this program is to provide students with the opportunity to develop the skills and knowledge necessary to gain employment as surgical technologists and become contributing members of the health care team. This will be accomplished by (1) preparing competent graduates in the cognitive, psychomotor, and affective learning domains, and (2) meeting or exceeding the criteria set forth in the current CAAHEP Standards and Guidelines for the Accreditation of Educational Programs in Surgical Technology.

## Program Outcomes

- Apply health science, biomedical, and technological principles to the peri-operative environment
- Apply principles of disinfection and sterilization to the surgical environment, equipment, and instrumentation
- Maintain principles of sterile technique in the surgical environment
- Prepare the operating room by gathering equipment and supplies
- Pass instruments, equipment, and supplies in a safe and efficient manner - Provide a safe, efficient, and supportive environment for the peri-operative patient - Anticipate the sequence of events during surgical procedures
- Demonstrate safe practice with medications and solutions
- Function as an ethical, legal, and professional member of the and professional member of the
healthcare team within the surgical technologist's scope of practice
- Demonstrate proficiency on the comprehensive surgical technologist exam as specified by the NBSTSA


## Wisconsin Caregiver Law

NWTC is required to comply with the Wisconsin Caregiver Law (1997 WISCONSIN ACT 27). The completion of a caregiver background check includes the review of criminal records for convictions of serious crimes or a history of improper behavior. Students accepted into this program must complete a background check through www.CertifiedBackground. com. Information regarding this process is provided to students immediately upon acceptance into the program. Students with a criminal history may be denied access to placement at the discretion of the clinical or practicum site. Consequently, should
a student have a history of convictions of serious crimes or a history of improper behaviors, NWTC cannot guarantee clinical/practicum placement or guarantee graduation within typical program timing

## Employment Potential

A graduate of this program will have the potential for employment in a hospital, out patient surgery, private practice, or clinical setting as a:

- Surgical Technologist
- Central Supply Technician
- Claims Approver
- Private Scrub Technologist


## Clinical Experience

- Students will be required to purchase scrub suits, pay for liability insurance for each course, provide their own transportation to assigned sites, and cover any other expenses related to clinical experiences. Students may be expected to travel distances and participate in early morning clinicals. Students must be able to reach, bend, and stand for long periods of time (2 to 4 hours), as well as lift, push, and pull ( 50 pounds). - Students will be required to submit immunization documentation. A fee is charged for this service. Additional information will be provided upon acceptance into the program. - Students will be required to show proof of an annual flu vaccine.


## Accreditation

The Surgical Technologist Program is accredited by Commission on Accreditation of Allied Health Education Programs in collaboration with the Accreditation Review Committee on Education in Surgical Technology 6-W. Dry Creek Circle, Suite \#110 Littletown, CO 80120 (303) 694-9262 FAX (303) 741-3655

## Board/Certification

## Examinations

Graduates of the Surgical Technologist program are required to take the Surgical Technology National Certification Exam.

## Requirements for <br> Program Application

- Completed application.
- High school transcript or equivalent. (For a list of equivalents, go to www.nwtc.edu/gettingstarted.)
- Admissions Assessment or equivalent or ACT assessment taken within the last five years. (For a list of equivalents, please contact a Counselor.)


## Requirements for <br> Program Entry

As a requirement for program entry, an Academic Skills Assessment (Accuplacer or

## Gurriculum <br> Students following the study plan below will complete the Surgical Technologist technical diploma in the number of semesters shown. <br> First semester courses can be taken prior to being admitted into the Surgical Technologist program.

## IRST SEMESTER

CREDITS 10-501-101 Medical Terminology 10-801-196 Orall/nterpersonal C *10-890-101 College 101
31-509-302 Human Body in Health \& Disease 31-512-326 ST: Infection Control SEMESTER TOTAL

## ECOND SEMESTER

31-512-327 ST: Introduction
31-512-328 ST: Fundamentals 1
*31-512-329 ST: Fundamentals 2
*31-512-330 ST: Clinical 1

## THIRD SEMESTER

31-512-331 ST: Surgical Procedures
*31-512-332 ST: Clinical 2
31-512-334 ST: Clinical 3
31-512-340 ST: Bridge to Clinical 2
SEMESTER TOTAL
TOTAL CREDITS

## URRICULUM NOTE

No final grade lower than a "C" is acceptable in any of the courses marked with an asterisk. A sudent who withdraws or receives a grade lower than a "C" in a program course may apply for
re-entry into the program. Consideration for re-re-entry into the program. Consideration for reentry will be at the discretion of the re-entry tean nd will be dependent on clinical availabili
**The credit for 10-890-101, College 1 is an Institutional Requirement for graduation. Consequently, it is not pa
Prior to second semester coursework, students must complete 10-501-101, Mearical Terminology; and 31-512-326, ST: Infection Control.
Prior to third semester coursework, tudents must complete 10-801-196, Oral Interpersonal Communication.

ACT) with appropriate benchmark scores is necessary. Accuplacer benchmarks are Arithmetic, 34; Reading Comprehension, 55; Sentence Skills, 75. ACT benchmarks are Math, 13; Reading, 15; English, 16. Applicants not meeting these benchmarks or the equivalent will be required to establish an individualized academic plan. Upon completion of the plan, full program or waitlist status will be granted. Io learn more about these assessments and program benchmark scores, please contact an advisor at (920) 498-5444 or (888) 385-6982.

- Attend mandatory program orientation. - Complete an American Heart Association Health Care Provider CPR course prior to program entry. Students are required to maintain a current CPR card to comply with affiliating agency requirements.
- Complete caregiver background check. A fee is charged for this service. Additional information will be provided upon acceptance into the program
Complete a Functional Abilities Inventory.


## COURSE DESCRIPTIONS

These courses provide an opportunity for students to develop the knowledge skills, and understanding required for employment in this field.
10-501-101 MEDICAL TERMINOLOGY ...focuses on the component parts of medical terms: prefixes, suffixes, and root words. Students practice formation, analysis and reconstruction of terms. Emphasis on spelling, definition and pronunciation. Introduction to operative, diagnostic, therapeutic and symptomatic terminology of all body systems, as well as systemic and surgical terminology. 31-512-327 ST: INTRODUCTION ...provides the foundational knowledge of disinfection, sterilization, infection control, and asepsis. Legal and ethical issues encountered in the healthcare environment are explored. Simulated laboratory practice enables the learner to develop beginning technical skills. (Prerequisites: 31-509-302 Human Body in Health \& Disease; 10-501 101, Medical Terminology; Accert 1-501101, Medical Tor. Poged into the 31-512-326 ST: Infection Control)

31-512-328 ST: FUNDAMENTALS 1 ...includes the basic clinical skills needed by the Surgical Technologist in the scrub role. Learners develop skills in identifying basic instrumentation, supplies, drains, catheters, dressings and sponges. Includes practice experience in creating a sterile field, draping, passing instruments and supplies, performing counts and preparing supplies. (Prerequisites: 31-509-302, Human Body in Health \& Disease; 10-501-101, Medical Terminology; 31-512-326, ST: Infection Control)

31-512-329 ST: FUNDAMENTALS 2 ...builds upon and reinforces the role of the Surgical Technologist as a member of he operating room team. Discusses car of the patient before, during and after surgery with emphasis on surgical wounds, wound closure material, and vital signs. Includes lecture and lab experiences. (Corequisites: 31-512-327, ST: Introduction; 31-512-328, ST: Fundamentals 1)
31-512-330 ST: CLINICAL 1...apply basic surgical theories, principles, and procedural techniques in the operating room. Students begin to function as team members under the guidance of the instructor and authorized clinical personnel. (Corequisites: 31-512-327, ST: Intro to Surg Tech; 31-512-328, ST: Fundamentals 1)

31-512-331 ST: SURGICAL
PROCEDURES ...provides the foundational knowledge of surgical core and specialty procedures. Examines pathophysiology, diagnostic interventions, and surgical interventions for a variety of surgical procedures. Incorporates integration of basic health sciences and technical knowledge tomplete a plan of action for a surgic complete a plan ofacio $31-512-329$ ST Fundamentals 2; 31-512-330, ST: Clinical 1)

31-512-332 ST: CLINICAL 2...further experience in a clinical setting allows the student to continue to improve technical kills while accepting more responsibilities uring suroical procedures. (Prerequisites: 31-512-329, ST: Fundamentals 2; 31 12-330, ST: Clinical 1; Corequisites: 31-512-331, ST: Surgical Procedures; 31-512-340, ST: Bridge to Clinical 2)
31-512-334 ST: CLINICAL 3...enhance the student's technical experience and employee skills. Serves as a transition between student and employee. Application of advanced skills for the entry-level surgical technologist in the clinical setting Corequisites: 31-512-332, ST: Clinical 2; 31-512-331, ST: Surgical Procedures)

1-512-340 ST: BRIDGE TO CLINICAL 2 ...further experience in a clinical setting allows the student to continue to improve rechnical skills while accepting more responsibilities during surgical procedures. Prerequisite: 31-512-330, ST: Clinical 1)

## Sustainable Food \&

## Agricultural Systems

Offered at the Green Bay campus.
For information: 920 ) $498-5444$.
Toll-free: (888) 385-6982.
This program is fully eligible for financial aid.

## Program Description

The Sustainable Food \& Agriculture Systems program prepares learners kills necessary to manage a profitable, environmentally sound agricultural business. Students will learn the fundamentals of sustainable agriculture focusing on crop production, animal management and farm business. Emphasis field training experiences. Graduates are ualified for employment in a variety of positions associated with sustainable agriculture, including commercial
gardens and livestock operations, wholesale and retail management as well as food distribution and logistics.

## Program Outcomes

Evaluate sustainable food system and farm.

- Balance soil health.

Make business and financial decisions.

- Maintain farm records.

Market sustainable product

- Grow sustainable crops.
- Practice animal husbandry.
- Manage farm operations.
- Innovate in value-added food and logistics. Fill out organic certification paperwork and comply with standards. - Use effective oral and written communication skills.
Utilize problem solving skills.
- Perform safe work practices.


## Requirements for

 Program Entry- Completed application. - High school transcript or equivalent (For a list of equivalents, go to
www.nwtc.edu/gettingstarted) www.nwtc.edu/gettingstarted.) As a requirement for program entry, an
Academic Skills Assessment (Accuplacer) with appropriate benchmark scores is with appropriate benchmark scores is
necessary. Program Benchmarks are Arithmetic: 65; Reading Comprehension: 55; Sentence Skills: 75. Students not meeting these benchmarks or the equivalent will be required to establish an individualized academic plan. Students may have the opportunity to enroll in selected program core courses while completing their individualized plan. Upon completion of the plan,
students will be eligible for all progran courses. However, higher test scores will lead to greater success in core program courses. To learn more about these assessments and program benchmark scores, please contact a counselor at (920) 498-5444 or (888) 385-6982


## Employment Potential

A graduate of the program will have the potential for employment in the following areas:

- Farmer
- Gardener
- Crop production specialist - Farm-to-school program leader - Livestock operations manager - Sustainable Agriculture wholesale and retail management
- Feed/Animal Health Sales/Consulting - Certifying agency inspector

The following certificates/technical diplomas may be applied toward this program: 900901, Organic Agriculture Practices Certificate

Gurriculum
Students following the study plan below
will complete the Sustainable Food \&
Agricultral Systems associate degree
in the number of semesters shown.
FIRST SEMESTER
$10-090-111$ Sustain CREDITS
IRST SEMESTER
10-090-111 Sustainable Ag: Issues \& Pract
$10-090-116$
Org Soils, Nutrients. Compost
10-090-116 Org Soils, Nutrients, Compos
10-090-117 World Food \& Agriculture
$10-090-118$ Beekeeping \& Pollinators $10-090-119$ Cheese Making \& Fermentation
$10-60-112$
Computer $A$ pps for Technicion 10-600-112 Computer Apps for Techniciar
10-801-136 English Composition 1 *10-801-136 English Composition 1
10-804-123 Math w Business Apps $* 10-890-101$ College 101
SEMESTERTOTAL

SECOND SEMESTER
CREDITS
0-090-120 Organic Livestock Practices
$0-090-121$ Organic Gardening
$0-090-122$ Fruits, Nuts, Berries
$10-090-12$
OR
$10-090$
102
10-090-123
$10-000-124$ OR
$10-090$
10-090-125 Aquaculture
Aquacuture
10-090-123
10-80
Spring Garden Mgmt
Sprinciples of Sustainabi $\begin{array}{ll}\text { 10-806-112 } & \text { Pringicles of S Sustantability } \\ \text { 10-809-103 } & \text { Think Critically \& Creatively }\end{array}$ SEMESTER TOTAL
SEOM-
summer semester
CREDITS
10-090-127 Summer Ag Internship
SEMESTER TOTAL
third semester
CREDITS
10-090-106
10-090-106 Org Specialty Animals
10-090-128 Managed Grazing 10-090-129 Food: Quality Nutr 10-090
OR
$10-090$
$10-090-133$ Artisan Meats: Humane Harvest
$10-090-137$
0-090-137 Fall Garden Management
10-101-190
10-101-190 Accounting-QuickBooks
$\begin{array}{ll}10-101-190 & \text { Accounting-QuickBo } \\ \text { 10-104-101 } & \text { Seling Principles } \\ 10-801-197 & \text { Technical Reporting }\end{array}$ 10-801-197 Technical Reporting
SEMESTER TOTAL
fourth semester
O-090-134 SESTERTainale Ag $\&$ CREDITS
10-090-134 Sustainable Ag \& Food Business
10-090-135 Edible Landscape, Permaculture
0-090-135 Edible Landscape, Permaculture
$0-090-136$ Smal Farm Machinery \& Equip
10-090-136 Small Farm Machinery \&
$10-809-172$
$10-809-198$
Intro to Diversity Studies
10-809-198 Intro to Psychology
SEMESTER TOTAL
CURRICULUM NOTE
Students must earn a grade of "C" or better in 10-801-136, English Composition to enrol
in 10-801-197, Technical Reporting.
The credit for 10-890-101, College
101 is an institutional requirement for
graduation. Consequently, it is not part
of the program credit requirements.

