

Training Solutions



PRACTICAL ENGINEERING SOLUTIONS

KLM Technology Group is a technical consultancy group, providing specialized services, training and equipment to improve process plant operational efficiency, profitability and safety. KLM Technology Group is recognized world-wide as a leader in the areas of distillation simulation, column design and unit commissioning with one of the best track records in the industry.

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The success of every company depends of each employee's understanding of the key business components. Employee training and development will unlock the companies' profitability and reliability. When people, processes and technology work together as a team developing practical solutions, companies can maximize profitability and assets in a sustainable manner. Training and development is an investment in future success - give yourself and your employees the keys to success.

KLM Technology Group has a team of highly experienced associates in the USA, Malaysia, Indonesia and Singapore, that specializes in the practical application of knowledge. Our team leaders are all degreed engineers and typically have over twenty years of specialized chemical industry experience. Assisting the team leaders are young degreed engineers and practical application specialist with many years of applicable experience.

Mr. Karl Kolmetz - Managing Director

OPERATION TRAINING

Over the past five years KLM Technology Group has trained over 600 personnel in specialize in-house courses and in regional conferences.

Perfecting Process Plant Performance Conference, Malaysia, 25-29 January 2010
 Equipment Design and Distillation Guidelines, Reliance Corporate Park, Mumbai India, 21 December 2009
 Universitas Sultan Ageng Tirtayasa, Cilegon Indonesia, 6 November 2009
 Hazop Team Leader Training, Chandra Asri, Indonesia, 17- 18 March 2009
 AIChE and Baker Petrolite Butadiene Conference, Houston Texas, October 10, 2008
 Advances in Ethylene Pyrolysis Furnace Design, Operation and Optimization, Malaysia, 21-23 November 2007
 Improving the Performance and Reliability of Fired Furnace Heaters, Kuala Lumpur, Malaysia, 19-21 November 2007
 Distillation Simulation Software Techniques, Kuala Lumpur, Malaysia, 21-23 November 2007
 Distillation Design, Operation, Control and Trouble Shooting, Kuala Lumpur, Malaysia, 19-21 November 2007
 Aromatics Workshop at Copesul Ethylene Plant in Porto Alegre, Brasil on 27, 28 29 June 2007
 Project Management, Planning and Control at UTM, Malaysia, on July 2007
 Operations Training for Tower Commissioning at BST, Rayong Thailand, 2 April 2007
 Building Operational Excellence Training at UTM on 5-8 March, 2007
 Refinery Trouble Shooting Training in Houston Tx, on Oct 3, 4, 5, 2006
 Benzene Extractive Distillation Training at Mozyr, Belarus September 2006
 Project Management, Planning and Control at UTM on 15, 16, 22, & 23 July 2006
 Building Operational Excellence Training at UTM on 17 -20 July, 2006
 Fundamentals of the Petrochemical Industry at UTM, 3 - 6 July 2006
 Refinery Alkylation Unit Training, Kuwait Petroleum Corp, Kuwait , 25-28 June 2006
 Crude Unit Distillation at Sunoco Refining, Philadelphia, PA USA - June 2006
 Crude Unit Distillation At Total Refining, Port Arthur, TX, USA -April 2006
 Refinery Troubleshooting At Alliance Refinery, Thailand, 20-23 March 2006
 Process Troubleshooting and Problem Solving at Abu Dhabi Oil Refining, UAE 24-26 December 2005
 Invensys SimSci-Esscor Users Conference, Bangkok, Thailand, 7th ?9th December 2005
 Career Guidelines Training at University Nottingham KL, Malaysia on December 2, 2005
 Design Guidelines for using Distillation Simulation Software at UTM on 28 -30 November 2005
 Operations and Maintenance Training At Titan Petrochemicals, Malaysia September 21-23, 2005
 Building Operational Excellence Training at UTM on September 12 -14, 2005
 And More.....

Chemical Engineering for Non Chemical Engineers

Course Overview

The seminar identifies the areas of chemical engineering that are most commonly encountered by the non-specialist, with examples that will be drawn from a range of process industries including oil and gas processing, petrochemicals, chemical manufacturing.

