

FIVE-DAY COURSE

SUBSEA AWARENESS BERGEN



PROGRAMME AND REGISTRATION INFORMATION

The successful and highly renowned SUT Subsea Awareness Course will be arranged in Bergen, Monday 8th through Friday 12th Nov. 2010.

Originally established by Shell, taken over by SUT Aberdeen Branch, this five-day course has been designed to be suitable for engineers new to the offshore industry, those transferring from other disciplines within the industry and engineers who have worked in subsea previously but would benefit from a refresher course and exposure to the latest technology. The modules are presented by key supply and service companies in the subsea sector and will be hosted on their premises.

Whilst most of the course will be presented in a 'classroom' environment, the sessions will be interactive, with the opportunity to ask questions and discuss what has been learnt. In particular, hands-on and visual components have been included wherever possible to enable delegates to view software models and products destined for subsea service.

The Subsea Awareness Course in Bergen has seen some changes with respect to the Aberdeen branch course. Attention has been given to world leading companies, products, services and technologies from the Bergen area. During the course week presentations will be given by representatives from organisations and companies in the subsea industry in the Bergen Region. During the course week presentations will be given by Acergy, Aker Solutions, Bjørge Naxys, DOF Subsea, FMC Technologies, Framo Engineering, NCE Subsea, Roxar and Statoil.

THE COURSE IS
AIMED AT ENGINEERS
WHO ARE:

- New entrants to the industry
- Technology conversions within the offshore industry
- Refresher candidates

In co-operation with:



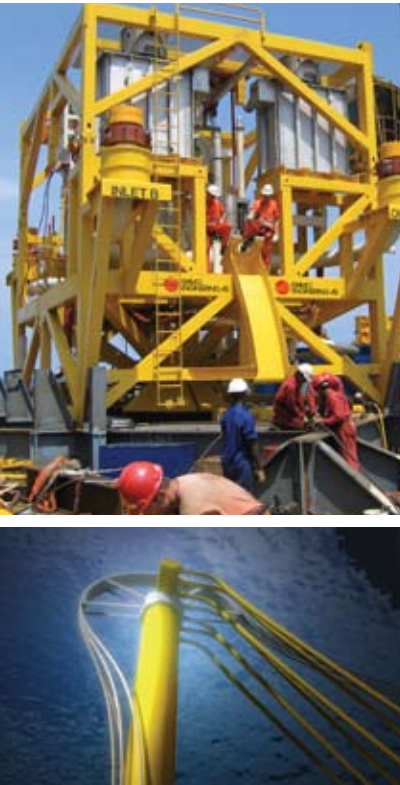
Norwegian Centres of Expertise
NCE Subsea

Organised by:
SOCIETY FOR UNDERWATER TECHNOLOGY - Norway Branch
c/o Norwegian Centre of Expertise Subsea
P.O Box 27, N-5347 Kystbasen Aagotnes
TEL: +47 90 36 11 20 E-MAIL: thomas.thiis@sut.org
WEB: www.norway.sut.org.uk

Head Office: 80 Coleman Street London EC2R 5BJ
Tel. +44 (0)207 382 2601 Fax: +44(0)207 382 2684 E-mail: info@sut.org Web: www.sut.org



Subsea Awareness



PRESENTATIONS BY:



Statoil

PROGRAMME

DAY 1 – A.M. MONDAY

10.00 - 12.00

Welcome

General Introduction to the Subsea Sector - Presented by: NCE Subsea

- Overview:
- Subsea development options
- Components of the Subsea Systems

12.00 - 12.45 *Lunch*

DAY 1 – P.M. MONDAY

12.45 Transport to Framo Engineering Fusa

14.00 - 17.00

Overview of Principles of Fluid Flow - Presented by: Framo Engineering

- Understanding the nature of fluids.
- Flow control in subsea systems
- Deep and ultra deepwater development
- Seabed processing

Coffee

- Multiphase metering
- Tour of facilities Fusa

17.15 Return to Bergen

20.00 Course dinner

DAY 2 – TUESDAY

08.00 Transport to Aker Solutions Aagotnes

08.30 - 16.00

X-mas Trees/Manifolds and Tools - Presented by: Aker Solutions

- Wellhead system and running tools
- XMT completion system and running tools.
- Controls (PCS)

