COURSE INFORMATION FORM

<table>
<thead>
<tr>
<th>DISCIPLINE</th>
<th>COURSE TITLE</th>
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<tr>
<td>INTE</td>
<td>Fluid Power Fundamentals of Hydraulics and Pneumatics</td>
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<th>CR.HR</th>
<th>LECT HR.</th>
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<th>CLIN/INTERN HR.</th>
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CATALOG DESCRIPTION

An introduction to fluid power and pneumatic concepts. Topics include the physics of fluid power, safety, hydraulic pumps, air compressors, actuators, pressure and flow measurement and regulation, basic maintenance, motors, coolers, and operation of hydraulic and pneumatic systems.

PREREQUISITES

None

EXPECTED STUDENT OUTCOMES IN THE COURSE (ESO)

Upon completion of this course, the student will be able to:
1. Describe the physics of fluid power.
2. Apply safe practices around pressurized systems.
3. Describe hydraulic pump operation.
4. Describe hydraulic and pneumatic pressure regulator operation.
5. Describe hydraulic actuator operation.
6. Describe hydraulic and pneumatic motor operation.
7. Perform basic hydraulic and pneumatic maintenance procedures.
8. Construct to specifications hydraulic and pneumatic circuits.
GENERAL EDUCATION OUTCOMES (ESO)
Specify which general education outcomes, if any, are substantially addressed by the course. Numbers in parentheses identify the Expected Student Outcomes linked to the specific General Education Outcome.

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<tr>
<th>Outcomes</th>
<th>ESO</th>
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PROGRAM-LEVEL OUTCOMES

CAREER AND TECHNICAL EDUCATION PROGRAM OUTCOMES
Specify which Career and Technical program outcomes, if any, are substantially addressed by the course by completing the “Career and Technical Education template” to show the relationship between course and program outcomes to assessment measures.

The student will demonstrate:

1. The ability to apply foundational skills in an industrial setting, safely and to industry guidelines.
2. The ability to think critically and apply problem-solving skills.
3. The ability to exhibit competence in the entry-level skills of technical profession in Industrial Technology.

CLASS-LEVEL ASSESSMENT MEASURES
Student accomplishment of expected student outcomes may be assessed using the following measures. (Identify which measures are used to assess which outcomes.)

1. Written examinations   (1 - 6)
2. Project             (7, 8)
Individual instructors may order this outline as fits the needs of their individual courses. In addition, they may place more emphasis on some areas than on others. What is assured is that this particular list is covered in the course. Other topics may be added to a course as the instructor sees fit, and as time and interest allow. An *asterisk can be used to mark an item as optional.

I. Physics of fluid power
   A. Pressure, area, force relationship
   B. Transfer of work
II. Physics of pneumatic power
    A. Pressure, area, force relationship
    B. Transfer of work
III. Hydraulic power transmission - hydraulic line types
IV. Pressure and flow measurements
V. Safety
VI. Hydraulic pumps
VII. Air Compressors
VIII. Hydraulic/pneumatic actuators
    A. Single acting
    B. Double acting
IX. Hydraulic/pneumatic motors
X. Hydraulic/pneumatic pressure and flow regulation
    A. Pressure regulators
    B. Flow regulators
XI. Basic hydraulic/pneumatic maintenance
    A. Filters
    B. Seal replacement
XII. Hydraulic/pneumatic control circuits
    A. Directional control valves
    B. System operation