PTEC C114: PROCESS TECHNOLOGY 2: SYSTEMS

Item	Value
Curriculum Committee Approval Date	11/16/2007
Top Code	099900 - Other Engineering and Related Industrial Technologies
Units	3 Total Units
Hours	54 Total Hours (Lecture Hours 54)
Total Outside of Class Hours	0
Course Credit Status	Credit: Degree Applicable (D)
Material Fee	No
Basic Skills	Not Basic Skills (N)
Repeatable	No
Grading Policy	Standard Letter (S), • Pass/No Pass (B)

Course Description

The purpose of this course is to study the interrelation of process equipment and process systems as they are used in normal conditions. ADVISORY: PTEC C113. Transfer Credit: CSU.

Course Level Student Learning Outcome(s)

1. Given a scenario, create a Systems Processing Flow Diagram and compare systems by function and category.
2. Based on the Systems Processing Flow Diagram, select the optimum systems that provide the most efficient processing under normal conditions.

Course Objectives

- 1. Describe and utilize process drawings, process controls, and energy/material balances associated with process systems.
- 2. Identify and explain the combinations of equipment into typical unit operations (reaction and separation systems) and the relationships among the different pieces of the equipment.
- 3. Identify and explain the combinations of equipment into common utility systems (cooling, heating, gas, etc.) and how they support the various unit operations within a plant.
- 4. Discuss the specific safety, heath, and environmental concerns (examples: relief and flare systems, emergency shutdowns, etc.) associated with process systems.
- 5. Explain the operators responsibilities for the safe and efficient operation of systems, including the interaction among the various pieces of equipment within these systems.

Lecture Content

WATER SYSTEMS COOLING SYSTEMS Potable Waste AIR SYSTEMS Instrument Breathing GAS SYSTEMS Nitrogen Natural Gas Fuel RELIEF SYSTEMS Flare Electrical MATERIAL STORAGE STEAM Generation Steam REACTION Separation Extraction DISTILLATION STRIPPING DEHYDRATION FILTRATION CONTROL SYSTEM ECONOMICS AND OPTIMAZATION

Method(s) of Instruction

- Lecture (02)
- DE Online Lecture (02X)

Instructional Techniques

A variety of instructional techniques will be employed to address different student learning styles. These may include, but are not limited to, lecture, discussion, projects and small group activities. Instruction will be supplemented, where appropriate, by digital media presentations and simulations, industry resources and guest speakers.

Reading Assignments

Complete reading assignments assigned from the textbook, supplemental readings, handouts, internet resources, and any assignments from Coastlines Library.

Writing Assignments

Weekly projects, plans, revisions, discussion topic responses that will demonstrate skills application through authentic projects.

Out-of-class Assignments

Read/View the required materials, conduct appropriate research, prepare documents/plans, complete and revise projects, and prepare for quizzes/exams.

Demonstration of Critical Thinking

Identify and apply the appropriate quality management policies, procedures and guidelines to demonstrate quality control competency.

Required Writing, Problem Solving, Skills Demonstration

Weekly projects, plans, revisions, written reviews/critiques and discussion topic responses that will demonstrate skills application and problem solving skills through authentic projects.

Eligible Disciplines

Electromechanical technology (industrial mechanical technology): Any bachelors degree and two years of professional experience, or any associate degree and six years of professional experience. Environmental technologies (environmental hazardous material technology, ha...: Any bachelors degree and two years of professional experience, or any associate degree and six years of professional experience. Industrial technology (foundry occupations): Any bachelors degree and two years of professional experience, or any associate degree and six years of professional experience. Mining and metallurgy (oil field operations): Any bachelors degree and two years of professional experience, or any associate degree and six years of professional experience.

Textbooks Resources

1. Required Thomas, C. Process Technology Equipment Systems, 4th ed. 9781285444581: Cengage, 2015 Rationale: - Legacy Textbook Transfer Data: Legacy text

Other Resources

1. Coastline Library