

Appendix A-2 – Generic Job Titles for respective categories

A2.1 Job Category – Software Engineering/Software Development

Competency Level – Master

General Job Description	Generic Job Titles
<ol style="list-style-type: none"> 1. Participate in the strategic management of software development. 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. 3. Oversee the software development life cycle and resolve complex and exceptionally difficult problems. 4. Manage technical resources and human resources in software development project as well as taking the lead in designing training programmes to clients and subordinates. 5. Oversee and review work of the team. 	<p>Suggested Title : Software Engineering Manager</p> <p>Relevant titles in the industry :</p> <ul style="list-style-type: none"> ▪ IT director (including this functional responsibility) ▪ System development manager ▪ Principal software engineer/analyst ▪ General Manager, MIS (including this functional responsibility) ▪ VP, Professional Service (including this functional responsibility) ▪ Development director/manager (including this functional responsibility) ▪ Application architect ▪ Applications development & support manager ▪ Manager, Technical Development

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Competency Level – Specialist

General Job Description	Generic Job Titles
6. Undertake to design and develop software in accordance to the adopted architecture design patterns and constraints. 7. Translate business and user requirements into system requirement specifications. 8. Carry out quality control and quality assurance in software development. 9. Understand the business implications of technical solutions, and assist in defining the technology solutions to support any future business requirements. 10. Assist and perform some management functions. Oversee the works performed by the subordinates. 11. Undertake software deployment, maintenance, migration, decommissioning assignments as necessary.	Suggested Title : Software Engineer Relevant titles in the industry : <ul style="list-style-type: none"> ▪ software engineer ▪ analyst programmer ▪ programmer ▪ Business Analyst ▪ Application support analyst
General Job Description	Generic Job Titles
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. 13. Arrange User Training.	<ul style="list-style-type: none"> ▪ Application developer ▪ Developer ▪ Software analyst/assistant software analyst ▪ Usability Designer/consultant/engineer

Competency Level – Practitioner

General Job Description	Generic Job Titles
13. Apply the various techniques, technologies and practices as appropriate to develop high quality software efficiently and effectively. 14. Develop, implement and maintain the software application system directed by senior. 15. Perform programming with specific language/tools/technology (e.g. Unix, Java, C++). 16. Monitor and report system testing and user acceptance. Prepare and assist business users on User Acceptance Test (UAT). 17. Perform system testing/ debugging. 18. Undertake software quality assurance assignment under the supervision of senior. 19. Assist software deployment, migration and decommissioning under the supervision of senior.	Suggested Title : Software Engineer Relevant titles in the industry : <ul style="list-style-type: none"> ▪ software engineer ▪ analyst programmer ▪ programmer ▪ Business Analyst ▪ Application support analyst ▪ Application developer ▪ Developer ▪ Software analyst/assistant software analyst ▪ Usability Designer/consultant/engineer

A2.2 Job Category – Quality Assurance

Competency Level – Master

General Job Description	Generic Job Titles
<ol style="list-style-type: none"> 1. Establish standards, procedures and guidelines to improve and ensure the quality of software developed by and/or implemented in the organization. 2. Lead, coach and develop a team of software quality engineers. 3. Keep up-to-date with industry regulations development. 4. Manage relationships with internal peers as well as external business partners. 5. Provide thought leadership and strategic direction as it relates to software quality assurance. 	<p>Suggested Title: IT Quality Assurance Manager</p> <p>Relevant titles in the industry:</p> <ul style="list-style-type: none"> ▪ Software Quality Assurance Manager; ▪ Software Quality Assurance Consultant; ▪ Senior Manager – Software Quality Assurance

