



ENGINEERS
AUSTRALIA

Subsea Engineering Competency



CONSTRUCTION AND INSTALLATION ENGINEERING FUNDAMENTALS

CEM-001

This competency demonstrates a subsea engineer has a broad understanding of construction activities and installation and/or removal engineering and an understanding of the subsea engineer's role within the offshore installation team.

ELEMENT OF COMPETENCE	WHAT THIS COMPETENCE MEANS IN PRACTICE	INDICATORS OF ATTAINMENT
<p>Working knowledge of:</p> <ul style="list-style-type: none"> ● Onshore lifting for transport and load-out, offshore lifting, deployment and recovery criteria using surface support vessels, specialist transportation vessels and barges ● Sea fastening techniques and methods ● Metrology, short and long baseline survey techniques ● Application of met-ocean data and weather reports to installation engineering, vessel route planning, and defining limiting sea states and safe working practices at sea ● Specific diving operations safety management requirements including diver limitations, contingency and rescue operations ● Planning and scheduling for offshore installation works, including simultaneous operations (SIMOPS) activities ● HAZID and HAZOP review techniques ● International & Australian standards associated with offshore installation 	<p>Capable of:</p> <ul style="list-style-type: none"> ● Originating engineering deliverables required for offshore installation of subsea facilities, including scopes of work, specifications and procedures. ● Working within a multi-disciplinary offshore installation team to plan and safely execute the installation and pre-commissioning of subsea facilities ● Interaction with Operations during Brown fields work planning and execution ● Interaction with other infield vessels during construction works ● Definition of the load cases and handling requirements for subsea facilities from load-out to placement on the seabed ● Understanding the possibilities and limitations of manned intervention, remote intervention and autonomous intervention techniques that support subsea installation operations 	<p>Refer to only as many Indicators of Attainment as you need to demonstrate the Element of Competence</p> <p>Can describe the process for load-out, transportation, deployment, installation, connection and pre-commissioning of subsea facilities</p> <p>Can cite examples of where the engineer has participated in successful planning and execution of offshore installation activities and demonstrate examples of interaction with other disciplines to achieve this outcome</p> <p>Has demonstrable experience working on at least two projects installing subsea production facilities.</p>



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ELEMENT OF COMPETENCE	WHAT THIS COMPETENCE MEANS IN PRACTICE	INDICATORS OF ATTAINMENT
Working knowledge of: <ul style="list-style-type: none">• HSE factors affecting task plans• Constructability review process• Lessons learned• Contingency planning	Capable of: <ul style="list-style-type: none">• Recognising the HSE factors that affect task plans• Recognising how different constraints affect constructability and schedule• Apply lessons learned from previous projects into procedures and plans to reduce risk, reduce cost and/or improve safety.	Refer to only as many Indicators of Attainment as you need to demonstrate the Element of Competence Has contributed in at least two constructability reviews. Has written at least two contingency procedures to mitigate uncertainty with SIMOPS, weather, procedures and/or equipment. Can describe in detail two lessons learned as a result of working on a project.
The regulatory requirements associated with offshore installation planning and operations, including State and Commonwealth legislation and the associated safety case regime and its application to offshore installation and pre-commissioning activities	Ensuring that installation procedures meet the agreed construction safety case and that installation procedures are consistent with the engineering and risk assessment outcomes. This includes the diving life support and rescue facilities required for air and saturation diving.	Can describe in detail Safety Management Systems for load-out, transport, installation and pre-commissioning operations