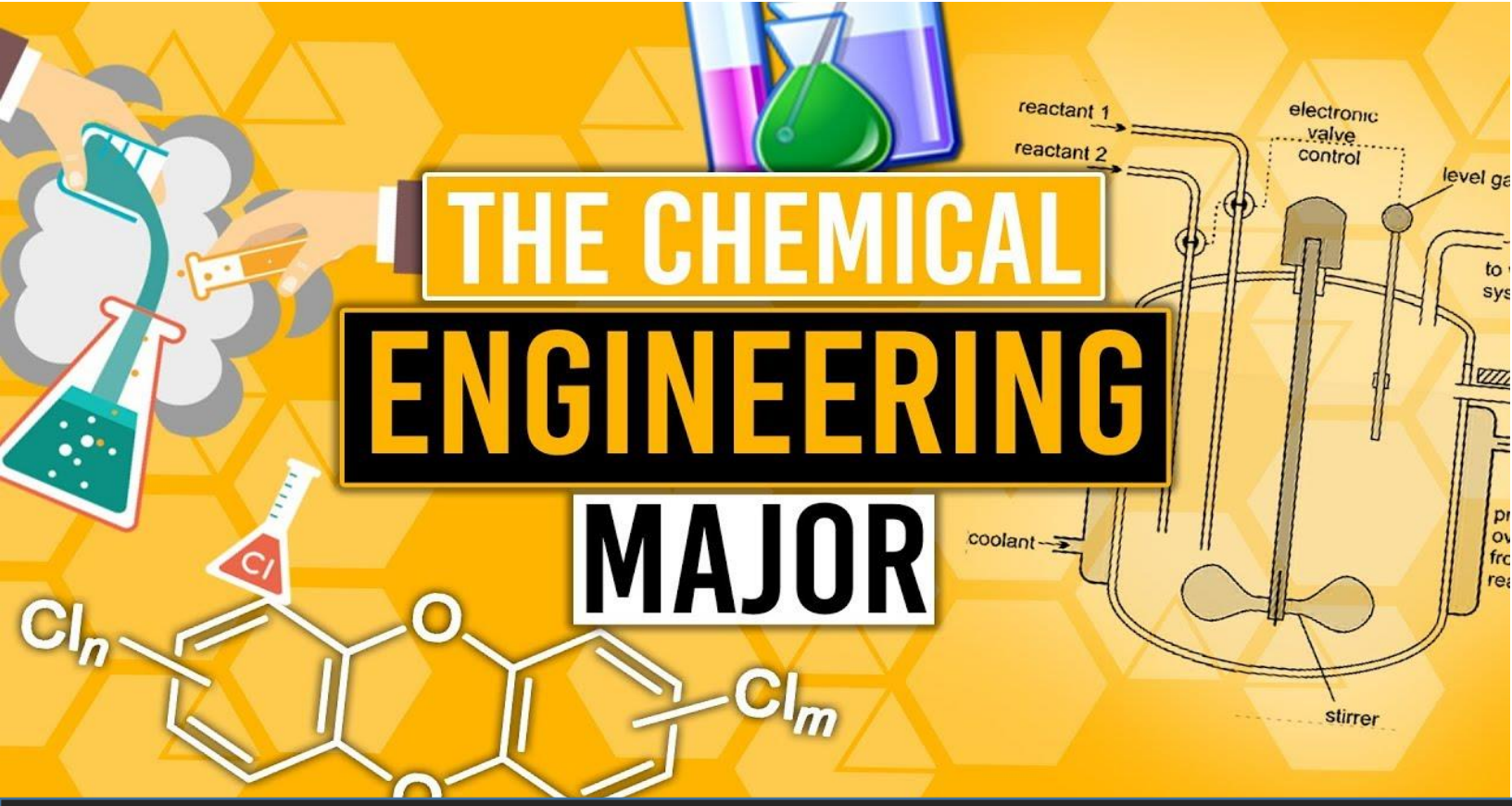

Desalting – Dehydration Techniques

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BTS
Training & Consultancy

Desalting – Dehydration Techniques

Introduction:

This program has been developed to provide an in-depth, yet practical review of the art and science of Crude oil desalting & dehydration techniques. The program's content is both comprehensive and wide-ranging. The sessions begin with a discussion of the Fundamentals, including Process Objectives, Equipment Behavior, Interaction of the Process and Equipment, and Troubleshooting Techniques. A Case Study approach covers some selected Process and Equipment found in Refineries and Gas/oil production facilities. All Case Studies are developed from "Actual Case Studies". Once the Fundamentals are established the session moves into the topics of Troubleshooting Techniques, Analysis, and Problem Solving of desalting and dehydration process.