Course Outline

- Introduction
- Review of Process Incidents
- Fundamentals of Chemistry
- Introduction to Unit Operations Equipment
- Introduction to Fluid Flow and Mixing
- Introduction to Process Control and Instrumentation
- Introduction to the Energy and Material Balance
- Introduction to Thermodynamics and Equilibrium
- Introduction to Reaction Engineering
- Introduction to Separation and Mass Transfer Operations
- Process Operations and Troubleshooting
- Introduction to Unit Operations Economics

Who Should Attend

- This program has been designed for non-technical personnel assigned to positions in petroleum refineries, corporate offices, supplier and other interrelated companies.
- The content of the program is based upon the assumption that those in attendance do not have a formal education in engineering and chemistry and do not work in highly technical environments.
- The program should be used for newly-hired refinery plant personnel & may serve as a prerequisite for those who do not have a technical background but who want to attend the more detailed petroleum refining or chemical processing program.

What you can expect to gain

- An overview of chemical engineering operations, safety, processes and economics.
- Become familiar with the equipment of a chemical engineer.
- Become familiar with the unit operations of chemical engineering.
- Become familiar with plant economics.

Course Duration

3-5 Day Course

Introduction to Petroleum Refining and Petrochemicals for Non Technical Professionals

Course Overview

This program will emphasize the refining and petrochemical process unit operation fundamentals, safe utilization of these fundamentals by operations, engineering, maintenance and support personnel.

Course Outline

- Introduction
- Review of Process Incidents
- Fundamentals of Petroleum Chemistry
- Introduction to Petrochemical Key Concepts
- Introduction to Refinery and Petrochemical Equipment
- Overview of a Refinery
- Overview of an Ethylene (Olefin) Plant
- Overview of Ethyl Benzene / Styrene Plant
- Overview of BTX Separation Plants

Who Should Attend

- This program has been designed for non-technical personnel assigned to positions in petroleum refineries, chemical production, corporate offices, supplier and other interrelated companies
- The content of the program is based upon the assumption that those in attendance do not have a formal education in engineering and chemistry and do not work in highly technical environments
- The program should be used for newly-hired refinery plant personnel & may serve as a prerequisite for those who do not have a technical background but who want to attend the more detailed petroleum refining processing program

What you can expect to gain

- An introduction of the refining and petrochemical operations, processes and economics
- Gain an understanding of the equipment of a refining and petrochemical plant
- Gain an understanding of the refining and petrochemical flow sheets
- Gain an understanding of refining and petrochemical chemistry and catalyst
- Gain an understanding of the refining and petrochemical margins

Course Duration

3-5 Day Course



Course Overview

This seminar focuses on the core building blocks of the project management planning and control. To plan and run projects using best practices in a 10 step project management process. Learn how to plan, manage, deliver projects, implement project management processes, develop leadership skills and respond to real-world scenarios.

Course Outline

- Introduction to the Processing Industry
- Safety For the Processing Industry
- Introduction to Project Management
- 10 steps of Project Management
- Define the Work
- Build the Work Plan
- Manage the Work Plan
- Manage Issue, Scope, Communication, Risk, Documents, Quality, Metrics

Who Should Attend

- People who are making day to day decisions regarding project planning and control.
- Ideal for veterans and those with only a few years of experience who want to review or broaden their understanding in Project Management.
- Other professionals who desire a better understanding of subject matter.
- Anyone new to project management or those who wish to refresh their knowledge of fundamental project management techniques.

What you can expect to gain

- An detailed overview of project management guidelines.
- Become familiar with project management triangle.
- Plan and run projects using best practices in a 10 step project management process.
- Have a case study to review all the steps.
- Become familiar with project management control.
- Implement risk management techniques and mitigation strategies.
- Implement monitoring tools and controls to keep you fully in command of the project.

Course Duration

3-5 Day Course

Introduction to Building Operational Excellence

Course Overview

This course will guide the participants to develop key concepts and techniques to operate and troubleshoot key operational excellence fundamentals. These key concepts can be utilized to make operating decisions that can improve your unit's performance. There are many aspects of operational excellence. Partial list may include; safety, reliability, quality, cost, people development. These cannot be improved without first an understanding of basic fundamental principles of these aspects. These principles need to be understood in advance of operating and trouble shooting a process unit operation for the operator or problem solving to be effective.

