REFERENCE SYLLABUS

For

Process Operator I
Introduction

This Syllabus is intended to assist candidates studying for the Process Operator I 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.
Reference Syllabus for Process Operator I Examination Candidates

**Major Topic: Piping and Valves**
- **Topic 1** Introduction to Energy Plant Piping Systems
- **Topic 2** Introduction to Energy Plant Valves
- **Topic 3** Steam Traps

**Major Topic: Pumps and Compressors**
- **Topic 4** Types of Pumps
- **Topic 5** Pump Operation and Maintenance
- **Topic 6** Air Compression
- **Topic 7** Compressor Operation and Maintenance

**Major Topic: Lubrication**
- **Topic 8** Lubrication

**Major Topic: Prime Movers and Heat Engines**
- **Topic 9** Heat Engines and Prime Movers
- **Topic 10** Steam Turbines
- **Topic 11** Gas Turbines
- **Topic 12** Internal Combustion Engines

**Major Topic: Heat Exchangers**
- **Topic 13** Cooling Towers

**Major Topic: Electrotechnology**
- **Topic 14** Basic Electricity
- **Topic 15** Magnetism and Electromagnetism
- **Topic 16** Electrical Metering Devices
- **Topic 17** Motors and Generators
Reference Syllabus for Process Operator I Examination Candidates

Major Topic: Instrumentation and Controls

Topic 18 Introduction to Energy Plant Controls and Instrumentation
Topic 19 Introduction to Process Measurement
Topic 20 Basic Control and Instrumentation Components
Topic 21 Introduction to Programmable Controllers

Major Topic: Plant Maintenance and Processes

Topic 22 Powerhouse Maintenance I
Topic 23 Common Plant Configurations in Hydrocarbon Centric Industries
REFERENCE SYLLABUS

For

Process Operator II
Introduction

This Syllabus is intended to assist candidates studying for the Process Operator II 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.
Reference Syllabus for Process Operator I Examination Candidates

Major Topic: Piping and Valves
Topic 1 Piping Design, Connections, and Support
Topic 2 Steam Traps, Water Hammer, and Insulation
Topic 3 Valves and Actuators

Major Topic: Pumps and Compressors
Topic 4 Pump Designs and Operation
Topic 5 Compressor Theory and Designs
Topic 6 Compressor Auxiliaries and Operation

Major Topic: Lubrication
Topic 7 Types of Bearings and Lubrication

Major Topic: Prime Movers and Heat Engines
Topic 8 Steam Turbine and Principles Design
Topic 9 Steam Turbine Auxiliaries and Operation
Topic 10 Turbine Condenser Systems
Topic 11 Gas Turbine Principles and Designs
Topic 12 Gas Turbine Auxiliaries and Operation
Topic 13 Internal Combustion Engines

Major Topic: Heat Exchangers and Fired Systems
Topic 14 Heat and Cooling Towers
Topic 15 Fired Heaters

Major Topic: Electrotechnology
Topic 16 Transformers
Topic 17 Electrical Distribution Circuits
Topic 18 Electrical Theory and DC Machine
Topic 19 AC Theory and Machines
Topic 20 AC Systems, Switchgear, and Safety
Reference Syllabus for Process Operator I Examination Candidates

Major Topic: Instrumentation and Controls

Topic 21 Electrical Control Systems
Topic 22 Control Loops and Strategies
Topic 23 Instrument and Control Devices
Topic 24 Distributed and Logic Control

Major Topic: Plant Maintenance
Topic 25 Powerhouse Maintenance II