## COURSE DESCRIPTIONS

These courses provide an opportunity
for students to develop the knowledge for sudents skiils, and understanding required
for employment in this field.
10-090-103 ORGANIC FIELD CROPS ... Evaluate organic practices or fertilizing, planting, weed and pest control in corn, soybeans and small qualify for certification. Evaluate yields, markets, rotations, and cover crops
10-090-106 ORGANIC SPECIALTY ANIMALS... Compare sustainable agricultural production methods for sheep,
goats, hogs, and horses. Do individual goats, hogs, and horses. Do individu ractices and ideas Create a bud practices and ideas. Create a budget;

0-090-111 SUSTAINABLE AG: ISSUES \& PRACTICES ...use critical thinking skills o compare organic $\&$ sustainable agricultura practices with industrial agriculture. Explore food production issues including antibi
herbicides, hormones, GMOs, animal welfare, crop yields, nutrients, and pollution

10-090-116 ORGANIC SOILS,
NUTRIENTS, COMPOSTING. Healthy soil is the foundation of sustainable farming and gardening. Build robust soil through organic matter, cultivating eycling Exploore composting techniques and organic fertilizer sources.

10-090-117 WORLD FOOD \& AGRICULTURE ...explore the climate, soils, and food of other ecosystems and cultures around the world. Examine the relationship land, food, animals and local traditions.

10-090-118 BEEKEEPING \& POLLINATORS ...bees pollinate our crops and orchards; they are an environmental quality indicator species and they provide honey. Explore beekeeping using onsite hives, expork pill loal be

10-090-119 CHEESE MAKING \& FERMENTATION ...practice the basics of cheese making and fermentation of beverages \& food in this hands-on course. Eat what you make. Value the taste, nutrition, and quality of hand-crafted food
10-090-120 ORGANIC LIVESTOCK PRACTICES ...students learn how organic farmers manage livestock successfully. Principles covered include organic health care, strategies for reproduction, feeding housing, and young stock. Review rules and organic certification standards.

10-090-121 ORGANIC GARDENING ...whether gardening on a small scale or using commercial greenhouses and fields, plan seedings, control pests, diseases, and weeds, all using best organic practices. Review ctices. Review
10-090-122 FRUITS, NUTS, BERRIES ...explore practices used by sustainable, organic and conventional farmers of these crops. Discussion of what works, costs, and how one can grow a saleable product and run a viable enterprise.
10-090-123 ORGANIC POULTRY MANAGEMENT...explore a variety of poultry for backyards or commercia enterprises. Topics include biology, health, feeding, eggs, housing options, processing plans and budgets. Compare organic and conventional management and business opportunities.
10-090-124 AQUAPONICS ...investigate hydroponic plant growing operations; designs, suitable plant species, maintenan costs, efficiencies and yields. Evaluate Plan a system that fits your budget and goals.

10-090-125 AQUACULTURE ...fish farming, the most suitable species, different system setups and best practices. Develop a benefits and obstacles in this business.
10-090-127 SUMMER AG INTERNSHIP.. Gain hands-on skills and experience with a mentor farmer or gardener by working
at their site or in the NWTC garden Set goals and report to an NWTC instructor (Prerequisites: 10-090-111, Sustainable A Issues and Practices; 10-090-116, Organic Soils, Nutrients, Composting; 10-090-120, Organic Livestock Practices; and 10-090121, Organic Vegetable Production)
10-090-128 MANAGED GRAZING
... examine pasture plants and livestock
in a rotational grazing system. Build
a fence. Evaluate watering systems, fertilizers, yields and environmental
impacts. Meet experienced graziers. Create a grazing plan and budget.
10-090-129 FOOD: QUALITY/ NUTRITION/HEALTH... Compare grass-fed beef) with modern production, processing, additives, packaging, transportation, marketing, price, distribution and fast food. Evaluate how these factors influence individual and societal health
10-090-130 HERBS \& HEALTH... Explore various herbs; their unique properties, role in history, medicine, food and other traditional uses. Examine growing practices, harvest, and preservation. Make organic preparations i.e., tea, infusions, tinctures, and salves.

10-090-133 ARTISAN MEATS: HUMANE HARVEST... Topics include humane butchering, carcass yields sausage-making, smoking and packaging. compare professional techniques to home based skills. Review rules, regulations and anitary practices. Determine produ mix, costs and income potential.

0-090-134 SUSTAINABLE AG \& OOD BUSINESS ...define your goals. Research expenses and potential income or a small food-related enterprise. Outline a budget. Compare markets. Develop a brand identity. Review financia erminology. Draft a business plan 10-090-135 EDIBLE LANDSCAPE, ERMACULTURE ...design an edible andscape for your homestead, no matter its size or location. Use permaculture concepts of zones, layers, energy flow ater features, perennial plants, beaut recycling, compost, and self-sufficienc 0-090-136 SMALL FARM MACHINERY \& EQUIPMENT... Evaluate equipment, machinery \& tractors needed for a small farm. Troubleshoot small engines; hook up PTOs, hydraulics, plows. Calibrate seeders and fertilizer spreaders, drive a skid steer, try welding.

10-090-137 FALL GARDEN MANAGEMENT....use GAP (Good Agricultural Practices) to harvest, clea nd bring produce to markets. Use season-extending hoop house, compost vegetative residue, sow cover crops, and repare the garden for next year. 0-090-138 SPRING GARDEN AANAGEMENT... work in the greenhouse hgh tunnel to seed and grow trans repare the garden soil, build fertility,
ow seed, transplant, and cultivate. Use organic practices, gain hands-on skills. 10-101-190 ACCOUNTINGQUICKBOOKS ...an introductory course in using QuickBooks to create vendor/employee accounts, invoices, budgets, profit/loss statements, balance sheets, $A / R, A / P$, journals, graphs. 10-104-101 SELLING PRINCIPLES selling as a career; success factors in selling; personality development; product preparation, approach, presenta demonstration, handling objection and closing the sale successfully. OR TECHNICIANS... basics of a computer Windows environment, file management Microsoft Word and Microsoft Excel.

## Therapeutic Massage (Pending State Approva)

Program Code 315371 | 1 Year Technical Diploma

Offered at the Green Bay campus. For information: (920) 498-5444. Toll-free: (888) 385-6982.

This program is fully eligible for financial aid.

## Program Description

The Therapeutic Massage technical dilpoma offers an entry-level training program for individuals interested in becoming a licensed massage therapist, or for existing health care professionals looking to enhance their range of clinical skills and knowledge. During their training, students will gain a comprehensive understanding of the human body and a high degree of professional technical skill with an emphasis on personal and professional development, increased self-awareness and sensitivity. Career opportunities for licensed massage therapists exist in sports clinics, salons, spas, wellness or other health care centers, or as an entrepreneur.

## Program Outcomes

- Use effective and professional communication skills.
- Apply universal safety and sanitation techniques related to a massage facility
- Apply assessment criteria of diverse clients in order to adapt massage to specialized populations.
- Apply appropriate therapeutic massage techniques according to a clientís demonstrated needs.
- Demonstrate the knowledge of human anatomy, pathology, and kinesiology in massage practice.
- Educate clients on post-massage care.
- Practice personal wellness techniques in order to maintain a healthy lifestyle.
- Develop and manage a business plan in order to generate professional income.
- Demonstrate the ability to work ethically with others in a diverse population.
- Demonstrate knowledge of Wisconsin state laws and administrative rules governing massage therapy and bodywork therapy.
- Practice within the scope of a licensed massage therapist within the State of Wisconsin.


## Requirements for Program Entry

- As a requirement for program entry, an Academic Skills Assessment (Accuplacer or ACT) with appropriate benchmark scores is necessary. Accuplacer benchmarks are Arithmetic, 65; Reading Comprehension, 80; Sentence Skills, 60


## Wisconsin Caregiver Law

NWTC is required to comply with the Wisconsin Caregiver Law (1997 WISCONSIN ACT 27). The completion of a caregiver background check includes the review of criminal records for convictions of serious crimes or a history of improper behavior. Students accepted into this program must complete a background check through www.CertifiedBackground. com. Information regarding this process is provided to students immediately upon acceptance into the program. Students with a criminal history may be denied access to placement at the discretion of the clinical or practicum site. Consequently, should a student have a history of convictions of serious crimes or a history of improper behaviors, NWTC cannot guarantee clinical/practicum placement or guarantee graduation within typical program timing.

## Employment Potential

A graduate of this program will have the potential for employment in the following areas:
Licensed Massage Therapist: Career opportunities for licensed massage therapists exist in sports clinics, salons,

## Curriculum

Students following the study plan below will complete the Therapeutic
Massage technical diploma in the
number of semesters shown.

## SUMMER SEMESTER <br> CREDITS <br> 10-806-177 Gen Anatomy \& Physiology

 *10-890-101 College 101 SEMESTER TOTALFIRST SEMESTER
CREDITS
*10-546-105 Wellness Kinesiology
*30-537-101 Therapeutic Massage *30-537-102 Therapeutic Massage 2 SEMESTER TOTAL

## SECOND SEMESTER

*Elective
*30-537-111 Specialized Therapeutic Massage 3 SEMESTER TOTAL

## THIRD SEMESTER

*30-537-112 Massage Clinic \& Business Prac SEMESTER TOTAL
TOTAL CREDITS

## SUGGESTED ELECTIVES

**10-101-106 Accounting for Non-accountants
**10-801-196 Oral/Interpersonal Communication
**10-145-185 Organizing Your Small Business
**10-104-110 Marketing Principles
**10-145-187 Marketing Your Small Business
**10-145-189 Writing a Business Plan-
Small Business
**10-501-101 Medical Terminology
Or Any Allied Health Courses
spas, wellness or other health care centers, or as an entrepreneur.

## Requirements for Program Application

- Completed application.
- High school transcript or equivalent. (For a list of equivalents, go to www.nwtc.edu/gettingstarted.)
- Two semesters High School, or one semester of College Chemistry (with a lab component) completed with a grade of i Ci î or better.


## COURSE DESCRIPTIONS

These courses provide an opportunity for students to develop the knowledge, skills, and understanding required for employment in this field.

10-546-105 WELLNESS KINESIOLOGY \& PATHOLOGY ...this course studies the musculoskeletal system and major muscle groups and their response to movement and exercise. Also introduces disorders that can occur in major body systems with their signs, symptoms and associated pharmacology. (Prerequisite: 10-806-177, General Anatomy \& Physiology with a "B" or better)

10-806-177 GENERAL ANATOMY \& PHYSIOLOGY ...overview of the human anatomy/physiology using a body-systems approach, emphasizing the interrelationships between form/function at the gross and microscopic levels. (Prerequisite: AccuplacerReading $=80$ OR ACT-Reading $=17$ OR 10-838-105, Intro to Reading and Study Skills AND 10-806-134, Gen Chem or other lab-based chemistry w iCî or better. Health Sciences programs may require a higher grade; refer to your plan for details.)