Course Outline

- Introduction to Processing Industry Key Concepts
- Plant Reliability
- Introduction to Quality
- Overview of Statistical Process Control
- Introduction to Cost Control
- Feedstock
- Energy
- Develop Key Performance Indicators
- Managing Projects
- People Development
- Team Building
- Training

Who Should Attend

- People who are making day to day decisions regarding operation, design, and economics of processing plants.
- Ideal for veterans and those with only a few years of experience who want to review or broaden their understanding in Processing Plant Operations.
- Other professionals who desire a better understanding of subject

What you can expect to gain

- Guidelines on how to develop a 1st quartile safety program that has an added benefit of being a profit center
- Guidelines on how to improve plant reliability
- Find the benefits of a Quality System
- Understand your major costs and how to improve them
- People Development guidelines

Course Duration

3-5 Day Course

Distillation Operation, Control, Design & Troubleshooting for Operations and Engineering Personnel

Course Overview

This course will guide the participants to develop key concepts and techniques to design, operate and troubleshoot a distillation system. These key concepts can be utilized to make design and operating decisions

Course Outline

- General Column Design
- Tray Column Design and Operation
- Packed Column Design and Operation
- Operating Columns in Fouling Service
- Operating Columns in Vacuum Service
- Guidelines for Improved Columns Operation and Maintenance
- Distillation Column Control
- Typical Controlled and Manipulated Process Variables
- Commissioning
- Troubleshooting

What you can expect to gain

- The operation, control and trouble shooting of a distillation columns and it's associated equipment.
- An understanding of essential concepts.
- Valuable practical insight for trouble free design and field proven techniques for commissioning, start up and shutdown of distillation operation.
- The fundamental knowledge of distillation control.
- To tailor your approach to specific design, analysis and trouble shooting problems.

Who Should Attend

- An engineer or chemist who must troubleshoot and solve distillation problems in a plant, an engineering office or laboratory.
- Plant Operation Support Engineers checking plant performance under different operating conditions, and who are involved in design of new facilities or revamps of existing facilities.
- Technical engineers, operation engineers, process support personnel, chemist and manager.
- Ideal for veterans and those with only a few years of experience who want to review or broaden their understanding of process safety

Course Duration

3-5 Day Course

Advanced Distillation Operation, Control, Design & Troubleshooting for Operations and Engineering

Course Overview

This course will guide the participants to develop key concepts and techniques to design, operate and troubleshoot a distillation system. These key concepts can be utilized to make design and operating decisions.

Course Outline

- General Column Design
- Vapour Liquid Equilibrium
- Stages and Transfer Units Efficiencies
- Stage Efficiency
- Tray Column Design
- Packed Column Design
- Designing Columns for Fouling Service
- Designing Columns for Vacuum Service
- Designing Columns for Improved Operation and Maintenance
- Distillation Column Control
- Simulation Convergence Techniques
- Typical Controlled and Manipulated Process Variables
- Controller Performance Criteria
- Feed Forward Control of An Ideal Process
- Troubleshooting
- Commissioning

What you can expect to gain

- The operation, control and trouble shooting of a distillation columns and it's associated equipment.
- An understanding of essential concepts.
- Valuable practical insight for trouble free design and field proven techniques for commissioning, start up and shutdown of distillation operation.
- The fundamental knowledge of distillation control.
- To tailor your approach to specific design, analysis and trouble shooting problems.

Who Should Attend

- An engineer or chemist who must troubleshoot and solve distillation problems in a plant, an engineering office or laboratory.
- Technical engineers, operation engineers, process support personnel, chemist and manager.
- Ideal for veterans and those with only a few years of experience who want to review or broaden their understanding of process

Course Duration

3-5 Day Course

Course Overview

This course will guide the participants to develop key concepts and techniques to operate design and troubleshoot a process control system. These key concepts can be utilized to make design and operating decisions.

Course Outline

- Introduction to Petrochemical Key Concepts
- Introduction to Regulatory Control
- Typical controlled and manipulated process variables
- Process Dynamics
- On-Off Controller
- PID Controller
- Cascade & Ratio Control
- Tuning of Controllers
- Distributed Control System & Column Control
- Advanced Process Control
- Installation

Who Should Attend

- People who are making day to day decisions regarding operation, design, maintenance, and economics of process industry plants.
- Ideal for veterans and those with only a few years of experience who want to review or broaden their understanding of process safety.
- Other professionals who desire a better understanding of subject matter.

What you can expect to gain

- The operation, control and trouble shooting of a process control systems and it's associated equipment.
- Valuable practical insights for trouble free design and field proven techniques for commissioning, start up and shutdown of process operations.
- The fundamental knowledge of process and distillation control.
- To tailor your approach to specific design, analysis and trouble shooting problems.

Course Duration

3-5 Day Course

Advanced Overview of Regulatory and Distributed Process Control

Course Overview

This course will guide the participants to develop key concepts and techniques to operate design and troubleshoot a process control system. These key concepts can be utilized to make design and operating decisions.

