

FIVE-DAY COURSE

# SUBSEA AWARENESS



## ABERDEEN

## PROGRAMME AND REGISTRATION FORM

**THE COURSE IS  
AIMED AT ENGINEERS  
WHO ARE:**

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

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.

### ORGANISED BY

#### SOCIETY FOR UNDERWATER TECHNOLOGY

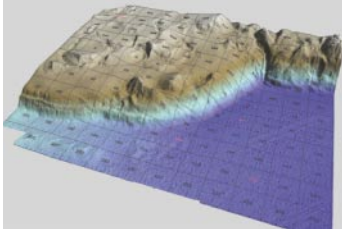
INNOVATION CENTRE, ABERDEEN SCIENCE & ENERGY PARK, BRIDGE OF DON, ABERDEEN AB23 8GX

TEL: +44 (0)1224 823637 FAX: +44 (0)1224 820236 E-MAIL: [events@sut.org](mailto:events@sut.org) WEB: [www.Aberdeen.sut.org.uk](http://www.Aberdeen.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](mailto:info@sut.org) Web: [www.sut.org](http://www.sut.org)

# Subsea Awareness



Images on cover and above courtesy of Fugro Survey Limited

## PROGRAMME

### DAY 1 – A.M. MONDAY

09.00–12.45

#### General Introduction to the Subsea Sector

##### Overview:

- Why subsea? ■ What other options are available, including option evaluation and selection?
- Examples of different systems used on existing fields. ■ What are the current design philosophies and the technology drivers?

##### Subsea development options:

- Single well tieback. ■ Template.
- Cluster/ manifold etc.

*Tea/coffee and view physical field development models*

##### Components of subsea systems/ 'building blocks':

- What is the purpose of each and how do they fit into the overall system?

##### Development areas:

- Deep water/ultra deep water.
- Complete subsea solutions.

13.00 *Lunch*

### DAY 1 – P.M. MONDAY

13.30–17.00

#### Overview of Principles of Fluid Flow

- Understanding the nature of fluids.
- Thermal management of subsea systems.
- Deep and Ultra deepwater development.
- Seabed Processing.

17.00 *Depart*

19.30 *Course Dinner*

### DAY 2 – TUESDAY

08.30–17.30

#### Subsea Wellheads/Trees

##### Arrival and welcome.

##### Introduction: Overview of subject area/systems.

##### Wellhead system.

- Typical subsea Wellhead overview.

*Tea/coffee*

##### Completion system:

- Production packers. ■ Sub-surface safety valves. ■ Reservoir monitoring gauges.

12.15 *Lunch*

##### Tour of equipment in plant.

*Tea/coffee*

##### Dual bore xmas tree system:

- Production guidebase. ■ Tubing suspension system. ■ Xmas tree system. ■ Installation and workover equipment.

##### Spool tree system:

- Production guidebase. ■ Tubing suspension system. ■ Xmas tree system. ■ Installation and workover equipment.

*Tea/coffee*

##### Chokes.

##### The future:

- Operator requirements.
- Technology drivers, gaps and solutions. ■ Sealing technology.

