

<b>TSC Category</b>	Engineering Design Management					
<b>TSC</b>	Design for Safety					
<b>TSC Description</b>	Develop engineering designs and solutions to ensure compliance with Design for Safety (DfS) regulations while safeguarding the safety and health of users, stakeholders, and the general public					
<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>EGS-DES-3033-1.1</b>	<b>EGS-DES-4033-1.1</b>	<b>EGS-DES-5033-1.1</b>	<b>EGS-DES-6033-1.1</b>
			Recognise and highlight safety and health risks inherent in engineering designs in compliance with Design for Safety (DfS) regulations	Eliminate or mitigate risks inherent in engineering designs by complying with Design for Safety (DfS) regulations to reduce the safety and health risks during the project lifecycle	Develop design plans to ensure compliance with Design for Safety (DfS) regulations to eliminate or reduce the safety and health risks during the project lifecycle	Formulate organisational strategies to ensure compliance with Design for Safety (DfS) regulations to eliminate or reduce the safety and health risks during the project lifecycle
<b>Knowledge</b>			<ul style="list-style-type: none"> <li>DfS regulations</li> <li>Workplace Safety and Health (WSH) policies, procedures and practices</li> <li>Methods and techniques to identify hazards</li> <li>Types of design hazards</li> <li>Data management for DfS compliance</li> </ul>	<ul style="list-style-type: none"> <li>Workplace Safety and Health (WSH) related industry codes of practice and Singapore Standards</li> <li>Types of design hazards safeguards</li> <li>Methods and techniques to evaluate and control risks</li> <li>Industry best practices and codes of practice on DfS and risk management</li> <li>Risk assessment methodologies, strategies and techniques</li> <li>Methods of monitoring risk control measures</li> </ul>	<ul style="list-style-type: none"> <li>Workplace Safety and Health (WSH) legal and other requirements</li> <li>Updates on amended or new WSH legal requirements</li> <li>Techniques and methods to review WSH legal compliance</li> <li>Methods of WSH audits and management review</li> <li>Risk evaluation approaches and procedures</li> <li>Human and cultural factors for risk assessments</li> <li>Engineering project activities and workflow</li> <li>Project stakeholders</li> <li>Significant design risks that stakeholders can be exposed to</li> </ul>	<ul style="list-style-type: none"> <li>Corporate and legal Workplace Safety and Health (WSH) responsibilities and accountabilities</li> <li>Best practices in organisational WSH policies and procedures</li> <li>DfS review processes</li> <li>DfS implementation methods and processes</li> <li>Industry best practices in DfS</li> <li>Stakeholder management techniques</li> <li>Cost benefits analysis</li> <li>Benefits and trade-offs of DfS</li> <li>Methodology of return-on-investment (ROI) analysis</li> </ul>
<b>Abilities</b>			<ul style="list-style-type: none"> <li>Recognise and highlight foreseeable risks in engineering designs throughout the project lifecycle</li> <li>Propose engineering drawing modifications to minimise risks</li> </ul>	<ul style="list-style-type: none"> <li>Address foreseeable risks identified throughout the project lifecycle</li> <li>Perform risk assessments</li> <li>Eliminate or mitigate risks inherent in the</li> </ul>	<ul style="list-style-type: none"> <li>Develop design plans that eliminate or mitigate foreseeable design risks to the safety and health of any person affected by the project</li> </ul>	<ul style="list-style-type: none"> <li>Formulate organisational strategies to ensure compliance with DfS regulations</li> <li>Drive DfS strategic plans</li> <li>Drive DfS audits</li> </ul>

			<ul style="list-style-type: none"> <li>• Ensure timely conduct of DfS review meetings</li> <li>• Maintain records on safety and health issues identified during the design review process and actions taken</li> </ul>	<p>design of engineering products, systems and services</p> <ul style="list-style-type: none"> <li>• Validate compliance with WSH requirements</li> <li>• Implement and monitor risk control measures</li> <li>• Verify that all information provided by the developer or contractor for the project has been accounted for</li> <li>• Communicate residual risks to main stakeholders for further mitigation</li> <li>• Review documentation of safety and health issues identified during the design review process and actions taken</li> <li>• Plan resources and schedule to ensure participation in DfS review meetings</li> </ul>	<ul style="list-style-type: none"> <li>• Identify stakeholders involved throughout the project lifecycle</li> <li>• Establish risk management plans, workflows and practices</li> <li>• Determine scope and extent of risk assessments</li> <li>• Incorporate human and cultural factors in risk assessment processes</li> <li>• Align risk management practices with industry best practices</li> <li>• Validate compliance with WSH legal requirements</li> <li>• Validate record keeping of WSH risks for future reference</li> </ul>	<ul style="list-style-type: none"> <li>• Integrate DfS elements into organisation's systems holistically</li> <li>• Align DfS strategies with organisational vision, mission and values</li> <li>• Evaluate the benefits and trade-offs of implementing DfS to the business processes</li> <li>• Assess the cost and return on investment (ROI) of implementing DfS</li> <li>• Drive stakeholder management processes to achieve successful implementation of DfS plans</li> <li>• Develop a DfS review processes to ensure risks in the design are highlighted and managed in a systematic and coordinated way</li> </ul>
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