Appendix B – Competency Standards Matrix

B.1 Suggested requirements for relevant working experience needed to award a certification at a respective competency level

Master:

- Minimum 10 years of working experience, of which not less than 8 years in relevant areas

- Interviewed and endorsed by a panel of judges

Specialist:

- Assessment-based

- Minimum 5 years of working experience, of which not less than 3 years in relevant areas

Practitioner:

- Assessment-based

- Minimum 1 year of working experience required, preferably in related areas

B.2 Note

The codes (ITSWXXXXXX) under the competency column are the Units of Competencies as defined in the Qualifications Framework for ICT Industry (SCS_ict_0.1.pdf)

(ref. www.hkqf.gov.hk)

B.3 Job Category – Software Engineering/Software Development

Competency Level – Master

Competency Requirements		
No.	**Job Description**	**Competency**
1.	Participate in strategic management of software development.	Have knowledge about the functions of the tactical plans & the mission statement and the goals on IT strategies of the corporation; able to define relevant tactical plans according to the approved IT strategies & identify the criteria for each individual tactical plan in a professional manner. (ITSWSM604A) - p.72 Understand the organization's objectives, have broad knowledge of the IT applicable to the organization's industry, able to identify and evaluate IT that support the organization's objectives with a high degree of expertise and professionalism. (ITSWSM613A) - p.82 Have knowledge in the execution of the tactical plans; co-ordinate the execution of approved IT strategies and plans; execute them in a professional manner; monitor & review the progress of each tactical plan; report the progress. (ITSWSM605A) - p.73 A basic understanding of project management. Have knowledge in various methods to measure the effectiveness of the execution; evaluate the effectiveness of the executions of the strategies and plans in a professional manner; provide professional suggestions to improve the effectiveness of the execution of the strategies and plans. (ITSWSM606A) - p.74 Have knowledge in various inputs for scope planning and definition; in the tools and techniques for scope planning and definition; in various outputs of scope planning and definition; in scope statement and a scope management plan. (ITSWSM501A) – p.89
2.	Provide technical direction in the design, development and testing software systems, subsystems, components and frameworks for the meeting of their respective specifications and general requirements.	Understand the requirements of an architecture design of software/system; formulate an architecture design; analyze and evaluate the formulated architecture design; exhibit professional skills in the formulation of architecture design. (ITSWDM601A) - p.271 Understand the requirements of an high level design of software/system; formulate a high level design; analyse and evaluate the formulated high level design; exhibit professional skills in the formulation of high level design. (ITSWDM602A) - p.273 Understand the requirements of a detailed level design of software/system; formulate a detailed level design; analyze and evaluate the formulated detailed level design; exhibit professional skills in the formulation of detailed level design. (ITSWDM603A) - p.275 Understand the risk factors in software deployment or migration; perform risk assessment on software deployment & migration; report the risk assessment to stakeholders; perform risk assessment on software deployment and migration in a professional manner. (ITSWDM610A) - p. 286 Understand the requirements in software deployment or migration; develop and define a software deployment or migration plan and a contingency plan; update the developed plan; define software deployment /migration

No.	Job Description	Competency
		plan in a professional manner. (ITSWDM611A) - p. 287 Understand the defined standard operating environment; coordinate the work of software deployment and/or migration; monitor and track the deployment and migration processes; maintain proper communications; monitor the deployment /migration process in a professional manner. (ITSWDM612A) - p. 288 Understand the principles and concepts of change control policy; develop change control policy of system configuration management; implement change control policy of system configuration management; exhibit professional skills in the development and implementation of change control policy. (ITSWDM604A) - p.277 Understand the principles and concepts of system configuration management; develop software configuration management plan; implement the plan; exhibit professional skills in the development and implementation of that plan. (ITSWDM605A) - P.278 Possess the ability to learn and deploy new technology and development skills.
3.	Oversee the phases in the software development life cycle and resolve complex and exceptionally difficult problems.	Understand the various requirements involved in software releases and control; obtain approval for the requirements identified in a software release; demonstrate a high degree of expertise and professionalism in identification and development of requirements for that. (ITSWDM606A) - p.280 Understand the processes for risk assessment on software releases and control; perform the risk assessment activities on software releases and control with a high degree of expertise and professionalism. (ITSWDM607A) - p.282 Understand the requirements for software releases and control plan; define the software releases and control plan with a high degree of expertise and professionalism. (ITSWDM608A) - p. 283 Have the knowledge to execute and monitor the software releases and control plan; to verify and validate the outcomes of released software and existing software; execute and monitor the software releases and control plan; perform the software releases and control plan and verification and validation activities with a high degree of expertise and professionalism. (ITSWDM609A) - p.284 Understand the rationale to perform software decommissioning; identify the responsible person or team in a decommission project; define the scope and conditions where a software decommissioning policy applies; formulate and document a decommissioning policy and Plan; ensure organizational policy or guideline and regulatory requirements, if any, are observed. (ITSWDM613A) – p.289 Understand the interests of business partners; communicate effectively and efficiently with various types of stakeholders such as customers, colleagues, vendors/suppliers, industry peers, and business partners; maintain a professional relationship with various business partners. (ITSWGS619A) - p.460

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No.	Job Description	Competency
4.	Manage technical resources and human resources in software development project as well as leading the design of training programmes to clients and subordinates.	Understand IT related resources; find out the return of investment; allocate and prioritize IT and related resources. (ITSWGS614A) - p.456 Understand the risk factors faced by the organization; understand the processes of risk assessment; identify and assess the risk factors related to IT with a high degree of expertise and professionalism. (ITSWGS609A) - p.452 Have knowledge of current IT risk mitigation techniques; understand the requirements for a risk mitigation plan; develop risk mitigations strategies and plans related to IT with a high degree of expertise and professionalism. (ITSWGS610A) - p.453 Have knowledge about risk factors to be reviewed; execute and monitor risk mitigation plans; review risk factors related to IT with a high degree of expertise and professionalism; execute and monitor risk mitigation plans with a high degree of expertise and professionalism. (ITSWGS611A) - p.454 Have knowledge of different types of contingency plans related to IT; integrate the contingency planning at all phases of the computer system life cycle; prepare contingency planning policy; understand the business impact and preventive controls; develop contingency plan in a professional manner; make estimate on the cost involved for a recovery process. (ITSWSM609A) - p.77
5.	Oversee and review work of the team.	Have knowledge of the theories and techniques of leading and motivating a team; apply suitable skills in leading and motivating a team; lead and motivate a team with a high degree of expertise and professionalism to execute business strategies and plans. (ITSWGS604A) – p. 447 Have knowledge of the theories and techniques of delegation; apply suitable skills in delegating responsibilities; delegate responsibilities to staff with a high degree of expertise and professionalism in order to achieve business goals or accomplish software development projects. (TSWGS606A) – p.449 Understand change; cope with changes positively; grasp opportunities for improvement. (ITSWGS613A) - p.455

