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# Introduction to **Offshore Drilling & Floating Production Facilities**

海上钻井和浮式生产设施介绍课程

**21 – 22 March 2012 Beijing, China**

**3月21日至22日，北京 – 中国**



## **Expert Trainer: Dr. John Preedy**

Formerly with for BP for 28 years as a Research Associate and Team Leader, working on Feasibility Studies and acting as a trouble shooter covering all aspects of BPs businesses. These covered field Development Project in the North Sea and several novel resource recovery techniques which were taken from Concept to Field Pilot trials in Canada.

- *Very effective!, Sapuracrest Petroleum*
- *The information received from this course is enormous. The presenter is good and accommodating in sharing his knowledge, Petronas Carigali*
- *Excellent training with experienced trainer, good presentation, materials and animation, Petronas Carigali*
- *Excellent!, TL Offshore*

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## Course Overview

This 2 day intensive training course will cover the details of drilling rigs and how they operate. As current drilling rigs are highly automated and efficient, these advances will be illustrated with animations and videos. The relationship between drilling and production will be explored with examples of current field developments. The course also covers offshore production hosts, their technical components and systems will be described together with examples of the floater as part of the field development concept. Current safety and environmental issues will also be addressed. Numerous case studies are presented throughout the course to provide the participants with a full view of the total field development activity. While the course is very intensive, with many areas to cover, the presentation will include many animations and videos illustrating the technical issues and challenges.

## Target Audience

This course is intended for Oil & Gas professionals who wish to learn how offshore technology is integrated into a successful full field development. The course is also suitable for both new engineers or management moving into offshore field development areas as it provides the basics of drilling and production technologies.

## Upon completion of the course participants should understand:

- Types and Functions of Drilling Rigs
- How Drilling Rigs Operate
- How Wells are Drilled from Platforms and Subsea Systems
- Latest Advances in Offshore Drilling
- The FPSO Equipment and How it Operates
- The Requirements for full Field Development
- Safety and Environmental Issues

## About Your Course Director: Dr. John Preedy



*Director of Course and Senior Consultant*, worked for BP for 28 years as a Research Associate and Team Leader, working on Feasibility Studies and acting as a trouble shooter covering all aspects of BPs businesses. These covered field Development Project in the North Sea and several novel resource recovery techniques which were taken from Concept to Field Pilot trials in Canada. His specific work in the offshore area covered Subsea Robotics / Automation , Seabed Production Concepts, Seabed Excavation Methods, Underwater Repair Techniques, Flexible Riser Studies and Maintenance Cost Reductions.

After leaving BP in 1992, he has continued working in the offshore oil industry through Azur Offshore Ltd, including activities in the assessment of Emerging and Novel Technologies, Technical and Economic Audits, Studies, Production Sharing Agreement Evaluations, Safety and Environmental issues. Clients have included Chevron UK, BP Exploration, British Gas , Technomare, Trident Consultants, Fina UK and Cameron France. John is regular University lecturer at Cranfield School of Industrial Sciences (UK) and is a course Group Project external examiner for Cranfield. He also lectures on offshore oil industry activities at ENSIETA (France), the Technical University of Delft (Holland) and the Northern Territories University in Darwin (Australia).

He is an active member of the UK Society for Underwater Technology (SUT) and serves on their Subsea Engineering and Operations Committee.

**Customise this course to suit your training needs through in-house training!**  
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## 2 DAY COURSE OUTLINE IN DETAIL

### DAY ONE

#### Morning

##### L1 - INTRODUCTION TO MARINE DRILLING

- ❖ PAST AND CURRENT DRILLING REQUIREMENTS
- ❖ EXPLORATION ACTIVITIES - FINDING THE OIL
- ❖ TYPICAL OPERATIONAL AREAS – WATER DEPTHS & SEA STATES
- ❖ DEVELOPING AND IMPLEMENTATION OF DRILLING PROGRAMS
- ❖ TYPES OF OFFSHORE DRILLING RIGS – PLATFORM & MODUS
- ❖ FIELD EXAMPLES

##### L2 - OFFSHORE MOBILE DRILLING RIGS

- ❖ JACK-UP RIGS
- ❖ SEMI-SUBMERSIBLES
- ❖ DRILL SHIPS
- ❖ DRILLING ASSISTED TENDERS
  - General Characteristics & Capabilities
  - Moored or DP
  - Shallow Water Rigs
  - Deepwater, Advanced Capability Rigs

##### L3 - DRILLING RIG COMPONENTS

- ❖ RIG FLOOR OPERATIONS & LAYOUT
- ❖ DERRICK & DRAWWORKS
- ❖ PIPE HANDLING & STORAGE
- ❖ ROTARY TABLE
- ❖ TOP DRIVE
- ❖ DRILL BITS
- ❖ DRILL STRING
- ❖ BOTTOM HOLE ASSEMBLIES (BHA)
- ❖ MUD FUNCTIONS
- ❖ MUD COMPOSITIONS
- ❖ MUD HANDLING EQUIPMENT

