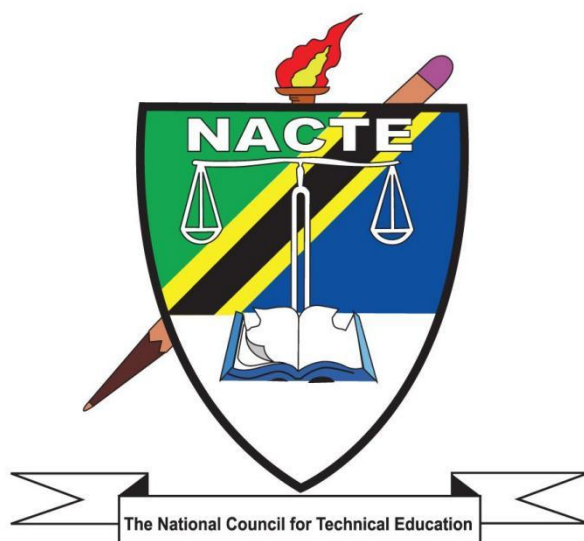


NATIONAL COUNCIL FOR TECHNICAL EDUCATION



NOVEMBER 2022

PROPOSED OCCUPATIONAL STANDARDS

FOR IT TECHNOLOGISTS

LEVEL: NTA 6

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FOREWORD

The National Council for Technical Education (NACTE) is a corporate body established by the National Council for Technical Education Act, Cap.129. The Act provides a legal framework for the Council to coordinate the provision of technical education and training in Tanzania. The mandate of NACTE is three-fold, namely: Regulatory, Quality Assurance and Policy Advisory.

In discharging its mandate, the Council has been charged with the responsibilities, among others, to:

- (a) assist technical institutions in the transmission of knowledge, principles and training in the field of technical education and training for the benefit of the people of Tanzania;
- (b) assist technical institutions in the overall development of the quality of education they provide and to promote and to maintain approved academic standards;
- (c) establish and make awards in technical education which are consistent in standard and comparable to related awards in Tanzania and internationally;
- (d) ensure that the quality of education required for the awards is met and maintained throughout the duration of the delivery of the course.

In the course of execution of these responsibilities, the Council has been instituting various measures aiming at advancing the quality of training provided in technical institutions in respect of the changing demands of the labour market, both local and international.

To achieve the above obligation, NACTE, under the Ministry of Education, Science and Technology implemented the East Africa Skills for Transformation and Regional Integration Project (EASTRIP), a project aiming at promoting regional integration through supporting the regional corridors and sector markets, developing common standards and qualifications, and promoting mobility of students, faculty, and graduates. The project supports the Government of Tanzania to address shortage of skills in five sectors namely:

- (a) Energy;
- (b) Construction;
- (c) Information and Communication Technology (ICT);
- (d) Transportation;
- (e) Agri-business.

To address the skills, miss-match and shortage in the five (5) sectors in the country, the project funded, among others, a component of Development of Occupational Standards for Technical and Vocational Education and Training (TVET). In this regard, NACTE invited

qualified and highly experienced experts from China and Tanzania to carry out the development of Occupational Standards. The exercise was carried out from May to November 2022.

Since Occupational Standards are statements of work performance reflecting the ability to successfully complete the functions required in an occupation, as well as the application of knowledge, skills, attitudes and understanding in an occupation, it is the Council's expectations that the developed standards will form a robust base for decision making and provide explicit guidance to policy makers, curriculum developers, educators, employers and other stakeholders in matters related to manpower planning as well as execution of Technical and Vocational Education and Training undertakings.

Prof. J. W. Kondoro

Chairman

Dar es Salaam

November 2022

ACKNOWLEDGEMENT

The National Council for Technical Education (NACTE) is charged with the mandate to be the Quality Assurance organ of the Government in matters related to Technical and Vocational Education and Training (TVET) and production of qualified manpower for both local and international labour markets. In order to realize this obligation, NACTE endeavours to institute policies, guidelines and standards and to set the quality benchmarks for training institutions.

However, this is only possible if there is a strong base, linking the training institutions on one hand and the demands of the industry/labour market for relevant manpower on the other hand. Therefore, the Council undertook a step to develop Occupational Standards in sectors considered to be the engine to steer the country's desire to achieve an industrial economy. This exercise would not be a success without the input and support from our stakeholders. I am indebted to acknowledge some of them here.

I wish to acknowledge and appreciate the support from the Ministry of Education, Science and Technology through the East Africa Skills for Transformation and Regional Integration Project (EASTRIP) for the financial support which facilitated the preparation of this document. I also wish to appreciate Ms. Leah Lukindo and Eng. Dr. Simon Baregu for the tireless efforts and commitment in facilitating and guiding the standards development process, Ms. Eileen Tzamburakis and Ms. Chausiku Yakweli Ibrahim for compiling and type setting the final document; and the NACTE Secretariat for coordinating the whole exercise.

At the same time, the Council hoped to further enhance the internationalization level of Occupational Standards and promote the modernization and internationalization of industries, so as to promote Tanzania's integration with the international market and expand its development potential. Therefore, the Council invited the China-Africa Vocational Education Alliance and the China-Africa (Chongqing) Vocational Education Alliance to cooperate with Chinese vocational colleges, together with experts from the Tanzanian industry and universities, to jointly develop, revise, and review documents of Occupational Standards, for providing assistance for the development of vocational education and related industries in Tanzania based on the experts' rich experience in occupational education, and relying on China's advanced and complete industrial chain and position in the international market.

Therefore, I would like to extend my sincere gratitude to this team of wonderful experts for their hard work, dedication and their wisdom and experience in the preparation of this document. I would like to recognise the inputs of the following institutions and experts:

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ABBREVIATIONS

ICT	Information and Communication Technology
NACTE	National Council for Technical Education
NOS	National Occupational Standards
OS	Occupational Standards
TET	Technical Education and Training
TVET	Technical and Vocational Education and Training

GLOSSARY OF TERMS

Circumstantial Knowledge:	Detailed knowledge, which allows the decision-making in regard to different circumstances and cross-cutting issues
Competence:	The ability to use knowledge, understanding, practical and thinking skills to perform effectively to the workplace standards required in employment.
Competency:	A description of the ability one possesses when able to perform a given occupational task effectively and efficiently.
Competency-Based Education:	An instructional program that derives its content from validated tasks and bases assessment on the learner's performance
Curriculum:	A description or composite of statements about "what is to be learned" by the trainee/student in a particular instructional programme; a product that states the "intended learning outcomes".
Educational/Training Programme:	The complete curriculum and instruction (what and how) that is designed to prepare a person for employment in a job or other particular performance situation.
Occupation:	A specific position requiring the performance of specific tasks - essentially the same tasks are performed by all employees having the same title. (Example: baker)
Occupational Analysis:	A process used to identify the tasks that are important to employees in any given occupation
Occupational Area:	This is a broad grouping of related jobs. Example: food service
Occupational Competence:	The application of knowledge and skills to perform consistently to the standards required in the work context.
Performance Criteria:	It indicates the expected end results or outcomes in the form of evaluative statements.
Skills:	The ability to perform occupational tasks with a high degree of proficiency within a given occupation. Skill is conceived of as a composite of three completely interdependent components: cognitive, affective, and psychomotor.
Standards:	It is a set of statements, which if proven true under working

conditions, means that an individual is meeting an expected level and type of performance.

Task Analysis: The process of analyzing each task to determine the steps, related knowledge, attitudes, performance standards, tools and materials needed, and safety concerns required of employees performing it.

Tasks: A work activity that has a definite beginning and ending, is observable or measurable, consists of two or more definite steps, and leads to a product, service, or decision.

Underpinning Knowledge: This is crucial knowledge that an individual must acquire in order to demonstrate competences that are associated with performing a given task.

Verification Process: The process of having engineers review and confirm the importance of the task (competency) statements identified through occupational analysis. Other questions, such as the degree of task learning difficulty are also frequently asked. This process is also sometimes referred to as validation.

Occupational Competence: The application of knowledge and skills to perform consistently to the standards required in the work context.

1.0. INTRODUCTION

Technical Education and Training (TET) is one of the most important education sub-sectors in Tanzania, responsible for developing a skilled workforce to support the country's industrialization economic agenda. Tanzania's *Development Vision 2025* intends to raise the country's economy to middle-income status. This requires a skilled workforce that is aligned with the needs of the public and private sectors of the economy. The National Council for Technical Education has begun the job of drafting Occupational Standards that will eventually be adopted as National Occupational Standards for TET in order to ensure that it meets the needs of the labour market and the country's economic agenda.

National Occupational Standards (NOS) are performance criteria that are matched with labour market demands. Each National Occupational Standard describes functions, performance standards, and knowledge/understanding of one important function or task. They are useful tools for establishing job roles, personnel recruiting, supervision, and appraisal, as well as TET standards. They're also helpful for benchmarking and harmonizing qualifications on a national and international level. Occupational Standards, in general, provide a solid framework for high-quality TET that is labour market-relevant, current and consistent in delivery across all public and private institutions.

However, it must be noted that, Occupational Standards and Training standards/qualifications standards are different. Occupational standards are defined in terms of activities performed by a person in a selected occupation (e.g., an electrical engineer designs electrical wiring circuits, performs troubleshooting in electrical wiring, etc.) and they are usually defined by employers following procedures agreed upon by all stakeholders. Education and training standards are developed from the activities defined in occupational standards, and they include learning objectives to ensure that the necessary skills and knowledge are developed by a person to enable him or her to function at an agreed level in an occupation. Education and Training standards are used to define curricula in training institutions. It is however critical that

there must be a direct link between the occupational standards and the training standards to respond to demands of the labour market.

In TET delivery, Tanzania adopted the Competency-based Education and Training (CBET) approach. The CBET approach focuses on providing learners with the skills and knowledge required to meet the occupational standards. Occupational standards are thus the starting point for developing Competency-based Education and Training (CBET) programs. TET institutions will be required to benchmark their curricula with relevant occupational standards.

Occupational Standards are developed based on a given occupation's current and future demands. As a result, they serve as a means of bridging the gap between the worlds of employment and technical education and training (TET).

The IT Technologist Occupation has its own set of occupational standards. The document explains how the occupational standards were developed, as well as the scope, the occupational profile in the form of DACUM charts, and the Occupational Standards.

2.0. OCCUPATIONAL STANDARD DEVELOPMENT PROCESS

The occupational standards development process began with an examination of major documents that guide Tanzanian skill development. The *10-year National Skills Development Strategy (2016-2026)* was one of the documents reviewed, and it outlined six (6) economic sectors that should be prioritized when developing skills development programmes.

These sectors include: Transport and logistics, Tourism and Hospitality, Agribusiness, Construction, Energy and ICT. NACTE labour market reports were also used in the literature review to determine the skills demand in the Tanzanian labour market as a whole.

After the literature review, a workshop comprised of engineer practitioners and educators with substantial knowledge and experience in the occupation conducted an occupational analysis utilizing the DACUM approach to produce the occupational

profile. The analysis resulted in DACUM Charts, which are attached as **Appendix 1** to this document.

The occupational standards were then developed. Engineers in Occupational Analysis and the Development of Occupational Standards facilitated the workshop. Interviews, online surveys, and a stakeholder forum were used to verify and validate the occupational standards. Engineers, supervisory technologists on the job, and experienced IT technologists were key informants in the survey to discover occupational trends. This information was used to gain insight from the workplaces regarding trends and changes in the profession, including how well graduates are prepared for working in the occupation. A total of online surveys were completed by engineers from the labour market across the country. Apart from the survey aiding in defining the scope of the occupational analysis, they served to engage a wide cross-section of engineers in the occupation. The stakeholders' forum was attended by participants from different parts of the country representing various companies.

3.0. THE SCOPE AND OVERVIEW OF THE OCCUPATIONAL STANDARDS FOR IT TECHNOLOGISTS

These standards cover a broad range of duties and tasks that can be performed by an IT technologist. However, the occupational standards are not meant to replace individual job descriptions, they are to be used for guidance in defining skill levels and knowledge for the IT technologist in specific settings or positions. The IT technologist may perform tasks in a number of key areas of the occupational standards, but not necessarily in all areas. For example, in large operations other individuals may be employed or designated to perform specific tasks.

An IT technologist orchestrates the technological efficiency of an organization, including managing computer performance, communications, and networking. IT technologists also work on managing software and hardware technologies, project management, business analysis, IT governance and work with external partners, including vendors, consultants, and agencies, to keep up with system integration.

They must always keep up with the latest advancements in technology, as being well-informed of these advancements is essential to the on-going development of the business. These Occupational Standards cover the following main duties for an IT technologist:

1. Collect, summarize and analyze information and data and prepare analysis reports for decision-making reference.
2. Select and use ICT terminals.
3. Install and configure ICT terminals.
4. Test ICT terminals.
5. Repair ICT terminals.
6. Maintain ICT devices.
7. Assemble and maintain computers.
8. Use routers and routing techniques.
9. Implement project integrated cabling.
10. Accept and deliver operations.
11. Daily management.
12. Set up and manage LANs.
13. Use network operating systems.
14. Repair and maintain office equipment.
15. Manage ICT device assets.
16. Manage servers.
17. Access and supervise WANs.
18. Maintain network security.
19. Basic coding

These Occupational Standards have been clustered into NTA qualification levels, i.e. NTA levels 4, 5, and 6.

