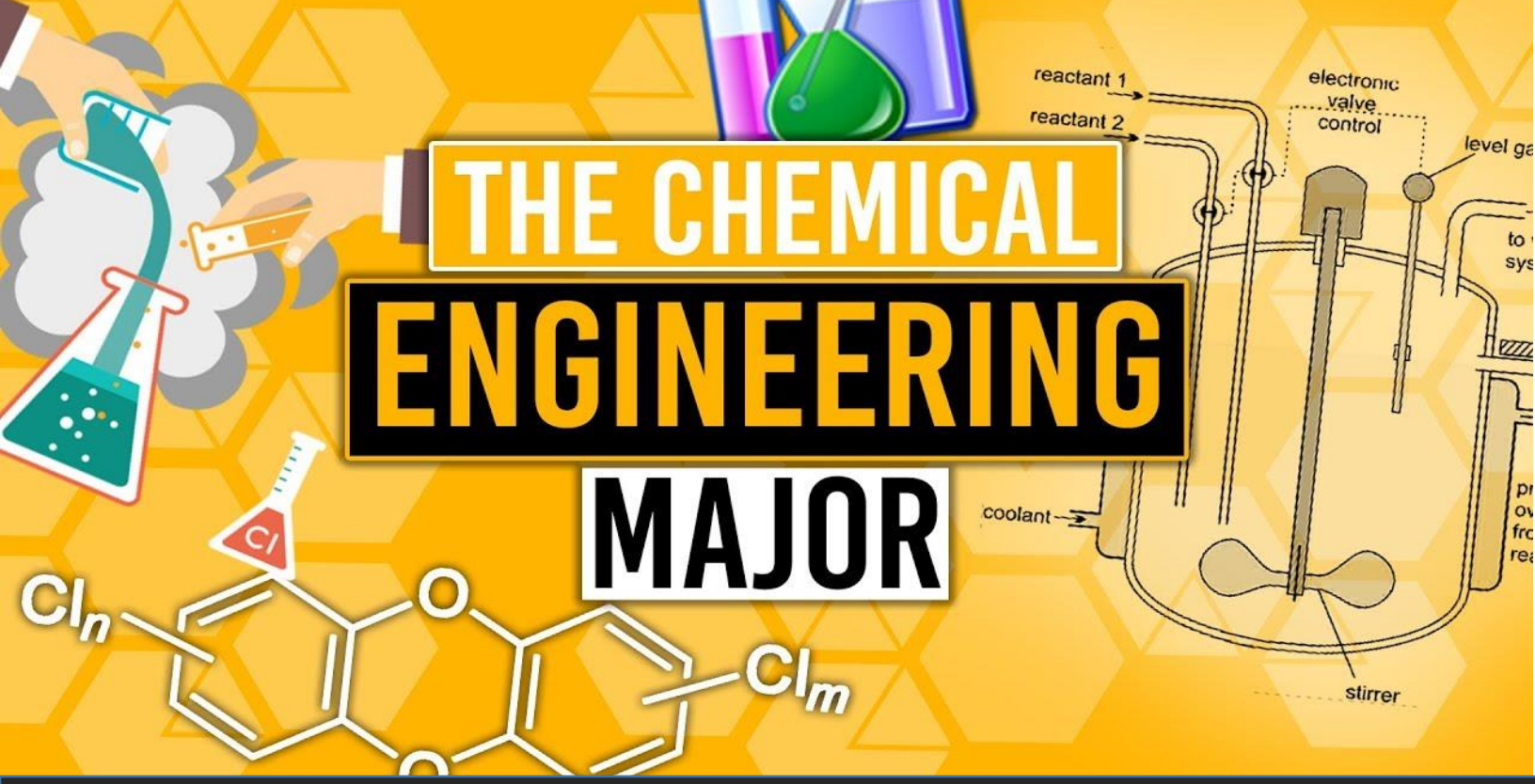

BTS
Training & Consultancy

Process Plant Performance & Efficiency

www.btsconsultant.com

Process Plant Performance & Efficiency

Training Description:

This intensive course will outline the step by step process of designing, installing and commissioning photovoltaic and wind powered systems. This comprehensive training covers the important issues enabling you to do simple designs and then to investigate the design and installation issues in more detail after the training either by further study or in conjunction with experts in the field. In recent years the annual growth rate of the solar and wind energy industry has consistently exceeded 30% with 3-digit growth figures in many regional markets. So, in these rather challenging economic times, this is a good industry in which to focus one's career on.

