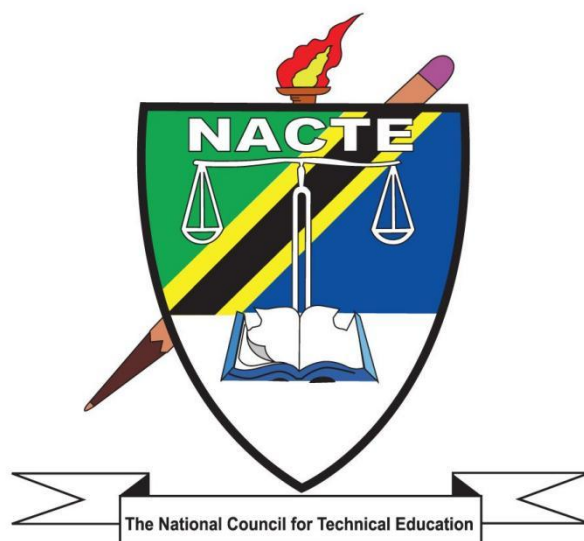


NATIONAL COUNCIL FOR TECHNICAL EDUCATION



NOVEMBER 2022

PROPOSED OCCUPATIONAL STANDARDS

FOR IT TECHNOLOGISTS

LEVEL: NTA 5

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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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Dr. A. B. Rutayuga
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Dar es Salaam
November 2022

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.
Occupational Standards:	Specific requirements of competences people are expected to demonstrate in a particular occupational area, including knowledge and relevant attitudes. They also act as performance tools for the assessment of the pre-scribed outcomes.
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.

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 5

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	COLLECT, SUMMARIZE AND ANALYZE INFORMATION AND DATA AND PREPARE ANALYSIS REPORTS FOR DECISION-MAKING REFERENCE	DUTY NO.	501
TASK TITLE	EDIT LONG DOCUMENTS	TASK NO.	5011
PERFORMANCE CRITERIA	The person performing this task must be able to edit long documents as per industry standards and national ICT governance guidelines.		
RANGE STATEMENT	<p>This task can be performed in an office environment or in a client's office.</p> <p>The following equipment and tools should be available:</p> <ol style="list-style-type: none"> 1. Computer; 2. Relevant software tools. <p>This person shall work independently.</p>		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE	UNDERPINNING KNOWLEDGE		
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Open and close the text-processing software; 2. Enter the text specified by the client; 3. Delete the text that should not exist; 4. Modify the existing text; 5. Select the existing text; 6. Copy or move the existing text; 7. Set the print format of the page. 	<p>Detailed knowledge about:</p> <p>1.0. Methods</p> <p>The person must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1. Open and close the text-processing software; 1.2. Handle the rational correspondence between fingers and keyboard keys; 1.3. Select the specified text; 1.4. Modify the specified text; 1.5. Delete the specified text; 1.6. Copy or move the specified text; 1.7. Set the print format of the page. <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. Selecting appropriate text-processing tool software; 2.2. Editing and entering specified text as per 		

	<p>client requirements;</p> <p>2.3. Formatting of the text as per client requirements.</p> <p>3.0. Theories: The person must be able to explain:</p> <p>3.1. Characteristics of different text-processing software;</p> <p>3.2. Shortcut function keys for text editing operations.</p> <p>4.0. Essential skills:</p> <p>4.1. Problem solving skills;</p> <p>4.2. Critical thinking skills;</p> <p>4.3. Analytical skills;</p> <p>4.4. Communication skills;</p> <p>4.5. Report writing skills;</p> <p>4.6. Interpersonal skills;</p> <p>4.7. Teamwork skills;</p> <p>4.8. Leadership skills;</p> <p>4.9. Time management skills.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	Long documents with client-specified content are edited as per industry standards and national ICT governance guidelines.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Rational correspondence between fingers and keyboard keys; 2. Text editing operations; 3. Formatting settings for text and paragraphs; 4. Page formatting settings.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	COLLECT, SUMMARIZE AND ANALYZE INFORMATION AND DATA AND PREPARE ANALYSIS REPORTS FOR DECISION-MAKING REFERENCE	DUTY NO.	501
TASK TITLE	EMBELLISH TEXTUAL MANUSCRIPTS	TASK NO.	5012
PERFORMANCE CRITERIA	The person performing this task must be able to embellish textual manuscripts as per industry standards and national ICT management guidelines.		
RANGE STATEMENT	<p>This task can be performed in an office environment or in a client's office.</p> <p>The following equipment and tools should be available:</p> <ol style="list-style-type: none"> 1. Computer; 2. Relevant software tools. <p>This person shall work independently.</p>		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE	UNDERPINNING KNOWLEDGE		
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Change the appearance of text formatting; 2. Change the appearance of paragraph formatting; 3. Embed images into the document; 4. Change the position of images relative to the text; 5. Change the display mode of image and text combinations. 	<p>Detailed knowledge about:</p> <p>1.0. Methods</p> <p>The person must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1. Change the appearance of text formatting; 1.2. Change the appearance of paragraph formatting; 1.3. Embed images into the document; 1.4. Change the position of images relative to the text; 1.5. Change the display mode of image and text combinations. <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. Embellishing criteria for the appearance of text formatting; 2.2. Correct selection of image-text 		

	<p>combination wrapping relationships.</p> <p>3.0. Theories: The person must be able to explain:</p> <p>3.1. Parameters that can be set for formatting the appearance of text and paragraphs;</p> <p>3.2. The way to set the position of the image and text for combination.</p> <p>4.0. Essential skills:</p> <p>4.1. Problem solving skills;</p> <p>4.2. Critical thinking skills;</p> <p>4.3. Analytical skills;</p> <p>4.4. Communication skills;</p> <p>4.5. Report writing skills;</p> <p>4.6. Interpersonal skills;</p> <p>4.7. Teamwork skills;</p> <p>4.8. Leadership skills;</p> <p>4.9. Project management skills;</p> <p>4.10. Time management skills.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	Textual manuscripts are embellished as per industry standards and national ICT management guidelines.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Safe handling of system software and business information systems; 2. Safe handling of software; 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.	501
TASK TITLE	ANIMATE THE PRESENTATIONS	TASK NO.	5013
PERFORMANCE CRITERIA	The person performing this task must be able to animate the presentations as per industry standards and national ICT management guidelines.		
RANGE STATEMENT	<p>This task can be performed in an office environment or in a client's office.</p> <p>The following equipment and tools should be available:</p> <ol style="list-style-type: none"> 1. Computer; 2. Relevant software tools. <p>This person shall work independently.</p>		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Basic operation of presentations and slides; 2. Slide transition animation effect settings; 3. Animation effects of elements within slides; 4. Slide show. 		<p>Detailed knowledge about:</p> <p>1.0. Methods</p> <p>The person must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1. Create a presentation; 1.2. Create slides; 1.3. Set slide masters and themes; 1.3. Set slide transition effects; 1.4. Set animation effect of elements within slides. <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. The selection of the appropriate slide transition effect as per the topic to be presented; 2.2. The selection of the appropriate animation effect of elements within slides as per the topic to be presented. 	

	<p>3.0. Theories: The person must be able to explain: 3.1. The types of slide transition effects that can be selected; 3.2. The types of animation effect of elements within slides that can be selected.</p> <p>4.0. Essential skills: 4.1 Problem solving skills; 4.2 Critical thinking skills; 4.3 Analytical skills; 4.4 Communication skills; 4.5 Report writing skills; 4.6 Interpersonal skills; 4.7 Teamwork skills; 4.8 Leadership skills; 4.9 Project management skills; 4.10 Time management skills.</p>
<p>DESCRIPTION OF END PRODUCTS/SERVICE</p>	<p>Presentations are animated as per industry standards and national ICT governance guidelines.</p>
<p>CIRCUMSTANTIAL KNOWLEDGE</p>	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Slides basic operation method; 2. How to set slide masters and themes; 3. How to set slide transition and animation.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	COLLECT, SUMMARIZE AND ANALYZE INFORMATION AND DATA AND PREPARE ANALYSIS REPORTS FOR DECISION-MAKING REFERENCE	DUTY NO.	501
TASK TITLE	PERFORM DATA MANAGEMENT OF WORKSHEETS	TASK NO.	5014
PERFORMANCE CRITERIA	The person performing this task must be able to perform data management of worksheets as per industry standards and national ICT management guidelines.		
RANGE STATEMENT	<p>This task can be performed in an office environment or in a client's office.</p> <p>The following equipment and tools should be available:</p> <ol style="list-style-type: none"> 1. Computer; 2. Relevant software tools. <p>This person shall work independently.</p>		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Create data sheets from multiple data sources; 2. Data sorting; 3. Data filtering. 		<p>Detailed knowledge about:</p> <p>1.0. Methods</p> <p>The person must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1. Data sorting; 1.2. Data filtering. <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. The basis for the selection of the type of sorting; 2.2. The basis for the selection of the type of filtering. <p>3.0. Theories:</p> <p>The person must be able to explain:</p> <ol style="list-style-type: none"> 3.1. Types of data sorting; 3.2. Types of data filtering; 	

