SEEMSTER 3 (Specialization Subjects)

FUNDAMENTALS OF OIL & GAS BUSINESS

Course Objective:
The aim of this course is to:

- develop understanding of Oil & Gas business in World.
- let the students focus on the oil & gas dynamics in India and will explain the value chain in detail.

Learning Outcome:
After completion of this unit, the students will be aware of the following topics:

- Concept of petroleum, its constituents and their significance
- Common concepts, definitions and terminologies used with respect to oil and gas
- Units Specifically used in Oil and Gas Industry
- Trends on prices and business cycles
- Strategies being adopted by major companies for competitiveness and to overcome Troughs in the business cycles
- Trends on innovation and emerging technologies

Syllabus

Block-I

Basic Concepts, Crude Oil and Natural Gas Concepts, The Macro-system, The Indian Perspective, Case Study

Block-II

The Exploration of Oil, Production Methods, Onshore Oilfield Processing, Offshore Oilfield Processing, Case Study

Block-III

Gas Processing, Liquefied Natural Gas (LNG), Petroleum Refining, Refinery Requirements, Case Study

Block-IV

Distillation in Refineries, Petrochemical Industry, Production of Petrochemicals, Transportation of Oil, Gas and Products: Pipelines, Case Studies

Block-V

Transportation of Oil, Gas and Products: Other Modes, Health, Safety and Environment, IT Applications in Hydrocarbon Industry, Economics and Technology Trends, Case Study

Text & References:

- Wieght, FUNDAMENTALS OF OIL AND GAS ACCOUNTING 3ED - Penwell
- Sanjoy Chand, Petroleum Pipelines - A Handbook for Onshore Oil and Gas Pipelines, Cambridge University Press India
- Joseph Hilyard, THE OIL & GAS INDUSTRY : A NONTECHNICAL GUIDE, Pennwell Books
- Will Pettijohn P. E. C., Oil & Gas Handbook: A Roughneck's Guide to the Universe, BERTRAMS PRINT ON DEMAND
- Chris Termeer, Fundamentals of Investing in Oil and Gas, Chris Termeer Publishing
- Inkpen, THE GLOBAL OIL & GAS INDUSTRY MANAGEMENT, STRATEGY AND FINANCE, PENWELL

FUNDAMENTALS OF PETROLEUM EXPLORATION

Course Objective:

This course aims to:

- support student in the Oil and Gas industry,
- let the students learn the fundamentals and language of petroleum exploration
- know about drilling and production, which enhance their knowledge in this industry.

Learning Outcome:

After completion of the course student will be know about:

- *the Hydrocarbon Petroleum Exploration method,*
- *Geological Structures for Petroleum Entrapment,*
- *Geographical Surveys and Oil well drilling operation, which equip the student with necessary knowledge to enter in petroleum industry*

Syllabus

Block-I

Introduction to Petroleum Exploration, Nature of Petroleum, Physical Properties of Petroleum, New Exploration Licensing Policy (NELP), Case Study

Block-II

Origin of Petroleum, Hydrocarbon Generation, Unconventional Oil and Gas, Gas Hydrates, Case Study

Block-III

Migration, Accumulation of Hydrocarbons, Reservoir, Geological Structures for Petroleum Entrapment, Case Study

Block-IV

Geological Methods and Remote Sensing, Geochemical Methods, Geographical Surveys, Methods of Seismic Surveys, Case Study

Block-V

Introduction to Oil Well Drilling, Drilling Operations, Formation Evaluation, New Evolving Technologies, Case Studies

Texts and References:

- Norman, J. & Ph. D. Hyne, Non-technical Guide to Petroleum Geology, Exploration, Drilling, & Production, 3rd Edition, PennWell Corp., 2012
- Sahay, Petroleum Exploration and Exploitation Practices, Allied Publishers, 2001
- Dasgupta, Shivaji N. and Aminzadeh, Fred, Geophysics for Petroleum Engineers, Volume 10 Handbook of Petroleum Exploration and Production), 1st edition, Elsevier Science, 2012
- Dr. Bommer, Paul M., A Primer of Oilwell Drilling, 7th Edition, The University of Texas at Austin –
- Petroleum Extension Service, 2008

PROJECT MANAGEMENT

Course Objective:

Project Management is a broad multi-level activity. The objectives of this course are

- To provide a thorough understanding of its various essentials to the student.
- To implement project management knowledge, processes, lifecycle and the embodied concepts, tools and techniques in order to achieve project success.

