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2030
المملكة العربية السعودية
KINGDOM OF SAUDI ARABIA

Operations

Short Courses

Approved By

أرامكو السعودية
saudi aramco

المؤسسة العامة
للتدريب التقني والمهني
Technical and Vocational
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ACCET
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INDEX

1 Petrochemical Plant Technology & Operation

12 Minimum participants

5 days

Course Overview

To introduce the Petrochemical Industry and its product refinery processes to Operators, Technicians or Engineers and contractors who are working or will be working in the Petrochemical Industry.

Who Should Attend?

Operators , Process Technicians, Process Control Technicians, Chemical Technicians, Petrochemical Technicians and any Contractors who are working or would like to work in the Petrochemical industry in Saudi Arabia or those experienced in the field needing a refresher course.

Enabling Objectives:

- Introduction to the Petrochemical Industry;
- Petrochemical operations in Saudi Arabia;
- Petrochemical Plant Safety;
- Petrochemical Plant Equipment;
- Petrochemical Process Reactions – Refinery & Reactor Process-es, Feedstock, Distillation, Steam Cracking and Catalytic Cracking & Reforming.

2 Oil & Gas Plant Technology & Operation

12 Minimum participants

5 days

Course Overview

To introduce the Oil & Gas Industry to Operators, Technicians or Engineers and General workers in terms of its products and processes in order to gain an insight into the Oil & Gas Sector.

Who Should Attend?

Operators, Process Technicians, Process Control Technicians, Chemical Technicians, Petrochemical Technicians and any Contractors who are working or will be working in the Saudi Arabian Oil & Gas sector or those experienced in the field needing a refresher course.

Enabling Objectives:

- Overview of the Oil & Gas Industry
- Oil & Gas Operations in Saudi Arabia
- Oil & Gas Plant Safety & Equipment
- Hydrocarbons and Process Variables
- Oil & Gas Processing – Crude Oil Processing & Refining, GOSP, NGL Processing & Refrigeration

3

Refinery Process Operation

12 Minimum participants

5 days

Course Overview

To introduce the processes in a Refinery to Operators, Technicians or Engineers and General workers in terms of its products and processes in order to gain an insight into the workings of a Refinery.

Who Should Attend?

Operators , Process Technicians, Process Control Technicians, Chemical Technicians, Petrochemical Technicians and any Contractors who are working or will be working in a Refinery in Saudi Arabia or those experienced in the field needing a refresher course.

Enabling Objectives:

- Introduction to Refineries
- Refinery operations in Saudi Arabia
- Refinery Plant Safety
- Refinery Plant Technology
- Refinery Plant Processes – Crude Distillation, Refining Processes & Products, Catalytic Cracking & Reforming, Collecting Product Samples

4

Upstream Gas Plants Technology & Operation

12 Minimum participants

5 days

Course Overview

To introduce the processes in an Upstream Gas Plant to Operators, Technicians or Engineers and General workers and enable them to perform routine operation and maintenance as and when needed.

Who Should Attend?

Operators, Technicians or Engineers and any Contractors who are working or will be working in an Upstream Gas Plant in Saudi Arabia or those experienced in the field needing a refresher course.

Enabling Objectives:

- Introduction to Upstream Gas Plant Operation
- Upstream Gas Plant Safety
- Upstream Gas Plant Equipment
- Process Flows in an Upstream Gas Plant
- Routine Operation & Maintenance Tasks in Upstream Gas Plants

5

Downstream Gas Plants Technology & Operation

12 Minimum participants

5 days

Course Overview

To introduce the processes in a Downstream Gas Plant to Operators, Technicians or Engineers and General workers and enable them to per-form routine operation and maintenance as and when needed.

Who Should Attend?

Operators, Technicians or Engineers and any Contractors who are working or will be working in a Downstream Gas Plant in Saudi Arabia or those experienced in the field needing a refresher course.

Enabling Objectives:

- Introduction to Downstream Gas Plant Operation
- Downstream Gas Plant Safety
- Downstream Gas Plant Equipment
- Downstream Gas Plant Processes
- Routine Operation Tasks in Downstream Gas Plants

6

Industrial Plant Startup & Shutdown

12 Minimum participants

5 days

Course Overview

The Mini Pilot Plant is designed to provide trainees with "real world" experience in understanding and troubleshooting industrial equipment and controls. The Plant consists of pumps, heat exchangers, electric heater, air fan cooler, control valves, sample stations, PLC controller, chemical injection system, tanks with level gauges, a multitude of system instrumentation and piping and valves that all comply with industrial specifications in order to provide training as if in real world facilities. This course trains attendees on safe startup and safe shutdown of Plants.

Who Should Attend?