Course Outline

- Introduction to Petrochemical Key Concepts
- Introduction to Regulatory Control
- Typical controlled and manipulated process variables
- Process Dynamics
- On-Off Controller
- PID Controller
- Cascade & Ratio Control
- Tuning of Controllers
- Distributed Control System & Column Control
- Advanced Process Control
- Installation

Who Should Attend

- People who are making day to day decisions regarding operation, design, maintenance, and economics of process industry plants.
- Ideal for veterans and those with only a few years of experience who want to review or broaden their understanding of process safety.
- Other professionals who desire a better understanding of subject matter.

What you can expect to gain

- The operation, control and trouble shooting of a process control systems and it's associated equipment.
- Valuable practical insights for trouble free design and field proven techniques for commissioning, start up and shutdown of process operations.
- The fundamental knowledge of process and distillation control.
- To tailor your approach to specific design, analysis and trouble shooting problems.

Course Duration

3-5 Day Course

Finance for Non Finance Professionals

Course Overview

Many aspects of operations financial management can be improved. These principles need to be understood in advance of trouble shooting a process unit operation financial problem for the manager or problem solving to be effective.

Course Outline

- Introduction
- Basic Accounting Concepts
- Understand the Purpose of and Terminology Associated with Financial Statements
- Reviewing an Annual Report
- Budgeting
- Recognize and Apply Different Methods of Evaluating and Monitoring Operating Performance
- Conclusions

Who Should Attend

- People who are making day to day decisions regarding operation, design, and economics of processing plants
- This program is designed for nonfinancial professional managers in every functional area of responsibility in all industries
- Anyone who wants to develop their knowledge of financial practices to improve their managerial skills
- Ideal for veterans and those with only a few years of experience who want to review or broaden their understanding in Processing Plant Operations
- Other professionals who desire a better understanding of subject matter

What you can expect to gain

- Get a firm grasp of the numbers side of your job
- Gain greater confidence with a working knowledge of business financials
- Learn how to “think finance” and translate performance into financial terms
- Cultivate proactive working relationships with finance professionals and enhance your value to the organization
- Gain an understating of process unit margins
- Gain an insight to optimization strategies

Course Duration

3-5 Day Course

Introduction to Process Equipment Design

Course Overview

This course will guide the participates to develop key concepts and techniques to design, process equipment in a process plant. These key concepts can be utilized to make design and operating decisions. It is a challenge to find a good Chemical Engineering Design Course. A course such as these should be a requirement for young engineers, and refresher for engineers with experience. Understanding the practical applications of basic design engineering principles is a challenge for practicing engineers.

Course Outline

- Introduction
- Review of PFD
- Review of P&ID
- Understand the calculation of line sizes and pressure drops
- Understand flow measurement sizing and develop a flow measurement process data sheet
- Understand control valve sizing and develop a control valve process data sheet
- Understand relief valve sizing and develop a relief valve process data sheet
- Understand flash drum sizing and develop a flash drum process data sheet
- Understand distillation tray sizing and develop a distillation tray process data sheet
- Understand heat exchanger sizing and develop a heat exchanger data sheet
- Understand pump sizing and develop a pump data sheet
- Understand compressor sizing and develop a compressor data sheet
- Understand flare sizing and develop a flare data sheet
- Understand the relationship between process design and Safety

Who Should Attend

- People who are making day to day decisions regarding operation design, maintenance, and economics of process industry plants
- Engineering graduates/technologists who will be reviewing and designing process equipment in their daily work
- Technical Process engineers doing process design and optimization projects and studies that need who need advanced skills.
- Plant Operation Support Engineers checking plant performance under different operating conditions, and who are involved in design of new facilities or revamps of existing facilities
- Ideal for veterans and those with only a few years of experience who want to review or broaden their understanding of process safety.
- Other professionals who desire a better understanding of the subject matter.

What you can expect to gain

- Understand the practical applications of basic design engineering principles
- Understand content and applications of process flow diagrams (PFDs) and piping and instrument diagrams (P&IDs)
- Understand key criteria involved in the specification of process equipment and instrumentation.

Course Duration

3-5 Day Course

Introduction to Petroleum Refining for Technical Professionals

Course Overview

This seminar focuses on the core building blocks of the refining process systems, equipment and economics. This program will emphasize refining process unit operation fundamentals, safe utilization of these fundamentals by operations and maintenance personnel, and equipment troubleshooting techniques.