Competency Level – Specialist

Competency Requirements		
No.	Job Description	Competency
6.	Undertake to design and develop software in accordance to the adopted architecture design patterns and constraints.	Understand the user requirement process; formulate and analyse user requirements of the Application; develop user requirements with users of the software application; prioritize functional requirements in a professional manner. (ITSWDM501A) - p.259 Comprehend design documentations; decompose programme modules; develop programme modules in a professional manner. (ITSWDM504A) - p.262 Understand version control mechanism; manage programme source; maintain programme source; act in line with software configuration management. (ITSWDM505A) - p.263
7.	Translate business and user requirements into system requirement specifications.	Comprehend Software Requirements Specification (SRS); prepare the SRS; validate user requirements in a professional manner. (ITSWDM502A) - p.260 Understand the requirements for verification and validation of design documentations; verify and validate different levels of software/system design; perform the verification and validation of design documentations in a professional manner. (ITSWDM503A) - p.261
8.	Carry out quality control and quality assurance in software development.	Have the knowledge to design checklists for inspecting programme source and software documents; perform inspection of programme source and software documents; revise and update the checklist after an inspection; perform inspection of programme source and software documents in a professional manner. (ITSWDM506A) - p.264 Have the knowledge to design test plans according to the software requirements specification (SRS) and other software documents; develop test plans for various levels of testing; ensure the total cost for software testing is within budget; develop test plans for various levels of testing in a professional manner. (ITSWDM507A) - p.266
9.	Understand the business implications of technical solutions, and assist in defining the technology solutions to support any future business requirements.	Have basic insights into the business of the industry; understand the strategic innovation of ICT; identify business opportunities. (ITSWGS508A) - p. 422
10.	Assist and perform some management functions. Oversee the works performed by the subordinates.	Know the background information about team building; build an effective management, software development, maintenance, or service provision team. (ITSWGS515A) - p.431 Understand characteristics of effective technical communication; know the audience and information needed to be conveyed; consolidate information for delivery; deliver corporate message related to software development, maintenance, and service provision effectively. (ITSWGS512A) - p. 426 Know the principles of presentation; prepare for a presentation; deliver presentation on information related to software development, maintenance, and service provision in logical order; improve effectiveness of presentation. (ITSWGS514A) - p.429

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No.	Job Description	Competency
11.	Undertake software deployment, maintenance, migration, decommissioning assignments as necessary.	Understand various tools and techniques in identifying functional requirements of an existing software; identify extra functional requirements of an existing software; revise the software documents accordingly; identify extra functional requirements of an existing software in a professional manner. (ITSWDM508A) - p. 267 Understand various tools and techniques in identifying non-functional requirements of an existing software; identify extra non-functional requirements of an existing software; revise the software documents accordingly; identify extra non-functional requirements of an existing software in a professional manner. (ITSWDM509A) - p. 268 Understand the defined goals to be achieved upon software deployment or migration; identify the business requirements for software deployment and migration; identify the stakeholders in software deployment and migration; identify the limitations, constraints and risks for the software to be deployed or migrated; specify a standard operating environment; identify the constraints, risks, and the Standard Operating Environment (SOE) for a software to be deployed/migrated in a professional manner. (ITSWDM510A) - p.269 Comprehend the details in software decommissioning policy and plan; ensure decommissioning criteria are met; remove account and credential information; remove software and hardware components. (ITSWDM511A) - p. 270
12.	Act as the Key interface between business and technology teams in defining and influencing business requirements and assist in developing the appropriate system solutions.	Understand characteristics of effective communication; know the audience and the information needed to be conveyed; consolidate information for delivery; deliver message related to business or software products and software services to team members and clients effectively. (ITSWGS402A) - p.406 Know the behaviour in listening; develop listening skills; demonstrate proficiency in listening to clients and team members on business information related to software products and software services. (ITSWGS403A) - p.407 Know the principles of presentation; prepare for a presentation; deliver effective presentation on information related to general business and technical information to team members and clients in logical order; improve effectiveness of presentation. (ITSWGS404A) - p.409
13.	Arrange User Training.	Understand characteristics of effective communication; know the audience and the information needed to be conveyed; consolidate information for delivery; deliver message related to business or software products and software services to team members and clients effectively. (ITSWGS402A) - p.406 Know the principles of presentation; prepare for a presentation; deliver effective presentation on information related to general business and technical information to team members and clients in logical order; improve effectiveness of presentation. (ITSWGS404A) - p.409

Competency Level – Practitioner

Competency Requirements		
No.	**Job Description**	**Competency**
14.	Apply the various techniques, technologies and practices as appropriate to develop high quality software efficiently and effectively.	Obtain product certifications awarded by vendors or academia or authority.
15.	Develop, implement and maintain the software application system directed by senior.	Obtain product certifications awarded by vendors or academia or authority.
16.	Perform programming with specific language/tools/technology (e.g. Unix, Java, C++).	Obtain product certifications awarded by vendors or academia or authority.
17.	Monitor and report system testing and user acceptance. Prepare and assist business users on User Acceptance Test (UAT).	Understand characteristics of effective communication; know the audience and the information needed to be conveyed; consolidate information for delivery; deliver message related to business or software products and software services to team members and clients effectively. (ITSWGS402A) - p.406 Know the principles of presentation; prepare for a presentation; deliver effective presentation on information related to general business and technical information to team members and clients in logical order; improve effectiveness of presentation. (ITSWGS404A) - p.409
18.	Perform system testing/ debugging.	Have the knowledge to design and develop test plans and software simulator to facilitate different levels of testing; perform various levels of testing, which may involve the use of a software simulator; perform all testing activities in a professional manner. (ITSWDM401A) - p.251 Have the knowledge to report the results of different levels of testing; report the discrepancies between the software and its related documents; report the discrepancies between software and its related documents in a professional manner. (ITSWDM402A) - p. 252 Have the knowledge to select appropriate debugger; locate and fix the logical error; perform debugging of programmes in a professional manner. (ITSWDM403A) - p. 253
19.	Undertake software quality assurance assignment under the supervision of senior.	Have the knowledge to design and develop test plans and software simulator to facilitate different levels of testing; perform various levels of testing, which may involve the use of a software simulator; perform all testing activities in a professional manner. (ITSWDM401A) - p.251 Have the knowledge to report the results of different levels of testing; report the discrepancies between the software and its related documents; report the discrepancies between software and its related documents in a professional manner. (ITSWDM402A) - p. 252 Have the knowledge to select appropriate debugger; locate and fix the logical error; perform debugging of programmes in a professional manner. (ITSWDM403A) - p. 253 Understand the process of performing software audit and how to select appropriate tools for software audit; perform software audit, with the use of selected tools where applicable; prepare software audit report ; perform software audit and record the audit findings for continuous improvement in a professional manner. (ITSWDM404A) - p. 254