	<p>3.3. Common methods of entering mathematical formulas.</p> <p>4.0. Essential skills:</p> <p>4.1 Problem solving skills;</p> <p>4.2 Critical thinking skills;</p> <p>4.3 Analytical skills;</p> <p>4.4 Communication skills;</p> <p>4.5 Report writing skills;</p> <p>4.6 Interpersonal skills;</p> <p>4.7 Teamwork skills;</p> <p>4.8 Leadership skills;</p> <p>4.9 Project management skills;</p> <p>4.10 Time management skills.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	Presentations are animated as per industry standards and national ICT governance guidelines.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Operation methods of quick sorting and custom sorting; 2. Operation methods of automatic filtering and advanced filtering; 3. Method of entering complex formulas.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	COLLECT, SUMMARIZE AND ANALYZE INFORMATION AND DATA AND PREPARE ANALYSIS REPORTS FOR DECISION-MAKING REFERENCE	DUTY NO.	501
TASK TITLE	USE FORMULA FUNCTIONS	TASK NO.	5015
PERFORMANCE CRITERIA	The person performing this task must be able to use formula functions as per industry standards and national ICT guidelines.		
RANGE STATEMENT	<p>This task can be performed in an office environment or in a client's office.</p> <p>The following equipment and tools should be available:</p> <ol style="list-style-type: none"> 1. Computer; 2. Relevant software tools. <p>This person shall work independently.</p>		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Insert formulas for quick statistical calculations; 2. Manually enter formulas for complex data processing. 		<p>Detailed knowledge about:</p> <p>1.0. Methods</p> <p>The person must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1. Insert formulas for quick statistical calculations; 1.2. Manually enter formulas for complex data processing. <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 Selecting the correct formula as per the needs of the problem; 2.2 Selecting the correct way to refer to the cells in the formula as per the needs of the problem. <p>3.0. Theories:</p> <p>The person must be able to explain:</p> <ol style="list-style-type: none"> 3.1 Common types of fast formula 	

	<p>insertion;</p> <p>3.2 The difference between absolute reference, relative reference, and three-dimensional address reference.</p> <p>4.0. Essential skills:</p> <p>4.1. Problem solving skills;</p> <p>4.2. Critical thinking skills;</p> <p>4.3. Analytical skills;</p> <p>4.4. Communication skills;</p> <p>4.5. Report writing skills;</p> <p>4.6. Interpersonal skills;</p> <p>4.7. Teamwork skills;</p> <p>4.8. Leadership skills;</p> <p>4.9. Project management skills;</p> <p>4.10. Time management skills.</p>
<p>DESCRIPTION OF END PRODUCTS/SERVICE</p>	<p>Formula functions are used to process tabular data as per industry standards and national ICT guidelines.</p>
<p>CIRCUMSTANTIAL KNOWLEDGE</p>	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Common types of mathematical formulas; 2. The difference between absolute reference, relative reference, and three-dimensional address reference.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	MAINTAIN ICT DEVICES (INTERMEDIATE-LEVEL)	DUTY NO.	502
TASK TITLE	CHECK ICT DEVICE OPERATION USING ROUTINE MAINTENANCE COMMANDS	TASK NO.	5021
PERFORMANCE CRITERIA	The person performing this task must be able to check ICT device operation using routine maintenance commands as per industry standards and national ICT governance guidelines.		
RANGE STATEMENT	<p>This task can be performed in a network central server room or in the remote network management system.</p> <p>The following equipment and tools should be available:</p> <ol style="list-style-type: none"> 1. Computer; 2. Relevant software tools; 3. Switches, routers and other network devices; 4. Related guides. <p>This person shall work under minimum supervision.</p>		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE	UNDERPINNING KNOWLEDGE		
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Select ICT remote management tools; 2. Check the operation of switch devices using routine maintenance commands; 3. Check the operation of router devices using routine maintenance commands; 4. Observe health and safety precautions at work; 5. Clean workplace; 6. Store tools. 	<p>Detailed knowledge about:</p> <p>1.0. Methods</p> <p>The person must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1 Select ICT remote management tools; 1.2 Check the operation of switch devices using routine maintenance commands; 1.3 Check the operation of router devices using routine maintenance commands. <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 Selecting ICT remote management tools; 2.2. Selection of routine maintenance commands for use. <p>3.0. Theories:</p> <p>The person must be able to explain:</p> <ol style="list-style-type: none"> 3.1 Usage of ICT remote management tools; 3.2 Usage of routine maintenance commands. 		

	<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. Skills to use basic ICT commands;</p> <p>4.5. Understanding of simple network systems;</p> <p>4.7. Strong written and oral communication skills;</p> <p>4.8. Outstanding interpersonal skills;</p> <p>4.9. Network maintenance skills;</p> <p>4.10. Problem solving skills.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	Routine maintenance commands are used to check ICT device operation as per industry standards and national ICT governance guidelines.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Usage of ICT remote management tools; 2. Usage of routine maintenance commands.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	MAINTAIN ICT DEVICES (INTERMEDIATE-LEVEL)	DUTY NO.	502
TASK TITLE	USE THE NETWORK MANAGEMENT SYSTEM TO DETECT ICT DEVICE FAULTS AND MAINTAIN BOARDS	TASK NO.	5022
PERFORMANCE CRITERIA	The person performing this task must be able to use the network management system to detect ICT device faults and maintain boards as per industry standards and national ICT governance guidelines.		
RANGE STATEMENT	<p>This task can be performed in an ICT device room or through the ICT device remote management system. The following equipment and tools should be available:</p> <ol style="list-style-type: none"> 1. Computer; 2. Network management system; 3. Relevant software tools; 4. Related guides. <p>This person shall work under minimum supervision.</p>		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Select the necessary ICT device fault detection tools for troubleshooting and analysis; 2. Select the necessary ICT device fault and board maintenance tools for fault repair; 3. Observe health and safety precautions at work; 4. Clean workplace; 5. Store tools. 		<p>Detailed knowledge about:</p> <p>1.0. Methods</p> <p>The person must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1. Identify ICT device fault types based on fault signals; 1.2. Select ICT fault analysis tools to locate the fault point; 1.3. Perform initial testing and maintenance of ICT device faults. <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 Types of ICT device fault signals; 2.2 How to analyze all possible fault points of devices based on ICT device fault signals; 2.3 Tools, skills, and guidelines required for ICT device fault maintenance. 	

	<p>3.0. Theories: The person must be able to explain:</p> <p>3.1 All possible fault points covered by each ICT device fault signal indication;</p> <p>3.2 Selecting the appropriate tools for ICT device fault points for board maintenance.</p> <p>4.0. Essential skills:</p> <p>4.1. ICT device fault signal analysis skills;</p> <p>4.2. Communication, summarizing and reporting skills on ICT device faults;</p> <p>4.3. Network management skills;</p> <p>4.4. Network management system application skills;</p> <p>4.5. ICT device board fault maintenance skills;</p> <p>4.6. Interpersonal skills;</p> <p>4.7. Teamwork skills;</p> <p>4.8. Project management skills;</p> <p>4.9. Time management skills.</p>
<p>DESCRIPTION OF END PRODUCTS/SERVICE</p>	<p>ICT device fault monitoring and underlying automatically repaired software and hardware tools are deployed as per industry standards and national ICT governance guidelines.</p>
<p>CIRCUMSTANTIAL KNOWLEDGE</p>	<p>Detailed knowledge about:</p> <p>1. Common methods of ICT device fault analysis and detection;</p> <p>2. Basic skills for ICT device fault and board maintenance.</p>

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	MAINTAIN ICT DEVICES (INTERMEDIATE-LEVEL)	DUTY NO.	502
TASK TITLE	IMPLEMENT NETWORK SECURITY CLASSIFICATION PROTECTION AND REPORT SECURITY INCIDENTS	TASK NO.	5023
PERFORMANCE CRITERIA	The person performing this task must be able to implement software and hardware device network system security detection and security incident reporting and protection using a network security classification protection program as per industry standards and national ICT governance guidelines.		
RANGE STATEMENT	This task can be performed in a central server room of the network system or in the remote management system. The following equipment and tools should be available: 1. Computer; 2. Software and hardware equipment related to network security risk monitoring and protection; 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. Analyze the network topology and draw topological diagrams; 2. Design network security classification and protection scheme; 3. Select the corresponding network security protection hardware and software devices under the specific network security protection scheme; 4. Deploy network security hardware and software devices and test the security incident reporting function; 5. Conduct network security protection scheme testing; 6. Observe health and safety	Detailed knowledge about: 1.0. Methods The person must be able to explain how to: 1.1 Analyze the level of security protection and protection scheme to be implemented based on network size, and network business attributes; 1.2 Select the appropriate network security protection software and hardware supporting tools as per the network security protection scheme; 1.3 Plan the optimal network security hardware and software deployment plan based on the actual network topology. 2.0. Principles: The person must be able to explain the		

<precautions; </precautions; 7. Clean workplace; 8 Store tools.	principles of: 2.1 Classification protection of network security; 2.2 The scope of monitoring of different network security protection software, devices, and protection schemes. 3.0. Theories: The person must be able to explain: 3.1 Network security risks, security incidents, and applicable network security classification protection schemes for different networks; 3.2 Network security protection schemes corresponding to different network security incidents and security protection levels, and the significance of the functions and parameters of the supporting software and hardware. 4.0. Essential skills: 4.1 Network topology analysis skills; 4.2 Network security risk analysis skills; 4.3 Communication skills; 4.4 Report writing skills; 4.5 Interpersonal skills; 4.6 Teamwork skills; 4.7 Leadership skills; 4.8 Project management skills; 4.9 Time management skills.
DESCRIPTION OF END PRODUCTS/SERVICE	Network security classification protection under specific networks is implemented and security incident reporting is performed as per industry standards and national ICT governance guidelines.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: 1. Security risk vulnerability check for corresponding network topology; 2. Protection deployment of network security devices.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	SET UP AND MANAGE LANS	DUTY NO.	503
TASK TITLE	BE FAMILIAR WITH THE COMMON EQUIPMENT, TOOLS, AND CABLES USED TO SET UP A NETWORK	TASK NO.	5031
PERFORMANCE CRITERIA	The person performing this task must be able to understand the environment in which the network device is used and master the specifications for the use of tools and cables as per industry standards and national ICT guidelines.		
RANGE STATEMENT	<p>This task can be completed in an office environment or at a client's site.</p> <p>The following items and tools should be available:</p> <ol style="list-style-type: none"> 1. Computer; 2. Network devices: network cards, routers, switches, etc.; 3. Tools and cables: crimping pliers, twisted-pair cables, etc. 4. Institution's manual. <p>This person shall work independently.</p>		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Understand the functions of network devices; 2. Master the use of tools; 3. Make twisted-pair cables; 4. Observe health and safety precautions at work; 5. Clean workplace; 6. Store tools. 		<p>Detailed knowledge about:</p> <p>1.0. Methods:</p> <p>The person must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1. The operating environment of common network devices; 1.2. Steps for making twisted-pair cables. <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. Selecting network devices; 2.2. Selecting twisted-pair cables. <p>3.0. Theories:</p> <p>The person must be able to explain:</p> <ol style="list-style-type: none"> 3.1. Network device performance; 3.2. Classification of twisted-pair cables; 3.3. Steps for making twisted-pair cables. <p>4.0. Essential skills:</p>	

