



FUNDAMENTALS OF PETROLEUM

Course Duration	Location	Course Delivery
6 Days	Lagos	Instructor Led

Satisfactory completion of this course earns each participant a certificate of completion from University of Texas.

Course Information

This course gives students a broad-ranging introduction to the petroleum industry. Its lessons cover aspects Petroleum Geology, Petroleum exploration, Mineral Rights and leasing, Drilling operations, Well Control, Drilling Safety, Production Practices, Remote Production, Production safety, Transportation, Refining and Processing, Gas processing, Petroleum Economics, Environmental Health and safety concerns, Energy Options and policy. This Course covers 5 industries in the oil and gas sector, Exploration, Drilling, Production, Refining & Transportation and Marketing. The Course is designed to equip students with a thorough knowledge of the Petroleum Industry and provides broad opportunities in Capacity building.

Graduates of this course will have a broad opportunity of securing jobs in the Petroleum Industry.

Course Materials

The student receives textbook and a study guide consisting of supplementary and explanatory materials from the University.

Recommended For

Fresh Graduates in Engineering and Business Discipline. Professional Managers and expert of oil drilling, production, refining, marketing companies, professionals of oil servicing firms, Sciences or anyone who needs the fundamental overview of the petroleum industry. This course is also ideal for new employees.

Minimum Qualification: OND, HND, BSc and above from a Recognized Institution. SSCE holders with at least two years working experience will be considered.

Course Outline

PART 1. Exploration

FOP 101: Petroleum Geology

Basic Concepts of Geology

Plate Tectonics

Folds

Faults

Life on Earth

Categorizing Rocks

Accumulations of Petroleum

Origin of Petroleum

Porosity and Permeability of Oil-Bearing Rocks

Migration of Petroleum

Traps

Reservoir Fluids

Water

Oil

Natural Gas

Distribution of the Fluids

Reservoir Pressure

Normal Pressure

Abnormal Pressure

Summary

FOP 102: Petroleum Exploration

Surface Geographical Studies

Aerial Photographs and Satellite Images

Oil and Gas Seeps

Collecting Data

Private Company Libraries

Public Agency Records

Databases

Geophysical Surveys

Magnetic and Electromagnetic Surveys

Magnetometer Surveys

Magnetotellurics

Gravity Surveys

Seismic Surveys

Ocean Bottom Cable Systems

Reservoir Development Tools

Well Logs

Sample Logs

Drill Stem Test

Strat Test

Stratigraphic Correlation

Maps

Data, Software, and Modeling Technology

Summary

FOP 103: Mineral Rights and Leasing

Leasing of Lands

Federal Government Land

The First Leases

Court Rulings on Oil Migration

Government Regulations

Ownership in the United States

The Language of Leasing

The Mineral Estate

Leasing Privately Owned Lands

Determining Ownership

Clearing the Title

Establishing the Contract

Provisions of the Lease

Executing a Lease

Summary

PART 2. Drilling

The Authors

FOP 201: Drilling Operations

A New Era in Energy

The 1840s

The 1850s

The Late 1800s

Other Parts of the World

The 1900s and Spindle top

The Power of Cable-Tool Drilling

The Success of Rotary Drilling

Drilling Today

Oilfield Metallurgy

Drilling Personnel and Contracts

Drilling Systems

The Hoisting System

The Rotating System

Drilling Assembly

The Circulating System

The Power System

Drill Site Procedures

Preparing the Drill Site

Rigging Up

Spudding- In
Tripping Out
Running Surface Casing
Cementing the Casing
Tripping In
Controlling Formation Pressure
Intermediate Casing
Expandable Casing
Drilling to Final Depth
Evaluating Formations
Complete or Abandon
Other Land Operations
After Drilling
Offshore Drilling
A Look Back
Modern Offshore Operations
Mobile Offshore Drilling Units
Offshore Drilling Platforms
Controlled Directional Drilling
Offshore Directional Wells
Onshore Directional Wells
Other Applications
Tools and Techniques
The Use of Mud Density
Managed Pressure Drilling and Density
Unconventional Drilling
Steam-Assisted Gravity Drainage
Air or Gas Drilling
Fishing
Freeing Stuck Pipe
Retrieving Twisted-Off Pipe
Fishing for Junk
Summary
FOP 202: Well Control
An Out-of-Control Well
First Line of Defense
Wellbore Pressure
Summary
FOP 203: Drilling Safety
Common Hazards
Preparing the Drill Site
Installing the Rig
Drilling Ahead

