

**NATIONAL COUNCIL FOR TECHNICAL AND VOCATIONAL EDUCATION AND
TRAINING**



MAY 2023

PROPOSED OCCUPATIONAL STANDARDS

OCCUPATION: TEA PRODUCTION AND PROCESSING TECHNICIAN

LEVEL: NTA 5

TABLE OF CONTENT

CONTENTS

ABBREVIATIONS	ii
GLOSSARY OF TERMS.....	iii
1.0. INTRODUCTION	1
2.0. OCCUPATIONAL STANDARD DEVELOPMENT PROCESS.....	2
3.0. THE SCOPE AND OVERVIEW OF THE OCCUPATION STANDARDS FOR TEA PRODUCTION AND PROCESSING TECHNICIANS	3
4.0. VALIDITY PERIOD.....	4
5.0. OCCUPATIONAL STANDARDS	4
5.1 OCCUPATIONAL STANDARDS FOR TEA PRODUCTION AND PROCESSING TECHNICIAN - NTA 5	5
TABLE 1: DACUM CHARTS FOR TEA PRODUCTION AND PROCESSING TECHNICIAN - NTA 5 ..	27

ABBREVIATIONS

B.O.P	Broken Orange Pekoe
B.P	Broken Pekoe
CTC	Crush, Tear, Curl (A method of processing broken black tea with a tea leaf cutter)
F.B.O.P	Flowery Broken Orange Pekoe
F.O.P	Flowery Orange Pekoe
LTP	Laurie Tea Processer
NACTVET	National Council for Technical and Vocational Education and Training
NOS	National Occupational Standards
O.P	Orange Pekoe
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 competence 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: catering service).
Occupational Standards:	Specific requirements of competences for personnel in a particular occupational area, including knowledge and relevant attitudes. They also act as performance tools 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 criteria, 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, consists of two or more definite steps, and leads to products, service, or decisions.
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.
Occupational Competence:	The application of knowledge and skills that consistently meet the standards required by the working conditions.

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 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).

Tea Production and Processing Technician 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. Tea Processors, Tea Evaluators, and other personnel 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 TEA PRODUCTION AND PROCESSING TECHNICIANS

These standards cover a broad range of duties and tasks that can be performed by a Tea Production and Processing 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 Tea Production and Processing Technician may perform tasks in a number of key areas of the Occupational Standards, but not necessarily in all areas. For example, in the process of tea quality control, other individuals may be employed or designated to perform specific tasks.

Tea Production and Processing Technicians should be engaged in tea garden production and management, as well as processing fresh tea leaves into preliminary tea products and refined products.

Generally, Tea Production and Processing Technician performs the following responsibilities:

- a) Tea tree pruning
- b) Tea picking and preservation
- c) Tea processing preparation
- d) Tea garden construction
- e) Tea garden management
- f) Equipment operation and maintenance
- g) Tea packaging and storage
- h) Disease and insect pest control of tea trees
- i) Work safety in tea gardens
- j) Tea processing technology control
- k) Tea quality control

- 1) Tea marketing and cost accounting and 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 TEA PRODUCTION AND PROCESSING TECHNICIAN - NTA 5

OCCUPATION	TEA PRODUCTION AND PROCESSING TECHNICIAN	OCCUPATION CODE	
DUTY TITLE	TEA GARDEN CONSTRUCTION	DUTY NO.	501
TASK TITLE	TEA GARDEN RECLAMATION	TASK NO.	5011
PERFORMANCE CRITERIA	The person performing this task must be able to have knowledge of tea garden planning and choose suitable tools and reclamation methods based on the actual situation of the tea garden.		
RANGE STATEMENT	The task can be performed in the tea gardens under the supervision of senior tea production and processing technicians. The tools and equipment to be used include: 1. Excavator, tea garden mini-tiller, deep cultivator, etc.		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Select soil; 2. Determine the type of machine based on its characteristics and function; 3. Utilize relevant knowledge of tea garden planning and reclamation to carry out reclamation work; 4. Ensure the correct and compliant use of machinery.		Detailed knowledge about: 1.0 Methods The person performing this task must be able to explain how to: 1.1 Develop a plan for tea garden reclamation; 1.2 Determine the specific reclamation methods and tools for tea gardens; 1.3 Choose suitable tea tree line specifications; 1.4 Choose the topsoil return method based on the actual situation of the plantation area; 1.5 Carry out the application of base fertilizer in tea gardens; 1.6 Clean, maintain and repair machinery and equipment. 2.0 Principles The person performing this task must be able to explain the following principles: 2.1 The principles for selecting the specifications of tea tree lines, the spacing between tea tree lines, and the width of tea tree ditches; 2.2 The specific methods and operation principles of reclamation methods; 2.3 The purpose and principle of topsoil return; 2.4 Classification, application purpose, and principle of action of fertilizers.	