Operators, Control Room Operators, Process Control Technicians, Instrumentation Technicians, Electrical Technicians, Mechanical Technicians or Engineers and Contractors who are working or will be working in Plants.

Enabling Objectives:

- Perform pipe spool calculations
- Determine pipe & fittings requirements
- Complete a materials & cutting list
- Cut, ream and thread the pipe to set standards
- Assemble the pipe to required specifications

7

Industrial Plant - Troubleshooting

12 Minimum participants

5 days

Course Overview

The Mini Pilot Plant is designed to provide trainees with "real world" experience in understanding and troubleshooting industrial equipment and controls. The Plant consists of pumps, heat exchangers, electric heater, air fan cooler, control valves, sample stations, PLC controller, chemical injection system, tanks with level gauges, a multitude of system instrumentation and piping and valves that all comply with industrial specifications in order to provide training as if in real world facilities. This course trains attendees on the typical maintenance tasks in a plant.

Who Should Attend?

Operators, Control Room Operators, Process Control Technicians, Instrumentation Technicians, Electrical Technicians, Mechanical Technicians or Engineers and Contractors who are working or will be working in Plants.

Enabling Objectives:

- Drain and isolate equipment and piping systems for maintenance;
- Blind and decommission equipment and piping systems for maintenance;
- Remove and reinstall equipment and piping systems;
- Recommission equipment and piping systems.

8

Maintain Plant Equipment

12 Minimum participants

5 days

Course Overview

To train Operators, Mechanical Maintenance, Instrument Technicians and Contractors working in plants on maintaining and repairing Plant Equipment.

Who Should Attend?

Operators, Mechanical Maintenance, Instrument Technicians and Contractors working in plants who need refresher course in maintenance.

Enabling Objectives:

- Introduction to Plant Equipment;
- Replacing Gaskets, Packets & Seals;
- Maintain Bearings & Lubrication Systems;
- Maintain Valves and Pumps;
- Maintain Compressors.

9 Monitoring System Alarms and Emergency Shut Down

12 Minimum participants

5 days

Course Overview

To train operatives on the monitoring of System Alarms and how to perform an Emergency Shut Down from the Control Room.

Who Should Attend?

Operators, Control Room Operators, Process Control Technicians, Instrumentation Technicians and Engineers who are either working in the Control Room of a Process Plant or will be working in one.

Enabling Objectives:

- Introduction to the Yokogawa SCADA System
- Overview of the Industrial Plant
- Monitoring System Alarms in the Yokogawa
- Performing Emergency Shut Down Operations
- Troubleshooting the System

10 Process Control Variable Operation Training - (Level, Flow, Pressure & Temperature)

12 Minimum participants

5 days

Course Overview

To train operatives on real live control processes using the GUNT Control Trainer Simulator and also how to perform troubleshooting and faultfinding. Attendees should have taken the 4-Variable Process Control Simulation on the GUNTs or have extensive experience of working with the GUNT Simulators

Who Should Attend?

Operators, Control Room Operators, Process Control Technicians, Instrumentation Technicians and Engineers who are working in Control Pro-cess Plants.

Enabling Objectives:

- Fundamentals of Control Engineering;
- Sensors, Transducers, Actuators & Controllers;
- Operation of the GUNT Level Control Trainer;
- Investigate Open & Closed Control Loops;
- Continuous, Step and PID control.

11 Process Control Variable Troubleshooting Training - (Level, Flow, Pressure & Temperature)

12 Minimum participants

5 days

Course Overview

To introduce Basic Plant Safety so that they are aware of the Safety & Health Hazards in typical process plants.

Who Should Attend?

Electricians, Electrical Maintenance, Mechanical Maintenance, Operators, Millwrights, Technicians, Engineers and Contractors working in plants.

Enabling Objectives:

- Faultfinding in a Level Control System
- Faultfinding in a Flow Control System
- Faultfinding in a Cascade Control Level/Flow System
- Faultfinding in a Temperature Control System
- Faultfinding in a Cascade Control Temperature/Flow

12 Process Plant Safety

12 Minimum participants

5 days

Course Overview

To introduce Basic Plant Safety so that they are aware of the Safety & Health Hazards in typical process plants.

Who Should Attend?

Electricians, Electrical Maintenance, Mechanical Maintenance, Operators, Millwrights, Technicians, Engineers and Contractors working in plants.

Enabling Objectives:

- Introduction to Process Plant Operations;
- Common Plant Hazards;
- Chemical, Electrical and Fire Safety;
- Perform Safety and Emergency Procedures.

13

Process Variables & Process Control

12 Minimum participants

5 days

Course Overview

To introduce to Operators, Technicians, Engineers and Contractors the basic processes in the Oil & Gas, Refinery and Petrochemical Industries.

Who Should Attend?

Operators, Technicians, Engineers and Contractors who are or who will be working in the Oil & Gas, Refinery and Petrochemical Industries.