No.	Job Description	Competency Level
20.	Assist software deployment, migration and decommissioning under the supervision of senior.	Understand the relationship between the deployed or migrated software with other systems; perform verification and validation of the deployed or migrated software; ensure independent operation in the verification and validation process; verify and validate that the deployed / migrated software and the existing software are functioning properly in a professional manner. (ITSWDM405A) - p.255 Understand the software decommissioning policy; identify components to be removed; identify information to be removed; classify and archive information with potential usage; observe data protection requirements. (ITSWDM406A) - p. 257 Understand the functionalities of the decommissioned software; verify and validate the remaining software; document test results for future reference; verify and validate that the remaining software are functioning properly. (ITSWDM407A) - p. 258

B.4 Job Category – Quality Assurance

Competency Level – Master

Competency Requirements		
No.	**Job Description**	**Competency**
1.	Establish standards, procedures and guidelines to improve and ensure the quality of software developed by and/or implemented in the organization.	Formulate quality assurance (QA) policies and procedures. (ITSWQA602A) - p. 404 Determine quality policies and define quality requirements for a project. (ITSWPM613A) - p. 133
2.	Lead, coach and develop a team of software quality engineers.	Establish a quality assurance (QA) entity. (ITSWQA601A) - p. 402 Recruit, retain and develop IT staff. (ITSWGS521A) - p. 441 Lead and motivate a team. (ITSWGS604A) - p. 447
3.	Keep up-to-date with industry regulations development.	Comply with relevant laws and regulatory requirements. (ITSWGS624A) - p. 465
4.	Manage relationships with internal peers as well as external business partners.	Manage and maintain the portfolio and relationship with business partners. (ITSWGS618A) - p. 459
5.	Provide thought leadership and strategic direction as it relates to software quality assurance.	Develop a project quality management plan for project execution. (ITSWPM614A) - p. 98

Competency Level – Specialist

Competency Requirements		
No.	**Job Description**	**Competency**
6.	Implement software quality assurance best practices and tools for the QA team.	Implement quality assurance (QA) policies and procedures. (ITSWQA501A) - p. 395 Assist in quality assurance (QA) certification and international standards adoption. (ITSWQA502A) - p. 396 Plan and execute organizational quality initiatives. (ITSWQA503A) - p. 397
7.	Develop and/or adopt appropriate tools to support system test strategies.	Perform inspection for the program code and software documents. (ITSWDM506A) - p. 264
8.	Design software test strategies as well as develop test plans in accordance with these strategies.	Plan quality assurance (QA) activities of a software product. (ITSWQA506A) - p. 401
9.	Develop, publish, implement and maintain test plans to meet QA specifications.	Develop test plans for various levels of testing. (ITSWDM507A) - p. 266

No.	Job Description	Competency
10.	Analyse test results to improve on the test plans and processes.	Develop test plans for various levels of testing. (ITSWDM507A) - p. 266
11.	Report, document and track software issues.	Conduct project closure with regard to quality. (ITSWPM615A) - p. 94
12.	Other responsibilities.	Perform software audit. (ITSWDM404A) - p. 254 Plan and conduct training for quality assurance (QA) activities. (ITSWQA504A) - p. 398 Prepare quality assurance (QA) requirements of a software product. (ITSWQA505A) - p. 399

Competency Level – Practitioner

Competency Requirements		
No.	**Job Description**	**Competency**
13.	Conduct system and software test activities according to the adopted plans.	Perform quality assurance activities of a software product. (ITSWQA401A) - p. 391 Debug a program. (ITSWDM403A) - p. 253
14.	Run functional tests, customer scenario testing, stress testing, performance testing, and scalability testing on different OS and platforms systematically.	Perform testing activities to facilitate different levels of testing. (ITSWDM401A) - p. 251
15.	Document test results.	Report discrepancies between software and its related documents. (ITSWDM402A) - p. 252
16.	Record detailed metrics and monitor to track the progress and outcomes of the testing process.	Evaluate the quality of a software product. (ITSWQA402A) - p. 393
17.	Report progress on test activities.	Report discrepancies between software and its related documents. (ITSWDM402A) - p. 252

B.5 Job Category – Project Management (ICT)

Competency Level – Master

No.	Job Description	Competency
Competency Requirements		
1.	Plan, direct and coordinate activities of designated IT project to ensure that goals or objectives of project are achieved within prescribed time frame and budget.	Perform an initial project feasibility study. (ITSWPM601A) – p.117 Prepare a project charter and kick-off package as well as information. (ITSWPM602A) – p.118 Prepare an initial project plan. (ITSWPM603A) - p.119 Execute the project plan. (ITSWPM604A) -p.121 Monitor and control project execution. (ITSWPM605A) -p.122 Conduct project closure with regard to integration. (ITSWPM606A) -p.124 Establish a risk management approach and process for a project. (ITSWPM617A) -p.138 Develop a risk management plan. (ITSWPM618A) -p.139 Develop a risk response plan. (ITSWPM619A) -p.141 Conduct project closure with respect to project risk management. (ITSWPM620A) -p.142 Conduct project procurement planning. (ITSWPM622A) -p.144
2.	Review project proposal or plan to determine time frame, budge, procedures, staffing requirements and allocation of resources to various phases of project.	Monitor and control the project scope. (ITSWPM607A) - p.125 Conduct project closure with regard to project scope. (ITSWPM608A) – p.126 Develop a project schedule. (ITSWPM609A) – p.127 Prepare a preliminary cost model. (ITSWPM610A) – p.129 Develop the project cost. (ITSWPM611A) – p.130 Conduct cost review upon project completion. (ITSWPM612A) – p.132
3.	Establish work plan and staffing for each project phase and arrange for necessary staff recruitment.	Perform an initial project feasibility study. (ITSWPM601A) – p.117 Prepare a project charter and kick-off package as well as information. (ITSWPM602A) – p.118 Prepare an initial project plan. (ITSWPM603A) – p.119 Execute the project plan. (ITSWPM604A) – p.121 Monitor and control project execution. (ITSWPM605A) - p.122 Conduct project closure with respect to the project team. (ITSWPM616A) - p.137 Define the organizational structure of a project. (ITSWPM511A) - p.100 Establish organization plan. (ITSWPM512A) - p.101