4.0. VALIDITY PERIOD

These Occupational Standards will be valid for 3-5 years due to the fast-changing nature of technology. The review will proceed in the same manner as the previous one,

with new occupational standards being developed based on current labour market Information.

5.0. OCCUPATIONAL STANDARDS

5.1 OCCUPATIONAL STANDARDS FOR IT TECHNOLOGISTS -- NTA 6

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	COLLECT, SUMMARIZE AND ANALYZE INFORMATION AND DATA AND PREPARE ANALYSIS REPORTS FOR DECISION-MAKING REFERENCE	DUTY NO.	601
TASK TITLE	MASTER THE SPECIFICATIONS OF BUSINESS DOCUMENT PREPARATION	TASK NO.	6011
PERFORMANCE CRITERIA	The person performing this task must be able to collect, summarize and analyze information and data and prepare business documents as per industry standards.		
RANGE STATEMENT	This task can be performed in an office environment or in a client’s office. The following equipment and tools should be available: 1. Computer; 2. Relevant software tools; 3. Related guides. This person shall work under minimum supervision.		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Select appropriate document writing software; 2. Write and edit business documents; 3. Arrange text and tables; 4. Set up layout arrangement; 5. Observe health and safety precautions at work;		Detailed knowledge about: 1.0. Methods The person must be able to explain how to: 1.1 Select appropriate document writing software; 1.2 Edit business documents; 1.3 Arrange text and tables; 1.4 Set up layout arrangement. 2.0. Principles: The person must be able to explain the	

<p>6. Clean workplace;</p> <p>7. Store tools.</p>	<p>principles of:</p> <p>2.1 Normative requirements for document editing;</p> <p>2.2 Aesthetic principles of document embellishing;</p> <p>3.0. Theories:</p> <p>The person must be able to explain:</p> <p>3.1 Reasons for document formatting;</p> <p>3.2 Challenges faced in writing business documents;</p> <p>4.0. Essential skills:</p> <p>4.1 Writing business documents or analytical reports;</p> <p>4.2 Analytical skills;</p> <p>4.3 Setting document text and paragraph styles;</p> <p>4.4 Filling and editing of tables;</p> <p>4.5 Application of styles;</p> <p>4.6 Bulleted lists and numbering;</p> <p>4.7 Page settings;</p> <p>4.8 Artistic font settings;</p> <p>4.9 Layout formatting settings;</p> <p>4.10 Insertion and setting of images;</p> <p>4.11 Insertion of notes;</p> <p>4.12 Header and footer settings;</p> <p>4.13 Find and replace;</p> <p>4.14 Calculating formulas.</p>
<p>DESCRIPTION OF END PRODUCTS/SERVICE</p>	<p>Information and data are collected, summarized, and analyzed, and acceptable business documents are prepared as per</p>

	industry standards.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: <ol style="list-style-type: none"> 1. Safe operation of system software and document processing software; 2. Editing of business documents; 3. Extent of responsibilities.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	COLLECT, SUMMARIZE AND ANALYZE INFORMATION AND DATA AND PREPARE ANALYSIS REPORTS FOR DECISION-MAKING REFERENCE	DUTY NO.	601
TASK TITLE	OPTIMIZE PRESENTATIONS	TASK NO.	6012
PERFORMANCE CRITERIA	The person performing this task must be able to collect, summarize and analyze information and data and create presentations as per industry standards.		
RANGE STATEMENT	This task can be performed in an office environment or in a client’s office. The following equipment and tools should be available: 1. Computer; 2. Computer-related software tools; 3. Related guides. This person shall work under minimum supervision.		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Select appropriate presentation software; 2. Edit presentations; 3. Optimize presentations; 4. Set types of slide show and animations; 5. Observe health and safety precautions at work; 6. Clean workplace; 7. Store tools.		Detailed knowledge about: 1.0. Methods The person must be able to explain how to: 1.1 Select appropriate presentation software; 1.2 Edit presentations; 1.3 Optimize presentations; 1.4 Set types of slide show and animations. 2.0. Principles: The person must be able to explain the principles of: 2.1 Formatting requirements for presentations; 2.2 Principles of text optimization.	

	<p>3.0. Theories:</p> <p>The person must be able to explain:</p> <p>3.1 Rules to optimize presentations;</p> <p>3.2 Challenges faced in optimizing presentation documents.</p> <p>4.0. Essential skills:</p> <p>4.1 Analytical skills;</p> <p>4.2 Prepare presentations;</p> <p>4.3 Set text and artistic font;</p> <p>4.4 Optimize tables;</p> <p>4.5 Embellish pictures;</p> <p>4.6 Add and modify animations;</p> <p>4.7 Slide transition;</p> <p>4.8 Add and modify annotations;</p> <p>4.9 Master settings and modifications;</p> <p>4.10 Set the slide show mode.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	Information and data are collected, summarized, and analyzed, and presentations are created and optimized as per industry standards.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Safe operation of system software and presentation software; 2. Optimization of presentation documents; 3. Extent of responsibilities.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	COLLECT, SUMMARIZE AND ANALYZE INFORMATION AND DATA AND PREPARE ANALYSIS REPORTS FOR DECISION-MAKING REFERENCE	DUTY NO.	601
TASK TITLE	VISUALIZE TABULAR DATA	TASK NO.	6013
PERFORMANCE CRITERIA	The person performing this task must be able to collect, summarize and analyze information and data and visualize tabular data as per industry standards.		
RANGE STATEMENT	This task can be performed in an office environment or in a client’s office. The following equipment and tools should be available: 1. Computer; 2. Computer-related software tools; 3. Related guides. This person shall work under minimum supervision.		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Select appropriate data processing software; 2. Operate workbooks; 3. Process data; 4. Data visualization; 5. Observe health and safety precautions at work; 6. Clean workplace; 7. Store tools.		Detailed knowledge about: 1.0. Methods The person must be able to explain how to: 1.1 Select appropriate data processing software; 1.2 Operate workbooks; 1.3 Process data; 1.4 Data visualization. 2.0. Principles: The person must be able to explain the principles of:	

	<p>2.1 Principles to be followed in operating workbooks;</p> <p>2.2 Principles of handling data.</p> <p>3.0. Theories:</p> <p>The person must be able to explain:</p> <p>3.1 Mathematical theory of data processing;</p> <p>3.2 Mathematical theory of data visualization.</p> <p>4.0. Essential skills:</p> <p>4.1 Statistics;</p> <p>4.2 Set worksheet rows and columns;</p> <p>4.3 Set cell formatting;</p> <p>4.4 Set table borders;</p> <p>4.5 Formula (function) application;</p> <p>4.6 Data sorting;</p> <p>4.7 Data filtering;</p> <p>4.8 Data merging calculation;</p> <p>4.9 Data classification summary;</p> <p>4.10 Autoformat and conditional format of tables;</p> <p>4.11 Create and modify charts.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	Information and data are collected, summarized, and analyzed, and tabular data is created and visualized as per industry standards.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Safe operation of system software and data processing software; 2. Visualization of tabular data; 3. Extent of responsibilities.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	COLLECT, SUMMARIZE AND ANALYZE INFORMATION AND DATA AND PREPARE ANALYSIS REPORTS FOR DECISION-MAKING REFERENCE	DUTY NO.	601
TASK TITLE	MASTER THE COOPERATIVE OFFICE	TASK NO.	6014
PERFORMANCE CRITERIA	The person performing this task must be able to collaborate on the collecting, summarizing, analysis of information and data, and report writing as per industry standards.		
RANGE STATEMENT	This task can be performed in an office environment or in a client’s office. The following equipment and tools should be available: 1. Computer; 2. Computer-related software tools; 3. Related guides. This person shall work under minimum supervision.		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Select appropriate collaborative office software; 2. Use search engines and download materials; 3. Use an e-mail box to send and receive e-mails; 4. Use chat tools; 5. Use online meeting tools; 6. Use network security software;		Detailed knowledge about: 1.0. Methods The person must be able to explain how to: 1.1 Select appropriate collaborative office software; 1.2 Use search engines; 1.3 Send and receive e-mails and messages; 1.4 Conduct network meetings. 2.0. Principles: The person must be able to explain the principles of: 2.1 Safe Internet access;	

<p>7. Observe health and safety precautions at work;</p> <p>8. Clean workplace;</p> <p>9. Store tools.</p>	<p>2.2 Maintaining network security.</p> <p>3.0. Theories:</p> <p>The person must be able to explain:</p> <p>3.1 Information transmission models;</p> <p>3.2 Basic network protocols.</p> <p>4.0. Essential skills:</p> <p>4.1 Information search and material download;</p> <p>4.2 Use e-mail;</p> <p>4.3 Use chat tools;</p> <p>4.4 Organize and conduct network meetings;</p> <p>4.5 Use network security software;</p> <p>4.6 Communication skills;</p> <p>4.7. Interpersonal skills;</p> <p>4.8 Teamwork skills;</p> <p>4.9. Organizational skills.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	Information and data are collected, summarized, and analyzed, and reports are written as per industry standards.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Safe operation of system software and collaborative office software; 2. Information transmission security; 3. Extent of responsibilities.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	MAINTAIN ICT DEVICES	DUTY NO.	602
TASK TITLE	UPDATE THE ICT DEVICE MAINTENANCE OPERATION PLAN AND PERFORM SPECIAL MAINTENANCE	TASK NO.	6021
PERFORMANCE CRITERIA:	The person performing this task must be able to update the ICT device maintenance operation plan and perform special maintenance as per industry standards and instruction manuals.		
RANGE STATEMENT	This task can be performed in a workshop or in a client’s office. The following equipment and tools should be available: 1. Instruction manual; 2. Parts of ICT devices; 3. Relevant software tools; 4. Relevant measuring equipment; 5. Technologist toolkit. This person will work under minimum supervision.		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Fill in the ICT device maintenance operation plan; 2. Inspect devices as per the ICT device maintenance operation plan; 3. Fill in or upload the execution of ICT device maintenance operation plan and test inspection data records; 4. Declare device faults according to the process and		Detailed knowledge about: 1.0. Methods: The person performing this task must be able to explain how to: 1.1 Check ICT device for proper functioning; 1.2 Check ICT device alarm information; 1.3 Declare and handle faults. 2.0. Principles: The person must be able to explain the principles of: 2.1 Requirements for the execution of the	

<p>fill in device fault work orders as per device alarm information;</p> <p>5. Handle user fault work orders and receive, handle and return orders as required;</p> <p>6. Test ICT device system;</p> <p>7. Clean workplace and tools;</p> <p>8. Store tools, equipment, and safety gears.</p>	<p>ICT device maintenance operation plan;</p> <p>2.2 ICT device fault declaring and handling process;</p> <p>2.3. Operational specifications for user fault work orders.</p> <p>3.0. Theories:</p> <p>The person must be able to explain:</p> <p>3.1 Items of routine maintenance and inspection of ICT devices;</p> <p>3.2 Types, meanings, and levels of ICT device alarm information.</p> <p>4.0. Essential skills:</p> <p>4.1 Problem solving skills;</p> <p>4.2 Communication skills;</p> <p>4.3 Related document writing skills;</p> <p>4.4 Analytical skills;</p> <p>4.5. Interpersonal skills;</p> <p>4.6 Teamwork skills.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	<p>ICT device maintenance operation plans are updated and special maintenance is performed as per industry standards and instruction manuals.</p>
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Safe operation of ICT devices; 2. Safe handling of ICT device faults; 3. Extent of responsibilities.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	MAINTAIN ICT DEVICES	DUTY NO.	602
TASK TITLE	READ THE NETWORK CUTOVER PLANS AND CONFIRM THE OPERATIONAL STATUS BEFORE AND AFTER THE CUTOVER	TASK NO.	6022
PERFORMANCE CRITERIA:	The person performing this task must be able to read the network cutover plans and confirm the operational status before and after the cutover as per industry standards and instruction manuals.		
RANGE STATEMENT	This task can be performed in a workshop or in a client’s office. The following equipment and tools should be available: 1. Instruction manual; 2. Relevant software tools; 3. Relevant measuring equipment; 4. Technologist toolkit. This person will work under minimum supervision.		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Read the network cutover operation plan; 2. Organize and implement cutover as per the plan; 3. Check the impact area of the cutover operation; 4. Verify and confirm the operation of the devices and services before and after the network cutover operation; 5. Conduct statistics and analysis of the user services		Detailed knowledge about: 1.0. Methods: The person performing this task must be able to explain how to: 1.1 Debug ICT device; 1.2 Perform network cutover preparation; 1.3 Arrange the duty protection of the cutover site. 2.0. Principles: The person must be able to explain the principles of: 2.1 Network cutover operation flow and	