Learning Outcome:

At the completion of the course, the student should be able to

- Apply criteria of selection for identification of a project and carry out a rational appraisal.
- Do project planning and be familiar with project control systems.
- Manage the scope, cost, timing, and quality of the project, at all times focused on project success as defined by project stakeholders.

Syllabus

Block I: Context of Project Management
Concept of Projects, Project Management, importance; Project Goals, Functions; Categories of Projects, Phases of Projects, Life Cycles, Project initiation, Project Identification.

Block II: Project Analysis and selection
Detailed Project Report, , market & Demand Analysis, Technical Analysis Project appraisal: Technical, Commercial, Economic, Financial and Management appraisal; Project appraisal criteria, Risk Analysis, Social Cost Benefit Analysis.

Block III: Project Financing and Implementation
The concept of the lead institution, Financing Projects, Project Management , Cost Estimation, Cost , PERT/CPM for Project Scheduling & Resource Allocation & Leveling .

Block IV: Project Review and Control
Control Process, Cybernetic controls, Cost Controls, Post controls; Project Quality Control; Performance Evolution,
Project control system.

Block V: Project Evaluation
Evaluation of Project, Impact Analysis Project Auditing, Project Termination, Abandonment Value Analysis.

Text & References

- Gray & Larson (2008), Project Management, Tata McGraw-Hill
- Harvard Business School Press (2007), The Essentials of Project Management (for HR Professionals)
- Kerzner (2008), Project Management, John Wiley
- Kloppenborg (2009), Contemporary Project Management, Cengage.
- Maylor (2008), Project Management, Pearson India
- Meredith,Mantel, (2008), Project Management, Wiley India
- Nagarajan (2008), Project Management, New Age Publishers
- Nicholas and Steyn (2008), Project Management for Business, Engineering, & Technology, Elsevier India
- Pinto (2009),Project Management: Achieving Competitive Advantage, Pearson India, Delhi

PETRO ECONOMICS

Course Objectives:

This course aims to develop:

- Information and expertise across the E & P spectrum
- Clear understanding of concepts such as cash flow analysis, organisational challenges, price forecasting, cost drivers and risk management
- Discuss major events and developments in the history of the petroleum industry, and the development of the price of oil up until today

Learning Outcomes:

- On the successful completion of this course, students would be able to:
- Contribute to planning for field development and operation, and to impact studies of petroleum fields
- Be familiar with the global markets for oil and natural gas and their organisation
- Formulate and analyze simple economic models of resource depletion and market competition
- Explain how local, regional and global policies and institutions affect energy markets and prices

Syllabus

BLOCK I

Introduction to Petro Economics, Global Trends in Oil Industry, Indian Oil Industry Exploration and Production, New Explorations and Licensing Policy, Case Study

BLOCK II

Indian Oil Refining, Deregulation (Oil and Natural Gas, Indian Oil Industry Marketing, Growth and Deregulation of Indian Oil Sector, Case Study

BLOCK III

Structure of Oil Industry, Logistics and Transportation of Oil in India, Strategy for Petroleum and Natural Gas Trading, Petro Retailing, Case Study

BLOCK IV

Indian Experience in Petro Retailing, Economics of Crude, Trade and Transport, Geopolitics in Oil and Natural Gas Trading, Case Study

BLOCK V

International Hydrocarbon Economic Environment, Trend and Structure of Oil and Gas Economy, Globalization and Oil Security for Indian Oil Industry, E-commerce Application in Oil and Natural Gas Industry, Case Study

Text and References:

- Introduction to Petroleum Economics by Chris Hinkin
- Oil Politics: a modern history of petroleum by Francisco Parra