17.30 *Depart*

## HOST COMPANIES

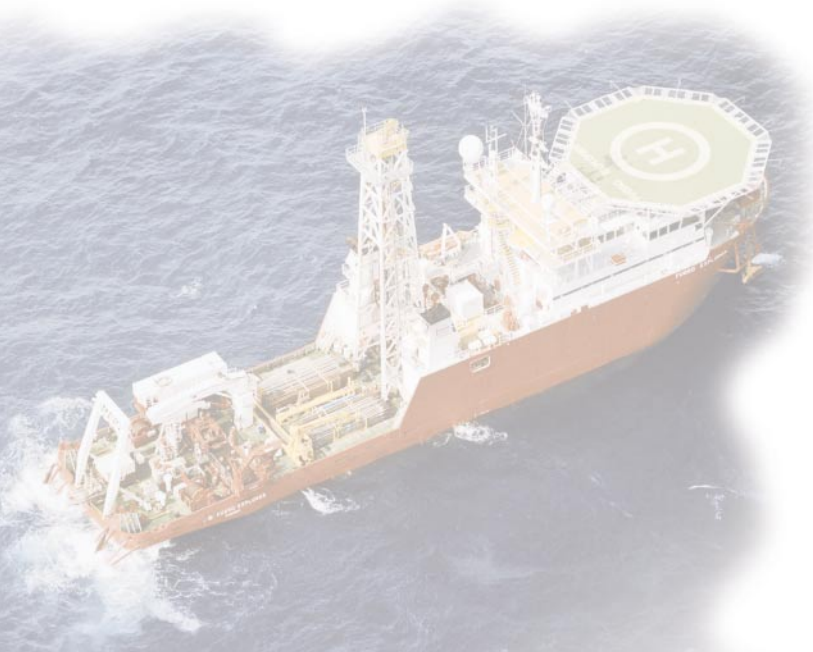
Aker Kvaerner ■ Borealis

Cameron UK Ltd ■

Poseidon International

Subsea 7 ■ Technip

*All details of locations, host companies and contact information to the programme, will be provided in the programme's Joining Instructions together with a contact telephone number.*



## DAY 3 – WEDNESDAY

08:30 – 17:00

### Subsea Control Systems

#### Introduction.

- Overview, what does the control system do.

#### Types of Control System.

- Advantages/disadvantages of each type.

*Tea/coffee*

#### Typical Equipment.

- Hydraulic Power Unit, Electrical Power Unit, Master Control Station, Subsea Control Modules

#### System Options.

- Hydraulics, Electrics, Umbilicals, Sensors.

#### Operator Interface.

- Master Control Station, functionality and options.

12:30 – 13:15 *Lunch*

#### Subsea Control Fluids.

- The control fluid as a component of the system.
- Anatomy of a control fluid.
- Environmental impact.

*Tea/coffee*

#### Controls Intervention.

#### Future.

- Technology Drivers.

17:00 *Depart*

## DAY 4 – A.M. THURSDAY

08.30–12.45

### Installation and Decommissioning

#### 08.30 Introduction.

##### Subsea Well Intervention:

- Access to subsea wells.
- Installing and replacing subsea trees.
- Decommissioning subsea wells.
- Recent projects.

##### Flexible pipe:

- Design principals.
- Flowlines.
- Risers.
- Typical installation applications.

##### Subsea Field Decommissioning:

- Risers and pipe.
- Templates.
- Manifolds.
- Case History.

##### Pipeline Installation:

- Installation design.
- Conventional lay barges.
- Reel ship.
- Deep water J lay.
- Bundles.

12.00 *Lunch and discussion*

12.45 *Depart*

## DAY 4 – P.M. THURSDAY

13.30–17.00

### Intervention

#### 13.30 Introduction:

- Safety.
- Current Environment.
- Technology Drivers.
- Water Depths.

#### ROV Technology:

- Introduction.
- System Types.
- Typical System Components.
- Operational systems and capabilities.
- Launch and Recovery systems.

*Tea/coffee*

#### AUV Technology:

- Introduction.
- System components.
- Capabilities.
- Sensors.
- Trials and Testing.

#### Remote Intervention Systems:

- Tooling Standards.
- Interfacing.
- Component Replacement systems.
- Connection systems.
- Diverless Pipeline Repair.

#### Diver Intervention:

- Air and Saturation Diving.
- Safety.
- Diver Tasks.
- Support Vessels.

#### Workshop tour.

17.00 *Depart*

## DAY 5 – A.M. FRIDAY

09.00–12.30

### West of Shetland Subsea Case History

#### Overview of West of Shetland Subsea Development(s):

- Key Design Criteria and Technology Drivers.
- Challenges faced.
- Development concept and schedule from discovery to implementation.
- Lessons learnt from other projects.

#### Overview of Project Phase:

- Contractual issues and differences – Schiehallion and Foinaven.
- Key Technical issues during Feed and Detailed design.
- Overview of subsea equipment design and key features.
- Installation issues and progress.

#### Overview of Operational Phase:

- Overview of Operational experience.
- Lessons learned.
- Recommendations for future similar projects.
- Future technology requirements.

#### View of physical models of Schiehallion equipment:

- Possible use of video footage or other simulation tools.

12.15 *Lunch*

## DAY 5 – P.M. FRIDAY

13.00–16.00

### The Subsea Challenge: hotter, deeper, further, cheaper

#### 13.00 Future subsea developments

- Northwest Europe.
- Worldwide.

