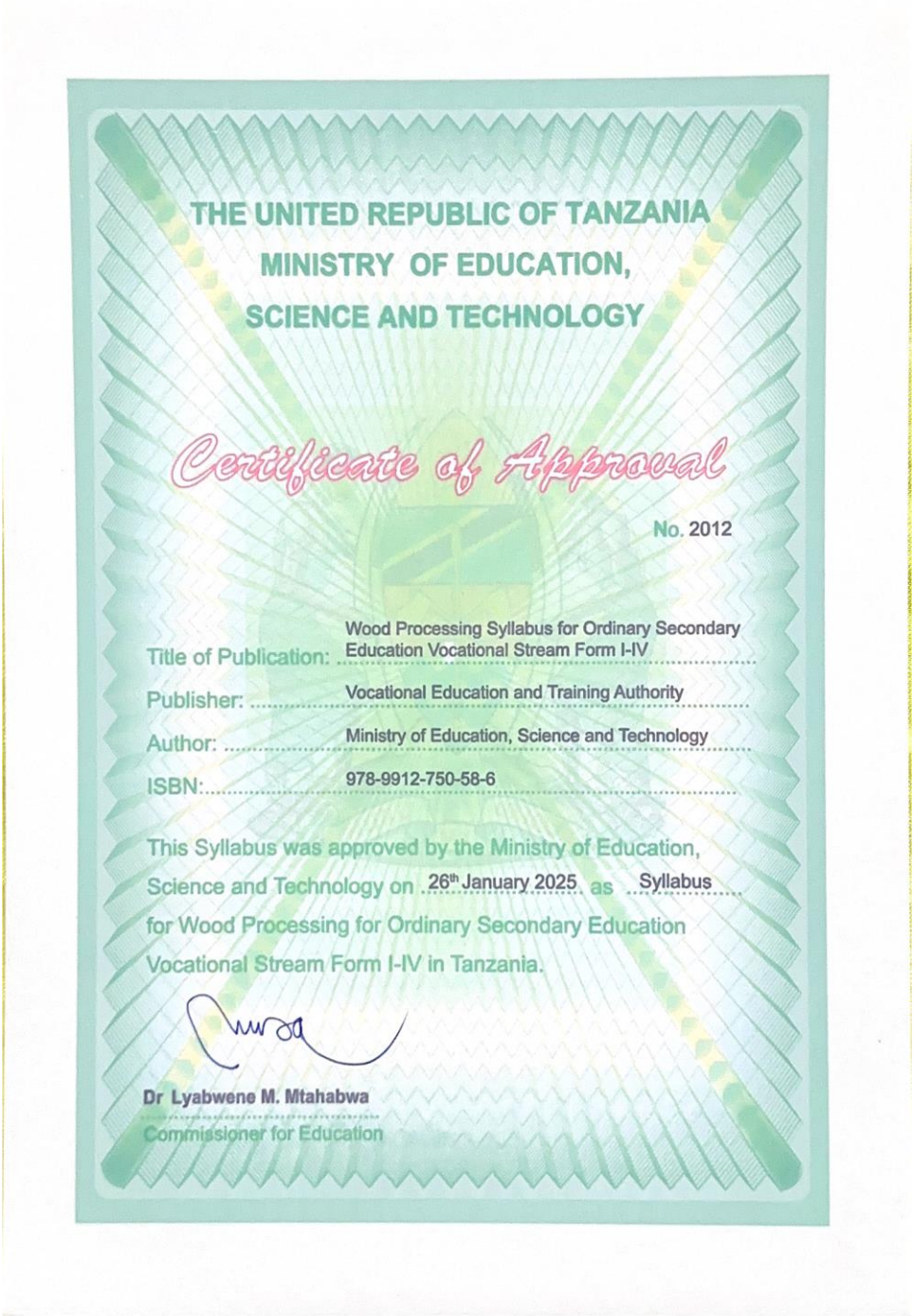
THE UNITED REPUBLIC OF TANZANIA

MINISTRY OF EDUCATION, SCIENCE, AND TECHNOLOGY



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Dr Lyabwene M. Mtahabwa
Commissioner for Education

WOOD PROCESSING SYLLABUS FOR ORDINARY SECONDARY EDUCATION

VOCATIONAL STREAM FORM I-IV

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Abbreviations and Acronyms

AIDS	Acquired Immune Deficiency Syndrome
CA	Continuous Assessment
CBET	Competence-Based Education and Training
FTNA	Form Two National Assessment
HIV	Human Immunodeficiency Virus
ICT	Information Communication and Technology
MoEST	Ministry of Education, Science, and Technology
NECTA	National Examinations Council of Tanzania
OSHA	Occupational Safety and Health Authority
TIE	Tanzania Institute of Education
VETA	Vocational Education and Training Authority
VET TAC	Vocational Education and Training Trade Advisory Committee

Definition of Key Terms

Assessment: The process of gathering evidence and determining whether specific skills, knowledge, or competences have been achieved

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.

Element: A sub-unit (step), which reflects the learning sequence with the aim of achieving broad learning objectives of a unit.

Performance criteria: indicate the expected end results or outcome in form of evaluative statements.

Standard: A set of statements, which if proven true under working conditions, means that an individual is meeting an expected level and type of performance.

Unit: A statement of broad learning objectives, which prescribe the requirements of a standard in the form of practical skills, knowledge and appropriate attitudes.