SEMESTER 4

FUNDAMENTALS OF REFINING

Course Objectives:
This course aims to let the students be:

- capable of applying knowledge in theoretical basics of petroleum refining processes for professional activity and educational work
- able to explain the market drivers for the refining industry
- able to understand different terminology in the field of petroleum refining

Learning Outcomes:
Upon the successful completion of this course, students will be able to:

- know fundamentals of petroleum refining, types of energy resources, fundamentals of crude oil treatment and natural gas processing, fundamentals and purposes of re-refining processes and properties of main oil products
- Assess implications of changing crude oil feedstocks on refinery configuration and propose strategies to resolve conflicts with degrading crude oil quality and increasingly stringent environmental regulations on petroleum fuels
- be able to prepare and deliver reports on the professional topics (petroleum refining).

Syllabus

BLOCK I

Introduction to Oil Refinery, Growth and Development of Refinery Industry in India, Chemistry of Petroleum, Characteristics of Crude Oil, Case Study

BLOCK II

Important Test on Petroleum Products, Bureau of Mines Correlation Index, Properties of Petroleum Products, Crude Distillation, Case Study

BLOCK III

Hydrogen Production and Management, Fluidized Catalytic Cracking, Offsite Facilities and its Management, Future Refining Scenario, Case Study

BLOCK IV

Advances in Petroleum Refining, Hydrocarbon Loss Minimization and Energy Conversation, Gross Refining Margin, Oil Accounting Excise and Custom on Petroleum Products, Case Study

BLOCK V

Environment, Health and Safety Guidelines, Fundamentals of ULSF Production, IT Applications in Hydrocarbon Industry, Petroleum Refining: Terminology, Case Study

Text & References:

- Fundamentals of Petroleum Refining by Mohamed Fahim Taher, Al-Sahhaf and Amal Elkilani
- Fundamentals of Petroleum and Petrochemical Engineering by Uttam Ray Chaudhuri
- Dictionary of Oil, Gas, and Petrochemical Processing by Alireza Bahadori, Chikezie Nwaoha and Malcolm William Clark

ENVIRONMENT AND CARBON FINANCE

Course Objectives:

This course aims at providing an in-depth knowledge to:

- Provide the nomenclature of carbon finance and a broad understanding of the regulatory, financial and competitive risks of a carbon constrained economy
- Develop a complete understanding of the various facets of carbon finance, their role and implications
- Introduce and analyze cap and trade and carbon tax as mechanisms to limit and reduce GHGs in the atmosphere and asses real-world application of cap and trade in the EU Emissions Trading Scheme
- Provide the information necessary to assess financial investments in carbon

Learning Outcomes:

After the completion of the course, students will be able to:

- Understand the complex interrelationship between finance, energy/environmental policy
- Describe and critically evaluate the structure and dynamics of the major global, regional and national-level carbon markets
- Explain and apply practices and procedures of carbon accounting

Syllabus

Block I: Introduction, the Energy Chain

Introduction, The Changing Climate, Corporate Climate Risk, Climate Policies, Role of the Financial Services Sector, The Energy Chain and the Value Chain, Carbon Policies, Impacts of Different Users and Uses on Climate Change, Sources of Energy: Fossil fuels, Nuclear Energy, Hydroelectric Power, Renewables, Key Issues, Financing the Transformation of the Energy Chain: The Role of Venture Capital

Block II: Regulated and Energy Intensive Sectors, the Physical Impact of Climate

Change on the Evolution of Carbon Finance ,Power, Oil and Gas, Transportation, Cement, Competitive Implications of Climate Risk in regulated and energy-intensive sectors, physical impacts on unregulated sectors and carbon- regulated sectors, financial services

Block III: Emissions Trading in Theory and Practice

How carbon is traded now, key issues, the carbon offset market, the role of insurance in emissions trading, issues for dispute resolution. Climate change and environmental security: Individuals, communities, nations, direct effect of extreme weather events, health effects of climate change, polar regions, climate systems and national sovereignty