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No.	Job Description	Competency
	Competency Requirements	
		Establish and develop the project team. (ITSWPM513A) - p.102 Manage project team. (ITSWPM514A) - p.104 Conduct project closure with respect to the project team. (ITSWPM616A) - p.137 Conduct project procurement planning. (ITSWPM622A) -p.144
4.	Confer with project staff to conform to work plan and to assign responsibilities and authorities.	Establish a preliminary project communications plan. (ITSWPM515A) – p.105 Develop a project communications plan. (ITSWPM516A) – p.106
5.	Direct and coordinate activities of project personnel to ensure project in proper progress.	Conduct project performance reporting. (ITSWPM517A) – p.107 Define the organizational structure of a project. (ITSWPM511A) – p.100 Conduct project closure with respect to project communications. (ITSWPM518A) – p.108
6.	Review project progress reports prepared by project personnel and modify schedules or plans as necessary. Prepare reports for management, clients and other related parties.	Develop a project schedule. (ITSWPM609A) – p.127
7.	Provide technical advice to project team and resolves problems together with the team.	Prepare a project charter and kick-off package as well as information. (ITSWPM602A) – p.118 Develop a project quality management plan for project execution. (ITSWPM614A) – p.134 Establish a risk management approach and process for a project. (ITSWPM617A) – p.138 Establish preliminary procurement policies and procedures. (ITSWPM621A) – p.143 Conduct cost review upon project completion. (ITSWPM612A) - p.132 Develop the project cost. (ITSWPM611A) - p.130
8.	Take overall responsibility for quality management of major projects or programmes.	Determine quality policies and define quality requirements for a project. (ITSWPM613A) – p.133 Develop a project quality management plan for project execution. (ITSWPM614A) – p.134
9.	Oversee budget and ensure financial accountability.	Prepare a preliminary cost model. (ITSWPM610A) – p.129 Develop the project cost. (ITSWPM611A) – p.130 Conduct cost review upon project completion. (ITSWPM612A) - p.132
10.	Supervise project delivery to meet clients' needs.	Perform an initial project feasibility study. (ITSWPM601A) – p.117

Competency Requirements		
No.	**Job Description**	**Competency**
		Monitor and control the project scope. (ITSWPM607A) - p.125 Conduct project closure with regard to project scope. (ITSWPM608A) – p.126 Develop a project schedule. (ITSWPM609A) – p.127 Monitor, control and update project schedule. (ITSWPM504A) – p.93 Conduct project closure with respect to time. (ITSWPM505A) – p.94
11.	Train staff to achieve effectiveness of project development, implementation and reviews.	Establish and develop the project team. (ITSWPM513A) – p.102
12.	Network with relevant bodies for future project development.	Establish a risk management approach and process for a project. (ITSWPM617A) – p.138 Execute the project plan. (ITSWPM604A) - p.121 Conduct source selection and/or contract development. (ITSWPM523A) - p.113
13.	Take responsibility for project control and quality assurance.	Determine quality policies and define quality requirements for a project. (ITSWPM613A) – p.133 Develop a project quality management plan for project execution. (ITSWPM614A) – p.134 Conduct project closure with regard to quality. (ITSWPM615A) – p.136
14.	Help to resolve cross-organisational issues and eliminates the project constraints.	Execute the project plan. (ITSWPM604A) - p.121

Competency Level – Specialist

Competency Requirements		
No.	**Job Description**	**Competency**
15.	Explain implications of any changes to IT project scope and / or objectives to the client and project team.	Monitor and control the project cost. (ITSWPM508A) – p.97 Manage project team. (ITSWPM514A) – p.104
16.	Lead the project team to achieve proper progress while prioritizing the stages in the work plan.	Define project scope. (ITSWPM501A) – p.89 Monitor, control and update project schedule. (ITSWPM504A) – p.93 Execute the risk management and response plans.(ITSWPM519A) – p.109 Monitor and control the risks of a project.t (ITSWPM520A) – p.110 Conduct solicitation. (ITSWPM522A) – p.112

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No.	Job Description	Competency
	Competency Requirements	
17.	Oversee project documentation.	Define project scope. (ITSWPM501A) – p.89 Conduct project performance reporting. (ITSWPM517A) – p.107 Award Contract. (ITSWPM524A) – p.114 Conduct contract administration and contract monitoring. (ITSWPM525A) – p.115
18.	Manage the project with the client stakeholders, team members and contract personnel for solutions within the project constraints.	Monitor, control and update project schedule. (ITSWPM504A) – p.93 Manage the execution of a project quality management plan. (ITSWPM509A) – p.98 Monitor and control the project quality. (ITSWPM510A) – p.99 Establish and develop the project team. (ITSWPM513A) – p.102 Manage project team. (ITSWPM514A) – p.104 Conduct solicitation planning. (ITSWPM521A) – p.111 Conduct solicitation. (ITSWPM522A) – p.112 Conduct contract administration and contract monitoring. (ITSWPM525A) – p.115 Conduct source selection and/or contract development. (ITSWPM523A) - p.113
19.	Establish with the Project Director and maintains a workable schedule for all phases of the project.	Monitor, control and update project schedule. (ITSWPM504A) – p.93 Manage the execution of a project quality management plan. (ITSWPM509A) – p.98 Develop a project communications plan. (ITSWPM516A) – p.106
20.	Track and report on team hours and expenses on a periodic basis.	Execute and manage the project scope. (ITSWPM502A) – p.91 Monitor, control and update project schedule. (ITSWPM504A) – p.93
21.	Manage the project budget.	Execute and manage the project cost. (ITSWPM507A) – p.96 Monitor and control the project cost. (ITSWPM508A) – p.97 Articulate the time and effort requirements needed for product-based planning. (ITSWPM503A) -p.92 Articulate the project costing requirements. (ITSWPM506A) -p.95
22.	Communicate progress, risks, expectations, time lines, milestones and other key project metrics to clients and team members.	Develop a project communications plan. (ITSWPM516A) – p.106
23.	Define skill sets (competencies) required for the project based on project specifications and requirements.	Define project scope. (ITSWPM501A) – p.89 Manage the execution of a project quality management plan. (ITWSPM 509A) p.98 Establish organizational plan. (ITSWPM512A) – p.101 Conduct project performance reporting. (ITSWPM517A) – p.107 Articulate the time and effort requirements needed for product-based planning. (ITSWPM503A) -p.92
24.	Determine resource requirements for the completion of project.	Establish organizational plan. (ITSWPM512A) – p.101 Articulate the time and effort requirements needed for product-based planning.

