Miami Dade College

Course Description

ETP2231C | Power Plant Machines & Components 1 | 4.00 credits

This course is designed for students who are preparing for careers in industrial and/ or power plant mechanical maintenance. Students learn the principles, concepts, and applications of various mechanical systems encountered in industrial applications, how to identify basic systems and components encountered in power plants, how to troubleshoot equipment problems, and basic procedures involved in maintaining and replacing component parts. Prerequisite: ETP 1230

Course Competencies

Competency 1: The student will understand the principles and concepts of mechanical systems by:

1. Analyzing the fundamental components and functions of various mechanical systems used in industrial and power plant settings.
2. Investigating the relationships between mechanical systems and their operational environments in industrial applications.
3. Describing the principles of thermodynamics as they apply to mechanical systems in power generation.

Competency 2: The student will identify key components and systems in power plants by:

1. Cataloging the major mechanical systems within a power plant, including turbines, pumps, and compressors.
2. Recognizing the operational characteristics of various equipment used in industrial maintenance.
3. Mapping the flow of energy through mechanical systems in both industrial and power plant contexts.

Competency 3: The student will develop troubleshooting skills for equipment problems by:

1. Implementing systematic approaches to diagnose mechanical failures and malfunctions in machinery.
2. Utilizing diagnostic tools and techniques to assess the operational integrity of mechanical systems.
3. Formulating troubleshooting procedures based on real-world scenarios encountered in industrial maintenance.

Competency 4: The student will engage in maintenance practices for mechanical systems by:

1. Executing basic maintenance tasks, including lubrication, alignment, and vibration analysis, on various mechanical components.
2. Demonstrating procedures for safely replacing and installing component parts in industrial machinery.
3. Creating maintenance schedules and checklists to ensure the reliability and efficiency of mechanical systems in power plants.

Learning Outcomes

- Solve problems using critical and creative thinking and scientific reasoning
- Use computer and emerging technologies effectively