



CHEMICAL PROCESS OPERATIONS COURSE

COURSE DESCRIPTION

The Chemical Process Operations Course is a practice-oriented training in CPTC's industry scale process plant. It provides solid knowledge and skills foundation in process operations, process control and equipment for the multi-skilled Process Technicians of the Future. The curriculum is structured into 9 Competencies and is developed based on the CHIMAC's "Blueprint of Future Process Technicians". The trainees will be trained in operating and monitoring different types of pumps, a variety of heat exchangers, instrumentation, electrical system, furnace, flare, utilities, perform autonomous maintenance and process plant safety management system.

COURSE OBJECTIVE

On successful completion of the course, trainees will be competent in :

- Process plant operation like furnace light up, plant and equipment commissioning and decommissioning, operate pumps, compressors, heat exchangers etc.
- Handling plant emergency and HSE issues
- Troubleshooting process problems and plant upsets
- Understanding distillation process chemistry, material and energy balance
- Operating DCS controls, field instrumentation and electrical system
- Taking process sample and performing basic laboratory testing
- Work permitting and safety system
- Performing autonomous maintenance and equipment basic care

The trainees will also:

- Acquire proper plant safety attitude and aptitude
- Experience working on shift
- Understand shift team dynamics and be a team player

FOR WHOM

Process Technicians joining the chemical process industries.

COURSE LEADERS

Our course leaders are well qualified and skilled Process Specialists and Technologists with years of process and operational experience.

CERTIFICATE

A certificate will be issued to trainees who successfully complete the chemical process operations course.

Note:

The Chemical Process Technology Centre (CPTC) is a national training infrastructure owned by EDB, and managed and operated by Petrofac Training. CPTC is dedicated to enhance the manpower competencies of the oil, gas and petrochemicals industry.

COURSE INFORMATION

Course Code	: CT8005
Day/Time	: Day training 9.00 am to 5.00 pm Shift Training 12 hours shift schedule
Duration	: 10 weeks or customised duration
Venue	: Chemical Process Technology Centre 81 Jurong Island Highway Singapore 627837

COURSE ADMINISTRATION

Registration

For registration, please return the Registration Form together with the appropriate payment by cheque made payable to "Petrofac Training Pte Ltd".

Enquiries

Telephone: 6880 2000 Telefax: 6896 7151

Course Fee Subsidy/Payroll Subsidy

N.A.



Competency #1 - Safety Management

- 1) CPTC Teaching Laboratories Overview
- 2) CPTC Process Plant Overview
- 3) Oil/Petrochemical Safety Orientation Course
- 4) Emergency Procedures
- 5) Fire Fighting Equipment Operation
- 6) Fire Alarm System
- 7) Gas Detector System
- 8) Work Permitting System
- 9) Safety Management System
- 10) Assessment

Competency #2 - Utilities

- 1) Engineering Drawings
- 2) Line Tracing
- 3) Battery Limit Valves
- 4) Cooling Water System
- 5) Air System
- 6) Nitrogen System
- 7) Steam System
- 8) Field Monitoring
- 9) Hazards Discussion
- 10) Assessment

Competency #3 - Distillation System

- 1) Principles of Distillation
- 2) Distillation Column Components
- 3) Distillation Column Design Data
- 4) Distillation Process Control
- 5) System Commissioning and Decommissioning
- 6) Process Operations and Monitoring
- 7) Hazards Discussion
- 8) Assessment

Competency #4 - Heat Exchangers & M&R

- 1) Heat Exchangers Types, Components & Operating Limits
- 2) Heat Exchangers Commissioning and Decommissioning
- 3) Process Preparation for Mechanical Works
- 4) LOTO System
- 5) Maintenance Works
- 6) Process Preparation After Mechanical Works
- 7) Piping and Fittings
- 8) Process Operations and Monitoring
- 9) Hazards Discussion
- 10) Assessment

Competency #5 - Offsites, Flare & Effluents

- 1) Tank Gauging and Water Draw Off
- 2) Process Sampling
- 3) Laboratory Testing
- 4) Pigging System
- 5) Flare System
- 6) Effluents Containment and System
- 7) Process Operations and Monitoring
- 8) Hazards Discussion
- 9) Assessment

Competency #6 - Rotating Equipment

- 1) Pump Components and Principles
- 2) Rotating Equipment Auxiliary Components
- 3) Pumps Operation and Troubleshooting
- 4) Autonomous Maintenance
- 5) Equipment Basic Care
- 6) Compressors Operation and Troubleshooting
- 7) Switching Pump Drivers (Turbine & Motor)
- 8) Hazards Discussion
- 9) Assessment

Competency #7 - Furnace & BMS

- 1) Furnace Components and Principles
- 2) Burner Management System
- 3) Furnace Safe Guarding System
- 4) Furnace Commissioning and Decommissioning
- 5) Furnace Operation and Monitoring
- 6) Fuels Switching
- 7) Hazards Discussion
- 8) Assessment

Competency #8 - Instruments, Electrical & DCS

- 1) Measurement Concepts and Devices
- 2) Control Valves
- 3) Actuators
- 4) Basic Control Principles
- 5) Automatic Process Control
- 6) Distributed Control System Operation
- 7) Motors and Switch Gears
- 8) Electrical Distribution, Protection and Sub-Station System
- 9) Hazards Discussion
- 10) Assessment

Competency #9 - Chemical Process Operations Training on Shift

- 1) Do & Don't Behaviours in Process Plant
- 2) Process Plant Start Up
- 3) Process Plant Steady State Operation and Monitoring
- 4) Shift Handover and Radio Communication Protocol
- 5) Emergency Drills and Handling
- 6) Process Plant Abnormal State Operation
- 7) Process Plant Shut Down
- 8) Hazards Discussion
- 9) Assessment