

Scandinavian Academy Training Center

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Riyadh - Al Khaleej District - Sheikh Abdul Aziz Bin Abdul Rahman Bin Bishr Street - 13223 - Office No. 5 | P.O.BOX : 13224

# Course: Petroleum Refining_Production Planning, Scheduling and Yield Optimization

| Code | City | hotel | Start | End | price | Language - Hours |
|---|---|---|---|---|---|---|
| OG-574SA | Jeddah | Hotel Meeting Room | 2027-09-05 | 2027-09-09 | 12950 SR | En - 25 |

## Introduction

This programme is specifically designed to identify and resolve issues of production planning and scheduling in petroleum refineries that are most commonly encountered by refinery personnel working in this area. Issues of operations scheduling for petroleum refining are discussed in depth. It will also be enhanced with planning and scheduling examples and will provide relevant background information of the subject.

Additionally the programme will present a detailed overview of refining process yields, from the crude oil feed to the finished products. Major refining processes are presented and discussed, including feedstock, feedstock preparation, operating conditions, catalysts, yields, product properties, and economics.The program is oriented toward the practical aspects of refinery operations as well as the terminology and economics of refining.

**The seminar is split into two modules:**

MODULE I – Production Planning & Scheduling Petroleum Refineries
MODULE II – Refinery Process Yields Optimisation

Each module is structured and can be taken as a stand-alone course; however, delegates will maximise their benefits by taking Module 1 and 2 back-to-back as a two-week seminar.

## Seminar Objectives

**The key objectives of this comprehensive seminar are as follows:**

- Gain an appreciation of modern planning and scheduling tools that will be useful for planning of crude and product deliveries in their facilities
- Assist in improved operations, optimization, upgrading and modification of existing facilities
- Will result in improved profitability and help in continuous modernization of facilities
- Act as a primer into the industry of Petroleum Refining to maximise process fluid yields
- Familiarize industry professionals with all processes associated with the processing of petroleum into finished products
- Equip new engineers into the industry, with the basic tools for understanding the complex nature of Refining and its operations

## Training Methodology

Petroleum Refining-Production Planning, Scheduling and Yield Optimization is a hands on, stimulating learning experience. The programme will be highly interactive, with opportunities to advance your opinions and ideas. Participation is encouraged in a supportive environment.
To ensure the concepts introduced during the programme are understood, they will be reinforced through a mix of learning methods, including lecture style presentation, open discussion, case studies, and group work.

Attendees will have the opportunity to develop personal competencies and build up expert knowledge of crude oil production planning, scheduling and yield optimization in a range of equipment.

## Who Should Attend?

Process Engineers, Technologists, Operating and Supervisory personnel engaged in the

refining activities who have a minimum of experience and who are required to understand and discuss issues related to their processes.

As well as engineering, this training session will also be suitable for business, sales, technical, and scientific personnel with limited or no broad refinery operating experience, along with Technical sales personnel; those involved in selling equipment or supplies to the refining industry and those involved with economic evaluations of refinery operations will benefit from this training session.

## Programme Outline

### Day 1 – Application of Planning and Scheduling

- Overview of planning and scheduling in oil refineries
- Refinery Configuration:
- Hydro skimming Refinery
- Refineries with Secondary Conversion Process
- Integrated Refineries
- Existing & New Refineries
- Choice of Crude
- Crude oil scheduling
- Choice of Processes
- Capacity utilization of Crudes
- Severity of Process Operations
- Cut-points Optimization
- Facing Upset Situations
- Tankage Requirement

### Day 2 – Improving Product Movements and Releasing Tankages

- Basic Information Required
- Crude Assay
- Intermediate Feed Characteristics

- Yields and Properties
- Different Process Units
- Utilities

## Day 3 – Product Blending Rules

- Product Specifications
- New Trends in fuel production
- Environmental Issues
- Crude Cost
- Product Netback

## Day 4 – Formulation of Problem

- Refinery Flow-sheets
- Simplified Material Balance
- General Formulation
- Demand Equations
- Product Inventory Control
- Product Quality Control
- Fixed Composition Blend
- Capacity Control/ Constraints
- Availability of Feedstock/ Control

## Day 5 – Application to a Refinery Worksheet

- Petroleum Product Movement and Product Exchange
- Marginal Depot Supply and movements
- Commonly Used Methods & Recent Developments
- Mathematical Approach to Solution
- Linear Programming
- Graphic Method

- Vendors Software
- Discussion and Summary

## Day 6 – Crude Oil Yields Refinery Technology

- Introduction
- Crude Oil Origins & Characteristics
- Crude oil Assay and properties
- Crude oil products
- Product specifications
- Gasoline
- Kerosene/ Jet Fuel
- Fuel Oil/ Diesel Fuels
- Petrochemical Feedstocks
- Refineries Complexity
- Overall refinery flow: Interrelationship of processes

## Day 7 – Petroleum Refinery Processes

- Crude Processing
- Desalting
- Atmospheric distillation
- Vacuum distillation
- Heavy Oils Processing – Cocking and Thermal Processes
- Delayed Coking
- Fluid Coking
- Flexicoking
- Visbreaking
- Case study – example

## Day 8 – Process for Motor Fuel Production

- Fluid catalytic cracking

- Hydrocracking
- Cat Cracking
- Isomerization
- Alkylation
- Hydrotreating
- Catalytic Reforming
- Case study – example

## Day 9 – Supporting Operations

- Blending for Product Specifications
- Hydrogen production
- Refinery Gas Plants
- Acid Gas Treating
- Sulfur Recovery Plants
- Case study – example

## Day 10 – Refinery Economics

- Residue Reduction
- Asphalt and Residual Fuel
- Cost Estimation
- Economic Evaluation
- Case Studies
- Group Discussions
- Program Evaluation & Summary

**The Scandinavian Academy for Training Center** adopts the latest scientific and professional methodologies in training and human resource development, aiming to enhance the efficiency of individuals and organizations. Training programs are delivered through a comprehensive approach that includes:

- Theoretical lectures supported by PowerPoint presentations and visual materials (videos and short films).
- Scientific evaluation of participants before and after the program to measure progress and knowledge acquisition.
- Brainstorming sessions and practical role-playing to simulate real-life scenarios.
- Case studies tailored to align with the training content and participants work nature.
- Assessment tests conducted at the end of the program to evaluate the achievement of training objectives.

Each participant receives the training material (both theoretical and practical) in printed form and saved on a CD or flash drive. Detailed reports, including attendance records, final results, and overall program evaluations, are also provided.

Training materials are prepared professionally by a team of experts and specialists in various fields. At the end of the program, participants are awarded a professional attendance certificate, signed and accredited by the Scandinavian Academy for Training Center.

**Program Timings:  9:00 AM to 2:00 PM**

**The program includes:**

- A daily buffet provided during the sessions to ensure participants comfort.
- A closing ceremony on the final day to distribute certificates and celebrate participants achievements.
- **Note: All prices are exclusive of 15% Value Added Tax (VAT).**

# Our Success Partners

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