#### Tackling the Economic Hurdles

- Small field size.
- Increasing step-out distances.
- Mature assets.

#### Tackling the Technology Hurdles

- Hotter (HPHT).
- Deeper.
- Further (increasing tie-back distances).

#### The Subsea Future

- Workshop/discussion.

16.00 *Depart*

## COMPANIES INCLUDE:

Subsea Consultants ▪ bp

Castrol Offshore

Shell UK Expro

Technip Offshore

Companies, lecturers and updates

will be provided with the

number with maps, address and

phone number.

## REGISTRATION INFORMATION

To register, simply complete the registration form and send your payment to SUT's Aberdeen office. Space is limited so early booking is advised.

### REGISTRATION FEES:

SUT Members: £1750.00 + £306.25 VAT = £2056.25

Non-Members: £2000.00 + £350.00 VAT = £2350.00

*Included in the Fees:* All refreshments during the Course including a copy of the Course Notes.

### PAYMENT METHODS:

**Bank Transfer** (exclusive of transfer fees and currency exchange rates) to Barclays Bank Limited, Pall Mall Business Centre, London SW1Y 5AX.

Account No. 80849499. Sort Code 20 65 82.

Account name: Society for Underwater Technology.

**Cheque:** Sterling only drawn on a UK Bank Account. An International cheque can be obtained from all major overseas banks. Please ensure any charges are met at source.

**Credit Card:** Mastercard and Visa ONLY. We cannot accept payment on any other card.

**VAT:** Our VAT No. is 242 3504 95. VAT must be paid on all registration fees, including those from overseas. All EC country organisations must provide their VAT number in accordance with EC VAT regulations. A VAT receipted invoice will be sent in acknowledgment of all pre-paid registrations.

**JOINING INSTRUCTIONS:** Joining instructions will be sent direct to the registered delegate (as shown on the registration form) on receipt of their written confirmation of attendance.

**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.

All queries for this event are being handled by the Aberdeen Office of SUT.

**ACCOMMODATION:** Aberdeen has an enormous range of accommodation from luxury hotels to bed & breakfast. Please phone the SUT Aberdeen Office for advice on 01224 823637.

**TRANSPORT DURING COURSE:** Delegates are responsible for their own travel arrangements at the beginning and end of each day. Assistance with travel between modules can be arranged if required.

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

# Registration Form

## Subsea Awareness Course

Five-Day Courses : Aberdeen

Please complete and return, with your payment (see above for payment methods) to **SUT, Innovation Centre, Exploration Drive, Aberdeen Science and Energy Park, Bridge of Don, Aberdeen AB23 8GX**. To ensure that your application is processed would you please fax a copy of this form to SUT 01224 820236 **BEFORE** sending it to your accounts department.

Full Name \_\_\_\_\_

PLEASE PRINT. THIS IS HOW IT WILL APPEAR ON YOUR NAME BADGE.

Company \_\_\_\_\_

Address \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Email \_\_\_\_\_

Phone No. \_\_\_\_\_

Fax No. \_\_\_\_\_

Mobile No. \_\_\_\_\_

Your VAT No. \_\_\_\_\_

ALL EC COUNTRIES MUST PROVIDE THIS INFORMATION

SUT Member No. \_\_\_\_\_

Credit Card (✓)



ONLY THESE SYMBOLS ARE ACCEPTED. DO NOT ADD ANY OTHERS.

Card No. \_\_\_\_\_

Expiry Date \_\_\_\_\_

Card Holder's Name \_\_\_\_\_

Address \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Signature \_\_\_\_\_

Date \_\_\_\_\_

**Only one delegate per form please. Please photocopy Registration Form and send completed version to SUT Aberdeen.**

**REGISTRATION FEES** *Included in the Fees: All refreshments during the Course and a copy of the Course Notes.*

*Please indicate:*

Non Member (*details of membership will be provided*)

Vegetarian Meal required

**SUT Members:**

£1750.00 + £306.25 VAT = £2056.25 \_\_\_\_\_

**Non-Members:**

£2000.00 + £350.00 VAT = £2350.00 \_\_\_\_\_

**Cheque enclosed, inclusive of VAT but exclusive of bank charges, made payable to SUT for**

£ \_\_\_\_\_