

SSEN - SUBSEA ENGINEERING

SSEN 630 Fundamentals of Subsea Engineering

Credits 3. 3 Lecture Hours.

Orientation to subsea engineering fundamentals; includes SURF (Subsea, Umbilicals/Controls, Risers, Flowlines) equipment and configurations; exposure to practical, industry focused problems; subsea equipment components; design considerations and design drivers; subsea production operations; integrity critical maintenance activities.

Prerequisites: Graduate classification, enrollment in the College of Engineering or approval of instructor.

SSEN 632 Subsea Project Implementation

Credits 3. 3 Lecture Hours.

Overview of the realization of a subsea development project; includes all stages from discovery to pre-commissioning of the subsea infrastructure.

Prerequisite: SSEN 630 or concurrent enrollment.

SSEN 633 Transition from Fossil Fuels

Credits 3. 3 Lecture Hours.

Current status of energy supplies; overview of energy source trends and forecast of what will be seen in the future; examine renewable energy sources, their technology, what the challenges are and how will these be overcome; appraisal of how the transition will be founded on what we are doing now.

SSEN 640 Subsea Hardware Design

Credits 3. 3 Lecture Hours.

Basic elements (bolting, seals, flanges & hubs, valves, fittings, connections, and actuators) that make up subsea hardware assemblies; understanding of how these elements work together in a system.

Prerequisites: SSEN 630 or concurrent enrollment or approval of instructor.

SSEN 641 Subsea Umbilical and Control System Design

Credits 3. 3 Lecture Hours.

A practical view of subsea umbilical and controls system project realization from concept selection through installation and offshore acceptance testing.

Prerequisite: SSEN 630, or concurrent enrollment.

SSEN 642 Subsea Pipeline Design

Credits 3. 3 Lecture Hours.

A practical view of pipeline project realization from concept selection through installation and offshore acceptance testing.

Prerequisites: SSEN 630, or concurrent enrollment, or approval of instructor.

SSEN 643 Subsea Riser Design

Credits 3. 3 Lecture Hours.

A practical view of riser project realization from concept selection through installation and offshore acceptance testing.

Prerequisites: SSEN 630, or concurrent enrollment, or approval of instructor.

SSEN 646 Applied Reliability Engineering for Subsea Systems

Credits 3. 3 Lecture Hours.

Overview of the application of reliability engineering to subsea system and all stages from discovery to pre-commissioning of the subsea infrastructure; exposure to practical, industry focused problems; risks and mitigation steps to reduce possibility of an accident or hazard; FMEACA, root cause analysis, TRLs, Risk Based Inspection (RBI) and Risk Based Integrity Management concepts, asset integrity and ALARP concepts, fault tree analysis, Principles of Safety Integrity Level (SIL).

Prerequisite: SSEN 630 or concurrent enrollment, or approval of instructor.

SSEN 650 Flow Assurance and Operability of Subsea Systems

Credits 3. 3 Lecture Hours.

Hydrocarbon production and transport from offshore fields to the host facilities, including prevention and remediation of phenomena that hinder fluid flow in production systems; subsea architecture, hydrodynamic and thermal considerations, reservoir fluid characterization and analysis, solids management, thermal hydraulics and production chemistry.

Prerequisites: SSEN 630 or concurrent enrollment, or approval of instructor.

SSEN 651 Subsea Production Operations

Credits 3. 3 Lecture Hours.

Multiphase hydrocarbon production and transport from offshore fields to host facilities under both steady-state and transient conditions; includes reservoir and SURF system management through chemical gas and water injection, surface and subsea processing, testing and maintenance through all phases of a subsea development.

Prerequisites: SSEN 630 or concurrent enrollment, or approval of instructor.

SSEN 681 Professional Development Seminar-Subsea Engineering

Credit 1. 0 Lecture Hours. 1 Other Hour.

. Professional seminar introducing students to the latest topics in subsea engineering. Must be taken on a satisfactory/unsatisfactory basis.

Prerequisite: SSEN 630 or current enrollment, or approval of instructor.

SSEN 684 Professional Internship

Credits 1 to 10. 0 Lecture Hours. 1 to 10 Other Hours.

Supervised experience of one academic year in industry where students can learn to apply their textbook-based skills to problems in the real-world environment. Must be taken on a satisfactory/unsatisfactory basis.

Prerequisite: SSEN 630 or approval of instructor.

SSEN 685 Directed Studies

Credits 1 to 6. 1 to 6 Other Hours.

Design or research problems related to subsea engineering.

Prerequisite: Graduate classification; approval of program director or designate.

SSEN 691 Research

Credits 1 to 23. 1 to 23 Other Hours.

Research in the area of subsea engineering. Must be taken on a satisfactory/unsatisfactory basis.

Prerequisite: Graduate classification; approval of program director or designate.