



**MORIKUS**  
INDUSTRIAL TRAINING INSTITUTE



COURSES MODULE FOR

**PROCESS DESIGN ENGINEERING**

# COURSE OUTLINE



- ❖ Industry and role of a Process Engineer for various facilities.
- ❖ Basic design requirements based on the types of plants / projects.
- ❖ Basic Engineering Package.
- ❖ Development of BFD, PFD, P&ID and PDS of equipments.
- ❖ Relevant Codes and Standards used in industry.
- ❖ Development of PFD: Process & Utility.
- ❖ Mass and Energy balance - Design Basis, Sample Calculations and Utility Sizing.
- ❖ Interlocks, Control Philosophy, Valves Selection and sizing, Safety valves sizing.
- ❖ Development of P&ID: Process and Utility, Line Sizing & Pressure Drop calculations Pump Selection and sizing.
- ❖ Heat Exchanger Design (Thermal Design).
- ❖ Distillation Column Design.
- ❖ Available Software used in industry and their applications.

# PROCESS DESIGN DETAIL ENGINEERING

## BASIC ENGINEERING DOCUMENTS

- Design Basis
- Block Diagram
- Process Flow Diagram
- Material & Energy Balance
- Utilities Consumption Sheets
- Chemical Consumption & Specification Sheets
- P&I Diagram
- Piping Material Specification
- Valve Material Specification
- Equipment List
- Line List
- Control Philosophy With Interlocks
- Equipment Process Data Sheets With Rfq Documents
- Electrical
- Over All Layout
- Equipment Layouts (area Wise)
- Insulation Specification
- Color Coding / Painting Specification
- Line Sizing Report (for Major Lines)

## PROCESS EQUIPMENTS DETAIL DESIGN

- Heat Exchanger
- Pump
- Pressure Vessel
- Separation Column
- Control Valve
- Reactor Technology

## DETAIL ENGINEERING ACTIVITIES

- Equipment Process Data Sheets With Rfq Documents
- Effluent Schedule
- Instrumentation Process Data Sheet
- Valve List
- Valve Summary
- Valve Data Sheets With Rfq Document
- Laboratory Items Specification With Rfq Documents
- Safety Items With Rfq Document
- P&id Gradation (upadation)
- Equipment List(upadation)
- Line List (upadation)
- Control Philosophy With Interlocks (upadation)
- Utilities Consumption Sheets(upadation)
- Over All Layout
- Equipment Layouts (area Wise)
- Operating & Safety Manual
- Technical Approval Of Vendors Offers/tba (max Three Vendor Considerd)
- Prepration Technical Order Specification
- Squad Check For Mds Checking & Nozzle Orientation

## SITE/CONSTRUCTION ACTIVITIES



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