	<p>3.0 Theories</p> <p>The person performing this task must be able to explain the following:</p> <p>3.1 The principle for determining the standards for tea garden reclamation;</p> <p>3.2 The principle for soil detection and improvement.</p> <p>4.0 Essential Skills</p> <p>4.1 Communication skills;</p> <p>4.2 Teamwork skills;</p> <p>4.3 Independent thinking skills.</p>
DESCRIPTION OF THE END PRODUCT / SERVICE	<p>The methods and tools for tea garden reclamation are independently selected, and the reclamation work is carried out according to the actual situation of the plantation area.</p>
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Occupational safety and health; 2. Professional ethics and the rule of law; 3. Geographical environment and climate of tea gardens; 4. Management of diseases and insect pests.

OCCUPATION	TEA PRODUCTION AND PROCESSING TECHNICIAN	OCCUPATION CODE	
DUTY TITLE	TEA GARDEN CONSTRUCTION	DUTY NO.	501
TASK TITLE	TEA TREE PLANTING	TASK NO.	5012
PERFORMANCE CRITERIA	The person performing this task must possess knowledge of tea tree growth management and skills in tea tree cultivation and management throughout the entire growth period.		
RANGE STATEMENT	The task can be performed in the tea gardens under the supervision of senior tea production and processing technicians.		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Select tea tree varieties and seedling specifications; 2. Determine planting specifications and density; 3. Use planting machinery for planting.		Detailed knowledge about: 1.0 Methods The person performing this task must be able to explain how to: 1.1 Choose suitable tea tree varieties for planting; 1.2 Choose suitable tea seedling specifications; 1.3 Choose an appropriate period for the lifting of seedlings and planting; 1.4 Determine the customized density based on soil conditions; 1.5 Carry out the application of base fertilizer in tea gardens. 2.0 Principles The person performing this task must be able to explain the following principles: 2.1 The principles and evaluation criteria for selecting tea tree varieties; 2.2 The principles for the evaluation of the growth status of tea seedlings and the transmission of dangerous diseases and pests; 2.3 The climate standards suitable for tea seedling transplantation; 2.4 The principles for determining planting density. 3.0 Theories The person performing this task must be able to explain the following: 3.1 The principle for determining the standards of tea tree planting.	

	4.0 Essential Skills 4.1 Communication skills; 4.2 Teamwork skills; 4.3 Independent thinking skills; 4.4 Comprehensive analysis skills.
DESCRIPTION OF THE END PRODUCT / SERVICE	The selection of varieties of tea tree planting is independently completed, and the planting work is carried out according to the actual situation of the plantation area.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: 1. Occupational safety and health; 2. Professional ethics and the rule of law; 3. Geographical environment and climate of tea gardens; 4. The terrain and soil conditions of the tea garden; 5. Tea tree varieties and standardized management.

OCCUPATION	TEA PRODUCTION AND PROCESSING TECHNICIAN	OCCUPATION CODE	
DUTY TITLE	TEA GARDEN MANAGEMENT	DUTY NO.	502
TASK TITLE	CULTIVATION AND WEEDING IN TEA GARDENS	TASK NO.	5021
PERFORMANCE CRITERIA	The person performing this task must be able to manage the tea garden, and cultivate and weed the land according to the actual situation.		
RANGE STATEMENT	The task can be performed in the tea gardens under the supervision of senior tea production and processing technicians. The tools and equipment to be used include: 1. Mini-tiller, cultivator, tea garden tiller, tea garden management machine, and deep cultivator; 2. Weeding machine.		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Determine the machines to be used based on the type of cultivation; 2. Choose the appropriate timing; 3. Utilize knowledge related to tea garden cultivation and weeding for land cultivation and weeding; 4. Ensure the correct use of machinery.		Detailed knowledge about: 1.0 Methods The person performing this task must be able to explain how to: 1.1 Develop standards for cultivation and weeding in tea gardens; 1.2 Determine the cultivation method, cycle, and time of tea gardens; 1.3 Test the cultivation effect of tea gardens; 1.4 Choose tea garden cultivation and weeding tools; 1.5 Regularly carry out tea garden cultivation and weeding work. 2.0 Principles The person performing this task must be able to explain the following principles: 2.1 The principles of tea garden cultivation and weeding technology; 2.2 The classification and methods of tea garden cultivation and weeding; 2.3 The purpose and significance of tea garden cultivation and weeding. 3.0 Theories The person performing this task must be able to explain the following: 3.1 The principle for determining the standards for	