	<ul style="list-style-type: none"> 4.1. Problem solving skills; 4.2. Critical thinking skills; 4.3. Analytical skills; 4.4. Communication skills; 4.5. Interpersonal skills; 4.6. Teamwork skills; 4.7. Time management skills; 4.8. Skills for selecting network devices; 4.9. Skills for making twisted-pair cables.
DESCRIPTION OF END PRODUCTS/SERVICE	The environment in which the network device is used is understood, the specifications for the use of tools and cables are mastered, and the fabrication of twisted-pair cables is completed as per industry standards and national ICT guidelines.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ul style="list-style-type: none"> 1. Network devices such as network cards, routers, and switches; 2. Classification of twisted-pair cables; 3. How to make twisted-pair cables.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	SET UP AND MANAGE LANS	DUTY NO.	503
TASK TITLE	SET UP SMALL LANS	TASK NO.	5032
PERFORMANCE CRITERIA	The person performing this task must be able to plan and set up a small LAN as per industry standards and national ICT guidelines.		
RANGE STATEMENT	<p>This task can be completed in an office environment or at a client's site.</p> <p>The following items and tools should be available:</p> <ol style="list-style-type: none"> 1. Computer; 2. Network devices: network cards, routers, switches, etc.; 3. Tools and cables: crimping pliers, twisted-pair cables, etc.; 4. Institution's manual; 5. Business requirements; 6. User requirements; 7. Relevant software tools; <p>This person shall work independently or in a team to complete the work.</p>		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Interpret business requirement information; 2. Develop network topological diagrams; 3. Connect network devices and computers; 4. Assign IP addresses; 5. Observe health and safety precautions at work; 6. Clean workplace; 7. Store tools. 		<p>Detailed knowledge about:</p> <p>1.0. Methods:</p> <p>The person must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1. Interpret business requirement information; 1.2. Translate user requirements into technical specifications; 1.3. Select the network topology; 1.4. Connect network devices and computers; 1.5. IP addressing. <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. Selecting network topology; 2.2. IP addressing. <p>3.0. Theories:</p> <p>The person must be able to explain:</p>	

	<p>3.1. Network topology; 3.2. Classification of IP addresses; 3.3. IP addressing management.</p> <p>4.0. Essential skills: 4.1. Problem solving skills; 4.2. Critical thinking skills; 4.3. Analytical skills; 4.4. Communication skills; 4.5. Interpersonal skills; 4.6. Teamwork skills; 4.7. Time management skills; 4.8. Skills to set up small LANs; 4.9. Skills to divide and manage IP addresses of LANs.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	User requirements are translated into implementation plans, small LANs are set up as per the implementation plans, and the allocation and management of IP addresses of computers in the LAN are completed as per industry standards and national ICT guidelines.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Network topology; 2. Classification of IP addresses; 3. IP addressing.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	SET UP AND MANAGE LANS	DUTY NO.	503
TASK TITLE	PLAN MEDIUM LANS	TASK NO.	5033
PERFORMANCE CRITERIA	The person performing this task must be able to plan a medium LAN as per industry standards and national ICT guidelines.		
RANGE STATEMENT	<p>This task can be completed in an office environment or at a client's site.</p> <p>The following items and tools should be available:</p> <ol style="list-style-type: none"> 1. Computer; 2. Institution's manual; 3. Business requirements; 4. User requirements; 5. Relevant software tools. <p>This person shall work independently or in a team to complete the work.</p>		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Interpret business requirement information; 2. Develop network topological diagrams; 3. Show planning effect; 4. Observe health and safety precautions at work; 5. Clean workplace; 6. Store tools. 		<p>Detailed knowledge about:</p> <p>1.0. Methods:</p> <p>The person must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1. Interpret business requirement information; 1.2. Translate user requirements into technical specifications; 1.3. Design network topology; 1.4. Select equipment types; 1.5. Demonstrate the effects of LAN planning. <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. Network topology design; 2.2. Equipment selection. <p>3.0. Theories:</p> <p>The person must be able to explain:</p> <ol style="list-style-type: none"> 3.1. Network topology; 3.2. Network devices. 	

	<p>4.0. Essential skills:</p> <p>4.1. Problem solving skills;</p> <p>4.2. Critical thinking skills;</p> <p>4.3. Analytical skills;</p> <p>4.4. Communication skills;</p> <p>4.5. Interpersonal skills;</p> <p>4.6. Teamwork skills;</p> <p>4.7. Time management skills;</p> <p>4.8. Skills to plan medium LANs;</p> <p>4.9. Skills for network device selection.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	User requirements are translated into implementation plans and medium LANs are planned in accordance with the implementation plans as per industry standards and national ICT guidelines.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Network topology; 2. Network device; 3. Network applications.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	SET UP AND MANAGE LANS	DUTY NO.	503
TASK TITLE	TROUBLESHOOTING, CONFIGURATION MANAGEMENT, PERFORMANCE MANAGEMENT, AND SECURITY MANAGEMENT OF LANS	TASK NO.	5034
PERFORMANCE CRITERIA	The person performing this task must be able to troubleshoot the network, configure and manage network devices, ensure network access performance, and maintain the security of the LAN as per industry standards and national ICT guidelines.		
RANGE STATEMENT	<p>This task can be completed in an office environment or at a client's site.</p> <p>The following items and tools should be available:</p> <ol style="list-style-type: none"> 1. Computer; 2. Institution's manual; 3. Business requirements; 4. User requirements; 5. Relevant software tools. <p>This person shall work independently or in a team to complete the work.</p>		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Interpret business requirement information; 2. Troubleshoot common LAN faults; 3. Configure network devices; 4. Maintain LAN security; 5. Observe health and safety precautions at work; 6. Clean workplace. 		<p>Detailed knowledge about:</p> <p>1.0. Methods:</p> <p>The person must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1. Interpret business requirement information; 1.2. Translate user requirements into technical specifications; 1.3. Network troubleshooting; 1.4. Configuration of network devices; 1.5. Network security design. <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. Causes of network faults; 	

	<p>2.2. Impact of device configuration on the network;</p> <p>2.3. Methods for securing the network.</p> <p>3.0. Theories: The person must be able to explain:</p> <p>3.1. Common network faults;</p> <p>3.2. Configuration of network devices;</p> <p>3.3. Network applications such as anti-virus applications and firewalls.</p> <p>4.0. Essential skills:</p> <p>4.1. Problem solving skills;</p> <p>4.2. Critical thinking skills;</p> <p>4.3. Analytical skills;</p> <p>4.4. Communication skills;</p> <p>4.5. Interpersonal skills;</p> <p>4.6. Teamwork skills;</p> <p>4.7. Time management skills;</p> <p>4.8. Skills in locating, analyzing, and resolving network faults;</p> <p>4.9. Skills to maintain network security.</p>
<p>DESCRIPTION OF END PRODUCTS/SERVICE</p>	<p>User requirements are translated into implementation plans, network faults are identified and troubleshot, network devices are configured and managed, network access performance is guaranteed, and LAN security is maintained as per industry standards and national IT guidelines.</p>
<p>CIRCUMSTANTIAL KNOWLEDGE</p>	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Network fault analysis; 2. Network device configuration; 3. Firewall, anti-virus and other network applications.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	USE NETWORK OPERATING SYSTEMS	DUTY NO.	504
TASK TITLE	INSTALL COMMON NETWORK OPERATING SYSTEMS	TASK NO.	5041
PERFORMANCE CRITERIA	The person performing this task must be able to perform installations of common network operating systems as per industry standards and national IT guidelines.		
RANGE STATEMENT	<p>This task can be completed in an office environment or at a client's site.</p> <p>The following items and tools should be available:</p> <ol style="list-style-type: none"> 1. Computer; 2. Servers; 3. VMware software; 4. Installation software for network operating systems; 5. Server drivers. <p>This person shall work independently.</p>		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Install VMware software; 2. Common network operating systems; 3. Methods of installing network operating systems; 4. General steps of server installation; 5. Methods of obtaining server drivers; 6. Observe health and safety precautions at work; 7. Clean workplace; 8. Store tools. 		<p>Detailed knowledge about:</p> <p>1.0. Methods:</p> <p>The person must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1. Install VMware software; 1.2. Install network operating systems; 1.3. General steps of server installation; 1.4. Methods of obtaining server drivers. <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. Network operating system selection; 2.2. Network operating system openness; 2.3. Network operating system expandability; 2.4. Network operating system reliability. <p>3.0. Theories:</p> <p>The person must be able to explain:</p> <ol style="list-style-type: none"> 3.1. VMware's role; 	

	<p>3.2. Network operating system functions;</p> <p>3.3. Network operating system classification;</p> <p>3.4. Common network operating systems;</p> <p>3.5. RAID feature;</p> <p>3.6. RAID configuration;</p> <p>3.7. Network operating system installation method;</p> <p>3.8. Methods of obtaining server drivers.</p> <p>4.0. Essential skills:</p> <p>4.1. Problem solving skills;</p> <p>4.2. Critical thinking skills;</p> <p>4.3. Analytical skills;</p> <p>4.4. Communication skills;</p> <p>4.5. Report writing skills;</p> <p>4.6. Interpersonal skills;</p> <p>4.7. Teamwork skills;</p> <p>4.8. Leadership skills;</p> <p>4.9. Project management skills;</p> <p>4.10. Time management skills.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	The network operating system is installed as per industry standards and national ICT guidelines.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Installation and use of VMware software; 2. Install network operating systems; 3. General steps of server installation.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	USE NETWORK OPERATING SYSTEMS	DUTY NO.	504
TASK TITLE	CONFIGURATION OF COMMON NETWORK OPERATING SYSTEMS	TASK NO.	5042
PERFORMANCE CRITERIA	The person performing this task must be able to perform the configuration of common network operating systems as per industry standards and national IT guidelines.		
RANGE STATEMENT	<p>This task can be completed in an office environment or at a client's site.</p> <p>The following items and tools should be available:</p> <ol style="list-style-type: none"> 1. Computer; 2. Servers; 3. VMware software; 4. Network operating system configuration tools. <p>This person shall work independently.</p>		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Network operating system configuration tools; 2. Vulnerability assessment and threat mitigation; 3. Application control; 4. Terminal permission management; 5. Data loss prevention; 6. Automated patch management; 7. Device control; 8. Observe health and safety precautions at work; 9. Clean workplace; 10. Store tools. 		<p>Detailed knowledge about:</p> <p>1.0. Methods:</p> <p>The person must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1. Application control; 1.2. Vulnerability assessment; 1.3. Terminal permission management; 1.4. Data protection; 1.5. Device control. <p>2.0. Principles:</p> <p>The person must be able to explain the governing principles of:</p> <ol style="list-style-type: none"> 2.1. Active directory; 2.2. Domain; 2.3. Group policy. <p>3.0. Theories:</p> <p>The person must be able to explain:</p> <ol style="list-style-type: none"> 3.1. Event view; 3.2. Resource sharing management; 	

	<p>3.3. User and group management; 3.4. Performance logs and alerts; 3.5. Device management; 3.6. Disk management; 3.7. Service management; 3.8. Group policy management.</p> <p>4.0. Essential skills: 4.1. Problem solving skills; 4.2. Critical thinking skills; 4.3. Analytical skills; 4.4. Communication skills; 4.5. Report writing skills; 4.6. Interpersonal skills; 4.7. Teamwork skills; 4.8. Leadership skills; 4.9. Project management skills; 4.10. Time management skills.</p>
<p>DESCRIPTION OF END PRODUCTS/SERVICE</p>	<p>The network operating system is configured as per industry standards and national ICT guidelines.</p>
<p>CIRCUMSTANTIAL KNOWLEDGE</p>	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Network operating system configuration tools; 2. Vulnerability assessment and threat mitigation; 3. Application control; 4. Terminal permission management; 5. Data loss prevention; 6. Automated patch management; 7. Device control.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	USE NETWORK OPERATING SYSTEMS	DUTY NO.	504
TASK TITLE	COMMON NETWORK SERVICE CONFIGURATION	TASK NO.	5043
PERFORMANCE CRITERIA	The person performing this task must be able to perform the configuration of common network services as per industry standards and national IT guidelines.		
RANGE STATEMENT	<p>This task can be completed in an office environment or at a client's site.</p> <p>The following items and tools should be available:</p> <ol style="list-style-type: none"> 1. Computer; 2. Servers; 3. VMware software; 4. Network service configuration tools. <p>This person shall work independently.</p>		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Install and configure the DNS service; 2. Install and configure the DHCP service; 3. Install and configure the WEB service; 4. Install and configure the FTP service; 5. Install and configure the E-MAIL service; 6. Install and configure remote access services; 7. Observe health and safety precautions at work; 8. Clean workplace; 9. Store tools. 		<p>Detailed knowledge about:</p> <p>1.0. Methods:</p> <p>The person must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1. Install and configure the DNS service; 1.2. Install and configure the DHCP service; 1.3. Install and configure the WEB service; 1.4. Install and configure the FTP service; 1.5. Install and configure the E-MAIL service; 1.6. Install and configure remote access services. <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. Network service security specifications; 	

	<p>2.2. Cyber threats.</p> <p>3.0. Theories: The person must be able to explain how to:</p> <p>3.1. Network service quality indicators; 3.2. Acceptance period; 3.3. Communication quality indicators.</p> <p>4.0. Essential skills: 4.1 Problem solving skills; 4.2 Critical thinking skills; 4.3 Analytical skills; 4.4 Communication skills; 4.5 Report writing skills; 4.6 Interpersonal skills; 4.7 Teamwork skills; 4.8 Leadership skills; 4.9 Project management skills; 4.10 Time management skills.</p>
<p>DESCRIPTION OF END PRODUCTS/SERVICE</p>	<p>The network services are configured as per industry standards and national ICT guidelines.</p>
<p>CIRCUMSTANTIAL KNOWLEDGE</p>	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Install and configure the DNS service; 2. Install and configure the DHCP service; 3. Install and configure the WEB service; 4. Install and configure the FTP service; 5. Install and configure the E-MAIL service; 6. Install and configure remote access services.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	USE NETWORK OPERATING SYSTEMS	DUTY NO.	504
TASK TITLE	COMMON NETWORK SERVICE MANAGEMENT	TASK NO.	5044
PERFORMANCE CRITERIA	The person performing this task must be able to perform the management of common network services as per industry standards and national IT guidelines.		
RANGE STATEMENT	<p>This task can be completed in an office environment or at a client's site.</p> <p>The following items and tools should be available:</p> <ol style="list-style-type: none"> 1. Computer; 2. Servers; 3. VMware software; 4. Installation software for network operating systems; 5. Network service management tools. <p>This person shall work independently.</p>		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Perform DNS service management; 2. Perform DHCP service management; 3. Perform WEB service management; 4. Perform FTP service management; 5. Perform E-MAIL service management; 6. Perform remote access service management; 7. Observe health and safety precautions at work; 8. Clean workplace; 9. Store tools. 		<p>Detailed knowledge about:</p> <p>1.0. Methods:</p> <p>The person must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1. Perform DNS service management; 1.2. Perform DHCP service management; 1.3. Perform WEB service management; 1.4. Perform FTP service management; 1.5. Perform E-MAIL service management; 1.6. Perform remote access service management. <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. Client configuration and usage; 2.2. Designing IP address and port number; 2.3. Configuring client retention principles. <p>3.0. Theories:</p>	

	<p>The person must be able to explain how to:</p> <ol style="list-style-type: none"> 3.1. DNS resolution process; 3.2. DHCP allocation form; 3.3. WEB configuration ideas; 3.4. Access security settings. <p>4.0. Essential skills:</p> <ol style="list-style-type: none"> 4.1 Problem solving skills; 4.2 Critical thinking skills; 4.3 Analytical skills; 4.4 Communication skills; 4.5 Report writing skills; 4.6 Interpersonal skills; 4.7 Teamwork skills; 4.8 Leadership skills; 4.9 Project management skills; 4.10 Time management skills.
<p>DESCRIPTION OF END PRODUCTS/SERVICE</p>	<p>The network services are managed as per industry standards and national ICT guidelines.</p>
<p>CIRCUMSTANTIAL KNOWLEDGE</p>	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Perform DNS service management; 2. Perform DHCP service management; 3. Perform WEB service management; 4. Perform FTP service management; 5. Perform E-MAIL service management; 6. Perform remote access service management.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	USE ROUTERS AND ROUTING TECHNIQUES	DUTY NO.	505
TASK TITLE	CONFIGURE THE IP ADDRESS OF ROUTER INTERFACE	TASK NO.	5051
PERFORMANCE CRITERIA	The person performing this task must be able to configure the IP address of the router interface as per industry standards and national ICT guidelines.		
RANGE STATEMENT	<p>This task can be performed in a device workshop or in a client's office.</p> <p>The following equipment and tools should be available:</p> <ol style="list-style-type: none"> 1. Computer; 2. Console cable; 3. Business requirements; 4. User requirements; 5. Relevant software tools. <p>This person shall work independently or in a team to complete the work.</p>		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE	UNDERPINNING KNOWLEDGE		
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Interpret the required information; 2. Connect the router; 3. Configure the IP address of the interface as required; 4. Clean workplace. 	<p>Detailed knowledge about:</p> <p>1.0. Methods</p> <p>The person must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1. Interpret user configuration requirements; 1.2. Translate user requirements into technical specifications; 1.3. Connect a computer to a router; 1.4. Method of router interface IP configuration. <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. Preparing technical specifications; 2.2. Interpreting business requirements into technical specifications. <p>3.0. Theories:</p> <p>The person must be able to explain:</p> <ol style="list-style-type: none"> 3.1. Principle of router interface IP 		

	<p>configuration;</p> <p>3.2. Method of router interface IP configuration.</p> <p>4.0. Essential skills:</p> <p>4.1. Problem solving skills;</p> <p>4.2. Critical thinking skills;</p> <p>4.3. Analytical skills;</p> <p>4.4. Communication skills;</p> <p>4.5. Skills to use interface IP commands for router configuration.</p> <p>4.6. Interpersonal skills;</p> <p>4.7. Teamwork skills;</p> <p>4.8. Project management skills;</p> <p>4.9. Time management skills.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	The IP address of the router interface is configured as per industry standards and national ICT guidelines.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Method of router interface IP configuration; 2. Commands of router interface IP configuration.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	USE ROUTERS AND ROUTING TECHNIQUES	DUTY NO.	505
TASK TITLE	CONFIGURE STATIC ROUTING, DEFAULT ROUTING, AND FLOATING ROUTING	TASK NO.	5052
PERFORMANCE CRITERIA	The person performing this task must be able to configure static routing, default routing, and floating routing as per industry standards and national ICT guidelines.		
RANGE STATEMENT	<p>This task can be performed in a device workshop or in a client's office.</p> <p>The following equipment and tools should be available:</p> <ol style="list-style-type: none"> 1. Computer; 2. Console cable; 3. Business requirements; 4. User requirements; 5. Relevant software tools. <p>This person shall work independently or in a team to complete the work.</p>		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Interpret the required information; 2. Connect the router; 3. Configure static routing of the router as required; 4. Clean workplace. 		<p>Detailed knowledge about:</p> <p>1.0. Methods</p> <p>The person must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1. Interpret user configuration requirements; 1.2. Translate user requirements into technical specifications; 1.3. Connect a computer to a router; 1.4. Static routing configuration method of the router. <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. Preparing technical specifications; 2.2. Interpreting business requirements into technical specifications. <p>3.0. Theories:</p> <p>The person must be able to explain:</p> <ol style="list-style-type: none"> 3.1. Static routing configuration principle 	

	<p>of the router;</p> <p>3.2. Static routing configuration method of the router.</p> <p>4.0. Essential skills:</p> <p>4.1. Problem solving skills;</p> <p>4.2. Critical thinking skills;</p> <p>4.3. Analytical skills;</p> <p>4.4. Communication skills;</p> <p>4.5. Skills to use static routing commands for router configuration;</p> <p>4.6. Interpersonal skills;</p> <p>4.7. Teamwork skills;</p> <p>4.8. Project management skills;</p> <p>4.9. Time management skills.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	Static routing, default routing, and floating routing are configured as per industry standards and national ICT guidelines.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Static routing configuration method of the router; 2. Static routing configuration commands of the router.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	USE ROUTERS AND ROUTING TECHNIQUES	DUTY NO.	505
TASK TITLE	CONFIGURE DYNAMIC ROUTING	TASK NO.	5053
PERFORMANCE CRITERIA	The person performing this task must be able to configure dynamic routing as per industry standards and national ICT guidelines.		
RANGE STATEMENT	<p>This task can be performed in a device workshop or in a client's office.</p> <p>The following equipment and tools should be available:</p> <ol style="list-style-type: none"> 1. Computer; 2. Console cable; 3. Business requirements; 4. User requirements; 5. Relevant software tools. <p>This person shall work independently or in a team to complete the work.</p>		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Interpret the required information; 2. Connect the router; 3. Configure dynamic routing of the router as required; 4. Clean workplace. 		<p>Detailed knowledge about:</p> <p>1.0. Methods</p> <p>The person must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1. Interpret user configuration requirements; 1.2. Translate user requirements into technical specifications; 1.3. Connect a computer to a router; 1.4. Dynamic routing configuration method of the router. <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. Preparing technical specifications; 2.2. Interpreting business requirements into technical specifications. <p>3.0. Theories:</p> <p>The person must be able to explain:</p> <ol style="list-style-type: none"> 3.1. Dynamic routing configuration principle of the router; 	

	<p>3.2. Dynamic routing configuration method of the router.</p> <p>4.0. Essential skills:</p> <p>4.1. Problem solving skills;</p> <p>4.2. Critical thinking skills;</p> <p>4.3. Analytical skills;</p> <p>4.4. Communication skills;</p> <p>4.5. Skills to use dynamic routing commands for router configuration;</p> <p>4.6. Interpersonal skills;</p> <p>4.7. Teamwork skills;</p> <p>4.8. Project management skills;</p> <p>4.9. Time management skills.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	Dynamic routing is configured as per industry standards and national ICT guidelines.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Dynamic routing configuration method of the router; 2. Dynamic routing configuration commands of the router.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	IMPLEMENT PROJECT INTEGRATED CABLING (INTERMEDIATE-LEVEL)	DUTY NO.	506
TASK TITLE	INSTALL TWISTED-PAIR CABLES	TASK NO.	5061
PERFORMANCE CRITERIA	The person performing this task must be able to perform twisted-pair cable installations as per industry standards and national ICT guidelines.		
RANGE STATEMENT	<p>This task can be completed in a device workshop or at a client's site.</p> <p>The following items and tools should be available:</p> <ol style="list-style-type: none"> 1. Computer; 2. Business requirements; 3. Twisted-pair cabling materials: twisted-pair cables, RJ's, PVC slotted pipe, cable ties, etc.; 4. Twisted-pair terminating tools: crimping pliers, wire strippers, cable tester, scissors, etc. <p>This person shall work independently or in a team to complete the work.</p>		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE	UNDERPINNING KNOWLEDGE		
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Interpret functional requirements and translate them into cabling designs; 2. Conduit inspection; 3. Twisted pair cabling; 4. Twisted pair termination; 5. Link collation marking; 6. Housekeeping. 	<p>Detailed knowledge about:</p> <p>1.0. Methods:</p> <p>The person must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1. Interpreting user functional requirements; 1.2. Translate user requirements into technical specifications; 1.3. Twisted pair traction; 1.4. Twisted pair cabling; 1.5. Twisted pair termination. <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. Preparing technical specifications; 2.2. Interpreting business requirements into technical specifications. 		

	<p>3.0. Theories: The person must be able to explain:</p> <ol style="list-style-type: none"> 3.1. Making standards of twisted pair jumpers; 3.2. Twisted pair main performance indicators. <p>4.0. Essential skills:</p> <ol style="list-style-type: none"> 4.1. Problem solving skills; 4.2. Critical thinking skills; 4.3. Analytical skills; 4.4. Communication skills; 4.5. Teamwork skills; 4.6. Project management skills; 4.7. Time management skills.
<p>DESCRIPTION OF END PRODUCTS/SERVICE</p>	<p>Twisted-pair cables are installed as per industry standards and national ICT guidelines.</p>
<p>CIRCUMSTANTIAL KNOWLEDGE</p>	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Twisted pair cabling method; 2. Twisted pair traction method; 3. Twisted pair termination technology.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	IMPLEMENT PROJECT INTEGRATED CABLING (INTERMEDIATE-LEVEL)	DUTY NO.	506
TASK TITLE	INSTALL FIBER OPTIC CABLES	TASK NO.	5062
PERFORMANCE CRITERIA	The person performing this task must be able to perform fiber optic cable installations as per industry standards and national ICT guidelines.		
RANGE STATEMENT	<p>This task can be completed in a device workshop or at a client's site.</p> <p>The following items and tools should be available:</p> <ol style="list-style-type: none"> 1. Computer; 2. Business requirements; 3. Cabling materials; 4. Terminating tools. <p>This person shall work independently or in a team to complete the work.</p>		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Interpret functional requirements and translate them into cabling designs; 2. Conduit inspection; 3. Fiber optic cable laying; 4. Fiber optic cable termination; 5. Link collation marking; 6. Housekeeping. 		<p>Detailed knowledge about:</p> <p>1.0. Methods:</p> <p>The person must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1. Interpreting user functional requirements; 1.2. Translate user requirements into technical specifications; 1.3. Fiber optic cable laying; 1.4. Fiber optic cable termination. <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. Preparing technical specifications; 2.2. Interpreting business requirements into technical specifications. <p>3.0. Theories:</p> <p>The person must be able to explain:</p> <ol style="list-style-type: none"> 3.1. Fiber optic cable cabling method; 	

	<p>3.2. Fiber optic cable termination methods and selection principles.</p> <p>4.0 Essential skills:</p> <p>4.1. Problem solving skills;</p> <p>4.2. Critical thinking skills;</p> <p>4.3. Analytical skills;</p> <p>4.4. Communication skills;</p> <p>4.5. Teamwork skills;</p> <p>4.6. Project management skills;</p> <p>4.7. Time management skills.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	Fiber optic cables are installed as per industry standards and national ICT guidelines.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Fiber optic cable laying method; 2. Fiber optic cable termination method; 3. Integrated cabling principles.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	ACCEPT AND DELIVER OPERATIONS (INTERMEDIATE-LEVEL)	DUTY NO.	507
TASK TITLE	ENTERTAIN CLIENTS OF SMALL-SCALE COMMERCIAL EQUIPMENT	TASK NO.	5071
PERFORMANCE CRITERIA	The person performing this task must be able to entertain clients of small-scale commercial equipment and tap into enterprise business requirements as per industry standards and national ICT guidelines.		
RANGE STATEMENT	<p>This task can be completed in an office environment or at a client's site.</p> <p>The following items and tools should be available:</p> <ol style="list-style-type: none"> 1. Computer; 2. Institution's manual; 3. Business process modeling tools; 4. Presentation tools. <p>This person shall work independently.</p>		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE	UNDERPINNING KNOWLEDGE		
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Modeling business processes; 2. Assess business processes; 3. Determine business requirements; 4. Observe health and safety precautions at work; 5. Clean workplace; 6. Store tools. 	<p>Detailed knowledge about:</p> <p>1.0. Methods: The person must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1. Analyze business processes; 1.2. Assess business processes; 1.3. Determine business requirements. <p>2.0. Principles: The person must be able to explain the principles of:</p> <ol style="list-style-type: none"> 2.1. Business requirements analysis; 2.2. Business process management. <p>3.0. Theories: The person must be able to explain how to:</p> <ol style="list-style-type: none"> 3.1. Business process analysis; 3.2. Business process re-engineering; 3.3. Business control. <p>4.0. Essential skills:</p> <ol style="list-style-type: none"> 4.1. Problem solving skills; 4.2. Business proficiency skills; 		

	<p>4.3. Analytical skills; 4.4. Communication skills; 4.5. Report writing skills; 4.6. Interpersonal skills; 4.7. Teamwork skills; 4.8. Leadership skills; 4.9. Project management skills; 4.10 Time management skills.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	<p>Clients of small-scale commercial equipment are entertained and enterprise business requirements are tapped as per industry standards and national ICT guidelines.</p>
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Business communication; 2. Information analysis; 3. Extent of responsibilities.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	ACCEPT AND DELIVER OPERATIONS (INTERMEDIATE-LEVEL)	DUTY NO.	507
TASK TITLE	ACCEPT SMALL-SCALE COMMERCIAL EQUIPMENT BUSINESS	TASK NO.	5072
PERFORMANCE CRITERIA	The person performing this task must be able to analyze business requirements and develop small-scale equipment business requirements programs as per industry standards and national ICT management guidelines.		
RANGE STATEMENT	<p>This task can be performed in a workshop or in a client's office.</p> <p>The following equipment and tools should be available:</p> <ol style="list-style-type: none"> 1. Computer; 2. Structure manual; 3. Related guides; 4. Presentation tools. <p>This person shall work under minimum supervision.</p>		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE	UNDERPINNING KNOWLEDGE		
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Translate functional requirements into requirement documents; 2. Design network topology; 3. Develop network design schemes; 4. Select network device type; 5. Develop project implementation plans; 6. Clean workplace; 7. Store tools. 	<p>Detailed knowledge about:</p> <p>1.0. Methods</p> <p>The person must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1. Translate functional requirements into software modules; 1.2. Identify network topology; 1.3. Select network device type. <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 Designing a stable and reliable topology; 2.2 Evaluating risk factors in the network structure; 2.3 Principles of economic reliability of network devices; 2.4 Principles of safety during construction. <p>3.0. Theories:</p> <p>The person must be able to explain:</p> <ol style="list-style-type: none"> 3.1 Translating business requirements into elements of the enterprise network; 		

	<p>3.2 Design elements of network topology;</p> <p>3.3 Identification and management of network devices;</p> <p>3.4 Implementation planning of network projects.</p> <p>4.0. Essential skills:</p> <p>4.1. Problem solving skills;</p> <p>4.2. Critical thinking skills;</p> <p>4.3. Analytical skills;</p> <p>4.4. Communication skills;</p> <p>4.5. Report writing skills;</p> <p>4.6. Interpersonal skills;</p> <p>4.7. Teamwork skills;</p> <p>4.8. Leadership skills;</p> <p>4.9. Project management skills;</p> <p>4.10. Time management skills.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	Network project programs are developed and small-scale commercial equipment is deployed as per industry standards and national ICT management guidelines.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Business process; 2. Project management; 3. Information analysis.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	ACCEPT AND DELIVER OPERATIONS (INTERMEDIATE-LEVEL)	DUTY NO.	507
TASK TITLE	DELIVER SMALL-SCALE COMMERCIAL EQUIPMENT OPERATIONS	TASK NO.	5073
PERFORMANCE CRITERIA	The person performing this task must be able to deliver small-scale commercial equipment operations as per industry standards and national ICT management guidelines.		
RANGE STATEMENT	<p>This task can be performed in a workshop or in a client's office.</p> <p>The following equipment and tools should be available:</p> <ol style="list-style-type: none"> 1. Computer; 2. Presentation tools; 3. Related guides. <p>This person shall work independently.</p>		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Deliver project design schemes; 2. Project integrated cabling and implementation; 3. Deliver equipment usage management manual; 4. Use and training of network devices; 5. Observe health and safety precautions; 6. Clean workplace;7 Store tools. 		<p>Detailed knowledge about:</p> <p>1.0. Methods</p> <p>The person must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1 Plan the implementation of the project; 1.2 Refine the project's delivery plan; 1.3 Develop manuals for the use of devices; 1.4 Develop training programs for the use of devices. <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 Delivery process of network projects; 2.2 Service work for network projects. <p>3.0. Theories:</p> <p>The person must be able to explain:</p> <ol style="list-style-type: none"> 3.1 Design of the delivery plan; 3.2 Program design and planning for project implementation; 3.3 Design and planning of training programs. <p>4.0. Essential skills:</p>	

	<p>4.1 Problem solving skills; 4.2 Critical thinking skills; 4.3 Analytical skills; 4.4 Communication skills; 4.5 Report writing skills; 4.6 Interpersonal skills; 4.7 Teamwork skills; 4.8 Leadership skills; 4.9 Project management skills; 4.10 Time management skills.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	<p>Small-scale commercial equipment operations are delivered as per industry standards and national ICT management guidelines.</p>
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Delivery and implementation; 2. Safety and service; 3. Extent of responsibilities.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	ACCEPT AND DELIVER OPERATIONS (INTERMEDIATE-LEVEL)	DUTY NO.	507
TASK TITLE	COLLECT AND RESPOND TO SERVICE EVALUATIONS OF USERS OF SMALL-SCALE COMMERCIAL EQUIPMENT	TASK NO.	5074
PERFORMANCE CRITERIA	The person performing this task must be able to deliver small-scale commercial equipment operations as per industry standards and national ICT management guidelines.		
RANGE STATEMENT	<p>This task can be performed in a workshop or in a client's office.</p> <p>The following equipment and tools should be available:</p> <ol style="list-style-type: none"> 1. Computer; 2. Presentation tools; 3. Related guides; 4. User evaluation tools. <p>This person shall work independently.</p>		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE	UNDERPINNING KNOWLEDGE		
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. User service evaluation collection system; 2. Diagnostic business information system; 3. Maintain oversight of project activities; 4. Observe health and safety precautions; 5. Clean workplace; 6. Store tools. 	<p>Detailed knowledge about:</p> <p>1.0. Methods The person must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1 Maintain and manage network projects; 1.2 Evaluate user services and collect them; 1.3 Upgrade and modify business systems; 1.4 Troubleshoot business systems. <p>2.0. Principles: The person must be able to explain the principles of:</p> <ol style="list-style-type: none"> 2.1 Methods of collecting user evaluations; 2.2 Maintenance management of business systems. <p>3.0. Theories: The person must be able to explain:</p> <ol style="list-style-type: none"> 3.1 Collection scheme of user evaluations; 3.2 Types of business information systems; 3.3 Business information system evaluation methods. 		

	<p>4.0. Essential skills:</p> <p>4.1 Problem identification skills;</p> <p>4.2 Problem solving skills;</p> <p>4.3 Critical thinking skills;</p> <p>4.4 Communication skills;</p> <p>4.5 Report writing skills;</p> <p>4.6 Interpersonal skills;</p> <p>4.7 Teamwork skills;</p> <p>4.8 Leadership skills;</p> <p>4.9 Project management skills;</p> <p>4.10 Time management skills.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	Small-scale commercial equipment operations are delivered as per industry standards and national ICT management guidelines.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Evaluation and management; 2. Maintenance and service; 3. Extent of responsibilities.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	REPAIR AND MAINTAIN OFFICE EQUIPMENT	DUTY NO.	508
TASK TITLE	RECOGNIZE THE FAULTS DEPICTED BY CLIENTS	TASK NO.	5081
PERFORMANCE CRITERIA	The person performing this task must be able to recognize the office equipment faults as depicted by clients as per industry standards and national ICT governance guidelines.		
RANGE STATEMENT	<p>This task can be performed in an office environment or in a client's office.</p> <p>The following equipment and tools should be available:</p> <ol style="list-style-type: none"> 1. Computer; 2. Relevant software tools; 3. Manual. <p>This person shall work independently.</p>		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Identify the office equipment described by clients; 2. Guide the clients to clearly articulate the fault; 3. Record client descriptions; 4. Observe health and safety precautions at work; 5. Write client entertaining reports; 6. Clean workplace; 7. Store tools. 		<p>Detailed knowledge about:</p> <p>1.0. Methods</p> <p>The person must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1 Identify the types and models of office equipment; 1.2 Describe common faults and phenomena of office equipment; 1.3 Write reports describing the faults. <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 Client communication; 2.2 Safe use of office equipment. <p>3.0. Theories:</p> <p>The person must be able to explain:</p> <ol style="list-style-type: none"> 3.1 Types and models of office equipment; 3.2 Faults and phenomena of office equipment. <p>4.0. Essential skills:</p> <ol style="list-style-type: none"> 4.1. Communication reporting and report writing skills; 4.2 Analytical skills; 4.3. Skills to use common office equipment; 	

	<p>4.4. Understand how office equipment works;</p> <p>4.5. Strong written and oral communication skills;</p> <p>4.6. Outstanding interpersonal skills;</p> <p>4.7. Problem solving skills.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	The office equipment faults as depicted by clients are recognized as per industry standards and national ICT governance guidelines.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Daily usage of office equipment; 2. Faults and phenomena of office equipment.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	REPAIR AND MAINTAIN OFFICE EQUIPMENT	DUTY NO.	508
TASK TITLE	PREPARE FOR DOOR-TO-DOOR SERVICE	TASK NO.	5082
PERFORMANCE CRITERIA	The person performing this task must be able to prepare for door-to-door repair and maintenance of office equipment as per industry standards and national ICT management guidelines.		
RANGE STATEMENT	<p>This task can be performed in an office environment or in a client's office.</p> <p>The following equipment and tools should be available:</p> <ol style="list-style-type: none"> 1. Computer; 2. IT technologist toolkit; 3. Relevant software tools; 4. Manual. <p>This person shall work independently.</p>		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Identify office equipment; 2. Identify office equipment maintenance tools; 3. Be familiar with the function and use of tools; 4. Agree with the client on the timing and content of the above services; 5. Write work reports; 6. Strictly observe health and safety precautions at work; 7. Clean workplace; 8. Store tools. 		<p>Detailed knowledge about:</p> <p>1.0. Methods</p> <p>The person must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1. Identify repair and maintenance tools for office equipment; 1.2. Be familiar with the function and use of tools; 1.3. Organize and pack repair and maintenance tools for office equipment; 1.4. Write work reports. <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 management of repair and maintenance tools for office equipment; 2.2. Assess risk factors from repair and maintenance tools for office equipment; 2.3. Analyze the assessment report of repair and maintenance tools for office equipment. <p>3.0. Theories:</p>	

	<p>The person must be able to explain:</p> <ol style="list-style-type: none"> 3.1. Types and models of office equipment; 3.2. Faults and phenomena of office equipment; 3.3. Methods and tools for troubleshooting; 3.4. Methods and tools for repair and maintenance of office equipment. <p>4.0. Essential skills:</p> <ol style="list-style-type: none"> 4.1. Problem solving skills; 4.2. Critical thinking skills; 4.3. Analytical skills; 4.4. Strong written and oral communication skills; 4.5. Report writing skills; 4.6. Interpersonal skills; 4.7. Time management skills.
<p>DESCRIPTION OF END PRODUCTS/SERVICE</p>	<p>Preparation before the door-to-door service needs to be done as per industry standards and national ICT management guidelines.</p>
<p>CIRCUMSTANTIAL KNOWLEDGE</p>	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Types and models of office equipment; 2. Faults and phenomena of office equipment; 3. Methods and tools for troubleshooting; 4. Methods and tools for repair and maintenance of office equipment.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	REPAIR AND MAINTAIN OFFICE EQUIPMENT	DUTY NO.	508
TASK TITLE	IDENTIFY FAULTS	TASK NO.	5083
PERFORMANCE CRITERIA	The person performing this task must be able to identify office equipment faults as per industry standards and national ICT management guidelines.		
RANGE STATEMENT	<p>This task can be performed in an office environment or in a client's office.</p> <p>The following equipment and tools should be available:</p> <ol style="list-style-type: none"> 1. Computer; 2. IT technologist toolkit; 3. Relevant software tools; 4. Manual. <p>This person shall work under minimum supervision.</p>		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE	UNDERPINNING KNOWLEDGE		
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Identify office equipment; 2. Identify office equipment maintenance tools; 3. Verify the faults of office equipment; 4. Describe the faults of office equipment; 5. Write work reports; 6. Strictly observe health and safety precautions at work; 7. Observe health and safety precautions; 8. Clean workplace; 9. Store tools. 	<p>Detailed knowledge about:</p> <p>1.0. Methods</p> <p>The person must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1 Identify the types and models of office equipment; 1.2. Describe the identification method for office equipment faults; 1.3 Write reports describing the faults. <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 Client communication; 2.2 Safe use of office equipment; 2.3. Parameters for the use of office equipment. <p>3.0. Theories:</p> <p>The person must be able to explain:</p> <ol style="list-style-type: none"> 3.1 Types and models of office equipment; 3.2 Faults and phenomena of office equipment; 3.3. Methods and tools for troubleshooting; 3.4. Methods and tools for repair and maintenance of office equipment. 		

	<p>4.0. Essential skills:</p> <p>4.1 Problem solving skills;</p> <p>4.2 Critical thinking skills;</p> <p>4.3 Analytical skills;</p> <p>4.4 Communication skills;</p> <p>4.5 Report writing skills;</p> <p>4.6 Interpersonal skills;</p> <p>4.7 Teamwork skills;</p> <p>4.8 Project management skills;</p> <p>4.9 Time management skills.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	Office equipment faults are identified as per industry standards and national ICT management guidelines.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Safe handling of repair tools; 2. Safe handling of office equipment; 3. Extent of responsibilities.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	REPAIR AND MAINTAIN OFFICE EQUIPMENT	DUTY NO.	508
TASK TITLE	PROPOSE MAINTENANCE SOLUTIONS	TASK NO.	5084
PERFORMANCE CRITERIA	The person performing this task must be able to propose maintenance solutions for office equipment faults as per industry standards and national ICT management guidelines.		
RANGE STATEMENT	<p>This task can be performed in an office environment or in a client's office.</p> <p>The following equipment and tools should be available:</p> <ol style="list-style-type: none"> 1. Computer; 2. IT technologist toolkit; 3. Relevant software tools; 4. Manual. <p>This person shall work independently.</p>		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE	UNDERPINNING KNOWLEDGE		
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Plan maintenance solutions; 2. Select equipment accessories; 3. Write reports describing maintenance solutions; 4. Observe health and safety precautions; 5. Clean workplace; 6 Store tools. 	<p>Detailed knowledge about:</p> <p>1.0. Methods</p> <p>The person must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1. Plan maintenance solutions; 1.2. Select equipment accessories; 1.3. Write reports describing maintenance plans. <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. Types of office equipment faults; 2.2. Cause of faults and maintenance solutions. <p>3.0. Theories:</p> <p>The person must be able to explain:</p> <ol style="list-style-type: none"> 3.1. Faults and phenomena of office equipment; 3.2. Methods and tools for troubleshooting; 3.3. Content of maintenance solutions. <p>4.0. Essential skills:</p> <ol style="list-style-type: none"> 4.1 Problem solving skills; 4.2 Critical thinking skills; 		

	<p>4.3 Analytical skills;</p> <p>4.4 Communication skills;</p> <p>4.5 Report writing skills;</p> <p>4.6 Interpersonal skills;</p> <p>4.7 Teamwork skills;</p> <p>4.8 Leadership skills;</p> <p>4.9 Project management skills;</p> <p>4.10 Time management skills.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	Maintenance solutions for office equipment are proposed as per industry standards and national ICT management guidelines.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Faults and phenomena of office equipment; 2. Troubleshooting methods; 3. Content of maintenance solutions; 4. Extent of responsibilities.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	DAILY MANAGEMENT	DUTY NO.	509
TASK TITLE	APPLY ANTIVIRUS SOFTWARE FOR VIRUS PROTECTION AND SEARCH AND KILL	TASK NO.	5091
PERFORMANCE CRITERIA	The person performing this task must be able to complete the task as per industry standards and national ICT governance guidelines.		
RANGE STATEMENT	<p>This task can be performed in a client's office or at a device site.</p> <p>The following equipment and tools should be available:</p> <ol style="list-style-type: none"> 1. Computer; 2. Relevant software tools; 3. Related user guide. <p>This person shall work independently or in a team to complete the work.</p>		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Identify common computer viruses; 2. Analyze and judge the use of appropriate antivirus software; 3. Properly install antivirus software; 4. Use antivirus software to search and kill; 5. Properly set the daily protection and search-and-kill properties of antivirus software; 6. Regularly upgrade the installed antivirus software; 7. Set the configuration of regular system search and kill; 8. Provide clients with guiding suggestions for virus search and kill and protection. 		<p>Detailed knowledge about:</p> <p>1.0. Methods</p> <p>The person must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1 Basic principles and characteristics of computer viruses; 1.2 Characteristics of several common antivirus software; 1.3 Basic operations such as installation, configuration, upgrade, and uninstallation of antivirus software. <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 Reasonable choice of antivirus software; 2.2 Setting the daily protection and search-and-kill properties of antivirus software. <p>3.0. Theories:</p> <p>The person must be able to explain:</p> <ol style="list-style-type: none"> 3.1 Properties and characteristics of common computer viruses; 3.2 Features of common antivirus software; 	

	<p>3.3 General knowledge of computer virus protection.</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. Basic operating skills of computer software;</p> <p>4.4. Understand the characteristics of common computer viruses;</p> <p>4.5. Desire to understand changing technology trends;</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	Appropriate antivirus software is installed and reasonably configured with its searching and killing properties as per industry standards and national ICT governance guidelines.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Safe handling of common computer viruses; 2. Use of common computer antivirus software.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	DAILY MANAGEMENT	DUTY NO.	509
TASK TITLE	PREPARE TOOLS REQUIRED FOR USER FIELD SERVICE	TASK NO.	5092
PERFORMANCE CRITERIA	The person performing this task must be able to prepare the tools required for user field service as per industry standards and national ICT governance guidelines.		
RANGE STATEMENT	<p>This task can be performed in a client's office or at a device site.</p> <p>The following equipment and tools should be available:</p> <ol style="list-style-type: none"> 1. Computer; 2. Relevant software tools; 3. Diagnostic tools. <p>This person shall work independently or in a team to complete the work.</p>		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE	UNDERPINNING KNOWLEDGE		
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Prepare field service equipment as per the computer problem described by the user; 2. Prepare field service record documents; 3. Develop the program and plan for field service; 4. Confirm preparation and scheduling with users; 5. Understand the management regulations of the field service site; 6. Complete the application and return of tools required for field service. 	<p>Detailed knowledge about:</p> <p>1.0. Methods</p> <p>The person must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1 Select the appropriate field service tool based on the computer problem described by users; 1.2 Documentation of field service-related situations; 1.3 Understand the regulations governing the field service sites; 1.4 Application and return of tools required. <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 Preparation specifications for user field services; 2.2 Methods of recording user field service conditions; 2.3 Development of user field service programs and plans. <p>3.0. Theories:</p> <p>The person must be able to explain:</p> <ol style="list-style-type: none"> 3.1 Preparation specifications for user field services; 		

	<p>3.2 Situational recording needs in field service work.</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. Skills to guide users through the follow-up service process as per their needs;</p> <p>4.4. Leadership skills;</p> <p>4.5. Knowledge of the use of the tools required;</p> <p>4.6. Strong written and oral communication skills;</p> <p>4.7. Outstanding interpersonal skills;</p> <p>4.8. Project management skills;</p> <p>4.9. Problem solving skills.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	Tools required for user field service are prepared on actual demands as per industry standards and national ICT governance guidelines.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Rational selection of required tools as per user service needs; 2. Documentation of field service situations; 3. Specification of tool application and return;

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	DAILY MANAGEMENT	DUTY NO.	509
TASK TITLE	MANAGE CONSUMABLES FOR REPAIR AND MAINTENANCE	TASK NO.	5093
PERFORMANCE CRITERIA	The person performing this task must be able to manage consumables for repair and maintenance in a reasonable manner as per industry standards and national ICT governance guidelines.		
RANGE STATEMENT	<p>This task can be performed in a client's office or at a device site.</p> <p>The following equipment and tools should be available:</p> <ol style="list-style-type: none"> 1. Computer; 2. Relevant software tools. <p>This person shall work independently or in a team to complete the work.</p>		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Reasonably select repair and maintenance supplies as per user requirements; 2. Apply for corresponding tools and supplies as required, and complete the application and use registration; 3. Establish a management standing book of tools and consumables; 4. Complete the specific use standing book of repair and maintenance supplies, signed by the user when necessary. 		<p>Detailed knowledge about:</p> <p>1.0. Methods</p> <p>The person must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1 Reasonably select repair and maintenance supplies as per user requirements; 1.2 Complete the application and registration of consumables for repair and maintenance; 1.3 Establish a management standing book of tools and consumables. <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 Reasonably selecting repair and maintenance supplies as per actual demand; 2.2 Completing records of the use of repair and maintenance consumables. <p>3.0. Theories:</p> <p>The person must be able to explain:</p> <ol style="list-style-type: none"> 3.1 Specifications for the use of repair and 	

	<p>maintenance consumables;</p> <p>3.2 Records of the use of the consumables involved.</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. Understanding of complex business systems;</p> <p>4.4. Strong written and oral communication skills;</p> <p>4.5. Outstanding interpersonal skills;</p> <p>4.6. Problem solving skills.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	Consumables for repair and maintenance are managed as per industry standards and national ICT governance guidelines.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Determine supplies required on actual demands; 2. Complete consumable usage records.

OCCUPATION	IT TECHNOLOGIST	OCCUPATION CODE	
DUTY TITLE	DAILY MANAGEMENT	DUTY NO.	509
TASK TITLE	MANAGE USER FIELD SERVICE TECHNICAL DATA	TASK NO.	5094
PERFORMANCE CRITERIA	The person performing this task must be able to manage user field service technical data as per industry standards and national ICT governance guidelines.		
RANGE STATEMENT	<p>This task can be performed in a client's office or at a device site. The following equipment and tools should be available:</p> <ol style="list-style-type: none"> 1. Computer; 2. Relevant software tools. <p>This person shall work independently or in a team to complete the work.</p>		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Record the occurrence time, place, user, and problem description of the field service in detail; 2. Write written reports of field services; 3. Establish user service files; 4. Introduce the causes of problems and prevention methods to users; 5. Organize user field service technical data; 6. Classify and archive the field service technical data. 		<p>Detailed knowledge about:</p> <p>1.0. Methods The person must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1 Clarify the process and technical support for field service; 1.2 Establish user service files; 1.3 Organize and archive the field service technical data. <p>2.0. Principles: The person must be able to explain the principles of:</p> <ol style="list-style-type: none"> 2.1 Clarifying the issues involved in field service; 2.2 Technical support for field service applications. <p>3.0. Theories: The person must be able to explain:</p> <ol style="list-style-type: none"> 3.1 Technical support for field service applications; 3.2 Reporting on problem solutions and technical applications required in the work. <p>4.0. Essential skills: 4.1. Communication reporting and report</p>	

	<p>writing skills;</p> <p>4.2 Analytical skills;</p> <p>4.3. Strong written and oral communication skills;</p> <p>4.4. Data archiving skills;</p> <p>4.5. Project management skills;</p> <p>4.6. Problem solving skills.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	User field service technical data are managed as per industry standards and national ICT governance guidelines.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Organization and archiving of field service technical data; 2. Extent of responsibilities.

TABLE 1: DACUM CHARTS FOR IT TECHNIAN - NTA 5

DUTIES	TASKS	ENABLERS
<p>1.0. Collect, summarize and analyze information and data and prepare analysis reports for decision-making reference</p>	<p>1.1. Edit long documents. 1.2. Embellish textual manuscripts. 1.3. Animate the presentations 1.4. Perform data management of worksheets. 1.5. Use formula functions.</p>	<p>Generic Skills and Knowledge</p> <ul style="list-style-type: none"> • Communication and report writing skills • Analytical skills • Basic coding and programming 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 • Imagery ability • Project management skills <p>□</p> <p>Tools and Equipment</p> <ul style="list-style-type: none"> • Computer • Relevant software tools
<p>2.0. Maintain ICT devices</p>	<p>2.1. Check ICT device operation using routine maintenance commands. 2.2. Use the network management system to detect ICT device faults and maintain boards. 2.3. Implement network security classification protection and report security incidents.</p>	<p>Generic Skills and Knowledge</p> <ul style="list-style-type: none"> • Skills to check ICT devices using routine maintenance commands • Network system application management skills • Network security classification protection skills • Written and oral communication skills • Interpersonal skills

DUTIES	TASKS	ENABLERS
		<ul style="list-style-type: none"> • Project management skills <p>Tools and Equipment</p> <ul style="list-style-type: none"> • Network system tools • Network management tools • Network devices <p>Materials</p> <ul style="list-style-type: none"> • Computer
3.0 Set up and manage LANs	<p>3.1 Be familiar with the common equipment, tools, and cables used to set up a network.</p> <p>3.2 Set up small LANs.</p> <p>3.3 Plan medium LANs.</p> <p>3.4 Troubleshooting, configuration management, performance management, and security management of LANs.</p>	<p>Generic Skills and Knowledge</p> <ul style="list-style-type: none"> • Communication and report writing skills • 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 • Skills to reasonably select network devices • Skills in locating, analyzing, and resolving network faults • Network security awareness • Project management skills <p>Tools and Equipment</p> <ul style="list-style-type: none"> • Computer • Network devices • Web applications
4.0 Use network operating systems	<p>4.1 Install common network operating systems.</p> <p>4.2 Configuration of common network</p>	<p>Generic Skills and Knowledge</p> <ul style="list-style-type: none"> • Communication and report writing skills • Analytical skills • Leadership skills

DUTIES	TASKS	ENABLERS
	<p>operating systems.</p> <p>4.3 Common network service configuration.</p> <p>4.4 Common network service management.</p>	<ul style="list-style-type: none"> • Imagery ability • Understand the skills of network operating system installation, configuration, and use • Skills in mastering the configuration and management of common network services • 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 • Project management skills <p>Tools and Equipment</p> <ul style="list-style-type: none"> • VMware • Servers
<p>5.0 Use routers and routing techniques</p>	<p>5.1 Configure the IP address of router interface.</p> <p>5.2 Configure static routing, default routing, and floating routing.</p> <p>5.3 Configure a dynamic routing.</p>	<p>Generic Skills and Knowledge</p> <ul style="list-style-type: none"> • Skills to communicate network configuration needs • Skills in analyzing configuration methods • Skills in assigning commands to school routers • Desire to learn and master changing technology trends • Outstanding interpersonal skills • Complex understanding of business requirements, processes and structures

DUTIES	TASKS	ENABLERS
		<ul style="list-style-type: none"> • Project management skills <p>Tools and Equipment</p> <ul style="list-style-type: none"> • Computer • Console cable
6.0 Implement project integrated cabling (intermediate-level)	6.1. Install twisted-pair cables. 6.2. Install fiber optic cables.	<p>Generic Skills and Knowledge</p> <ul style="list-style-type: none"> • Skills to communicate user needs • Skills in analyzing configuration methods • Integrated cabling construction skills • Desire to learn and master changing technology trends • Outstanding interpersonal skills • Complex understanding of business requirements, processes and structures • Project management skills <p>Tools and Equipment</p> <ul style="list-style-type: none"> • Computer • Integrated cabling materials • Terminating tools
7.0 Accept small-scale commercial equipment business	7.1 Entertain clients of small-scale commercial equipment. 7.2 Accept small-scale commercial equipment business. 7.3 Deliver small-scale commercial equipment operations. 7.4 Collect and respond	<p>Generic Skills and Knowledge</p> <ul style="list-style-type: none"> • Communication and report writing skills • Analytical skills • Basic network topology design skills • Basic network device management skills • Understanding complex systems and how they work together • Desire to learn and master

DUTIES	TASKS	ENABLERS
	to service evaluations of users of small-scale commercial equipment.	<p>changing technology trends</p> <ul style="list-style-type: none"> • Strong written and oral communication skills • Outstanding interpersonal skills • Complex understanding of business requirements, processes and structures • Imagery ability • Project management skills <p>Tools and Equipment</p> <ul style="list-style-type: none"> • Antistatic wrist strap • Safety gears <p>Work Behaviors</p> <ul style="list-style-type: none"> • Patience • Meticulous attention to detail • A logical approach to work
8.0 Repair and maintain office equipment	<p>8.1 Recognize the faults depicted by clients.</p> <p>8.2 Prepare for door-to-door service.</p> <p>8.3 Identify faults.</p> <p>8.4 Propose maintenance solutions.</p>	<p>Generic Skills and Knowledge</p> <ul style="list-style-type: none"> • Be familiar with the types and models of office equipment • Understand the principles of collaboration between office equipment • Be familiar with the faults and phenomena of office equipment • Master the diagnosis method of office equipment faults • Be able to repair and maintain office equipment • Communication and report writing skills • Analytical skills • Desire to learn and master changing technology trends • Strong written and oral

DUTIES	TASKS	ENABLERS
		<p>communication skills</p> <ul style="list-style-type: none"> • Outstanding interpersonal skills • Complex understanding of business requirements, processes and structures • Imagery ability • Project management skills <p>Tools and Equipment</p> <ul style="list-style-type: none"> • Antistatic wrist strap • Office equipment maintenance tools • User manuals for related equipment <p>Work Behaviors</p> <ul style="list-style-type: none"> • Patience • Meticulous attention to detail • A logical approach to work
9.0 Daily management	<p>9.1 Apply antivirus software for virus protection and search and kill.</p> <p>9.2 Prepare tools required for user field service.</p> <p>9.3 Manage consumables for repair and maintenance.</p> <p>9.4 Manage user field service technical data.</p>	<p>Generic Skills and Knowledge</p> <ul style="list-style-type: none"> • Master the characteristics and hazards of common computer viruses • The characteristics of common computer antivirus software • Installation, configuration, upgrade, and uninstallation of antivirus software • Communication and report writing skills • Basic skills in network security • Problem solving skills • Desire to learn and master changing technology trends • Strong oral communication and interpersonal skills

DUTIES	TASKS	ENABLERS
		<ul style="list-style-type: none"> • Complex understanding of business requirements, processes and structures • Analytical skills <p>Tools and Equipment</p> <ul style="list-style-type: none"> • Computer • Software tools <p>Work Behaviors</p> <ul style="list-style-type: none"> • Record of the work completed • Report writing • Using the computer • Extent of responsibilities • Teamwork