WESTERN IOWA TECH COMMUNITY COLLEGE
Course Syllabus

Term:
Course Number and Section: EGT 143 ___
Course Title: Fluid Power II
Semester Hours: 2.00
Meeting time/location:
Instructor:
Phone: 712.274.8733 Ext.
E-mail: @witcc.edu
Office Location:
Office Hours:

COURSE DESCRIPTION AND PREREQUISITES/COREQUISITES:

This course emphasizes the practical application of setting up and troublshooting typical industrial applications. Knowledge gained in EGT 142 Fluid Power I is utilized in this applications course.

Prerequisite: EGT 142 Fluid Power I
Corequisite: None

REQUIRED TEXTBOOKS/MATERIALS

1. Amatrol. *Basic Pneumatics* Amatrol
2. Other Materials: Text_Book: Basic Pneumatics
   Author: Amatrol
   Publisher: Amatrol

COURSE OBJECTIVES

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

1. Define pneumatic terms.
2. Describe relationships among pressure, temperature, and specific volume of confined air.
3. Identify factors that affect pressure, flow rate, and velocity of confined air.
4. Describe how water vapor content of air affects operation of pneumatic systems.
5. Describe basic function, structure, and operation of pneumatic components that compress and store air.
6. Describe basic function, structure, and operation of pneumatic components that Use compressed air to produce mechanical motion.
7. Describe basic function, structure, and operation of pneumatic components that Regulate air flow.
8. Describe basic function, structure, and operation of pneumatic components that Treat and transfer air.
9. Describe basic function, structure, and operation of pneumatic components that Interpret graphic symbols for pneumatic components.
10. Describe basic structure and operation of various types of pneumatic compressors.
11. Describe basic structure and operation of air storage and treatment components.
12. Describe structure of air distribution systems.
13. Discuss how cylinders, rotary actuators, and motors convert energy of compressed air to mechanical energy.
14. Describe function, basic structure, and operation of pneumatic cylinders.
15. Describe function, basic structure, and operation of rotary actuators and air motors.
16. Describe function and operation of orifices and nozzles.
17. Describe function, basic structure and operation of directional control, speed control and pressure control valves.
18. Identify machine and workplace safety hazards associated with pneumatic systems.
19. List safety rules associated with individual pneumatic components.
20. Define pro-active, predictive, and preventive maintenance.
21. Identify factors to consider when developing a preventive maintenance program.
22. Identify pro-active maintenance tasks for pneumatic components and systems.
23. Define "Troubleshooting".
24. Describe a systematic procedure for evaluating pneumatic circuit operation.

CONTENT OUTLINE:

I. Compressed Air
   A. Terms
   B. Relationships
   C. Factors
   D. Water vapor effects
II. Pneumatic Circuits
   A. Air storage
   B. Mechanical motion
   C. Regulate
   D. Treat and transfer
   E. Symbols
III. Processing Air
   A. Compressors
   B. Storage and treatment
   C. Structure
IV. Using Compressed Air
   A. Components
   B. Cylinders
   C. Actuators and motors
   D. Orifices
V. Pneumatic Control Valves
   A. Directional
   B. Speed
   C. Pressure
VI. Safety
   A. Machine
   B. Workplace
   C. Component
VII. Maintenance
   A. Definition
   B. Factors
   C. Preventive
VIII. Troubleshooting
   A. Define
   B. Procedure

COMPETENCIES:

At the conclusion of the course the student will be able to:
1. Analyze pneumatic power systems.
2. Recognize, discuss and design basic pneumatic circuits.
3. Discuss the operations involved in processing air
4. Describe the proper uses of compressed air in pneumatic systems
5. Identify and discuss the operation of pneumatic valves and components
6. Discuss safety procedures used with pneumatic systems
7. Recognize and discuss the importance of pneumatic systems maintenance
8. Troubleshoot pneumatic systems