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For and on behalf of:

Vocational Education and Training Authority

CPA. Antony M. Kasore

Director General

1.0. Introduction

Wood Processing is a key component of the Ordinary Secondary Education Vocational Stream. Learning this skill is essential for Tanzania, given its rich forest resources and diverse tree species, both indigenous and planted. These resources can contribute significantly to the country's economy when processed into valuable products. By teaching wood processing, students develop practical skills to convert raw wood into products like furniture, construction materials, and crafts. This supports local industries, reduces reliance on imported wood products, and stimulates economic development. Additionally, it creates jobs and helps preserve Tanzania's cultural heritage through traditional woodworking crafts.

An occupation is a specific work area or a group of related roles that demand particular skills, knowledge, and competences. It encompasses a structured professional activity within the labour market, marked by distinct tasks, responsibilities, and established standards of practice. In this context, Wood Processing occupation refers to tasks performed within the wood industry, related to the transformation of raw wood into finished products. Wood Processing deals with converting trees into usable forms through logging operations, sawmill operations, adding value to wood and increasing life span to utilise it efficiently.

Wood Processing can be describe by various types of procedures used to utilise raw wood to create products or supplies that serve as the raw materials for the manufacture of various wood-based goods.

Upon completion of the program, students will possess both theoretical and practical knowledge of wood processing, from raw material identification to advanced manufacturing procedures. They will be capable of operating wood processing machinery, producing wood products, and implementing sustainable practices in the industry, all while adhering to safety environmental regulations. Additionally, students will be equipped with the business skills necessary for managing a wood processing enterprise, ensuring high standards of quality and innovation in all aspects of the wood industry.

A graduate of this occupation may be employed in both Government and private sectors such as ministries/departments, training institutions research institutions forest agencies and projects, small, medium and large wood industries and in Non-Governmental Organizations (NGOs).The graduates may also utilize their carriers through self-employment.

This Wood Processing Syllabus is designed to guide the teaching and learning of Wood Processing at Ordinary Secondary Education Form I–V Vocational Stream in the United Republic of Tanzania. The syllabus interprets the competences a student needs to develop

while learning Wood Processing. It contains valuable information that will enable teachers to effectively plan their teaching process and help learners to develop the intended competences.

2.0. Main Objectives of Education in Tanzania

The main objectives of education in Tanzania are to enable every Tanzanian to:

(a) Develop and improve his or her personality so that he or she values himself or herself and develops self-confidence;

(b) Respect the culture, traditions, norms and customs of Tanzania; cultural differences, dignity, human rights, attitudes, and inclusive actions;

(c) Advance knowledge and apply science and technology, creativity, critical thinking, innovation, cooperation, communication and positive attitudes for his or her own development and the sustainable development of the nation and the world at large;

(d) Understand and protect national values, including dignity, patriotism, integrity, unity, transparency, honesty, accountability, and the national language;

(e) Develop life and work-related skills to increase efficiency in everyday life;

(f) Develop a habit of loving and valuing work to increase productivity and efficiency in production and service provision;

(g) Identify and consider cross-cutting issues, including the health and well-being of the society, gender equality, as well as the management and sustainable conservation of the environment; and

(h) Develop national and international cooperation, peace and justice per the Constitution of the United Republic of Tanzania and international conventions.

3.0. General Competences for Ordinary Secondary Education Vocational Stream

The general competences for Ordinary Secondary Education, Form 1–IV, Vocational Education stream are to:

(a) Apply the knowledge, skills, and attitudes the student developed in the primary school stage to increase his/her understanding of technical skills;

(b) Apply technical skills in designing, inventing and making various things to cope with life and solve challenges in society;

(c) Appreciate citizenship and national virtues;

(d) Use language skills;

(e) Demonstrate self-confidence in learning in various fields, including science and technology, technical knowledge, and technical skills;

(f) Apply technical knowledge and skills in designing, discovering and making various things to solve challenges in society, including cross cutting issues;

(g) Appreciate procedures and safety rules in using technical tools correctly; and

(h) Apply the technical knowledge and skills acquired to develop oneself with vocational and technical education and join the workforce.

4.0. General Competences of the Occupation

Upon completion of this occupation, students are expected to have ability to:

(a) Harvest trees sustainably;
(b) Perform sawmilling;
(c) Maintain safety and health awareness;
(d) Managing wood processing industry activities;
(e) Maintain tools, equipment and machines;

5.0. Main and Specific Competences

The main and specific competences to be developed are presented in Table 1.

Table 1: *Main and Specific Competences for Form I-IV*

Modules (Main Competence)	**Units (Specific competences)**
1.0 Maintaining safety and hygiene in wood processing	1.1 Maintaining safety in logging and sawmill 1.2 Handling fire accidents and incidents 1.3 Performing first aid
2.0 Harvesting trees	2.1 Executing forest harvesting 2.2 Felling trees, de-limbing felled trees and cross cutting tree trunks 2.3 Transporting logs
3.0 Performing timber yard operations	3.1 Sorting and stack timber 3.2 Controlling timber movement
4.0 Preparing wood for treatment	4.1 Receiving timber and poles for treatment

