



**COURSE SYLLABUS**

**DIVISION:** Workforce Services

**Revised:** January 2015

**CURRICULUM IN WHICH COURSE IS TAUGHT:** Integrated Systems Technology

**COURSE NUMBER AND TITLE:** MEC 162, Applied Hydraulics and Pneumatics

**CREDIT HOURS:** 2-3

**HOURS/WEEK LECTURE:** 1-3

**HOURS/WEEK LAB:** 1-3

**LECTURE/LAB COMBINATION:** 2-5

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The OEE classes are self-paced study classes in which a student has 16 weeks to complete once enrolled. Students will complete all lab and bookwork before doing the end of chapter tests. All end of chapter tests and final exams are closed book. Upon completion of the lab, all tools, components, and supplies shall be returned to their proper location.

**I. CATALOG DESCRIPTION:** Introduces hydraulic and pneumatic systems found in construction equipment, road vehicles, and farm equipment. Includes the basic theory, construction, maintenance and repair of hydraulic and pneumatic power systems.

**II. RELATIONSHIP OF THE COURSE TO CURRICULUM OBJECTIVES IN WHICH IT IS TAUGHT:**

This course offers the basic fundamentals of mechanical systems and is necessary for today's industrial maintenance technicians.

**III. REQUIRED BACKGROUND:** course is intended for those individuals with no prior Pneumatic/Hydraulic systems.

**IV. COURSE CONTENT**

- Properties of fluids and fluid flow
- Bernoulli's theorem
- Measuring devices
- Viscosity and dimensional analysis
- Fluid statics
- Flow in pipes and channels, and pumps
- Theory of hydraulic and pneumatic
- Circuits including motors
- Controls
- Actuators
- Valves
- Plumbing
- Accumulators

Reservoirs  
Pumps  
Compressors  
Filters

V. Learner Outcomes	VI. Evaluation
Explain properties of fluids and fluid flow	Class participation, homework, quizzes, and final exam
Explain Bernoulli's theorem	Class participation, homework, quizzes, and final exam
Explain measuring devices	Class participation, homework, quizzes, and final exam
Explain viscosity and dimensional analysis	Class participation, homework, quizzes, and final exam
Explain fluid statics	Class participation, homework, quizzes, and final exam
Explain flow in pipes and channels, and pumps	Class participation, homework, quizzes, and final exam
Explain theory of hydraulic and pneumatic	Class participation, homework, quizzes, and final exam
Explain circuits including motors	Class participation, homework, quizzes, and final exam
Explain controls	Class participation, homework, quizzes, and final exam
Explain actuators	Class participation, homework, quizzes, and final exam
Explain valves	Class participation, homework, quizzes, and final exam
Explain plumbing	Class participation, homework, quizzes, and final exam
Explain accumulators	Class participation, homework, quizzes, and final exam
Explain reservoirs	Class participation, homework, quizzes, and final exam
Explain pumps	Class participation, homework, quizzes, and final exam
Explain compressors	Class participation, homework, quizzes, and final exam
Explain filters	Class participation, homework, quizzes, and final exam

**VII. The course supports the following general education goals/objectives:**

- DCC Educational Objectives
- Communication
  - Critical Thinking
  - Information Literacy
  - Quantitative Reasoning