TSC Category	Process Improvement					
TSC	Systems Engineering Thinking					
TSC Description	Optimise inter-disciplinary engineering application by applying process knowledge and analytical techniques to provide engineering solutions and practices through an integrated and multidisciplinary approach					
TSC Proficiency Description	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
				PTP-SYS-4007-1.1	PTP-SYS-5007-1.1	PTP-SYS-6007-1.1
				Implement systems engineering thinking concepts to lead engineering applications	Lead inter-disciplinary teams to manage cross disciplinary engineering applications using system engineering thinking concepts	Establish strategies to drive the use of systems engineering thinking to ensure safe, reliable and sustainable engineering applications
Knowledge				• Principles and concepts of systems engineering and systems thinking • Principles of system requirements, integration, verification and validation • Methods of systems integration • Types of engineering statistical methods and applications • Asset management concepts • Risk and cost-benefit analysis methods	• Principles and concepts of engineering management • Principles and concepts of systems engineering and systems thinking • Systems modelling and simulation • Methods of systems integration • Intelligent transportation systems • System safety concepts • Asset management concepts • Risk and cost-benefit analysis methods	• Leading technologies and technological advancements within the industry • Industry best practices in systems engineering methods and techniques • Integrated engineering system modelling methods and interdisciplinary approaches • Asset management concepts • Risk and cost-benefit analysis methods
Abilities				• Utilise system engineering thinking approaches to analyse engineering application and solutions • Draw functional linkages across various engineering sub-systems to provide initial hypothesis • Review the viability and applicability of systems engineering applications	• Provide technical advice and guidance for system review, modification and/or enhancement related engineering applications • Drive engineering applications using system engineering thinking concepts to integrate various engineering disciplines and sub-systems	• Develop cross-disciplinary insights to mentor engineering teams • Inculcate system engineering thinking concepts to drive service reliability, and optimise sustainable engineering applications • Establish the direction of engineering system review through the use of

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				• Provide technical and cost-benefits justifications for new, modified and/or enhance engineering applications • Integrate emerging technologies to improve engineering capability, service safety and reliability, yield and quality	• Facilitate systems modelling and simulation in public transport engineering application • Run risk impact modelling and simulation in engineering applications	system engineering thinking concepts • Establish communication strategies with internal and external stakeholders to provide technical and economic justification on adoption of new and/or sustainable engineering applications