No.	Job Description	Competency
Competency Requirements		
		(ITSWPM503A) -p.92 Articulate the project costing requirements. (ITSWPM506A) -p.95 Conduct source selection and/or contract development. (ITSWPM523A) - p.113
25.	Manage clients' interaction and relationship.	Execute and manage the project scope. (ITSWPM502A) – p.91 Conduct project closure with regard to time. (ITSWPM505A) – p.94
26.	Communicate with clients to identify needs and evaluate alternative business solutions.	Develop a project communications plan. (ITSWPM516A) – p.106 Conduct solicitation planning. (ITSWPM521A) – p.111
27.	Ensure project meets internal and client expectations with respect to quality, budget, delivery schedules and requirements.	Conduct project closure with respect to time. (ITSWPM505A) – p.94 Monitor and control the project quality. (ITSWPM510A) – p.99 Define the organizational structure of a project. (ITSWPM511A) – p.100 Conduct project closure with respect to project communications. (ITSWPM518A) – p.108 Articulate the project costing requirements. (ITSWPM506A) - p.95
28.	Escalate issues and ensure timely resolution with responsibility.	Monitor and control the project quality. (ITSWPM510A) – p.99 Conduct project closure with respect to project communications. (ITSWPM518A) – p.108
29.	Take charge of project closures and review lessons learned.	Conduct project closure with respect to project communications. (ITSWPM518A) – p.108 Conduct contract closeout. (ITSWPM526A) – p.116

Competency Level - Practitioner

No.	Job Description	Competency
Competency Requirements		
30.	Coordinate the preparation of internal and external reports by gathering, analyzing and summarizing data and information from various sources.	Prepare the project schedule. (ITSWPM401A) – p.83 Perform information distribution. (ITSWPM404A) – p. 86 Establish project communications documentation requirements. (ITSWPM403A) – p. 85
31.	Prepare materials for management reports.	Perform information distribution. (ITSWPM404A) – p. 86 Establish project communications documentation requirements.

Competency Requirements		
No.	**Job Description**	**Competency**
		([ITSWPM403A](#)) – p. 85
32.	Evaluate and monitor the performance and efficiency of project or programme to ensure that the target dates are met.	Prepare the project schedule. ([ITSWPM401A](#)) – p.83 Execute and manage the project schedule. ([ITSWPM402A](#)) – p.84 Implement project time reporting. ([ITSWPM405A](#)) – p.87
33.	Develop, design and establish reporting standards within the IT organization.	Prepare the project schedule. ([ITSWPM401A](#)) – p.83 Implement project time reporting. ([ITSWPM405A](#)) – p.87 Communicate with stakeholders at project checkpoints. ([ITSWPM406A](#)) – p.88
34.	Work on overall project planning through reporting on project schedules and deliverables.	Prepare the project schedule. ([ITSWPM401A](#)) – p.83
35.	Provide support to the Project Manager in planning, managing and monitoring major projects from concepts to implementation.	Prepare the project schedule. ([ITSWPM401A](#)) – p.83 Execute and manage the project schedule. ([ITSWPM402A](#)) – p.84
36.	Assist in the preparation of project or programme budgets.	Prepare the project schedule. ([ITSWPM401A](#)) – p.83 Perform information distribution. ([ITSWPM404A](#)) – p.86
37.	Assist in the preparation of a variety of reports covering budget status and forecast reports, etc.	Prepare the project schedule. ([ITSWPM401A](#)) – p.83 Implement project time reporting. ([ITSWPM405A](#)) – p.87
38.	Assist the Project Manager in duties as assigned.	Prepare the project schedule. ([ITSWPM401A](#)) – p.83

B.6 Job Category – IT Architecture

Competency Level – Master

Competency Requirements		
No.	**Job Description**	**Competency**
1.	Establish policies, standards and guidelines to manage the overall frameworks of enterprise architecture.	Define, prioritise and document architecture vision and principles for an organization.(ITSWAR601A) – p.171 Define, review and validate network architecture principles. (ITSWAR509A) – p.156 Define data management policies and architecture principles. (ITSWAR608A) – p.179
2.	Review, approve and govern all enterprise IT standards, security, policies and guidelines to align with business strategy.	Establish processes to monitor the adopted architecture principles, design guidelines and resultant designs. (ITSWAR603A) – p.174 Define, review and document a technology architecture baseline. (ITSWAR614A) – p.168 Review the current baseline and develop a target business architecture for an organization. (ITSWAR605A) – p.176 Review, design and re-engineer business processes to form a new business architecture. (ITSWAR607A) – p.178
3.	Manage the IT architecture team to oversee and develop architecture and framework at the enterprise level.	Manage technology architecture life cycle. (ITSWAR616A) – p.192 Manage application integration architecture life cycle. (ITSWAR517A) – p.165
4.	Work with Chief Information Office (CIO) and all business unit heads to ensure that the enterprise architecture meets business requirements.	Define metrics and methodologies to measure business performance of applying new technologies. (ITSWAR505A) – p.152 Define metrics to ensure that a technology architecture meets the business goals. (ITSWAR508A) – p.155
5.	Align the application software architecture with all business needs and users expectation.	Keep in-house practices in line with industry best practices. (ITSWAR520A) – p.168
6.	Ensure the technology architecture and network architecture to be compatible with the business application requirements.	Define and develop various architecture design building blocks (components) for an organization. (ITSWAR503A) – p.149 Define and establish a data architecture (ITSWAR610A) – p.182
7.	Provide professional advice to senior management on IT trends, strategy and architecture roadmap.	Promote and explain the new business architecture to stakeholders in an organization.(ITSWAR506A) – p.153 Advocate and explain the adopted architecture design methodology to stakeholders. (ITSWAR602A) – p.173

