Subsea Technology
A short course for industry

2012 course commences 2nd August, running through to 1st November
Thursday nights 5:30 - 8:30pm
"You will find this short course challenging, and hard work. Like me, you may find Subsea fascinating, and want to make a career of it...."

Kevin Mullen, INTECSEA, Adjunct Professor and Unit Coordinator

Learning Outcomes
Participants are able to describe the functions, principal features and limitations of a range of current and future subsea technologies; and understand the methods for installation, intervention, maintenance and repair of equipment in a subsea environment.
Participants have an appreciation of risk and of the importance of reliability.
Participants have experienced working together as a team on a development project, to evaluate a range of subsea technologies and develop a subsea system layout for an offshore oil or gas field.

Educational Principles
Industrial delegates study and work in teams with students undertaking the Master's degree in Oil and Gas Engineering.
It is assumed that participants are of sufficient maturity to be capable of working together in the teams to which they have been assigned. In this respect, the assignment reflects real life - you can't choose your fellow-workers when you are in employment.

Unit Overview
"We teach you the technology, but also give you the experience of designing and putting together a tender for a major subsea oil and gas project..."

While subsea has been exploited for over 50 years, the challenges are increasing as oil and gas production moves into ultra-deep water and remote fields. The tools and subsea hardware are improving, matched by the ingenuity of the engineers developing these assets.

This short course on Subsea Technology includes presentations, case studies and assessment all delivered by engineers working in industry, who are acknowledged as experts in their field.

The unit introduces students and industrial delegates to the equipment and methods used for subsea tiebacks to platforms, vessels or the shore, and gives them a challenging assignment to work in teams to develop a subsea oil or gas field.

The assignment is similar to the oil and gas projects being carried out in many of the engineering design houses in Perth and other oil centres such as Houston, Aberdeen, London and Stavanger.

Teaching and Learning Strategies
The unit content is delivered by lectures and case studies, using PowerPoint presentations and animations and some video material. Some lectures will be given by video recording if the lecturer is called offshore or overseas at short notice.

The real learning occurs in the assignment, where students work together, discussing possible solutions and being challenged.

16 Years Course Delivery
15 Guest Lecturers
20+ Topics Covered in Detail

"I hear and I forget. I see and I remember. I do and I understand."
Attributed to Confucius, Chinese philosopher and reformer (551 BC - 479 BC)
Lecture Program

Introduction
The unit begins with an introduction to subsea technology and an overview of the course content. The assignment is given on the first night, participants are formed into teams, and the assessment method is explained.

Core Lectures
The subsea hardware topics are
- Tree and Wellhead Systems
- Subsea Structures and Manifolds
- Subsea Control Systems and Umbilicals
- Flexible Flowlines and Flexible Dynamic Risers
- Tie-In and Connection Systems
- Future Subsea Technology

Related Disciplines
The "glue" needed to put a system together is these related disciplines
- Subsea System Development
- Risk, Reliability and Availability
- Fabrication
- Installation
- System Integration Testing and Commissioning
- Inspection, Maintenance and Repair

Case Studies
Case studies look in detail at developments such as the award-winning local East Spar and Angel projects and the Norwegian Snøhvit LNG project. The case studies cover the equipment and field layout selected, and the justification for the choices made, and are presented by lead engineers who worked on these projects.

Bonus Material
Each lecture is delivered by an industry expert, and depending on availability, a selection of bonus presentations will cover
- Subsea Field Operations
- Field Layout
- Flow Assurance
- Subsea to Beach
- Control Buoy Technology

Support and guest lecturers provided by
- Aker Solutions
- Chevron
- GE Oil and Gas
- Oceaneering
- INTECSEA
- Technip
- Woodside
- The Society for Underwater Technology
Typical Assignment (2011): Yngling Field Development
Client: Jolt Energy
Phases: 1 2 3 4 5

Basis of Design
Jolt Energy invites bidders to submit a tender for the development of the Yngling oil field, which lies in the WA-368-P lease in the Perth Basin.

The lease is presently retained by the government, but if a viable proposal can be developed by the tenderers, Jolt Energy will make an offer to take over the lease and develop the field.

Due to the proximity to Perth beaches and Rottnest Island, there are concerns about risk prevention and mitigation, and environmental issues.

Why should you attend?

Expert Teaching
Lecturers and assessors are drawn from across the subsea industry and are acknowledged as experts in their field.

The high level of industry participation in the unit, the support of the Society for Underwater Technology, and the international engineering and management flavour makes this the ideal venue to further your studies for a rewarding and challenging career.

This short course is relevant to you if you are
- Working in the offshore or subsea industry and want to increase your skills and knowledge
- Working in another engineering industry and want to move into subsea engineering
- Wanting to acquire a broad overview of the subsea industry
- Keen to experience working in a team to develop a high technology product which is complex and feature-rich
- Undertaking a Masters degree in Oil and Gas Engineering (MOGE) at the University of Western Australia

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About UWA
The University of Western Australia (UWA) is one of Australia’s leading universities and is ranked among the best internationally.

The UWA Faculty of Engineering, Computing and Mathematics offers a comprehensive range of undergraduate and postgraduate degrees and is committed to attracting talented students and providing world-class training and facilities.

The Faculty has developed strong links and partnerships with industry, to ensure new technologies and strategies are developed to benefit the global community and to build on its reputation for achieving international excellence.