Enabling Objectives:

- Properties and uses of Hydrocarbons
- Process variables in a plant
- Process Drawings - PFDs and P&IDs
- Process Control & Control Loops
- Process Control Simulation

13

Analyze Plant Process Control Systems

12 Minimum participants

5 days

Course Overview

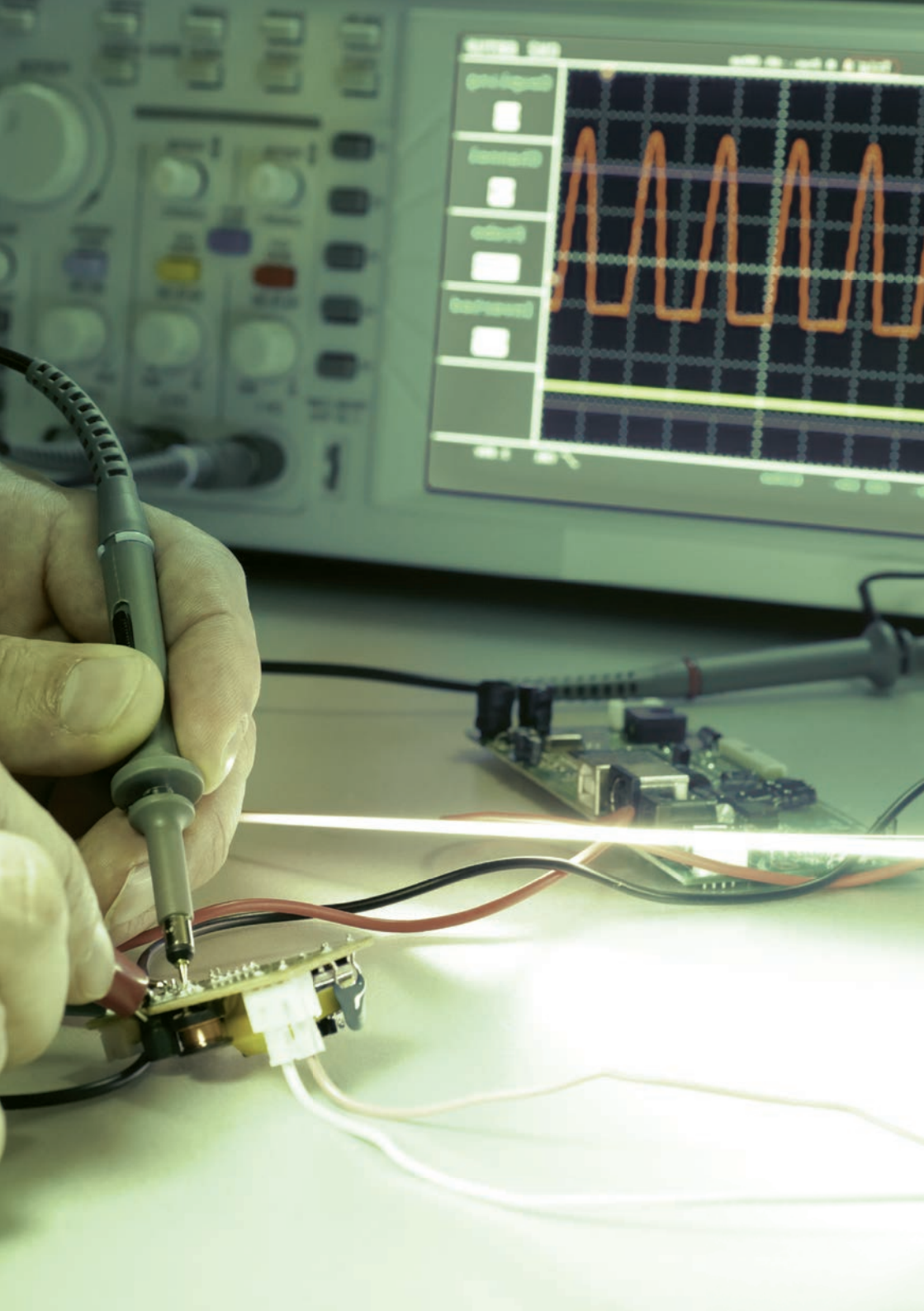
Analyze plant process and monitor the condition of the plant using SCADA and then with the appropriate access to piping and instrument dia-grams (P&IDs), instrument loop diagrams (ILDs), illustrations, and the manufacturer's manuals will troubleshoot different plant case studies and scenarios and devise a solution.

Who Should Attend?

Operators, Control Room Operators, Process Control Technicians, Instrumentation Technicians and Engineers who are either working in the Control Room of a Process Plant or will be working in one.