Competency Level – Specialist

Competency Requirements		
No.	**Job Description**	**Competency**
8.	Design and oversee the overall frameworks of enterprise architecture to solve business challenges.	Capture, analyse and model various viewpoints of a business architecture. (ITSWAR606A) – p.177
9.	Lead and coordinate with vendors and IT architecture team to deliver best solutions regarding to technical architecture, physical architecture and data architecture.	Evaluate and select architecture design options and related architecture artifacts. (ITSWAR501A) – p.147 Design and construction of network architecture. (ITSWAR512A) – p.160 Check usability of a target data architecture. (ITSWAR612A) – p.184
10.	Analyze, draft and review all enterprise IT standards, security, policies and guidelines to align with business architecture strategy.	Build, evaluate and review a target technology architecture reference model. (ITSWAR615A) – p.190 Enforce compliance of the enterprise data standards. (ITSWAR613A) – p.186
11.	Design and oversee the application software architecture to meet all business needs and users expectation.	Establish guidelines on adoption of application integration architecture. (ITSWAR515A) – p.163 Establish processes to manage the implementation of adopted architecture designs. (ITSWAR604A) – p.175 Recommend application integration architecture models. (ITSWAR617A) – p.194
12.	Design and oversee the technology architecture and network architecture that compatible with the business application requirements.	Determine technology mix for the design and development of embedded software systems. (ITSWAR620A) – p.198 Recommend embedded software architecture models. (ITSWAR619A) – p.196
13.	Mentor the junior team members in order to build up a strong IT architecture team.	Review and make improvements to the relevant architecture development initiatives. (ITSWAR502A) – p.148 Develop application software architecture models. (ITSWAR519A) – p.167 Develop a network technology architecture model. (ITSWAR510A) – p.157 Develop application integration architecture resources. (ITSWAR618A) – p.195 Exercise lifecycle management on the adopted embedded software architecture. (ITSWAR623A) – p.202 Perform lifecycle management of the network architecture. (ITSWAR514A) – p.162

Competency Level – Practitioner

	Competency Requirements	
No.	**Job Description**	**Competency**
14.	Design, develop, test and support the architecture components in support of the overall enterprise architecture framework.	Model and analyse network architecture. (ITSWAR513A) – p.161 Build a data architecture registry. (ITSWAR609A) – p.180 Construct a data architecture for an information system. (ITSWAR611A) – p.183 Perform gap analysis of the current business architecture against the target business architecture. (ITSWAR504A) – p.150 Perform gap analysis of the current network architecture against the business requirements. (ITSWAR511A) – p.159 Ensure operable application integration architecture is in place. (ITSWAR516A) – p.164
15.	Coordinate with vendors to deliver best solutions regarding to technical architecture, physical architecture and data architecture.	Model technology architecture. (ITSWAR507A) – p.154
16.	Design, develop, test and support the application software architecture.	Understand key characteristics of various application software architecture models. (ITSWAR518A) – p.166 Understand key characteristics of embedded software systems. (ITSWAR521A) – p.169
17.	Design, develop, test and support the technology architecture and network architecture components.	Document the abstracted layer design of the network architecture. (ITSWAR401A) – p.145
18.	Work with IT architect practitioners of different specialties to develop the overall systems architecture of a complex solution.	Maintain a common library of reusable embedded software components. (ITSWAR622A) – p.201
19.	Work with software developer or infrastructure specialist for the realization of the architecture components.	Maintain a library of reusable application components. (ITSWAR402A) – p.146

B.7 Job Category – Service Management and Operation

Competency Level – Master

No.	Job Description	Competency
	Competency Requirements	
1.	Contribute to the planning of IT service strategy, service design, service transition and service operation.	Establish and maintain the service level management process. (ITSWOS612A) – p.383 Develop risk mitigation strategies and plans related to IT. (ITSWGS610A) – p.453 Formulate relevant tactical plans based on the approved IT strategies and policies. (ITSWSM604A) – p.72
2.	Manage the service portfolio and service catalog.	Establish and maintain configuration management process. (ITSWOS610A) – p.381 Manage the complex system support services. (ITSWOS617A) – p.388
3.	Ensure applicable processes are in place to support service design, service transition and service operations.	Manage exceptional database operations process. (ITSWOS615A) – p.385 Establish and maintain database operations process. (ITSWOS616A) – p.386 Understand IT operations and IT processing. (ITSWGS620A) – p.461 Adopt and adapt international standards concerning information security as appropriate. (ITSWGS623A) – p.464
4.	Ensure that services provided to users meet or exceed that of prescribed service level.	Establish and maintain the performance and capacity management processes. (ITSWOS609A) – p.378 Manage the exceptional problems. (ITSWOS603A) – p.374
5.	Maintain IT service continuity plan to meet user requirements.	Perform disaster impact assessment and mitigation. (ITSWOS611A) – p.382 Develop business continuity plans and disaster recovery plans related to IT request. (ITSWSM609A) – p.77 Identify and assess the risk factors related to IT. (ITSWGS609A) – p.452 Manage contingency situations. (ITSWSM505A) – p.62 Monitor and control of the implementation of Disaster Recovery Plan. (ITSWOS512A) – p.361
6.	Plan and promote new services to meet business objectives.	Manage the emergency change request. (ITSWOS605A) – p.376 Manage product/services brand through the use of IT. (ITSWSM508A) – p.67
7.	Manage the department budget; control the income and expenditure to get best value for the company.	Establish a business case for an IT investment. (ITSWGS617A) – p.458 Allocate and prioritize IT and related resources. (ITSWGS614A) – p.456 Prepare a budget based on the IT plan. (ITSWSM504A) – p.61 Utilize the given IT and related resources. (ITSWGS520A) – p.440

Competency Level - Specialist

Competency Requirements		
No.	**Job Description**	**Competency**
8.	Prepare management and technical reports for information and/or decision of senior level.	Collect and distribute disseminate information. (ITSWSM506A) – p.64
9.	Improve service commitment by periodically survey users about service quality and solicit improvement suggestions.	Monitor and control of the service level fulfillment. (ITSWOS506A) – p.348 Manage the service relationship with the customers and suppliers. (ITSWOS514A) – p.362
10.	Provide 2nd level support to frontline operations staff. Manage the third level support (in-house and/or vendor) to trouble-shoot and resolve operation problems.	Establish and maintain system support services process. (ITSWOS529A) – p.368 Deliver system support services. (ITSWOS424A) – p.328 Monitor and control system support services. (ITSWOS425A) – p.330
11.	Provide technical expertise and overall management of IT infrastructure technical management.	Monitor and control of the database operations services. (ITSWOS517A) – p.366
12.	Supervise frontline operation staff (computer operators, network, help desk, technical support).	Establish and maintain the help desk process. (ITSWOS523A) – p.335 Recruit, retain and develop IT staff. (ITSWGS521A) – p.441
13.	Enforce full compliances of security standards in terms of data center physical security and information access control.	Deliver the security services for operations. (ITSWOS521A) – p.370 Define operational security protection processes. (ITSWOS522A) – p.371
14.	Analyze current systems usage against planned capacity, and recommend solutions and preventive actions that meet both present and future needs.	Recommend availability improvement plans. (ITSWOS505A) – p.346 Prepare capacity upgrade plan. (ITSWOS509A) – p.356 Deliver performance and capacity management service. (ITSWOS508A) – p.354 Monitor and control of the performance and capacity management services. (ITSWOS510A) – p.358
15.	Work with hardware and software vendors on software version upgrade, configuration changes, technical support and product evaluation.	Manage the exceptional system operations services. (ITSWOS528A) – p.364
16.	Prescribe and ensure documentation standards and ensure all operating procedures are up-to-date. Implement cost-effective physical and logical security solutions to protect company assets.	Conduct operation security risk assessment and audit. (ITSWOS530A) – p.372 Establish and maintain the system operations process. (ITSWOS422A) – p.324