Coffee

- Manifold
- Tie-in and connections
- Intervention tools and methods

12.00 - 13.00 *Lunch*

- Continue Program

Coffee

- Subsea tools, workshop tour

16.00 Return to Bergen



DAY 3 – WEDNESDAY

08.00 Transport to FMC Technologies,
Agotnes

08.30 - 16.00

Subsea Control Systems - Presented by: FMC Technologies

- Introduction
- Types of control systems
- System options

Coffee

- Operator interface
- Subsea control fluids
- Controls intervention
- Umbilicals
- Future

12.00 - 13.00 *Lunch*

- Subsea Well Intervention
- Light well intervention
- Subsea operations

Coffee

- Seabed processing/separation
- Future

16.00 Return to Bergen

DAY 4 – A.M. THURSDAY

08.30 - 11.30

Sensors and Monitoring - Presented by: Bjørge Naxys and Roxar

- Sensor types
- Acoustic monitoring systems
- Data processing
- Instrumentation case

Coffee

- Subsea products for monitoring and how they work
- The need for subsea monitoring
- Case/field examples subsea monitoring
- New products for subsea monitoring

11.30 - 12.30 *Lunch*

DAY 4 – P.M. THURSDAY

12.30 - 14.00

Subsea Pipeline External Inspection. Presented by: DOF Subsea

- Introduction
- Vessel, ROV's, AUV and other equipment
- Methodology and Innovation

Coffee

14.30 - 17.00

Marine Operations Presented by: Acergy

- Introduction to Survey
- IMR
- Structure Installation
- Flexible pipelines
- Risers
- Umbilicals
- Pipelaying
- Diving
- ROV

DAY 5 – A.M. FRIDAY

08.30 - 12.30

Pipeline Technology and Field Development Presented by: Statoil

General introduction to Pipeline
Technology

- Introduction
- History
- Topography
- Pipeline design
- Design parameters
- Materials
- Coating
- Production and expansion control
- Pipeline installation
- Methods
- Vessels
- Tie-ins and RFO
- SPTS
- Pipeline repairs
- Requirements
- Methods
- Future challenges

Coffee

Ormen Lange Subsea Field Development “The Impossible Gets Possible”

- Ormen Lange field overview
- Subsea templates
- PLEM's and PLET's

Production pipelines, MEG pipe lines and umbilicals

- Onshore plant
- Gas export system

Ormen Lange development history

- Identification of the Ormen Lange gas field
- The battle for field development and operation.
- Development scenarios

Ormen Lange field development

- Main challenges
- The Storegga slide
- The deepest development at the Norwegian continental shelf.

Design and fabrication of subsea equipment

- Ormen Lange construction phase
- Subsea excavation Pipelines and umbilicals installation.
- The world's largest heavy lift vessel in operation.
- The tie-in campaign
- Pressure testing and RFO
- Ormen Lange in operation
- Well construction and drilling
- Gas export
- Lessons learnt

Wrapping It All Up

12.30 *Lunch/Departure*

GENERAL INFORMATION

REGISTRATION

Please complete the registration routine as instructed on web page: <https://web.questback.com/ncesubsea/sac1002/>
Number of participants is limited to 15.

REGISTRATION FEES

SUT member rate:
NOK 17.500,- + VAT, Total NOK 21.875,-

Non member rate:
NOK 20.000,- + VAT, Total NOK 25.000,-
All refreshments and copy of the course notes included in the fees.

PAYMENT METHODS

Course fee to be paid by invoice. Invoices will be forwarded electronically to the course participant's e-mail address.
Invoice must be paid and registered by our bank before attending the course.

VENUE

Radisson SAS Royal Hotel, Bryggen 5835 Bergen
Tel. +47 55 54 30 00

ACCOMMODATION

Bergen has a wide range of accommodation; you may contact the SUT Bergen office for information.
Thomas Thiis: thomas.thiis@sut.org

JOINING INSTRUCTIONS

Joining instructions will be sent direct to the registered delegate (unless otherwise advised) on receipt of their confirmation of attendance.

MEMBERSHIP

To become a member of Society of Underwater Technology, please connect to www.sut.org.uk and choose "Membership" on the left side menu. Both individual and corporate membership is available.

