

<b>TSC Category</b>	Engineering Design Management					
<b>TSC</b>	Sustainable Engineering					
<b>TSC Description</b>	Design, construct and operate engineering systems and assets to optimise energy management and enhance environmental performance					
<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-EPM-3065-1.1</b>	<b>EGS-EPM-4065-1.1</b>	<b>EGS-EPM-5065-1.1</b>	<b>EGS-EPM-6065-1.1</b>
			Adhere to industry best practices in energy management and environmental performance to maintain effectiveness of sustainability initiatives implemented for the system or asset	Interpret and analyse relevant data from simulations, information systems, assessments and design models to optimise energy management and enhance environmental performance	Develop and implement life cycle assessments and engineering solutions by incorporating sustainability principles and trends in order to align with sustainability outcomes and requirements	Establish the organisation's strategies and practices to drive best-in-class sustainability solutions integrated with prevailing ecological and environmental trends and regulations in the region
<b>Knowledge</b>			<ul style="list-style-type: none"> <li>• Prevailing codes of practice, regulations and standards for sustainability</li> <li>• Fundamental building and engineering systems</li> <li>• Procedures for energy management and audit</li> <li>• Fundamental modelling and simulation methods to predict sustainability performance</li> <li>• Fundamentals of passive cooling, ventilation and light enhancement</li> </ul>	<ul style="list-style-type: none"> <li>• Integrative design methodology for sustainability</li> <li>• Materials for reusability, recyclability, efficiency and sustainability</li> <li>• Simulation models and techniques for predicting sustainability performance</li> <li>• Principles of energy efficiency, cooling methods and carbon management for sustainability</li> <li>• Renewable energy systems for resource optimisation, waste reduction and energy efficiency</li> <li>• Climatic responsive designs for engineering assets, equipment and systems</li> <li>• Energy performance for engineering assets, equipment and systems</li> <li>• Resource stewardship for engineering assets, equipment and systems</li> </ul>	<ul style="list-style-type: none"> <li>• Regional and International regulations on sustainability</li> <li>• Prevailing standards on sustainability audit and reporting</li> <li>• Principles of Life Cycle Assessment for sustainability</li> <li>• Cost Benefit Analysis (CBA) and Return on Investment (ROI) for sustainability solutions</li> <li>• Principles of integrative sustainability solutions across engineering disciplines</li> <li>• Principles of Urban Harmony, Tropicality, Acoustics and Smart Building Design</li> </ul>	<ul style="list-style-type: none"> <li>• Current issues and research in engineering solutions for sustainability</li> <li>• Public policy and trends in sustainable engineering, environment management and energy management</li> <li>• Economics of environmental impact on business, governance and society</li> <li>• Sustainable solutions for societies and communities</li> <li>• Ecological impact of sustainability policies on environment</li> </ul>

<p><b>Abilities</b></p>			<ul style="list-style-type: none"> <li>• Interpret prevailing codes of practice, regulations and standards for sustainability</li> <li>• Integrate solutions across building and engineering systems</li> <li>• Assist in energy management and audit for sustainability certification</li> <li>• Assist in site analysis to map site conditions</li> <li>• Maintain and/or operate assets, systems and equipment in accordance with prevailing codes of practice, regulations and standards for sustainability</li> </ul>	<ul style="list-style-type: none"> <li>• Critique and innovate solutions to address sustainability requirements in adherence to prevailing codes of practice, regulations and standards</li> <li>• Iterate modelling and simulation methods to predict sustainability performance</li> <li>• Liaise with procurement teams to source for materials required for reusability, recyclability, efficiency and sustainability</li> <li>• Incorporate greenery, thermal performance, ventilation simulation and window systems into engineering solutions</li> <li>• Adopt energy efficient transportation systems, air-conditioning, lighting and renewable sources into solutions for sustainability</li> <li>• Utilise water efficiency measures, monitoring systems and alternative energy sources for sustainability</li> </ul>	<ul style="list-style-type: none"> <li>• Incorporate regional and international regulations and trends in relevant engineering solutions</li> <li>• Adhere to prevailing standards on sustainability audit and reporting</li> <li>• Implement Life Cycle Assessment methodology on proposed engineering solutions for sustainability</li> <li>• Evaluate sustainability solutions based on CBA and ROI modelling and simulations</li> <li>• Make recommendations on optimal engineering solutions for sustainability based on CBA and ROI models</li> <li>• Integrate engineering principles in waste management, water management, energy efficiency, gas emissions and disposal methods for optimal sustainability solutions</li> <li>• Liaise with subject matter experts to integrate Urban Harmony, Tropicality, Acoustics and Smart Building Design in sustainability solutions</li> </ul>	<ul style="list-style-type: none"> <li>• Review and endorse engineering solutions and systems for sustainability</li> <li>• Validate organisational compliance to prevailing codes of practice, regulations and standards for sustainability</li> <li>• Develop organisational offerings benchmarked to industry best practices and prevailing trends in sustainability</li> <li>• Propose sustainable solutions for purpose of market competitiveness, ecological and communal benefits</li> </ul>
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