<p>affected by the cutover operation;</p> <p>6. Test ICT device system;</p> <p>7. Clean workplace and tools;</p> <p>8. Store tools, equipment, and safety gears.</p>	<p>management methods;</p> <p>2.2 Main content of the network cutover operation plan;</p> <p>2.3 Risk control and fallback plan for network cutover.</p> <p>3.0. Theories:</p> <p>The person must be able to explain:</p> <p>3.1 Relationship between devices and operations;</p> <p>3.2 Cutover objectives and scope.</p> <p>4.0. Essential skills:</p> <p>4.1 Problem solving skills;</p> <p>4.2 Communication skills;</p> <p>4.3 Related document writing skills;</p> <p>4.4 Analytical skills;</p> <p>4.5. Interpersonal skills;</p> <p>4.6 Teamwork skills.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	<p>Network cutover plans are read and the operational status before and after the cutover is confirmed as per industry standards and instruction manuals.</p>
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Safe operation of ICT devices; 2. Safe handling of ICT device faults; 3. Extent of responsibilities.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	MAINTAIN ICT DEVICES	DUTY NO.	602
TASK TITLE	CHECK CABLES, LABELS, TOOLS, SPARE PARTS AND DATA ON THE ICT DEVICE SITE	TASK NO.	6023
PERFORMANCE CRITERIA:	The person performing this task must be able to check ICT device field cables, labels, tools, spare parts, and materials as per industry standards and instruction manuals.		
RANGE STATEMENT	This task can be performed in a workshop or in a client’s office. The following equipment and tools should be available: 1. Instruction manual; 2. Relevant software tools; 3. Relevant measuring equipment; 4. Technologist toolkit. This person will work under minimum supervision.		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Identify cables, labels, tools, spare parts and data on the ICT device site; 2. Check cables, labels, tools, spare parts and data on the ICT device site; 3. Determine the faulty item that needs to be replaced; 4. Replace the faulty item; 5. Test ICT device system; 6. Clean workplace and tools; 7. Store tools, equipment, and safety gears.		Detailed knowledge about: 1.0. Methods: The person performing this task must be able to explain how to: 1.1 Verify properly functioning ICT devices; 1.2 Identify problems with cables, labels, tools, spare parts, and data; 1.3 Test repaired ICT devices. 2.0. Principles: The person must be able to explain the principles of: 2.1 Operational procedures and specifications for the replacement of cables, labels, tools, spare parts, and data	

	<p>at the ICT device site;</p> <p>2.2 Procedures for the operation and testing of ICT devices.</p> <p>3.0. Theories:</p> <p>The person must be able to explain:</p> <p>3.1 Types of ICT devices;</p> <p>3.2 ICT device components and functions.</p> <p>4.0. Essential skills:</p> <p>4.1 Problem solving skills;</p> <p>4.2 Communication skills;</p> <p>4.3 Related document writing skills;</p> <p>4.4 Analytical skills;</p> <p>4.5. Interpersonal skills;</p> <p>4.6 Teamwork skills.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	ICT device field cables, labels, tools, spare parts, and materials are checked as per industry standards and instruction manuals.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Safe operation of ICT devices; 2. Safe handling of ICT device faults; 3. Extent of responsibilities.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	MANAGE ICT DEVICE ASSETS	DUTY NO.	603
TASK TITLE	BE FAMILIAR WITH THE BASIC PROCESS OF EQUIPMENT PROCUREMENT AND ACCEPTANCE	TASK NO.	6031
PERFORMANCE CRITERIA:	The person performing this task must be able to participate in the procurement and acceptance of ICT devices as per industry standards and procurement plans.		
RANGE STATEMENT	This task can be performed in a workshop or in a client’s office. The following equipment and tools should be available: 1. Procurement plan; 2. Equipment parameters; 3. Measurement and diagnostic tools; 4. Computer system. This person will work under minimum supervision.		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Determine the technical parameters of the equipment; 2. Provide reference prices; 3. Prepare procurement list; 4. Prepare acceptance report.		Detailed knowledge about: 1.0. Methods: The person performing this task must be able to explain how to: 1.1 Complete the ICT device procurement process; 1.2 Prepare ICT device acceptance reports. 2.0. Principles: The person must be able to explain the principles of: 2.1 ICT device procurement specifications;	

	<p>2.2 ICT device acceptance specifications.</p> <p>3.0. Theories:</p> <p>The person must be able to explain:</p> <p>3.1 Types of ICT assets and performance parameters;</p> <p>3.2 ICT asset performance test methods.</p> <p>4.0. Essential skills:</p> <p>4.1 Problem solving skills;</p> <p>4.2 Communication skills;</p> <p>4.3 Related document writing skills;</p> <p>4.4 Analytical skills;</p> <p>4.5. Interpersonal skills;</p> <p>4.6 Teamwork skills.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	ICT device procurement lists and acceptance reports are issued as per industry standards and procurement plans.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Classification, functions and parameters of ICT device; 2. Extent of responsibilities.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	MANAGE ICT DEVICE ASSETS	DUTY NO.	603
TASK TITLE	KNOW ABOUT ICT DEVICE MANAGEMENT TOOLS	TASK NO.	6032
PERFORMANCE CRITERIA:	The person performing this task must be able to manage the daily use of ICT device assets with the help of appropriate management tools as per industry standards.		
RANGE STATEMENT	This task can be performed in a workshop or in a client’s office. The following equipment and tools should be available: 1. Barcode reader; 2. Related management software; 3. Computer system. This person will work under minimum supervision.		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Select appropriate ICT device management tools; 2. Create ICT device asset files; 3. Manage the daily borrowing and returning of ICT device assets; 4. Request common accessories to ICT device assets.		Detailed knowledge about: 1.0. Methods: The person performing this task must be able to explain how to: 1.1 Select ICT device asset management tools; 1.2 Create ICT device asset files; 1.3 Manage the borrowing and returning of ICT device assets; 1.4 Request accessories to ICT device assets. 2.0. Principles: The person must be able to explain the principles of: 2.1 Archival standards for ICT device assets;	

	<p>2.2 Principles of borrowing and returning ICT device assets.</p> <p>3.0. Theories:</p> <p>The person must be able to explain:</p> <p>3.1 Classification, functions, and main parameters of ICT device assets;</p> <p>3.2 Environment in which ICT device assets are used and their common accessories.</p> <p>4.0. Essential skills:</p> <p>4.1 Problem solving skills;</p> <p>4.2 Communication skills;</p> <p>4.3 Related document writing skills;</p> <p>4.4 Analytical skills;</p> <p>4.5. Interpersonal skills;</p> <p>4.6 Teamwork skills.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	The daily use of ICT device assets is managed with the help of appropriate management tools as per industry standards.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Classification, functions and parameters of ICT device; 2. Safe operation of ICT devices; 3. Extent of responsibilities.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	MANAGE ICT DEVICE ASSETS	DUTY NO.	603
TASK TITLE	PREPARE INVENTORY OF ICT DEVICE ASSETS	TASK NO.	6033
PERFORMANCE CRITERIA:	The person performing this task must be able to prepare and maintain an inventory of ICT assets as per industry standards.		
RANGE STATEMENT	This task can be performed in a workshop or in a client’s office. The following equipment and tools should be available: 1. Equipment description document; 2. Barcode reader; 3. Computer system. This person shall work independently.		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Identify ICT device assets; 2. Collect detailed information on ICT device assets; 3. Prepare and maintain an inventory of ICT device assets.		Detailed knowledge about: 1.0. Methods: The person performing this task must be able to explain how to: 1.1. Decompose ICT device assets; 1.2. Code ICT device assets; 1.3. Prepare an inventory of ICT assets; 2.0. Principles: The person must be able to explain the principles of: 2.1. Principles of ICT device asset identification; 2.2. Principles of ICT device asset coding; 2.3. Principles of ICT device assets inventorying. 3.0. Theories: The person must be able to explain the types of ICT assets and their main parameters. 4.0. Essential skills: 4.1 Problem solving skills; 4.2 Communication skills; 4.3 Related document writing skills;	

	4.4 Analytical skills; 4.5. Interpersonal skills; 4.6 Teamwork skills.
DESCRIPTION OF END PRODUCTS/SERVICE	An inventory of ICT device assets is prepared as per industry standards.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: 1. Classification, functions and parameters of ICT device; 2. Extent of responsibilities.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	MANAGE ICT DEVICE ASSETS	DUTY NO.	603
TASK TITLE	EVALUATE EQUIPMENT SCRAPPING CONDITIONS AND PREPARE THE DISPOSAL PLAN	TASK NO.	6034
PERFORMANCE CRITERIA:	The person performing this task must be able to develop scrapping criteria for various types of ICT devices, and identify, declare and dispose of scrapping devices as per industry standards.		
RANGE STATEMENT	This task can be performed in a workshop or in a client’s office. The following equipment and tools should be available: 1. Equipment description document; 2. Measurement and diagnostic tools; 3. Computer system. This person will work under minimum supervision.		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Develop scrapping criteria for devices; 2. Identify scrapping devices; 3. Dispose of scrapping devices.		Detailed knowledge about: 1.0. Methods: The person performing this task must be able to explain how to: 1.1 Develop scrapping criteria for ICT devices; 1.2 Identify scrapping devices; 1.3 Declare and dispose of scrapping devices. 2.0. Principles: The person must be able to explain the principles of: 2.1 PERFORMANCE CRITERIA for ICT	

	<p>devices;</p> <p>2.2 ICT device testing methods;</p> <p>2.3 Scrapping criteria for ICT devices.</p> <p>3.0. Theories:</p> <p>The person must be able to explain:</p> <p>3.1 Types of ICT assets and performance parameters;</p> <p>3.2 ICT asset performance testing principles and methods.</p> <p>4.0. Essential skills:</p> <p>4.1 Problem solving skills;</p> <p>4.2 Communication skills;</p> <p>4.3 Related document writing skills;</p> <p>4.4 Analytical skills;</p> <p>4.5. Interpersonal skills;</p> <p>4.6 Teamwork skills.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	<p>The conditions of ICT devices are assessed and scrapping devices are declared and disposed of as per industry standards and ICT device performance indicators.</p>
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Classification, functions and parameters of ICT device; 2. Extent of responsibilities.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	MANAGE SERVERS	DUTY NO.	604
TASK TITLE	KNOW ABOUT THE SERVER TYPE AND APPLICATION ENVIRONMENT	TASK NO.	6041
PERFORMANCE CRITERIA:	The person performing this task must be able to understand the type and application environment of servers as per industry standards and instruction manuals.		
RANGE STATEMENT	This task can be performed in an indoor environment. The following equipment and tools should be available: 1. Instruction manual; 2. Related server equipment; 3. Related tools and software. This person will work under minimum supervision.		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Understand the basic types and models of servers as per the instruction manual; 2. Install the server operating system; 3. Build server application software; 4. View and install the web server, and change the server configuration; 5. View and install the HTTP server and change the server configuration; 6. Clean workplace and tools; 7. Proper storage of server		Detailed knowledge about: 1.0. Methods: The person performing this task must be able to explain how to: 1.1 Install server operating systems; 1.2 Build server LAMP (Linux+Apache+MySQL+PHP) application environment; 1.3 Install the server. 2.0. Principles: The person must be able to explain the principles of: 2.1 Server application environment requirements;	

<p>devices, away from dust, fumes, or harmful gases, to ensure the safety of the server.</p>	<p>2.2 Specification of matching server software and hardware versions;</p> <p>2.3 Differences and specifications for installing different types of servers.</p> <p>3.0. Theories:</p> <p>The person must be able to explain:</p> <p>3.1 Basic types and models of servers;</p> <p>3.2 Principles of server architecture.</p> <p>4.0. Essential skills:</p> <p>4.1 Information gathering and organizing skills;</p> <p>4.2 Communication skills;</p> <p>4.3. Practical problem solving skills;</p> <p>4.4 Analytical skills;</p> <p>4.5. Interpersonal skills.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	<p>The type and application environment of servers are understood as per industry standards and instruction manuals.</p>
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Basic server installation operations; 2. Safe operation of the server; 3. Basic operating system installation operations.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	MANAGE SERVERS	DUTY NO.	604
TASK TITLE	BE FAMILIAR WITH THE CONFIGURATION AND MAINTENANCE OF SWITCHES OF MAINSTREAM BRANDS	TASK NO.	6042
PERFORMANCE CRITERIA:	The person performing this task must be able to be familiar with the configuration and maintenance of switches of mainstream brands as per industry standards and instruction manuals.		
RANGE STATEMENT	This task can be performed in an indoor environment or in a client’s office. The following equipment and tools should be available: 1. Instruction manual; 2. Related switch devices; 3. Related tools and software. This person will work under minimum supervision.		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Understand the basic types and models of switches of mainstream brands as per the instruction manual; 2. Develop the switch device maintenance plan; 3. Set the switch configuration plan; 4. Inspect clients' devices as per the device maintenance plan, record job execution, and check data;		Detailed knowledge about: 1.0. Methods: The person performing this task must be able to explain how to: 1.1 View switch name and password configuration; 1.2 View switch IP address configuration; 1.3 View switch telnet configuration; 1.4 Check switch device for proper functioning; 1.5 Troubleshoot switch.	