30-537-101 THERAPEUTIC MASSAGE 1 ...students will learn the history of massage, the environmental considerations and equipment necessary to provide treatment, hygiene and safety, and legal requirements of therapeutic massage. Students will begin hands on training by mastering foundational skills such as draping and positioning, self-care and body mechanics, and basic massage techniques. (Corequisite: 10-546105, Wellness Kinesiology \& Pathology)

30-537-102 THERPEUTIC MASSAGE 2 ...Students will develop skills in assessment, medical terminology, record keeping and documentation necessary to provide therapeutic massage. Students will expand their knowledge of massage techniques to include myofascial and deep tissue. Students will begin their clinical experience on assigned dates. Students must hold a current American Heart Association Health Care Provider CPR card.(Corequisite: 10-546105, Wellness Kinesiology \& Pathology)

## 30-537-111 SPECIALIZED

THERAPEUTIC MASSAGE ...students will develop techniques, including neuromuscular and proprioceptive, for treatment of special populations such as athletes, mother and infant, elderly, end-of-life, and chronic pain. Students will have exposure to modalities and spa therapies, eastern and energetic approaches. (Prerequisite: 30-537-102, Therapeutic Massage 2)

30-537-112 MASSAGE CLINIC AND BUSINESS PRACTICE ...provides students the opportunity to be involved in all aspects of running a massage clinic. In the business section, topics covered include: ethics and legal requirements, national and state certification and licensing requirements; business startup and management; marketing and financial management. (Prerequisite: 30-537-102, Therapeutic Massage 2)

Utilities Engineering Technology Program Code 104881 | Associate Degree

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| This program is fully eligible |  |  |
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| through transmission and <br> Program Outcomes |  |  |
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| - Identify and apply the necessary safety procedures required to work safely in the electrical and gas utility industry. |  |  |
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| and distribution equipmert |  |  |
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| - Conduct nondestructive and predictive testing of electrical distribution equip |  |  |
| distribution equipment. <br> - Examine and apply knowledge of gas, electricity, electronics, hydraulics, electric motors and mechanical systems. |  |  |
|  |  |  |
| electricity, electronics, hydraulics, electric motors and mechanical systems. <br> - Draw and read technical schematics and diagrams. | of protective relays with engineers. |  |
|  |  |  |
| - Document technical information through descriptive writing, sketches/ diagrams, mathematical expression, | loads tap changers, potential transformers, current transformers, high voltage |  |
|  |  |  |
| diagrams, mathematical expression, computation, and graphs. <br> - Construct ladder diagram flow charts, | switchgears, battery and charger systems and control equipment used in substations. Evaluates transformer oil analysis and |  |
| - Construct ladder diagrams, flow charts, timing diagrams and basic computer | Evaluates transformer oil analysis and conducts high-potential tests, Doble tests, primary injections, breaker trip |  |
| control agositums for mad inic contol. |  |  |
| disassembly, repair, and calibrate components by selecting tools and equipment and following procedures. |  |  |
|  |  |  |
| - Implement the basic fastening <br> skills related to machine fabrication <br> and assembly requirements. | creates material requirements, processes work requests and prepares documents. | gatemino comenemi |
| and assembly requirements. <br> - Apply electrical skills to troubleshoot |  |  |
| - Apply electrical skills to tro <br> - Apply gas diagnostic tools |  |  |
|  |  |  |
|  | power generation plant. Troubleshoots, maintains, and repairs generator |  |
|  |  |  |
| - Apply computer hardware/sof applications to utility system for design and coordination. |  |  |
|  | effective operation of transmissions, distribution and generation facilitiesby calibrating, testing, maintaining and repairing protective and auxiliary relays, relay systems and associated | des |
|  |  | tecme |
|  |  |  |
|  | and repairing protective and auxiliary <br> relays, relay systems and associated communication equipment. |  |
| Requirements for Program Entry | With additional education and/or work experience, graduates may find other opportunities for employment. <br> - Utilities Construction Project Manager <br> - Power Plant Maint |  |
|  |  |  |
|  |  |  |
| COURSE DESCRIPTIONS <br> These courses provide an opportunity for students to develop the knowledge skills, and understanding required for employment in this field | 10-605-158 POWER ELECTRONICS 2: DRIVES ...power circuitry of AC and DC drives and basic setup and application of an industrial DC and $A C$ drives to DC and AC motors. |  |
|  |  |  |
|  |  |  |
|  |  |  |
| 10-442-100 METAL FABRICATION .sfery and introduction to basic metal | 10-606-113 CAD (COMPUTER AIDED DRAFTING) ...computer aided drafting using AutoCAD software focusing on |  |
| ...safety and introduction to basic metal fabrication tools and equipment utilizing precision measuring tools, geometric | using AutoCAD software focusing on template settings; creating and manipulating layers; basic drawing, editing, and inquiry |  |
|  |  |  |
|  | commands; blocks and attributes; and plotting. (Corequisites: 10-607-119, |  |
|  | Intro to Civil Engineering Technology <br> OR 10-606-119, Technical Sketching <br> OR 10-614-113, 2D Essentials) |  |
|  | Ssernicils .an |  |
| and practices. Define safery responsibility, vehicle laws, rules and regulations. Identify substation components; demonstrate safe |  |  |
|  |  |  |
|  |  |  |
| 10-660-106, DC 3: Circuit Theorems; Corequisites: $10-660-107$, AC 1 Properties; 10-660-108, AC 2: Reactance; 10-660-109 AC 3: RLC Circuits) | 10-620-100 FLUIDS 1: BASIC PNEUMATICS ...what fluid power is differentiate between hydraulics and pneumatics, implement basic pneumatic circuits, utilize schematics, apply Pascal's Law, define properties of fluids, implement airflow control and hydraulics cylinder circuits. |  |
|  |  | mot |
|  |  |  |
| 10-468-101 U COORDINATION ...learn utility systems interconnection from generation through |  |  |
| distribution. Includes: powerhouse, hydroelectric, wind, solar and nuclear, |  | (10.64.100 ATOMATION: |
|  |  |  |
| EHV and HV transmision, the utility grid, device coordination, metering, protective | hydraulics actuator circuits, hydraulic schematics, apply Pascal's Lav, summarize |  |
|  | of hydraulic energy, design hydraulic circuits with directional control valves. (Corequisite: 10-620-100, Fluids 1: Basic Pneumatics) | components and perform related wiring and troubleshooting of motor control circuits. |
| 10-605-157, Power Electronics 1: Devices; 10-605-158, Power Electronics 2: Drives; <br> 10-605-159, Power Electronics 3: Drives) |  |  |
|  |  |  |
| 10-468-102 UTILITY PROJECT | drives and application of industrial AC drives to AC motors. (Corequisite: 10-605-158, Power Electronics 2: Drives) | components such as sensors, and counters. (Corequisite: 100, Automation 1: Control |
|  |  |  |
| 为 |  |  |
| with hands-on methods and real world |  |  |
|  |  |  |
| Utility Power Systems Coordination) |  | .troubleshooting a PLC system, applying Event Sequencing, developing PLC |
| 10-468-103 UTILITY SYSTEMS MAINTENANCE ...learn utility systems testing methods and hands-on experience |  |  |
|  |  | 10.606 .102 , Alumamion 3 Pric) |
| testing methods and hands-on experience <br> with the tools necessary to provide preventive <br> and predictive maintenance services for |  |  |
|  |  | implemenation of pogam contul) ind |
| standard utility testing tools, non-destructivetesting tools and predictive failure analysis methods. (Prerequisite: 10-468-101, Utility Power Systems Coordination) | 10-660-101 DIGITAL 1: LOGIC .AND, OR, NOT, NAND, NOR, logic operation using switch logic, ladder logic, and gate logic. Simplification methods |  |
|  |  |  |
| Utility Power Systems Coordination) <br> 10-468-104 UTILITY SYSTEMS- <br> NATURAL GAS ...learn natural gas utility |  |  |
| (e) |  |  |
|  |  | of motion feedback devices, force measurement devices, temperature |
| Train on basic gas utility field installation <br> and service practices. (Prerequisites: 10-468101, Utility Power Systems Coordination; 10-442-100, Metal Fabrication 1) |  |  |
|  |  |  |
| 10-442-100, Metal Fabrication 1) |  |  |
| SYSTEMS ...learn utility generation systems types, configuration and basic |  |  |
| Operaion nd dinine enace of everation |  |  |
|  |  |  |
|  |  |  |
| semester coursework; Corequisites: 10- <br> 605-157, Power Electronics 1: Devices; <br> 10-605-159, Power Electronics 3: Drives) |  |  |
|  |  |  |
|  |  |  |
| 10-605-157 POWER ELECTRONICS 1: DEVICES ...the device characteristics and applications of thyristors, power transistors, and switching devices. (Prerequisite: 10-660-107, AC 1: Properties) |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

Offered at the Green Bay campus.
For information: (920) 498-5444
Toll-free: (888) 385-6982.
This program is fully eligible for financial aid.

## Program Description

 The Vineyard Management (Viticulture) Associate Degree will train both current and future employees of vineyards in the grape growing industry. Students will gain viticulture skills such as planting, pruning, training, harvesting, gathering, sustainability, integrated pest management (IPM), and storing of grapes or other fruits that will be turned into wine using the fermentation process. NWTC will partner its resources with the Viticulture and Enology Science and Technology Alliance (VESTA). The viticulture technical courses will be taught in conjunction with VESTA through a combination of online learning and field experiences. The Vineyard Management (Viticulture) Program will provide students with hands-on field experiences at local with hands-o fold experes at loca vin practices of a . . .in and best practices of maintaining avineyard through seasonal changes.

## Program Outcomes

- Manage all part-time and seasonal vineyard workers.
- Maintain records of all vineyard operation activities.
- Assist wine maker in crop load management, harvest coordination and execution.
- Monitor the vineyard regarding nutrient status, grape diseases, insect, fungus, weeds, and other pests.
- Maintain records of all viticultural monitoring activities.
- Practice IPM (Integrated Pest Management).
- Recommend and plan any large scale changes in vineyard plantings, specifically cultivars and selection of the site.
- Plan and assist in irrigation scheduling and operation.
- Plan and assist in general property maintenance. - Operate vineyard machinery safely.


## Requirements for

## Program Entry

- Completed application.
- High school transcript or equivalent.
(For a list of equivalents, go to www.nwtc.edu/gettingstarted.)
- Students should have mastered basic math skills (whole numbers, fractions, decimals, percents and measurements).
- As a requirement for program entry, an Academic Skills Assessment (Accuplacer) with appropriate benchmark scores is necessary. Program Benchmarks are Arithmetic: 65; Reading Comprehension: 55; Sentence Skills: 75. Students not meeting these benchmarks or the equivalent will be required to establish an individualized academic plan. Students may have the opportunity to enroll in selected program core courses while completing their individualized plan. Upon completion of the plan, pludents will be eligible for all progan studerses. However, higher test scores will couses. However, higher test scores wil lead to greater success in core progra courses. To lean assessments and program benchmark scores, please contact a counselor at
(920) 498-5444 (920) 498-5444 or (888) 385-6982.


## Employment Potential

A graduate of this program will have the basic skills necessary to own and operate or be employed at a vineyard as a:

- Vineyard Manager
- Vineyard Worker

With additional education and/or work experience, graduates may find other opportunities for employment.

- Pest Management Industry - Crop Scout - Green Industry - Greenhouse, Propagation - Chemical/Pesticide Industry

Note

- NWTC is a member of VESTA, a partnership of colleges nationwide that together deliver online Enology (winemaking) and Viticulture (grape growing) education. VESTA is formally referred to as the Viticulture and Enology Science and Technology Alliance. More information is on the VESTA website www.vesta-usa.org.
- Students desiring to earn an Associate Degree in Vineyard Management (Viticulture) must apply for admission to NWTC and must take a minimum of $25 \%$ of technical core courses at NWTC
The VESTA online courses, identifiable by "VIN" in front of the course code have a separate


## Gurriculum <br> Students following the study plan below will complete the Vineyard Management (Viticulture) associate degree in the number of semesters shown.

## IRST SEMESTER CREDITS 10-090-111 Sustainable Ag: Issues \& Pract 10-145-185 Organizing Your Small Business VIN111 Intro to Viticulture VIN112 Botanical Viticulture 10-801-136 English Composition 1 SEMESTER TOTAL

10-090-116 Org Soils, Nutrients, Compost 10-145-189 Writing a Business Plan-Sm Bus VIN113 Winter Viticulture Tech Spring Viticulture Tec 0-804-107 College Mathematics SEMESTER TOTAL

## THIRD SEMESTER

VIN115 Sum/Fall Vit Tech
VIN211 Integrated Pest Mgmt
VIN213 Regional Vineyard Mgmt
$\begin{array}{ll}\text { VIN105 } & \text { Molec Prin Grape/Wine } \\ \text { 10-809-172 } & \text { Intro to Diversity Studies }\end{array}$ 0-809-195 Economics
SEMESTER TOTAL

## FOURTH SEMESTER

10-090-121 Organic Gardening
10-090-134 Sustainable Ag \& Food Busines VIN293 Soils for Viticulture 0-801-196 Ora//Interpersonal Comm 0-809-199 Psychology Of Human Relations
Elective SEMESTER TOTAL TOTAL CREDITS

## CURRICULUM NOTE

These courses must be taken at NWTC
"These courses must be taken a

- Organic Soils, Nutrients, Composting, 10-090-116 - Organic Gardening, 10-090-121 Sustainable Ag \& Food Business, 10-090-134


## UGGESTED ELECTIVES

Intro to Enology, VIN146
admission and registration process.

