Industrial Maintenance Technology

Description

The purpose of this program is to prepare individuals for employment in the field of Industrial Maintenance Mechanical Technology. It prepares students through classroom instruction and practical experience needed to install, repair, and maintain industrial equipment and machinery such as: electrical systems, motors, pumps, production machinery, welding, plumbing of pneumatics & hydraulic lines, and electrical conduit.

Program Learning Objectives

1. The student will be able to comprehend and demonstrate safety practices in an industrial environment.
2. The student will be able to understand and demonstrate the principles and applications of electricity in direct and alternating current circuits and their use in industrial environments.
3. The student will be able to understand and demonstrate the scaling, symbols, and layout of blueprints and how they relate to floor plans, electrical, plumbing, and other utilities used in construction.
4. The student will be able to understand and demonstrate the principles and applications of pneumatic systems in industrial environments.
5. The student will be able to understand and demonstrate the principles and applications of hydraulic systems in industrial environments.
6. The student will be able to understand and demonstrate the principles of SMAW and MIG welding in the industrial environment.
7. The student will be able to understand and demonstrate the proper use of various electrical test equipment.
8. The student will be able to precisely align, monitor, maintain, and troubleshoot industrial pump systems.
9. The student will be able to precisely align, monitor, maintain, and troubleshoot industrial mechanical systems.
10. The student will be able to understand and demonstrate the installation and basic operation of PLC units.

Curriculum

Course #	Course Title	Lecture/ Lab Hours	Credit Hours	Clock Hours
LEAD 1003	Work Readiness	2/2	3	90
WKSF 1003	Industrial Workplace Safety	2/2	3	90
IMMT 1311	Pipefitting	2/1	2	60
IMMT 1410	Basic Electricity	2/0	1	30
IMMT 1411	Basic Electricity Lab	2/2	3	90
IMMT 1120	Blueprint Reading	2/0	1	30
CTS –Electrical Raceway - Conduit Technician			**13**	**390**
IMMT 1220	Pneumatics	2/2	3	90
IMMT 1221	Pneumatics Application	2/2	3	90
IMMT 1230	Hydraulics	2/2	3	90
IMMT 1241	Hydraulics Troubleshooting Projects	2/2	3	90
CTS –Hydraulic and Pneumatic Technician			**25**	**750**
IMMT 1111	Maintenance Welding I	1/3	3	105
IMMT 1112	Maintenance Welding II	1/3	3	105
CTS - Maintenance Helper			**31**	**960**
IMMT 1430	Motor Controls	1/3	3	105
IMMT 1320	Millwright I	1/5	4	165
IMMT 1330	Millwright II	1/5	4	165
IMMT 1440	Programmable Logic Controllers	1/3	3	105
TD - Industrial Maintenance Technology			**45**	**1500**

Course Descriptions

IMMT 1111 Maintenance Welding I
Students will Weld Basic Beads with SMAW 1/8 7018 AND 1/8 6010 Rods Weld T-Joints and V-Grooves for A.W.S. Root and Cap Bend Test. Learn how to cut with Acetylene hand and Track Torch.

IMMT 1112 Maintenance Welding II
Students will Weld SMAW 1/8 7018 and 1/8 6010 Rods. Continue the T-joints & V-Grooves that they started in Welding 1. Welding every day until they can Pass the A.W.S. Bend Test. They will be Proficient with the Hand Torch and the Track Torch.

IMMT 1120 Blueprint Reading
Experience will be gained in problems solving techniques, design making skills, and communication skills. Activities are practiced and reinforced by participation in various individual and group settings.

IMMT 1220 Pneumatics
Read and Understand Pneumatic Systems and Drawings. To understand and figure Pressure, Force, Area and the Valves that control this Process.

IMMT 1221 Pneumatics Application
Read and Understand Pneumatic Systems and Drawings. To understand and figure Pressure, Force, Area and the Valves that control this Process.

IMMT 1230 Hydraulics
A general study relating to design and application of hydraulic power.

IMMT 1241 Hydraulics Troubleshooting Projects
The study and application of diagnosis of fluid power systems and components. Includes the use of testing devices, system specifications, codes, and applications and safety to determine the proper functions of the application.

IMMT 1311 Pipefitting
Measure, Cut, Thread, Fit, Bend, Schedule 40 and Electrical Metallic Tubing with Rigid 535 Threading Machine and various Conduit Benders.

IMMT 1320 Millwright I
Students will learn to use semi-precision measuring tools. Precision motor alignment skills will be demonstrated and applied. Fluid pumping systems are set-up and adjusted using VFDS to control pressure and flow.

IMMT 1330 Millwright II
Students will learn to use semi-precision measuring tools. Precision motor alignment skills will be demonstrated and applied. Fluid pumping systems are set- up and adjusted using VFDS to control pressure and flow.

IMMT 1410 Basic Electricity
Students will know Ohms Law Kirchhoff Laws & Power Formulas and will be able to Calculate Voltage Current and Resistance in Series and Parallel Circuits- read Electrical Schematics, Hook up Single Pole, Double Pole, Three Way & Four Way Switches and Receptacles with Pigtails. Know the Formulas for Inductive Reactance and Capacitive Reactance. Understand how a Transformer works and Impedance Formulas.

IMMT 1411 Basic Electricity Lab
Students will know Ohms Law Kirchhoff Laws & Power Formulas and will be able to Calculate Voltage Current and Resistance in Series and Parallel Circuits- read Electrical Schematics, Hook up Single Pole, Double Pole, Three Way & Four Way Switches and Receptacles with Pigtails. Know the Formulas for Inductive Reactance and Capacitive Reactance. Understand how a Transformer works and Impedance Formulas.

IMMT 1430 Motor Controls
A study of AC motor controls designed to acquaint the student with the theory, diagnosis, and repair of various motor controllers and circuit components. Students will be involved in the construction of various controls circuits found in industry.

IMMT 1440 Programmable Logic Controllers
Introduction to Logic Controllers, this Course covers the software, hardware, and associated equipment that students will need to become proficient with in order to install, program and maintain industrial programmable controllers.

LEAD 1003 Work Readiness
This course is designed to prepare for job readiness by reviewing the skills necessary for employment, including time management, communication, teamwork, and professionalism. The student will engage in a variety of skill-building activities, create a resume, participate in a simulated interview process, and review basic math and English skills necessary for their chosen program of study.

WKSF 1003 Industrial Workplace Safety
This course will provide an overview of the construction industry by examining organizational structures and systems, safety regulations and agencies, construction documents, office and field organizations, and the various construction crafts and trades. This course will focus on the basic knowledge and skills needed in the construction industry by studying safety, math, hand tools, power tools, rigging, blueprint reading, communication, and employability.