Subsea Engineering Competency Profile

STRUCTURAL DESIGN FUNDAMENTALS	SSS-001
This competency demonstrates a subsea engineer has a fundamental knowledge of the design issues relating to structures that are part of subsea fields and how they interact with the environment and subsea facilities and/ equipment. These structures may contain, support, protect or facilitate installation of subsea equipment such as piping, valves, intervention interfaces, electrics, hydraulics and various foundation systems.	

ELEMENT OF COMPETENCE	WHAT THIS COMPETENCE MEANS IN PRACTICE	TYPICAL EXAMPLES OF EVIDENCE Refer to only as many Indicators of Attainment as you need to demonstrate the Element of Competence
Working knowledge of: • Structures functionality, risks and opportunities • Structural design using industry recognised software packages • Codes and Standards and design specifications • Piping, equipment and structural layouts • Loads applied to a structure over its life cycle (static and dynamic) and geotechnical considerations • Accidental load types including dropped objects, snagging loads, trawling loads • Interfaces between the structure and other equipment including pipelines and umbilicals, valves and piping, E&I • Material selection, corrosion protection including cathodic protection and coatings • Different foundation types and their relative advantages / applications and geotechnical considerations	• Identifies risks, opportunities, drivers and barriers associated with subsea structure design • Identifies with the multi-discipline engineering approach to subsea design and understands the design interfaces to be managed to achieve acceptable structure design • Identifies and understands the fundamentals of subsea structures in terms of functionality, loadout, testing, transportation, installation, loads, foundations and codes and standards. • Management of the interfaces between engineering disciplines on a subsea structure design project • Can assist in subsea system concepts and layouts with understanding of the subsea equipment and structure interfaces • Can provide input to the tender process, either preparation or evaluation, for the design or installation of subsea structures	• Has worked on two or more subsea projects which included a subsea structure design scope • Has been involved in a specific aspect of subsea structure design (structural, mechanical or geotechnical) • As part of the design team has interfaced with other parties responsible for either the manufacture, transport, installation or inspection/ maintenance/ repair of a subsea structure

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• Diver and ROV access for installation, inspection, maintenance and repair • Design of rigging and lifting aids including deployment / retrieval loads • Loadout, transport and offshore/subsea lifting logistics and limitations • Testing – Load testing, SIT, FAT • The preservation, handling, transportation and installation • of subsea structures • Safety in design considerations		