No.	Job Description	Competency
17.	Implement appropriate service asset and configuration management process.	Monitor and control of the configuration management services. (ITSWOS511A) – p.360 Deliver configuration management services. (ITSWOS408A) – p.315
18.	Enforce established change and problem management procedures.	Maintain a change schedule. (ITSWOS503A) – p.341 Manage the day-to-day operation of a change management process.s (ITSWOS504A) – p.342 Establish and maintain the change management process. (ITSWOS525A) – p.344 Monitor and control of the problem management services. (ITSWOS502A) – p.337 Establish and maintain the problem management process. (ITSWOS524A) – p.339
19.	Ensure reliable facilities are provided to data center.	Establish and maintain the availability management process. (ITSWOS526A) – p.350
20.	Follow established release management process to implement system changes.	Establish and maintain the release management process. (ITSWOS527A) – p.352 Deliver the release management services. (ITSWOS407A) – p.311 Monitor and control the release management services. (ITSWOS419A) – p.312

Competency Level – Practitioner

Competency Requirements		
No.	Job Description	Competency
21.	Use appropriate tools to monitor overall systems and network performance, utilization, availability, capacity, security and healthiness so that pro-active actions can be taken to prevent or resolve problems.	Perform stock-take of IT assets. (ITSWOS201A) – p.291 Deliver availability management services. (ITSWOS406A) – p.308 Deliver the database operations services. (ITSWOS413A) – p.326 Deliver service level management services. (ITSWOS420A) – p.320
22.	Maintain log-books or operating records per shift. Conduct shift handover to ensure un-completed changes and incidents are followed-up by the incoming shift.	Maintain the help desk knowledge database. (ITSWOS302A) – p.295 Deliver the change management services. (ITSWOS405A) – p.307 Maintain the security control documents. (ITSWOS418A) – p.332 Monitor and control the system operation services. (ITSWOS304A) – p.298 Deliver the system operations services. (ITSWOS305A) – p.300 Ensure continuous operations of the computing environment. (ITSWOS410A) – p.316

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No.	Job Description	Competency
23.	Work in team and follow the procedures based on quality and established standard, to achieve effectiveness and efficiency in the delivery and support of service.	Apply technical changes and patches to the hardware and software components. (ITSWOS308A) – p.304 Maintain the problem management knowledge database. (ITSWOS303A) – p.297 Conduct tests and drills to support the Disaster Recovery Plan. (ITSWOS411A) – p.318
24.	Provide prompt support to user on day to day operation problems on PCs, printers, office standard software, etc.	Recover failed hardware and software components. (ITSWOS307A) – p.303 Manage the day-to-day operations of service delivery. (ITSWOS421A) – p.322
25.	Take corrective action per documented procedures to handle incident, and escalate to supervisor if the incident is not fixed within pre-defined time frame.	Deliver the problem management services. (ITSWOS403A) – p.305 Analyse and fix the hardware and software failure. (ITSWOS423A) – p.327
26.	Communicate with support personnel and users on potential service outage, to carry out preventive maintenance, hardware installation, software implementation, etc.	Deliver field support services. (ITSWOS306A) – p.302
27.	Handle calls at service desk and communications with users.	Deliver Help Desk services. (ITSWOS301A) – p.292

B.8 Job Category – Information Security

Competency Level – Master

No.	Job Description	Competency
Competency Requirements		
1.	Establish standards, procedures and guidelines to protect the security of the information asset within an organization.	Establish and maintain information security policies. (ITSWIS601A) - p. 203 Develop information security strategy and obtain management buy-in. (ITSWIS621A) - p. 235 Establish corporate information security standards. (ITSWIS612A) - p. 243 Develop a risk management process. (ITSWIS604A) - p. 237 Define strategies and prioritize options to mitigate risk. (ITSWIS504A) - p. 212 Ensure compliance to necessary worldwide security standards, e.g. ISO27001, PCI-DSS. Ensure proper security risk assessment process is defined and followed.
2.	Ensure that the security standards and guidelines are aligned with business strategies.	Establish metrics to manage information security governance framework. (ITSWIS609A) - p. 241 Develop a business case and perform an enterprise value analysis. (ITSWIS603A) - p. 234 Evaluate and assess effectiveness of corporate information security practices. (ITSWIS507A) - p. 217
3.	Establish and manage the defensive mechanism to detect and prevent the intrusion as well as malicious attacks into the information systems operated by the organization.	Establish a business continuity planning strategy. (ITSWIS519A) - p. 229 Integrate information security programme requirements into an enterprise's life cycle activities. (ITSWIS607A) - p. 240
4.	Establish and manage the security audit standards and procedures.	Develop an information system security audit plan. (ITSWIS618A) - p. 249
5.	Establish organizational-wide security awareness program.	Facilitate cross functional teams for crisis management. (ITSWIS616A) - p. 247 Develop, propose and promulgate an enterprise's information security policies. (ITSWIS611A) - p. 242
6.	Be responsive to advancement in information security technologies and their applicability to the organization.	Minimize information security risks. (ITSWIS525A) - p. 215
7.	Act as the departmental focal person at executive management level.	Establish reporting and communication channels. (ITSWIS502A) - p. 209 Promote accountability in managing information security risks. (ITSWIS524A) - p. 214