- Practicum sites throughout the state are listed on the VESTA website. New ones can be added if the student finds a willing and eligible vineyard. Some courses have a minimum age requirement.
Further information on VESTA can be found on the website www.vesta-usa.org.


## COURSE DESCRIPTIONS

These courses provide an opportunity for students to develop the knowledge skills, and understanding required for employment in this field.
10-090-111 SUSTAINABLE AG: ISSUES \& PRACTICES ...use critical thinking skills to compare organic \& sustainable agricultural practices with industrial agriculture. Explore food production issues including antibiotics, herbicides, hormones, GMOs, animal welfare, crop yields, nutrients, and pollution.
10-090-116 ORGANIC SOILS,
NUTRIENTS, COMPOSTING..
Healthy soil is the foundation of sustainable farming and gardening. Build robust soil through organic matter, cultivating beneficial microorganisms, and nutrient cycling. Explore composting techniques and organic fertilizer sources.

10-090-121 ORGANIC GARDENING ...whether gardening on a small scale or using commercial greenhouses and fields, plan seedings, control pests, diseases, and weeds, all using best organic practices. Review rules and organic certification standards.

10-090-134 SUSTAINABLE AG \& FOOD BUSINESS ...define your goals. Research expenses and potential income for a small food-related enterprise. Outline a budget. Compare markets. Develop a brand identity. Review financial terminology. Draft a business plan.

10-145-185 ORGANIZING YOUR SMALL BUSINESS ...the components of small business ownership; examining a variety of small business startup and operation scenarios. Assesses your own readiness to begin the entrepreneurial adventure.

10-145-189 WRITING A BUSINESS PLAN-SMALL BUSINESS ...as a hecessary component to beginning a small business, from addressing facets of the business plan, observing various types of plans, to realizing readiness to begin. Plan preparation/presentation are required.

VIN 111 INTRO TO VITICULTURE AND VINEYARD ESTABLISHMENT ...learn about viticulture and vineyard establishment. Topics include: cultivar selection, site preparation, equipment, site selection, first season establishment, vine development and training, trellis systems, weed control, vine disease control, and pruning. Students partner with approved vineyards for field experience.

VIN113 WINTER VITICULTURE TECHNOLOGY ...practical experience in winter vineyard operations. Students partner with approved vineyards for required field experience which will serve as work experience for those seeking employment in commercial viticulture. (Prerequisite: VIN 111, Introduction to Viticulture and Vineyard Establishment or permission)
VIN 114 SPRING VITICULTURE TECHNOLOGY ...practical experience in spring vineyard operations. Students are required to partner with approved vineyards for field experience which will serve as work experience for those seeking employment in commercial viticulture. (Prerequisite: VIN 111, Introduction to Viticulture and Vineyard Establishment or permission.)

VIN 115 SUMMER/FALL VITICULTURE TECHNOLOGY ...practical experience in summer/fall vineyard operations. Students are required to partner with approved vineyards for field experience which will serve as work experience for those seeking employment in commercial viticulture. (Recommendation: VIN 111, Introduction to Viticulture and Vineyard Establishment or consent of the instructor or VIN 113 Winter/Spring Viticulture Technology)

IN 211 INTEGRATED PEST MANAGEMENT ...learn how to manage normal cultural practices such as planting, fertility, harvesting, and pruning as well as managing the insect, disease, and weed programs that occur either regularly or sporadically.

VIN 213 REGIONAL VINEYARD MANAGEMENT ...study commercial grape growing throughout the United States. Learn about viticultural methods practiced, challenges faced, and how hose challenges are addressed in different grape growing regions throughout the ntinental United States. (Prerequisites: IN 111, Vineyard Establishment and Maintenance; VIN 113, Winter/Spring Viticulture Technology, or permission).

VIN 293 SOILS FOR VITICULTURE ..explore soil properties and behavior, and heir influence on wines. This course focuses ot only on growth and production, but on the long-term effect of viticulture on soil quality and the wider environment.
IIN 105 MOLECULAR PRINCIPLES N GRAPE \& WINE ...emphasis on hemical fundamentals of winemaking. This course includes organic, biochemistry, and applications with a focus on he grape and wine industry.
VIN 112 BOTANICAL VITICULTURE ...This course is a survey of the plant kingdom, including plant cells and tissues, the ecology, morphology, physiology and life cycles of representative plants each division. It will also focus communication on grapevine biology, vine structures and their functions.

## Web Application

Offered at the Green Bay campus. For information: (920) 498-5444. Toll-free: (888) 385-6982.

This program is fully eligible for financial aid.

## Program Description

The Web Application Programming technical diploma provides learners the ability to integrate web technologies to develop database-driven, interactive and dynamic web sites.

## Program Outcomes

- Design, build, or maintain web sites using authoring or scripting languages, content creation tools, management tools and digital media.
- Perform or direct web site updates.
- Backup files from web sites to local directories for instant recovery in case of problems.
- Identify problems uncovered by testing or customer feedback, and correct problems or refer problems to appropriate personnel for correction.
- Evaluate code to ensure that it is valid, is properly structured, meets industry standards and is compatible with browsers, devices, or operating systems.
- Maintain understanding of current web technologies or programming practices through continuing education, reading, or participation in professional conferences, workshops, or groups.
- Analyze user needs to determine technical requirements.
- Develop or validate test routines and schedules to ensure that test cases mimic external interfaces and address
all browser and device types.


## Requirements for Program Entry

- Completed application.
- High School transcript or equivalent. (For a list of equivalents, go to www.nwtc.edu.)
- Completed one year of high school algebra or equivalency.
- Computer familiarity and ability to use a keyboard and mouse.
- A minimum keyboarding skill of 30 WPM.
- As a requirement for program entry, an Academic Skills Assessment (Accuplacer) with appropriate benchmark scores is necessary. Program Benchmarks are Reading Comprehension: 55; Sentence Skills: 75; Algebra: 61. Students not meeting these benchmarks or the equivalent will be required to establish an individualized academic plan. Students may have the opportunity to enroll in selected program core courses while completing their individualized plan. Upon completion of the plan, students will be eligible for all program courses. However, higher test scores will lead to greater success in core program courses. To learn more about these assessments and program benchmark scores, please contact a counselor at (920) 498-5444 or (888) 385-6982.


## Employment Potential

A graduate of the program will have the potential for employment as a:

- Web Developer
- PHP Developer
- Web Applications Developer


## Curriculum

Students following the study plan below will complete the Web Application Programming Technician technical diploma in the number of semesters shown.

FIRST SEMESTER
CREDITS
10-152-185 Website Coding
10-154-125 IT:Web:Database Development
*10-890-101 College 101
SEMESTER TOTAL

## SECOND SEMESTER

10-150-144 IT:Network:Operating Sys Fund
10-152-180 IT:Web:Scripting-JavaScript
10-152-184 IT:Web:Programming-SQL
10-804-133 Math \& Logic
SEMESTER TOTAL

## THIRD SEMESTER

10-152-182 IT:Web:Scripting-PHP
10-152-183 IT:Web:Scripting-ASP.Net
10-801-136 English Composition 1
10-801-196 Oral/Interpersonal Comm SEMESTER TOTAL
TOTAL CREDITS

## CURRICULUM NOTE

*The credit for 10-890-101, College 101, is an Institutional Requirement for graduation. Consequently, it is not part of the program credit requirements.

- .net Web Developer
- Web Programmer
- Web Architect
- Web Specialist

Some positions may require additional education and/or work experience.
The following certificates/technical diplomas may be applied toward this program:

- 901522, Web Application Programming


## COURSE DESCRIPTIONS

These courses provide an opportunity for students to develop the knowledge, skills, and understanding required for employment in this field.

## 10-150-144 IT:NETWORK:OPERATING

 SYSTEM FUNDAMENTALS...installation of Windows client,
Windows Server and Linux Server operating systems. Basic networking topologies and protocol fundamentals. Application installation including Simple Mail Transport Protocol, File Transfer Protocol, and Web server technologies.

10-152-180 IT:WEB:SCRIPTINGJAVASCRIPT ...integrate JavaScript into interactive HTML5 pages, create user-defined functions, complete form validation, use objects within the Document Object Model, debug code, and test browser compatibility. (Prerequisite: 10-152-185, Website Coding)

10-152-182 IT:WEB:SCRIPTING-PHP ...use PHP, MySQL, HTML5, CSS3 and Apache to create standards based websites. PHP is used to connect to a MySQL database and retrieve site content. PHP is also used to organize the HTML5. (Prerequisite: 10-154-125, IT:Web:Database Development)

## 10-152-183 IT:WEB:SCRIPTING-ASP.

 NET ...build interactive, database-driven websites with ASP.NET and C\# with Visual Studio, handling web form events, using ASP.NET controls, designing master pages, managing state, and interacting with databases with ASP.NET data-bound controls. (Prerequisites: 10-154-125, IT:Web:Database Development; 10-152180, IT:Web:Client Script-Javascript)10-152-184 IT:WEB:PROGRAMMINGSQL ...write queries in a relational database: creating tables, setting primary/foreign keys, populating tables, manipulating data and reporting. Explore join types, stored procedures, functions, and database administration SQL statements. (Prerequisite: 10-154-125, IT:Web:Database Development)

10-152-185 WEBSITE CODING ...create code for generating the structure, function, and design of static websites using standardsbased HTML5 and CSS3; validate code; test multi-browser and multi-device functionality.

## 10-154-125 IT:WEB:DATABASE

DEVELOPMENT ...database uses, database terminology, analyzing information requirements, data models, database design phases, entity relationships, normalization processes, database management systems, database objects, development environments, creating tables, writing queries using $S Q L$, testing.

Offered at the Green Bay campus. For information: (920) 498-5444. Toll-free: (888) 385-6982.

This program is fully eligible for financial aid.

## Program Description

The Web Design technical diploma provides learners the ability to develop web sites by learning how to design and code functional graphics, interfaces, navigation, animations, page formatting and styles.

## Program Outcomes

- Perform or direct web site updates.
- Design content, graphics and digital assets for web sites.
- Develop front-end Web user interfaces.
- Implement web site content and graphics to meet user needs.
- Convert written, graphic, audio, and video components to compatible Web formats by using software designed to facilitate the creation of Web and multimedia content.
- Redesign existing websites with compliant Web techniques.


## Requirements for Program Entry

- Completed application.
- High school transcript or equivalent. (For a list of equivalents, go to
www.nwtc.edu/gettingstarted.)
- Completed one year of high school algebra or equivalency.
- Computer familiarity and ability to use a keyboard and mouse.
- Minimum typing speed of 30 wpm .
- As a requirement for program entry, an Academic Skills Assessment (Accuplacer) with appropriate benchmark scores is necessary. Program benchmarks are Arithmetic, 65; Reading Comprehension, 55: Sentence Skills, 75. Students not meeting these benchmarks or the equivalent will be required to establish an individualized academic plan. Students may have the opportunity to enroll in selected program core courses while completing their individualized plan. Upon completion of the plan, students will be eligible for all program courses. However, higher test scores will lead to greater success in core program courses. To learn more about these assessments and program benchmark scores, please contact a counselor at (920) 498-5444 or (888) 385-6982.