#### Afternoon

##### L4 - OFFSHORE DRILLING SYSTEMS

- ❖ GENERAL OFFSHORE REQUIREMENTS
- ❖ GUIDE BASE
- ❖ SUBSEA WELLHEADS
- ❖ BLOW OUT PREVENTERS
- ❖ LOWER RISER PACKAGE
- ❖ MARINE RISER
- ❖ FLEX & TELESCOPE JOINTS
- ❖ RISER TENSIONER
- ❖ VESSEL MOTION COMPENSATOR
- ❖ DRILLING CONTROL SYSTEM

##### L5 - DRILLING FROM PLATFORMS AND SUBSEA

- ❖ FIXED PLATFORM WELLS
- ❖ SUBSEA WELLS
- ❖ CASING PROGRAMS
- ❖ CASING CEMENTING ACTIVITIES
- ❖ CORE SAMPLING & WELL LOGGING
- ❖ DRILLING PRODUCTION TESTING
- ❖ DIRECTIONAL DRILLING
- ❖ HORIZONTAL DRILLING

##### L6 - ADVANCED DRILLING EXAMPLES

- ❖ DUAL ACTIVITY DRILLING DERRICKS
- ❖ BATCH DRILLING PROGRAMS
- ❖ AUTOMATED PIPE HANDLING FACILITIES
- ❖ DRILL THRU XMAS TREES
- ❖ NEW DRILLING SYSTEMS

##### L7 - DRILLING SAFETY

- ❖ REQUIREMENTS FOR SUBSEA DRILLING,
- ❖ PROBLEMS ASSOCIATED WITH RIG MOVEMENTS,
- ❖ SAFETY REQUIREMENTS AND REVIEW OF PAST INCIDENTS INVOLVING LOSS OF LIVES.

#### Close of Day One

### DAY TWO

#### Morning

##### LECTURE L1 - INTRODUCTION TO FPSO / FLOATING PRODUCTION SYSTEMS

- ❖ BACKGROUND AND GENERAL TRENDS IN OFFSHORE PRODUCTION
- ❖ REVIEW OF FIELDS DEVELOPED WITH FLOATERS AND SUBSEA PRODUCTION SYSTEMS
- ❖ INFLUENCE OF PRESSURE, TEMPERATURE AND FIELD CHEMISTRY ON PRODUCTION SYSTEM.
- ❖ GEOGRAPHIC REQUIREMENTS
- ❖ TYPICAL FIELD DEVELOPMENT CONTRACTS

##### LECTURE L2 - FLOATING PRODUCTION HOST REQUIREMENTS

- ❖ FUNCTIONAL REQUIREMENTS
- ❖ MONOHULL, SEMI-SUBMERSIBLE, DEEP DRAUGHT SEMI-SUB, SPAR AND TLP OPTIONS
- ❖ LAYOUT AND SAFETY
- ❖ NEWBUILD OR CONVERSION
- ❖ NEW DEVELOPMENTS (SEVAN)

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## LECTURE L3 - FPSO MONOHULL DESIGN REQUIREMENTS & TESTING WITH MODELS

- ❖ DESIGN REQUIREMENTS.
- ❖ HYDRODYNAMIC STUDIES
- ❖ WAVE TANK MODEL TESTING.
- ❖ WIND TUNNEL TESTING.
- ❖ COMPUTATIONAL FLUID DYNAMICS (CFD)
- ❖ RESPONSE AMPLITUDE OPERATORS (RAO)
- ❖ FPSO MOTIONS AND CURRENT FORCES

## AFTERNOON

### LECTURE L4 - MOORING SYSTEMS

- ❖ TYPICAL SYSTEMS
- ❖ COMPONENTS
- ❖ ANALYSIS / DESIGN & SAFETY FACTORS
- ❖ MATERIALS
- ❖ ANCHORS & PILES
- ❖ INSTALLATION
- ❖ NEW SYSTEMS

### LECTURE L5 - TURRET DESIGN

- ❖ DEFINITION OF FUNCTIONS
- ❖ FPSO LAYOUT (EXTERNAL & INTERNAL TURRETS)
- ❖ VESSEL MOTIONS AND MOORING FORCES
- ❖ TURRET SIZE VS CAPACITY
- ❖ DISCONNECTABLE SYSTEMS
- ❖ BEARING SYSTEMS
- ❖ MOORING LINES AND RISER CONNECTIONS AND HANDLING
- ❖ FLUID TRANSFER SYSTEMS - SWIVELS

## LECTURE L6 - INTRODUCTION TO FPSO TOPSIDES PROCESSING SYSTEMS

- ❖ FUNCTION OF PROCESS AND UTILITY PLANT (RESERVOIR INTERACTION, TYPICAL RESERVOIR FLUIDS, PRODUCT SPECIFICATIONS, ENVIRONMENTAL CONSTRAINTS)
- ❖ PROCESSING FACILITIES (SEPARATION, COMPRESSION, PRODUCED WATER, WATER INJECTION, UTILITIES)
- ❖ EFFECT OF MOTION
- ❖ PROCESS EQUIPMENT EXAMPLES.

