

SKILLS FRAMEWORK FOR INFOCOMM TECHNOLOGY TECHNICAL SKILLS & COMPETENCIES (TSC) REFERENCE DOCUMENT

TSC Category	Development and Implementation					
TSC Title	Continuous Integration and Continuous Deployment					
TSC Description	Manage the planning, building, testing and integration of codes, and deployment of software changes and updates into a live environment					
TSC Proficiency Description	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
			ICT-DIT-3023-1.1	ICT-DIT-4023-1.1	ICT-DIT-5023-1.1	
			Perform continuous integration and continuous deployment (CI/CD) activities based on developed plans to build, test and deploy release packages into live environment	Develop plans for continuous integration and continuous deployment (CI/CD) based on design specifications, build, test and deploy release packages into live environment	Establish and advise on the organisation's continuous integration and continuous deployment (CI/CD) policies and plans, manage the build, test and deployment of packages into live environment	
Knowledge			<ul style="list-style-type: none"> Information Technology Infrastructure Library (ITIL) framework and practices Current software development frameworks, methodologies, practices and tools CI/CD practices Release and deployment processes and activities Build management procedures, tools and checklists for release packaging Programming languages and its applicability in different contexts Types of software testing methods and approaches Internal and external quality, safety and security standards and/or benchmarks in software development 	<ul style="list-style-type: none"> Emerging software development frameworks, methodologies, practices and tools CI/CD practice development and implementation Release and deployment management practices and standards Build management practices and standards Programming languages and its effectiveness in different contexts Types of software testing methods and approaches 	<ul style="list-style-type: none"> Long-term vision and objectives of software products and services Characteristics of different software development frameworks, methodologies, practices and tools Emerging trends in CI/CD implementation and management Advanced programming languages and tools Applicability and reusability of externally developed codes and components Criticality or importance of different software components based on business and/or user needs 	

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Abilities			<ul style="list-style-type: none"> • Implement changes to transition from current service to new and/or changed service design • Perform activities according to release and deployment plans • Contribute to the development of build plans based on design specifications and environment configuration requirements • Perform benefits and risk analyses of proposed changes based on business and/or user requirements • Draft test codes and test cases prior to feature coding • Conduct pilots to test service before full deployment • Merge code change or branch back to the master code repository • Identify issues in the CI/CD pipeline to improve workflow and processes • Identify repetitive and routine tasks in the CI/CD processes that can be automated • Document release processes and procedures throughout the build process • Prepare handover of support for deployment to service operations 	<ul style="list-style-type: none"> • Develop approaches to transition from current service to new and/or changed service design • Develop release and deployment plans which include schedule of activities • Develop build plans based on design specifications and environment configuration requirements • Manage software change requests in the CI/CD pipeline • Analyse benefits and risk of proposed changes and determine changes to be made • Determine suitable scopes of pilots to test service before full deployment • Develop and test release packages for deployment • Deploy release packages in a live environment • Integrate code changes or branches back to the master code repository • Troubleshoot issues in the CI/CD pipeline • Automate repetitive and routine tasks in the CI/CD process • Review deployment to ensure performance targets are met and quality issues addressed 	<ul style="list-style-type: none"> • Establish the organisation's CI/CD policies for software development and operations • Determine release unit level for each service asset or component • Review release and deployment plans against resource availability • Establish guidelines to build and manage a CI/CD pipeline • Lead the planning and design of release packages • Drive the adoption of established CI/CD practices • Resolve complex issues in the CI/CD pipeline • Guide pilot rollouts and ensure compliance with established standards • Liaise with business and IT stakeholders on release scheduling and communication of progress • Oversee the conduct of post-release and deployment reviews • Develop metrics and targets to measure the performance of release and deployment • Evaluate new releases, deployment tools, techniques and processes including automation for adoption 	
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			<ul style="list-style-type: none"> • Administer post-release and deployment reviews • Suggest new releases, deployment tools, techniques and processes including automation to improve efficiency and performance 	<ul style="list-style-type: none"> • Conduct handover of support for the deployment to service operations • Plan post-release and deployment reviews to measure performance • Recommend new releases, deployment tools, techniques and processes including automation for adoption 		
Range of Application	<p>Types of software applications / various platforms on which the skill can be applied may include, but are not limited to:</p> <ul style="list-style-type: none"> • Mobile/Native • Augmented Reality/Virtual Reality • Web • Hybrid • Cloud <p>Types of methodologies may include but not limited to:</p> <ul style="list-style-type: none"> • Agile Software Development • Continuous Integration • Continuous Deployment • Design Pattern • Extreme Programming • Object-Oriented Programming 					