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|  | **Course:** | **PRO 220** |
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|  | **Title:** | **Process Tech III: Operations** |
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|  | **Long Title:** | **Process Technology III: Operations** |
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|  | **Course Description:** | **Provides an introduction to the field of operations within the process industry. Students will use existing knowledge of equipment, systems, and instrumentation to understand the operation of an entire unit. Students study concepts related to commissioning, normal startup, normal operations, normal shutdown, turnarounds, and abnormal situations, as well as the Process Technician's role in performing the tasks associated with these concepts within an operating unit.** |
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|  | **Min Credit:** | **4** |
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 STANDARD COMPETENCIES:

1. Describe why the role exists, the value of the role and key role responsibilities in accordance with generally accepted industry profiles.
2. Discuss the process flow, process systems, auxiliary systems, utility systems, and major equipment associated with the unit given a generic operating unit and supporting documentation
3. Develop a unit startup plan given a process scenario.
4. Identify the basic steps involved when placing equipment into service and bringing a unit online.
5. Complete all activities necessary to return equipment to service given a process scenario,
6. Demonstrate the correct procedures to remove energy isolation devices according to OSHA regulations given a process scenario.
7. Write a normal operations procedure that insures safety and environmental compliance with SH&E and OSHA regulations and minimizes downtime given a process scenario.
8. Describe the tasks required to prepare utility and auxiliary systems prior to startup with 100% accuracy given a process scenario
9. Identify critical process instrumentation used to monitor the process in the field given a process diagram.
10. Identify appropriate corrective action given an alarm or abnormal trend of process variables using acceptable process adjustment to maintain the process within acceptable operating parameters from the field.
11. Create a checklist for monitoring the normal operation of that section given a P&ID for a section of the operating unit given a P&ID for a section of the operating unit.
12. Identify appropriate corrective action given an alarm or abnormal trend of process variables using acceptable process adjustment to maintain the process within acceptable operating parameters.
13. Collect samples from various process systems throughout the operating unit utilizing a variety of sampling methods.
14. Handle various raw materials and finished products while operating the unit.
15. Recognize potential SH&E risks or hazards in a plant scenario and describe preventive action.
16. Demonstrate effective verbal communication skills when requesting and conveying information or issuing instructions.
17. Demonstrate effective written communication skills when requesting and conveying information or issuing instructions.
18. Identify potential emergency operations and emergency situations and describe the process technician`s role.
19. Select an emergency scenario to use in a practice drill that complies with SH&E practices and OSHA regulations.
20. Train the class in an operations related topic including management of change (MOC) issues given a new topic or concept related to the course.
21. Describe the steps required to prepare equipment for routine maintenance.
22. Identify potential unit personnel to communicate with prior to equipment maintenance in compliance with general SH&E and unit policies given a process scenario
23. Consider maintenance costs for a piece of equipment over a period of time given a process scenario surrounding equipment maintenance.

 TOPICAL OUTLINE:

1. Introduction to Operations
2. The Operating Unit
3. Initial Unit Startup - Major Activities
4. Normal Startup
   1. Overview and Communication
   2. Equipment Inspection
   3. Removal of Energy Isolation Devices
5. Procedure Writing
6. Normal Startup
   1. Utilities and Auxiliaries
   2. Process Unit
7. Normal Operations
   1. Monitor Unit
      1. Field Technician
      2. Board Technician
   2. Other Duties
   3. SH&E Policy compliance
   4. Verbal Communication
   5. Written Communication
   6. Shift Change
8. Abnormal Operations
   1. Emergency Operations and Emergency Situations
   2. Table Top Drill
9. On-The-Job Training
10. X       Normal Shutdown
    1. Overview and Communications
    2. Shutdown Unit
11. Equipment Maintenance
    1. Overview and Communications
    2. Economic Impact
    3. SH&E Impact
    4. Documentation and Permits
    5. Equipment Isolation
12. Turnarounds
13. Course Project - Conducting an OJT Session