

OFFSHORE PRODUCTION SYSTEM

By: Dr. U. K. Dutta

About the Course:

The offshore production of hydrocarbon resources has moved a long way from the first steel structure platforms at shallow water (10-20 meters) in the sixties to sub-sea production systems and FPSO operating at a depth of over 2000 meters. This has also created a substantial rise on cost of production from 10-15 Dollars per barrel to around 60 Dollars per barrel.

A very expensive offshore structure or floating production system is created to house the process equipment, utility and support facilities, which occupy bulk of the space. For cost effective design of such a facility, a close understanding between the process, project management and production engineering team is needed.



Target Audience:

The course is aimed at creating an understanding and awareness of offshore oil and gas projects. It is designed for orientation of new entrants to offshore industry, both graduate trainees and experienced engineers from other industries.

Course Content:

No	TOPIC	DESCRIPTION
1	Basic Concepts	<ul style="list-style-type: none">• Origin and characteristics of hydrocarbon reserves.• Industry Terminologies• Definition process streams.• Well fluid characteristics.• Crude oil characteristics.• Composition and types of natural gas.• Field life and production profile.• Characteristics of natural gas

2	Exploration and Production	<ul style="list-style-type: none"> • Overview of Exploration • Typical production profile • Offshore and onshore field layout and gathering system • Primary production system – Gas, oil, water separation, gas dehydration, oil dehydration, produced water treatment • Secondary and Tertiary production systems • Field growth – example • Types of offshore structures • Typical offshore field layout • Macro-level economics
3	Offshore Facilities and Configuration	<ul style="list-style-type: none"> • Topside Facilities Description • Fixed Platforms <ul style="list-style-type: none"> ▪ Steel jacket platforms ▪ Concrete gravity platforms ▪ Configuration and installation • Deep sea challenges <ul style="list-style-type: none"> ▪ Facilities ▪ Installation techniques ▪ Deep sea configurations • Subsea pipelines • Macro-level economics • Technology trends
4	Offshore Safety Aspects	<ul style="list-style-type: none"> • Offshore hazards • Accident case analysis • Process safety management – OSHA • Design and operational safety examples <ul style="list-style-type: none"> ▪ Safety systems ▪ Emergency systems ▪ Shutdown systems • Evacuation and rescue • Emergency response plan • Codes and standards.

Methodology of Presentation:

- Power Point presentation converted to html5, supported by most browsers
- Narration on each slide synchronized with animation and script
- Quiz Sessions and practice exercises in each module for better assimilation
- Trainer interaction

Course Developer:

Dr. U.K. Dutta is a consultant in the Hydrocarbon Process Industry, focusing on specialist consultancy services and training. Graduate in Chemical Engineering from IIT and Doctorate from Loughborough University of Technology (U.K), he has over 50 years of experience in Hydrocarbon Industry (upstream, midstream and downstream) in the areas of **process and technology, engineering consultancy, project development, marketing and organizational development**. He had work experience and association with major Indian and International companies like EIL, Union Carbide, CE Natco, Lummus Crest, Triune and Rotary Engineering. He has presented papers on Technology Development and Technology Transfer in major International Conferences such as ASCOPE and CHEMTECH.

He has conducted customized training programs for executives of major companies like Petronas (Malaysia), Petrosin (Singapore), Vopak (Singapore), PTT (Thailand), Aker Kvaerner (Singapore), The Yokogawa Group, Technip (India), Ernst & Young, Triune Projects (India), Indian Chamber of Commerce, Solar Turbines (Singapore), Solar Turbines Inc. (San Diego, Brussels) and others. He has conducted several programs for executives in Singapore as a faculty with National University of Singapore's industry training programs.