Enabling Objectives:

- Introduction to the Yokogawa DCS
- Overview of the Industrial Plant
- Review of P&IDs and ILDs
- Plant Case Studies & Scenarios
- Troubleshooting



14

Industrial Plant Processes

12 Minimum participants

5 days

Course Overview

The Mini Pilot Plant is designed to provide trainees with "real world" experience in understanding and troubleshooting industrial equipment and controls. The Plant consists of pumps, heat exchangers, electric heater, air fan cooler, control valves, sample stations, PLC controller, chemical injection system, tanks with level gauges, a multitude of system instrumentation and piping and valves that all comply with industrial specifications in order to provide training as if in real world facilities. This course trains attendees on how to trace feed and product flow using PFDs and P&IDs in a typical plant.

Who Should Attend?

Operators, Control Room Operators, Process Control Technicians, Instrumentation Technicians, Electrical Technicians, Mechanical Technicians or Engineers and Contractors who are working or will be working in Plants.

Enabling Objectives:

- Review of PFDs and P&IDs;
- Review of Plant Equipment;
- Trace the feed flow using the Plant PFD;
- Trace the product flow using the Plant P&ID;
- Identify the equipment on the Plant from the P&ID.

14

Industrial Plant Operations

12 Minimum participants

5 days

Course Overview

The Mini Pilot Plant is designed to provide trainees with "real world" experience in understanding and troubleshooting industrial equipment and controls. The Plant consists of pumps, heat exchangers, electric heater, air fan cooler, control valves, sample stations, PLC controller, chemical injection system, tanks with level gauges, a multitude of system instrumentation and piping and valves that all comply with industrial specifications in order to provide training as if in real world facilities. This course trains attendees on the typical flow operations in a plant.

Who Should Attend?

Operators, Control Room Operators, Process Control Technicians, Instrumentation Technicians, Electrical Technicians, Mechanical Technicians or Engineers and Contractors who are working or will be working in Plants.

Enabling Objectives:

- Investigate Pump minimum flow operations
- Investigate Feed/Product Heat Exchanger Bypass Operations
- Conduct a Feed/Product Heat Exchanger Pressure Survey;
- Conduct a Feed/Product Heat Exchanger Temperature Survey
- Investigate Fan Cooler Bypass Operations

15

DCS Trouble Shooting

12 Minimum participants

5 days

Course Overview

This course introduces troubleshooting in a DCS System using P&IDs.

Who Should Attend?

Operators, Control Room Operators, Process Control Technicians, Instrumentation Technicians, Electrical Technicians, Mechanical Technicians or Engineers and Contractors who are working or will be working in Plants.

Enabling Objectives:

- Read and interpret P&ID's
- Identify control loops on P&ID
- Explain the principles of control loops
- Outline problem solving methodology

15

Gas Testing

12 Minimum participants

5 days

Course Overview

The program introduces gas testing in terms of its requirements, hazards, component parts and general operation.

Who Should Attend?

Operators, Control Room Operators, Process Control Technicians, Instrumentation Technicians, Electrical Technicians, Mechanical Technicians or Engineers and Contractors who are working or will be working in Plants.

Enabling Objectives:

- Know gas testing policy and its requirements.
- List common gas hazards.
- Identify the main parts of a multi-gas tester.

16

P&ID with Process Control

12 Minimum participants

5 days

Course Overview

General introduction to Piping & Instrumentation Diagrams and their application in Process Control operations. Identification of symbols and components, tracing flow through the given process diagrams and then using a simulator.

Who Should Attend?

Operators, Control Room Operators, Process Control Technicians, Instrumentation Technicians, Electrical Technicians, Mechanical Technicians or Engineers and Contractors who are working or will be working in Plants.

Enabling Objectives:

- Identify the symbols on a process flow diagram.
- Identify equipment on a process flow diagram.
- Trace the flow of product on a process flow diagram.
- Identify instruments on the process control simulator.

16

PDF & P&ID

12 Minimum participants

5 days

Course Overview

Introduce to operators the interpretation of process flow and Piping & Instrumentation Diagrams. Identify equipment and components and trace flow process and operation.

Who Should Attend?

Operators, Control Room Operators, Process Control Technicians, Instrumentation Technicians, Electrical Technicians, Mechanical Technicians or Engineers and Contractors who are working or will be working in Plants.

Enabling Objectives:

- Identify the symbols on a process flow diagram
- Trace the flow of product on a process flow diagram
- Identify equipment on a process flow diagram.
- Identify the symbols and abbreviations on a P&ID
- Identify component settings and limits on a P&ID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NITI

NATIONAL INDUSTRIAL TRAINING INSTITUTE
Kingdom of Saudi Arabia, Al Hasa, Airport Road
P.O. Box 550, Al Hasa 31982 +966 13 5955103

niti.edu.sa