Blowouts

Completing the Well

Summary

PART 3. PRODUCTION

The Authors

FOP301: Production Practices

The Early Days

Completion

Pumping

Storage and Handling

Well Completion

Production Casing and Liners

Completion Types

Tubing and Packers

The Wellhead

Initiating Flow

Stimulation

Explosives

Hydraulic Fracturing

Acidizing

Artificial Lift

Beam Pumping

Electric Submersible Pumps

Subsurface Hydraulic Pumps

Progressing Cavity Pumps

Gas Lift

Plunger Lift

Reservoir Drive Mechanisms

Depletion Drive

Water Drive

Gravity Drainage

Combination Drives

Well Testing

Potential or Production Tests

Bottom hole Pressure Test

Improved Recovery Techniques

Water flooding

Immiscible Gas Injection

Miscible Gas Injection

Chemical Flooding

Thermal Recovery

Surface Handling of Well Fluids

Separating Liquids from Gases

Removing Free Water
Treating Oilfield Emulsions
Types of Emulsion Treaters
Handling Natural Gas
Storing Crude Oil
Oil Sampling
Measuring and Testing Oil and Gas
LACT Units
Gas Sampling
Gas Testing
Gas Metering
Well Service and Workover
Service and Workover Equipment
Well Servicing and Repair
Workover Operations
Summary

3.2 Remote Production

Offshore Production Platforms
Offshore Completions
Offshore Fluid Handling
Arctic Production
Summary

FOP 302: Production Safety

Most Common Hazards
Controlling Hazards
Summary

PART 4. Transportation and Refining

The Authors

FOP 401: Transportation

Early Methods of Transportation
Wagons and Water
Rails and Tank Cars
The First Oil Pipelines
Gas Transmission Pipelines
Ships at Sea
Tank Trucks
Railway Systems
Petroleum Products Transported by Rail
U.S. Government Regulation
Tank Car Design and Manufacture
Safety
Tank Car Strings and Unit Trains
Motor Transportation

Types of Vehicles
Crude Oil Trucks
Refined Products Transport
Liquefied Petroleum Gas Transport
Government Regulation
Marine Transportation
Inland Waterways
Barges
Tugboats
Towboats 4
Oceangoing Tankers
Supertankers
Average-Size Tankers
Icebreaking Tankers
Natural Gas Tankers
Loading and Offloading Facilities
Crude Oil Pipelines
Field Gathering Systems
Pump Station Operation
Control of Oil Movements
Measurement and Quality Assurance
Oil Accounting
Products Pipelines
Control of Products Movement
Batching
Other Types of Liquid Pipelines
State and Federal Regulations
Regulatory Environment
Natural Gas Pipelines
Modern Transmission Systems
Conditioning and Compressors
Automation
Odorants
Pipeline Construction on Land
Assembling the Spread
Clearing Right-of-way
Ditching
Stringing Pipe
Bending Pipe
Aligning and Welding Pipe
Coating and Wrapping Pipe
Lowering in and Backfilling
Specialty and Tie-In Crews

Cleanup and Restoration
Testing and Commissioning
Offshore Pipeline Construction
Conventional Lay Barges
Bury Barges
Superbarges
Semisubmersible Barges
Reel Vessel
Economics and Safety
Liquefied Natural Gas
History of the LNG Industry
Links of the LNG Chain
Baseload LNG Plant
LNG Receiving Terminals
LNG Ships
Summary
References
FOP 402: Refining and Processing
The Early Days
Structure of Hydrocarbons in Oil and Gas
Paraffin
Isomers
Aromatics
Naphthenes
Olefins
Other Elements
Refining Crude Oil
Assays
Refining Processes
Petrochemicals
Types of Petrochemicals
A Petrochemical Plant
Refining Capacity
Products Sales and Distribution
Environmental Considerations
Summary
FOB Gas Processing
Recovering NGL Mixtures
Straight Refrigeration
Cryogenic Recovery
Oil Absorption
Dry Bed Adsorption
Fractionation of NGLs

Summary

PART 5. The Changing Market

The Authors

FOP 501: Petroleum Economics

The Economics of Creating New Supplies

Business Model Overview

Integrated and Independent Energy Companies

Investment Decision-Making

Prospect Generation and Evaluation

Summary

References

FOP 502: Environmental, Health, and Safety Concerns

Laws and Regulations

International Laws and Treaties

Exploration and Production Environmental Impacts

Closed-Loop Drilling System

Synthetic-Based Drilling Fluid

Mud Additives from Waste

Blowouts

Spills from Tankers

Prevention

Cleaning Up the Sea

Cleaning Up the Shore

Cleaning Up Shallow Waters

Pipeline and Transportation Environmental Impacts

Refining Environmental Impacts

Detecting Contaminated Water and Soil

Cleaning Contaminated Soil

From the Environment to the Individual—Health and Safety

Industry Workplace Safety

Industry Incidents

Reducing Injuries

Organizing a Safety and Health Program

Proper Training

Summary

References

FOP 503: Energy Options and Policy

Energy Consumption

Energy Challenges

Environmental Impact

Economic Impact

Security Impact

Analyst Projections

Energy Attitudes
Energy Tradeoffs
Question: Paper or Plastic?
Balancing Priorities
Energy Technologies of the Future
Defining Critical Technologies
Green Energy Transition
Nontechnical Solutions
Summary

FOP 504: Class revision & Examination.

Contact us for more Information email: info@bullmate.com or call +2347063474496.