

Course Information

Course Title	Process Instrumentation I
Course Prefix, Num. and Title	PTAC 1432 Process Instrumentation I
Division	Vocational Science
Department	Process Technology
Course Type	WECM Course
Course Catalog Description	Study of the instruments and control systems used in the process industry including terminology, process variables, symbology, control loops, and basic troubleshooting.
Pre-Requisites	PTAC 1302 or ENER 1350 or INMT 1305
Co-Requisites	Enter Co-Requisites Here.

Semester Credit Hours

Total Semester Credit Hours (SCH): Lecture Hours:	4:3:2
Lab/Other Hours	
Equated Pay Hours	4
Lab/Other Hours Breakdown: Lab Hours	2
Lab/Other Hours Breakdown: Clinical Hours	Enter Clinical Hours Here.
Lab/Other Hours Breakdown: Practicum Hours	Enter Practicum Hours Here.
Other Hours Breakdown	List Total Lab/Other Hours Here.

Approval Signatures

Title	Signature	Date
Prepared by:		
Department Head:		
Division Chair:		
Dean/VPI:		
Approved by CIR:		

Additional Course Information

Topical Outline:

TOPICAL OUTLINE	DEDICATED INSTRUCTIONAL TIME
History, philosophies and introduction to Instrumentation	One week
Process Variables, Elements and Instruments: Pressure	Two Weeks
Process Variables, Elements and Instruments: Temperature	Two Weeks
Process Variables, Elements and Instruments: Level	Two Weeks
Process Variables, Elements and Instruments: Flow	Two Weeks
Process Variables, Elements and Instruments: Analytical	One Week
Miscellaneous Measuring Devices	One Week
Control Loops: Simple Loop Theory	One Week
Control Loops: Primary Sensors, Transducers and Transmitters	One Week
Control Loops: Controllers and Final Control Elements	One Week
Control Loops: Control Valves and Regulators	One Week
Introduction to Symbology and Diagrams (P&IDs, Flow and Block)	Two Weeks

Course Learning Outcomes:

Learning Outcomes – Upon successful completion of this course, students will:

Explain the function of the various instruments used in the process industry; diagram the process control elements in a control loop; and utilize terms and symbols in instrumentation; and interpret process flow diagram and piping and instrumentation drawing.

The following list of learning outcome is a Key Activity from the Chemical/Refining Process Technician skill standards, developed by the North America Process Technology Alliance (NAPTA), and recognized by the Texas Skill Standards Board (TSSB). This outcome has been integrated into the PTAC-1432, Process Instrumentation I course:

1. Monitor and Regulate Instrument Air System

Methods of Assessment:

Written Exams
 Hands on Training Performance
 Student Project

Required text(s), optional text(s) and/or materials to be supplied by the student:

Process Instrumentation, 2nd edition, Published by Pearson
ISBN-13: 9780135213926

Suggested Course Maximum:

20

List any specific or physical requirements beyond a typical classroom required to teach the course.

Drafting or Engineering Template

Glass Distillation Column and Batch Reactor

Instrument Room for Review of Controllers

Hands On Training Skid Equipment

Equipment cutaways

Course Requirements/Grading System: Describe any course specific requirements such as research papers or reading assignments and the generalized grading format for the course.

1. Four major tests
2. Cross Disciplinary Skills (work ethic, safety, teamwork, housekeeping, independent thinking and problem solving, attitude, daily performance including preparation, computer proficiency)
3. Special Student Projects
4. Final examination

The following method is used to arrive at the final grade:

Four Major Tests	40%
Daily Grade including Cross Disciplinary skills	10%
Special Student Project	20%
Final Exam	30%

The grade classifications as outlined in the College Catalog are employed:

A	Excellent	100-90
B	Good	89-80
C	Average	79-70
D	Poor (lowest passing grade)	69-60
F	Failure	59 and below

Curriculum Checklist:

- Administrative General Education Course** (from ACGM, but not in WCJC Core) – No additional documents needed.
- Administrative WCJC Core Course.** Attach the Core Curriculum Review Forms
 - Critical Thinking
 - Communication
 - Empirical & Quantitative Skills

Teamwork

Social Responsibility

Personal Responsibility

WECM Course -If needed, revise the Program SCANS Matrix and Competencies Checklist