|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **SKILLS FRAMEWORK FOR INFOCOMM TECHNOLOGY SKILLS MAP – ASSOCIATE SOFTWARE ENGINEER** | | | | | | |
| **Sector** | Infocomm Technology | | | | | |
| **Track** | Software and Applications | | | | | |
| **Sub-track** | Software Engineering | | | | | |
| **Occupation** | Software Engineer | | | | | |
| **Job Role** | **Associate Software Engineer** | | | | | |
| **Job Role Description** | The Associate Software Engineer applies subject matter knowledge in applications development, possessing well-developed skills in design, development, testing, debugging and implementing software applications or specialised utility programs in support of end users' needs on platforms. He/She supports regular updates and recommends improvements to existing applications. He works under limited supervision to effectively deal with unfamiliar issues, and follows recommended coding standards and secure-coding principles to avoid security vulnerabilities. He provides technical support to the quality testing teams.  He works in a team setting and is proficient in programming languages required by the organisation. He is familiar with software development tools and standards, as well as the relevant software platforms on which the solution is deployed on.  The Associate Software Engineer is a keen learner, and able to apply structured, analytical thinking to develop applications. He is a strong team player, who communicates his ideas and gets along with others easily. | | | | | |
| **Critical Work Functions and Key Tasks** | **Critical Work Functions** | **Key Tasks** | | | | |
| **Analyse user and business requirements** | Participate in discussions with stakeholders to understand user requirements | | | | |
| Conduct requirements analysis based on user requirements | | | | |
| Prepare requirements documentation, descriptions of interfaces, and functional and non-functional requirements | | | | |
| Assist in writing proposals and communication materials to pitch ideas | | | | |
| Propose new technologies for cutting edge platform development | | | | |
| **Manage the design of software** | Assist in the installation and use of tools for a project’s designated design strategy and methodology | | | | |
| Assist in architec­tural design tasks asso­ciated with use of stan­dard notations, dia­gramming techniques, models, and patterns | | | | |
| Apply selected software design pattern to the design of software components or modules | | | | |
| Participate in software design reviews | | | | |
| Carry out static analysis tasks to evaluate design qual­ity | | | | |
| Assist in develop­ment and use of sim­ulation and prototypes to evaluate software design qual­ity | | | | |
| **Manage software construction processes** | Perform integration testing as part of the integration process | | | | |
| Collect standard measures of code quality and size | | | | |
| Generate codes and systems from mod­els | | | | |
| Create and exe­cute unit tests for delivered codes | | | | |
| Achieve test cover­age goals set by proj­ect and organisation standards | | | | |
| **Oversee software testing** | Identify unit and integration testing suc­cess and failure crite­ria | | | | |
| Adhere to software test plans | | | | |
| Assist with the develop­ment of the test plans and test cases | | | | |
| Imple­ment the testenvi­ronment and unit test cases, and integration and system test cases | | | | |
| Collect and analyse test execu­tion results | | | | |
| **Oversee security provisions in software** | Follow recommended coding standards and secure coding principles to avoid security vulnerabilities | | | | |
| Adhere to project standards in the collection of security assessment metrics | | | | |
| Perform code reviews to identify security vulnerabilities | | | | |
| **Manage software management configuration (SCM)** | Assist in determining impact of constraints on SCM imposed by policies, contract, and software development life cycle | | | | |
| Provides measure­ment data for SCM measures | | | | |
| Assists in identifying software configura­tion items (SCIs) | | | | |
| Generate, classify and manage problem reports | | | | |
| **Skills and Competencies** | **Technical Skills and Competencies** | | | **Generic Skills and Competencies** | | |
| Agile Software Development | | Level 3 | Computational Thinking | | Intermediate |
| Applications Development | | Level 3 | Problem Solving | | Intermediate |
| Applications Integration | | Level 3 | Lifelong Learning | | Intermediate |
| Applications Support and Enhancement | | Level 1, Level 2 | Communication | | Basic |
| Business Environment Analysis | | Level 2 | Teamwork | | Intermediate |
| Business Needs Analysis | | Level 2 |  | | |
| Configuration Tracking | | Level 1, Level 2 |
| Data Design | | Level 3 |
| Emerging Technology Synthesis | | Level 3 |
| Problem Management | | Level 3 |
| Project Management | | Level 3 |
| Software Configuration | | Level 2 |
| Software Design | | Level 3 |
| Software Testing | | Level 2 |
| Stakeholder Management | | Level 2 |
| System Integration | | Level 3 |
| Test Planning | | Level 2 |
| User Interface Design | | Level 3 |
| **Programme Listing** | For a list of Training Programmes available for the ICT sector, please visit: www.skillsfuture.sg/skills-framework/ict | | | | | |
|  |  |  | |  |  | |
| The information contained in this document serves as a guide. | | | | | | |