Competency Level - Specialist

General Job Description	Generic Job Titles
<ol style="list-style-type: none"> 6. Implement software quality assurance best practices and tools for the QA team. 7. Develop and/or adopt appropriate tools to support system test strategies. 8. Design software test strategies as well as develop test plans in accordance with these strategies. 9. Develop, publish, implement and maintain test plans to meet QA specifications 10. Analyse test results to improve on the test plans and processes. 11. Report, document and track software issues 	<p>Suggested Title: IT Quality Assurance Specialist</p> <p>Relevant titles in the industry:</p> <ul style="list-style-type: none"> ▪ Senior Software Test Engineer; ▪ Lead Quality Assurance Engineer; ▪ Senior Software Quality Assurance Analyst ▪ Principal Software Quality Assurance Analyst

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Competency Level – Practitioner

General Job Description	Generic Job Titles
<p>12. Conduct system and software test activities according to the adopted plans.</p> <p>13. Run functional tests, customer scenario testing, stress testing, performance testing, and scalability testing on different OS and platforms systematically.</p> <p>14. Document test results.</p> <p>15. Record detailed metrics and monitor to track the progress and outcomes of the testing process.</p> <p>16. Report progress on test activities.</p>	<p>Suggested Title: IT Quality Assurance Officer</p> <p>Relevant titles in the industry:</p> <ul style="list-style-type: none">▪ Software Tester▪ Software Test Engineer▪ Software Quality Assurance Analyst▪ Software Quality Assurance Technician

A2.3 Job Category – Project Management (ICT)

Competency Level – Master

General Job Description	Generic Job Titles
<ol style="list-style-type: none"> 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. 2. Review project proposal or plan to determine time frame, budget, procedures, staffing requirements and allocation of resources to various phases of project. 3. Establish work plan and staffing for each project phase and arranges for necessary staff recruitment. 4. Confer with project staff to conform to work plan and to assign responsibilities and authorities. 5. Direct and coordinate activities of project personnel to ensure project in proper progress. 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. 7. Provide technical advice to project team and resolve problems together with the team. 8. Take overall responsibility for quality management of major projects or programmes. 9. Oversee budget and ensure financial accountability. 10. Supervise project delivery to meet clients’ needs. 11. Train staff to achieve effectiveness of project development, implementation and reviews. 12. Network with relevant bodies for future project development. 13. Take responsibility for project control and quality assurance. 14. Help to resolve cross-organizational issues and eliminate roadblocks to drive timely completion of projects. 	<p>Suggested Title : IT Project Director</p> <p>Relevant titles in the industry :</p> <ul style="list-style-type: none"> ▪ Vice-President, IT Projects ▪ Chief IT Project Manager ▪ Chief IT Project Engineer

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Competency Level – Specialist

General Job Description	Generic Job Titles
15. Explain implications of any change to IT project scope and / or objectives to the client and project team. 16. Lead the project team to achieve proper progress while prioritizing the stages in the work plan. 17. Oversee project documentation. 18. Manage the project with the client stakeholders, team members and contract personnel for solutions within the project constraints. 19. Establish with the Project Director and maintain a workable schedule for all phases of the project. 20. Track and report on team hours and expenses on a periodic basis. 21. Manage the project budget. 22. Communicate progress, risks, expectations, time lines, milestones and other key project metrics to clients and team members. 23. Define skill sets (competencies) required for the project based on project specifications and requirements. 24. Determine resource requirements for the completion of project. 25. Manage clients’ interaction and relationship. 26. Communicate with clients to identify needs and evaluate alternative business solutions. 27. Ensure project meets internal and client expectations with respect to quality, budget, delivery schedules and requirements. 28. Escalate issues and ensure timely resolution with responsibility. 29. Take charge of project closures and reviews lessons learned.	Suggested Title : IT Project Manager Relevant titles in the industry : <ul style="list-style-type: none"> ▪ IT Project Coordinator ▪ IT Project engineer