Modules (Main Competence)	Units (Specific competences)
	4.2 Preparing poles and sawn timber for treatment 4.3 Determining wood defects
5.0 Performing wood treatment	5.1 Preparing preservative solutions 5.2 Operating treatment plant 5.3 Performing post-treatment operations
6.0 Maintaining saws	6.1 Servicing saw blades 6.2 Repairing saw blades 6.3 Performing teeth geometry 6.4 Packing saw blade
7.0 Sawing logs	7.1 Sorting logs 7.2 Producing sawn timber
8.0 Utilising wood by-products	8.1 Processing wood by-products
9.0 Managing a safe work environment	9.1 Managing hazards 9.2 Carrying out risk assessment 9.3 Managing environmental pollution 9.4 managing fire accidents
10.0 Managing preventive maintenance	10.1 Planning preventive maintenance 10.2 Supervising preventive maintenance
11.0 Managing wood processing industry activities	11.1 Planning wood processing activities 11.2 Establishing operational duties and manpower administration 11.3 Planning wood processing workshop layout 11.4 Performing wood processing operations 11.5 Marketing wood products and by-products 11.6 Preparing reports

6.0. The Roles of Teachers, Students and Parents in Teaching and Learning

Good relationships between a teacher, student and parent, or guardian is fundamental to ensuring successful learning. This section outlines the roles of each participant in facilitating effective teaching and learning of Wood Processing.

6.1. The Teacher

The teacher is expected to:

(a) Help the student to learn and develop the intended competences in Wood Processing.

(b) Use teaching and learning approaches that will allow students with different needs and abilities to:

(i) Develops the competences needed in the 21st Century; and

(ii) Actively participate in the teaching and learning process.

(c) Use student centred instructional strategies that make the student a centre of learning which allow them to think, reflect and search for information from various sources;

(d) Create a friendly teaching and learning environment;

(e) Prepare and improvise teaching and learning resources;

(f) Conduct formative assessment regularly by using tools and methods which assess theory and practice;

(g) Treat all the students according to their learning needs and abilities;

(h) Protect the student from the risky environment while he or she is at school;

(i) Keep track of the student's daily progress;

(j) Identify individual student's needs and provide the proper intervention;

(k) Involve parents/guardians and the society at large in the student's learning process; and

(l) Integrate cross-cutting issues and ICT in the teaching and learning process.

6.2. The Student

The student is expected to:

(a) Develop the intended competences by participating actively in various learning activities inside and outside the classroom; and

(b) Participate in the search for knowledge from various sources, including textbooks, reference books and other publications in online libraries.

6.3. The Parent/Guardian

The parents/guardian is expected to:

(a) Monitor a child's academic progress;

(b) Where possible, provide a child with the needed academic support;

(c) Provide a child with a safe and friendly home environment which is conducive for learning;

(d) Keep tracking of a child's progress in behaviour;

(e) Provide a child with any necessary materials required in the learning process; and

(f) Instil in a child a sense of commitment and positive value towards education and work.

7.0. Teaching and Learning Methods

The teaching and learning methods are instrumental in developing student's competences. This Syllabus suggests teaching and learning methods for each activity, including but not limited to

demonstration, practical/hands-on activities, observations, role play, simulation, group works, peer teaching/learning, discussions, presentations, field visits, research, and project works. Teachers are encouraged to adapt and use additional methods based on the specific environment or context. All methods should connect to students' everyday lives, emphasizing practical application and the development of cognitive, affective, and psychomotor skills through learner-centred approaches. Vocational teachers serve as facilitators, combining classroom instruction with project work supervision.

8.0. Teaching and Learning Resources

The process of teaching and learning requires different resources. In that regard, both a teacher and students should work together to collect and improvise alternative resources available in the school and home environment when needed. Teachers and students are expected to constantly seek for information from various sources to effectively facilitate the teaching and learning process. The list of approved textbooks and reference books shall be provided by the TIE.

9.0. Assessment

Assessment is important in teaching and learning of Wood Processing occupation. It is divided into formative and summative assessments. Formative assessment informs both the teacher and students on the progress of teaching and learning, and in making decisions on improving the teaching and learning process. Teachers are, therefore, expected to apply a wide range of formative assessment methods, including but not limited to demonstrations, discussions, presentations, oral questions, experiments, observations, practical assignments, and projects.

Summative assessment, on the other hand, will focus on determining student's achievement of learning. Teachers are expected to use a variety of summative assessments including Form Two National Assessment, terminal examination, annual examination, mock examination, and project. The scores obtained from these assessments will be used as Continuous Assessment (CA). Therefore, the continuous assessments shall contribute 60% and the National Form IV Examination shall be 40% as indicated in Table 2.

9.1 Project Work

Project work is a carefully planned and clearly defined task or problem that a student undertakes, either individually or in a group, to enhance and apply the skills and knowledge

gained in the classroom, workshop, kitchen, or laboratory. It is based on the principles of "Learning by Doing" and "Learning by Living." In this context, the implementation of Project Work in secondary schools' vocational streams is essential. Projects in the vocational stream should be conducted in the core subject (occupation). To ensure its success, the supervision and assessment of student project work must be consistent with the established guidelines provided by National Examinations Council of Tanzania (NECTA)

Table 2: *Contribution of Continuous Assessment and National Examination in the final score*

Assessment Category	**Weight (%)**	**National Examination**
Form Two National Assessment (FTNA)	6.0	**40**
Form Three Terminal Examination	5.0	
Form Three Annual Examination	5.0	
Form Four Mock Examination	7.0	
Project	7.0	
Form Two Practical	10.0	
Form Three Practical	10.0	
Form Four Practical	10.0	
Total	**60**	

10.0. Number of Periods

The Wood Processing Syllabus for Ordinary Secondary Education Vocational Stream Form I–IV provides time estimates for teaching and learning each specific competence. The estimates consider the complexity of the specific competences and the learning activities. Eight (08) periods of 40 minutes each have been allocated per week, whereby two (02) periods will be used for theory and 6 for practical sessions which may require double periods (e.g., 80). Double periods will allow sufficient time for hands-on activities.

