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| **SKILLS FRAMEWORK FOR INFOCOMM TECHNOLOGY SKILLS MAP – SOFTWARE ENGINEERING MANAGER** | | | | | | |
| **Sector** | Infocomm Technology | | | | | |
| **Track** | Software and Applications/Product Development | | | | | |
| **Sub-track** | Software Engineering/Software Development | | | | | |
| **Occupation** | Software Engineer | | | | | |
| **Job Role** | **Software Engineering Manager** | | | | | |
| **Job Role Description** | The Software Engineering Manager focuses on operational and/or tactical responsibilities by providing management to a group of professionals. He/She implements software and platform development strategy and provides advice on security requirements. He translates user requirements into technical specifications and manages the preparation of design specifications. He oversees the development of Proof-of-Concept for solutions and provides technical expertise on the development of software and platform features, ensuring appropriate security and risk factors are considered. He manages the implementation of software and platform solutions, and leads effort in improving the scalability, reliability, and performance of software/platform.  He leads a team and is responsible for managing projects and resources of the team, as well as coaching team members to build technical and leadership capabilities. He is proficient in programming languages required by the organisation. He is familiar with software development tools and standards and deploy solutions on relevant software platforms.  The Software Engineering Manager applies critical and analytical thinking toward developing optimal application solutions. He is a strong leader, is decisive, engages, influences and communicates his ideas persuasively to others. | | | | | |
| **Critical Work Functions and Key Tasks** | **Critical Work Functions** | **Key Tasks** | | | | |
| **Develop software and platform development strategy** | Assist in the development of software and platform development roadmap and business plan | | | | |
| Develop models and structure changes needed to meet the evolving software and platform strategies | | | | |
| Align software and platform architecture priorities with roadmaps that anticipate the changing technology landscape | | | | |
| Establishes organisation coding standards to avoid security vulnerabilities | | | | |
| Establishes organisation standards for security assessment processes | | | | |
| Drive the adoption of Agile and DevOps practices | | | | |
| **Analyse user and business requirements** | Formulates the strategy and direction for the requirements process across projects | | | | |
| Oversee the analysis of user requirements based on business needs | | | | |
| Provide guidance on developing solutions and alternatives to overcome technical challenges | | | | |
| Create new requirements validation and verification techniques | | | | |
| Develop business cases, proposals, and communication materials | | | | |
| **Manage the design of software** | Evaluate the effectiveness of the application of software design enabling techniques | | | | |
| Determine the process, strategy and design methodology to be used in software design | | | | |
| Provide guidance and advice on the use of software design strategies and methods | | | | |
| Assess the effectiveness of the application of the selected software design methodology | | | | |
| Evaluate the effectiveness of the software architecture | | | | |
| Assess the quality of the software design | | | | |
| Provide guidance and direction on the need for requirements change resulting from design review | | | | |
| Leads code reviews and inspections | | | | |
| **Oversee software testing** | Establish organisational procedures for testing and criteria for test completion | | | | |
| Determine project test objectives, success and failure criteria for system and acceptance testing | | | | |
| Design system test plan and test cases | | | | |
| Conduct root cause analysis and analyse test data to determine necessity for further testing activities | | | | |
| Evaluate test results to identify opportunities for process improvement | | | | |
| **Manage people and organisation** | Manage the budget expenditure and allocation across teams and projects | | | | |
| Track the team’s achievements and key performance indicators | | | | |
| Propose new operational plans, including targeted budgets, work allocations and staff forecasts | | | | |
| Optimise the use of resources | | | | |
| Develop learning roadmaps to support the professional development of the team | | | | |
| Manage the performance and development process, including providing coaching and development opportunities to maximise the potential of each individual | | | | |
| **Skills and Competencies** | **Technical Skills and Competencies** | | | **Critical Core Skills** | | |
| Agile Software Development\* | | Level 4 | Adaptability | | Advanced |
| Applications Development\* | | Level 5 | Collaboration | | Intermediate |
| Applications Integration\* | | Level 5 | Communication | | Intermediate |
| Applications Support and Enhancement\* | | Level 4 | Developing People | | Advanced |
| Continuous Integration and Continuous Deployment\* | | Level 4 | Problem Solving | | Advanced |
| Learning and Development\* | | Level 4 |  | | |
| Manpower Planning\* | | Level 3 |
| Networking\* | | Level 4 |
| People and Performance Management\* | | Level 3 |
| Quality Standards\* | | Level 5 |
| Service Level Management\* | | Level 5 |
| Software Configuration\* | | Level 4 |
| Software Design\* | | Level 5 |
| Software Testing\* | | Level 4 |
| Stakeholder Management\* | | Level 5 |
| System Integration\* | | Level 4, Level 5 |
| Test Planning\* | | Level 4, Level 5 |
| Agile Coaching | | Level 4 |
| Budgeting | | Level 4 |
| Business Environment Analysis | | Level 4 |
| Business Innovation | | Level 5 |
| Business Needs Analysis | | Level 4 |
| Business Negotiation | | Level 4 |
| Business Performance Management | | Level 4 |
| Business Requirements Mapping | | Level 4 |
| Business Risk Management | | Level 4 |
| Change Management | | Level 4 |
| Configuration Tracking | | Level 4 |
| Data Design | | Level 4 |
| Emerging Technology Synthesis | | Level 5 |
| Organisational Analysis | | Level 4 |
| Performance Management | | Level 5 |
| Problem Management | | Level 4 |
| Product Management | | Level 5 |
| Project Feasibility Assessment | | Level 4 |
| Project Management | | Level 5 |
| Solution Architecture | | Level 4 |
| User Interface Design | | Level 4 |
| Vendor Management | | Level 4 |
| **Programme Listing** | For a list of Training Programmes available for the ICT sector, please visit: www.skillsfuture.sg/skills-framework/ict | | | | | |
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| The information contained in this document serves as a guide. | | | | | | |

\*Note: Technical Skills and Competencies (TSCs) with an asterisk (\*) refer to Priority Skills (i.e., TSCs to be prioritised for this role).