

Associate Degree - Two Years

Offered at the Green Bay campus. For information: (920) 498-5444.
Toll-free: (800) 422-NWTC, ext. 5444.

Program Description

The Manufacturing Engineering Technology program prepares students to work in the manufacturing sector assisting engineering and management in the design and development of new products and in the improvement of production processes.

This program has been developed to transfer into University of Wisconsin-Stout's Bachelor of Science degree in Manufacturing Engineering. The third and fourth years of the bachelor's program will be taught by UW-Stout instructors on the NWTC Green Bay campus with no need for students to travel to UW-Stout.

Program Outcomes

- Apply the principles of mathematics and science to solving manufacturing related problems.
- Apply methodologies to design for manufacturability.
- Determine production process improvements by conducting experiments.
- Create basic models using a parametric modeler.
- Explain the principles of material selection.
- Assist in the design of products and manufacturing systems.
- Communicate effectively.
- Function effectively in team or group settings.
- Display attitudes consistent with the profession.

Requirements for Program Entry

- Completed application.
- High school transcript or equivalent (such as an HSED or GED® Transcript).
- NWTC Academic Skills Assessment or equivalent (See Academic Skills Assessment section for details and equivalents).
- Students should have an aptitude for science and mathematics. You should take as many upper level math and science courses in high school as possible, including mathematics through algebra, trigonometry and pre-calculus, and physics and chemistry.
- Students will also need to have mastered basic computer skills and should have had experience with manual drafting or sketching.
- Students will be required to take the Accuplacer College Level Math assessment. You will need a score of 103 in order to take Calculus 1. If you score less than that you will need to begin with another math course before taking Calculus.

Employment Potential

A graduate of the program will have the potential for employment in the manufacturing sector as a Manufacturing Engineering Technician, Industrial Engineering Technician, Productivity Improvement Technician or Continuous Improvement Technician, assisting engineering and management in the design and production of products as efficiently as possible.

Notes

- **The following courses will be taken at UW-Green Bay:**

MATH 202 Calculus and Analytic Geometry I
MATH 203 Calculus and Analytic Geometry II
CHEM 211 Principles of Chemistry I
PHYSICS 201 Principles of Physics I
PHYSICS 202 Principles of Physics II

Students enrolling in these courses under the terms of this agreement must meet all of UW-Green Bay's admission requirements and the specific course pre-requisites as published in the UW-Green Bay Undergraduate Catalog and have been admitted to the NWTC Manufacturing Engineering Technology Program. All requirements and fees for enrollment at UW-Green Bay will apply and are subject to change.

For more information go to the UW-Green Bay Admission Office Web site:
www.uwgb.edu/admissions

- Additional course work may be required during summer terms for transfer to UW-Stout.

Curriculum

The Manufacturing Engineering Technology Associate Degree is a two-year program. Upon graduation students will have completed 68 credits.

First Semester

Catalog No.	Description	Credits
10-623-170	Engineering Materials - Intro	3
10-801-136	English Composition 1	3
10-801-198	Speech	3
MATH 202	Calculus and Analytic Geometry I (UWGB)	4
CHEM 211	Principles of Chemistry (UWGB)	5
Semester Total		18

Second Semester

10-623-175	Casting and Joining Processes	3
10-801-185	English Composition 2	3
10-809-196	Intro to Sociology	3
PHYSICS 201	Principles of Physics I (UWGB)	5
MATH 203	Calculus and Analytic Geometry II (UWGB)	4
Semester Total		18

Third Semester

10-606-113	CAD	2
10-623-171	Polymer Composite Processes	3
10-623-173	Engineering Mechanics	3
10-809-198	Intro to Psychology	3
PHYSICS 202	Principles of Physics II (UWGB)	5
Semester Total		16

Fourth Semester

10-606-126	Geometric Dimension/Toleran	2
10-606-157	Solidworks Fund and Drawings	2
10-623-172	Material Removal/Forming	3
10-623-174	Mechanics of Materials	3
10-809-166	Intro to Ethics: Theory & App	3
10-809-172	Race Ethnic & Diversity	3
Semester Total		16
Total Credits		68

This program is fully eligible for financial aid.

Please Note

- Some courses have prerequisites (listed at the end of each course description, if applicable) that need to be taken prior to enrolling in those courses.
- Many courses are offered via our Flexible Learning Options (online, accelerated, ITV, video, weekend, and self-paced) and may be taken in any order as long as prerequisites are met. To find out which program courses are offered through Flexible Learning Options, go to www.nwtc.edu or consult a counselor, (920) 498-5444.
- Descriptions of courses not found on this page can be found in the back of this catalog.

Course Descriptions

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

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 inquiry commands; blocks and attributes; and plotting. (Corequisite: 10-607-119, Civil Drafting Technology; OR 10-606-119 Technical Sketching OR 10-614-113, 2D Essentials)

10-606-126 GEOMETRIC DIMENSIONING/

TOLERANCING ...basic review, geometric dimensioning, datums, material condition symbols, tolerances of form and profile, tolerances of orientation and run out, location tolerances and virtual condition. (Prerequisite: 10-606-113, CAD; OR 10-606-157, Solidworks Fund and Drawings OR 10-606-162, Solidworks Fundamentals)

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 full dimensioned orthographic drawings. (Corequisite: 10-606-119, Sketching-Technical, OR 10-614-113, 2D Essentials Sketching-Technical; Prerequisite: Familiarity with Windows file management)

10-623-170 ENGINEERING MATERIALS - INTRO

...exposure to engineering materials, their properties, and behavior. Topics will include: material types, material testing, mechanical properties, heat treatment and materials selection.

10-623-171 POLYMER AND COMPOSITE

PROCESSES ...polymer materials and properties, material testing, product design and evaluation, processing methods, machine setup and operation.

10-623-172 MATERIAL REMOVAL AND FORMING

PROCESSES ...machine tool concepts providing an operational knowledge of machining and metal forming processes. Analysis and application of primary and secondary processing methods for the manufacture of products. Measurement principles and practice applied to inspection and process control. Development of process designs appropriate for product specifications.

10-623-173 ENGINEERING MECHANICS ...force

systems and equilibrium in two and three dimensions, free body diagrams, trusses, frames, friction, kinematic analysis of particle and rigid body translation, rotation, and general plane motion, force-acceleration analysis, work-energy analysis, impulse momentum analysis, impact, damped and undamped vibrations, and forced vibrations.

10-623-174 MECHANICS OF MATERIALS ...stress

and strain, stress-strain curves, material properties, stress and strain transformation, axially loaded members, elastic and inelastic flexure, shear and bending moment diagrams, beam deflections, combined loading, fatigue, column buckling.

10-623-175 CASTING AND JOINING PROCESSES

...welding of metals, ceramic and plastic. Brazing and soldering of appropriate metals, setup and operate welding equipment. Thermal effects and destructive testing. Evaluation of adhesives and mechanical fasteners. Welding codes and ASTM standard comparative processing cost.