	<p>tea garden cultivation.</p> <p>4.0 Essential Skills</p> <p>4.1 Communication skills;</p> <p>4.2 Teamwork skills;</p> <p>4.3 Independent thinking skills.</p>
DESCRIPTION OF THE END PRODUCT / SERVICE	<p>The tea garden cultivation and weeding tools are independently selected, and the cultivation and weeding work is carried out in accordance with the actual situation of the plantation area.</p>
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Occupational safety and health; 2. Professional ethics and the rule of law; 3. Geographical environment and climate of tea gardens; 4. Conservation tillage techniques to protect arable land; 5. Cleaning, maintenance and servicing of tea garden tillers and weeding machines.

OCCUPATION	TEA PRODUCTION AND PROCESSING TECHNICIAN	OCCUPATION CODE	
DUTY TITLE	TEA GARDEN MANAGEMENT	DUTY NO.	502
TASK TITLE	TEA GARDEN WATER AND FERTILIZER MANAGEMENT	TASK NO.	5022
PERFORMANCE CRITERIA	The person performing this task must be able to properly manage the water and fertilizer in the tea garden.		
RANGE STATEMENT	The task can be performed in the tea gardens under the supervision of senior tea production and processing technicians. The tools and equipment to be used include: 1. Integrated water and fertilizer management equipment.		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Detect the soil and determine the irrigation and fertilization management plan; 2. Prepare water sources; 3. Select irrigation and fertilization management equipment according to the plan; 4. Ensure the correct use of machinery.		Detailed knowledge about: 1.0 Methods The person performing this task must be able to explain how to: 1.1 Develop water and fertilizer management standards for tea gardens; 1.2 Determine the water and fertilizer management method, cycle, and time of tea gardens; 1.3 Test the effectiveness of water and fertilizer management in tea gardens; 1.4 Select water and fertilizer management tools for tea gardens; 1.5 Continuously carry out water and fertilizer management work in tea gardens. 2.0 Principles The person performing this task must be able to explain the following principles: 2.1 Principles of water management; 2.2 Principles of fertilizer management; 2.3 Principles of adaptation to local conditions. 3.0 Theories The person performing this task must be able to explain the following: 3.1 The principle for scientific irrigation; 3.2 The principle for scientific fertilization; 3.3 Soil protection and improvement; 3.4 Adaptive management.	

	4.0 Essential Skills 4.1 Communication skills; 4.2 Teamwork skills; 4.3 Independent thinking skills.
DESCRIPTION OF THE END PRODUCT / SERVICE	The water and fertilizer management tools for tea gardens are independently selected, and the water and fertilizer supply work is carried out in accordance with the actual situation of the plantation area.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: <ol style="list-style-type: none"> 1. Occupational safety and health; 2. Professional ethics and the rule of law; 3. Geographical environment and climate of tea gardens; 4. Safe and pollution-free production standards; 5. Cleaning, maintenance and servicing of water and fertilizer management machines; 6. Use of data informatization systems and data analysis.

OCCUPATION	TEA PRODUCTION AND PROCESSING TECHNICIAN	OCCUPATION CODE	
DUTY TITLE	TEA GARDEN MANAGEMENT	DUTY NO.	502
TASK TITLE	THE MANAGEMENT OF TEA GARDENS DURING DRY AND RAINY SEASONS	TASK NO.	5023
PERFORMANCE CRITERIA	The person performing this task must be able to possess knowledge and skills in managing the physiological status of tea trees during the dry and rainy seasons, as well as comprehensive management of tea gardens.		
RANGE STATEMENT	The task can be performed in the tea gardens under the supervision of senior tea production and processing technicians. The tools and equipment to be used include: 1. Tiller; 2. Cropper; 3. Water and fertilizer integrated machine.		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Determine the different physiological states of tea trees during dry and rainy seasons; 2. Conduct dry season management; 3. Conduct rainy season management; 4. Be proficient in using machinery.		Detailed knowledge about: 1.0 Methods The person performing this task must be able to explain how to: 1.1 Increase irrigation frequency during the dry season, choose the appropriate irrigation time, and take soil water conservation measures; 1.2 Reduce nitrogen fertilizer, increase phosphorus and potassium fertilizer, and manage fertilization reasonably in the dry season; 1.3 Protect plants during the dry season to prevent sun exposure; 1.4 Determine a comprehensive plan for tea tree pruning, tea garden cultivation, and water and fertilizer management; 1.5 Carry out drainage management and dredge drainage channels during the rainy season; 1.6 Prevent and control diseases and insect pests during the rainy season; 1.7 Properly manage fertilization during the rainy season; 1.8 Inspect the effectiveness of tea garden management during dry and rainy seasons. 2.0 Principles The person performing this task must be able to	