11.0. Teaching and Learning Contents

The contents of the syllabus are organised into a matrix with seven columns: main competences, specific competences, learning activities, suggested teaching and learning methods, assessment criteria, suggested teaching and learning resources, and the number of periods. The assessment criteria are further divided into process assessment, product/service assessment, and underpinning knowledge, as shown in Tables 3 to 6.

Form One

Table 3: *Detailed contents for Form One*

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Product/Services Assessment	Knowledge Assessment		
1.0 Maintaining Safety and Hygiene in Wood Processing	1.1 Maintaining Safety in Logging and Sawmill	(a) Handling mechanical, electrical, and chemical hazards	**Brainstorming:** Guide the students in small groups to brainstorm on the concept of hazards **Group discussion:** Guide the students in manageable groups to discuss the meaning of mechanical, electrical, and chemical hazards, and explain control measures **Practical demonstration:** Demonstrate to students the proper techniques for controlling mechanical, electrical, and chemical hazards **Hands-on activities:** Guide the students through hands-on activities on the procedures for handling	• Select tools for handling mechanical, electrical, and chemical hazards • Control mechanical hazards • Control electrical hazards • Control chemical hazards • Clean tools, equipment, and workplace • Store tools and equipment • Adhere to safety rules and regulations	Mechanical, electrical, and chemical hazards handled as per stipulated rules and regulations	**Knowledge evidence:** **Detailed knowledge of:** **Methods used:** The student should explain how to: • Describe safety • How to handle hazards • Use safety gear **Principles:** The student should explain principles of: • Handling different hazards • Maintaining general cleanliness **Theories:** The student should explain: • Importance of	The following tools, safety gear, and equipment are to be available: • First aid kit • Firefighting equipment • Overalls • Safety boots • Safety helmet • Eye protector • Nose protector • Gloves	192

