Who should Attend?

- Engineers, R&D personnel and managers from upstream oil and gas industry
- Project Managers and multi-discipline engineering personnel from EPC companies
- Graduate Trainees of a company doing business in the area of oil, gas, refinery and petrochemical industry

Course Lecturer’s Profile

Lead Faculty: Dr. U.K. Dutta

Dr. U.K. Dutta is a process consultant in the Hydrocarbon Process Industry, focusing on Consultancy and Training. Doctorate from Loughborough University of Technology (U.K), he has over 30 years of experience in Hydrocarbon Industry (upstream and downstream) in the areas of process and technology, engineering consultancy, project development, marketing and organizational development.

He has been involved in the development for major oil and gas fields and process design of major offshore production facilities. 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. Presently he is running his own consultancy firm, ‘Technomanage Consultants’ with base at New Delhi. He has conducted training for executives for major companies like Petronas (Malaysia), Petrosin (Singapore), The Yokogawa Group, Technip (India), Triune Projects (India), PTT (Thailand), Aker-Kvaerner (Philippines), Indian Chamber of Commerce, Ernst & Young and others. He regularly conducts open programs for executives in Singapore jointly with National University of Singapore, and international seminars in Malaysia and Thailand.

Depending on availability, other leading experts from the industry may be called to present their experience on the subject.

Offshore Process Technology

(Accredited 14 PDUs by the Professional Engineers Board, Singapore)

By

Dr. U. K. Dutta

Date: 1st – 2nd September 2005
Time: 9.00am – 5.00pm
Venue: National University of Singapore

Jointly Organized by:
- Professional Activities Centre, Faculty of Engineering
- Centre for Offshore Research & Engineering, Faculty of Engineering
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 2000 meters. This has also created a substantial rise on cost of production from a few Dollars per barrel to around 20 Dollars per barrel.

An offshore structure or FPSO is created to house the process system, which occupies bulk of the space. For cost effective design of such a facility, a close understanding of the process system and the technology by the entire engineering, project management and production team is needed. Also there is need for R&D effort.

The course is aimed at creating an understanding of the process technology and process systems by the entire project, engineering and operation team. It starts from evolving the design basis for process facilities, sizing and selection of hardware which occupy the space, technology trends in hardware and process system area and future trends in process technology area. It also helps to update the participants on trends on process technologies, where R&D effort is needed.

Methodology of presentation:
- Microsoft Power Point colorful slides packed with information.
- Highly interactive with total involvement of the participants.
- Interesting and Interactive Quiz Sessions, group tasks for better assimilation.

Course Materials:
- One Hard copy of presentation slides with reading material.

What will be Covered?

Basic Concepts, Definitions and Terminologies
- 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
- Design basis for process system

Introduction to Oilfield Processing Schemes
- Why processing at the oilfield?
- Primary, secondary and tertiary recovery

- Processing schemes for primary recovery:
  - Separation systems
  - Dehydration of oil and gas
  - Sweetening of gas
  - Gas compression
  - Water treatment and disposal
  - Utility systems

- Secondary and tertiary recovery schemes:
  - Gas lift and gas injection schemes
  - Water injection scheme
  - Other recovery processes

- Key issues in process concept development
- The gathering system
- Two phase flow dynamics
- Process flow diagram – definition and development
- Fixed platform and floating production facilities (FPSO)
- Offshore field configuration

Process Equipment Selection and Technology
- Separator types
- Separator sizing and selection
- Separation technology developments
- Desanding
- Emulsion treatment and oil dehydration
- Oil dehydration technology
- Salient features in gas dehydration system
- Gas sweetening technology
- Gas sweetening process selection
- Produced water treatment

Process Engineering Aspects
- Need for multi-disciplinary approach
- Codes and standards
- Safety systems
- API RP 14 C application.
- Revamp and up-gradation of facilities
- Development of P&IDs

Technology Trends
- Separation.
- Two phase pumping
- Membrane separation
- Natural gas liquefaction offshore:
  - LNG
  - GTL or Syn-fuel
  - Gas to Methanol
- Floating liquefaction plants
- Deep sea technology vis-à-vis process engineering
REGISTRATION FORM

Offshore Process Technology
1st – 2nd September 2005

Course Fee: SGD700.00 + SGD35.00 (5% GST)
Name of Participant: Dr/Mr/Ms/Ms:
(Attach your namecard, if any)

Designation:
Name of Organisation:
Address:
Contact Person:
Email: NUS Alumni No (if any):
Tel No (O): Fax No:

** Special Dietary Preference: Chinese / Halal / Vegetarian

Payment Mode

Cheque No/Bankdraft No.: ______________________________________
VISA / MSTR : __________________________________________
Signature  : __________________________________________
Expiry Date  : __________________________________________
Amount (S$)  : __________________________________________

Closing Date: Please send in your registration form together with your payment by
22nd August 2005, Monday

Authorised Signature / Company Stamp:

REGISTRATION – 2 Easy Ways to Register!!
MAIL or FAX to:

Professional Activities Centre
Faculty of Engineering
National University of Singapore
9 Engineering Drive 1
Blk EA #05-34
Singapore 117576
Fax: (65) 6874 5097

Enquires: Please contact Ms Lilian CHOONG for more information at :
Tel: (65) 6874 5113/ (65) 6778 2314 or
E-mail: engcll@nus.edu.sg
Website: http://www.eng.nus.edu.sg/PACentre

Fee: Local participants: SGD700.00 + SGD35.00 (5%GST)
Overseas participants: SGD700.00 (GST Exempted)

Payment: Payment is required prior to the course. Crossed cheques should be made
payable to “National University of Singapore” and mailed together with the
registration form to the above mentioned address.

Discount: Each of the following participant/company is eligible for 10% discount:

Employees of the NUS Technology Associates registered with INTRO
(Industry and Technology Relations Office);
NUS Alumni members;
Organisations / Companies sending three or more participants.

Refunds and Cancellation: A 50% refund will be made for withdrawals (received in writing) ten
working days before the commencement of the course. No refunds will be
made thereafter. However, a replacement will be accepted upon prior
arrangement at no extra cost. Please inform us of the changes, if any, by
fax. The Professional Activities Centre reserves the right to cancel the
course and fully refund the participants, should unforeseen circumstances
warrant it. Every effort will be made to inform participants of any changes.

Closing Date: 22nd August 2005, Monday