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Industrial Mechanic Program

Course Curriculum

Semester 01 (Tuition: \$3,060)

Course #	Course Title	Credits
10-620-101	DC and AC Fundamentals	5
Credits: 5 Lecture Hours: 54 Lab Hours: 72		
Students will explore and apply the principles of DC and AC electricity and components. Major topics of study include: electrical safety, direct current (DC) and its characteristics, resistors and resistance, electrical units of volts, ohms, amps, and watts and their relationships in series, parallel, and series-parallel circuits, test and measurement tools and techniques, circuit analysis using common electrical laws and theorems, alternating current (AC) and its characteristics, capacitors and inductors and the effects of inductance and capacitance in AC circuits. In addition, basic soldering/desoldering, breadboarding, and troubleshooting skills will be practiced.		
10-620-121	Mechanics and Materials	4
Credits: 4 Lecture Hours: 36 Lab Hours: 72		
Learners explore the basic concepts of simple mechanical drives and drive components. Major topics include: V-belt drives, chain drives, and gear drives. Learners install and align mechanical drive system components to specified tolerances using a variety of common and specialized hand tools and measuring instruments including dial calipers, micrometers, levels, and rules.		
10-620-123	Construction Electrical Wiring I	1
Credits: 1 Lecture Hours: 9 Lab Hours: 18		
Maintaining compliance with the Wisconsin and National Electrical Codes for adhering to OSHA Sub Part S, the student installs, troubleshoots, and maintains electrical equipment for the following: Connection to electrical utility, distribution throughout facility, and control of electrical power. Corequisites: DC and AC Fundamentals (10-620-101)		
10-620-124	Welding for Maintenance	2
Credits: 2 Lecture Hours: 9 Lab Hours: 54		
The student creates weldments in flat, vertical, horizontal, and overhead positions; these weldments will utilize SMAW, MIG, TIG, brazing and oxyfuel. All operations will adhere to AWS Code.		
10-620-138	Construction Electrical Wiring II	1
Credits: 1 Lecture Hours: 9 Lab Hours: 18		
Maintaining compliance with the Wisconsin and National Electrical Codes for adhering to OSHA Sub Part S, the student installs, troubleshoots, and maintains electrical equipment for the following: Connection to electrical utility, distribution throughout facility, and control of electrical power. Corequisites: Construction Electrical Wiring I (10-620-123)		
10-620-163	Intro to Mechatronics	1

Credits: 1 Lecture Hours: 9 Lab Hours: 18

Students will learn foundational information and develop hands-on skill in the areas of Mechanical, Electrical, and Control Technology. Topics covered include the areas of pneumatics, electricity, sensors, actuators, and controls.

10-804-113 College Technical Math 1A 3

Credits: 3 Lecture Hours: 54

Topics include: solving linear equations; graphing; percent; proportions; measurement systems; computational geometry; and right triangle trigonometry. Emphasis will be on the application of skills to technical problems. Successful completion of College Technical Mathematics 1A and College Technical Mathematics 1B is the equivalent of College Technical Mathematics 1.

17

Semester 02 (Tuition: \$3,020)

Course #	Course Title	Credits
10-449-160	Industrial Safety Practices & Career Development	1

Credits: 1 Lecture Hours: 18

Students will gain an understanding of the OSHA regulations governing safety in the workplace. They will earn an OSHA 10-hour certification card upon successful completion of this course. Students will also be introduced to the ASME safe rigging practices to be applied to rigging applications in the field. Students discover employment strategies designed to assist in securing employment. The course will help develop an awareness of personal and academic skills as they relate to the job seeking process.

10-620-107 Hydraulics and Pneumatics 3

Credits: 3 Lecture Hours: 27 Lab Hours: 54

Students examine the principles of fluidic and pneumatic power. Students investigate the operation and applications of devices used in these systems along with the symbolic representation of these devices. Utilizing this information the student will build, analyze, and troubleshoot hydraulic and pneumatic circuits in a laboratory setting. Prerequisites: College Technical Math 1A (10-804-113)

10-620-148 Intro to Motor Controls 2

Credits: 2 Lecture Hours: 18 Lab Hours: 36

Students operate, install, and troubleshoot relay and variable frequency drive control of A/C electric motors found in industrial and commercial applications. Students will learn to develop and read schematics, including ladder logic, wire typical relay applications, test and monitor A/C electrical equipment and troubleshoot equipment as necessary. Prerequisites: DC and AC Fundamentals (10-620-101)

10-620-149 Intro to Programmable Controls 2

Credits: 2 Lecture Hours: 18 Lab Hours: 36

Students design, program, operate, and troubleshoot discrete input/ output PLC functions utilizing Allen Bradley Control Logix programming software. Students will develop ladder logic programs on a PC, transfer them to and from a PLC, and monitor PLC operations. Prerequisites: Intro to Motor Controls (10-620-148)

10-620-162 Manual Machine Shop Fundamentals 3

Credits: 3 Lecture Hours: 18 Lab Hours: 72

This course teaches students to set up and operate engine lathes, band saws, milling machines, and hydraulic surface grinders to fabricate within tolerances specified in projects according to prints provided. Students will use and identify machine shop tooling and measurement equipment.

10-620-164 Intro to Preventative Maintenance 1

