

Industrial Maintenance Certificate

Certificate Number 90-462-1

Description:

Courses are designed for maintenance technicians providing skills and understanding of the preliminary fundamentals of PLC's, motors and drives, pneumatics, hydraulics and mechanics.

Certificate Completers Will be Able to:

Troubleshoot industrial machinery utilizing basic skills in PLC's, drives, motors, hydraulics, pneumatics and mechanics.

Curriculum

CATALOG #	DESCRIPTION	CREDITS
10-664-100 <i>Offered in:</i> <i>Summer 2008</i> <i>Fall 2008</i> <i>Spring 2009</i>	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.	1
10-664-101 <i>Offered in:</i> <i>Summer 2008</i> <i>Fall 2008</i> <i>Spring 2009</i>	Automation 2: Motor Control ...electric motor control components such as sensors, timers and counters. (Prerequisite: 10-664-100, Automation 1: Control Logic)	1
10-664-102 <i>Offered in:</i> <i>Summer 2008</i> <i>Fall 2008</i> <i>Spring 2009</i>	Automation 3: PLC ...basic programmable logic controller programming and troubleshooting.	1
10-664-103 <i>Offered in:</i> <i>Summer 2008</i> <i>Fall 2008</i> <i>Spring 2009</i>	Automation 4: PLC ...troubleshooting a PLC System, applying Event Sequencing, developing PLC applications, applying timer instructions and counter instructions. (Prerequisite: 10-664-102, Automation 3: PLC)	1
10-664-104 <i>Offered in:</i> <i>Summer 2008</i> <i>Fall 2008</i> <i>Spring 2009</i>	Automation 5: PLC ...application, troubleshooting, and implementation of program control, math and data move instructions, analog I/O modules, and producing a PLC program from specification. (Prerequisite: 10-664-103, Automation 4: PLC)	1
10-664-105 <i>Offered in:</i> <i>Summer 2008</i> <i>Fall 2008</i> <i>Spring 2009</i>	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)	1
10-620-100 <i>Offered in:</i> <i>Summer 2008</i> <i>Fall 2008</i> <i>Spring 2009</i>	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.	1
10-620-101 <i>Offered in:</i> <i>Summer 2008</i> <i>Fall 2008</i> <i>Spring 2009</i>	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. (Prerequisite: 10-620-100, Fluids 1: Basic Pneumatics)	1
10-620-121 <i>Offered in:</i> <i>Summer 2008</i> <i>Fall 2008</i> <i>Spring 2009</i>	Mechanics 1: Basic ...mechanical drive system components related to V-belt drives, chain drives, and gear drives.	1

continued

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10-620-122 <i>Offered in:</i> <i>Summer 2008</i> <i>Fall 2008</i> <i>Spring 2009</i>	Mechanics 2: Intermediate ...mechanical drive system components related to multiple shaft drives, heavy-duty V-belt Drives, synchronous belt drives, lubrication, and alignment. (Prerequisite: 10-620-121, Mechanics 1: Basic)	1
10-620-140 <i>Offered in:</i> <i>Summer 2008</i> <i>Fall 2008</i> <i>Spring 2009</i>	Machine Wiring and Safety ...introduction to machine wiring, including basic documentation, labeling, and wiring practices; and an overview of NFPA 70 - machinery, safety and installation standards.	1
10-620-161 <i>Offered in:</i> <i>Summer 2008</i> <i>Fall 2008</i> <i>Spring 2009</i>	Power Electricity 1: Motors ... DC motors and generator configuration, shunt, compound, and permanent magnet DC motor performance and characteristics.	1
10-620-159 <i>Offered in:</i> <i>Summer 2008</i> <i>Fall 2008</i> <i>Spring 2009</i>	Power Electronics 3: Drives ...power circuitry of AC drives and application of an industrial AC drives to AC motors. (Corequisite: 10-620-161, Power Electricity 1: Motors)	1
10-620-105 <i>Offered in:</i> <i>Summer 2008</i> <i>Fall 2008</i> <i>Spring 2009</i>	Rigging Systems 1 ...the basic skills of rigging, employment of hoists, slings, lifts, wire rope, and chain slings as part of rigging system.	1
	<i>Certificate Total</i>	14

For more information, please contact: The Trades and Technical Division, (920) 498-5461 or (800) 422-NWTC, extension 5461, or contact Donna Meves, Flexible Learning Manager, (920) 498-6872 or (920) 498-5431, donna.meves@nwtc.edu