



**Course Information**

<b>Course Title</b>	Process Troubleshooting
<b>Course Prefix, Num. and Title</b>	PTAC 2446 Process Troubleshooting
<b>Division</b>	Vocational Science
<b>Department</b>	Process Technology
<b>Course Type</b>	WECM Course
<b>Course Catalog Description</b>	Instruction in the different types of troubleshooting techniques, procedures, and methods used to solve process problems. Topics include application of data collection and analysis, cause-effect relationships, and reasoning. (CC)
<b>Pre-Requisites</b>	PTAC 2420
<b>Co-Requisites</b>	

**Semester Credit Hours**

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

**Approval Signatures**

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

## Additional Course Information

**Topical Outline:** Each offering of this course must include the following topics (be sure to include information regarding lab, practicum, and clinical or other non-lecture instruction).

Lecture	
Introduction to Troubleshooting	Two weeks
Methods of Troubleshooting	One week
Collection of Data	One week
Analysis of Data	One week
Collecting, Analyzing Data and Practice Troubleshooting	Four weeks
Lab Work:	
Simulating Instrument Malfunctions	Five weeks

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

1. Discuss the different steps in troubleshooting.
2. Discuss the difference between process upsets and instrument malfunctions
- 3 Explain that different facilities have different practices related to process technicians troubleshooting.
4. Identify typical malfunctions found in primary sensing elements and transmitters.
5. Explain the importance of process knowledge in troubleshooting.
6. Explain the proper use of hand tools related to process troubleshooting.
7. Discuss safety and environmental issues related to troubleshootingprocess instruments.
8. Describe the purpose of instrumentation calibration.
9. Explain the methods used for determining if a sensing/measuring device is malfunctioning
- 8.Troubleshoot flow, temperature, level, pressure and analytical variable instrument problems
11. Diagnose Malfunction or Abnormality
12. Remedy Equipment/Process Malfunction

### SKILL STANDARDS LEARNING OUTCOMES

The following list of learning outcomes are Key Activities 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). These outcomes have been integrated into the PTAC-2446-Process Troubleshooting course.

1. Diagnose Malfunctions or Abnormality

## 2. Remedy Equipment/Process Malfunction

**Methods of Assessment:** Exams

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

Process Technology Troubleshooting, Charles E. Thomas  
Paperback, 2008, 1st Edition, ISBN-10: 1-4283-1100-9

**Suggested Course Maximum:** 20

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

1. Simulators rooms
2. PTAC labs both inside and outside

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

Four major tests

Cross Disciplinary Skills (work ethic, safety, teamwork, housekeeping, independent thinking and problem solving, attitude, daily performance including preparation, computer proficiency)

Special Team Projects

Final examination

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

Four Major Tests	40%
Daily Grade including Cross Disciplinary skills	30%
Final Exam	30%

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

A	Excellent
B	Good
C	Average
D	Poor
F	Failure
W	Withdrawn

### **Curriculum Checklist:**

- Administrative General Education Course** (from ACGM, but not in WCJC Core) –
- 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