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| **TSC Category** | Development and Implementation | | | | | |
| **TSC Title** | Continous 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** |  |  | * 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 | * 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 | * Long-term vision and objectives of software products and services * Characteristics of different software development framworks, 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 |  |
| **Abilities** |  |  | * 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 * Administer post-release and deployment reviews * Suggest new releases, deployment tools, techniques and processes including automation to improve efficiency and performance | * 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 * 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 | * 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 |  |
| **Range of Application** | Types of software applications / various platforms on which the skill can be applied may include, but are not limited to:  • Mobile/Native  • Augmented Reality/Virtual Reality  • Web  • Hybrid  • Cloud  Types of methodologies may include but not limited to:  • Agile Software Development  • Continuous Integration  • Continuous Deployment  • Design Pattern  • Extreme Programming  • Object-Oriented Programming | | | | | |