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Product/Services Assessment	Knowledge Assessment		
			mechanical, electrical, and chemical hazards			observing safety rules and regulations • General concepts of occupational health and safety **Circumstantial knowledge** **Detailed knowledge about:** • Safety precautions in dismantling and assembling tools and equipment		
		(b) Implementing logging and sawmill safety rules	**Brainstorming:** Guide the students in small groups to brainstorm on the concept of logging and sawmill safety rules **Practical demonstration:** Demonstrate to the students how to implement logging and sawmill safety rules **Hands-on activities:**	• Identify tools and equipment for maintaining safety in sawmill and logging • List workshop rules and regulations • Adhere to safety in logging and sawmill • Clean tools,	Logging and sawmill safety rules implemented as per stipulated rules and regulations	**Knowledge evidence:** **Detailed knowledge of:** **Methods used:** The student should explain how to: • Maintain safety in logging and sawmill • Maintain general cleanliness • Use safety gear **Principles:** The	The following tools, safety gear, and equipment are to be available: • First aid kit • Firefighting equipment • Overalls • Safety boots • Safety rules • Safety helmet • Eye protector • Nose protector • Gloves	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Product/Services Assessment	Knowledge Assessment		
			Guide the students in manageable groups to apply logging safety rules in the nearby forest and observe sawmill safety rules in the school workshop	equipment, and workplace • Store tools and equipment		student should explain the principles of implementing logging and sawmill safety rules **Theories:** The student should explain: • Importance of using safety gear • Important safety gear in logging and sawmill **Circumstantial knowledge** **Detailed knowledge about:** • Observing logging and sawmill rules and regulations		
		(c) Maintaining logging and sawmill working environment	**Internet and library search:** Guide the students in groups or individually, to search relevant information on the concept of logging and sawmill working	• Identify tools and equipment for maintaining logging and sawmill working environment	Logging and sawmill working environment maintained as per stipulated standards	**Knowledge evidence:** **Detailed knowledge of:** **Methods used:** The student should explain how to: • Maintain	The following tools, safety gear, and equipment are to be available: • Computer • Internet • Multimedia projector	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Product/Services Assessment	Knowledge Assessment		
			environment **Group discussion:** Guide students in manageable groups to discuss how to maintain logging and sawmill working environment as per workshop rules and regulations **Practical demonstration:** Demonstrate to students the process/procedure of maintaining logging and sawmill working environment **Hands-on activities:** Organise students into manageable groups and guide them through activities to simulate maintaining a safe logging and sawmill environment	• Adhere to safety in maintaining logging and sawmill working environment • Clean tools, equipment, and workplace • Store tools and equipment		logging and sawmill working environment • Maintain general cleanliness • Use safety gear **Principles:** The student should explain the principles of maintaining logging and sawmill working environment **Theories:** The student should explain: • General concepts of occupational health and safety • Importance of using safety gear in logging and sawmill **Circumstantial**	• First aid kit • Firefighting equipment • Overalls • Safety boots • Safety rules • Safety helmet • Eye protector • Nose protector • Gloves • Brooms	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Product/Services Assessment	Knowledge Assessment		
						knowledge **Detailed knowledge about:** Observing rules and regulations in maintaining logging and sawmill working environment		
		(d) Maintaining personal safety	**Brainstorming:** Guide the students to explain and describe the meaning of personal safety **Practical demonstration:** Demonstrate to students the procedure for maintaining personal safety. **Hands-on activity:** Organise the students into small groups to simulate real-life scenarios on how to maintain personal safety in the working environment	• Identify tools and equipment for maintaining personal safety • Maintain personal safety at working environment • Clean tools, equipment, and workplace • Store tools and equipment	Personal safety maintained at working environment as per stipulated standards	**Knowledge evidence:** **Detailed knowledge of:** **Methods used:** The student should explain how to maintain personal health at working environment **Principles:** The student should explain principles of maintaining personal safety **Theories:** The student should explain the: • Important accessories in first aid kit	The following tools, safety gear, and equipment are to be available: • Overalls • Safety boots • Safety rules • Safety helmet • Eye protector • Nose protector • Gloves • Brooms	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Product/Services Assessment	Knowledge Assessment		
						• Importance of using safety gear in logging and sawmill **Circumstantial knowledge** **Detailed knowledge about:** Observing rules and regulations in maintaining personal safety		
		(e) Maintaining Personal Hygiene	**Brainstorming:** Guide students in a discussion to define and describe the concept of personal hygiene **Interactive simulation**: Guide the students through a practical exercise to visualize and describe how to maintain personal hygiene **Hands-on activities:** Provide students in small groups with a personal hygiene scenario and let them	• Identify tools and equipment for maintaining personal hygiene • Maintain personal hygiene • Clean tools, equipment, and workplace • Store tools and equipment	Personal hygiene maintained as per stipulated standards	**Knowledge evidence:** **Detailed knowledge of:** **Methods used:** The student should explain how to: • Identify tools for personal hygiene • Maintain general cleanliness • Maintain personal hygiene **Principles:** The student should	The following tools, safety gear, and equipment are to be available: • Flip chart • Marker pen • Overalls • Safety boots • Safety rule • Safety helmet • Eye protector • Nose protector • Gloves • Brooms	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Product/Services Assessment	Knowledge Assessment		
			develop solutions that effectively address the scenario			explain principles of maintaining personal hygiene **Theories:** The student should explain importance of applying personal hygiene **Circumstantial knowledge** **Detailed knowledge about:** Observing rules and regulations in maintaining personal safety	• Soap • Towel • Sanitizer • Hair comb • Nail cutter • Simulation guides	
	1.2 Handling Fire Accidents and Incidents	(a) Identifying fire-fighting materials and equipment	**Brainstorming:** Guide students in a discussion to define and identify the of firefighting materials and equipment **Scenario:** Organise students in manageable groups and provide scenarios to explore the use of firefighting materials and equipment **Practical**	• Identify tools and equipment and materials for firefighting • Adhere to safety in firefighting • Clean and store fire-fighting materials and equipment • Store tools and equipment	Firefighting materials and equipment identified	**Knowledge evidence:** **Detailed knowledge of:** **Methods used:** The student should explain how to: • Identify fire-fighting materials and equipment • Use fire-fighting materials and equipment	The following tools, safety gear, materials and equipment are to be available: • Fire extinguisher • Firefighting hose • Portable fire pumps • Firefighting nozzles • Fire beater • Rake	153