	<p>explain the following principles:</p> <p>2.1 The management of tea gardens before, during, and after drought during the dry season;</p> <p>2.2 The strengthening of disease and insect pest control and tree management in tea gardens during the rainy season.</p> <p>3.0 Theories</p> <p>The person performing this task must be able to explain the following:</p> <p>3.1 Standards and related technologies for tea garden management during the dry season;</p> <p>3.2 Standards and related technologies for tea garden management during the rainy season.</p> <p>4.0 Essential Skills</p> <p>4.1 Communication skills;</p> <p>4.2 Teamwork skills;</p> <p>4.3 Independent thinking skills.</p>
DESCRIPTION OF THE END PRODUCT / SERVICE	<p>The management tools for tea gardens are independently selected, and the management work is carried out in accordance with the actual situation of the plantation area.</p>
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Occupational safety and health; 2. Professional ethics and the rule of law; 3. Geographical environment and climate of tea gardens; 4. Safe and pollution-free management; 5. Cleaning, maintenance and servicing of machinery.

OCCUPATION	TEA PRODUCTION AND PROCESSING TECHNICIAN	OCCUPATION CODE	
DUTY TITLE	OPERATION AND MAINTENANCE OF TEA PROCESSING EQUIPMENT	DUTY NO.	503
TASK TITLE	OPERATION AND MAINTENANCE OF WITHERING EQUIPMENT	TASK NO.	5031
PERFORMANCE CRITERIA	The person performing this task must be able to correctly select and operate withering equipment according to production needs, carry out daily and post tea season maintenance, develop and implement equipment operation procedures, and possess awareness and norms of safe and clean production.		
RANGE STATEMENT	The task can be performed during the production process of tea products under the supervision and guidance of technical personnel in corresponding positions.		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Select withering equipment; 2. Check the equipment and surrounding working environment; 3. Complete the installation and debugging of withering equipment; 4. Start using withering equipment; 5. Check the degree of withering; 6. Maintain and preserve withering machinery.		Detailed knowledge about: 1.0 Methods The person performing this task must be able to explain how to: 1.1 Select withering equipment based on process and scale; 1.2 Perform tea layering operations; 1.3 Control ventilation speed, withering time, and temperature; 1.4 Maintain withering equipment. 2.0 Principles The person performing this task must be able to explain the following principles: 2.1 The principle of tea withering; 2.2 The corresponding mechanical equipment standards, national food safety standards, and product standard requirements for tea withering equipment; 2.3 The basic structure and working principle of withering equipment; 2.4 The knowledge related to equipment safety operation training and food safety and health. 3.0 Theories The person performing this task must be able to explain the following: 3.1 The purpose, process parameters, and specific	

	<p>methods of tea withering;</p> <p>3.2 Selection and maintenance of withering equipment;</p> <p>3.3 Equipment operation safety specifications.</p> <p>4.0 Essential Skills</p> <p>4.1 Communication skills;</p> <p>4.2 Teamwork skills;</p> <p>4.3 Market research skills;</p> <p>4.4 Contrastive analysis skills.</p>
DESCRIPTION OF THE END PRODUCT / SERVICE	<p>The selection of tea withering equipment is carried out correctly; the tea withering equipment is operated independently; the daily maintenance and servicing of mechanical equipment is carried out.</p>
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Occupational safety and health; 2. Professional ethics and the rule of law; 3. Structure and principle of common withering equipment; 4. Selection and use of withering equipment; 5. Maintenance technology of withering equipment.

