

**SKILLS FRAMEWORK FOR MARINE AND OFFSHORE  
TECHNICAL SKILLS & COMPETENCIES (TSC) REFERENCE DOCUMENT**

<b>TSC Category</b>	Marine and Offshore System Design					
<b>TSC</b>	Marine Design Customisation					
<b>TSC Description</b>	Customise engineering solutions to meet exceptional customers' requirements beyond typical scoping of existing product portfolios and/or capabilities					
<b>TSC Proficiency Description</b>	<b>Level 1</b>	<b>Level 2</b>	<b>Level 3</b>	<b>Level 4</b>	<b>Level 5</b>	<b>Level 6</b>
		<b>MAR-MSD-2010-1.1</b>	<b>MAR-MSD-3010-1.1</b>	<b>MAR-MSD-4010-1.1</b>	<b>MAR-MSD-5010-1.1</b>	
		Interpret high-level product customisation requirements and support design development	Analyse customised design briefs against existing product designs to identify areas of basic design requiring adaptation	Evaluate modified design processes for fulfilment of unique requirements and customisations	Formulate product customisation approaches to fulfil customers' requirements	
<b>Knowledge</b>		<ul style="list-style-type: none"> <li>• Components of design briefs and specifications</li> <li>• Methods of drafting basic designs</li> <li>• Principles of mechanical engineering</li> <li>• Types of information required for developing basic designs</li> <li>• Procedures for drafting basic ship, rig, conversion or marine equipment designs</li> <li>• Principles of structural and arrangement drawings</li> <li>• Principles of electrical drawings</li> <li>• Principles of computer-aided design (CAD)</li> </ul>	<ul style="list-style-type: none"> <li>• Components of brief confirming customer's customisation requirements</li> <li>• Principles of naval architecture calculations</li> <li>• Procedures for customising ship, rig, conversion or marine equipment designs</li> <li>• Methods to confirm customised designs and briefs with internal stakeholders</li> <li>• Design parameters required to produce virtual customisation plans using computer-aided design (CAD)</li> </ul>	<ul style="list-style-type: none"> <li>• Emerging design trends and innovations</li> <li>• Methods of negotiating basic design features with internal and external stakeholders</li> <li>• Engineering or manufacturing principles and concepts required to adapt existing products to customised designs</li> <li>• Functionality of adapted designs and inter-relationships with other components, products, systems and technologies</li> <li>• Ship, rig, conversion or marine equipment manufacturing processes</li> <li>• International regulations relating to ship, rig, conversion or marine equipment designs</li> <li>• Potential risks to design adaptation and mitigating measures</li> <li>• Factors that affect the feasibility of achieving customers' requirements</li> </ul>	<ul style="list-style-type: none"> <li>• Different types of products and product features which can be adapted</li> <li>• Types of design features that are considered unique and/or specific</li> <li>• Methods to determine customisation scope and parameters</li> <li>• Processes, infrastructure and resource requirements for customisation of ships, rigs, conversions or marine equipment designs</li> <li>• Factors with critical effects on design customisation</li> <li>• Types of constraints to innovation</li> <li>• Organisation's business plans and strategies</li> <li>• Types of recurring customer requirements to be leveraged for value-creation</li> <li>• Types of unique customer requirements and associated research on emerging trends</li> </ul>	

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				<ul style="list-style-type: none"> <li>• Methods to present customised designs and briefs to customers</li> </ul>		
<b>Abilities</b>		<ul style="list-style-type: none"> <li>• Interpret design descriptions</li> <li>• Draft sections of design descriptions for standard ships, rigs, conversions or marine equipment offerings</li> <li>• Identify needs for adaptation of customised designs to original product designs</li> <li>• Revise sections of design descriptions based on identified adaptations to standard ships, rigs, conversions or marine equipment offerings</li> </ul>	<ul style="list-style-type: none"> <li>• Identify unique features of customisation</li> <li>• Create design descriptions based on requirements identified in customised design briefs</li> <li>• Apply engineering concepts, processes and principles to adapt engineering designs to meet customers' customisation requirements and facilitate innovation</li> <li>• Verify designs and descriptions with stakeholders to align customised design briefs with customers' requirements</li> </ul>	<ul style="list-style-type: none"> <li>• Develop design briefs for existing products, outlining the scope of adaptations necessary to fulfil customers' requirements</li> <li>• Establish design customisation requirements and confirm features to be adapted</li> <li>• Verify compliance of customisation requirements and customised designs with international regulations on product parameters</li> <li>• Consult stakeholders to manage expectations of deliverables and highlight fitness and feasibility alignments</li> <li>• Sign off basic designs for production of virtual customisation plans using computer-aided design (CAD) processes</li> </ul>	<ul style="list-style-type: none"> <li>• Lead negotiations on customisation and design adaptation with customers</li> <li>• Research relevant emerging trends for technologies which may be incorporated to meet unprecedented customer needs</li> <li>• Develop methodologies for customising engineering designs</li> <li>• Determine scope and parameters of design customisations</li> <li>• Allocate resources to design customisation and innovation processes</li> <li>• Devise infrastructure requirements for design development processes</li> <li>• Identify opportunities to add value for customers by customising and innovating within existing product portfolios</li> </ul>	