TRANSPORT

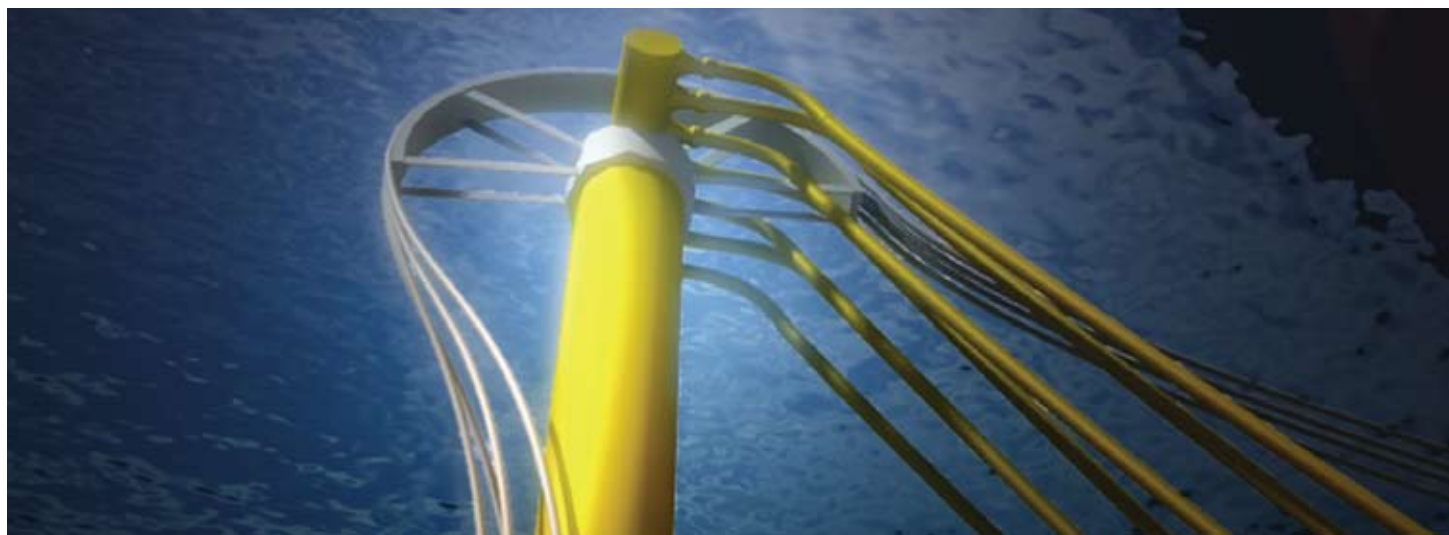
Delegates are responsible for their own travel arrangements at the beginning and end of each day.
Assistance with travel will be given between modules.

COURSE DINNER

An informal dinner will be held in a local restaurant on the first night of the course (details will be with the joining instructions).

CANCELLATIONS

Refunds will be made on written cancellations received up to ten working days in advance of the event but will be subject to a 15% handling charge. 50% will be deducted up to three working days in advance and 100% thereafter up to the start of the event. No refund will be given for non-attendance. Delegates may wish to nominate a substitute in their place.



ABOUT SOCIETY FOR UNDERWATER TECHNOLOGY

SUT is a world-wide, multi-disciplinary, learned society that brings together organizations and individuals with a common interest in underwater technology, ocean science and offshore engineering. SUT was founded in 1966 and has members from more than 40 countries, including engineers, scientists, other professionals and students working in these areas. The organization has comprehensive expertise within its area of activity, whereby influencing on the development of new techniques and tools to further explore and exploit the world's oceanic resources, e.g. through yearly prize giving ceremonies.

Today the association is established in London with branches in Bergen, Aberdeen, Houston, Rio de Janeiro, Perth, Melbourne, Kuala Lumpur and Lagos, where they carry out learned courses and programmes for members and others who are interested in subsea technology and their wide range of other ocean related activities. Their latest branch, SUT Norway (Bergen) was established in 2009.

SUT Norway is an ideal, non-commercial organization, to be developed through networking and interaction between individuals and companies working professionally with underwater technology. Its objective is to facilitate the exchange of knowledge and information, e.g. by arranging courses and seminars with agendas relevant to sub-sea activities.