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Product/Services Assessment	Knowledge Assessment		
			demonstration: Demonstrate to students the materials and equipment used in firefighting, and how to use them effectively **Practical work:** Guide students in small groups to identify firefighting materials and equipment			**Principles:** The student should explain the principles of identifying fire-hazardous materials **Theories:** The student should explain: • Types of fire accidents and incidents • Common class of fire **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions while identifying accidents and incidents	• Sprayer pump • Hoe • Hard brooms • Safety gear	
		(b) Handling firefighting materials and equipment	**Brainstorming:** Guide the students in a discussion on the concept of handling firefighting materials and equipment	• Identify tools, equipment, and materials for handling firefighting • Adhere to safety in	Firefighting materials and equipment handled as per standard regulations	**Knowledge evidence:** **Detailed knowledge of:** **Methods used:** The student should explain how to:	The following tools, safety gear, and equipment are to be available: • Tool kit • Overalls • Safety boots	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Product/Services Assessment	Knowledge Assessment		
			ICT-based learning approach: Guide students in small groups through an ICT learning approach to describe how to handle firefighting materials and equipment **Practical demonstration:** Demonstrate to students how to handle firefighting materials and equipment **Hands-on activities:** Guide students in manageable groups through practical activities to simulate real-life scenarios involving firefighting materials and equipment	• firefighting • Clean and store firefighting materials and equipment • Store tools and equipment		• Handle firefighting materials and equipment • Apply safety principles while handling firefighting materials and equipment **Principles:** The student should explain the principles of handling fire-hazardous materials **Theories:** The student should explain: • Effect of fire hazards • Emergency life support **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions while handling	• Safety clear glasses • First aid kit • Nose masks • Safety gloves • Fire extinguisher • Fire beater • Rake • Sprayer pump • Hoe • Hard brooms • Multimedia projector • Computer • Internet • Whiteboard • Whiteboard marker • Overhead projector	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Product/Services Assessment	Knowledge Assessment		
						accidents and incidents		
		(c) Operating firefighting equipment	**Brainstorming:** Guide the students in discussion on the process of operating firefighting materials and equipment **Practical demonstration:** Demonstrate and describe to students how to operate firefighting materials and equipment **Hands-on activities:** Guide students in manageable groups through practical activities to simulate real-life scenarios of operating firefighting materials and equipment	• Identify tools, equipment, and materials for operating firefighting • Adhere to safety in operating fire-fighting equipment • Clean and store firefighting materials and equipment • Store tools and equipment	Firefighting equipment operated as per technical standards	**Knowledge evidence:** **Detailed knowledge of:** **Methods used:** The student should explain how to: • Operate firefighting materials and equipment • Apply safety principles while operating firefighting materials and equipment **Principles:** The student should explain the principles of operating firefighting equipment **Theories:** The student should explain: • Classification	The following tools, safety gear, and equipment are to be available: • Tool kit • Overalls • Safety boots • Clear safety glasses • First aid kit • Nose masks • Safety gloves • Fire extinguisher • Fire beater • Rake • Sprayer pump • Hoe • Hard brooms	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Product/Services Assessment	Knowledge Assessment		
						of hazards • Advantages of accident prevention **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions while operating firefighting equipment		
		(d) Fighting different types of fire	**Brainstorming:** Guide the students in discussion to outline and describe methods of for fighting types/classes of fire **Group discussion:** Guide the students in manageable groups to discuss the procedures for fighting types/classes of fire **Demonstration:** Demonstrate and describe to students the procedures for fighting different types/classes	• Identify tools, equipment, and materials for fighting different types/classes of fire • Adhere to safety in fighting different types/classes of fire • Clean and store firefighting materials and equipment • Store tools and	Different types of fire fought as per standard regulations	**Knowledge evidence:** **Detailed knowledge of:** **Methods used:** The student should explain how to: • Fight different types/classes of fire • Use tools, equipment, and materials for fighting different types/classes of fire • Apply safety principles	The following tools, safety gear, and equipment are to be available: • Tool kit • Overalls • Safety boots • Safety clear glasses • First aid kit • Nose masks • Safety gloves • Fire extinguisher • Fire beater • Rake • Sprayer pump • Hoe	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Product/Services Assessment	Knowledge Assessment		
			of fire **Hands-on activities:** Guide the students in manageable groups through practical activities to simulate real-life scenarios for combating different types/classes of fire	equipment		while fighting different type/classes of fire **Principles:** The student should explain the principles of fighting different types/classes of fire **Theories:** The student should explain: • Importance of reading manufacturer's instructions before operating machine • Basic function of the human body • Respiratory and circulatory systems **Circumstantial knowledge Detailed**	• Hard brooms	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Product/Services Assessment	Knowledge Assessment		
						knowledge about: Safety precautions while performing first aid and safe handling of first aid kit		
	1.3 Performing First Aid	(a) Performing artificial respiration	**Brainstorming:** Guide the students in discussion to define and explain the concept of artificial respiration **Interactive simulation and animation:** Guide the students through interactive simulation and animation to visualise the procedures for performing artificial respiration **Practical demonstration:** Demonstrate and describe to students how to perform artificial respiration **Hands-on Activities:** Guide the students in manageable groups	• Identify tools and equipment for performing artificial respiration • Adhere to safety in performing artificial respiration • Clean and store materials and equipment • Store tools and equipment	Artificial respiration performed as per specifications	**Knowledge evidence:** **Detailed knowledge of:** **Methods used:** The student should explain how to: • Perform artificial respiration • Use tools, equipment, and materials for performing artificial respiration • Apply safety principles while performing artificial respiration **Principles:** The student should explain principles of	The following tools, safety gear, and equipment are to be available: • First aid kit • Stretcher • Light blanket • Sterilizer • Towel • Medical gloves • Simulation guide	76

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Product/Services Assessment	Knowledge Assessment		
			through practical activities to simulate real-life scenarios for performing artificial respiration			performing artificial respiration **Theories:** The student should explain: • Types of artificial respiration • Types of accidents **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions while performing first aid and handling of first aid kit		
		(b) Performing first aid to minor scalpels	**Brainstorming:** Guide the students in discussion to define and explain the concept of first aid to minor scalpels **Questions and answers:** Use questions and answers to guide	• Identify tools and equipment for performing first aid to minor scalpels • Adhere to safety in performing first aid to minor scalpels • Clean and store	First aid to minor scalpels performed as per specifications	**Knowledge evidence:** **Detailed knowledge of:** **Methods used:** The student should explain how to: • Perform first aid to minor scalpels • Use tools,	The following tools, safety gear, and equipment are to be available: • Bandages • Plaster • Antiseptics • Clean water • Eusol • Medical Scissor	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Product/Services Assessment	Knowledge Assessment		
			students in exploring the procedure for administering first aid to minor scalpels, and check the correctness of their responses **Interactive simulation and animation:** Guide the students through interactive simulation and animation to visualise the procedures for performing first aid to minor scalpels **Practical demonstration:** Demonstrate to students how to perform first aid to minor scalpels **Hands-on Activities:** Guide the students in manageable groups through practical activities to simulate real-life scenarios to perform first aid to minor scalpels	materials, and equipment • Store tools and equipment		equipment, and materials for performing first aid to minor scalpels • Apply safety precautions while performing first aid to minor scalpels **Principles:** The student should explain principles of: • Providing first aid • Attending minor scalpels **Theories:** The student should explain types of wounds/minor scalpels **Circumstantial knowledge Detailed knowledge about:** Safety precautions	• Medical knife • Disposable gloves • Sterilized gauze • Cotton wool • Methylated sprit • Cold pack or ice • Antibiotic ointment • Simulation guides	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Product/Services Assessment	Knowledge Assessment		
						while performing first aid to minor scalpels		
Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Product/Services Assessment	Knowledge Assessment		
2.0 Harvesting trees	2.1 Executing forest harvesting	(a) Interpreting harvesting plan	**Brainstorming:** Guide the students in a discussion to define and execute the harvesting plan **Group discussion:** Guide the students through manageable groups to explain the execution of the harvesting plan **Practical demonstration:** Demonstrate to students how to interpret the harvesting plan **Hands-on Activities:** Guide the students in manageable groups	• Identifying tools and equipment for interpreting the harvesting plan • Identify parts of the harvesting plan • Interpret harvesting plans	Harvesting plans executed as per standard	**Knowledge evidence:** **Detailed knowledge of:** **Method used:** The students should explain how to execute the forest harvesting plan **Principles:** The student should explain the procedures involved in executing the harvesting plan **Theories:** The student should explain forest harvesting plan	The following tools, materials, safety gear, and equipment are to be available: • Forest harvesting plan • Ball pen • Pencil • Drawing paper • Rubber • Ruler • Marker pen	132

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Product/Services Assessment	Knowledge Assessment		
			through practical activities to simulate real-life scenarios to execute a forest harvesting plan			**Circumstantial knowledge** **Detailed knowledge about:** Safety precautions while preparing harvesting plan		
		(b) Determining the extraction route	**Think-in-pair share**: Guide the students through think-ink-pair-share to describe the concept of extraction routes **Group discussion:** Guide the students to discuss and explore how to align pegs along the extraction route, measure slope of extraction route, and determine the extraction route **Practical demonstration:** Demonstrate to students how to determine extraction route **Practical work:** Organise students in	• Identify extraction routes • Align pegs along the extraction route • Measure slope of extraction route • Determining extraction route • Observe safety • Clean tools • Store tools	Extraction routes determined as per standards	**Knowledge evidence:** **Detailed knowledge of:** **Method used:** The students should explain how to: • Determine extraction routes • Apply safety precautions while preparing extraction route **Principles:** The student should explain procedures involved in preparing extraction routes **Theories:** The student should explain the	The following tools, materials, safety gear, and equipment are to be available: • Hand saw • Axes • Pegs • Overalls • Safety boots • Safety helmet • Gloves • Hoe • Shovel • Tape measure • Clinometer • First aid kit	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Product/Services Assessment	Knowledge Assessment		
			manageable groups to align pegs along the extraction route, measure slope of extraction route, and determine extraction route			extraction route **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions while preparing extraction routes		
		(c) Preparing landing site	**Think in pair share**: Guide the students through think-ink-pair-share to describe the concept of landing **Practical demonstration:** Demonstrate to students how to measure landing site length and width, level landing site, and prepare landing site **Hands-on Activities:** Guide the students in manageable groups through practical activities to simulate real-life scenarios to measure landing site length and width, level	• Identify tools and equipment for preparing the landing site • Identifying landing site • Measure landing site length and width • Level landing site • Preparing land site • Observe safety • Clean tools • Store tools	The landing site prepared as per stipulated standards	**Knowledge evidence:** **Detailed knowledge of:** **Method used:** The students should explain how to: • Prepare landing site • Apply safety precautions while preparing landing site **Principles:** The student should explain procedures involved in landing site preparation **Theories:** The student should explain landing	The following tools, materials, safety gear, and equipment are to be available: • Hand saw • Axes • Pegs • Overalls • Safety boots • Safety helmet • Gloves • Hoe • Shovel • Tape measure • First aid kit • Chainsaw • Machete	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Product/Services Assessment	Knowledge Assessment		
			landing site and preparing land site			preparation **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions while preparing landing		
	2.2 Felling Trees, De-Limbing Felled Trees and Cross Cutting Tree Trunks	(a) Felling trees	**Jigsaw**: Guide the students in manageable groups using the jigsaw method to explore the concept of felling trees **Practical demonstration:** Demonstrate to students how to fell trees using the appropriate procedure **Field practical:** Guide the students in small groups to visit a nearby forest to locate harvesting area and perform felling of trees	• Select tools and equipment for felling trees • Locate harvesting area • Identifying felling direction • Locate harvesting area • Fell trees • Observe safety • Clean tools • Store tools	Tree is well felled as per stipulated standards	**Knowledge evidence:** **Detailed knowledge of:** **Method used:** The students should explain how to: • Select proper tools for felling trees • Fell tree properly • Apply safety precautions while felling trees **Principles:** The student should explain procedures involved in felling trees	The following tools, materials, safety gear, and equipment are to be available: • Chainsaw • Hand saws • Axes • Felling wedges • Overalls • Reflectors • Safety boots • Chainsaw helmet • First aid kit • Warning signs • Leather gloves • Chainsaw trouser • Felling lever • Timber tong	220