5. Test switch devices; 6. Troubleshoot switch; 7. Clean workplace and tools; 8. Properly store tools and switch devices.	<p>2.0. Principles:</p> <p>The person must be able to explain the principles of:</p> <p>2.1 Specifications for switch configuration maintenance process;</p> <p>2.2 Scope of work for switch configuration maintenance;</p> <p>2.3 Operational specifications for handling client faults.</p> <p>3.0. Theories:</p> <p>The person must be able to explain:</p> <p>3.1 Switch device types;</p> <p>3.2 Switch configuration;</p> <p>3.3 Switch fault detection.</p> <p>4.0. Essential skills:</p> <p>4.1 Information gathering and organizing skills;</p> <p>4.2 Communication skills;</p> <p>4.3. Practical problem solving skills;</p> <p>4.4 Analytical skills;</p> <p>4.5. Interpersonal skills.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	The configuration and maintenance of switches of mainstream brands are familiar as per industry standards and instruction manuals.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: <ol style="list-style-type: none"> 1. Maintenance plans for switches of mainstream brands; 2. Safe handling of switch device faults; 3. Extent of responsibilities.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	MANAGE SERVERS	DUTY NO.	604
TASK TITLE	USE THE COMMON VIRTUALIZATION PLATFORM VMWARE	TASK NO.	6043
PERFORMANCE CRITERIA:	The person performing this task must be able to use the common virtualization platform VMWARE as per industry standards and instruction manuals.		
RANGE STATEMENT	This task can be performed in an office. The following equipment and tools should be available: 1. Development environment; 2. Related tools and software; 3. Relevant measuring equipment; 4. Technologist toolkit. This person will work under minimum supervision.		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Install the virtualization platform VMWARE as per the system version; 2. Download the relevant system image; 3. Create virtual machines and allocate memory; 4. Manage servers using virtual machines; 5. Test the virtual machine system; 6. Clean workplace and tools.		Detailed knowledge about: 1.0. Methods: The person performing this task must be able to explain how to: 1.1 Install the virtualization platform VMWARE; 1.2 Test the virtualization platform VMWARE; 1.3 Create virtual machines; 1.4 Configure and modify the operating environment. 2.0. Principles: The person must be able to explain the	

	<p>principles of:</p> <p>2.1 Environmental and configuration requirements for using VMWARE;</p> <p>2.2. Operational and testing procedures for using VMWARE.</p> <p>3.0. Theories:</p> <p>The person must be able to explain:</p> <p>3.1 VMWARE version control;</p> <p>3.2 VMWARE configuration specifications;</p> <p>3.3 VMWARE principles;</p> <p>3.4 VMWARE usage steps.</p> <p>4.0. Essential skills:</p> <p>4.1 Information gathering and organizing skills</p> <p>4.2 Communication skills;</p> <p>4.3. Practical problem solving skills;</p> <p>4.4 Analytical skills;</p> <p>4.5. Interpersonal skills.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	The common virtualization platform VMWARE is used as per industry standards and instruction manuals.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Basic VMWARE installation operations; 2. Virtual operating system configuration and creation.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	MANAGE SERVERS	DUTY NO.	604
TASK TITLE	MANAGE AND CONFIGURE THE NETWORK MONITORING SYSTEM SOFTWARE	TASK NO.	6044
PERFORMANCE CRITERIA:	The person performing this task must be able to manage and configure the network monitoring system software as per industry standards and instruction manuals.		
RANGE STATEMENT	This task can be performed in a workshop or in a client’s office. The following equipment and tools should be available: 1. Related tools and software; 2. Relevant measuring equipment; 3. Technologist toolkit. This person will work under minimum supervision.		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Develop network monitoring system software management plans; 2. Install network monitoring system software; 3. Check the scope of influence of network monitoring software; 4. Verify and confirm network monitoring equipment and operation; 5. Conduct statistics and analysis of network		Detailed knowledge about: 1.0. Methods: The person performing this task must be able to explain how to: 1.1 Install network monitoring system software; 1.2 Debug the network monitoring system software and monitor its operation status; 1.3 Maintain the network monitoring system software; 2.0. Principles: The person must be able to explain the principles of:	

<p>monitoring user business;</p> <p>6. Test the network monitoring system;</p> <p>7. Clean workplace and tools;</p> <p>8. Store tools, equipment, and safety gears.</p>	<p>2.1 Workflow and management methods of network monitoring system software;</p> <p>2.2 Network monitoring system software configuration principles.</p> <p>3.0. Theories:</p> <p>The person must be able to explain:</p> <p>3.1 Network monitoring system software configuration and testing procedures;</p> <p>3.2 Network monitoring system software functions and scope of action.</p> <p>4.0. Essential skills:</p> <p>4.1 Information gathering and organizing skills;</p> <p>4.2 Communication skills;</p> <p>4.3. Practical problem solving skills;</p> <p>4.4 Analytical skills;</p> <p>4.5. Interpersonal skills.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	The network monitoring system software is managed and configured as per industry standards and instruction manuals.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Network monitoring system software configuration management; 2. Network monitoring system software security maintenance.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	MANAGE SERVERS	DUTY NO.	604
TASK TITLE	CHECK THE NETWORK STATUS, PERFORMANCE AND INDICATORS OF THE BUSINESS SYSTEM	TASK NO.	6045
PERFORMANCE CRITERIA:	The person performing this task must be able to check the status, performance, and indicators of the business system network as per industry standards and instruction manuals.		
RANGE STATEMENT	This task can be performed in a workshop or in a client’s office. The following equipment and tools should be available: 1. Related tools and software; 2. Relevant measuring equipment; 3. Technologist toolkit. This person will work under minimum supervision.		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Develop business system network status evaluation criteria; 2. Check the usage of each port of the business system network; 3. Check the business system network link situation; 4. Issue business system network status reports as per the criteria; 5. Develop business system performance evaluation criteria and related indicators; 6. Test the performance of the business system as per the		Detailed knowledge about: 1.0. Methods: The person performing this task must be able to explain how to: 1.1 Check the network status of business systems; 1.2 Evaluate business system performance. 2.0. Principles: The person must be able to explain the principles of: 2.1 Evaluation criteria and standards for the network status of business systems; 2.2. Business system performance indicators.	

<p>criteria and issue business system performance and indicator evaluation reports;</p> <p>7. Clean workplace and tools;</p> <p>8. Store tools and gears.</p>	<p>3.0. Theories:</p> <p>The person must be able to explain:</p> <p>3.1 Types of business system performance tests;</p> <p>3.2 Grading criteria for business system network status.</p> <p>4.0. Essential skills:</p> <p>4.1 Information gathering and organizing skills;</p> <p>4.2 Communication skills;</p> <p>4.3. Practical problem solving skills;</p> <p>4.4 Analytical skills;</p> <p>4.5. Interpersonal skills.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	The status, performance, and indicators of the business system network are checked as per industry standards and instruction manuals.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Operation steps to check the network status of the business system; 2. Business system performance and evaluation indicators.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	MANAGE SERVERS	DUTY NO.	604
TASK TITLE	TROUBLESHOOT AND DISPOSE OF THE SERVER	TASK NO.	6046
PERFORMANCE CRITERIA:	The person performing this task must be able to troubleshoot and dispose of the server as per industry standards and instruction manuals.		
RANGE STATEMENT	This task can be performed in a workshop or in a client’s office. The following equipment and tools should be available: 1. Instruction manual; 2. Related tools and software; 3. Relevant measuring equipment; 4. Technologist toolkit. This person will work under minimum supervision.		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Develop a server troubleshooting plan and set the scope of server troubleshooting; 2. Identify server types and categories; 3. Use debugging software or equipment to test servers, including software and hardware; 4. Fill in the troubleshooting status and record the test data; after locating the server fault, declare the fault work order; 5. Handle the corresponding		Detailed knowledge about: 1.0. Methods: The person performing this task must be able to explain how to: 1.1 Check service device for proper functioning; 1.2 Debug server faults; 1.3 Declare and handle faults. 2.0. Principles: The person must be able to explain the principles of: 2.1. Operational specifications for server troubleshooting; 2.2 Process of declaring and handling server	

<p>fault, and view the system operation log to check whether it is a software fault;</p> <p>6. Check whether it is a server hardware conflict fault;</p> <p>7. Receive and return fault work orders as required;</p> <p>8. Clean workplace and tools;</p> <p>9. Store tools, equipment, and safety gears.</p>	<p>faults.</p> <p>3.0. Theories:</p> <p>The person must be able to explain:</p> <p>3.1 Server types and fault points;</p> <p>3.2 Common server faults and response methods.</p> <p>4.0. Essential skills:</p> <p>4.1 Information gathering and organizing skills;</p> <p>4.2 Communication skills;</p> <p>4.3. Practical problem solving skills;</p> <p>4.4 Analytical skills;</p> <p>4.5. Interpersonal skills.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	Server faults are troubleshoot and disposed of as per industry standards and instruction manuals.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Server troubleshooting operations; 2. Server fault declaration process.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	ACCESS AND SUPERVISE WANS	DUTY NO.	605
TASK TITLE	REMOTE ACCESS TO WANS	TASK NO.	6051
PERFORMANCE CRITERIA	The person performing this task must be able to remotely connect, manage and maintain multiple types of WANs as per industry standards and international guidelines for network communications.		
RANGE STATEMENT	This task can be performed in an office environment or in a machine room environment. The following equipment and tools should be available: 1. Computer; 2. Router; 3. Network technologist toolkit; 4. Relevant software tools; 5. Related guides. This person shall work under minimum supervision.		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Understand the types of WAN access; 2. Develop remote WAN access solutions; 3. Use tools for remote WAN access; 4. Master the use of mainstream network devices; 5. Implement remote WAN access; 6. Debugging optimization and later-period		Detailed knowledge about: 1.0. Methods The person must be able to explain how to: 1.1 Target access solutions for different types of WANs; 1.2 Processes for testing and debugging WAN access; 1.3 Processes for management, maintenance, and optimization after WAN access. 2.0. Principles: The person must be able to explain the principles of: 2.1 Selection of remote access technologies for different types of WANs;	

troubleshooting and maintenance;	2.2 Satisfying the connectivity needs of remote connections;
7. Observe health and safety precautions at work;	2.3 Satisfying the security needs of remote connections;
8. Clean workplace;	2.4 Satisfying the optimality needs of remote connections.
9. Store tools.	
	<p>3.0. Theories:</p> <p>The person must be able to explain:</p> <p>3.1 Basic network theories such as network protocols and IP network techniques;</p> <p>3.2 WAN access types and access techniques;</p> <p>3.3 Manuals for the use of mainstream network devices;</p> <p>3.4 Basic theory of network security.</p> <p>4.0. Essential skills:</p> <p>4.1 Thinking, analysis and problem solving skills;</p> <p>4.2 Hands-on skills for WAN installation, debugging and optimization;</p> <p>4.3 Coding skills for basic network commands;</p> <p>4.4 Communication, coordination, reporting, and comprehension skills;</p> <p>4.5 Writing skills for design proposals, reports, and other written documents;</p> <p>4.6 Contingency skills under special conditions;</p> <p>4.7 Leadership skills;</p>

	4.8. Project management skills.
DESCRIPTION OF END PRODUCTS/SERVICE	Remote access to different types of WANs is realized, and testing, operation, management, and maintenance are completed as per the international standard of network communication.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: <ol style="list-style-type: none"> 1. Network-related basic knowledge; 2. Use and debugging of related network devices; 3. WAN access specifications.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	ACCESS AND SUPERVISE WANS	DUTY NO.	605
TASK TITLE	ACCESS TO REDUNDANT LINKS	TASK NO.	6052
PERFORMAN CE CRITERIA	The person performing this task must be able to provide a backup link to the primary link as per industry standards and national ICT guidelines.		
RANGE STATEMENT	This task can be performed in the user network center. The following equipment and tools should be available: 1. Computer; 2. Router; 3. Network technologist toolkit; 4. Relevant software tools; 5. Related guides. This person shall work under minimum supervision.		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Installation of WAN module; 2. Communication cable connection; 3. Configuration of WAN protocols; 4. Configuration of routing protocols; 5. Observe health and safety precautions at work; 6. Clean workplace; 7. Store tools.		Detailed knowledge about: 1.0. Methods The person must be able to explain how to: 1.1 Install the WAN module; 1.2 Connect communication cables; 1.3 Configure WAN protocols; 1.4 Configure routing protocols. 2.0. Principles: The person must be able to explain the principles of: 2.1 Installing WAN modules; 2.2 Testing primary and backup link switching. 3.0. Theories: The person must be able to explain:	

	<p>3.1. Types of communication cables;</p> <p>3.2. WAN protocols;</p> <p>3.3. Routing protocols.</p> <p>4.0. Essential skills:</p> <p>4.1. Communication reporting and report writing skills;</p> <p>4.2 Analytical skills;</p> <p>4.3. Network fault diagnosis skills;</p> <p>4.4 Leadership skills;</p> <p>4.5. Configuration skills of routing protocols;</p> <p>4.6. Strong written and oral communication skills;</p> <p>4.7. Outstanding interpersonal skills;</p> <p>4.8. Speech skills;</p> <p>4.9. Project management skills;</p> <p>4.10 Problem solving skills.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	A scheme for accessing redundant links is implemented as per industry standards and national ICT guidelines.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Communication cable connection; 2. Router configuration; 3. Extent of responsibilities.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	ACCESS AND SUPERVISE WANS	DUTY NO.	605
TASK TITLE	CONFIGURE THE WAN COMMUNICATION PROTOCOL	TASK NO.	6053
PERFORMANCE CRITERIA	The person performing this task must be able to configure WAN communication protocols to enable communication between remote networks as per industry standards and national ICT guidelines.		
RANGE STATEMENT	This task can be performed in the user network center. The following equipment and tools should be available: 1. Computer; 2. Router; 3. Network technologist toolkit; 4. Relevant software tools; 5. Related guides. This person shall work under minimum supervision.		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Identify WAN communication cables; 2. Basic configuration of the router; 3. Configuration of WAN protocols; 4. Configuration of routing protocols; 5. Strictly observe health and safety precautions at work; 6. Clean workplace; 7. Store tools.		Detailed knowledge about: 1.0. Methods The person must be able to explain how to: 1.1 Connect network devices using communication cables; 1.2 Configure WAN protocols; 1.3 Configure routing protocols; 1.4 Test the connectivity of the network. 2.0. Principles: The person must be able to explain the principles of: 2.1 Using communication cables; 2.2 Analyzing the causes of network	

	<p>communication faults;</p> <p>2.3 Troubleshooting network communication.</p> <p>3.0. Theories:</p> <p>The person must be able to explain:</p> <p>3.1 WAN protocols;</p> <p>3.2 Configuration of routing protocols.</p> <p>4.0. Essential skills:</p> <p>4.1. Communication reporting and report writing skills;</p> <p>4.2 Analytical skills;</p> <p>4.3 WAN protocol configuration skills;</p> <p>4.4 Leadership skills;</p> <p>4.5. Configuration skills of routing protocols;</p> <p>4.6. Strong written and oral communication skills;</p> <p>4.7. Outstanding interpersonal skills;</p> <p>4.8. Speech skills;</p> <p>4.9. Project management skills;</p> <p>4.10 Problem solving skills.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	<p>WAN communication protocols are configured to enable communication between remote networks as per industry standards and national ICT guidelines.</p>
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Configuring WAN protocols; 2. Configuring routing protocols; 3. Extent of responsibilities.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	ACCESS AND SUPERVISE WANS	DUTY NO.	605
TASK TITLE	REALIZE PPP CERTIFICATION	TASK NO.	6054
PERFORMAN CE CRITERIA	The person performing this task must be able to configure PPP authentication to enable communication between remote networks as per industry standards and national ICT guidelines.		
RANGE STATEMENT	This task can be performed in the user network center. The following equipment and tools should be available: 1. Computer; 2. Router; 3. Network technologist toolkit; 4. Relevant software tools; 5. Related guides. This person shall work under minimum supervision.		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Connect network devices; 2. PPP protocol basic configuration; 3. Configure PPP authentication; 4. Configure routing protocols; 5. Strictly observe health and safety precautions at work; 6. Clean workplace; 7. Store tools.		Detailed knowledge about: 1.0. Methods The person must be able to explain how to: 1.1 Connect network devices; 1.2 Configure PAP authentication; 1.3 Configure CHAP authentication; 1.4 Configure routing protocols. 2.0. Principles: The person must be able to explain the principles of: 2.1 Analyzing the reasons for unsuccessful PPP authentication; 2.2 Troubleshooting network communication. 3.0. Theories:	

	<p>The person must be able to explain:</p> <p>3.1 Working principles of PAP authentication;</p> <p>3.2 Working principle of CHAP authentication.</p> <p>4.0. Essential skills:</p> <p>4.1. Communication reporting and report writing skills;</p> <p>4.2 Analytical skills;</p> <p>4.3 PPP protocol configuration skills;</p> <p>4.4 Leadership skills.</p> <p>4.5. Configuration skills of routing protocols;</p> <p>4.6. Strong written and oral communication skills;</p> <p>4.7. Outstanding interpersonal skills;</p> <p>4.8. Speech skills;</p> <p>4.9. Project management skills;</p> <p>4.10 Problem solving skills.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	PPP authentication is configured to enable communication between remote networks as per industry standards and national ICT guidelines.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Configure PAP authentication; 2. Configure CHAP authentication; 3. Extent of responsibilities.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	MAINTAIN NETWORK SECURITY	DUTY NO.	606
TASK TITLE	KNOW ABOUT THREATS TO NETWORK SECURITY	TASK NO.	6061
PERFORMANCE CRITERIA:	The person performing this task must be able to identify threats to cybersecurity as per industry standards and instruction manuals.		
RANGE STATEMENT	This task can be performed in a workshop or in a client’s office. The following equipment and tools should be available: 1. Computer; 2. Relevant software tools; 3. Related guides. This person will work under minimum supervision.		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Internet information identification; 2. Internet information auditing; 3. Risk management and control; 4. Observe health and safety precautions at work; 5. Clean workplace; 6. Store tools and equipment.		Detailed knowledge about: 1.0. Methods: The person performing this task must be able to explain how to: 1.1 Text, image, audio, and video and comprehensive recognition of Internet information; 1.2 Basic, content association and quality auditing of Internet information; 1.3 Perform case aggregation, implement security policies, perform retrospective audits, and risk judgments. 2.0. Principles: The person must be able to explain the principles of:	

	<p>2.1. Identification of daily life information and harmful information based on Internet information;</p> <p>2.2. Relevant laws and regulations and related requirements for Internet information auditing;</p> <p>2.3. Identification of risks of different levels of network security incidents.</p> <p>3.0. Theories:</p> <p>The person must be able to explain:</p> <p>3.1. Laws and regulations related to network information security;</p> <p>3.2. Types, meanings, and levels of network security incidents.</p> <p>4.0. Essential skills:</p> <p>4.1 Problem solving skills;</p> <p>4.2 Communication skills;</p> <p>4.3 Related document writing skills;</p> <p>4.4 Analytical skills;</p> <p>4.5. Interpersonal skills;</p> <p>4.6 Teamwork skills.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	Threats to cyber security are identified as per industry standards and instruction manuals.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Network and information security; 2. Safe handling of software; 3. Extent of responsibilities.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	MAINTAIN NETWORK SECURITY	DUTY NO.	606
TASK TITLE	MASTER TECHNOLOGIES RELATED TO THE NETWORK SECURITY	TASK NO.	6062
PERFORMANCE CRITERIA:	The person performing this task must be able to master network security-related technologies as per industry standards and national ICT governance guidelines.		
RANGE STATEMENT	This task can be performed in a workshop or in an office. The following equipment and tools should be available: 1. Laws and regulations and corporate rules and regulations; 2. Computer; 3. Related guides; 4. Relevant software tools; 5. Relevant testing equipment. This person shall work independently.		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Review network security requirements and security levels; 2. Audit the log data of the system and obtain the information related to the network security; 3. Conduct the security assessment on the network system, find and declare security vulnerabilities and hidden dangers, and write the security assessment report; 4. Fill in the network		Detailed knowledge about: 1.0. Methods: The person performing this task must be able to explain how to: 1.1 Conduct the security audit and evaluation on the network system; 1.2. Conduct the host security management; 1.3. Conduct the network security management; 1.4 Conduct the data recovery management. 2.0. Principles: The person must be able to explain the principles of:	

<p>maintenance operation plan;</p> <p>5. Repair and prevent system vulnerabilities and database security risks, and configure and reinforce servers as per the operation plan;</p> <p>6. Manage the network security;</p> <p>7. Manage the data recovery.</p>	<p>2.1. Implementing requirements of the operation plan;</p> <p>2.2. Configuring and managing the network security in combination with the network security level protection;</p> <p>2.3. Declaration and handling process of system security vulnerabilities and hidden dangers.</p> <p>3.0. Theories:</p> <p>The person must be able to explain:</p> <p>3.1. Knowledge of Windows operating system, basic knowledge of database and computer network;</p> <p>3.2. Theoretical basis, principle and mechanism of the computer virus;</p> <p>3.3 Principle, technology and application of the firewall;</p> <p>3.4 Basic principles of the intrusion detection and application of mainstream intrusion detection products;</p> <p>3.5 Cryptography;</p> <p>3.6 Basic knowledge of data backup and recovery;</p> <p>3.7 Basic audit knowledge of principles of Windows system log management;</p> <p>3.8 Basic knowledge of network security assessment.</p> <p>4.0. Essential skills:</p> <p>4.1 Problem solving skills;</p> <p>4.2 Communication skills;</p>
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	<p>4.3. Report writing skills;</p> <p>4.4 Analytical skills;</p> <p>4.5. Interpersonal skills;</p> <p>4.6 Teamwork skills.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	Technologies related to the network security are mastered as per industry standards and national ICT guidelines.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Network security management; 2. Extent of responsibilities.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	MAINTAIN NETWORK SECURITY	DUTY NO.	606
TASK TITLE	SPECIFY POLICIES FOR THE NETWORK SECURITY	TASK NO.	6063
PERFORMANC E CRITERIA:	The person performing this task must be able to specify policies for the network security in accordance with industry standards and national ICT governance guidelines.		
RANGE STATEMENT	This task can be performed in a workshop or in a client’s office. The following equipment and tools should be available: 1. Laws and regulations and corporate rules and regulations; 2. Computer; 3. Related guides; 4. Relevant software tools; 5. Relevant testing equipment. This person shall work independently.		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Review network security requirements and security level protection; 2. Fill in the policy configuration operation plan; 3. Specify the physical security policy; 4. Specify the access control policy; 5. Specify the firewall policy; 6. Specify the information encryption policy; 7. Specify the network security		Detailed knowledge about: 1.0. Methods: The person performing this task must be able to explain how to: 1.1. Specify the physical security policy; 1.2. Specify the access control policy; 1.3. Specify the firewall policy; 1.4. Specify the information encryption policy; 1.5. Specify the network security management policy. 2.0. Principles: The person must be able to explain the	

management policy.	<p>principles of:</p> <p>2.1. Network security requirements as well as network security level protection and requirements;</p> <p>2.2. Policy configuration plan;</p> <p>2.3. Combination of technical policies and management policies;</p> <p>2.4. Risk assessment.</p> <p>3.0. Theories:</p> <p>The person must be able to explain:</p> <p>3.1. Basic knowledge of Windows operating system and database;</p> <p>3.2. Typical network service configuration;</p> <p>3.3. Knowledge and application of active directory domain;</p> <p>3.4. Principle, technology and application of the firewall;</p> <p>3.5 Data encryption technology;</p> <p>3.6 Types and functions of information and communication technology assets.</p> <p>4.0. Essential skills:</p> <p>4.1 Problem solving skills;</p> <p>4.2 Communication skills;</p> <p>4.3. Relevant report writing skills;</p> <p>4.4 Analytical skills;</p> <p>4.5. Interpersonal skills;</p> <p>4.6 Teamwork skills.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	Network security policies are specified as per industry standards and ICT guidelines.

CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Network security management; 2. Equipment operation and management; 3. Extent of responsibilities.
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OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	PREPARE THE NETWORK SECURITY POLICY SPECIFICATION	DUTY NO.	606
TASK TITLE	PREPARE THE NETWORK SECURITY POLICY SPECIFICATION	TASK NO.	6064
PERFORMANCE CRITERIA:	The person performing this task is able to formulate corresponding security rules for the determined safety area as per the corresponding security level requirements.		
RANGE STATEMENT	This task can be performed in the client's office. The following equipment and tools should be available: 1. Network security status report; 2. Target network security level; 3. Related software tools and network security tools; 4. Computer; 5. Technologist toolkit. This person will work under minimum supervision.		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Investigate the network security status in the designated security area and prepare the network security status report; 2. Cooperate with the responsible party of the network security to determine the target network security level; 3. Evaluate the gap between the network security status report and the target network security level, and reasonably determine the		Detailed knowledge about: 1.0. Methods: The person performing this task must be able to explain how to: 1.1. Investigate the network security status in the designated security area; 1.2. Evaluate the gap between the network security status report and the target network security level; 1.3. Prepare security policies to close network security gaps. 2.0. Principles: The person must be able to explain the principles of:	

<p>content of the network security policy;</p> <p>4. Formulate necessary physical security policies as per the valuation gap;</p> <p>5. Formulate necessary access control policies as per the evaluation gap;</p> <p>6. Formulate necessary firewall policies as per the valuation gap;</p> <p>7. Formulate necessary information encryption policies as per the evaluation gap;</p> <p>8. Formulate necessary network security management policies as per the assessment gap;</p> <p>9. Summarize and submit the network security policy specification.</p>	<p>2.1. Preparing the network security status report;</p> <p>2.2. Determining the security level of the target network;</p> <p>2.3. Reasonably determining the content of the network security policy.</p> <p>3.0. Theories:</p> <p>The person must be able to explain:</p> <p>3.1. Investigation items of the network security status in the designated security area;</p> <p>3.2. Meanings, contents and requirements of different levels of network security.</p> <p>4.0. Essential skills:</p> <p>4.1. Investigation and analytical skills;</p> <p>4.2. Communication skills;</p> <p>4.3. Related document writing skills;</p> <p>4.4. Interpersonal skills;</p> <p>4.5. Teamwork skills.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	<p>The network security assessment on the determined safety area is conducted as per the corresponding security level requirements, the gap is analyzed and the corresponding security policy rules are formulated.</p>
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Investigation of the network security; 2. Determining the security level of the target network; 3. Reasonably determination of the content of the network security policy; 4. Extent of responsibilities.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	WRITE BASIC CODES	DUTY NO.	607
TASK TITLE	RECOMMEND PROGRAMMING DEVELOPMENT TOOLS	TASK NO.	6071
PERFORMANCE CRITERIA	The person performing this task must be able to recommend programming development tools as per industry standards and software programming specifications.		
RANGE STATEMENT	This task can be performed in an office environment or in a client’s office. The following equipment and tools should be available: 1. Computer; 2. Relevant software tools; 3. Related guides, This person shall work under minimum supervision.		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Recommend appropriate development tools; 2. Establish the development environment; 3. Use basic development tools.		Detailed knowledge about: 1.0. Methods The person must be able to explain how to: 1.1. User's knowledge background; 1.2. Purpose of usage; 1.3. User requirements; 1.4. Development scale; 1.5. Technical requirements. 2.0. Principles: The person must be able to explain the principles of: 2.1. Minimum workload; 2.2. Minimum skills; 2.3. Minimum error; 2.4. Minimum maintenance;	

	<p>2.5. Reducing memory.</p> <p>3.0. Theories:</p> <p>The person must be able to explain:</p> <p>3.1. Functions of development tools;</p> <p>3.2. Performance of development tools;</p> <p>3.3. Consistency of tool introduction;</p> <p>3.4. Continuous integration with the existing development environment,</p> <p>4.0. Essential skills:</p> <p>4.1. Start and exit of development tools;</p> <p>4.2. Creation and storage of program files;</p> <p>4.3. Communication skills;</p> <p>4.4. Data search and reading skills,</p>
DESCRIPTION OF END PRODUCTS/SERVICE	Programming development tools can be recommended as per industry standards and software programming specifications.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Usage of development tools; 2. Guidelines for the use of development tools.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	WRITE BASIC CODES	DUTY NO.	607
TASK TITLE	DEFINE CONSTANTS AND VARIABLES	TASK NO.	6072
PERFORMANCE CRITERIA	The person performing this task must be able to correctly write and use constants and variables in an appropriate development environment as per industry standards and software programming specifications.		
RANGE STATEMENT	This task can be performed in an office environment or in a client’s office. The following equipment and tools should be available: 1. Computer; 2. Relevant software tools; 3. Related guides. This person shall work under minimum supervision.		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Write and use constants correctly; 2. Define and use variables correctly.		Detailed knowledge about: 1.0. Methods The person must be able to explain how to: 1.1. Identify constants and variables. 2.0. Principles: The person must be able to explain the principles of: 2.1. Naming rules for identifiers; 2.2. Naming rules for variables. 3.0. Theories: The person must be able to explain: 3.1. Concept of the constant; 3.2. Classification of constants; 3.3. Classification and storage range of data	

	<p>types;</p> <p>3.4. Concept of the variable.</p> <p>4.0. Essential skills:</p> <p>4.1. Correctly writing and using constants;</p> <p>4.2. Correctly defining and using variables;</p> <p>4.3. Error handling skills.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	Constants and variables can be written and used correctly as per industry standards and software programming specifications.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Usage of development tools; 2. Software programming specifications.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	WRITE BASIC CODES	DUTY NO.	607
TASK TITLE	CONSTRUCT EXPRESSIONS WITH ARITHMETIC, RELATIONAL AND LOGICAL OPERATIONS	TASK NO.	6073
PERFORMANCE CRITERIA	The person performing this task must be able to construct expressions with arithmetic, relational and logical operations as per industry standards and software programming specifications.		
RANGE STATEMENT	This task can be performed in an office environment or in a client’s office. The following equipment and tools should be available: 1. Computer; 2. Relevant software tools; 3. Related guides. This person shall work under minimum supervision.		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Construct expressions with arithmetic operations; 2. Construct expressions with relational operations; 3. Construct expressions with logical operations; 4. Use arithmetic, relational and logical operations to construct complex expressions.		Detailed knowledge about: 1.0. Methods The person must be able to explain how to: 1.1. Write in linear form only; 1.2. Use legal operators and operands only; 1.3. Complete some operations by calling library functions with no operator omitted. 2.0. Principles: The person must be able to explain the principles of: 2.1. Arithmetic operation rules; 2.2. Relational operation rules; 2.3. Logical operation rules; 2.4. Operator priority and associativity.	

	<p>3.0. Theories:</p> <p>The person must be able to explain:</p> <p>3.1. Classification of expressions;</p> <p>3.2. Evaluation rules of expressions.</p> <p>4.0. Essential skills:</p> <p>4.1. Various operators, expression types and evaluation rules;</p> <p>4.2. Mixed operation between different numerical data;</p> <p>4.3. Conversion method of data type;</p> <p>4.4. Error handling and practical problem solving skills.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	Expressions can be constructed with arithmetic, relational and logical operations as per industry standards and software programming specifications.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Operator priority and associativity; 2. Promotion of the expression type.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	WRITE BASIC CODES	DUTY NO.	607
TASK TITLE	WRITE BASIC SEQUENTIAL, SELECTIVE AND LOOPING STATEMENTS TO BUILD THE PROGRAM STRUCTURE	TASK NO.	6074
PERFORMANCE CRITERIA	The person performing this task must be able to write basic sequential, selective and looping statements to build the program structure as per industry standards and software programming specifications.		
RANGE STATEMENT	This task can be performed in an office environment or in a client’s office. The following equipment and tools should be available: 1. Computer; 2. Relevant software tools; 3. Related guides, This person shall work under minimum supervision.		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Correctly write sequential statements; 2. Correctly write selective statements; 3. Correctly write looping statements; 4. Comprehensively use basic sentences to solve practical problems.		Detailed knowledge about: 1.0. Methods The person must be able to explain how to: 1.1. Structure the program design; 1.2. Design object-oriented programs. 2.0. Principles: The person must be able to explain the principles of: 2.1. Top-down; 2.2. Stepwise refinement; 2.3. Modular design; 2.4. Structured coding. 3.0. Theories:	

	<p>The person must be able to explain:</p> <p>3.1. Execution flow of sequential structure;</p> <p>3.2. Execution flow of the selective structure and the basic form of the selective structure;</p> <p>3.3. Execution flow of the looping structure and the basic form of the looping structure.</p> <p>4.0. Essential skills:</p> <p>4.1. Problem definition and demand analysis;</p> <p>4.2. Overall design (or general design);</p> <p>4.3. Detailed design;</p> <p>4.4. Coding and unit test;</p> <p>4.5. Comprehensive test and confirmation operation;</p> <p>4.6. Teamwork skills.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	Basic sequential, selective and looping statements can be written to build the program structure as per industry standards and software programming specifications.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Debugging method of development tools; 2. Testing theory and method; 3. Software programming specifications.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	WRITE BASIC CODES	DUTY NO.	607
TASK TITLE	STORE AND PROCESS DATA WITH ARRAYS	TASK NO.	6075
PERFORMANCE CRITERIA	The person performing this task must be able to store and process data with arrays reasonably as per industry standards and software programming specifications.		
RANGE STATEMENT	This task can be performed in an office environment or in a client’s office. The following equipment and tools should be available: 1. Computer; 2. Relevant software tools; 3. Related guides. This person shall work under minimum supervision.		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Define one-dimensional and two-dimensional arrays; 2. Assign or initialize arrays; 3. Traverse arrays; 4. Sort arrays; 5. Use the array as the parameter of the function.		Detailed knowledge about: 1.0. Methods The person must be able to explain how to: 1.1. Realize the random access of arrays; 1.2. Determine the type of array and default initial value. 2.0. Principles: The person must be able to explain the principles of: 2.1. The array type actually referring to the value type of the array element. For the same array, the data types of all its elements are the same; 2.2. The writing rules of array names conforming to the rules of identifiers; 2.3. Array names differing from other variable names.	

	<p>3.0. Theories:</p> <p>The person must be able to explain:</p> <p>3.1. Concept of the one-dimensional array;</p> <p>3.2. Concept of the two-dimensional array;</p> <p>3.3. Common operations of arrays;</p> <p>3.4. Array as the parameter of the function.</p> <p>4.0. Essential skills:</p> <p>4.1. Array initialization;</p> <p>4.2. Array search;</p> <p>4.3. Array sorting;</p> <p>4.4. Skills of practical problem solving with arrays.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	Data can be stored and processed with arrays reasonably as per industry standards and software programming specifications.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Debugging method of development tools; 2. Storage mode of an array in memory; 3. Software programming specifications.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	IMPLEMENT THE GENERIC CABLING OF THE PROJECT	DUTY NO.	608
TASK TITLE	MANAGE AND SUPERVISE THE PROJECT	TASK NO.	6081
PERFORMANCE CRITERIA	The person performing this task must be able to implement the generic cabling project as per existing industry standards.		
RANGE STATEMENT	This task can be performed on site. The following equipment and tools should be available: 1. Construction drawing of generic cabling; 2. Existing industrial standards of the generic cabling; 3. Engineering construction specifications; 4. Project contract; 5. Project management specifications; 6. Project supervision specifications. This person will work under minimum supervision.		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Have team coordination and communication skills, and be able to organize project management and supervision teams; 2. Have safety awareness and observe health and safety precautions at the time of entering the construction site; 3. Inspect all goods entering the construction site as per the project contract; 4. Supervise the construction progress of the project and implement the cost control of the project;		Detailed knowledge about: 1.0. Methods The person must be able to explain how to: 1.1. Check whether the cable meets the quality requirements; 1.2. Check whether the generic cabling meets the requirements of the construction drawing of the generic cabling; 1.3. Check whether the generic cabling meets the requirements of existing industry standards; 1.4. Check whether the construction progress of the project meets the requirements of the project contract; 1.5. Declare and deal with problems arising from project management and supervision.	

<ol style="list-style-type: none"> 5. Supervise the project construction safety and implement the project safety assessment; 6. Coordinate and solve the problems during the project implementation; 7. Identify relevant equipment performance preliminarily; 8. Write the project construction supervision log; 9. Write the project commissioning report. 	<p>2.0. Principles:</p> <p>The person must be able to explain the principles of:</p> <ol style="list-style-type: none"> 2.1 Implementing the project construction progress as per the contract requirements; 2.2 Unpacking inspection of wiring cables and related goods as per the contract; 2.3 Implementing generic cabling as per the existing industry standards; 2.4 Implementing the reporting process and the handling process for problems found during project management and supervision. <p>3.0. Theories:</p> <p>The person must know and be able to explain:</p> <ol style="list-style-type: none"> 3.1 Industrial standards of the generic cabling; 3.2 Project construction management specifications; 3.3 Project supervision specifications; 3.4 Project construction safety specifications; 3.5 Test specifications of generic cabling. <p>4.0. Essential skills:</p> <p>The person must have the following skills:</p> <ol style="list-style-type: none"> 4.1 Communication, coordination, organization, command and reporting skills; 4.2 Analytical and problem solving skills; 4.3 Project management skills;
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	<p>4.4 Project supervision skills;</p> <p>4.5 Cable quality identification skills;</p> <p>4.6 Skills of using cable testing tools;</p> <p>4.7 Skills of writing project commissioning report;</p> <p>4.8 Skills of writing project implementation summary report;</p> <p>4.9 Skills of understanding or knowing well of the trend of generic cabling technology.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	The construction progress of generic cabling is managed, the construction quality of generic cabling is monitored, the construction safety is supervised, and problems in the construction process are coordinated and solved as per the existing industry standards.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Cable test specifications; 2. Project management specifications; 3. Project supervision specifications; 4. Extent of responsibilities.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	IMPLEMENT THE GENERIC CABLING OF THE PROJECT	DUTY NO.	608
TASK TITLE	TEST CABLING LINK	TASK NO.	6082
PERFORMANCE CRITERIA	The person performing this task must be able to conduct the baseline test and the pressure test on the generic cabling system as per the existing industry standards.		
RANGE STATEMENT	This task can be performed on site. The following equipment and tools should be available: 1. Construction drawing of generic cabling; 2. Test equipment related to the cabling link; 3. Wireless signal test software; 4. Cabling link test scheme; 5. Laptop; 6. Jumpers, including copper cables (through line, cross wire and rollover wire) and optical cables (single-mode and multi-mode cables). This person will work under minimum supervision.		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Have team coordination and communication skills, and be able to organize the cabling link test team; 2. Design the cabling link test scheme; 3. Conduct the baseline test of generic cabling; 4. Conduct the pressure test of generic cabling; 5. Master the use of testing tools of the optical cable link, and test optical cable links as per existing		Detailed knowledge about: 1.0. Methods The person must be able to explain how to: 1.1. Perform dielectric test specifications; 1.2. Perform operation specification of special testing tools; 1.3. Perform operation specifications of wireless signal test software. 2.0. Principles: The person must be able to explain the principles of: 2.1 Following the information point test specifications; 2.2 Following the wireless signal test specifications; 2.3 Following the optical fiber test	

<p>industry standards;</p> <p>6. Master the use of wireless signal test software, and test the deployment effect of wireless settings as per existing industry standards;</p> <p>7. Master the use of information point testing tools of the copper cable link, and test copper cable links as per existing industry standards;</p> <p>8. Analyze the cabling link test results and write the cabling link test report.</p>	<p>specifications;</p> <p>2.4 Following baseline test specifications of the generic cabling;</p> <p>2.5 Following pressure test specifications of the generic cabling;</p> <p>2.6 Implementing the reporting process and the handling process for problems found during the generic cabling process.</p> <p>3.0. Theories:</p> <p>The person must know and be able to explain:</p> <p>3.1 Existing industrial standards of the generic cabling;</p> <p>3.2 Optical fiber test specifications;</p> <p>3.3 Copper cable test specifications;</p> <p>3.4 Wireless signal test specifications;</p> <p>3.5 Baseline test specifications of generic cabling;</p> <p>3.6 Pressure test specifications of generic cabling.</p> <p>4.0. Essential skills:</p> <p>The person must have the following skills:</p> <p>4.1 Communication, coordination, organization, command and reporting skills;</p> <p>4.2 Analytical and problem solving skills;</p> <p>4.3 Quality identification skills of wiring cables;</p> <p>4.4 Skills of using special testing tools for cabling dielectric;</p> <p>4.5 Skills of writing a summary report of generic cabling test;</p> <p>4.6 Skills of understanding the development</p>
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	<p>trend of generic cabling technology;</p> <p>4.7 Skills of understanding the development trend of generic cabling test technology.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	The construction effect of generic cabling can be tested with measuring tools as per international standards, national standards or industry standards.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Cabling link test specifications; 2. Specifications for use of special testing tools; 3. Specifications for use of wireless signal test software; 4. Extent of responsibilities.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	IMPLEMENT THE GENERIC CABLING OF THE PROJECT	DUTY NO.	608
TASK TITLE	PREPARE COMPLETION ACCEPTANCE DOCUMENTS AND PERFORM THE SITE ACCEPTANCE	TASK NO.	6083
PERFORMANCE CRITERIA:	The person performing this task must be able to prepare completion acceptance documents and perform the site acceptance as per industry standards and instruction manuals.		
RANGE STATEMENT	This task can be performed on site. The following equipment, tools and documents must be available: 1. Generic cabling design documents and construction contracts; 2. Environment testing tools for the telecommunications closet; 3. Test equipment related to the cabling link; 4. Wireless signal test software; 5. Jumpers, including copper cables (through line, cross wire and rollover wire) and optical cables (single-mode and multi-mode cables). This person will work under minimum supervision.		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Have team coordination and communication skills, and be able to organize the generic cabling acceptance team; 2. Fill in the generic wiring acceptance plan; 3. Prepare the acceptance plan according to the generic cabling acceptance plan;		Detailed knowledge about: 1.0. Methods: The person performing this task must be able to explain how to: 1.1. Check whether functions of all subsystems of generic cabling are normal; 1.2. Check the alarm information of the electrical equipment test; 1.3 Declare and handle faults.	

<p>4. Carry out the environmental inspection, equipment inspection, equipment installation inspection, and cable laying and protection method inspection on site as per the acceptance plan;</p> <p>5. Carry out the engineering electrical test on each subsystem as per the <i>Code for Acceptance of Generic Cabling System</i>;</p> <p>6. Fill in inspection data records on site;</p> <p>7. Prepare the completion acceptance report as per the generic cabling design documents, inspection data records and engineering electrical test data;</p> <p>8. Clean workplace and tools</p> <p>9. Store tools, equipment, and safety gears.</p>	<p>2.0. Principles:</p> <p>The person must be able to explain the principles of:</p> <p>2.1. Site acceptance plan and implementation requirements of the generic cabling;</p> <p>2.2. Reporting and handling process of inspection and test equipment failure of each subsystem;</p> <p>2.3. Termination requirements for various cables;</p> <p>2.4. Operational specifications for user fault work orders.</p> <p>3.0. Theories:</p> <p>The person must be able to explain:</p> <p>3.1. Items accepted for all subsystems of generic cabling;</p> <p>3.2. Type, meaning and level of alarm information of the engineering electrical equipment test.</p> <p>4.0. Essential skills:</p> <p>4.1 Problem solving skills;</p> <p>4.2 Communication skills;</p> <p>4.3 Related document writing skills;</p> <p>4.4 Analytical skills;</p> <p>4.5. Interpersonal skills;</p> <p>4.6 Teamwork skills.</p>
<p>DESCRIPTION OF END PRODUCTS/SERVICE</p>	<p>Site tests can be conducted with measuring tools and completion acceptance documents can be prepared as per international</p>

	standards, national standards or industry standards.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Safe operations of electrical test equipment of the generic cabling; 2. Safe processing of electrical test equipment failure of the generic cabling; 3. Specific technical indicators and requirements for electrical performance, mechanical characteristics, optical cable transmission performance and connectors of copper cables; 4. Code for design and acceptance of generic cabling system; 5. Extent of responsibilities.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	ACCEPT AND DELIVER BUSINESSES	DUTY NO.	609
TASK TITLE	RECEIVE CUSTOMERS OF MEDIUM-SCALE COMMERCIAL EQUIPMENT	TASK NO.	6091
PERFORMANCE CRITERIA	The person performing this task must be able to receive customers and answer questions as per industry standards and commercial equipment parameters.		
RANGE STATEMENT	This task can be performed in an office environment or in a client's office. It is performed online and offline. The following environmental conditions, equipment and tools should be available: <div><div>1. Prepared service environment in the reception area;</div><div>2. Relevant commercial equipment manuals and technical guidance materials;</div><div>3. Related guides.</div></div> This person shall work under minimum supervision.		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: <div><div>1. Communicate with users in common language and technical terms of the commercial equipment;</div><div>2. Explain maintenance service policies of commercial equipment to users;</div><div>3. Accurately record users' service demands;</div><div>4. Guide users into subsequent relevant service processes.</div></div>		Detailed knowledge about: 1.0. Communication skills: The person must be able to explain how to: <div><div>1.1. Use standardized terms and communication skills for service reception in the commercial equipment industry;</div><div>1.2 Prepare the service environment in the reception area.</div></div> 2.0. Service related regulations: The person must be able to explain the principles of: <div><div>2.1. Relevant regulations on commercial equipment services;</div><div>2.2. Explaining service policies to users as per relevant documents.</div></div> 3.0. FAQ and solutions:	

	<p>The person must be able to explain:</p> <p>3.1. Guide users to store, operate and maintain equipment as per the commercial equipment manual and manufacturer's technical information;</p> <p>3.2. Guide users to download, install and upgrade software and hardware of equipment as per technical information.</p> <p>4.0. Reasonable demand guidance:</p> <p>4.1. Guide users into subsequent relevant service processes as per their service demands;</p> <p>4.2. Guide the user in the repair service document, special repair service system or mobile APP. Fill in user information, machine information, and service demand information.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	<p>Customers are received and relevant equipment or services are introduced to users in detail with questions answered as per industry standards and commercial equipment parameters.</p>
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Relevant regulations on commercial equipment services; 2. Guidance of users into the subsequent relevant service processes.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	ACCEPT AND DELIVER BUSINESSES	DUTY NO.	609
TASK TITLE	ACCEPT BUSINESSES OF MEDIUM-SCALE COMMERCIAL EQUIPMENT	TASK NO.	6092
PERFORMANCE CRITERIA	The person performing this task must be able to receive customers and handle business as per industry standards and commercial equipment parameters.		
RANGE STATEMENT	This task can be performed in an office environment or in a client's office. The following environmental conditions, equipment and tools should be available: 1. Business acceptance processes; 2. Technical specifications for handling business; 3. Information feedback mechanism and technical standards.		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Prepare tools, technical information and service documents required by user business services; 2. Test the accepted server and make records on the document; 3. Carry out the test in the user's use environment, and record the acceptance process on the acceptance document; 4. Inform users on the site of precautions for server operations before equipment repair (overhaul)		Detailed knowledge about: 1.0. Preliminary preparations: 1.1. Business acceptance: preparation specifications of user services; 1.2. Business acceptance: equipment acceptance record method for user services. 2.0. Acceptance processes: The person must be able to perform: 2.1. Detection methods for service equipment of acceptance business; 2.2. Formulation of maintenance (overhaul) scheme and plan; 2.3. Communication skills for business acceptance.	

<p>and effective measures to ensure machine and data security;</p> <p>5. Place the equipment to be repaired in the designated area as per the requirements and specifications.</p>	<p>3.0. Business handling and feedback:</p> <p>The person must be able to explain:</p> <p>3.1. Communication and coordination of business processes;</p> <p>3.2. Feedback information of the equipment notified to the user on site.</p>
<p>DESCRIPTION OF END PRODUCTS/SERVICE</p>	<p>Business acceptance services and equipment information feedback are conducted as per industry standards and business technical specifications.</p>
<p>CIRCUMSTANTIAL KNOWLEDGE</p>	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Service specifications for business users; 2. Business acceptance processes.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	ACCEPT AND DELIVER BUSINESSES	DUTY NO.	609
TASK TITLE	DELIVER BUSINESSES OF MEDIUM-SCALE COMMERCIAL EQUIPMENT	TASK NO.	6093
PERFORMANCE CRITERIA	The person performing this task must be able to jointly inspect and deliver the repaired equipment to the user according to the procedure as per industry standards and commercial equipment parameters.		
RANGE STATEMENT	This task can be performed in an office environment or in a client's office. The following environmental conditions, equipment and tools should be available: 1. Business acceptance processes; 2. Technical specifications of delivery standards; 3. Acceptance feedback mechanism and technical standards.		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Extract user equipment in the designated area according to the procedure as per the information on the user acceptance documents; 2. Check the repaired equipment together with the user according to the procedure; 3. Retrieve the information of the repaired equipment on the user's site and check with the user; 4. Complete the service form filling and the data		Detailed knowledge about: 1.0. Delivery service standard: The person must be able to explain how to: 1.1. Extract user equipment in the designated area according to the procedure; 1.2. Check the repaired equipment. 2.0. Methods and technical specifications: The person must be able to explain the principles of: 2.1. Site retrieval; 2.2. Checking with users together; 2.3. Data record; 2.4. Confirmation. 3.0. System data record: The person must be able to explain:	

<p>recording of the computer maintenance service management system on the user's site, and check and confirm with the user.</p>	<p>3.1. Equipment delivery form; 3.2. Equipment data record.</p> <p>4.0. Delivery standard:</p> <p>4.1. Charging standards; 4.2. Confirmation of service contents.</p>
<p>DESCRIPTION OF END PRODUCTS/SERVICE</p>	<p>Business acceptance services and delivery standards are performed as per industry standards and business technical specifications.</p>
<p>CIRCUMSTANTIAL KNOWLEDGE</p>	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Business acceptance processes; 2. Technical specifications of delivery standards; 3. Technical standards for acceptance.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	ACCEPT AND DELIVER BUSINESSES	DUTY NO.	609
TASK TITLE	COLLECT AND RESPOND TO SERVICE EVALUATIONS OF USERS OF MEDIUM-SCALE COMMERCIAL EQUIPMENT	TASK NO.	6094
PERFORMANC E CRITERIA	The person performing this task must be able to collect and respond to service evaluations of commercial equipment users according to the procedure as per industry standards and commercial equipment specifications.		
RANGE STATEMENT	This task can be performed in an office environment or in a client’s office. The following equipment and tools should be available: 1. Solutions to common complaints from server users; 2. Collection of and response to service evaluations of commercial equipment users; 3. Remote return visit to users. This person shall work under minimum supervision.		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Obtain the service evaluation on the server user site; 2. Pay a return visit to the user within a certain time after the end of equipment service; 3. Answer common complaints of equipment users according to the technical information.		Detailed knowledge about: 1.0. Methods The person must be able to explain how to: 1.1. Collect service quality information; 1.2. Perform the process handling and technical specifications. 2.0. Services: The person must be able to explain the principles of: 2.1. Communication skills and precautions for common complaints of equipment users; 2.2. Solutions to common complaints from equipment users;	

	<p>2.3. Remote return visit to users.</p> <p>3.0. Skills:</p> <p>3.1. Collection of user service evaluations;</p> <p>3.2. Response to user service evaluations.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	<p>Service evaluations of commercial equipment users can be collected and responded as per industry standards, business technical specifications and solutions to common complaints from equipment users.</p>
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Answers to common complaints of equipment users according to the technical information; 2. Solutions to common complaints from equipment users.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	REPAIR AND MAINTAIN OFFICE EQUIPMENT	DUTY NO.	610
TASK TITLE	GUIDE THE CUSTOMER TO DESCRIBE THE FAILURE	TASK NO.	6101
PERFORMANCE CRITERIA:	The person performing this task must be able to guide the customer to describe the failure as per industry standards and equipment instructions.		
RANGE STATEMENT	This task can be performed in a workshop or in a client’s office. The following equipment and tools should be available: 1. Instruction manual; 2. Relevant software tools; 3. Relevant measuring equipment; 4. Technologist toolkit. This person will work under minimum supervision.		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Obtain basic information such as office equipment models, applications, and historical failures; 2. Guide users to confirm the parameters of office equipment host, consumables, accessories and auxiliary equipment information remotely through online tools; 3. Guide users to detect the office equipment for troubleshooting and positioning; 4. Identify the failure level		Detailed knowledge about: 1.0. Methods: The person performing this task must be able to explain how to: 1.1. Verify the office equipment with correct functions; 1.2. Detect the failure information of the office equipment; 1.3. Report for the troubleshooting according to the processing flow. 2.0. Principles: The person must be able to explain the principles of: 2.1. Implementing requirements of the office equipment maintenance plan; 2.2. Failure diagnosis and handling process	

<p>according to the user's failure description;</p> <p>5. Determine the maintenance plan and inform the user of the equipment maintenance process;</p> <p>6. Inform users of precautions for equipment operation before maintenance to ensure property and data security;</p> <p>7. Fill in the detailed description record of the failure phenomenon and report for the maintenance;</p> <p>8. Obtain the user service evaluation and pay the remote return visit within the specified time.</p>	<p>of office equipment;</p> <p>2.3. Basic operation specifications for office equipment maintenance.</p> <p>3.0. Theories:</p> <p>The person must be able to explain:</p> <p>3.1. Daily maintenance items of office equipment;</p> <p>3.2. Types, meanings and levels of office equipment failures.</p> <p>4.0. Essential skills:</p> <p>4.1 Problem solving skills;</p> <p>4.2 Communication skills;</p> <p>4.3 Related document writing skills;</p> <p>4.4. Analytical skills.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	The customer is guided to describe the failure as per industry standards and equipment manuals.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Safe operations of the office equipment; 2. Safe handling of the office equipment failure; 3. Safe handling of the office software; 4. Scope of responsibility.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	REPAIR AND MAINTAIN OFFICE EQUIPMENT	DUTY NO.	610
TASK TITLE	REPLACE THE FAILURE COMPONENT	TASK NO.	6102
PERFORMANCE CRITERIA:	The person performing this task must be able to replace the failed component as per industry standards and office equipment instructions.		
RANGE STATEMENT	This task can be performed in a workshop or in a client’s office. The following equipment and tools should be available: 1. Instruction manual; 2. Relevant software tools; 3. Relevant measuring equipment; 4. Technologist toolkit. This person will work under minimum supervision.		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Detect accessories and components of the office equipment and locate failures; 2. Formulate repair and maintenance schemes and plans according to office equipment failures; 3. Apply for spare parts and accessories according to the failure location information of the office equipment; 4. Take corresponding measures to ensure property and data security according to the technical manual;		Detailed knowledge about: 1.0. Methods: The person performing this task must be able to explain how to: 1.1. Test the office equipment; 1.2. Prepare for replacement of failed parts; 1.3. Replace office equipment accessories. 2.0. Principles: The person must be able to explain the principles of: 2.1. Installation and operation process of the office equipment; 2.2. Procedures and specifications for replacement of office accessories; 2.3. Office equipment maintenance plan.	