OCCUPATION	TEA PRODUCTION AND PROCESSING TECHNICIAN	OCCUPATION CODE	
DUTY TITLE	OPERATION AND MAINTENANCE OF TEA PROCESSING EQUIPMENT	DUTY NO.	503
TASK TITLE	OPERATION AND MAINTENANCE OF ROLLING AND TWISTING-CUTTING EQUIPMENT	TASK NO.	5032
PERFORMANCE CRITERIA	The person performing this task must be able to correctly select and operate rolling and twisting-cutting equipment according to production needs, carry out daily and post tea season maintenance, develop and implement equipment operation procedures, and possess awareness and norms of safe and clean production.		
RANGE STATEMENT	The task can be performed during the production process of tea products under the supervision and guidance of technical personnel in corresponding positions.		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Select tea rolling and twisting-cutting equipment; 2. Complete the installation and debugging of rolling and twisting-cutting equipment; 3. Check the equipment and surrounding working environment; 4. Start and use rolling and twisting-cutting equipment; 5. Maintain and preserve twisting-cutting equipment.		Detailed knowledge about: 1.0 Methods The person performing this task must be able to explain how to: 1.1 Select rolling and twisting-cutting equipment based on process and scale; 1.2 Develop operating procedures for rolling and twisting-cutting equipment; 1.3 Operate and use rolling and twisting-cutting equipment; 1.4 Regularly clean, maintain, and replace rolling and twisting-cutting equipment. 2.0 Principles The person performing this task must be able to explain the following principles: 2.1 The principle of tea rolling and twisting-cutting processing; 2.2 The corresponding mechanical equipment standards, national food safety standards, and product standard requirements for tea rolling and twisting-cutting equipment; 2.3 The basic structure and working principle of rolling and twisting-cutting equipment; 2.4 The knowledge related to equipment safety operation specifications and food safety and health.	

	<p>3.0 Theories</p> <p>The person performing this task must be able to explain the following:</p> <p>3.1 The basic structure and working principle of rolling and twisting-cutting equipment;</p> <p>3.2 The selection of rolling and twisting-cutting equipment, as well as the use of common machines such as single-disc rolling machines, double-disc continuous rolling machines, three-layer-disc stacked continuous rolling machines, disc-type twisting-cutting machines, CTC twisting-cutting machines, rotor twisting-cutting machines, and LTP hammering machines;</p> <p>3.3 Equipment maintenance and operation safety specifications.</p> <p>4.0 Essential Skills</p> <p>4.1 Communication skills;</p> <p>4.2 Teamwork skills;</p> <p>4.3 Market research skills;</p> <p>4.4 Contrastive analysis skills.</p>
DESCRIPTION OF THE END PRODUCT / SERVICE	<p>The selection of tea rolling and twisting-cutting equipment is carried out correctly; the tea rolling and twisting-cutting equipment is operated independently; the daily maintenance and servicing of mechanical equipment is carried out.</p>
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Occupational safety and health; 2. Professional ethics and the rule of law; 3. Structure and principle of common rolling and twisting-cutting equipment; 4. Selection and use of rolling and twisting-cutting equipment; 5. Maintenance technology of rolling and twisting-cutting equipment.

OCCUPATION	TEA PRODUCTION AND PROCESSING TECHNICIAN	OCCUPATION CODE	
DUTY TITLE	OPERATION AND MAINTENANCE OF TEA PROCESSING EQUIPMENT	DUTY NO.	503
TASK TITLE	OPERATION AND MAINTENANCE OF FERMENTATION EQUIPMENT	TASK NO.	5033
PERFORMANCE CRITERIA	The person performing this task must be able to correctly select and operate fermentation equipment according to production needs, carry out daily and post tea season maintenance, develop and implement equipment operation procedures, and possess awareness and norms of safe and clean production.		
RANGE STATEMENT	The task can be performed during the production process of tea products under the supervision and guidance of technical personnel in corresponding positions.		
EVIDENCE REQUIREMENT			
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 tea fermentation equipment;2. Check the equipment and surrounding working environment;3. Complete the installation and debugging of tea fermentation equipment;4. Start and use tea fermentation equipment;5. Maintain and preserve tea fermentation equipment.		<p>Detailed knowledge about:</p> <p>1.0 Methods</p> <p>The person performing this task must be able to explain how to:</p> <ol style="list-style-type: none">1.1 Select fermentation equipment based on process and scale;1.2 Develop operating procedures for fermentation equipment;1.3 Operate and use fermentation equipment;1.4 Regularly maintain, preserve, and clean fermentation equipment. <p>2.0 Principles</p> <p>The person performing this task must be able to explain the following principles:</p> <ol style="list-style-type: none">2.1 The principles of tea fermentation;2.2 The corresponding mechanical equipment standards, national food safety standards, and product standard requirements for tea fermentation equipment;2.3 The basic structure and working principle of fermentation equipment;2.4 The knowledge related to equipment safety operation specifications and food safety and health. <p>3.0 Theories</p> <p>The person performing this task must be able to</p>	