## Employment Potential

A graduate of the program will have the potential for employment as a:

- Web (site) Developer
- Front End Web Developer
- User Experience (ux) Designer
- User Interface (ui) Designer
- Graphic and Interface Designer


## Curriculum

Students following the study plan below will complete the Web Design Technician technical diploma in the number of semesters shown.

```
FIRST SEMESTER
CREDITS
10-111-101 Macintosh-Image Editing 10-152-185 Website Coding
10-804-133 Math \& Logic
*10-890-101 College 101
SEMESTER TOTAL
SECOND SEMESTER
10-135-115 Online Search Strategies
10-135-150 Web Graphic Design
10-801-136 English Composition 1 SEMESTER TOTAL
THIRD SEMESTER
10-102-100 Bus and Info Tech Occup Prep
10-135-151 Website Design
10-135-155 Web Content Management Sys 3 SEMESTER TOTAL
TOTAL CREDITS

\section*{CURRICULUM NOTE}
*The credit for 10-890-101, College 101, is an Institutional Requirement for graduation. Consequently, it is not part of the program credit requirements.

Some positions may require additional education and/or work experience.

The following certificates/technical diplomas may be applied toward this program:
- 901352, Web Design

\section*{COURSE DESCRIPTIONS}

These courses provide an opportunity for students to develop the knowledge, skills, and understanding required for employment in this field.

\section*{10-102-100 BUS AND INFO TECH} OCCUP PREP ...career exploration, self- exploration, career planning, career placement, job seeking skills. This course should not be taken before the 3rd semester or completing at least half of the core program courses.

\section*{10-111-101 MACINTOSH-IMAGE} EDITING ...(Adobe Photoshop + Adobe Acrobat) scanning, editing, color correcting and creating composite montage photographs. Prepare images for publication in print. An introduction to manipulating bitmap images.

\section*{10-135-115 ONLINE SEARCH}

STRATEGIES ...understanding of how search engines relate to the success of a website or web-based business by investigating the primary search engines and the tactics that can be used to increase visibility within search engines.

\section*{10-135-150 WEB GRAPHIC DESIGN} ...(Adobe Photoshop) design and prepare graphics for the web including graphics for backgrounds, rollover effects, navigation, and badges. Also includes techniques for optimization and transparency. (Prerequisites: 10-111-101, Macintosh Image Editing; 10-152-185, Website Coding)

10-135-151 WEBSITE DESIGN ...(Adobe Dreamweaver) use standards based HTML5 and CSS3 to design, develop and deploy websites; including: browser compatibility, FTP, forms, multi-media, RSS, and site management. (Prerequisite: 10-135-150, Web Graphic Design; 10-804-133, Math \& Logic)

\section*{10-135-155 WEB CONTENT}

MANAGEMENT SYSTEMS ...(WordPress
CMS) install, configure and customize using themes and plugins. Analyze security, user management, blog usage and mobile development. Develop using HTML5, CSS3, PHP and MySQL. (Prerequisite: 10-135-150, Web Graphic Design)

10-152-185 WEBSITE CODING ...create code for generating the structure, function, and design of static websites using standardsbased HTML5 and CSS3; validate code; test multi-browser and multi-device functionality.

Offered at the Green Bay campus.
For information: (920) 498-5444. Toll-free: (888) 385-6982.

This program is fully eligible
for financial aid.

\section*{Program Description}

The Web Development program prepares learners to integrate web technologies to support internet-based business systems and websites using concepts in design and programming.

\section*{Program Outcomes}
- Develop, build, and configure dynamic and interactive websites or applications.
- Produce effective, web-optimized graphics.
- Ensure cross-platform and cross-
browser website usability.
- Create functional and efficient website navigation.
- Create a database design and effective interface to support a web application and a variety of web campaigns.
- Understand the infrastructure required to support a robust website or application. - Understand the importance of and techniques for search engine optimization. - Install, configure and customize websites in a Content Management System.
- Explore analytical tools available to measure effectiveness of websites and web campaigns.
- Develop an approach to remain current with web development trends.

\section*{Requirements for Program Entry}
- Completed application.
- High school transcript or equivalent. For a list of equivalents, go to www.nwtc.edu/gettingstarted.
- Completed one year of high school algebra or equivalency.
- Computer familiarity and ability to use a keyboard and mouse.
- Minimum typing speed of 30 wpm .
- As a requirement for program entry, an Academic Skills Assessment (Accuplacer) with appropriate benchmark scores is necessary. Program benchmarks are Arithmetic, 65; Reading Comprehension, 55: Sentence Skills, 75. Students no meeting these benchmarks or the equivalent will be required to establish an individualized academic plan. Students may have the opportunity to enroll in selected program core courses while completing their individualized plan. Upon completion of the plan, students will be eligible for all program courses. However, higher test scores will lead to greater success in core program courses. To learn more about these assessments and program benchmark scores, please contact a counselor at (920) 498-5444 or (888) 385-6982.

\section*{Employment Potential}

A graduate of the program will have the potential for employment as a: Web Developer: designs, implements, and maintains internet and internet web applications/sites.
Web Technical Support: develops and maintains internal system support processes and coordinates the integration of the web with other computer systems.
Web Analyst: track and analyze key business metrics related to web activities.

Some positions may require additional education and/or work experience.
The following certificates/technical diplomas may be applied toward this program:
- 901522, Web Application Programming
- 901352, Web Design
- 311523, Web Application

Programming Technician
- 311522, Web Design Technician

Technical Diploma
- 311523, Web Application Programming Technician Technical Diploma

\section*{Curriculum \\ Students following the study plan below will complete the Web Development associate degree in the number of semesters shown.}

\section*{FIRST SEMESTER}

CREDITS 10-111-101 Macintosh-Image Editing 10-150-144 Network:Operating Sys Fund 0-152-185 Website Coding
10-154-125 IT:Web:Database Development 10-804-133 Math \& Logic *10-890-101 College 10 SEMESTER TOTAL

\section*{SECOND SEMESTER} 10-135-115 Online Search Strategies
\(10-135-150\) Web Graphic Design 10-152-184 IT:Web:Programming-SQ 10-801-136 English Composition 1 10-801-196 Oral/Interpersonal Comm 10-809-199 Psychology Of Human Relations SEMESTER TOTAL

\section*{THIRD SEMESTER}

10-102-100 Bus and Info Tech Occup Prep 10-135-151 Website Design
10-135-155 Web Content Management Sys
10-152-180 10-152-182 IT:Web:Scripting-PHP 10-809-103 Think Critically \& Creatively SEMESTER TOTAL

\section*{FOURTH SEMESTER}

10-135-180 Web Campaign Managemen 10-135-185 Web Emerging Technologies 10-135-199 Web Dev Internship Practicum OR
10-135-197 Web Dev Field Research 10-152-183 IT:Web:Scripting-ASP.Net 10-809-172 Intro to Diversity Studies 10-809-195 Economics SEMESTER TOTAL TOTAL CREDITS
CURRICULUM NOTE
*The credit for 10-890-101, College 101, is an Institutional Requirement for graduation. Consequently, it is not part of the program credit requirements.

\section*{COURSE DESCRIPTIONS}

These courses provide an opportunity for students to develop the knowledge, skills, and understanding required for employment in this field.

10-102-100 BUS AND INFO TECH OCCUP PREP ...career exploration, self- exploration, career planning, career placement, job seeking skills. This course should not be taken before the 3rd semester or completing at least half of the core program courses.
10-111-101 MACINTOSH-IMAGE EDITING ...(Adobe Photoshop + Adobe Acrobat) scanning, editing, color correcting and creating composite montage photographs. Prepare images for publication in print. An introduction to manipulating bitmap images.

10-135-115 ONLINE SEARCH STRATEGIES ...understanding of how search engines relate to the success of a website or web-based business by investigating the primary search engines and the tactics that can be used to increase visibility within search engines.
10-135-150 WEB GRAPHIC DESIGN ...(Adobe Photoshop) design and prepare graphics for the web including graphics for backgrounds, rollover effects, navigation, and badges. Also includes techniques for optimization and transparency. (Prerequisites: 10-111-101, Macintosh Image Editing; 10-152-185, Website Coding)

10-135-151 WEBSITE DESIGN ...(Adobe Dreamweaver) use standards based HTML5 and CSS3 to design, develop and deploy websites; including: browser compatibility, FTP, forms, multi-media, RSS, and site management. (Prerequisite: 10-135-150, Web Graphic Design; 10-804-133, Math \& Logic)
10-135-155 WEB CONTENT MANAGEMENT SYSTEMS ...(WordPress CMS) install, configure and customize using themes and plugins. Analyze security, user management, blog usage and mobile development. Develop using HTML5, CSS3, PHP and MySQL. (Prerequisite: 10-135-150, Web Graphic Design)

0-135-180 WEB CAMPAIGN MANAGEMENT ...build, execute, analyze and report upon web campaigns with the use of databases. Explore techniques and tools to monitor campaigns. Execute postcampaign measurements and ROI analysis. Prerequisites: 10-135-151, Website Design, 0-154-125, IT:Web:Database Development 10-801-136 English Composition 1)

10-135-185 WEB EMERGING TECHNOLOGIES ...review upcoming web technologies. Learn strategies to remain current in web technology trends. Explore a variety of trusted sources for trend information. (Prerequisite: 10-135-151, Website Design; 10-801-136 English Composition 1)

10-135-197 WEB DEVELOPMENT FIELD RESEARCH ...alternative to employment approved by the instructor with related projects and discussion. May include in-depth study of an industry, business, career, or job shadowing. (Prerequisites: 10-801-136, English Composition I; 10-804-133, Math \& Logic; Corequisite: 10-102-100, Bus and Info Tech Occup Prep)

10-135-199 WEB DEVELOPMENT INTERNSHIP PRACTICUM ...practical, hands-on experience applying skills developed in the program at an approved site with supervision by an employer and the instructor with related projects and discussion. (Prerequisites: 10-801-136, English Composition I; 10-804-133, Math \& Logic; Corequisite: 10-102100, Bus and Info Tech Occup Prep)

10-150-144 IT:NETWORK:OPERATING SYSTEM FUNDAMENTALS ...installation of Windows client, Windows Server and Linu Server operating systems. Basic networking opologies and protocol fundamentals. Application installation including Simple Mail Transport Protocol, File Transfe Protocol, and Web server technologies
10-152-180 IT:WEB:SCRIPTINGJAVASCRIPT ...integrate JavaScript into interactive HTML5 pages, create user-defined functions, complete form validation, use objects within the Document Object Model, debug code, and test browser compatibility. (Prerequisite: 10-152-185, Website Coding)

10-152-182 IT:WEB:SCRIPTING-PHP ...use PHP, MySQL, HTML5, CSS3 and Apache to create standards based websites. PHP is used to connect to a MySQL database and retrieve site content. PHP is also used to organize the HTML5. (Prerequisite: 10 154-125, IT:Web:Database Development)

10-152-183 IT:WEB:SCRIPTING-ASP. NET ...build interactive, database-driven websites with ASP.NET and C\# with Visual Studio, handling web form events, using ASP.NET controls, designing master pages, managing state, and interacting with databases with ASP.NET databound controls. (Prerequisites: 10-154 125, IT:Web:Database Development; 10-152-180, IT:Web:Client ScriptJavascript; 10-804-133, Math \& Logic)
10-152-184 IT:WEB:PROGRAMMINGSQL ...write queries in a relational database: creating tables, setting primary/foreign keys, populating tables, manipulating data and reporting. Explore join types, stored procedures, functions, and database administration SQL statements. (Prerequisite: 10-154-125, IT:Web:Database Development)

10-152-185 WEBSITE CODING ...create code for generating the structure, function, and design of static websites using standardsbased HTML5 and CSS3; validate code; test multi-browser and multi-device functionality

10-154-125 IT:WEB:DATABASE DEVELOPMENT ...database uses, database terminology, analyzing information requirements, data models, database design phases, entity relationships, normalization processes, database management systems, database objects, development environments, creating tables, writing queries using SQL , testing.

Offered at the Green Bay, Marinette and Sturgeon Bay campuses. For information in Green Bay: (920) 498-5444. For information in Marinette: (715) 735-9361. For information in Sturgeon Bay: (920) 746-4900. Toll-free: (888) 385-6982.
This program is fully eligible for financial aid.

\section*{Program Description}

Welding prepares students to join metal by applying heat and pressure to join metal sections together to form a permanent
bond. Welders plan layouts or work from bond. Welders plan layouts or work from
blueprints, drawings, or other specifications. blueprints, drawings, or other specifications.

\section*{Program Outcomes}
- Be successfully employed in
the welding industry.
- Perform procedures using plasma, carbon arc, oxyacetylene processes.
- Perform procedures using the Shielded - Perform procedures using the Shielded
Metal Arc Welding process (S.M.A.W).