Block IV: Adapting to Adverse and Severe Weather, Key Players

Adverse Weather: The role of weather derivatives, Severe weather: the role of catastrophe bonds, Basic elements of the market, key private sector players, key players from the public sector, new horizons for the carbon market

Block V: Present and Future Prospects

Trading Volumes in Carbon and Weather Markets, What can be traded where, price discovery, The evolution of products for carbon finance, litigation over responsibility for climate change; is carbon finance likely to help us avert dangerous levels of climate change, carbon finance within the broader field of environmental finance

Text and References:

- Carbon Finance: The Financial Implications of Climate Change, Sonia Labatt, Rodney R.
- White, Published by John Wiley and Sons, 2007

- Environmental Finance: A Guide to Environmental Risk Assessment and Financial Products,
- Sonia Labatt, Rodney R. White, Published by John Wiley and Sons, 2002
- Carbon Markets: An International Business Guide, by Arnaud Brohe, Nick Eyre and
- Nicholas Howarth
- A Guide to Carbon Finance: Carbonomics for a Credit Constrained World by Kenny Tang

Customer Relationship Management

Course Objectives:

An understanding of ways the firms can create and enhance the sources of value to the customer through value explorations and CRM value proposition An understanding of the strategic framework of CRM An understanding of CRM strategies in Sales, Marketing and Customer Support and familiarize with different CRM technology solutions. Impact of CRM on customer experience, satisfaction and loyalty Using Customer Lifetime Value to Make Marketing Decisions Develop an understanding of recent developments in CRM usage in the social media.

Module I: Introduction to CRM

Pre-Industrial age, Industrial age, Service Economy age, Knowledge Economy Age. Relationship Marketing Theory , Introduction to CRM, Transition from Product focus to Customer focus. Relationship marketing and Value exploration and creation of value chain

Module II: Introduction to CRM and its Fundamentals

Strategic framework of CRM – CRM continuum, Five generic interrelated process model, Strategic operational, analytical model, Buttle's CRM value chain CRM Cycle, Customer Segmentation as a prerequisite to CRM. Types of CRM: Sales Force automation, Campaign Management, Sales Intelligence. E-CRM .Customer Touch points management. Identification of customer journeys and the touch-points Contact center management systems, front desk management technologies, web-based knowledge management, Customer Experience Management (CEM)

Module III: Managing different stages of CRM

Building Customer Relationships- Loyalty Ladder, Bonding with Customers, Customer Service/ Sales Profile Models. Customer Acquisition Strategies, Customer Retention Strategies Customer Equity and Customer Metrics, calculating customer lifetime value and customer equity. Customer loyalty and Life time value

Module IV: Overview of CRM in service sector (B 2 C Market)

Service Business Characteristics and Classification Service Recovery Marketing of Services-Banking Industry, Retail Industry, Aviation Industry, Hospitality Industry, Pharmaceutical Industry and Telecom Industry CRM in Product Markets

Module V: Overview of CRM in B2B Markets

Importance of CRM in B2B Markets, Key Account Management Supplier-Channel Management Internal CRM and Employee Management,

Module VI: Implementation of CRM

CRM Implementation Road Map, Future Trends: Usage of Social CRM by corporate.

Module VII: Introduction to CRM Software

Social CRM Major CRM Software in market Basic functional aspects of a CRM: - Key entities: Contacts, Accounts, Leads, Opportunities, Campaigns - Key entity interaction

Text Reading:

- G Shainesh & Jagdish N Sheth, Customer Relationship Management-A Strategic Approach
- Zikmund, McLEOD, Gilbert, Customer Relationship Management

References:

- G Shainesh & Jagdish N Sheth, Customer Relationship Management-A Strategic Approach
- Zikmund, McLEOD, Gilbert, Customer Relationship Management
- J N Sheth, Atul Parvatiyar, G. Shainesh, 2001, Customer Relationship Management, Tata McGraw Hill

Additional Reading:

- Brown, Stanley A 2001, Customer Relationship Management, John Wiley& Sons
- Anderson, Kristin , 2002, Customer Relationship Management, Tata McGraw-Hill
- Greenberg Paul, CRM at the Speed of Light, Tata McGraw Hill.