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# **REFERENCE SYLLABUS**

For

**Power Engineer (5th Class)**



# POWER ENGINEER (5TH CLASS)

## SYLLABUS

### Introduction

This Syllabus is intended to assist candidates studying for the Power Engineer (5th Class) Examination.

#### **Recommended Study Program:**

It is recommended that, before undertaking this examination, the candidate completes Power Engineering Course of study, offered through a recognized and approved technical institute or training provider which addresses the Syllabus Outline.



# POWER ENGINEER (5TH CLASS)

## SYLLABUS

Reference Syllabus for Power Engineer (5th Class) Examination Candidates

### **Major Topic: Basic Physical Science, Safety, and Regulation for Facility Operations**

**Topic 1 Introduction to Thermodynamics**

**Topic 2 Fire Safety and Site Hazards**

**Topic 3 Building Safety**

**Topic 4 Confined Space Entry**

**Topic 5 Introduction to Occupational Health and Safety Legislation**

**Topic 6 Introduction to Heating Plant Safety**

**Topic 7 Handling of Dangerous Materials**

**Topic 8 Introduction to Electricity**

### **Major Topic: Low Pressure Boiler Components and Operation**

**Topic 1 Watertube Boilers (Heating, Power, and Tubular)**

**Topic 2 Cast-Iron Sectional and Modular Boilers**

**Topic 3 Firetube Boilers (Heating and Power)**

**Topic 4 Electric Boilers**

**Topic 5 Basic Fittings for Steam Boilers**

**Topic 6 Basic Fittings for Hot Water Boilers**

**Topic 7 Low Water Fuel Cut-Offs and Feedwater Controls**

**Topic 8 Heating Boiler Operating Controls**

**Topic 9 Boiler Combustion Controls**

**Topic 10 Boiler Programming Controls**

**Topic 11 Basic Boiler Operation**

**Topic 12 Routine Boiler Maintenance and Inspection**

**Topic 13 Combustion and Draft**

**Topic 14 Burners for Boilers**

**Topic 15 Piping Materials and Connections**

**Topic 16 Piping Expansion, Support, and Insulation**

**Topic 17 Steam Traps**

**Topic 18 Introduction to Valves**



# POWER ENGINEER (5TH CLASS)

## SYLLABUS

**Major Topic: Elements of Human Comfort in Facility Operation**

**Topic 1 Steam Heating Equipment**

**Topic 2 Steam Heating Systems**

**Topic 3 Hot Water Heating Systems**

**Topic 4 Hot Water Heating System Equipment and Operation**

**Topic 5 Warm Air Heating System Equipment**

**Topic 6 Warm Air Furnace Components and Maintenance**

**Topic 7 Ventilation and Air Filters**

**Topic 8 Electric Controls for Heating Systems**

**Topic 9 Refrigeration Theory**

**Topic 10 Refrigerants**

**Topic 11 Compression Refrigeration Systems**

**Topic 12 Refrigeration Compressors**

**Topic 13 Heat Exchangers for Refrigeration Systems**

**Topic 14 Refrigeration Accessories**

**Topic 15 Cooling Towers**

**Topic 16 Air Conditioning Systems**

**Topic 17 Air Compression**