Washtenaw Community College Comprehensive Report

FLP 226 Pneumatics
Effective Term: Fall 2011

Course Cover

Division: Vocational Technologies
Department: Industrial Technology
Discipline: Fluid Power
Course Number: 226
Org Number: 14410
Full Course Title: Pneumatics
Transcript Title: Pneumatics
Is Consultation with other department(s) required: No
Publish in the Following: College Catalog , Time Schedule , Web Page
Reason for Submission: Course Change
Change Information:
Course description
Pre-requisite, co-requisite, or enrollment restrictions
Outcomes/Assessment
Objectives/Evaluation
Rationale: Update syllabus
Proposed Start Semester: Fall 2011
Course Description:

This course covers operation and practical use of compressors, air distribution systems, actuators, directional valves and other controls used in automation. The second half of the course concentrates on the design of pneumatic control and power circuits using ANSI and ISO symbols and also the Moving Part Logic technique (pneumatic ladder logic).

Course Credit Hours

Variable hours: No
Credits: 3
Lecture Hours: Instructor: 30 **Student:** 30
Lab: Instructor: 30 **Student:** 30
Clinical: Instructor: 0 **Student:** 0

Total Contact Hours: Instructor: 60 **Student:** 60
Repeatable for Credit: NO
Grading Methods: Letter Grades
Audit
Are lectures, labs, or clinicals offered as separate sections?: NO (same sections)

College-Level Reading and Writing

College-level Reading & Writing

College-Level Math

Level 3

Requisites

Prerequisite
FLP 101 minimum grade "C"

and
Prerequisite
FLP 110 minimum grade "C"

General Education

Request Course Transfer

Proposed For:

Student Learning Outcomes

1. Perform calculations using basic Gas Laws.
   Assessment 1
   Assessment Tool: Math section of final exam
   Assessment Date: Fall 2011
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All sections
   Number students to be assessed: All students
   How the assessment will be scored: Answer key
   Standard of success to be used for this assessment: 80% of students must score 80% or higher.
   Who will score and analyze the data: Full time faculty

2. Using schematic diagrams and department equipment, build functioning intermediate level circuits.
   Assessment 1
   Assessment Tool: Hands-on portion of final exam
   Assessment Date: Fall 2011
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All sections
   Number students to be assessed: All students
   How the assessment will be scored: Departmental rubric
   Standard of success to be used for this assessment: 80% of the students will score 80% or higher.
   Who will score and analyze the data: Department faculty

3. Design basic sequencing circuits using ANSI, ISO and Numatrol schematic symbols.
   Assessment 1
   Assessment Tool: Circuit design quiz
   Assessment Date: Fall 2011
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All sections
   Number students to be assessed: All students
   How the assessment will be scored: Answer key
   Standard of success to be used for this assessment: 80% of students will score 80% or better.
   Who will score and analyze the data: Department faculty

4. Interpret component and circuit level actions and functions.
   Assessment 1
   Assessment Tool: Final Exam
   Assessment Date: Fall 2011
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All sections
   Number students to be assessed: All students
   How the assessment will be scored: Department answer key
   Standard of success to be used for this assessment: 80% of the students will

score 80% or higher.
Who will score and analyze the data: Department faculty

5. Recall relationships between force, pressure, area, volume, compression, humidity, and temperature.
   Assessment 1
   Assessment Tool: Final Exam
   Assessment Date: Fall 2011
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All sections
   Number students to be assessed: All students
   How the assessment will be scored: Department answer key
   Standard of success to be used for this assessment: 80% of students will score 80% or better.
   Who will score and analyze the data: Department faculty

Course Objectives

1. Recognize basic ANSI and ISO schematic component symbols.
   Matched Outcomes
   4. Interpret component and circuit level actions and functions.

2. Perform a simple circuit design using the ANSI and ISO symbol sets.
   Matched Outcomes
   3. Design basic sequencing circuits using ANSI, ISO and Numatrol schematic symbols.

3. Perform basic Force, Pressure, and Area calculations
   Matched Outcomes
   1. Perform calculations using basic Gas Laws.

4. Explain dew point and relative humidity and how they relate to aftercoolers.
   Matched Outcomes

5. Calculate the CFM needed to extend a cylinder within a certain time.
   Matched Outcomes
   1. Perform calculations using basic Gas Laws.

6. Describe the three major differences between the power circuit and control (pilot) circuit.

   Matched Outcomes
   4. Interpret component and circuit level actions and functions.

7. List three ways to design sequencing circuits.
   Matched Outcomes
   3. Design basic sequencing circuits using ANSI, ISO and Numatrol schematic symbols.

8. Recognize and follow the sequence of a circuit designed with Numatrol symbols.
   Matched Outcomes
   3. Design basic sequencing circuits using ANSI, ISO and Numatrol schematic symbols.

New Resources for Course

Course Textbooks/Resources

Textbooks

SMC. *Pneumatic Technology*, latest ed. SMC corp., 2010

Numatics corp.. *Practical Air Circuitry (PAC II)*, latest ed. Numatics corp., 1970

Manuals

Periodicals
Software

Equipment/Facilities

Level III classroom
Other: Dept. owned pneumatic trainers.

Reviewer	Action	Date
Faculty Preparer:		
Gary Schultz	*Faculty Preparer*	*Jan 27, 2011*
Department Chair/Area Director:		
Gary Schultz	*Recommend Approval*	*Mar 18, 2011*
Dean:		
Granville Lee	*Recommend Approval*	*Mar 21, 2011*
Vice President for Instruction:		
Stuart Blacklaw	*Approve*	*May 12, 2011*