Who Should Attend?

Technical personnel involved in the activities of oil and gas processing facilities, engineers, operation and maintenance personnel involved in the areas of the petroleum industry who require a comprehensive overview of crude oil processing facilities, operation & troubleshooting will find this course ideally suited for them.

Methodology:

This interactive Training will be highly interactive, with opportunities to advance your opinions and ideas and will include;

- Lectures
- Workshop & Work Presentation
- Case Studies and Practical Exercise
- Videos and General Discussions

Certificate:

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

Objectives:

By the end of this course, participants will be able to:

- Obtain a broad working knowledge of crude oil desalting and dehydration process to gain insight into both Traditional and Advanced Techniques.
- Have a broader Technical Understanding of the approach demonstrates the Complexity of actual desalting & dehydration Operations and How to simplify and identify solvable Problems.
- Have a deeper knowledge of the different equipment and facilities found in crude oil desalting & dehydration facilities.

- Select and evaluate processes and equipment used to condition well fluids, to meet sales or disposal specifications .
- Apply physical and thermodynamic property correlations and principles to the design and evaluation of oil dehydration & desalting facilities.
- Perform equipment sizing calculations for major oil dehydration & desalting facility equipment.
- Recognize and develop solution to operating problems in oil dehydration & desalting facilities.

Contents:

- Course Introduction & Pre-assessment
- Crude Oils – Chemistry and Composition
- Origin, Composition
- Crude Oil Properties
- Classification of Crude Oils
- Crude Oil Characterization, Comparisons and Contaminants

Dehydration

- Introduction
- Separation Process
- Principles of Separation
- Gravity Separation
- Separation System Problems
- Factors Affecting Separation

- Phases of Separation
- Primary Separation
- Secondary Separation
- Mist Extraction
- Liquid Accumulation
- Oil and Water Separation
- Terminology and Applications
- Vessels Terminology
- Separator Application
- Stage Separation
- Separators Classification
- The Vessel Shape
- The Number of Fluids to be Separated
- Separator Internals
- Inlet Configuration
- Intermediate Configuration
- Outlet Configuration
- Separator Sizing
- Separation Operation and Troubleshooting
- Separator Control
- Troubleshooting
- Operating Problems
- Foamy Crudes
- Paraffin
- Sand
- Emulsion
- Slugging

Desalting

- Introduction
- Emulsions
- Emulsifying Agents
- Emulsion Terminology
- Standard or Regular Emulsion
- Reversed or Inversed Emulsion
- Unstable or Loose Emulsion
- Stable or Tight Emulsion
- Demulsifiers
- Factors Affecting Emulsion Breakdown
- Differential Density
- Viscosity
- Interfacial Tension
- Water Drop Size
- Salinity of the Water
- Volume Percent of the Water
- Emulsifying Agents
- Age of Emulsion
- Agitation
- Dual Polarity Oil Dehydration
- Electrostatic Field
- Electrical Desalting of Crude Oils

- Pressure Drop
- Chemical Addition
- Quantity of Water Used
- Voltage

- Temperature
- Pressure
- pH
- Solids at Water Oil Interface
- Oleophobic Impurities
- Water and Salts
- Theory of Desalting Process
- Mixing
- Single Stage Desalting
- Two Stage Desalting
- Mixing Equipment
- Basic Design Concept of the Desalter System
- Description of Plant Components
- Inlet Distributer (Pan)
- Effluent Water Header
- Electrode System
- Insulator and Entrance Bushing
- Outlet Collector
- Transformer
- Distribution and Control Board
- Interface Control System
- Venting System
- Sample Connections and Sample Box
- Instrumentation and Equipment
- Operation
- Start-up Procedure
- Shut-down Procedure
- Troubleshooting

Water Treatment

- Produced water treating objectives
- Process Theory
- Pretreatment, Primary De-oiling
- Equalization, Secondary De-oiling