- Perform procedures using the Gas Meta Arc Welding process (G.M.A.W)
- Perform procedures using the Gas Tungsten Arc Welding process (G.T.A.W) - Perform procedures using the Flux Core Arc Welding process (F.C.A.W).
- Perform procedures using the Submerged Arc Welding process (S.A.W). - Perform welding procedures using the Metal Core process
- Interpret mechanical drawings.
- Fabricate projects from
blueprints and sketches.
- Perform basic mathematical computations.
- Identify various ferrous and non-ferrous materials.
- Communicate with co-
workers and superviso

\section*{Requirements for \\ Program Entry}
- Completed application

High school transcript or equivalent (such as an HSED or GEDÆ Transcript).
- Students should have mastered basic math skills. For a description of basic math, see the Basic Education section of this catalog. As a requirement for program entry, an Academic Skills Assessment (Accuplacer) with appropriate benchmark scores is Arithmetic: 34, Reading Comprehension: 55; Sentence Skills: 60. Students not meeting these benchmarks or the equivalent will be required to establish an individualized academic plan. Students may have the opportunity to enroll in selected program core courses while completing their individualized plan. Upon completion of the plan, students will be eligible for all program courses. However, higher test scores will lead to greater success in core program courses. To learn more about these assessments and program benchmark scores, please contact a counselor

\section*{Employment Potential}

A graduate of the program will have the potential for employment as a Maintenance Welder, Qualified Welder, Structural Welder, Welder/Fabricator, and Pipe Welder. In these jobs, the graduate will build and repair metal components using
basic knowledge of blueprints, metallurgy asic knowledge of blueprints, metallurgy nd layout while applying the major will be trained in code welding according to he AWS (American Welding Sociry) and ASME (American Society of Mechanical Engineers) with testing provided on campus, Other positions might include Construction Trades Welder, Ironworker Trades Welder, Millwright, Sheetmetal Trades Welder and Pipe Trades Welder. People in many apprenticeship programs are required to take welding classes as part of their training.
With additional education and/or work experience, graduates may find other opportunities for employment.

Curriculum
Students following the study plan belo
will complete the Welding technical will complete the Welding technical
diploma in the number of semesters shown.

\section*{FIRST SEMESTER}

CREDITS
10-804-101 Math 1-Trade
10-890-101 College 101 \(31-421-335\) Blueprint Readin
\(31-421-336\)
Weld Symbols 31-442-301 Material Cutting Applications
31-442-337 Metal 31-442-337 Metal Fabrication 1
31-442-338 Metal Fabrication II
31-442-349 Metal Fabrication - Rigging
31-442-342 Shielded Metal Arc Welding 1 31-442-342 Shielded Metal Arc Welding 1
31-442-343
Shielded Metal Arc Welding 31-442-347 Shielded Metal Arc Welding 2 31-442-348 Gas Metal Arc Welding 1 31-442-348 Gas Metal Arc Welding 1
31-442-356 Gas Meta Arc Welding 2 31-442-358 Gas Metal Arc Welding 3 SEMESTER TOTAL

\section*{SECOND SEMESTER \\ 31-421-337 Blueprint Reading for Welders 2} \(31-422-310\) Metallurgy
\(31-442-329\)
31-442-329 Flux Cored Arc Welding 1
\(31-42-330\) Flux Cored Acc Well 31-442-330 Flux Cored Arc Welding 2
31-442-340 Flux Cored Arc Welding 31-44--340 Flux Cored Arc Welding
31-442-359 Gas Tungsten Arc Welding 1 31-442-362 Gas Tungsten Arc Welding 2
31-442-363 Gas Tungsten Arc Welding 3 31-442-339 Metal Fabrication III 31-801-386 Communicating Effective SEMESTER TOTAL
TOTAL CREDITS

\section*{CURRICULUM NOTE}
*The credit for 10-890-101, College 101,
is an Institutional Requirement for graduation. Consequently, it is not par of the program credit requirements.
- Journeylevel Welder
- Welding Inspector
- Welding Supervisor
- Journeylevel Welder/Fabricator

\section*{Certification}

All NWTC Welding Program instructors are certified welders

\section*{COURSE DESCRIPTIONS}

These courses provide an opportunity or students to develop the knowledg for employment in this field.

31-421-335 BLUEPRINT READING FOR WELDERS 1 ...course provides the opportunity for the learner to develop rthoorge and understanthing orthographic projection, sketching, structural shapes, metric conversation and interpretation of fabrications from prints (Prerequisite: Accepted into Welding (Prerequisite: Accepted into Weld
or Marine Construction program)

31-421-336 WELD SYMBOLS ...course provides the opportunity for the learner to develop the knowledge and understanding of welding symbols AWS and ISO, weld joint nomenclature and welding joint Welding or Marine Construction program)
31-421-337 BLUEPRINT READING FOR WELDERS 2 ...course provides the opportunity for the learner to develop advanced blueprint reading skills to read and interpret moderate to advanced buepris and Blop digs (Prequisites Welders1; 31-421-336, Weld Symb

31-422-310 METALLURGY ...manufacture of iron and steel, mechanical and physical properties of metals, metal identification, macro and microscopic grain structures, welding metallurgy, applied heat treating processes, and weld failures and fractures.

31-442-301 MATERIAL CUTTING APPLICATIONS...visual inspection of weld and cut edges, manual and machine oxy fuel gas cutting, air carbon arc cutting, methods. (Prerequisite: Accepted into Welding or Marine Construction prog

31-442-329 FLUX CORED ARC WELDING 1 ...course provides the opportunity for the learner to develop the knowledge, skills, process and understanding of surfacing welds in the flat position as well as fillet and groove welds in the flat, horizontal position using gas shielded flux cored arc welding
(Prerequisite: Accepted into WWelding Prerequisite: Accepted into Welding 1442-330 FLUX CORED ARC WELDING 2 ...course provides the opportunity for the learner to develop the knowledge, skills, process and understanding of fillet and groove welds in the vertical and overhead position on plate and pipe welds using gas shielded flux cored arc welding. (Corequisite: 31-442-329, Flux Cored Arc Welding 1)

31-442-337 METAL FABRICATION I (LAYOUT) ...course provides the opportunity for the learner to develop the knowledge, skills, process, and understanding of basic line and angle construction along with flat pattern development for radial line, parallel line, and triangulatio (Prerequisite: Accepted into Welding or Marine Construction program)
31-442-338 METAL FABRICATION II (EQUIPMENT) ...course provide the opportunity for the learner to the opportunity for the learner to and understanding of general fabricatio and understanding of general fabrication
equipment, safety and operation used for sawing, bending, shearing, drilling and punching. (Prerequisite: Accepted into Welding or Marine Construction program)
31-442-339 METAL FABRICATION III (ADVANCED ASSEMBLY) ...cours provides the opportunity for the learner to develop the knowledge, skills, process and understanding of bus fromadvaced blucp (Prim 31-442-337 Metal Fabrication I. 31 442-338, Metal Fabrication II)

31-442-340 FLUX CORED ARC WELDING 3 ...course provides the opportunity for the learner to develo the knowledge, skills, process and understanding of fillet and groove welds in the flat, horizontal and vertical position using self-shielded flux cored arc welding and metal cored electrodes and sub arc equipment. (Corequisite: 31-442-330, Flux Cored Arc Welding 2 31-442-342 SHIELDED METAL ARC WELDING 1 ...course provides the opportunity for the learner to develo opportunity for the learner to deve
the knowledge, skills, process and understanding of surfacing welds in the flat position, fillet and groove welds on plain carbon steel. (Corequisite: 31-442 301, Material Cutting Applications)
31-442-343 SHIELDED METAL ARC WELDING 2 ...course provides the opportunity for the learner to develop the knowledge, skills, process and understanding of welds in the horizontal and vertical positions, fillet and grove welds on plai Sbielded Meal Ac WVelis 1;31-442


31-442-347 SHIELDED METAL ARC WELDING 3 ...course provides the opportunity for the learner to develop the of welds ine, skills, process and understanding welds with and without backing and overhead T-Joints on plain carbon steel. (Corequisites: 31-442-301 Material Cutting Applications; 31-442343 , Shielded Metal Arc Welding 2)

31-442-348 GAS METAL ARC WELDING 1 ...course provides the opportunity for the learner to develop the knowledge, skills, process and understanding of welding in the flat and horizontal positions, fillet, pipe to plate and groove welds on plain carbon steel. (Corequisite: 31-442 301, Material Cutting Applications) 31-442-349 METAL FABRICATION RIGGING ...course provides the opportunity for the learner to develop the knowledge skills, process and understanding of seneral fabrication rigging that would be used in a shop and job site application. (Prerequisite: Accepted into Welding or Marine Construction program)
31-442-356 GAS METAL ARC WELDING 2 ...course provides the opportunity for the learner to develop the knowledge, skills, process and understanding of welds in the vertical and overhead positions, fillet, pipe to plate and groove welds with and withou 31442-301 Ma. C C C 31-442-348, Gas Metal Arc Welding 1)

31-442-358 GAS METAL ARC WELDING 3 ...course provides the opportunity for the learner to develop the knowledge, skills, process and understanding of welds in the flat and horizontal positions on T-Joints ( \(1 \mathrm{~F} \& 2 \mathrm{~F}\) ) and groove welds with backing ( \(1 \mathrm{G} \& 2 \mathrm{G}\) ) on plain carbon steel using the spray mode of transfer and on aluminum. (Corequisites: 31 442-301, Material Cutting Applications 31-442-356, Gas Metal Arc Welding 2 ) 31-442-359 GAS TUNGSTEN ARC WELDING 1 ...course provides the opportunity for the learner to develop the knowledge, skills, process and understanding of GTAW equipment set-up as well as the basic skills needed to make welds on plain carbon steel. Weld quality will be discussed but this course is only used to understand the basics of the GTAW process. (Prerequisites: Accepted into Welding or Marine Construction program; 31-442 301, Material Cutting Applications)
31-442-362 GAS TUNGSTEN ARC WELDING 2 ...course provides the opportunity for the learner to develop the knowledge, skills, process and understanding metal with proin and steel Weld quality will be emphasized with all lab assignments (Prerequisite: 31-442-301 Material Cutting Applications; Corequisite: 31-442-359 Gas Tungsten Arc Welding 1)

31-442-363 GAS TUNGSTEN ARC WELDING 3 ...course provides the opportunity for the learner to develop the knowledge, skills, process and understanding of GTAW on aluminum as well as multipass groove welds on plain carbon
steel. (Prerequisite: 31 . 4 . steel. (Prerequisite: 31-442-301, Material Cutting Applications; Corequisite: 31-442-362, Gas Tungsten Arc Welding 2)

Offered at the Green Bay campus,
For information: (920) 498-5444. For information: (920) 498-5
Toll-free: (888) 385-6982. Toll-free: (888) \(385-6982\).
This program is fully eligible for financial aid.

\section*{Program Description} The focus of the Wellness and Health Promotion associate degree is to prepare Promotion associate degree to work as prevention and interventional wellness professionals. Wellness professionals will reduce the occurrence and recidivism of illness, injury and disease by helping others implement lifestyle changes through
the effective application of wellness he effective application of wellness or workplace. Wellness is the dynamic process of becoming aware of and making choices toward a more positive balanced and healthy lifestyle. Health Promotion progressively generates interest for the accomplishment and advancement of health. Health and wellness professionals facilitate a partnership and change process hat enables clients to change their mindsets, and develop and sustain behavio proven to improve health and well-being to do alone. This program will meet the emerging demand for health and wellnes professionals in Northeast Wisconsin.

\section*{Program Outcomes}
- Utilize the dimensions of wellness to coordinate health and wellness events. Perform health and wellness assessments including fitness testing
body composition assessment, bloo pressure screening, diet analysis, and health risk assessments. - Explain the causes of chronic disease and how to prevent and manage chronic disease through lifestyle and behavior modification. - Plan, implement, and evaluate corporate, community, or individual wellness plans.
- Employ holistic wellness
coaching strategies to implement behavior modification and lifestyle change in clients. - Assess personal fitness levels and prescribe exercise intervention plan - Lead and evaluate personal group exercise sessions.
Develop, deliver, and evaluate healt and wellness educational sessio to small and large group - Analyze key behaviors and implement
social marketing campaigns designed social marketing campaigns designed
promote healthy lifestyles.
Create a culture of wellness.
Create a culture of welliness

\section*{Requirements for \\ Program Entry}
- The Wellness and Health Promotion program incorporates an emphasis in either Wellness Coaching or Exercise Science. Students will need to declare their emphasis

\section*{Employment Potential}

A graduate of the Wellness and Health
Promotion program will have the potential
for employment in a corporate, communit, fitness, or healthcare setting as a: -Wellness/Health Coach Health and Fitness Specialist - Wellness and Health Promotion Coordinator
Personal Trainer
- Customer Care Specialist - Community Health Educator

