

**Western Iowa Tech Community College
Course Outline of Record**

Date: 03/06/2014

Course Typically offered in: Spring

Prefix & No.: EGT 210 Course Title: Fluid Power III - Intermediate Hydraulics

Semester **Credit** Hours: 2.00

Lecture **Contact** Hours per Semester: 16.00

Lab **Contact** Hours per Semester: 32.00

Clinical **Contact** Hours per Semester: 0.00

OJT or Internship **Contact** Hours per Semester:

Course/Lab Fee: Yes No

Pre and Post Assessments:

Course Description

This course concentrates on hydraulics and is a continuation of EGT 143 Fluid Power II. Emphasis is on the use of the knowledge gained previously toward the setting up and troubleshooting of typical industrial fluid power applications.

Prerequisite: EGT 143 Fluid Power II

Corequisite: None

Course Needs Statement

Many machines in industry are powered by fluids. This course provides WITCC students with the basic knowledge of hydraulic systems and has been recommended by the program advisory committee.

Required Textbooks and/or materials

Yes No Other

Course Objectives:

The course will provide information which should enable the student to:

1. Describe and explain the terms used to specify directional control valves.
2. Describe the function and operation of a hydraulic directional control valve.
3. Discuss the operation of a hydraulic pilot-operated directional control valve.
4. Design a hydraulic sequence circuit using hydraulic directional control valves.
5. Describe the operation of hydraulic cylinders.
6. Identify three common cylinder feature options.
7. Calculate the forces associated with cylinder operation.
8. Operate a synchronization circuit using series actuators.
9. Describe the operation of a pilot-operated relief valve.
10. Discuss the methods of pump unloading.
11. Explain how actuator relaxation occurs in a multi-actuator circuit.
12. Design a pilot-operated valve circuit.
13. Describe the function of an accumulator.
14. List four accumulator safety rules.
15. Size a bladder-type accumulators.
16. Measure accumulator oil storage.

Content Outline

- I. Hydraulic directional control valves
 - A. Two-position DCV
 - B. Pilot-operated
 - C. Cam-operated
- II. Hydraulic cylinders
 - A. Types
 - B. Regeneration
 - C. Pressure compensation

- D. Synchronization
- III. Hydraulic pressure relief valves
 - A. Pilot-operated
 - B. Pump unloading
 - C. Remote pressure
- IV. Hydraulic check valves
 - A. Ports
 - B. Pilot-operated
 - C. Applications
 - D. Circuit design
- V. Accumulators
 - A. Operation
 - B. Circuits
 - C. Applications

Assessment

Course Competencies

At the conclusion of the course, the student will be able to:

1. Analyze hydraulic circuits.
2. Recognize, discuss and design intermediate level hydraulic circuits.
3. Identify hydraulic components including directional control valves, cylinders, relief valves, check valves, and accumulators.
4. Discuss safety procedures used with fluid systems.
5. Recognize and discuss the importance of fluid power systems maintenance.

Addendum

Prefix & No.: EGT 210 **Course Title:** Fluid Power III - Intermediate Hydraulics

Key words:

Required Textbooks and/or Materials

Other Materials:

Course/Lab Fee: \$0.00

Rationale (usage) for lab fees:

Additional Information:

Common Final: Yes No

See Division Chair for facility and equipment needs.

Reminder: Each Course Outline of Record is expected to be reviewed every five (5) years.

Attached Files: