NATIONAL COUNCIL FOR TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING

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PROPOSED OCCUPATIONAL STANDARDS

OCCUPATION: TEXTILE TECHNICIAN

LEVEL: NTA 6

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TABLE 1: DACUM CHARTS FOR TEXTILE TECHNICIAN - NTA 6 32

ABBREVIATIONS

A	Acrylic
Ba	Bamboo Fiber
C	Cotton Yarn
CBET	Competency Based Education and Training
CS	Card Sliver
G	Gassed Yarn
J	Combed Yarn
L	Polyvinyl Chloride Fibre
MS	Sliver
NACTVET	National Council for Technical and Vocational Education and Training
NOS	National Occupational Standards
O	Polypropylene
OE	Rotor Spinning
OS	Occupational Standards
R	Artificial Cotton
SF	Spinning Frame
SP	Spindle
SY	Yarn Evenness
T	Polyester
T/C	Polyester Cotton Yarn
TET	Technical Education and Training

T/R	Polyester-viscose Blended Yarn
TC	Tencel
TVET	Technical and Vocational Education and Training
V	Vinylon
V/C	Polyvinyl Alcohol Cotton Blended Yarn
WU	Weight Uniformity

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 programme 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.
Occupational Area:	This is a broad grouping of related jobs. (Example: food service)
Occupational Competence:	The application of knowledge and skills that consistently meet the standards required by 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 a performance tool of assessment of the prescribed outcomes.
Occupational/Job Analysis:	A process used to identify the tasks that are important to employees in any given occupation**.**
Performance Criteria:	Indicate 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:	A set of statements, which if proved true under working conditions, means that an individual is meeting an expected level and type of performance.
Task Analysis:	The process of analysing each task to determine the steps, circumstantial knowledge, attitudes, performance standards, tools and materials needed, as well as safety concerns required for the employees performing it.
Task:	A work activity that has a definite beginning and ending, is observable or measurable, and consists of two or more definite steps that leads to a product, service, or decision.
Underpinning Knowledge:	Crucial knowledge that an individual must acquire in order to demonstrate competences that are associated in performing a given task.
Verification Process:	The process of having experts 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 a 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 Occupation Standard describes functions, performance standards, and knowledge/understanding for one important function or task. They combine skills, knowledge, and attitudes to describe best practice. 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. 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 circuits, performs troubleshooting in electrical circuits, 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 the demands of the labour market.

In TET delivery, Tanzania adopted the Competence 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 training (CBET) programmes. 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 Textile Technician 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 standard 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 expert workers 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. Experts in Occupational Analysis and the Development of Occupational Standards facilitated the workshop. Interviews, online surveys, and a stakeholder forum were used to validate the Occupational Standards. Engineers, supervisory technicians on the job, and experienced Textile Technicians 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 experts from the labour market across the country. Apart from the surveys aiding in defining the scope for the occupational analysis, they also served to engage a wide cross-section of experts in the occupation. Apart from this, the stakeholders' forum was attended by ... participants from different parts of the country representing various companies.

3.0. THE SCOPE AND OVERVIEW OF THE OCCUPATION STANDARDS FOR TEXTILE TECHNICIANS

The standards cover a broad range of duties and tasks that can be performed by a Textile Technician. However, the occupational standards are not meant to replace individual job descriptions. Instead, they are to be used for guidance in defining skill levels and knowledge for the technician in specific

settings or positions. The Textile Technician 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. Generally, the Textile Technician performs the following responsibilities:

a) Drawing shift turnover

b) Drawing frame management

c) Drawing quality control

d) Spinning shift turnover

e) Spinning recognition and calculation drawing

f) Spinning frame management

g) Spinning quality control

h) Warping pre-post preparation

i) Warping shift turnover

j) Warping frame management

k) Warping quality control

l) Weaving shift turnover

m) Weaving recognition and calculation

n) Weaving frame operation and management

o) Quality control

The Occupational standards have been clustered into NTA qualification levels i.e. NTA level 4, 5 and 6.

4.0. VALIDITY PERIOD

Due to the rapid development of technology, the validity period of occupational standards is 3-5 years. The review will proceed in the same manner as the one before it, with new occupational standards being developed based on current trends of the labour market.

5.0. OCCUPATIONAL STANDARDS

5.1 OCCUPATIONAL STANDARDS FOR TEXTILE TECHNICIAN - NTA 6

OCCUPATION	TEXTILE TECHNICIAN	**OCCUPATION CODE**	
DUTY TITLE	DRAWING	**DUTY NO.**	601
TASK TITLE	DRAWING QUALITY CONTROL	**TASK NO.**	6011
PERFORMANCE CRITERIA	The person performing this task must be able to design drawing processes in accordance with national standards and customer specifications.		
RANGE STATEMENT	The task can be performed in the drawing workshop under the supervision of senior technicians or textile engineers. The tools and equipment to be used include: 1. Manual for inspection and use of production equipment; 2. Scissors; 3. Work clothes, earmuff, gloves.		

EVIDENCE REQUIREMENT	
PRACTICAL PERFORMANCE	**UNDERPINNING KNOWLEDGE**
The person performing this task must be able to do the following: 1. Determine the thickness of the sliver by hand and visual inspection; 2. Identify thick and thin strips, broken strips; 3. Deal with winding rollers; 4. Deal with equipment alarm.	**Detailed knowledge about:** **1.0 Methods** The person performing this task must be able to explain how to: 1.1 Understand the causes of hanging flowers caught in the sliver and deal with them; 1.2 Analyse the causes and solutions for thick and thin strips, impurity strips, rough strips, and greasy strips. **2.0 Principles** The person performing this task must be able to explain: 2.1 The law of odd numbers of drawing processes; 2.2 Reasons for defects; 2.3 Quality requirements; 2.4 Drafting process of drawing frame. **3.0 Theories** The person performing this task must be able to explain the following: 3.1 Process flow of the drawing frame; 3.2 Reasons for uneven drawing. **4.0 Essential Skills** 4.1 Learning ability; 4.2 Time management skills; 4.3 Interpersonal skills;

	4.4 Teamwork skills.
DESCRIPTION OF THE END PRODUCT / SERVICE	Drawing quality control is completed in accordance with the requirements of textile occupational standards and technical requirements.
CIRCUMSTANTIAL KNOWLEDGE	**Detailed knowledge about:** 1. Occupational health and safety.

OCCUPATION	TEXTILE TECHNICIAN	**OCCUPATION CODE**	
DUTY TITLE	DRAWING	**DUTY NO.**	601
TASK TITLE	DRAWING TRAINING AND GUIDANCE	**TASK NO.**	6012
PERFORMANCE CRITERIA	The person performing this task must be able to apply circumstantial knowledge and skills to train and guide level 5 drawing workers in accordance with the textile occupational standards.		
RANGE STATEMENT	The task can be performed in the drawing workshop under the supervision of drawing technicians or textile engineers. The tools and equipment to be used include: 1. Manual for inspection and use of production equipment; 2. Scissors; 3. Work clothes, earmuff, gloves.		

EVIDENCE REQUIREMENT

PRACTICAL PERFORMANCE	**UNDERPINNING KNOWLEDGE**
The person performing this task must be able to do the following: 1. Conduct theoretical training for those at NTA 5 and below according to the training syllabus; 2. Provide safety training to incoming new workers; 3. Guide the skills of personnel at the NTA 5 level and below; 4. Guide those at NTA 5 and below to renovate varieties.	**Detailed knowledge about:** **1.0 Methods** The person performing this task must be able to explain: 1.1 Determine training objectives, syllabus and content; 1.2 Conduct training on drawing shift turnover, drawing tour routes, and drawing joint knowledge; 1.3 Conduct drawing equipment training; 1.4 Conduct should-know training on the operating techniques of the drawing process; 1.5 Conduct training on the safety of drawing production. **2.0 Principles** The person performing this task must be able to explain the following principles: 2.1 Safety operation specifications for drawing frames; 2.2 Operational cautions for renovating varieties. **3.0 Theories** The person performing this task must be able to explain the following: 3.1 Drawing shift turnover, drawing tour routes, and drawing joint knowledge; 3.2 Knowledge of drawing frames; 3.3 Operation of the drawing frame; 3.4 Operational points of renovating varieties. **4.0 Essential Skills** 4.1 Excellent verbal expression skills;

	4.2 Communication skills.
DESCRIPTION OF THE END PRODUCT / SERVICE	Weaving training and guidance are completed in accordance with the requirements of textile occupational standards and technical requirements.
CIRCUMSTANTIAL KNOWLEDGE	**Detailed knowledge about:** 1. Occupational health and safety.

OCCUPATION	TEXTILE TECHNICIAN	**OCCUPATION CODE**	
DUTY TITLE	SPUN YARN	**DUTY NO.**	602
TASK TITLE	SPINNING FRAME MANAGEMENT	**TASK NO.**	6021
PERFORMANCE CRITERIA	The person performing this task must be able to produce qualified spun yarns in accordance with national standards and customer requirements.		
RANGE STATEMENT	The task can be performed in the spinning workshop under the supervision of spinning technicians or textile engineers. The tools and equipment to be used include: 1. Manual for inspection and use of production equipment; 2. Scissors; 3. Work clothes, earmuff, gloves.		

EVIDENCE REQUIREMENT

PRACTICAL PERFORMANCE	**UNDERPINNING KNOWLEDGE**
The person performing this task must be able to do the following: 1. Dress according to production management requirements and select work tools for the task; 2. Conduct joints, yarn insertion, and creeling on machines according to operating methods; 3. Conduct doffing, hanking and repiecing on machines according to operating methods; 4. Conduct itinerant spinning quality control operations according to a variety of touring routes; 5. Identify and address problems while cleaning well and propose methods to improve cleaning; 6. Record the work performed.	Detailed knowledge about: **1.0 Methods** The person performing this task must be able to explain: 1.1 Inspect frame operating conditions and complete joints in time; 1.2 Complete the doffing and repiecing in time when the tube is full of yarn; 1.3 Conduct regular itinerant inspections around the frame; 1.4 Inspect the machine's operating condition and maintenance, such as the machine's bearings, belts, and transmission system for looseness and wear; 1.5 Inspect spun yarn production for problems such as yarn breakage, knotting of spun yarns, machine jamming; 1.6 Inspect for safety hazards such as old electrical wiring, malfunctioning emergency stop buttons, and non-functioning fire extinguishers; 1.7 Inspect the sanitary condition of the production environment to avoid creating safety hazards and affecting productivity; 1.8 Clean frames, production work areas, keep them neat and organised, reduce sundries and garbage. **2.0 Principles** The person performing this task must be able to explain the following principles: 2.1 Operating methods for jointing, doffing and repiecing; 2.2 Operation specifications for frame startup and emergency stops.

	3.0 Theories The person performing this task must be able to explain the following: 3.1 Normal operational workflow of the frame; 3.2 Disposal measures of emergency situation; 3.3 Frame breakdown maintenance methods. **4.0 Essential Skills** 4.1 Communication skills; 4.2 Teamwork skills; 4.3 Report writing skills.
DESCRIPTION OF THE END PRODUCT / SERVICE	Jointing, doffing, repiecing and spot cleaning are completed in accordance with the requirements of the frame management.
CIRCUMSTANTIAL KNOWLEDGE	**Detailed knowledge about:** 1. Frame safety management; 2. Safety operation in production; 3. Maintenance operation processes and procedures.

OCCUPATION	TEXTILE TECHNICIAN	**OCCUPATION CODE**	
DUTY TITLE	SPUN YARN	**DUTY NO.**	602
TASK TITLE	SPINNING QUALITY MANAGEMENT	**TASK NO.**	6022
PERFORMANCE CRITERIA	The person performing this task must be able to produce qualified spun yarns in accordance with national standards and customer requirements.		
RANGE STATEMENT	The task can be performed in the spinning workshop under the supervision of spinning technicians or textile engineers. The tools and equipment to be used include: 1. Manual for inspection and use of production equipment; 2. Spanner, screwdriver and other maintenance tools; 3. Work clothes, earmuff, gloves.		

EVIDENCE REQUIREMENT	
PRACTICAL PERFORMANCE	**UNDERPINNING KNOWLEDGE**
The person performing this task must be able to do the following: 1. Identify spinning problems; 2. Determine the cause of defects in this process; 3. Determine the effect of the defect on subsequent processes; 4. Deal with spinning problems; 5. Dispose of missing parts and replace damaged parts; 6. Prepare work sheets; 7. Record spinning process parameters, spinning room temperature and humidity; 8. Record the operating condition and maintenance of the machine.	Detailed knowledge about: **1.0 Methods** The person performing this task must be able to explain: 1.1 Detect yarn quality indicators such as unevenness and faults; 1.2 Analyse the causes of yarn unevenness and faults; 1.3 Adjust the spinning process and change the damaged part of the machine. **2.0 Principles** The person performing this task must be able to explain the following principles: 2.1 Methods for detecting yarn quality indicators; 2.3 Influence of spinning process parameters on quality; 2.4 Methods of adjusting spinning process parameters; 2.5 Operating methods for replacing damaged part of the machine. **3.0 Theories** The person performing this task must be able to explain the following: 3.1 Yarn quality inspection standards; 3.2 Factors affecting yarn quality; 3.3 Disposal measures of emergency situation; 3.4 Frame breakdown maintenance methods; 3.5 Yarn quality control methods; 3.6 Factors affecting yarn quality indicators; 3.7 Parameter adjustment strategies and procedures of spinning process.

	4.0 Essential Skills 4.1 Communication skills; 4.2 Teamwork skills; 4.3 Report writing skills.
DESCRIPTION OF THE END PRODUCT / SERVICE	Adjustment of spinning process parameters and replacement of damaged parts are completed in accordance with yarn quality requirements.
CIRCUMSTANTIAL KNOWLEDGE	**Detailed knowledge about:** 1. Occupational health and safety.

OCCUPATION	TEXTILE TECHNICIAN	**OCCUPATION CODE**	
DUTY TITLE	WARPING	**DUTY NO.**	603
TASK TITLE	WARPING FRAME MANAGEMENT	**TASK NO.**	6031
PERFORMANCE CRITERIA	The person performing this task must be able to apply circumstantial knowledge and skills to deal with defects such as broken ends, wire jumper, stranded wires on the given warping equipment, complete the itinerant operation and the jointing and reeding operation.		
RANGE STATEMENT	The task can be performed in the warping workshop under the supervision of senior technicians or textile engineers. The tools and equipment to be used include: 1. Warping frame; 2. Yarn; 3. Yarn threading tools; 4. Reed cutter; 5. Scissors; 6. Pencil/Marker pen.		

EVIDENCE REQUIREMENT	
PRACTICAL PERFORMANCE	**UNDERPINNING KNOWLEDGE**
The person performing this task must be able to do the following: 1. Dispose of 5 (or more) broken ends; 2. Deal with defects such as wire jumper and stranded wires; 3. Tie fisherman's knots in 1min: 20 for medium cotton yarn, 18 for low cotton yarn, and 17 for filament; 4. Complete single yarn jointing finding and yarn mending for warping machines within 12s; 5. Complete head finding, jointing and yarn mending of 3 yarns in the warping machine within 75s; 6. Complete the reeding at the given time.	**Detailed knowledge about:** **1.0 Methods** The person performing this task must be able to explain how to: 1.1 Distinguish yarn defects; 1.2 Deal with yarn defects; 1.3 Operate jointing reeding; 1.4 Tie a knot. **2.0 Principles** The person performing this task must be able to explain the following principles: 2.1 Criteria for classifying yarn defects; 2.2 Jointing methods and quality requirements; 2.3 Single measurement criteria for senior workers; 2.4 Safety operating specifications for warping equipment; 2.5 Safety operation specifications of work tools. **3.0 Theories** The person performing this task must be able to explain the following: 3.1 Multi-broken end handling methods; 3.2 Handling of wire jumper and stranded wires; 3.3 Operating methods for reeding;

	3.4 Methods of identifying defects. **4.0 Essential Skills** 4.1 Communication skills; 4.2 Teamwork skills; 4.3 Math skills.
DESCRIPTION OF THE END PRODUCT / SERVICE	Management and routine maintenance of warping frames are completed in accordance with industry specifications and requirements.
CIRCUMSTANTIAL KNOWLEDGE	**Detailed knowledge about:** 1. Occupational health and safety.

OCCUPATION	TEXTILE TECHNICIAN	**OCCUPATION CODE**	
DUTY TITLE	WARPING	**DUTY NO.**	603
TASK TITLE	WARP BEAM QUALITY CONTROL	**TASK NO.**	6032
PERFORMANCE CRITERIA	The person performing this task must be able to apply circumstantial knowledge and skills to complete the quality inspection of yarn and warp beam on the given warping machine for the quality control of the warp beam.		
RANGE STATEMENT	The task can be performed in the warping workshop under the supervision of senior technicians or textile engineers. The tools and equipment to be used include: 1. Warping frame; 2. Warp beam; 3. Yarn; 4. Scissors; 5. Calculators; 6. Pencil/Marker pen.		

EVIDENCE REQUIREMENT	
PRACTICAL PERFORMANCE	**UNDERPINNING KNOWLEDGE**
The person performing this task must be able to do the following: 1. Analyse the effect of yarn faults on the warping process; 2. Determine the effect of uneven yarn tension on post-process quality; 3. Inspect the exterior quality of the hollow warp beam for burr, deformation, unevenness of the shaft, scratches, staining of the shaft holes, and rust stains; 4. Check the broken ends, large and small ends, and double stranded yarns.	**Detailed knowledge about:** **1.0 Methods** The person performing this task must be able to explain how to: 1.1 Inspect yarn quality and analyse the effect of yarn faults on the warping process; 1.2 Determine the uniformity of strand tension; 1.3 Inspect the exterior quality of the hollow warp beam, distinguish quality problems such as burr, deformation, unevenness of the shaft, scratches, staining of the shaft holes, and rust stains; 1.4 Inspect the quality of the warp beam, distinguish warping faults such as broken ends, small and large ends and double stranded yarns. **2.0 Principles** The person performing this task must be able to explain the following principles: 2.1 Effect of yarn defects on warping quality; 2.2 The effect of uneven yarn tension on post-process; 2.3 Appearance quality requirements for hollow warp beams; 2.4 Quality inspection requirements for warp beams. **3.0 Theories** The person performing this task must be able to explain

	the following: 3.1 Classification of yarn defects in the warping process; 3.2 Adjustment measures for warping sliver yarn tension; 3.3 Appearance quality requirements for hollow warp beams; 3.4 Quality control and inspection methods for warp beams. **4.0 Essential Skills** 4.1 Communication skills; 4.2 Teamwork skills; 4.3 Math skills.
DESCRIPTION OF THE END PRODUCT / SERVICE	Inspection of yarn quality and warp beam quality as well as quality control of the warp beam are completed in accordance with industry specifications and requirements.
CIRCUMSTANTIAL KNOWLEDGE	**Detailed knowledge about:** 1. Occupational health and safety.

OCCUPATION	TEXTILE TECHNICIAN	**OCCUPATION CODE**	
DUTY TITLE	WARPING	**DUTY NO.**	603
TASK TITLE	FAULT IDENTIFICATION AND QUALITY TRACKING	**TASK NO.**	6033
PERFORMANCE CRITERIA	The person performing this task must be able to apply circumstantial knowledge and skills to identify equipment faults on a given warping machine, analyse defects in the warping process, analyse and provide feedback on defects in the previous process, and track the quality of the warping process.		
RANGE STATEMENT	The task can be performed in the warping workshop under the supervision of senior technicians or textile engineers. The tools and equipment to be used include: 1. Warping frame; 2. Warp beam; 3. Yarn threading tools; 4. Yarn; 5. Calculator; 6. Operating tools (wrench, gloves, etc.).		

EVIDENCE REQUIREMENT	
PRACTICAL PERFORMANCE	**UNDERPINNING KNOWLEDGE**
The person performing this task must be able to do the following: 1. Check oil leakage of drilling rig; 2. Check the brake pads for wear; 3. Determine the defects of warping process; 4. Analyse and provide feedback on defects in the previous process.	**Detailed knowledge about:** **1.0 Methods** The person performing this task must be able to explain how to: 1.1 Inspect warping equipment for faults, e.g. inspect warping equipment for oil leakage and deal with it promptly; 1.2 Inspect the starting and braking devices, such as inspecting the brake pads for wear and determine whether the car can be switched on and off properly; 1.3 Determine the defects of warping process, such as broken ends, wavy yarn, seam allowance; 1.4 Analyse and provide feedback on defects in the previous process. **2.0 Principles** The person performing this task must be able to explain the following principles: 2.1 Safety operation procedures for warping equipment; 2.2 Troubleshooting methods for warping equipment; 2.3 Classification and characterization of defects in the warping process;

	2.4 Cause analysis of defects in the warping process and statistical analysis of warping quality; 2.5 Requirements for determining warping defects. **3.0 Theories** The person performing this task must be able to explain the following: 3.1 Safety operation procedures for equipment; 3.2 Troubleshooting methods for warping equipment; 3.3 Characterization of defects in the warping process; 3.4 Cause analysis of warping defects and quality tracking requirements; 3.5 Formation causes of common defects in warping process and requirements for preventive measures; 3.6 Statistical analysis method of warping broken end rate, good beam rate and defects in the previous process. **4.0 Essential Skills** 4.1 Communication skills; 4.2 Teamwork skills. **5.0 Math Skills** 5.1 Measure and unit; 5.2 Statistics.
DESCRIPTION OF THE END PRODUCT / SERVICE	Operations such as identifying equipment faults, analysing defects in the warping process, analysing and providing feedback on defects in the previous process are completed, and warping quality is tracked in accordance with industry specifications and requirements.
CIRCUMSTANTIAL KNOWLEDGE	**Detailed knowledge about:** 1. Safety operation of equipment; 2. Occupational health and safety.

OCCUPATION	TEXTILE TECHNICIAN	**OCCUPATION CODE**	
DUTY TITLE	WARPING	**DUTY NO.**	603
TASK TITLE	WARPING TRAINING AND GUIDANCE	**TASK NO.**	6034
PERFORMANCE CRITERIA	The person performing this task must be able to apply the circumstantial knowledge and skills to conduct training and guidance on the given warping equipment.		
RANGE STATEMENT	The task can be performed in the warping workshop under the supervision of senior technicians or textile engineers. The tools and equipment to be used include: 1. Warping frame; 2. Teaching equipment (multimedia, computers, etc.); 3. Safety manual; 4. Operating tools; 5. Yarn threading tools; 6. Scissors; 7. Calculators.		

EVIDENCE REQUIREMENT	
PRACTICAL PERFORMANCE	**UNDERPINNING KNOWLEDGE**
The person performing this task must be able to do the following: 1. Analyse the training syllabus and train the theoretical knowledge for personnel at NTA level 5 and below; 2. Conduct safety training; 3. Guide the practical operation of personnel at the NTA 5 level and below; 4. Guide those at NTA 5 and below to renovate varieties.	**Detailed knowledge about:** **1.0 Methods** The person performing this task must be able to explain how to: 1.1 Train warping knowledge; 1.2 Train safety knowledge of warping operations; 1.3 Deal with warping defects; 1.4 Operate warping equipment; 1.5 Train the essentials of operational skills for renovating varieties. **2.0 Principles** The person performing this task must be able to explain the following principles: 2.1 Occupational function precautions; 2.2 Training methods; 2.3 Warping quality standards; 2.4 Troubleshooting methods for warping equipment; 2.5 Safety regulations for warping operation; 2.6 Warping quality analysis methods; 2.7 Normal workflow. **3.0 Theories** The person performing this task must be able to explain the following:

	3.1 Requirements related to the warping operation. **4.0 Essential Skills** 4.1 Communication skills; 4.2 Teamwork skills; 4.3 Theoretical knowledge training; 4.4 Math skills.
DESCRIPTION OF THE END PRODUCT / SERVICE	Training and guidance on warping operations are completed in accordance with industry specifications and requirements.
CIRCUMSTANTIAL KNOWLEDGE	**Detailed knowledge about:** 1. Safety operation of equipment; 2. Occupational health and safety; 3. Vocational training laws and regulations.

OCCUPATION	TEXTILE TECHNICIAN	**OCCUPATION CODE**	
DUTY TITLE	WEAVING	**DUTY NO.**	604
TASK TITLE	OPERATION AND INSPECTION OF DRAWING-IN	**TASK NO.**	6041
PERFORMANCE CRITERIA	The person performing this task must master the causes of defects and preventive measures for each process of drawing-in and tying-in, the basic operation of drawing-in and tying-in, and the setting and adjustment of process parameters on the machine in accordance with the national textile occupational standards and the operation specifications for weaving post; identify the defects generated by the drawing-in and tying-in process, analyse the causes, and propose preventive measures.		
RANGE STATEMENT	The task can be performed in the textile workshop under the supervision of senior technicians or textile engineers. The tools and equipment to be used include: 1. Loom; 2. Scissors; 3. Drawing-in hook; 4. Calculators; 5. Paper; 6. Pencil/Marker pen.		

EVIDENCE REQUIREMENT

PRACTICAL PERFORMANCE	**UNDERPINNING KNOWLEDGE**
The person performing this task must be able to do the following: 1. Understand the purpose and working principles of drawing-in and tying-in; 2. Analyse the function and structure of dropper, healdframe, reed and relevant process parameters; 3. Analyse the principles and methods of designing the process parameters of the drawing-in and tying-in process; 4. Analyse the causes of defects in each process of drawing-in and tying-in and preventive measures; 5. Conduct basic operation of drawing-in and tying-in, setting and adjustment of process parameters on the machine; 6. Identify the defects generated by the drawing-in and tying-in process, analyse the causes, and propose preventive measures.	**Detailed knowledge about:** **1.0 Methods** The person performing this task must be able to explain how to: 1.1 Conduct drawing-in; 1.2 Conduct tying-in; 1.3 Conduct quality control; 1.4 Conduct equipment maintenance; 1.5 Interpret process specification sheets and identify fabric weave. **2.0 Principles** The person performing this task must be able to explain the following principles: 2.1 Process flow of drawing-in and tying-in; 2.2 Methods of drawing-in and tying-in. **3.0 Theories** The person performing this task must be able to explain the following: 3.1 Selection requirements for healdwire; 3.2 Selection requirements for reed.

	4.0 Essential Skills 4.1 Communication skills; 4.2 Report writing; 4.3 Customer service; 4.4 Time management; 4.5 Interpersonal skills; 4.6 Math skills.
DESCRIPTION OF THE END PRODUCT / SERVICE	The inspection of drawing-in is completed in accordance with industry specifications and requirements.
CIRCUMSTANTIAL KNOWLEDGE	**Detailed knowledge about:** 1. Health and safety laws and regulations (Occupational Safety and Health Agency); 2. Safety operation of equipment; 3. Occupational health and safety.

OCCUPATION	TEXTILE TECHNICIAN	**OCCUPATION CODE**	
DUTY TITLE	WEAVING	**DUTY NO.**	604
TASK TITLE	LOOM OPERATOR BASIC OPERATION	**TASK NO.**	6042
PERFORMANCE CRITERIA	The person performing this task must apply circumstantial knowledge and skills to complete post-machine knotting in accordance with National Textile Occupational Standards, and be able to thread heald, dropper, and reed in accordance with looming drafts; Be able to match the cloth-fell, making it possible to drive the machine without creating defects, such as filling bar; Be able to check many types of looms; Be able to thread broken ends; Be able to identify the quality of the upper shaft.		
RANGE STATEMENT	The task can be performed in the textile workshop under the supervision of senior technicians or textile engineers. The tools and equipment to be used include: 1. Loom; 2. Scissors; 3. Drawing-in hook; 4. Calculators; 5. Paper; 6. Pencil/Marker pen.		

EVIDENCE REQUIREMENT	
PRACTICAL PERFORMANCE	**UNDERPINNING KNOWLEDGE**
The person performing this task must be able to do the following: 1. Match cloth-fell; 2. Avoid weaving defects such as filling bar; 3. Inspect many types of looms; 4. Thread broken ends; 5. Discover and deal with broken ends; 6. Discover and deal with broken picks.	**Detailed knowledge about:** **1.0 Methods** The person performing this task must be able to explain how to: 1.1 Deal with broken ends; 1.2 Discover shut-down and find the broken ends as soon as possible; 1.3 Link up the broken ends of the warp yarn, and pull the warp yarn straight and drive according to the specifications of certain loom technology; 1.4 Discover the signal light on and deal with the broken pick. **2.0 Principles** The person performing this task must be able to explain the following principles: 2.1 Working principles of the air jet loom. **3.0 Theories** The person performing this task must be able to explain the following: 3.1 Commonly-used knotting methods;

	3.2 Methods of handling broken ends after the machine; 3.3 Methods of handling pre-machine broken ends; 3.4 Methods of handling broken pick in air jet looms; 3.5 Methods of handling broken pick in rapier looms. **4.0 Essential Skills** 4.1 Communication skills; 4.2 Report writing; 4.3 Customer service; 4.4 Time management; 4.5 Interpersonal skills; 4.6 Math skills.
DESCRIPTION OF THE END PRODUCT / SERVICE	Basic loom operations are completed in accordance with industry specifications and requirements.
CIRCUMSTANTIAL KNOWLEDGE	**Detailed knowledge about:** 1. Safety operation of equipment; 2. Occupational health and safety.

OCCUPATION	TEXTILE TECHNICIAN	**OCCUPATION CODE**	
DUTY TITLE	WEAVING	**DUTY NO.**	604
TASK TITLE	OPERATION OF PRESS OFF ON THE LOOM UPPER SHAFT AND EQUIPMENT ADJUSTMENT	**TASK NO.**	6043
PERFORMANCE CRITERIA	The person performing this task must be able to apply the circumstantial knowledge and skills to thread heald, dropper, and reed in accordance with looming drafts; Be able to run the loom properly; Be able to regulate the parameters of the weaving process; Be able to check many types of looms; Be able to check many types of looms; Be able to generalise and analyse weaving defects such as continuous descending.		
RANGE STATEMENT	The task can be performed in the textile workshop under the supervision of senior technicians or textile engineers. The tools and equipment to be used include: 1. Loom; 2. Scissors; 3. Drawing-in hook; 4. Calculators; 5. Paper; 6. Pencil/Marker pen.		

EVIDENCE REQUIREMENT

PRACTICAL PERFORMANCE	**UNDERPINNING KNOWLEDGE**
The person performing this task must be able to do the following: 1. Adjust warp yarn tension; 2. Discover and deal with yarn broken ends; 3. Adjust the inner cam plates and gears in the tappet box; 4. Adjust the height, opening volume and time of the healdframe.	**Detailed knowledge about:** **1.0 Methods** The person performing this task must be able to explain how to: 1.1 Adjust warp yarn tension; 1.2 Deal with yarn broken ends; 1.3 Adjust the inner cam plates and gears in the tappet box; 1.4 Adjust the height, opening volume and time of the healdframe. **2.0 Principles** The person performing this task must be able to explain the following principles: 2.1 Principles of determining warp yarn tension for various types of fabrics; 2.2 Jointing methods and quality requirements; 2.3 Principles of adjusting the inner cam plates and gears in the tappet box; 2.4 Principles of determining the height, opening volume and time of the healdframe.

	3.0 Theories The person performing this task must be able to explain the following: 3.1 Effects of warp yarn tension, healdframe height, opening volume and time on fabric quality, weaving process and loom productivity; 3.2 Configuration and adjustment requirements for warp yarn tension, healdframe height, opening volume and time of various fabrics; 3.3 Precautions for loom opening mechanism; 3.4 Knowledge and methods of assembling pieces. **4.0 Essential Skills** 4.1 Communication skills; 4.2 Teamwork skills; 4.3 Script organisation and writing skills; 4.4 Normal workflow; 4.5 Math skills.
DESCRIPTION OF THE END PRODUCT / SERVICE	The weaving process parameters are tuned to ensure that the loom operates properly and produces qualified fabrics in accordance with the weaving requirements of the various products.
CIRCUMSTANTIAL KNOWLEDGE	**Detailed knowledge about:** 1. Occupational health and safety; 2. Safety operation of equipment.

OCCUPATION	TEXTILE TECHNICIAN	**OCCUPATION CODE**	
DUTY TITLE	WEAVING	**DUTY NO.**	604
TASK TITLE	FABRIC INSPECTION AND REPAIR OF FABRIC CHECK-UP WORKERS	**TASK NO.**	6044
PERFORMANCE CRITERIA	The person performing this task must be able to apply the circumstantial knowledge and skills to thread heald, dropper, and reed in accordance with looming drafts; Be able to run the loom properly; Be able to regulate the parameters of the weaving process; Be able to check many types of looms; Be able to thread broken ends; Be able to generalise and analyse weaving defects such as continuous descending.		
RANGE STATEMENT	The task can be performed in the textile workshop under the supervision of senior technicians or textile engineers. The tools and equipment to be used include: 1. Loom; 2. Scissors; 3. Drawing-in hook; 4. Calculators; 5. Paper; 6. Pencil/Marker pen.		

EVIDENCE REQUIREMENT

PRACTICAL PERFORMANCE	**UNDERPINNING KNOWLEDGE**
The person performing this task must be able to do the following: 1. Generalise and analyse weaving defects such as continuous descending; 2. Carry out assembly; 3. Weave cotton yarns with 3 felters in the warp and weft in invisible mending; 4. Replace coarse ends and coarse picks.	**Detailed knowledge about:** **1.0 Methods** The person performing this task must be able to explain how to: 1.1 Classification of weaving defects such as continuous descending; 1.2 Knowledge and methods of assembling pieces; 1.3 Weaving repair operation; 1.4 Replacement method for coarse ends and coarse picks. **2.0 Principles** The person performing this task must be able to explain the following principles: 2.1 Methods of analysing common weaving defects; 2.2 Technical standards for weaving repair operation; 2.3 Technical requirements for the operation of various looms. **3.0 Theories** The person performing this task must be able to explain the following: 3.1 Common weaving defects and their causes;

	3.2 Handling of common weaving defects; 3.3 Knowledge and methods of assembling pieces; 3.4 Technical requirements for the operation of various looms. **4.0 Essential Skills** 4.1 Communication skills; 4.2 Teamwork skills; 4.3 Math skills.
DESCRIPTION OF THE END PRODUCT / SERVICE	The weaving process parameters are tuned to ensure that the loom operates properly and produces qualified fabrics in accordance with the weaving requirements of the various products.
CIRCUMSTANTIAL KNOWLEDGE	**Detailed knowledge about:** 1. Occupational health and safety; 2. Safety operation of equipment.

OCCUPATION	TEXTILE TECHNICIAN	**OCCUPATION CODE**	
DUTY TITLE	WEAVING	**DUTY NO.**	604
TASK TITLE	WEAVING QUALITY CONTROL	**TASK NO.**	6045
PERFORMANCE CRITERIA	The person performing this task must apply circumstantial knowledge and skills to deal with felter and holes in accordance with the National Textile Occupational Standards; be able to adjust the patrol route in accordance with the number of shut-down; be able to check and handle defects in warp yarn and weft yarn.		
RANGE STATEMENT	The task can be performed in the textile workshop under the supervision of senior technicians or textile engineers. The tools and equipment to be used include: 1. Loom; 2. Scissors; 3. Drawing-in hook; 4. Calculators; 5. Paper; 6. Pencil/Marker pen.		

EVIDENCE REQUIREMENT	
PRACTICAL PERFORMANCE	**UNDERPINNING KNOWLEDGE**
The person performing this task must be able to do the following: 1. Deal with felter and holes; 2. Adjust the patrol route; 3. Check and handle defects in warp yarn and weft yarn; 4. Inspect for faults in the weft feeler, scrap yarn roller and hemming device.	**Detailed knowledge about:** **1.0 Methods** The person performing this task must be able to explain how to: 1.1 Inspect the air jet loom and rapier loom; 1.2 Inspect the cloth cover; 1.3 Inspect the warp and weft yarn. **2.0 Principles** The person performing this task must be able to explain the following principles: 2.1 Working principles of the air jet loom. **3.0 Theories** The person performing this task must be able to explain the following: 3.1 Causes and elimination of temple defects; 3.2 Causes and elimination of weft shrinkage; 3.3 Causes and elimination of double weft; 3.4 Causes and elimination of sloughed-off weft; 3.5 Causes and elimination of edge exclusion; 3.6 Causes and elimination of uneven weaving; 3.7 Causes and elimination of oil stain.

	4.0 Essential Skills 4.1 Communication skills; 4.2 Report writing; 4.3 Customer service; 4.4 Time management; 4.5 Normal workflow; 4.6 Interpersonal skills.
DESCRIPTION OF THE END PRODUCT / SERVICE	Weaving defects are dealt with in accordance with industry specifications and requirements.
CIRCUMSTANTIAL KNOWLEDGE	**Detailed knowledge about:** 1. Occupational health and safety; 2. Safety operation of equipment.

OCCUPATION	TEXTILE TECHNICIAN	**OCCUPATION CODE**	
DUTY TITLE	WEAVING	**DUTY NO.**	604
TASK TITLE	WEAVING TRAINING AND GUIDANCE	**TASK NO.**	6046
PERFORMANCE CRITERIA	The person performing this task must be able to apply circumstantial knowledge and skills to train and guide weaving in accordance with the textile occupational standards.		
RANGE STATEMENT	The task can be performed in the warping workshop under the supervision of senior technicians or textile engineers. The tools and equipment to be used include: 1. Loom; 2. Computer; 3. Multimedia 4. Microphone 5. Scissors; 6. Cloth mirror.		

EVIDENCE REQUIREMENT	
PRACTICAL PERFORMANCE	**UNDERPINNING KNOWLEDGE**
The person performing this task must be able to do the following: 1. Conduct theoretical knowledge training for personnel at NTA 5 and below; 2. Conduct safety training for incoming new workers; 3. Guide the skills of personnel at the NTA 5 level and below; 4. Guide those at NTA 5 and below to renovate varieties.	**Detailed knowledge about:** **1.0 Methods** The person performing this task must be able to explain how to: 1.1 Determine training objectives, syllabus and content; 1.2 Train knowledge of fabric specifications, fabric weave drafts, and looming drafts; 1.3 Conduct loom equipment training; 1.4 Train loom operation techniques for should-know; 1.5 Train safety knowledge in weaving production; 1.6 Train the essentials of operational skills for renovating varieties. **2.0 Principles** The person performing this task must be able to explain the following principles: 2.1 Training and guidance syllabus standards; 2.2 Requirements for fabric specifications, fabric weave drafts, and looming drafts; 2.3 Loom equipment requirements; 2.4 Technical standards for safety operation of looms; 2.5 Defect handling requirements; 2.6 Operational cautions for renovating varieties. **3.0 Theories**

	The person performing this task must be able to explain the following: 3.1 Requirements for fabric specifications, fabric weave drafts, and looming drafts; 3.2 Loom equipment ahead; 3.3 Technical standards for safety operation of looms; 3.4 Operational points for renovating varieties. **4.0 Essential Skills** 4.1 Excellent verbal expression skills; 4.2 Communication skills; 4.3 Solid knowledge of machine weaving.
DESCRIPTION OF THE END PRODUCT / SERVICE	Weaving training and guidance are completed in accordance with the requirements of textile occupational standards and technical requirements.
CIRCUMSTANTIAL KNOWLEDGE	**Detailed knowledge about:** 1. Occupational health and safety; 2. Safety operation of equipment.

TABLE 1: DACUM CHARTS FOR TEXTILE TECHNICIAN - NTA 6

DUTIES	TASKS	ENABLERS
1.0 Drawing	1.1 Drawing quality control. 1.2 Drawing training and guidance.	**General skills and knowledge** · Discovery of process problems · Discovery of chromatic aberration · Handling of defects such as rough strips, chromatic aberration and unevenness · The use of new drawing frame · Control of patrol time **Tools and equipment** · Drawing frame, spinning frame · Bobbin · Roller, spindle · Wrench, screwdriver **Materials** · Cotton, polyester, viscose rayon · Safety protective equipment, mask **Requirements for employees** · Report writing · Time management · Interpersonal skills · Teamwork skills
2.0 Spun yarn	2.1 Spinning frame management. 2.2 Spinning quality control.	**General skills and knowledge** · Control of patrol time · Inspection of handover cleaning · Causes of defects and preventive measures · Solutions for missing and damaged parts of equipment **Tools and equipment** · Spinning Frame · Bobbin, flyer bobbin · Roller, spindle · Wrench, screwdriver

DUTIES	TASKS	ENABLERS
		Materials · Cotton, polyester, viscose rayon · Safety protective equipment, mask **Requirements for employees** · Report writing · Time management · Interpersonal skills · Teamwork skills
3.0 Warping	3.1 Warping frame management. 3.2 Quality control of warp beam. 3.3 Fault identification and quality tracking. 3.4 Warping training and guidance.	**General skills and knowledge** · Frame patrol operation · Joint reeding operation · Yarn quality analysis · Warp beam quality inspection · Machinery fault identification · Frame safety operation skills · Warping defect analysis · Defect handling methods · Warping quality tracking · Warping training and guidance · Report writing **Tools and equipment** · Warping frame equipment · Warping frame hollow shaft · Yarn threading tools · Maintenance tools · Scissors, calculagraph · Warp beam quality detection equipment · Teaching equipment (multimedia, projectors, etc.) · Computers **Materials** · Yarn, accessory, quality registration form, stationery · Safety protection equipment (gloves) **Requirements for employees** · Honesty and trustworthiness · Diligence and punctuality

DUTIES	TASKS	ENABLERS
		· Communication skills · Teamwork skills · Customer service skills · Health and safety laws and regulations
4.0 Weaving	4.1 Drawing-in operation and inspection. 4.2 Loom operator basic operation. 4.3 Operation of press off on the loom upper shaft and equipment adjustment. 4.4 Fabric inspection and repair of fabric check-up workers. 4.5 Weaving quality control. 4.6 Weaving training and guidance.	**General skills and knowledge** · Drawing-in operation · Tying-in operation · Quality control of warp yarn · Equipment maintenance · Handling methods of broken ends · Handling methods of broken picks · Adjustment methods of warp yarn tension · Principles of determining warp yarn tension for fabrics · Common defect analysis · Weaving repair operation technology · Loom inspection · Cloth covers inspection · Warp and weft yarn inspection · Defect handling methods · Loom safety operation technology · Loom equipment knowledge · Operational cautions for renovating varieties · Weaving training and guidance · Report writing **Tools and equipment** · Loom equipment · Drawing-in hook · Yarn threading tools · Maintenance tools · Scissors, calculagraph · Weaving defect quality detection equipment · Teaching equipment (multimedia, projectors, etc.) · Computers **Materials**

DUTIES	TASKS	ENABLERS
		· Yarn, accessory, quality registration form, stationery · Safety protection equipment (gloves) **Requirements for employees** · Honesty and trustworthiness · Report writing · Communication skills · Teamwork skills · Customer service skills · Health and safety laws and regulations · Interpersonal skills