



Subsea Engineering Competency Profile



SUBSEA CONTROL SYSTEM FUNDAMENTALS

SC-001

This competency demonstrates a subsea engineer has a broad understanding of the design, manufacture and operation of subsea control systems and associated tooling, and how they interact with surface facilities and subsea equipment.

ELEMENT OF COMPETENCE	WHAT THIS COMPETENCE MEANS IN PRACTICE	TYPICAL EXAMPLES OF EVIDENCE
<p>Working knowledge of:</p> <ul style="list-style-type: none"> • Relevant international standards associated with control systems and tooling • The design, manufacture, assembly, testing and operation of control systems and tooling • Topside hardware and software requirements and designs including communications protocols between control systems • Hydraulic and electrical design principles and methods, and how the hydraulic and electrical analyses drive product design • The principles of reliability and availability (redundancy) and how these are applied to control system design • The impact of component obsolescence, design considerations to reduce the risk and ways to mitigate the remaining risks • The impact of design upon the performance of the product during manufacture, testing, installation, commissioning and operation • The functional role of key sub-components and how they interact with the assembly, including 	<p>Capable of:</p> <ul style="list-style-type: none"> • Identifying and using applicable international standards • Describing the different types of control systems, including direct hydraulic, electro-hydraulic and all-electric control systems, and their key features and attributes • Specifying engineering deliverables related to control systems and tooling • Working in a multi-discipline project team to design, manufacture, test, install, commission and trouble shoot control systems 	<p>Refer to only as many Indicators of Attainment as you need to demonstrate the Element of Competence</p> <ul style="list-style-type: none"> • Can describe the processes for design, manufacture, test, install and commission of control systems • Has demonstrable experience working at least two projects involving control systems • Can cite examples of where control systems have been designed and operated successfully within projects and demonstrate examples of interaction with other engineering disciplines to achieve this outcome



ENGINEERS
AUSTRALIA

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<p>electronic modules, valves, connectors, flow meters and other sensors and instrumentation</p> <ul style="list-style-type: none"> ● The key materials available and their limitations, including steels, alloys and elastomers ● ROV interfaces, diver access and operations <p>Awareness of:</p> <ul style="list-style-type: none"> ● Topside initiated shut down logic including, production and emergency ● Control fluids and their cleanliness requirements ● Control fluid compatibility issues and performance limitations ● Risk assessment methods ● Quality control management systems applicable to the manufacture, test and transportation of products ● Marine growth, bio-fouling, external scale (calcium carbonate) deposition and the issues associated with functionality of subsea connectors, components and moving parts 		<p>Refer to only as many Indicators of Attainment as you need to demonstrate the Element of Competence</p>