<p>5. Dismantle, replace and reassemble accessories and components of the office equipment;</p> <p>6. Verify and correct the output of the office equipment;</p> <p>7. Inform the user of the precautions for using the equipment and fill in the failure repair sheet.</p>	<p>3.0. Theories:</p> <p>The person must be able to explain:</p> <p>3.1. Specifications for use of office equipment;</p> <p>3.2. Failure judgment criteria.</p> <p>4.0. Essential skills:</p> <p>4.1 Problem solving skills;</p> <p>4.2 Communication skills;</p> <p>4.3 Related document writing skills;</p> <p>4.4 Analytical skills;</p> <p>4.6 Teamwork skills.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	Office equipment can be installed, maintained and serviced as per industry standards and instruction manuals.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Standard procedures of office equipment installation; 2. Maintenance methods of office equipment; 3. Extent of responsibilities.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	REPAIR AND MAINTAIN OFFICE EQUIPMENT	DUTY NO.	610
TASK TITLE	GUIDE THE CUSTOMER TO OPERATE THE MICROCOMPUTER CORRECTLY	TASK NO.	6103
PERFORMANCE CRITERIA:	The person performing this task must be able to guide the customer to operate the microcomputer correctly as per industry standards and instruction manuals.		
RANGE STATEMENT	This task can be performed in a workshop or in a client’s office. The following equipment and tools should be available: 1. Instruction manual; 2. Relevant software tools; 3. Relevant measuring equipment; 4. Technologist toolkit. This person will work under minimum supervision.		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Read the microcomputer instruction manual; 2. Guide the user to store and use the microcomputer as per the instructions; 3. Guide users to replace microcomputer accessories and consumables with online tools; 4. Provide technical support through online tools and guide users to implement user-level maintenance operations; 5. Guide the user to check and		Detailed knowledge about: 1.0. Methods: The person performing this task must be able to explain how to: 1.1. Correctly operate the microcomputer; 1.2. Check and maintain the microcomputer; 1.3. Maintain the microcomputer. 2.0. Principles: The person must be able to explain the principles of: 2.1. Operation procedures and specifications of the microcomputer; 2.2. Operation and test steps of the	

<p>clean routine operations of the microcomputer;</p> <p>6. Inform the user of the daily maintenance, servicing methods and specifications of the microcomputer;</p> <p>7. Accept and answer common operation problems of microcomputer users.</p>	<p>microcomputer.</p> <p>3.0. Theories:</p> <p>The person must be able to explain:</p> <p>3.1. Microcomputer type;</p> <p>3.2. Microcomputer components and functions.</p> <p>4.0. Essential skills:</p> <p>4.1 Problem solving skills;</p> <p>4.2 Communication skills;</p> <p>4.3 Related document writing skills;</p> <p>4.4. Analytical skills.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	The customer is guided to operate the microcomputer correctly as per industry standards and instruction manuals.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Safe operations of the microcomputer; 2. Safe handling of the microcomputer failure; 3. Extent of responsibilities.

TABLE 1: OCCUPATIONAL PROFILE CHARTS FOR IT TECHNOLOGISTS (DACUM) - NTA 6

DUTIES	TASKS	ENABLERS
1. Collect, summarize and analyze information and data and prepare analysis reports for decision-making reference	<p>1.1 Master the specifications of business document preparation.</p> <p>1.2 Optimize the presentation content.</p> <p>1.3 Realize the table data visualization.</p> <p>1.4 Master the cooperative office.</p>	<p>Generic Skills and Knowledge</p> <ul style="list-style-type: none"> • Communication and report writing skills • Analytical skills • Leadership skills • Desire to learn and master changing technology trends • Strong written and oral communication skills • Certain data visualization skills • Outstanding interpersonal skills • Skills of understanding relatively complex business requirements, processes and structures <p>Tools and Equipment</p> <ul style="list-style-type: none"> • WPS Office software • Personal computer <p>Materials</p> <ul style="list-style-type: none"> • Data <p>Work Behaviors</p> <ul style="list-style-type: none"> • Patience • Meticulous attention to detail • Positive responsiveness

DUTIES	TASKS	ENABLERS
2. Maintain ICT devices	<p>2.1 Update the maintenance operation plan of ICT device and implement the special maintenance.</p> <p>2.2 Read the network cutover plan and confirm the operation status before and after the cutover.</p> <p>2.3 Check cables, labels, tools, spare parts and data on the ICT device site.</p>	<p>Generic Skills and Knowledge</p> <ul style="list-style-type: none"> • Leadership skills • Understanding complex systems and how they work together • Desire to learn and master changing technology trends • Strong written and oral communication skills • Strong document reading skills • Skills of understanding relatively complex business requirements, processes and structures <p>Tools and Equipment</p> <ul style="list-style-type: none"> • Parts of ICT devices • Relevant software tools • Relevant measuring equipment • Technologist toolkit <p>Materials</p> <ul style="list-style-type: none"> • Instruction manuals <p>Work Behaviors</p> <ul style="list-style-type: none"> • Patience • Meticulous attention to detail

DUTIES	TASKS	ENABLERS
3. Manage ICT device assets	<p>3.1 Be familiar with the basic process of equipment procurement and acceptance.</p> <p>3.2 Know about ICT device management tools.</p> <p>3.3 Prepare the ICT device asset list.</p> <p>3.4 Evaluate equipment scrapping conditions and prepare the disposal plan.</p>	<p>Generic Skills and Knowledge</p> <ul style="list-style-type: none"> • Communication and report writing skills • Analytical skills • Desire to learn and master changing technology trends • Strong written and oral communication skills • Outstanding interpersonal skills <p>Tools and Equipment</p> <ul style="list-style-type: none"> • Measuring and diagnostic tools • Personal computer <p>Materials</p> <ul style="list-style-type: none"> • ICT device list <p>Work Behaviors</p> <ul style="list-style-type: none"> • Patience • Meticulous attention to detail • Positive responsiveness

DUTIES	TASKS	ENABLERS
4. Manage servers	<p>4.1 Know about the server type and application environment.</p> <p>4.2 Be familiar with the configuration and maintenance of switches of mainstream brands.</p> <p>4.3 Use the common virtualization platform VMWARE.</p> <p>4.4 Manage and configure the network monitoring system software.</p> <p>4.5 Check the network status, performance and indicators of the business system.</p> <p>4.6 Troubleshoot and dispose server failures.</p>	<p>Generic Skills and Knowledge</p> <ul style="list-style-type: none"> • Understanding complex systems and how they work together • Desire to learn and master changing technology trends • Strong written and oral communication skills • Skills of understanding relatively complex business requirements, processes and structures <p>Tools and Equipment</p> <ul style="list-style-type: none"> • Personal computer • Relevant server equipment • Relevant tool software <p>Materials</p> <ul style="list-style-type: none"> • Instruction manuals <p>Work Behaviors</p> <ul style="list-style-type: none"> • Patience • Meticulous attention to detail

DUTIES	TASKS	ENABLERS
5. Access and supervise WANs	5.1 Access WANs remotely. 5.2 Access redundant links. 5.3 Configure the WAN communication protocol. 5.4 Realize the PPP certification.	<p>Generic Skills and Knowledge</p> <ul style="list-style-type: none"> • Understanding complex systems and how they work together • Desire to learn and master changing technology trends • Skills of understanding relatively complex business requirements, processes and structures <p>Tools and Equipment</p> <ul style="list-style-type: none"> • Computer • Routers • Network technologist toolkit • Relevant tool software <p>Materials</p> <ul style="list-style-type: none"> • Network configuration list • Relevant guide documents <p>Work Behaviors</p> <ul style="list-style-type: none"> • Patience • Meticulous attention to detail

DUTIES	TASKS	ENABLERS
6. Maintain the network security	<p>6.1 Know about threats to network security.</p> <p>6.2 Master technologies related to the network security.</p> <p>6.3 Specify policies for the network security.</p> <p>6.4 Prepare the network security policy specification.</p>	<p>Generic Skills and Knowledge</p> <ul style="list-style-type: none"> • Communication and report writing skills • Analytical skills • Understanding complex systems and how they work together • Desire to learn and master changing technology trends • Strong written and oral communication skills • Keen insight <p>Tools and Equipment</p> <ul style="list-style-type: none"> • Computer • Relevant tool software <p>Materials</p> <ul style="list-style-type: none"> • Relevant guide documents <p>Work Behaviors</p> <ul style="list-style-type: none"> • Patience • Meticulous attention to detail • Willing to try

DUTIES	TASKS	ENABLERS
7. Write basic codes	<p>7.1 Recommend programming development tools.</p> <p>7.2 Define constants and variables.</p> <p>7.3 Construct expressions with arithmetic, relational and logical operations.</p> <p>7.4 Write basic sequential, selective and looping statements to build the program structure.</p> <p>7.5 Store and process data with arrays.</p>	<p>Generic Skills and Knowledge</p> <ul style="list-style-type: none"> • Desire to learn and master changing technology trends • Computer logical thinking ability • Skills of understanding relatively complex business requirements, processes and structures <p>Tools and Equipment</p> <ul style="list-style-type: none"> • Computer • Relevant tool software <p>Materials</p> <ul style="list-style-type: none"> • Relevant guide documents <p>Work Behaviors</p> <ul style="list-style-type: none"> • Patience • Meticulous attention to detail • Willing to try

DUTIES	TASKS	ENABLERS
8. Implement the generic cabling of the project	8.1 Manage and supervise the project. 8.2 Test cabling link. 8.3 Prepare completion acceptance documents and perform the site acceptance.	<p>Generic Skills and Knowledge</p> <ul style="list-style-type: none"> • Communication and report writing skills • Analytical skills • Leadership skills • Understanding complex systems and how they work together • Desire to learn and master changing technology trends • Strong written and oral communication skills • Outstanding interpersonal skills • Complex understanding of business requirements, processes and structures <p>Tools and Equipment</p> <ul style="list-style-type: none"> • Experimental platform of network generic cabling <p>Materials</p> <ul style="list-style-type: none"> • Construction drawing of generic cabling • Existing industrial standards of the generic cabling • Engineering construction specifications • Project contract • Project management specifications • Project supervision specifications

DUTIES	TASKS	ENABLERS
		<p>Work Behaviors</p> <ul style="list-style-type: none"> • Patience • Meticulous attention to detail • Continuous innovation

DUTIES	TASKS	ENABLERS
9. Accept and deliver businesses	9.1 Receive customers of medium-scale commercial equipment. 9.2 Accept businesses of medium-scale commercial equipment. 9.3 Deliver businesses of medium-scale commercial equipment. 9.4 Collect and respond to service evaluations of users of medium-scale commercial equipment.	<p>Generic Skills and Knowledge</p> <ul style="list-style-type: none"> • Communication and report writing skills • Analytical skills • Leadership skills • Strong written and oral communication skills • Outstanding interpersonal skills <p>Tools and Equipment</p> <ul style="list-style-type: none"> • Personal computer <p>Materials</p> <ul style="list-style-type: none"> • Prepared service environment in the reception area • Relevant commercial equipment manuals and technical guidance materials • Relevant guide documents <p>Work Behaviors</p> <ul style="list-style-type: none"> • Patience • Meticulous attention to detail • Positive responsiveness

DUTIES	TASKS	ENABLERS
10. Repair and maintain office equipment	<p>10.1 Guide the customer to describe the failure.</p> <p>10.2 Replace the failure component.</p> <p>10.3 Guide the customer to operate the microcomputer correctly.</p>	<p>Generic Skills and Knowledge</p> <ul style="list-style-type: none"> • Leadership skills • Understanding complex systems and how they work together • Desire to learn and master changing technology trends • Strong written and oral communication skills • Outstanding interpersonal skills <p>Tools and Equipment</p> <ul style="list-style-type: none"> • Relevant software tools • Relevant measuring equipment • Technologist toolkit <p>Materials</p> <ul style="list-style-type: none"> • Instruction manuals <p>Work Behaviors</p> <ul style="list-style-type: none"> • Patience • Meticulous attention to detail • Positive responsiveness