Competency Level – Practitioner

General Job Description	Generic Job Titles
30. Coordinate the preparation of internal and external reports by gathering, analyzing and summarizing data and information from various sources. 31. Prepare materials for management reports. 32. Evaluate and monitor the performance and efficiency of project or program to ensure that the target dates are met. 33. Develop, design and establish reporting standards within the IT organization. 34. Work on overall project planning through reporting on project schedules and deliverables. 35. Provide support to the Project Manager in planning, managing and monitoring major projects from concepts to implementation. 36. Assist in the preparation of project or program budgets. 37. Assist in the preparation of a variety of reports covering budget status and forecast reports, etc. 38. Assist the Project Manager in duties as assigned.	Suggested Title : Assistant Manager, IT Projects Relevant titles in the industry : <ul style="list-style-type: none"> ▪ IT Project Analyst ▪ IT Project Executive ▪ IT Project Administrator

A2.4 Job Category – IT Architecture

Competency Level – Master

General Job Description	Generic Job Titles
<ol style="list-style-type: none"> 1. Establish policies, standards and guidelines to manage the overall frameworks of enterprise architecture. 2. Review, approve and govern all enterprise IT standards, security, policies and guidelines to align with business strategy. 3. Manage the IT architecture team to oversee and develop architecture and framework at the enterprise level. 4. Work with Chief Information Office (CIO) and all business unit heads to ensure that the enterprise architecture meets business requirements. 5. Align the application software architecture with all business needs and users expectation. 6. Ensure the technology architecture and network architecture to be compatible with the business application requirements. 7. Provide professional advice to senior management on IT trends, strategy and architecture roadmap. 	<p>Suggested Title : IT Architect Manager</p> <p>Relevant titles in the industry :</p> <ul style="list-style-type: none"> ▪ Head of Architecture ▪ Chief Technology Officer (CTO) ▪ Principal Architect ▪ Manager – IT Architecture ▪ IT Director ▪ Chief Architect

Competency Level – Specialist

General Job Description	Generic Job Titles
<ol style="list-style-type: none"> 8. Design and oversee the overall frameworks of enterprise architecture to solve business challenges. 9. Lead and coordinate with vendors and IT architecture team to deliver best solutions regarding to technical architecture, physical architecture and data architecture. 10. Analyze, draft and review all enterprise IT standards, security, policies and guidelines to align with business architecture strategy. 11. Design and oversee the application software architecture to meet all business needs and users expectation. 12. Design and oversee the technology architecture and network architecture that compatible with the business application requirements. 13. Mentor the junior team members in order to build up a strong IT architecture team. 	<p>Suggested Title : Senior IT Architect Manager</p> <p>Relevant titles in the industry :</p> <ul style="list-style-type: none"> ▪ Lead Architect ▪ Senior Architect ▪ Chief Architect ▪ Enterprise Architect ▪ IT Architect ▪ Software Architect ▪ Business Architect ▪ System Architect

Competency Level – Practitioner

General Job Description	Generic Job Titles
<p>14. Design, develop, test and support the architecture components in support of the overall enterprise architecture framework.</p> <p>15. Coordinate with vendors to deliver best solutions regarding to technical architecture, physical architecture and data architecture.</p> <p>16. Design, develop, test and support the application software architecture.</p> <p>17. Design, develop, test and support the technology architecture and network architecture components.</p> <p>18. Work with IT architect practitioners of different specialties to develop the overall systems architecture of a complex solution.</p> <p>19. Work with software developer or infrastructure specialist for the realization of the architecture components.</p>	<p>Suggested Title : IT Architect</p> <p>Relevant titles in the industry :</p> <ul style="list-style-type: none"> ▪ Network Architect ▪ Server Architect ▪ Storage Architect ▪ Data Architect ▪ System Analyst ▪ IT Solutions Analyst

