REGISTRATION FEES

SUT Member Rate: £900 (+VAT)

SUT Non Member Rate: £1100 (+VAT)

REGISTRATION

To register, please contact **events@sut.org / 01224 823637**

PAYMENT METHODS

Invoice

Credit Card: All major credit cards accepted

Bank Transfer: Bank details will be advised on request
Exclusive of transfer fees and currency exchange rates

Cheque: Please make cheques payable to **'Society for Underwater Technology'.** Sterling only drawn on a UK bank account. An international cheque can be obtained from all major overseas banks. Please ensure charges are met at source.

VAT No. 242 3504 95. VAT must be paid on all registration fees, including those from overseas.

CANCELLATIONS

Refunds will be made on written cancellations received up to 10 working days in advance of the event but will be subject to a 15% handling charge. 50% will be deducted 5 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.

JOINING INSTRUCTIONS

Joining instructions will be sent direct to the registered delegate (unless otherwise advised).

SUT
Society for Underwater Technology

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The Life-Cycle of Flexible Risers and Flowlines

3-Day Awareness Course

Aberdeen

- **The course is aimed at those who specify, purchase, approve, install, operate, manage the integrity of, or decommission flexible risers or flowlines, including jumpers.**
- **It should provide enough knowledge for them to feel comfortable with their responsibilities.**
- **It is likely to apply to both engineers and non-engineers at various stages in their careers.**
- **The course has been developed by all three flexible pipe manufacturers, and key companies associated with system design, failure mode analysis, integrity management and decommissioning of flexible flowlines and risers, so that delegates will get the best possible grounding in the subject.**

Day 1

Welcome and introduction

Design of flexible flowlines and risers

- The structure of different types of flexible pipe
- Materials: plastics and their selection; corrosion considerations for steel
- Static flowline design issues, including flow assurance and impact protection
- Dynamic riser design issues, including dynamic analysis and fatigue analysis.

Installation of flexibles

- Installation of equipment (reels, carousels, etc.)
- Considerations for selection of method, equipment, installation vessel, etc.
- Installation analysis: load prediction, sea state limitations, minimum bend radius, etc.
- Tie-in operations.

Day 2

Integrity management – operator's perspective

- Legislative drivers
- Business drivers
- How flexibles are managed.

Damage, degradation and failure modes

- How design takes account of failure modes
- Flexible pipe degradation & failure modes, and their mechanisms
- Operational experience – what degradation & failure mechanisms have been experienced
- How integrity management is linked to degradation & failure mechanisms
- Oil & Gas UK documents: "State Of The Art Report On Flexible Pipe Integrity" and Guidance Note on Monitoring Methods and Integrity Assurance for Unbonded Flexible Pipes".

Integrity management techniques

- Approach to risk-based assessments
- Assessing the impact of design, installation and operation on integrity
- Integrity monitoring techniques
- Inspection techniques
- Benefits of integrity management regarding re-use potential.

Decommissioning

- Regulatory requirements
- Leave in place versus removal, and residual liability
- Opportunities and considerations regarding re-use
- Case Study.

Day 3 (1/2 day)

Flexible riser configuration design analysis – in practice

Presentation – Numerical considerations for flexible riser design analysis

- Numerical approaches (brief discussion of software tools available, strengths, weaknesses, etc.)
- Time domain vs. frequency domain approach
- Riser modelling techniques, including ancillary equipment
- Environment characterisation; wave theory; deterministic vs. stochastic approaches
- Response assessment.

A hands-on session using finite element riser analysis software

- A range of representative riser configurations used in the North Sea will be used. These will demonstrate:
  - Riser response characteristics for different riser configurations
  - Influence of the environment, vessel type and modelling assumptions on riser response
  - Analysis post-processing and results interpretation.

Companies Contributing to the Course

BP, Fairfield Energy, Flexlife, Flex-Tech, NOV, Subsea 7, Technip, Wellstream, Wood Group Kenny