Course Outline

- Introduction
- Review of Process Incidents
- Fundamentals of Petroleum Chemistry
- Characteristics of Crude Oil
- Crude Oil Distillation
- Introduction to Refinery Equipment and Flow Sheet
- Crude Oil Quality and Refinery Flow Sheets
- Product Blending and Usage
- Petroleum Product Markets
- Gasoline Production Processes
- Economics of Gasoline Production Processes
- Fundamentals of Hydroprocessing
- Options for Heavy Oil Processing
- Refining Margins

Who Should Attend

- People who are making day to day decisions regarding operation, design, and economics of process industry plants.
- Ideal for veterans and those with only a few years of experience who want to review or broaden their understanding in Processing Plant Operations.
- Other professionals who desire a better understanding of subject matter.

What you can expect to gain

- An detailed overview of refinery operations, processes and economics
- Gain an understanding of the equipment of a refinery
- Gain an understanding of the refinery flow sheets
- Gain an understanding of refinery chemistry and catalyst
- Gain an understating of refinery margins

Course Duration

3-5 Day Course

Optimizing Olefin Unit Operations

Course Overview

This seminar focuses on the core building blocks of the Olefin / Ethylene Plant process systems, equipment and economics. This program will emphasize the process unit operation fundamentals, safe utilization of these fundamentals by operations, engineering, maintenance and support personnel.

Course Outline

- Introduction
- Review of Process Incidents
- Fundamentals of Petroleum Chemistry
- Introduction to Petrochemical Key Concepts
- Introduction to Olefin Plant Equipment
- Overview of an Olefin Unit
- Ethylene Furnace Technology
- Ethylene Distillation
- Process Equipment Troubleshooting
- Plant Reliability
- Quality / Cost Control / People Development

Who Should Attend

- People who are making day to day decisions regarding operation, design, and economics of processing plants
- Ideal for veterans and those with only a few years of experience who want to review or broaden their understanding of process safety.
- Other professionals who desire a better understanding of the subject matter.

What you can expect to gain

- An detailed overview of Olefin Unit operations, processes and economics
- Gain an understanding of the equipment of an Olefin Unit
- Gain an understanding of the Olefin Unit flow sheets
- Gain an understanding of chemistry and catalyst
- Gain an understating of process unit margins
- Troubleshooting Techniques
- Gain an insight to optimization strategies

Course Duration

3-5 Day Course

Furnace Operation Design and Maintenance

Course Overview

This seminar focuses on the core building blocks of the fired heater systems, equipment and economics. This program will emphasize fired heater unit operation fundamentals, safe utilization of these fundamentals by operations and maintenance personnel, and equipment troubleshooting techniques.

Course Outline

- Introduction
- Fundamentals of Petroleum Chemistry
- Introduction to Process Equipments
- Introduction to Fired Heaters
- Fired Heater Engineering
- Introduction to Refinery & Olefins Fired Heaters
- Introduction to VCM Fired Heaters
- Improve the Efficiency of Fired Heaters
- Introduction to Fired Heaters Control & Boilers
- Fired Heater Safety
- Review of Process Incidents
- Revamping Fired Heaters
- Reducing NOx Emissions
- Conclusions

Who Should Attend

- People who are making day to day decisions regarding operation, design, and economics of processing plants.
- Ideal for veterans and those with only a few years of experience who want to review or broaden their understanding in Processing Plant Operations.
- Review or broaden their understanding in Processing Plant Operations

What you can expect to gain

- An detailed overview of furnace operations, processes and economics.
- Gain an understanding of the equipment of a process furnaces and how they can be optimized.
- Gain an understanding of the refinery, Olefin and VCM furnace.

Course Duration

3-5 Day Course

Ethylene Unit Pyrolysis Furnace Design and Operation

Course Overview

This course will guide the participates to develop key concepts and techniques for the optimization of Ethylene Unit Pyrolysis Furnace Design and Optimization. These key concepts can be utilized to make operating decisions that can improve your unit's performance.

Course Outline

- Introduction
- Review of Process Incidents
- Fundamentals of Petroleum Chemistry
- Introduction to Process Equipment / Fired Heater
- Fired Heater Engineering
- Improve the Efficiency of Fired Heaters
- Introduction to Fired Heater Control / Boilers
- Fired Heater Safety
- Revamping Fired Heaters
- Reducing NOx Emissions
- Ethylene Furnace Technology
- Conclusions

Who Should Attend

- People who are making day to day decisions regarding operation, design, and economics of processing plants
- Ideal for veterans and those with only a few years of experience who want to review or broaden their understanding in Processing Plant Operations.
- Other professionals who desire a better understanding of subject matter

What you can expect to gain

- An detailed overview of furnace operations, processes and economics
- Gain an understanding of the equipment of a process furnace
- Gain an understanding of the Olefin furnaces

Course Duration

3-5 Day Course

Process Hazard Analysis (HAZOP) Training

Course Overview

Process Hazard Analysis (PHA) studies are the foundation for process safety and risk management of hazardous process systems. They help companies identify hazard scenarios that could adversely affect people, property, or the environment.

