

Center for Curriculum and Transfer Articulation



## Power Plant Systems I

Course: <b>PPT202</b>	Lecture <b>3.0</b> Credit(s) <b>3.0</b> Period(s) <b>3.0</b> Load
First Term: <b>2013 Summer I</b>	Course Type: <b>Occupational</b>
Final Term: <b>Current</b>	Load Formula: <b>S</b>

**Description:** Components and function of reactor coolant, volume control, safety injection, and nuclear sampling systems. Function and operation of main steam and turbine systems, main and auxiliary feedwater systems, pressurizer, control rod drive, and recirculation systems. Operation and function of steam and heater drain systems. Reactor plant safety concepts.

**Requisites:** Prerequisites: PPT120. Prerequisites or Corequisite: PPT121.

### MCCCD Official Course Competencies

1. Explain the function and operation of the Reactor Coolant system. (I)
2. Explain the purpose and operation of the Chemical and Volume Control system. (II)
3. Explain the purpose and operation of the Safety Injection system. (III)
4. Explain the purpose and operation of the Nuclear Sampling system. (IV)
5. Explain the purpose and operation of the Main Steam system. (V)
6. Explain the purpose and operation of the Main Turbine system. (VI)
7. Explain the purpose and operation of the Condensate system. (VII)
8. Explain the purpose and operation of the Main Feedwater system. (VIII)
9. Explain the purpose and operation of the Auxiliary Feedwater system. (IX)
10. Explain the purpose and operation of the Extraction Steam and Heater Drains system. (X)
11. Explain the purpose and operation of the Control Rod Drive system. (XI)
12. Explain the purpose and operation of the Pressurizer and Pressure Relief system. (XII)
13. Explain the purpose and operation of the Reactor Water Cleanup system. (XIII)
14. Explain the purpose and operation of the Recirculation system. (XIV)
15. Explain the importance of various systems to plant safety and radioactivity containment (XV)
16. Identify radiological hazards and precautions associated with maintenance tasks for various systems. (XVI)
17. Explain reactor plant protection concepts, design basis accidents, transient prevention, and core damage mitigation. (XVII)

### MCCCD Official Course Outline

#### I. Reactor Coolant System

##### A. Purpose

##### B. Components

- B. Components
- C. Operation
- II. Chemical and Volume Control System
  - A. Purpose
  - B. Components
  - C. Operation
- III. Safety Injection System
  - A. Purpose
  - B. Components
  - C. Operation
- IV. Nuclear Sampling System
  - A. Purpose
  - B. Components
  - C. Operation
- V. Main Steam System
  - A. Purpose
  - B. Components
  - C. Operation
- VI. Main Turbine System
  - A. Purpose
  - B. Components
  - C. Operation
- VII. Condensate System
  - A. Purpose
  - B. Components
  - C. Operation
- VIII. Main Feedwater System
  - A. Purpose
  - B. Components
  - C. Operation
- IX. Auxiliary Feedwater System
  - A. Purpose
  - B. Components
  - C. Operation
- X. Extraction Steam and Heater Drains System
  - A. Purpose
  - B. Components
  - C. Operation
- XI. Control Rod Drive System
  - A. Purpose
  - B. Components
  - C. Operation
- XII. Pressurizer and Pressure Relief System
  - A. Purpose
  - B. Components
  - C. Operation
- XIII. Reactor Water Cleanup System
  - A. Purpose
  - B. Components

- B. Components
  - C. Operation
  - XIV. Recirculation System
    - A. Purpose
    - B. Components
    - C. Operation
  - XV. Importance to Plant Safety and Radioactivity Containment
    - A. Chemical and Volume Control
    - B. Condensate
    - C. Main Feedwater
    - D. Main Steam
    - E. Control Rod Drive
    - F. Nuclear Sampling
    - G. Pressurizer and Pressure Relief
    - H. Reactor Coolant
    - I. Reactor Water Cleanup
    - J. Recirculation
  - XVI. Radiological Hazards and Precautions
    - A. Chemical and Volume Control
    - B. Condensate
    - C. Main Feedwater
    - D. Main Steam
    - E. Control Rod Drive
    - F. Nuclear Sampling
    - G. Pressurizer and Pressure Relief
    - H. Reactor Coolant
    - I. Reactor Water Cleanup
    - J. Recirculation
  - XVII. Reactor Plant Safety Concepts
    - A. Reactor Plant Protection Concepts
    - B. Accident Analysis Concepts
    - C. Transient Prevention and Mitigation of Core Damage
    - D. Major Industry Operating Experience
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Last MCCCD Governing Board Approval Date: **March 26, 2013**

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All information published is subject to change without notice. Every effort has been made to ensure the accuracy of information presented, but based on the dynamic nature of the curricular process, course and program information is subject to change in order to reflect the most current information available.