	<p>explain the following:</p> <p>3.1 The basic structure and working principle of fermentation equipment;</p> <p>3.2 Selection and use of fermentation equipment;</p> <p>3.3 Determination of process parameters for oxygen supply, temperature control, and humidity control.</p> <p>4.0 Essential Skills</p> <p>4.1 Communication skills;</p> <p>4.2 Teamwork skills;</p> <p>4.3 Market research skills;</p> <p>4.4 Contrastive analysis skills.</p>
DESCRIPTION OF THE END PRODUCT / SERVICE	<p>The selection of fermentation chamber and fermentation equipment is carried out correctly; the tea fermentation equipment is operated independently; the daily maintenance and servicing of mechanical equipment is carried out.</p>
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Occupational safety and health; 2. Professional ethics and the rule of law; 3. Structure and principle of common fermentation equipment; 4. Selection and use of fermentation equipment; 5. Maintenance technology of fermentation equipment.

OCCUPATION	TEA PRODUCTION AND PROCESSING TECHNICIAN	OCCUPATION CODE	
DUTY TITLE	OPERATION AND MAINTENANCE OF TEA PROCESSING EQUIPMENT	DUTY NO.	503
TASK TITLE	OPERATION AND MAINTENANCE OF DRYING EQUIPMENT	TASK NO.	5034
PERFORMANCE CRITERIA	The person performing this task must be able to correctly select and operate drying equipment according to production needs, carry out daily and post tea season maintenance, develop and implement equipment operation procedures, and possess awareness and norms of safe and clean production.		
RANGE STATEMENT	The task can be performed during the production process of tea products under the supervision and guidance of technical personnel in corresponding positions.		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Select tea drying equipment; 2. Check the equipment and surrounding working environment; 3. Complete the installation and debugging of tea drying equipment; 4. Start and use tea drying equipment; 5. Maintain and preserve tea drying equipment.		Detailed knowledge about: 1.0 Methods The person performing this task must be able to explain how to: 1.1 Select drying equipment based on process and scale; 1.2 Develop regulations for the operation of drying equipment; 1.3 Operate and use drying equipment; 1.4 Maintain the drying equipment. 2.0 Principles The person performing this task must be able to explain the following principles: 2.1 The principle of tea drying; 2.2 The corresponding mechanical equipment standards, national food safety standards, and product standard requirements for tea drying equipment; 2.3 The basic structure and working principle of drying equipment; 2.4 The information related to equipment safety operation specifications and food safety and health. 3.0 Theories The person performing this task must be able to explain the following:	

	<p>The person performing this task must be able to explain the following:</p> <p>3.1 The process parameters and methods of tea drying, and the basic structure and working principle of the drying equipment;</p> <p>3.2 The selection of drying equipment, as well as the use of manual louver dryers, semi-automatic louver dryers, disc dryers, fully automatic chain plate dryers, and fluidized bed dryers;</p> <p>3.3 The safety specifications for maintenance and operation of drying equipment.</p> <p>4.0 Essential Skills</p> <p>4.1 Communication skills;</p> <p>4.2 Teamwork skills;</p> <p>4.3 Market research skills;</p> <p>4.4 Contrastive analysis skills.</p>
DESCRIPTION OF THE END PRODUCT / SERVICE	<p>The selection of tea drying equipment is carried out correctly; the tea drying equipment is operated independently; the daily maintenance and servicing of drying mechanical equipment is carried out.</p>
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Occupational safety and health; 2. Professional ethics and the rule of law; 3. Structure and principle of common drying equipment; 4. Selection and use of drying equipment; 5. Maintenance technology of drying equipment.