\section*{Clinical Experience}
- Students will be required to purchase a uniform, pay for liability insurance assigned sites, and cover any other expense related to clinical experiences. Students may be expected to travel distances and participate in weekend rotations.
- Students are required to complete an American Heart Association Health Care Provider CPR course prior to clinical experiences. Students are required to maintain a current CPR card to comply with affiliating agency requirement Students will be required to submit immunization documentation. A fee information will be provided upon acceptance into the program. Students will be required to proof of an annual flu vaccine. proof of an annual flu vaccine complete drug testing and/or finger printing by clinical agencies.

\section*{Requirements for}

\section*{Program Application}

Completed application.
- High school transcript or equivalent. (For a list of equivalents, go to www.nwt.edu/gettingstarted.) Admissions Assessment or equivalent or ACT assessment taken with the last five years. (For a list of equival
please contact a Counselor.)
Two semesters Hib Scor.)
Two semesters High School, or one
semester in College of Algebra and semester in College of: Algebra and
Chemistry (with a lab component). All required course grades must be completed with a "C" or better.

\section*{Requirements for}

Program Entry
As a requirement for program entry, an Academic Skils Assessment (Accuplacer or is necessary. Accuplacer benchmarks are Arithmetic, 90 ; Reading Comprehension, 90; Sentence Skills, 95 . ACT benchmarks are Math, 18; Reading, 21; English,
21. Applicants not meeting these benchmarks or the equivalent will be required to establish an individualized academic plan. Upon completion of the plan, full program or waitlist status will be granted. To learn more about these scores, please contact an advisor at (920) 498-5444 or (888) 385-6982
- Attend mandatory program orientation. - Complete caregiver background check. A fee is charged for this service. upon acceptance into the program. Complete a Functional Abilities Inventor

Gurriculum
Students following the study plan below
will complete the Wellness \& Health will complete the Wellness \& Health
Promotion associate degree in the numb

\section*{FIRST SEMESTER}
\({ }_{10-546-101}^{\text {Personal Wellness } \& \text { Fitness }}\) \(10-545-101\)
Personal Welness \(\&\) Fitness
Chronic Diseases/ Heath
10-8s 10-801-136 English Composition 1
+10-806-177 Gen Anatomy \& Physiology
10-809-188
1010-806-177
Gen Anatomy \& Physiology
Developmental Psychology T0-09-890-101 College 101
"10
SEMESTER TOTAL
SEMESTER TOTAL
SECOND SEMESTER
\({ }^{10}-546-103\) Health \& Nutrition
\(\begin{array}{ll}\text { 10-546-104 } & \text { Intro to Welliness Coaching } \\ \text { 10-546-105 } & \text { Wellness Kinesiology }\end{array}\)
\(10-546-105\) Wellness Kinesiology
\(10-56-108\) Wellness Practicum I
\(\begin{array}{lll}10-801-196 & \text { Orall/Iterpersiconal Comm } & 3 \\ 3 \\ \text { 10 }\end{array}\)
then
THIRD SEMESTER
EXERCISE SCIENCE TRACK

 \(\begin{array}{lll}10-46-109 & \text { Exercrise Physiology } & 3 \\ \text { 10-546-110 } & \text { Exercise/Performance Nutrition } & 3 \\ 10-84-123 & \text { Math w Wusiness Appo } & 3\end{array}\) 10-804-123 Math
SEMESTER TOTAL

\section*{COACHING TRACK}
\({ }^{*} 10-546-107\) Stress Management Techniques 2
\({ }^{10-546-106}\) Wellness Programming/Design
\(\begin{array}{ll}{ }^{*} 10-546-111 & \text { Colness Programming } \& \text { Interviewing Tesign } \\ { }^{10-546-112} & \text { Welness }\end{array}\) \(\begin{array}{ll}* 10-546-112 & \text { Wellness Coaching Psychology } \\ \text { 10-804-123 } & \text { Math w Business Apps }\end{array}\) 10-804-123 Math
SEMESTER TOTAL

\section*{FOURTH SEMESTER
EXERCISE SCIENCE TRACK}

\section*{XERCISE SCIENCE TRACK}

10 -546-114 Weliness Marketing/Te

\(\begin{array}{ll}10-809-166 & \text { Intro to Ethics: Theorry \& App } \\ \text { 10-809-172 } & \text { Intro o Diversity Studies }\end{array}\)
10-809-172 Intren
SEMESTER TOTAL
COACHING TRACK
\(\begin{array}{ll}{ }^{*} 10-546-113 & \text { Wellness Marketing/Te } \\ { }^{* 10-566-114} & \text { Welliness Practicum } 2\end{array}\)
\(\begin{array}{ll}\text { 10-546-116 } & \text { Coliness Procticum } 2 \\ \text { Coaching for Behavior Change }\end{array}\)
\(\begin{array}{cl}\text { 10-809-166 } & \text { Intro to Ethics: Theory \& App } \\ \text { 10-809-172 } & \text { Intro to Diversity Studies }\end{array}\) SEMESTER TOTAL
TOTALCREDTTS

\section*{CURRICULUM NOTE}

No final grade lower than a " "" is acceptable student who wowithes marked with an asterisk. A than a "C" in a program course may apply for re-entry into the program. Consideration for reentry will be at the discretion of the re-entry tea
and will be dependent on clinical availabilty.
 in General Anatomy \& Physiology. A student who withdraws or receives a grade lower than " \(B\) " in this course may apply for re-entry into he program. Consideration for re-entry will be at the discretion of the re-entry team and
-
The credit for 10-890-101, College 101 is an Institutional Requirement for of the program credit requirements.

\section*{Suggested Skills for Success} Students are expected to have entry-level computer skills. It is recommended that students complete basic computer skild
coursework if deficient in this area.

\section*{COURSE DESCRIPTIONS}

These courses provide an opportunity for students to develop the knowledge skiils, and understanding required

10-546-101 PERSONAL WELLNESS \& FITNESS ...this course introduces the seven-dimension model of wellness. Learners will apply the seven dimensions of wellness to develop and implement a personal wellness plan. (Prerequisite: Accepted in th ion program)

10-546-102 CHRONIC DISEASES \& OTHER HEALTH ISSUES ...this course addresses the incidence and cost of chronic disease and other modern health issues Study the four major causes of chronic disease (lack of physical activity, poor nutrition, tobacco use, and excessive alcoho prevention and management of these health issues through behavior change and lifestyle wellness. (Prerequisite: Accepted in the Wellness \& Health Promotion program
10-546-103 HEALTH \& NUTRITION ..this course introduces the relationship an will understand dietary guidelines and create and monitor nutrition plans.

10-546-104 INTRODUCTION TO WELLNESS COACHING ...this course will introduce the concept of wellness coaching utilizing the seven dimensions wellness mode. Leancers wil apply behavior and lifestyle change.

10-546-105 WELLNESS KINESIOLOGY \& PATHOLOGY ...this course studies the musculoskeletal system and major muscle groups and their response to movement and exercise. Also introduces disorders that can symptoms and associated pharmacology Prerequisite: 10-806-177, General Anatony \& Physiology with a "B" or better)

10-546-106 WELLNESS PROGRAMMING \& DESIGN ...learners will design, develop, and deliver corporate and community
wellness initiatives such as health risk assessments, wellness incentive programs, or health educational sessions. Learners will develop needs assessments, goals, objectives and evaluation measures with an emphasis on writing and presentation skills.

10-546-107 STRESS MANAGEMENT TECHNIQUES ... understand the effects of stress on personal well-being. Learn, assess, and apply stress management techniques (relaxation, guided imagery, deep breathing techniques, and other holistic methods) for personal and client utilization

10-546-108 WELLNESS PRACTICUM 1 ...provides students with a structured practicum experience applying wellness coaching and programming skills. (Prerequisite: 10-546-101 Personal Wellness \& Fitness)
10-546-109 EXERCISE PHYSIOLOGY ...develops an understanding of the functionality and responses of cardiovascular and strength training exercise on the human body. (Prerequisite: 10-546-10 Wellness Kinesiology \& Pathology)
10-546-110 EXERCISE \&
PERFORMANCE NUTRITION ...develops knowledge of how nutrition impacts performance and exercise. The course programs, and supplements. (Prerequisite: 10-546-103, Health \& Nutrition)
10-546-111 COACHING \& INTERVIEWING TECHNIQUES ...apply listening and interviewing to facilitate health-related information exchange between the wellness practitione and client. (Prerequisite: 10-546-104, Introduction to Wellness Coaching)

0-546-112 WELLNESS COACHING PSYCHOLOGY ...develops an nderstanding of various psychological factors in the causes and treatment of chronic isease. Emphasis will be placed on factors ading to poor health choices and resistance o lifestyle change. (Prerequisite: 10-546 04, Introduction to Wellness Coaching 0-546-113 WELLNESS MARKETING \(\&\) TECHNOLOGY ...create and develo wellness marketing and promotion wellness marketing and promotion client participation in individual and group related wellness programming pportunities. Utilize technology and social edia to promote wellness initiatives.

0-546-114 WELLNESS with an advanced practicum experience applying wellness coaching and programming skills. (Prerequisite: 10 546-108, Wellness Practicum 1)
10-546-115 EXERCISE TESTING \& PRESCRIPTION ...apply exercise theory oo assess and develop interventional to assess and develop interventional
wellness-related exercise programs fo individuals and groups. Assess exercise risk factors and implement safety measure to assure client safety. (Corequisites: 10-546 109, Exercise Physiology; 10-546-110 xercise and Performance Nutrition)

0-546-116 COACHING FOR BEHAVIOR CHANGE ...utilize wellness oaching techniques to identify lifestyle issues or problems, set goals, motivate client rack progress, and implement life-long behavior change. (Corequisites: 10-546-111 Coaching \& Interviewing Techniques; 10 \(546-112\), Wellness Coaching Psychology)

Wind Energy Technology

\begin{tabular}{|c|c|c|}
\hline OURSE DESCRIPTION & & , \\
\hline  & &  \\
\hline  & & \\
\hline & & \\
\hline \multirow[t]{2}{*}{\begin{tabular}{l}
10-103-131 MICRO: EXCEL \\
INTRODUCTION ...creating a worksheet, enhancing worksheet appearance, moving and copying data, using formulas and functions,
creating charts and using clip art. Windows experience improves success; consider 10 -103-111, Windows/Computer Basics.
\end{tabular}} & to moving and exposed parts, verify god
clectrical connections and perform an overall & 10.804-196, Trigonometry w Apps) \\
\hline & "system check" on a wind energy system as part of routine maintenance. Covers techniques and details involved in a thorough site assessment using industry quality standards. Travel is required. (Prerequisi
10-482-001, Wind Technician 1 Lab ) & 10-660-108 AC 2: REACTANCE ...study of the way inductive, capacitive and
resistive components behave in a circuit excited by a sine waveform. Effective and average values of the sinewave are derived. (Corequisite: 10-660-107, AC 1: Properties) \\
\hline \multirow[t]{2}{*}{...provides participants with an overview of electrical energy generation
and distribution. Topics include electricity from the following systems: photovoltaic, wind, coal-fired, hydro, and natural gas. Career awareness for maintenance
technicians and plant operators is explored -} & Topics will include wind resources, basic -system components, system types, turbine types, applications and tower rypes. & 10-660-110 ELECTRONICS 1: DIODES BASIC introduction to the characteristics and usage of semiconductor diodes in rectifiers and linear power supplies. Special diodes and diode circuits are also considered. (Prerequisite: 10-660-105, DC 2: Circuits; \\
\hline & & \\
\hline 10-42-109 WIND TURBINE & & \\
\hline URAL WELD INSPECTIO
wind energy students with & & \\
\hline & & \\
\hline & PNEUMATICS ...wh
differentiate between hy & dethoon \\
\hline \begin{tabular}{l}
fault determination, documentation, \\
and action items. (Prerequisite: 10-482 \\
130, Energy-Intro to Wind and \(10-\) \\
482-001, Wind Technician 1 Lab )
\end{tabular} & pneumatics, implement basic pneumatic circuits, utilize schematics, apply Pascal's control and hydraulics cylinder circuits. & 10-664-101 AUTOMATION 2 : MO CONTROL...lectric motor control and counters. Corequisite: 10-664 \\
\hline \multirow[t]{7}{*}{10-449-113 WIND TECHNICIAN students with the Federal Safery and Health Regulations (OSHA) related to the wind to proper methods and procedures to eliminate and control hazards to potential injury iliness in the industry. Sudcents
will receive training in first aid, CPR, rigging, and confined space and will receive So-hour OSHA for General Industry
certification upon completion of the cours} & & 100, Automation 1: Control Logic) \\
\hline & & \\
\hline & & mingan toubestoon \\
\hline & & \\
\hline & wior directionat controvelaves & \\
\hline & 10-620-121 MECHANICS 1: BASIC ...mechanical drive system components related
to V-belt drives, chain drives, and gear drives. & applications, applying timer instruction and counter instructions. (Corequisite: 10-664-102, Automation 3: PLC) \\
\hline & & \\
\hline & & \\
\hline & & \\
\hline & & \\
\hline \[
\mathrm{d} \text { PFI }
\] & (Corequisite 10.620-121, Mechanicis 1 : Basic) & om specification. (Coreq
, Automation \(4: \mathrm{PLC}\) ) \\
\hline workplace accidents and injuries; demonstrate adequate health and wellness for climbing and working at heights; demonstrate safe climbing methods demonstrate proper "ground crew" working habits; and tie basic rigging knots & 10-620-123 MECHANICS 3: SYST
...application of correct couplings to mechanical systems, heavy-duty chai drives, maintenance of brakes and cl and specification of linear ball bushi and ball screw drives. (Prerequisite: & 10-664-105 AUTOMATION 6 PLC ...programming a PLC system to operate a discrete and analog process adhering to a functional specification