Course Outline

- Hazard Assessment Definition
- Review of actual industry hazards
- PHA Study Objectives
- Introduction of PHA Techniques / Probability Matrix
- Team Leader Responsibilities
- Preparation and Organization of PHA Studies
- Importance of Business Records / PHA Terminology
- Selection of Study Nodes / Design intent of node
- Introduction of Guide words
- Guidelines for managing the team
- Recording Study Results / Maintaining Quality Control
- Management of Results and Recommendations
- Communication of Results to Management
- Workshop – Example HAZOP by team members

Who Should Attend

- People who are making day to day decisions regarding operation, design, maintenance, and economics of process industry plants.
- Engineers, Operating Personnel, PSM Coordinator, HSE Managers and Engineers
- Ideal for veterans and those with only a few years of experience who want to review or broaden their understanding of process safety.
- Other professionals who desire a better understanding of the subject matter.

What you can expect to gain

- How to perform a Process Hazard Analysis to meet Process Safety Management requirements for initial PHAs and management of change analyses.
- How to analyze operating procedures for critical scenarios.
- Realistic workshops

Course Duration

3-5 Day Course

Optimizing Petroleum Refining Unit Operations

Course Overview

This seminar focuses on the core building blocks of the petroleum refining process systems, equipment and economics. This program will emphasize the refining process unit operation fundamentals, safe utilization of these fundamentals by operations, engineering, maintenance and support personnel.

Course Outline

- Introduction
- Review of Process Incidents
- Fundamentals of Petroleum Chemistry
- Introduction to Petrochemical Key Concepts
- Introduction to Refinery Equipment
- Overview of a Refinery
- Characteristics of Crude Oil
- Crude Oil Distillation
- Process Equipment Troubleshooting
- Plant Reliability
- Quality / Cost Control / People Development

Who Should Attend

- People who are making day to day decisions regarding operation, design, maintenance, and economics of process industry plants.
- Ideal for veterans and those with only a few years of experience who want to review or broaden their understanding of process safety.
- Other professionals who desire a better understanding of the subject matter.

What you can expect to gain

- An detailed overview of refinery operations, processes and economics
- Gain an understanding of the equipment of a refinery
- Gain an understanding of the refinery flow sheets
- Gain an understanding of refinery chemistry and catalyst
- Gain an understating of refinery margins
- Troubleshooting Techniques
- Gain an insight to optimization strategies

Course Duration

3-5 Day Course

Safe Isolation of Plants and Equipment

Course Overview

The objective of this course is for each independent safety monitor to be able to identify potential safety hazards that exist in the commissioning, operation and de-commissioning of process plant equipment. Each safety monitor needs to be able to identify the potential hazards of process equipment, therefore a review of the fundamentals of process equipment is required. Associated with this review are techniques to analyze and reduce the potential safety hazards of each type of equipment.

Course Outline

- Introduction
- Review of Process Incidents
- Basics Process Equipment Review
- Review of Hazard Analysis Techniques
- Review of a proper Process Safety Management Systems
- Safe Equipment Isolation Guidelines
- Safe Equipment Isolation Labels Guidelines
- Safe Equipment Isolation Industry Standards
- Conclusions

What you can expect to gain

- The Process Unit Equipment Fundamentals – how each system functions from a hands on viewpoint
- Safe commissioning and utilization of process equipment
- Safe de-commissioning of process equipment
- Hazard Analysis Techniques
- Safe Isolation Guidelines

Who Should Attend

- People who are making day to day decisions regarding operation, design, and economics of processing plants
- Ideal for veterans and those with only a few years of experience who want to review or broaden their understanding in Processing Plant Operations.
- Other professionals who desire a better understanding of subject matter

Course Duration

3-5 Day Course

Safe Unit Commissioning

Course Overview

This seminar focuses on the core building blocks of the process unit equipment. This program will emphasize process unit equipment fundamentals, safe utilization of these fundamentals by operations and maintenance personnel, and equipment troubleshooting techniques. This program can be 3-5 days depending on the needs analysis of the participants.

