



Program Planning Guide

Industrial Systems Technology, Industrial Hydraulics Certificate (C5024020)

Program Length: 4 semesters

Program Sites: Lee Main Campus, Day Program

Career Pathway Options: Associate in Applied Science in Industrial Systems Technology; Diploma in Industrial Systems; Certificate in Industrial Hydraulics

Suggested Course Schedule		Class	Lab	Work	Credits	Notes:
1st Semester (fall)						
BPR 111	Print Reading	1	2	0	2	
MNT 110	Intro to Maintenance Procedures	1	3	0	2	
	Total Semester Hours	2	5	0	4	
2nd Semester (spring)						
MNT 111	Maintenance Practices	2	2	0	3	
Math/Science, select one course:						
PHY 121	Applied Physics I	3	2	0	4	
MAT 110	Math Measurement & Literacy	2	2	0	3	
	Total Semester Hours	4/5	4	0	6/7	
3rd Semester (summer)						
ISC 110	Workplace Safety	1	0	0	1	
HYD 110	Hydraulics/Pneumatics I	2	3	0	3	
	Total Semester Hours	3	3	0	4	
4th Semester (fall)						
HYD 121	Hydraulics/Pneumatics II	1	3	0	2	
	Total Semester Hours	1	3	0	2	
Total Semester Hours Credit Required for Graduation: 17						



Course Descriptions

BPR 111 **Print Reading**

This course introduces the basic principles of print reading. Topics include line types, orthographic projections, dimensioning methods, and notes. Upon completion, students should be able to interpret basic prints and visualize the features of a part or system.

HYD 110 **Hydraulics/Pneumatics I**

This course introduces the basic components and functions of hydraulic and pneumatic systems. Topics include standard symbols, pumps, control valves, control assemblies, actuators, FRL, maintenance procedures, and switching and control devices. Upon completion, students should be able to understand the operation of a fluid power system, including design, application, and troubleshooting.

HYD 121 **Hydraulics/Pneumatics II**

Prerequisite: Take HYD 110

This course is a continuation of HYD 110 and provides further investigation into fluid power systems. Topics include advanced system components, troubleshooting, and other related topics. Upon completion, students should be able to demonstrate an understanding of the installation, application, operation, and maintenance of fluid power components and systems.

ISC 110 **Workplace Safety**

This course introduces the basic concepts of workplace safety. Topics include fire, ladders, lifting, lock-out/tag-out, personal protective devices, and other workplace safety issues related to OSHA compliance. Upon completion, students should be able to demonstrate an understanding of the components of a safe workplace.

MAT 110 **Math Measurement & Literacy**

Prerequisite: Take one set: Set 1: DMA 010 DMA 020, DMA 030; Set 2: DMA 025; Set 3: MAT 003; Set 4: BSP 4003

Corequisite: Take MAT 010

This course provides an activity-based approach that develops measurement skills and mathematical literacy using technology to solve problems for non-math intensive programs. Topics include unit conversions and estimation within a variety of measurement systems; ratio and proportion; basic geometric concepts; financial literacy; and statistics including measures of central tendency, dispersion, and charting of data. Upon completion, students should be able to demonstrate the use of mathematics and technology to solve practical problems, and to analyze and communicate results.

MNT 110 **Intro to Maintenance Procedures**

This course covers basic maintenance fundamentals for power transmission equipment. Topics include equipment inspection, lubrication, alignment, and other scheduled maintenance procedures. Upon completion, students should be able to demonstrate knowledge of accepted maintenance procedures and practices according to current industry standards.

MNT 111 **Maintenance Practices**

This course provides in-depth theory and practical applications relating to predictive and preventive maintenance programs. Emphasis is placed on equipment failure analysis, maintenance management software, and techniques such as vibration and infrared analysis. Upon completion, students should be able to demonstrate an understanding of modern analytical and documentation methods.

PHY 121 **Applied Physics I**

This algebra-based course introduces fundamental physical concepts as applied to industrial and service technology fields. Topics include systems of units, problem-solving methods, graphical analyses, vectors, motion, forces, Newton's laws of motion, work, energy, power, momentum, and properties of matter. Upon completion, students should be able to demonstrate an understanding of the principles studied as applied in industrial and service fields.