

SYLLABUS
PART I
EDISON COMMUNITY COLLEGE
EGR 225S HYDRAULICS AND PNEUMATICS
3 CREDIT HOURS

COURSE DESCRIPTION

Study of hydraulics and pneumatics as they relate to the operation of mechanical systems. The student will develop hydraulic and pneumatic systems from simple to complex. Topics include basic fluid power principles, fluid power symbols and diagrams, actuators, control valves, fluid preparation systems, contamination control, directional and pressure controls. Special emphasis is given to hands-on demonstrations, assembly, measurement and sub-system and machine-level troubleshooting.

Prerequisite: one year of high school algebra or MTH 097D. Lab fee: \$40.

COURSE GOALS

The student will:

Bloom's Levels		Program Outcomes
1	1. Describe the principles of power hydraulics emphasizing principles of flow behavior and pressure.	2
2	2. Compare several different types of hydraulic fluids listing attributes of each.	2
2	3. Group directional valves and their method of operation.	2
2	4. Categorize different pressure controls and flow control methods.	2
2	5. Explain the uses of and applications for proportional control valves.	2
1	6. Identify the correct symbol for basic hydraulic and pneumatic controls.	2
3	7. Develop a simple hydraulic system to run with one complete cycle.	2
3	8. Develop a hydraulic system to operate with repetitive cycles.	2

CORE VALUES

The Core Values are a set of principles, which guide in creating educational programs and environments at Edison. They include communication, ethics, critical thinking, human diversity, inquiry/respect for learning, and interpersonal skills/teamwork. The goals, objectives, and activities in this course will introduce/reinforce these Core Values whenever appropriate.

TOPIC OUTLINE

1. Fluid power principles
2. Pressure and flow simple systems
3. Hydraulic fluids, conductors and seals
4. Reservoirs
5. Contamination control
6. Actuators
7. Directional valves, pressure and flow controls
8. Hydraulic pumps
9. Hydraulic and pneumatic systems