Course Outline

- Introduction
- Review of Process Incidents
- Basics Process Equipment Review
- Review of Hazard Analysis Techniques
- Building Commissioning Guidelines
- Building Commissioning Plan
- Safe Equipment Isolation Guidelines
- Safe Equipment Isolation Labels Guidelines
- Safe Equipment Isolation Industry Standards
- Troubleshooting Guidelines
- Project Management Overview
- Conclusions

Who Should Attend

- People who are making day to day decisions regarding operation, design, and economics of processing plants.
- Ideal for veterans and those with only a few years of experience who want to review or broaden their understanding in Processing Plant Operations.
- Other professionals who desire a better understanding of subject

Course Duration

3-5 Day Course

What you can expect to gain

- The Process Unit Equipment Fundamentals – how each system functions from a hands on viewpoint
- Safe commissioning and utilization of process equipment
- Safe de-commissioning of process equipment
- Hazard Analysis Techniques
- Safe Isolation Guidelines
- Project Management Guidelines

Course Overview

Product recoveries, purities and energy utilization can be improved in most distillation systems. These principles need to be understood in advance of operating and trouble shooting a distillation column for the operator or problem solving to be effective.

Course Outline

- Introduction
- Distillation Equipment
- Tray Column Equipment
- Packed Column Equipment
- Process Control
- Distillation Column Control
- Typical controlled and manipulated process variables
- Commissioning
- Troubleshooting

Who Should Attend

- People who are making day to day decisions regarding operation, maintenance, and economics of process industry plants.
- This course has been designed for operations personnel who may or may not have a technical degree. The course will review the fundamentals of design, but will focus more on the practical application of these fundamentals. Key distillation inspection, troubleshooting and commissioning guidelines will be reviewed.
- Ideal for veterans and those with only a few years of experience who want to review or broaden their understanding of distillation. This course would be a very practical overview for fresh graduate engineers.
- Other professionals who desire a better understanding of the subject matter.

What you can expect to gain

- The operation, control and trouble shooting of a distillation columns and it's associated equipment,
- An overview of distillation, practical solutions as well as theory
- An understating of essential distillation concepts,
- Valuable practical insights for trouble free design and field proven techniques for commissioning, start up and shutdown of distillation operation.
- The fundamental knowledge of distillation control.
- To tailor your approach to specific design, analysis and trouble shooting problems.

Course Duration

3-5 Day Course

Process Control for Operations Personnel

Course Overview

This course will guide the participates to develop key concepts and techniques to control a process system. These key concepts can be utilized to make process control operating decisions.

Course Outline

- Introduction to Petrochemical Key Concepts
- Introduction to Regulatory Control
- Typical controlled and manipulated process variables
- Process Dynamics
- On-Off Controller
- PID Controller
- Cascade Control
- Ratio Control
- Distillation Column Control
- Advanced Process Control

Who Should Attend

- People who are making day to day decisions regarding operation, design, maintenance, and economics of process industry plants.
- This course has been designed for operations personnel who may or may not have a technical degree. The course will review the fundamentals of design, but will focus more on the practical application of these fundamentals. Key Process control inspection, troubleshooting and commissioning guidelines will be reviewed.
- Operations Personnel and Engineering graduates/technologists who will be using process control in their daily work.
- Ideal for veterans and those with only a few years of experience who want to review or broaden their understanding of process control. This course would be a very practical overview for fresh graduate engineers.

What you can expect to gain

- The operation, control and trouble shooting of a process system and it's associated equipment
- An overview of process control, practical solutions as well as theory
- An understating of essential process control concepts
- Valuable practical insights for trouble free design and field proven techniques for commissioning, start up and shutdown of process operations.
- The fundamental knowledge of process and distillation control.
- To tailor your approach to specific design, analysis and trouble shooting problems.

Course Duration

3-5 Day Course

Optimizing Ammonia and Fertilizer Plant Unit Operations

Course Overview

This seminar focuses on the core building blocks of the ammonia plant and fertilizer complex process systems, equipment and economics. This program will emphasize the ammonia process unit operation fundamentals, safe utilization of these fundamentals by operations, engineering, maintenance and support personnel.

