Common Course Outline

EMET 135
Fluid Power

3 Semester Hours

The Community College of Baltimore County

Description

EMET 135 - 3 credits; **Fluid Power**

provides students with a foundational understanding of the principles underlying fluid power systems. Students analyze the operating components of hydraulic and pneumatic systems, including strainers, filters, reservoirs, accumulators, pumps, motors, compressors, and directional and pressure control valves. The course focuses on the application of fluid power components such as pumps, valves and actuators, and circuits used in machinery. Students apply concepts to interpret hydraulic and pneumatic diagrams and assemble simple systems.

3 credits: 2 lecture hours per week; 2 lab hours per week.

Pre/Co-requisite: EMET 125 - Mechanics and Maintenance Fundamentals and EGNT 101 - Introduction to Engineering Technology

Course Objectives

Upon successful completion of this course the student will be able to:

1. explain the principles of hydraulics and its significance of the field and modern applications;
2. list the types and properties of hydraulic fluids;
3. describe the types and functions of strainers and filters;
4. interpret the symbols used in hydraulic diagrams;
5. explain the functions of multiple fluid power components including: reservoirs, accumulators, pumps, directional and pressure control valves, and hydraulic cylinders and motors;

6. design and assemble a simple hydraulic system;
7. explain the principles, significance, and modern applications of pneumatic systems;
8. compare the features and functions of several types of reciprocating and rotary compressors;
9. describe methods, materials, and equipment used in primary and secondary air treatment;
10. classify the pneumatic directional and pressure control valves as they are represented on a schematic;
11. distinguish the operation of and uses for various types of pneumatic cylinders;
12. compare types of pneumatic motors, their construction and operation; and
13. design and assemble a simple pneumatic system.

Major Topics

I. Principles of Hydraulics
II. Hydraulic System Components
III. Hydraulic System Structure and Function
IV. Pneumatic Principles
V. Reciprocating and Rotary Compressors
VI. Primary and Secondary Air Treatment
VII. Pneumatic System Components
VIII. Pneumatic System Structure and Function

Course Requirements

Grading/exams: Grading procedures will be determined by the individual faculty member and will be provided on the first day of class.

The following will be required for this course:

1. Written paper or suitable practical project
2. Midterm exam
3. Comprehensive final (including a practical exam).

In addition, students can expect grades from the following areas:

4. Quizzes
5. Lab Projects
6. Homework Assignments.

Other Course Information

EMET 135 - Fluid Power is a required course in the Mechanical Engineering Technology option within the Engineering Technology A.A.S. program. The course is taught in both classroom and lab environments.