



BAKER COLLEGE
STUDENT LEARNING OUTCOMES

MATT 2510 General Preventive/Predictive Maintenance
2 Semester Hours

Student Learning Outcomes & Enabling Objectives

1. Examine the goals, economics and groundwork of Preventive and Predictive Maintenance
 - a. Discuss the goals and objectives of the maintenance system
 - b. Describe methods used to sell the maintenance system to management
 - c. List the costs associated with planned versus reactive maintenance
 - d. Estimate how much planned maintenance is enough
 - e. Summarize how much planned maintenance equipment can be afforded
2. Identify the details and statistics for basic planned maintenance
 - a. Discuss the misconceptions associated with planned maintenance
 - b. Estimate the frequency of planned maintenance tasks
 - c. Describe standard deviation and failure analysis
 - d. Give examples of the elements of the planned maintenance system
3. Explain the advanced concepts involved with predictive maintenance
 - a. Demonstrate an understanding of Chemical Analysis
 - b. Identify energy related tasks using temperature measurements
 - c. Describe the arenas where vibration analysis would be advantageous
 - d. Describe where ultrasonic testing can be useful
4. Determine proper tracking and measurement metrics for maintenance tasks
 - a. Compare thoughts on installing a planned maintenance system
 - b. Explain how to manage planned maintenance activities
 - c. Choose planned maintenance items to be outsourced
 - d. Explain how the planned maintenance team will be staffed
 - e. Identify the risks associated with planned maintenance tasks
5. Evaluate the reliability of the planned maintenance task list
 - a. Examine the use of Failure Mode, Effect, and Criticality Analysis (FMEA)
 - b. Define which planned maintenance are worthwhile
 - c. Choose the order in which the planned maintenance tasks will be prioritized
 - d. Construct scenarios of the different types of workshops to be used for implementation
6. Develop strategies to debug and install the maintenance system
 - a. Explain how the planned maintenance system is to be installed
 - b. Outline methods to debug the planned maintenance system
 - c. Discuss the common mistakes associated with planned maintenance systems
 - d. Explain the details needed to have a successful timetable

Big Ideas and Essential Questions

Big Ideas

- Manufacturing environment
- The Role of manufacturing management
- Design of manufacturing processes
- Organizing and planning for manufacturing
- Industrial equipment
- Industrial maintenance
- Manufacturing methods, materials, management, machines cost and work measurement

Essential Questions

1. Why is planned maintenance a priority?
2. How can manufacturing methods, materials, machines, cost & work be measured?
3. How do I determine if a process needs planned maintenance?
4. Why is it important to consider process efficiencies?
5. What impact does planned maintenance have on efficiency?
6. What is Preventive and Predictive Maintenance?
7. How does management culture impact the industrial human factor?

These SLOs are not approved for experiential credit.

Effective: Fall 2017