or timing diagram. (Prerequisite: 10-664-104, Automation 5: PLC) \\
\hline \multirow[t]{7}{*}{\begin{tabular}{l}
10-482-122 WIND TECHNICIAN 2 \\
...will give the learner ENSA certification in
safe access, rescue and confined spaces. The \\
safe access, rescue and confined spaces. The
learner will review current legislation and \\
requirements for work at heights; complete \\
rigging techniques for rescue equipment; \\
perform a ladder rescue; perform rescues
from a wind turbine nacelle, hub and glade \\
perform a self-rescue; complete a confined \\
space permit; assemble and test a respira
and use a monitor to test air quality.
\end{tabular}} & & 10-664-151 AUTOMATION 8: HMI \\
\hline & & \\
\hline & & \\
\hline & & \\
\hline & & tor nimer iner \\
\hline & & \\
\hline & configuration, shunt, compound, and permanent magnet DC moto
performance and characteristics. & \(0-664-160\) CONTROL 1 : DISCRETE
YSTEMS ...applications and utilization motion feedback devices, force \\
\hline \multirow[t]{7}{*}{10-482-124 WIND TECHNICIAN 3 ...certifies the learner in torque techniques apply safe and proper technique with use of a click-type torque wrench, dialtype torque wrench,
torque adapter, and torque extensions; verify appropriate torque techniques on electronic test bench; apply proper and demonstrate safe and proper torque
technique using the Hytorc* equipment.} & & \\
\hline & & PLC OR 10-664-104, Automation 5: \\
\hline & & co \\
\hline & & \\
\hline & & \\
\hline & and applicaios. (Corequisict 1 & \\
\hline & 10-620-166 FLUIDS 4: ADVANCED HYDRAULICS ...components of hydraulic pump power, characteristics & mode of control. (Corequisite 60, Control 1: Discrete System \\
\hline \multirow[t]{5}{*}{} & & \\
\hline & & \\
\hline & & otion contro system. Corcauiste: \\
\hline &  & 10-664-161, Control \(2:\) Process Systems) \\
\hline & and gate logic. Simplification methods using Boolean theorems and Karnaugh Maps, and timing diagram analysis & 10-664-163 CONTROL 4: DRIVE PERFORMANCE ...DC and AC drive system performance, specification of AC \\
\hline , &  & -161, Contro 2: Process System, \\
\hline have the learner working with data collectid & &  \\
\hline Microsoff Excel, wind energy yalulutaro &  &  \\
\hline determine energy production, wind speeds, and wind direction; produce power curves; calculate wind shear; analyze rotor wash,
estimate availability and capacity factor of estimate availability and capacity factor of & 10.660-104 DC 1 INTRODUCTION ..introduction to the concepts of DC electricity and simple series circuits. Voltage, & toio
ance) \\
\hline \multirow[t]{2}{*}{wind system; estimate payback and retur
investment for wind systems, and create charts and graphs to summarize the data} & and Kirchofs Solagee Law are defined. &  \\
\hline & 10-660-105 DC 2: CIRCUITS ...analysis of parallel and series-parallel circuits. Applicatio of Kirchoffs Current Law to parallel circuit combinations. Introduction of curren sources and source conversions. (Corequisites 10-804-118, Interim Algebra w Apps OR equivalent; 10-660-104, DC 1: Intro) & of motion control components and programming given description of operation, and leading technologies for
advanced motion control. (Corequiste) 10-664-164, Control 5: Servo Systems \\
\hline
\end{tabular}

Offered at the Green Bay campus. For information: (920) 498-5444. Toll-free: (888) 385-6982.

This program is fully eligible for financial aid.

\section*{Program Description}

The Winemaking (Enology) Associate Degree will train both current and future employees of wineries in the grape and wine industry. Students will gain Enology skills such as fermentation, clarification, and aging of juice and wine; lab methodologies; sanitization; quality control; winery equipment operation, grape maturity testing; wine and must analysis. NWTC will partner its resources with the Viticulture and Enology Science and Technology Alliance (VESTA). The Winemaking (Enology) technical courses will be taught in conjunction with the VESTA Alliance through a combination of online learning and field experiences. The Winemaking (Enology) program will provide students with an internship at a local winery, offerin win antense level of practical and realistic winery experiences sufficient to equip wem with the skills and work eqpip hequired for position in the inde

\section*{Program Outcomes}
- Examine grape samples to ascertain sweetness and acidity of crop, and determine harvest time based off of this information.
- Select yeasts for fermentation and barrels for aging
- Communicate with vineyard manager regarding crop load, harvest time, and other issues related to crop quality.
- Correct sugar and acid levels of must and wine if necessary.
- Oversee primary fermentation by punching down the grape skin cap, regulating fermentation temperature and the amount of time the skins re in contact with the must, and re in contact with the must, and
- Supervise workers in crushing and pressing processes, or perform hose duties themselves.
- Supervise cellar operations during secondary fermentation with task such as aging, topping off barrels, and clearing wine of fermentation residue.
- Direct and coordinate blending and bottling of wine, or perform those duties themselves.

\section*{Requirements for \\ Program Entry}
- Completed application.
- High school transcript or equivalent (For a list of equivalents, go to www.nwtc.edu/gettingstarted.
- Students should have mastered basic math skills. For a description of basic math, see the Basic Education section of this catalog - As a requirement for program entry, an Academic Skills Assessment (Accuplacer) with appropriate benchmark scores is necessary. Program Benchmarks are Arithmetic: 34; Reading Comprehension: 55; Sentence Skills: 60. Students not meeting these benchmarks or the equivalent will be required to establish an individualized academic plan. Students may have the opportunity to enroll in selected progra core courses while completing program core courses while completing
their individualized plan. Upon completion of the plan, students will be eligible for all program courses. However, higher test all program courses. Howeve, higher test scores will lead to greater success in cose program courses. To learn more about these assessments and program benchmark cores, please contact a counselor a (920) 498-5444 or (888) 385-6982

\section*{Employment Potential}

A graduate of this program will have the basic skills necessary to own and operate or be employed at a Winery as a: - Winemaker
- Winemaking Assistant
- Cellar Worker
- Tasting Room Host

With additional education and/or work experience, graduates may find other opportunities for employment.
- Scientific Industry, Laboratory - Food Science Industry - Food Safety Note
- NWTC has partnered with Missouri State University, Missouri State UniversityWest Plains, Northeast Iowa Community College, Redlands Community College Rend Lake College, South Plains College, Arkansas Tech University-
Ozark Campus, Kent State University Ashtabula, Highland Community College Central Lakes College, Michigan State University, and Ivy Tech Community College to offer an Associate Degree in Winemaking (Enology). The partnership is formally referred to as the Viticulture and Enology Science and Technology Alliance, or VESTA. The partnered colleges individually deliver VESTA classes through various online delivery formats
- Students desiring to earn an Associate Degree in Winemaking (Enology) must apply for admission to NWTC and must take a minimum of \(25 \%\) of technical core courses at NWTC.


\section*{FIRST SEMESTER}

CREDITS
VIN146 Intro to Enolog
\(\begin{array}{ll}\text { *VIN105 } & \text { Intro to Wine Microorgs } \\ \text { Molec Prin Grape/Wine }\end{array}\)
*10-145-185 Organizing Your Small Business 10-804-118 Interm Algebra w Apps SEMESTER TOTAL

\section*{SECOND SEMESTER}

VIN148 Winery Sanitation
VIN148 Winery Sanitation
VIN160 Winery Equip Operation VIN290 Winery Safety
*10-145-189 Writing a Business Plan-Sm Bus 10-801-136 English Composition 1 0-809-199 Psychology Of Human Relations EMESTER TOTAL

\section*{THIRD SEMESTER}

\section*{VIN246 Intermediate Enology}

VIN257 Fall Wine Prod Intern
VIN268 Wine/Must Analysis
10-801-198 Speech
10-999-923 Elective
SEMESTER TOTAL

\section*{FOURTH SEMESTER}

VIN259 Cellar Ops Technology
VIN266 Sensory Evaluation
10-809-172 Spring Inter Enology
10-809-195 Economics SEMESTER TOTAL
TOTAL CREDITS

\section*{URRICULUM NOTE}

These courses must be taken at NWTC
SUGGESTED ELECTIVES
-Soils for Viticulture, VIN293
Intro to Viticulture and Vineyar
- Integrated Pest Management, VIN 211
- The VESTA online courses, identifiable by iVINî in front of the course code have a separate admission and registration process. - Practicum sites throughout the state are listed on the VESTA website. New ones can be added if the student finds a willing and eligible vineyard.
- Some courses have a minimum age requirement.
- Further information on VESTA can be found on the website www.vesta-usa.org.

\section*{COURSE DESCRIPTIONS}

These courses provide an opportunity for students to develop the knowledge, skills, and understanding required for employment in this field.

10-145-185 ORGANIZING YOUR SMALL BUSINESS ...the components of small business ownership; examining a variety of small business startup and operation scenarios. Assesses your own readiness to begin the entrepreneurial adventure

10-145-189 WRITING A BUSINESS PLAN-SMALL BUSINESS ...as a necessary component to beginning a small business, from addressing facets of the business plan, observing various types of plans, to realizing readiness to begin. Plan preparation/presentation are required.

VIN 146 INTRODUCTION TO ENOLOGY ...learn the basic science and technology of winemaking. Make wine from a kit, track fermentation, make various chemical measurements and provide one bottle of finished wine for evaluation. (Students must be 21 years of age to enroll in this course.)

VIN 148 WINERY SANITATION ...covers methods used for sanitizing the premises, tanks, pumps, filters, oak barrels, and sampling equipment, including chemical agents, reagents, and therma treatments leading to sterile bottling. Environmental issues and compliance also addressed. (Recommendation: VIN 146, Introduction to Enology or permission)
VIN 160 WINERY EQUIPMENT OPERATION ...overview of winemaking including operations and equipment, barrel aging and management, membrane separation processes, workplace safety, and specializ control, refrigening, sanitation, proces humidity, electrical, wastewater, solid waste handling systems. (Recommendation: VIN 146, Introduction to Enology or permission)

VIN 210 INTRO TO WINE
MICROORGANISMS ...learn about the variety of microorganisms frequently encountered in the wine-making proces both beneficial and harmul ching identification, physiology, morphology, and biochemistry of various wine microorganisms
VIN 246 INTERMEDIATE ENOLOGY ...the science and technology of winemaking intended for experienced intermediate winemaker or winery employee interested in career development, or advanced home winemaker seeking new challenges. Basic organic chemistry, microbiology and some mathematics familiarity are recommended. (Prerequisite: VIN 146, Introduction to Enology or permission)
VIN 257 FALL WINE PRODUCTION INTERNSHIP ...hands-on instruction for the individual anticipating a career in the wine industry who has completed major course sequences. Experience an intense level of practical and realistic winery operation during crush season. (Prerequisites: VIN146, Intro to Enology; VIN148, Winery Sanitation; VIN160, Winery Equipment; Corequisite: VIN246, Intermediate Enology, or permission) VIN 259 CELLAR OPERATIONS TECHNOLOGY ...get onsite experience learning techniques associated with finished wine production. Learn wine transfer, wine fining, cold stabilization, wine clarification, blending of wines, and bottling. (Prerequisite: VIN257, Wine Production Internship or permission)
VIN 268 WINE AND MUST ANALYSIS ...analysis regarding grape juice and win are chosen for laboratory exercises and demonstrate various chemical, physical, and biochemical methods. Students will participate in workshops and hands-on experiences at participating wineries. (Prerequisites: VIN146, Intro to Enology; VIN105, Molecular Principles in Grape \& Wine, or permission.)

VIN 266 SENSORY EVALUATION ...develop an understanding of the principles of sensory evaluation used in ommercial wine making. Students will utilize sensory kits and workshops to further sensory evaluation skills and techniques. tudents must be 21 years of age to enroll in this course. (Prerequisite: VIN 146, Introduction to Enology or permission)
VIN 290 WINERY SAFETY ...an introduction to safety and procedures specific to enology including general history of food and beverage safety and health issues, ergonomics, OSHA safety rules and safety issues and concerns specific to the winery
VIN 105 MOLECULAR PRINCIPLES IN GRAPE \& WINE ...emphasis on chemical fundamentals of winemaking This course includes organic, biochemistry and applications with a focus on the grape and wine industry.

VIN 247 SPRING INTERMEDIATE ENOLOGY... course will focus on advanced concepts of winemaking for he experienced winemaker as it relates to post-harvest activities including blending orrections, aging of wine, clarification, fining, wine analysis, and bottling. Basic organic chemistry, microbiology, and some mathematics familiarity are recommended. [Prerequisites: VIN 146 (VIN 105 and VIN 110 recommended)]```


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