A2.5 Job Category – Service Management and Operation

Competency Level – Master

General Job Description	Generic Job Titles
<ol style="list-style-type: none"> 1. Contribute to the planning of IT service strategy, service design, service transition and service operation. 2. Manage the service portfolio and service catalog. 3. Ensure applicable processes are in place to support service design, service transition and service operations. 4. Ensure that services provided to users meet or exceed that prescribed service level. 5. Maintain IT service continuity plan to meet user requirements. 6. Plan and promote new services to meet business objectives. 7. Manage the department budget; control the income and expenditure to get best value for the company. 	<p>Suggested Title :Service Operations Manager</p> <p>Relevant titles in the industry :</p> <ul style="list-style-type: none"> ▪ Computer Operations Manager ▪ Computer Services Manager ▪ Data Center Manager ▪ Data Center Services Manager ▪ Services Support Manager ▪ IT Operation Manager ▪ Service Management Manager ▪ IT Manager ▪ IT Director

Competency Level – Specialist

General Job Description	Generic Job Titles
<ol style="list-style-type: none"> 8. Prepare management and technical reports for information and/or decision of senior level. 9. Improve service commitment by periodically survey users about service quality and solicit improvement suggestions. 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. 11. Provides technical expertise and overall management of IT infrastructure technical management 12. Supervise frontline operations staff (computer operators, network, help desk, technical support) 13. Enforce full compliances of security standards in terms of data center physical security and information access control. 14. Analyze current systems usage against planned capacity, and recommend solutions and preventive actions that meet both present and future needs. 	<p>Suggested Title: System Operations Specialist</p> <p>Relevant titles in the industry:</p> <ul style="list-style-type: none"> ▪ Help Desk Supervisor ▪ Help Desk Manager-in-charge ▪ Computer Operations Supervisor ▪ Network Supervisor ▪ Network Operations Officer ▪ Business Support Officer - IT outsourcing ▪ Operations Support Manager

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General Job Description	Generic Job Titles
15. Work with hardware and software vendors on software version upgrade, configuration changes, technical support and product evaluation. 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. 17. Implement appropriate service asset and configuration management process. 18. Enforce established change and problem management procedures. 19. Ensure reliable facilities are provided to data center. 20. Follow established release management process to implement system changes.	<ul style="list-style-type: none"> ▪ Senior Operation Analyst ▪ Senior Technical Support Analyst

Competency Level – Practitioner

General Job Description	Generic Job Titles
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. 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. 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. 24. Provide prompt support to user on day to day operation problems on PCs, printers, office standard software, etc. 25. Take corrective action per documented procedures to handle incident, and escalate to supervisor if the incident is not fixed within predefined time frame. 26. Communicate with support personnel and users on potential service outage, to carry out preventive maintenance, hardware installation, software implementation, etc. 27. Handle calls at service desk and communications with users.	<p>Suggested Title : Systems Operation Officer</p> <p>Relevant titles in the industry :</p> <ul style="list-style-type: none"> ▪ Help Desk Representative ▪ Customer Service Representative ▪ Computer Operator ▪ System Operator ▪ User Support ▪ Desktop Support Specialist ▪ Service Technician ▪ Field Technician ▪ Network Operator ▪ Technical Support Engineer (Desk-side / Help Desk) ▪ LAN/WAN Administrator ▪ System Administrator

A2.6 Job Category – Information Security

Competency Level – Master

General Job Description	Generic Job Titles
<ol style="list-style-type: none"> 1. Establish standards, procedures and guidelines to protect the security of the information asset within an organization. 2. Ensure that the security standards and guidelines are aligned with business strategies. 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. 4. Establish and manage the security audit standards and procedures. 5. Establish organizational-wide security awareness program. 6. Be responsive to advancement in information security technologies and their applicability to the organization. 7. Act as the departmental focal person at executive management level. 	<p>Suggested Title: Information Security Manager</p> <p>Relevant titles in the industry:</p> <ul style="list-style-type: none"> ▪ Chief Security Officer (CSO) ▪ Information Security Manager ▪ Consultant (Information Security)