Course Outline

- Introduction
- Introduction to Ammonia plant Key Management Concepts to maximize profitability & sustainability
- Introduction to Key equipment in Ammonia Plant & how to optimize
- Overview of an Ammonia Plant
- Plant Reliability
- Quality
- Cost Control
- People Development

Who Should Attend

- People who are making day to day decisions regarding operation, design, and economics of processing plants
- Ideal for veterans and those with only a few years of experience who want to review or broaden their understanding in Processing Plant Operations
- Other professionals who desire a better understanding of subject matter

What you can expect to gain

- An detailed overview of Ammonia plant operations, processes and economics
- Gain an understanding of how to optimize equipment & system in an Ammonia plant
- Gain an understanding of the Ammonia plant flow sheets
- Gain an understanding of Ammonia chemistry and catalyst
- Gain an insight to optimization strategies

Course Duration

3-5 Day Course

Introduction to Corrosion Control

Course Overview

The objective of this course is review the basics of corrosion, the chemistry of corrosion, corrosion monitoring, choices of metallurgy, and prevention. Current corrosion control techniques will be reviewed, along with current methods..

Course Outline

- Introduction
- Principles of Corrosion
- Types of Corrosion
- Corrosion Control - Materials of Choice
- Corrosion Control
- Corrosion Monitoring

Who Should Attend

- People who are making day to day decisions regarding operation, design, and economics of processing plants
- Ideal for veterans and those with only a few years of experience who want to review or broaden their understanding in Processing Plant Operations and safety
- Other professionals who desire a better understanding of subject matter

What you can expect to gain

- The basic fundamentals of corrosion
- The chemistry of corrosion
- Corrosion monitoring, choices of metallurgy, and prevention.
- Current corrosion control techniques will be reviewed, along with current methods.

Course Duration

3-5 Day Course

Introduction to Storage Tank Design Operation and Maintenance

Course Overview

This course will guide the participants to develop key concepts and techniques to operate, repair, design and troubleshoot Storage Tank Systems. These key concepts can be utilized to make decisions that can improve your unit's performance.

Course Outline

- Introduction
- Storage Systems
- Fixed Roof Tanks
- Floating Roof Tanks
- Tank Corrosion Mitigation
- Inspection
- Sludge Control Guidelines
- Storage Tank Maintenance / Tank Repair Guidelines
- Storage Tank Safety
- Auxiliary Equipment

Who Should Attend

- People who are making day to day decisions regarding operation, design, maintenance and economics of processing plants.
- Ideal for veterans and those with only a few years of experience who want to review or broaden their understanding in Processing Plant Operations.
- Other professionals who desire a better understanding of subject

What you can expect to gain

- Overview of the Storage Tank System
- Design Evaluation Techniques
- An understanding of tank / and stored product interaction
- An understanding of essential tanking concepts
- Valuable practical insights for trouble free design and field proven techniques for commissioning, start up and shutdown of storage system operations
- To tailor your approach to specific design, analysis and trouble shooting problems.

Course Duration

3-5 Day Course



Optimizing Liquefied Petroleum Gas Unit Operations

Course Overview

This seminar focuses on the core building blocks of an Liquefied Petroleum Gas Plant process systems, equipment and economics. This program will emphasize the process unit operation fundamentals, safe utilization of these fundamentals by operations, engineering, maintenance and support personnel.

Course Outline

- Introduction
- Review of Process Incidents
- Fundamentals of Petroleum Chemistry
- Introduction to Petrochemical Key Concepts
- Introduction to Gas Plant Equipment
- Overview of a Gas Plant Unit
- Gas Dehydration / Gas Sweetening
- Gas Plant Distillation
- Process Equipment Troubleshooting
- Plant Reliability
- Quality / Cost Control / People Development

Who Should Attend

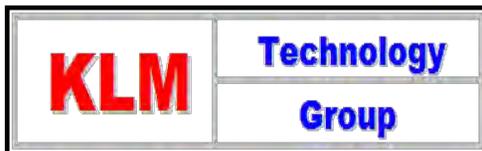
- People who are making day to day decisions regarding operation, design, maintenance and economics of processing plants.
- Ideal for veterans and those with only a few years of experience who want to review or broaden their understanding in Processing Plant Operations.
- Other professionals who desire a better understanding of subject

What you can expect to gain

- An detailed overview of Liquefied Petroleum Gas Plant Unit operations, processes and economics
- Gain an understanding of the equipment of an Liquefied Petroleum Gas Plant
- Gain an understanding of the Liquefied Petroleum Gas Plant Unit flow sheets
- Gain an understanding of chemistry, solvent and catalyst
- Gain an understating of process unit margins
- Troubleshooting Techniques
- Gain an insight to optimization strategies

Course Duration

3-5 Day Course



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