OCCUPATION	TEA PRODUCTION AND PROCESSING TECHNICIAN	OCCUPATION CODE	
DUTY TITLE	TEA PACKAGING AND STORAGE	DUTY NO.	504
TASK TITLE	TEA PACKAGING	TASK NO.	5041
PERFORMANCE CRITERIA	The person performing this task must be able to effectively carry out the selection of tea packaging materials, packaging methods, and packaging type design based on the characteristics of tea properties and marketing objectives.		
RANGE STATEMENT	The task can be performed during the production and packaging process of tea products under the supervision and guidance of technical personnel in corresponding positions.		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Select packaging materials and tools; 2. Determine the packaging method; 3. Carry out packaging design.		Detailed knowledge about: 1.0 Methods The person performing this task must be able to explain how to: 1.1 Select different types of packaging materials according to market needs in combination with the characteristics and selection requirements of different types of packaging materials; 1.2 Select the size, protection, and functionality requirements of the corresponding packaging according to the design requirements of the tea packaging; 1.3 Determine appropriate packaging materials and methods for packaging design based on the characteristics of different tea (fermented tea, semi-fermented tea, and non-fermented tea); 1.4 Conduct packaging inspection and organise appearance; 1.5 Conduct final packaging appearance inspection and quality control. 2.0 Principles The person performing this task must be able to explain the following principles: 2.1 Standards for selecting packaging materials; 2.2 National food safety standards and product standard requirements; 2.3 Quality standards for inks and adhesives used in packaging and printing processing; 2.4 Code of conduct for packaging personnel. 3.0 Theories	

	<p>The person performing this task must be able to explain the following:</p> <ul style="list-style-type: none"> 3.1 The purpose of packaging; 3.2 The selection of packaging materials; 3.3 The goal of packaging design; 3.4 The selection of packaging form; 3.5 Market trend. <p>4.0 Essential Skills</p> <ul style="list-style-type: none"> 4.1 Communication skills; 4.2 Teamwork skills; 4.3 Market research skills; 4.4 Contrastive analysis skills.
DESCRIPTION OF THE END PRODUCT / SERVICE	The selection of tea packaging materials, packaging design, and determination of packaging methods are independently carried out.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ul style="list-style-type: none"> 1. Laws and regulations related to the text content, symbols, etc. on packaging materials; 2. Hygienic requirements for packaging materials; 3. Hygienic requirements for adhesives used in packaging materials; 4. General standard for the labeling of prepackaged foods.

OCCUPATION	TEA PRODUCTION AND PROCESSING TECHNICIAN	OCCUPATION CODE	
DUTY TITLE	TEA PACKAGING AND STORAGE	DUTY NO.	504
TASK TITLE	TEA STORAGE	TASK NO.	5042
PERFORMANCE CRITERIA	The person performing this task must be able to carry out tea storage work based on the properties and characteristics of different types, grades, and batches of tea products.		
RANGE STATEMENT	The task can be performed during the tea storage process under the supervision and guidance of technical personnel in corresponding positions. The tools and equipment to be used include: 1. Thermometer and hygrometer; 2. A record book used for in-warehouse and ex-warehouse registration.		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Determine the quality and packaging of the product; 2. Determine the basic requirements for storage warehouses and equipment; 3. Carry out corresponding work such as storing and stacking tea, and keep records; 4. Conduct warehouse inspections on schedule and at the fixed time based on seasons, climate conditions, etc., and establish a storage inspection record system to keep records.		Detailed knowledge about: 1.0 Methods The person performing this task must be able to explain how to: 1.1 Select a warehouse that meets the requirements and its corresponding storage equipment; 1.2 Classify and manage tea based on different types, grades, and batches; 1.3 Carry out warehousing, stacking, warehouse inspection, and other specific work, and keep corresponding records in time. 2.0 Principles The person performing this task must be able to explain the following principles: 2.1 Requirements for storage environment and location selection of storage warehouses; 2.2 Selection of storage facilities and containers; 2.3 Classification standards and isolation methods for tea storage; 2.4 Routine inspection and management methods for tea storage. 3.0 Theories The person performing this task must be able to explain the following: 3.1 Control of storage temperature and humidity; 3.2 Control of lighting;	

	<p>3.3 Selection methods for packaging materials; 3.4 Selection criteria for packaging form.</p> <p>4.0 Essential Skills 4.1 Observation and recording skills; 4.2 Contrastive analysis skills; 4.3 Quality inspection skills; 4.4 Teamwork skills.</p>
DESCRIPTION OF THE END PRODUCT / SERVICE	<p>The selection of tea storage warehouses is independently completed, and specific tasks are carried out such as warehousing, stacking, warehouse inspection, and recording according to tea storage requirements.</p>
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Measures such as moisture, high temperature, rodent, fire, and theft prevention in the warehouse; 2. Temperature and humidity requirements for storage of tea with different properties and characteristics; 3. Hygiene regulations and safety precautions related to inventory management in tea storage.

