COURSE INFORMATION FORM

DISCIPLINE  INTE  

COURSE TITLE  Instrumentation & Process Controls  

CR.HR. 3  LECT HR. 2  LAB HR. 2  CLIN/INTERN HR.  

CLOCK HR.  

CATALOG DESCRIPTION

This course is designed to introduce the individual to various types of instrumentation and control schemas. This course will primarily cover pressure, temperature, level and flow detection and calculations. Lab activities will include calibration, tuning and installation of various analog and smart equipment used in industry.

PREREQUISITES

HVAC 201 or INTE 271

EXPECTED STUDENT OUTCOMES IN THE COURSE (ESO)

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

1. Describe the operation and application of temperature, pressure, level and flow sensing equipment.
2. Will be able to do a 5 point calibration on process instrumentation.
3. Describe the difference between an A-D and D-A conversions and what they are used for.
4. Setup a pneumatic and electrical control loop.
5. Demonstrate knowledge of instrumentation symbology.
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.

<table>
<thead>
<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.

- Students will demonstrate the ability to apply foundational skills in an industrial setting, safely and to industry guidelines.
- Students will think critically and apply problem-solving skills
- The program will graduate individuals who exhibit competence in the entry-level skills of technical profession in Industrial technology.
- The program will graduate individuals who exhibit competence in the entry-level skills of Programmable Logic Controllers.

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.)

Written examinations: 1 – 6
Practical/Hands-On examinations: 1, 2, 4, 5, 6

Revised 7/31/13
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. Process control variables
   A. Pressure
   B. Temperature
   C. Level
   D. Flow

II. Simple Process Control Schemas
   A. On/Off
   B. Feedback
   C. PID

III. Instrumentation Symbology and P&IDs (Process & Instrumentation Diagrams)

IV. Calibration
   A. Test instruments
   B. Calibration standards