Training Objectives:

By the end of the training, participants will be able to:

- ✓ Apply and gain an in-depth knowledge on various elements of process plant performance in order to improve the efficiency
- ✓ Enumerate the characterization of catalyst and the ideal reactor and identify their performance
- ✓ Discuss the various thermal and mechanical separation processes and determine the performance of crystallization, adsorption, chemisorptions, and ion exchange
- ✓ Recognize the performance of pipelines, pumps and compressors as well as the efficiency of off- site utilities such as the electrical energy, cooling water, steam, and refrigeration
- ✓ Discuss the importance of proper waste disposal and its impact performance and efficiency
- ✓ Employ systematic methodology in measurements and control technology and their major role in plant performance and efficiency.
- ✓ Enhance knowledge on collecting various data as chemical data, mass balance, physicochemical data and processing variables as inputs for process optimization procedure
- ✓ Identify the various optimization tools used in process plant performance and determine the refinery and process plant optimization trends.
- ✓ Discuss the continuous improvement, benchmarking and best practices for process plant performance and efficiency
- ✓ Carryout troubleshooting procedures and identify the different performance analysis software used in process plant performance in relation to process optimization and performance monitoring

Who should Attend?

This course is intended for all those concerned with the process plant performance and efficiency including Planning Staff, Instrumentation & Control Staff, Production & Operation Staff, Process, Electrical, Mechanical and Project Engineers, Panel Operator, Engineer and Supervisor. Management can also appreciate the importance of the new tools available to achieve the plant objectives of today and meet the challenges of tomorrow.

Training Certificate(s):

BTS attendance certificate will be issued to all attendees completing a minimum of 80% of the total course duration.

Training Program:

DAY ONE:

- Pre-Test
- Introduction
- Chemical Engineering Principles
  - Equipment Design
  - Heat Transfer & Heat Exchangers, Evaporators, Heaters
  - Mass Transfer & Distillation Towers
  - Separator Vessels Sizing & Design Considerations
  - Liquid Settling Space Velocity & General Tips
  - Air Coolers
  - Pump Sizing
  - Tank Sizing, Drum Types & Pressure Storage Vessel Design Considerations
  - Batch Heating/Cooling Time Estimation
  - Reboiler Heat Load Calculation
  - Heating Coil in Storage Tanks
  - Estimation of Number of Stages for Crude/Condensate Stabilization

DAY TWO:

- Hydraulics & Fluid Mechanic Calculations
  - Hydraulics of Fluids and Pressure Drop
  - Pipeline /Piping Design
  - Pipe Thickness and Schedule
  - Estimation of Pressure Drop
  - Hydrate Formation Temperatures and Pressures
  - Pipeline Design - Quick Estimates
  - Hydrate Inhibitor Injection

DAY THREE:

- ❖ Valves Sizing
    - Control Valve Sizing – Gas Service
    - Control Valve Sizing – Liquid Service
    - Control Valve Sizing – Steam Service

- ❖ Pressure Relief, Flare and Blowdown
    - Pressure Relief Valve Sizing -Gas Service
    - Pressure Relief Valve Sizing – Liquid Service
    - Pressure Relief Valve Sizing – Thermal Expansion
    - Relieve Valve (PSV) Calculations
    - Flare KO Drum Sizing
    - Flare Network Capacity Checks and Calculations
    - Estimation of Flare Radiation and Sizing of Flare Utilities
    - Estimation of Blow-Down

DAY FOUR:

- ❖ Utilities
    - Cooling Water Summary and Calculations
    - Chilling Medium Summary and Calculations
    - Instrument Air Summary and Calculations
- ❖ Oil & Gas
    - Pump Calculations
    - Compressor Calculations
    - Heat Exchanger Calculations
    - Flow Line/Pipeline Sizing
    - Crude Oil Assay Characterization
    - Heat and Mass Balance

DAY FIVE:

- ❖ Estimation of Losses from Storage Tanks
- ❖ Heating Value & Combustion Temperature of Fuels
- ❖ Crude Oil Heating Value Estimation
- ❖ References for Software Calculations
- ❖ Course Conclusion
- ❖ POST-TEST and EVALUATION