Nuclear Plant Systems 2
Outline of Instruction

Course Information

Organization: Monroe County Community College, Applied Science and Engineering Technology
Development Date: 4/5/2010
Course Number: NUET 230
Instructional Area: Nuclear Engineering Technology
Potential Hours of Instruction: 60
Total Credits: 3

Description
This course is a continuation of Nuclear Plant Systems 1. The course will examine chemistry control systems, electrical power generation systems, emergency and backup systems. Systems specific to Pressurized Water Reactors (PWR) will be introduced. Operating issues will continue to be examined and related to plant systems and drawings. This course will reinforce the practice of using drawings to support the planning of maintenance activities and methods of tagging energy sources to protect personnel during maintenance.

Major Units
1. Plant drawings overview
2. Electrical drawings
3. Mechanical Drawings
4. Plant systems overview
5. Emergency systems
6. Power-block systems
7. Support / Cooling systems
8. Maintenance activities
9. Worker protection / Safe work practices

Types of Instruction

<table>
<thead>
<tr>
<th>Instruction Type</th>
<th>Contact Hours</th>
<th>Credits</th>
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<tbody>
<tr>
<td>The methods of instruction for this course will include but will not be limited to, discussion, lecture, demonstration, in-class activity, lab experiments, and examination.</td>
<td>60</td>
<td>3</td>
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Textbooks

TBD.

Prerequisites

NUET 100, NUET 130

Exit Learning Outcomes
**Program Outcomes**

A. Describe and apply the culture of safety, continuous improvement, and peer checking.
B. Explain the requirement for documentation, formal procedures, and recordkeeping for nuclear related activities.
C. Describe the main systems in a nuclear power plant, and how they are used in power generation.
D. Identify typical power plant components and explain their function.
E. Describe different sources of radiation, their effects on organic matter, methods of detection, and shielding.
F. Identify and define problems in mathematical and scientific terms.
G. Recognize assumptions and limits of analysis to the application of technology, including social and ethical implications.
H. Apply instruments to make measurements and analyze data from such measurements.
I. Recognize the need to engage in lifelong learning, and to perform research or conduct investigations to continuously upgrade knowledge and skills.
J. Communicate effectively, and work as part of a team.

**General Education Outcomes**

A. Apply mathematical approaches to the interpretation of numerical information.
B. Communicate ideas in writing using the rules of standard American English.
C. Demonstrate an understanding of the process of scientific inquiry.
D. Use computer technology to retrieve information.
E. Use computer technology to communicate information.

**Course Outcomes**

1. Describe the overall design of the nuclear power plant in terms of the plant systems and their interaction.
2. Interpret the various types of drawings used by nuclear plant operators and maintenance personnel.
3. State the purpose of a typical plant system and its importance to plant safety.
4. Explain safety system responses and capabilities relative to accident scenarios.
5. Use drawings in the context of working on or operating the equipment in various plant systems.
6. Describe the scope of typical activities that occur during outages and refueling.
7. Describe requirements for testing and operation of equipment after completion of electrical and mechanical work.