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REFERENCE SYLLABUS

For

Power Engineer (1st Class)



POWER ENGINEER (1ST CLASS)

SYLLABUS

Introduction

This Syllabus is intended to assist candidates studying for the Power Engineer (1st 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 (1ST CLASS)

SYLLABUS

Reference Syllabus for Power Engineer (1st Class) Examination Candidates

Major Topic: **Applied Thermodynamics and Plant Cycles**

Topic 1 Rankine and Brayton Cycles

Topic 2 Thermodynamics of Steam

Topic 3 Steady Flow Process Calculations

Topic 4 Thermodynamics of Perfect Gases

Topic 5 Expansion and Heat Transfer

Topic 6 Refrigeration Calculations

Major Topic: **Principles of Applied and Fluid Mechanics**

Topic 1 Lifting Machines

Topic 2 Energy and Momentum

Topic 3 Centripetal Force and Acceleration

Topic 4 Torque and Torsion

Topic 5 Stress and Strain

Topic 6 Static Fluids

Topic 7 Fluids in Motion

Major Topic: **Applied Engineering Technologies**

Topic 1 Metallurgy

Topic 2 Corrosion, Chemistry and Processes

Topic 3 Boiler Corrosion

Topic 4 Corrosion Monitoring and Prevention Techniques

Topic 5 Corrosion Prevention Programs

Topic 6 Fuel Types

Topic 7 Burner Design

Topic 8 Combustion Optimization

Topic 9 Combustion Safety and Emissions

Topic 10 Water Pre-Treatment

Topic 11 Internal Water Treatment

Topic 12 Water Treatment Management

Topic 13 Non-Boiler Water Treatment



POWER ENGINEER (1ST CLASS)

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Major Topic: Power Plant Operations

Topic 1 Electrical Energy Management

Topic 2 Plant and Equipment Efficiencies

Topic 3 Power Plant Construction

Topic 4 Commissioning and De-Commissioning

Topic 5 Retrofitting

Major Topic: Legislation and Codes for Industrial Equipment

Topic 1 Codes, Acts and Regulations

Topic 2 ASME Section I

Topic 3 ASME Section VIII and IX

Topic 4 CSA B-51 and B-52

Topic 5 Piping and API Codes