Competency Level – Specialist

	Competency Requirements	
No.	**Job Description**	**Competency**
9.	Design, implement and test information security controls to guard against the unauthorized disclosure and tempering of information asset belonging to the organization.	Ensure information security procedures and guidelines support information security policies. (ITSWIS402A) - p. 203 Develop information security practices and procedures. (ITSWIS506A) - p. 216 Create and maintain plans to implement information security governance framework. (ITSWIS606A) - p. 239
10.	Investigate incidents of security breach detected or reported.	Investigate an information security incident. (ITSWIS517A) - p. 227 Establish procedures for documenting security incident. (ITSWIS512A) - p. 221 Devise processes for detecting, identifying and analyzing security incident. (ITSWIS613A) - p. 244
11.	Assess and implement tools to enable better identification, monitoring, and response to information risks.	Develop methods to satisfy information security policy requirements. (ITSWIS505A) - p. 213
12.	Identify and analyse programs and implementation of security related to IT systems.	Develop information security practices and procedures. (ITSWIS506A) - p. 216
13.	Provide security guidance as needed to all stakeholders throughout the System Development Life Cycle.	Ensure risk management related activities are integrated into life cycle processes. (ITSWIS503A) - p. 211
14.	Provide security guidance in response to specific end user and management inquiries.	Develop, propose and promulgate an enterprise's information security policies. (ITSWIS611A) - p. 242
15.	Support ongoing Security Awareness throughout the organization.	Provide awareness training program to staff dealing with business continuity planning. (ITSWIS522A) - p. 232 Develop information security awareness programme. (ITSWIS509A) - p. 219
16.	Identify technical and operational security threats and vulnerabilities associated with the planned concept of operation and system design and recommend appropriate solutions.	Identify and evaluate risks. (ITSWIS605A) - p. 238
17.	Conduct system audit to ensure compliance, to detect violation and vulnerability.	Develop an information system security audit plan. (ITSWIS618A) - p. 249 Prepare and deliver information system security audit report. (ITSWIS514A) - p. 223

No.	Job Description	Competency
18.	Other responsibilities.	Provide advice on computer forensics. (ITSWIS515A) - p. 235 Prepare and present forensics investigation report. (ITSWIS518A) - p. 228 Manage the execution of response and recovery plans. (ITSWIS511A) - p. 220 Plan and maintain business continuity solutions. (ITSWIS620A) - p. 250 Develop response and recovery plans. (ITSWIS614A) - p. 245

Competency Level – Practitioner

Competency Requirements		
No.	Job Description	Competency
19.	Identify and report risk and compliance issues and monitor corrective actions.	Report significant changes in risks. (ITSWIS401A) - p. 204 Evaluate and follow up on the recommendations in the information system security audit report. (ITSWIS526A) - p. 224 Enact information system security audit plan. (ITSWIS513A) - p. 222
20.	Provide technical and operational support for IT security.	Conduct drill test on business continuity planning. (ITSWIS521A) - p. 231 Securely and properly handle computer forensics evidence. (ITSWIS516A) - p. 226
21.	Monitor and assess administrative, physical, and technical security controls, such as audit log review, accounts review, training compliance, patch reporting, configuration management and security impact analysis.	Support and implement information security practices and procedures. (ITSWIS404A) - p. 206
22.	Conduct security functional requirements testing, as assigned, of system applications and components.	Ensure availability, integrity and confidentiality of information systems. (ITSWIS508A) - p. 218
23.	Support policy and procedures preparation and implementation.	Support and implement information security practices and procedures. (ITSWIS404A) - p. 206 Implement information security awareness programme. (ITSWIS405A) - p. 207
24.	Provide support for documentation and maintenance of the security infrastructure.	Prepare and deliver information system security audit report. (ITSWIS514A) - p. 223 Develop effective security guidelines / controls in compliance to the security policies.

B.9 Job Category – Multimedia

Competency Level – Master

Competency Requirements		
No.	**Job Description**	**Competency**
1.	Establish and maintain Corporate Internet/Intranet architecture.	Define, prioritize and document architecture vision and principles related to Internet/Intranet for an organization. (ITSWAR601A) – p.171
2.	Design and implement multimedia application/tools based on industry best practices.	Select appropriate multimedia technologies for business purposes. (ITSWSM613A) - p.82
3.	Plan and manage the design and production of multimedia products, including multimedia website and computer games.	Propose an architecture design (AD) and production of multimedia products. (ITSWDM601A) - p.271
4.	Provide creative direction and manage multimedia projects, including computer animation, audio-visual production from concept development to production.	Understand IT project management for multimedia projects. (ITSWGS621A) - p.462
5.	Manage the implementation process for the organization's website updates, collaborating with cross-functional teams.	Define software releases and control plan for multimedia projects. (ITSWDM608A) - p.283 Execute and monitor the software releases and control plan for multimedia projects. (ITSWDM609A) - p.284
6.	Establish and maintain web and/or computer game development framework, policies, standards, common components based on industry best practice.	Identify and evaluate multimedia technologies that support the objectives of an organisation (ITSWSM612A) - p.81
7.	Maintain and improve enterprise web portal and design global deployment architecture based on industry best practice.	Define a software deployment / migration plan for multimedia projects. (ITSWDM611A) - p.287

Competency Level – Specialist

Competency Requirements		
No.	**Job Description**	**Competency**
8.	Set coding guidelines and does code reviews for multimedia product development team.	Perform inspection for the program code and software documents for multimedia projects. (ITSWDM506A) - p.264
9.	Design and supervise production of multimedia applications.	Propose a high level design (HLD) of the multimedia application software. (ITSWDM602A) - p.273 Propose a detailed level design (DLD) of the multimedia application software. (ITSWDM603A) - p.275

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No.	Job Description	Competency
10.	Design and supervise production of multimedia projects including computer animation and audio-visual production.	Propose a high level design (HLD) of the multimedia project based on its design and technical requirements. Propose a detailed level design (DLD) of the multimedia project based on its design and technical requirements.
11.	Design and supervise production of multimedia website.	Propose a high level design (HLD) of the multimedia website based on its design and technical requirements. Propose a detailed level design (DLD) of the multimedia website based on its design and technical requirements.
12.	Design and supervise production of computer games for various technology platforms.	Propose a high level design (HLD) of the computer game software. Propose a detailed level design (DLD) of the computer game software.

Competency Level – Practitioner

Competency Requirements		
No.	Jo Description	Competency
13.	Develop and test computer games for the various technology platforms.	Develop program modules of the multimedia products based on its design documents. (ITSWDM504A) - p.262 Apply skills in object-oriented design and object-oriented languages.
14.	Develop, test and implement multimedia websites and web applications.	Verify and validate the remaining multimedia products are functioning properly. (ITSWDM407A) - p.255 Use development software and IT tools to build websites.
15.	Monitor, measure and report online web analytics to improve traffic for multimedia applications.	Monitor and control the system operation services of multimedia products. (ITSWOS304A) - p.298
16.	Produce, capture and editing of different digital media elements including audio, video, digital image, graphics and animation.	Produce and prepare audio soundtracks. Produce and prepare digital video footage. Produce and prepare 2D and 3D animation. Produce and prepare 2D and 3D graphics. Produce and prepare digital images.
17.	Update website content and design.	Identify extra functional requirements of an existing multimedia product. (ITSWDM508A) - p.267
18.	Design and production of multimedia projects including computer animation and audio-visual productions.	Develop computer animation based on its design documents. Develop audio-visual production based on its design documents