## LECTURE L7 - SHUTTLE OR TRADING TANKERS AND EXPORT OPTIONS

- ❖ TYPES OF TANKERS (SHUTTLE TANKERS WITH DP THRUSTERS, STANDARD TRADING TANKERS, CAPACITIES)
- ❖ LOADING/OFFLOADING RATES
- ❖ OPERATIONAL SCHEDULES
- ❖ OFFLOADING TRANSFER SYSTEMS (DIRECT OR REMOTE)
- ❖ METERING SYSTEMS

## Close of Course and Presentation of Certificates of Attendance

The training course has a limited attendance for up to 25 participants only. Sessions commence at 9am on all days, with short intervals at 10.30am and 3.00pm respectively. Lunch will be provided at 12:30pm for 1 hour. Sessions will end at 4.30pm on all days.



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# REGISTRATION FORM

Introduction Offshore Drilling & Floating Production Facilities	Early Bird Price	√	Normal Price	√	TEAM DISCOUNTS!
21 – 22 March Beijing, China  <i>CIPPE Exhibitors will enjoy an exclusive rate of USD1899nett for this 2day course</i>	USD 1999		USD 2199		PetroEdge recognises the value of learning in teams. Group bookings at the same time from the same company receive the following:  3 or more at 5% off 5 or more at 7% off 8 of more at 10%  Early bird pricing is exclusive of team discounts and other promotions.
<b>PetroEdge In-house Training Solutions</b> { } Yes, I would like to organise this training on-site and save over 25% of total course fees! For further information about In-house , please call +65 67419927 or email info@asiaedge.net					

## DELEGATE DETAILS

### DELEGATE 1:

Delegate 1: \_\_\_\_\_

Mr  Mrs  Ms  Dr  Other

Telephone: \_\_\_\_\_ Email: \_\_\_\_\_

Job Title: \_\_\_\_\_

Department: \_\_\_\_\_

Delegate 2: \_\_\_\_\_

Mr  Mrs  Ms  Dr  Other

Telephone: \_\_\_\_\_ Email: \_\_\_\_\_

Job Title: \_\_\_\_\_

Department: \_\_\_\_\_

Head of Department: \_\_\_\_\_

Company: \_\_\_\_\_

Address: \_\_\_\_\_

Country: \_\_\_\_\_

Postcode: \_\_\_\_\_

Attention Invoice to: \_\_\_\_\_

Telephone: \_\_\_\_\_

Fax: \_\_\_\_\_

Email: \_\_\_\_\_

### 4 Easy Ways to Register

Online: [www.petroedgeasia.net](http://www.petroedgeasia.net)

Email: [caroline@asiaedge.net](mailto:caroline@asiaedge.net)

Phone: (65) 67419749

Fax: (65) 67478737

#### Please note:

- indicate if you have already registered by Phone  Fax  Email  Web
- if you have not received an acknowledgement before the training course, please call us to confirm your booking.
- photocopy this form to register multiple delegates.

#### Payment Methods

**By Cheque/ Bank Draft: Make Payable to Asia Edge Pte. Ltd.**  
**By Direct Transfer: Please quote AE1 with the remittance advise**  
 Account Name: Asia Edge Pte. Ltd.

Bank Number: 508 Account Number: 762903-001Swift Code: OCBGSGGG

All bank charges to be borne by payer. Please ensure that Asia Edge Pte Ltd receive the full invoiced amount.

**PAYMENT POLICY:** Payment is due in full at the time of registration. Full payment is mandatory for event attendance. I agree to Asia Edge Pte Ltd. payment terms

**CANCELLATIONS & SUBSTITUTIONS:** You may substitute delegates at any time. ASIA EDGE PTE LTD does not provide refunds for cancellations. For cancellations received in writing more than seven (7) days prior to the training course you will receive a 100% credit to be used at another ASIA EDGE PTE LTD training course for up to one year from the date of issuance. For cancellations received seven (7) days or less prior to an event (including day 7), no credits will be issued. In the event that ASIA EDGE PTE LTD cancels an event, delegate payments at the date of cancellation will be credited to a future ASIA EDGE PTE LTD event. This credit will be available for up to one year from the date of issuance. In the event that ASIA EDGE PTE LTD postpones an event, delegate payments at the postponement date will be credited towards the rescheduled date. If the delegate is unable to attend the rescheduled event, the delegate will receive a 100% credit representing payments made towards a future ASIA EDGE PTE LTD event. This credit will be

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