**TABLE 1: DACUM CHARTS FOR TEA PRODUCTION AND PROCESSING
TECHNICIAN - NTA 5**

DUTIES	TASKS	ENABLERS
1.0 Tea garden construction	1.1 Tea garden reclamation.	<p>General skills and knowledge</p> <ul style="list-style-type: none"> • Soil and topographical characteristics of tea gardens • Standards and operations for tea garden reclamation • Characteristics of tea tree growth and development • Cultivation and management standards and techniques for tea trees <p>Tools and equipment</p> <ul style="list-style-type: none"> • Excavator • Tea garden mini-tiller <p>Materials</p> <ul style="list-style-type: none"> • Reclamation machinery; plows and rakes; organic fertilizers and decomposed compost; seedling trays and seedbeds; seedling soil; seeds or tea seedlings; pesticides and biopesticides; sprayers; pruning and fertilization tools <p>Requirements for employees</p> <ul style="list-style-type: none"> • Teamwork spirit, communication, and independent thinking
	1.2 Tea tree planting.	
2.0 Tea tree management	2.1 Cultivation and weeding in tea gardens.	<p>General skills and knowledge</p> <ul style="list-style-type: none"> • Cultivation and weeding technology in tea gardens • Characteristics of tea tree growth and development • Water and fertilizer management technology in tea gardens • Standards and techniques of tea tree pruning
	2.2 Tea garden water and fertilizer management.	
	2.3 The management of tea gardens during dry and rainy seasons.	

DUTIES	TASKS	ENABLERS
		<p>Tools and equipment</p> <ul style="list-style-type: none"> • Mini-tiller, cultivator, tea garden tiller, tea garden management machine, and deep cultivator • Weeding machine • Integrated water and fertilizer management equipment • Tea tree pruner and cropper <p>Materials</p> <ul style="list-style-type: none"> • Tea gardens that meet the requirements of cultivation, weeding, pruning, and water and fertilizer management <p>Requirements for employees</p> <ul style="list-style-type: none"> • Teamwork spirit, communication skills, independent thinking, and proficient operation skills
3.0 Operation and maintenance of tea processing equipment	3.1 Operation and maintenance of withering equipment.	<p>General skills and knowledge</p> <ul style="list-style-type: none"> • The corresponding mechanical equipment standards for withering, rolling (cutting), fermentation, and drying equipment commonly used in tea processing, national food safety standards, and product standard requirements • Basic structure and working principle of the commonly-used equipment for tea processing • Electricity use and equipment operation safety procedures, and food safety and health knowledge • Basic principles of tea withering, rolling (cutting), fermentation, and drying processes • Knowledge of maintenance and servicing of tea withering, rolling (cutting), fermentation, and drying equipment
	3.2 Operation and maintenance of rolling and twisting-cutting equipment.	
	3.3 Operation and maintenance of fermentation equipment.	
	3.4 Operation and maintenance of drying equipment.	

DUTIES	TASKS	ENABLERS
		<p>Tools and equipment</p> <ul style="list-style-type: none"> • Equipment and facilities for tea withering, rolling (cutting), fermentation, and drying that meet the standards and production scale • Supporting power and safety facilities for equipment • Supporting maintenance tools and equipment for equipment • Factory buildings and supporting buildings that meet the needs of equipment installation and production <p>Materials</p> <ul style="list-style-type: none"> • Accessories, facilities, tools, etc. required for equipment operation and maintenance • Safety labour protection supplies • Raw materials of tea <p>Requirements for employees</p> <ul style="list-style-type: none"> • Professional dedication, teamwork spirit, communication and independent thinking, safety awareness, and food safety awareness
4.0 Tea packaging and storage	4.1 Tea packaging.	<p>General skills and knowledge</p> <ul style="list-style-type: none"> • The adsorbability of tea • The main factors that affect the quality of tea, including temperature, humidity, air, moisture, and foreign odors <p>Tools and equipment</p> <ul style="list-style-type: none"> • Packaging machinery that meets standards • Qualified storage warehouse • Facilities such as temperature and humidity control, pest and rodent prevention, and fire prevention • Thermometer, hygrometer, record book, etc.
	4.2 Tea storage.	

DUTIES	TASKS	ENABLERS
		<p>Materials</p> <ul style="list-style-type: none"> • Raw materials for the finished tea to be listed • Packaging materials that comply with relevant hygiene standards and tea storage requirements <p>Requirements for employees</p> <ul style="list-style-type: none"> • Teamwork spirit, communication and independent thinking, observation and recording, and quality inspection