Competency Level – Specialist

General Job Description	Generic Job Titles
<ol style="list-style-type: none"> 8. Design, implement and test information security controls to guard against the unauthorized disclosure and tempering of information asset belonging to the organization. 9. Investigate incidents of security breach detected or reported. 10. Assess and implement tools to enable better identification, monitoring, and response to information risks. 11. Identify and analyse programs and implementation of security related to IT systems. 12. Provide security guidance as needed to all stakeholders throughout the System Development Life Cycle. 13. Provide security guidance in response to specific end user and management inquiries. 14. Support ongoing Security Awareness throughout the organization. 15. Identify technical and operational security threats and vulnerabilities associated with the planned concept of operation and system design and recommend appropriate solutions. 16. Conduct system audit to ensure compliance, to detect violation and vulnerability. 	<p>Suggested Title: Information Security Specialist</p> <p>Relevant titles in the industry:</p> <ul style="list-style-type: none"> ▪ Computer Forensic Specialist ▪ Information Security Specialist ▪ Information System Auditor ▪ System Assessor

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Competency Level – Practitioner

General Job Description	Generic Job Titles
16. Identify and report risk and compliance issues and monitor corrective actions. 17. Provide technical and operational support for IT security. 18. 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. 19. Conduct security functional requirements testing, as assigned, of system applications and components, 20. Support policy and procedures preparation and implementation. 21. Provide support for documentation and maintenance of the security infrastructure.	Suggested Title: Information Security Officer Relevant titles in the industry: <ul style="list-style-type: none">▪ Information Security Officer▪ Computer Forensic Officer▪ Information Security Engineer

A2.7 Job Category – Multimedia

Competency Level – Master

General Job Description	Generic Job Titles
<ol style="list-style-type: none"> 1. Establish and maintain Corporate Internet/Intranet architecture. 2. Design and implement multimedia application/tools based on industry best practices. 3. Plan and manage the design and production of multimedia products, including multimedia websites and computer games. 4. Provide creative direction and manage multimedia projects, including computer animation, audio-visual production from concept development to production. 5. Manage the implementation process for the organization’s website updates, collaborating with cross-functional teams. 6. Establish and maintain web and/or computer game development framework, policies, standards, common components based on industry best practice. 7. Maintain and improve enterprise web portal and design global deployment architecture based on industry best practice. 	<p>Suggested Title: Multimedia Content Manager</p> <p>Relevant titles in the industry:</p> <ul style="list-style-type: none"> ▪ Creative Director (Digital Media) ▪ Computer Animation Director ▪ Multimedia Technical Director ▪ Multimedia Production Director ▪ Digital Development Manager ▪ Computer Game Producer

Competency Level – Specialist

General Job Description	Generic Job Titles
<ol style="list-style-type: none"> 8. Set coding guidelines and does code reviews for multimedia product development team. 9. Design and supervise production of multimedia applications. 10. Design and supervise production of multimedia projects including computer animation and audio-visual production. 11. Design and supervise production of multimedia website. 12. Design and supervise production of computer games for various technology platforms. 	<p>Suggested Title: Multimedia Content Specialist</p> <p>Relevant titles in the industry:</p> <ul style="list-style-type: none"> ▪ Digital Effect Specialist (Colour Grading) ▪ Web Application Architect ▪ Computer Animation Supervisor ▪ Multimedia Production Supervisor ▪ Web Designer ▪ Computer Game Designer/Writer ▪ Computer Game Artist ▪ Lead Game Programmer

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General Job Description	Generic Job Titles
<p>13. Develop and test computer games for the various technology platforms.</p> <p>14. Develop, test and implement multimedia websites and web applications.</p> <p>15. Monitor, measure and report online web analytics to improve traffic for multimedia applications.</p> <p>16. Produce, capture and editing of different digital media elements including audio, video, digital image, graphics and animation.</p> <p>17. Update website content and design.</p> <p>18. Design and production of multimedia projects including computer animation and audio-visual productions.</p>	<p>Suggested Title : Multimedia Content Developer</p> <p>Relevant titles in the industry :</p> <ul style="list-style-type: none">▪ Animator▪ Visual Effects Designer▪ Computer Animator▪ Web Designer▪ Multimedia Designer▪ Game Programmer▪ Computer Game Tester▪ Website Developer