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Product/Services Assessment	Knowledge Assessment		
						Theories: The student should explain the importance of: • Directional tree felling • Types of tools used in felling trees **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions while felling trees	• Sulky • Brush knife	
		(b) De-limbing felled tree	**Brainstorming:** Guide the students to discuss in groups the concept of de-limbing felled trees **Demonstration:** Demonstrate to students how to de-limb felled trees properly **Field practical:** Organise the students to visit a nearby forest to de-limb felled trees	• Select tools and equipment for de-limbing felled tree • De-limb felled trees • Observe safety • Clean tools • Store tools	Felled tree well de-limbed as per stipulated standards	**Knowledge evidence:** **Detailed knowledge of:** **Method used:** The students should explain how to: • Select proper tools for de-limbing felled trees • De-limb felled tree properly • Apply safety precautions while de-limbing felled	The following tools, materials, safety gear, and equipment are to be available: • Chainsaw • Hand saws • Axes • Felling wedges • Overalls • Reflectors • Safety boots • Chainsaw helmet • First aid kit	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Product/Services Assessment	Knowledge Assessment		
						trees **Principles:** The student should explain procedures involved in de-limbing tree **Theories:** The student should explain the importance of de-limbing tree trunks **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions while de-limbing tree	• Warning signs • Leather gloves • Chainsaw trouser	
		(c) Scale tree trunk	**Brainstorming:** Guide the students in discussion to describe the principles of scaling tree trunk **Demonstration:** Demonstrate to students how to scale tree trunk trees while adhering to safety principles	• Select tools and equipment for scaling tree trunk • Scale tree trunk • Observe safety • Clean tools • Store tools	Tree trunk scaled as per stipulated standards	**Knowledge evidence:** **Detailed knowledge of:** **Method used:** The students should explain how to: • Select proper tools for scaling tree trunk • Scale tree trunk	The following tools, materials, safety gear, and equipment are to be available: • Axes • Tape measure • Overalls • Reflectors • Safety boots • Helmet	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Product/Services Assessment	Knowledge Assessment		
			Field practical: Organise students in a manageable groups or whole class to visit a nearby forest to scale a tree trunk while adhering to safety principles			correctly • Apply safety precautions while scaling tree trunk **Principles:** The student should explain procedures involved in scaling tree trunks **Theories:** The student should explain the importance of scaling tree trunk **Circumstantial knowledge Detailed knowledge about:** Safety precautions while scaling tree trunk	• First aid kit • Leather gloves • Log tally sheet • Pen • Pencil • Marker pen	
		(d) Cross-cutting tree trunks	**Brainstorming:** Guide the students in discussion groups to describe the concept of cross-cutting tree trunk **Demonstration:**	• Select tools and equipment for cross-cutting tree trunk • Cross-cut tree trunk	Tree trunk cross-cut according to stipulated standards	**Knowledge evidence: Detailed knowledge of: Method used:** The students should explain how to:	The following tools, materials, safety gear, and equipment are to be available: • Chainsaw • Hand saws	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Product/Services Assessment	Knowledge Assessment		
			Demonstrate to students to the methods/procedures of cross-cutting tree trunk **Field practical:** Organise students to visit a nearby forest to cross-cut tree trunk while adhering to safety and health principles	• Observe safety • Clean tools • Store tools		• Select proper tools for cross-cutting tree trunk • Cross-cut tree trunk correctly • Apply safety precautions while cross-cutting tree trunk **Principles:** The student should explain procedures involved in cross cutting tree trunks **Theories:** The student should explain the importance of cross-cutting tree trunks **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions while cross-cutting tree trunks	• Axes • Felling wedges • Overalls • Reflectors • Safety boots • Chainsaw Helmet • First aid kit • Warning signs • Leather gloves • Chainsaw trouser • Timber tong • Cant hook	
		(e) Calculating logs volume	**Brainstorming:** Guide the students in	• Select tools and	Log volume calculated as per	**Knowledge evidence:**	• The following tools,	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Product/Services Assessment	Knowledge Assessment		
			discussion groups to explain the concept of log volume **Group discussion:** Guide the students in manageable groups to discuss the importance of calculating log volume **Demonstration:** Demonstrate to students how to calculate log volume **Hands-on activities:** Formulate manageable groups of students to perform log volume calculation	equipment for calculating timber volume • Calculate timber volume • Observe safety • Clean tools • Store tools	stipulated standards	**Detailed knowledge of:** **Method used:** The students should explain how to: • Select proper tools for calculating log volume • Calculate log volume • Apply safety precautions while calculating log volume **Principles:** The student should explain procedures involved in calculating log volume **Theories:** The student should explain the importance of calculating log volume **Circumstantial knowledge**	materials, safety gear, and equipment are to be available: • Tape measure • Caliper • Ball pen • Notebook • Tally sheet • Calculator • Marker pen	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Product/Services Assessment	Knowledge Assessment		
						Detailed knowledge about: Safety precautions while calculating log volume		
	2.3 Transporting logs	(a) Transporting skidding logs	**ICT-based learning:** Guide the students in small groups through ICT based learning approach to brainstorm the concept of transporting skidding logs **Group discussion:** Guide the students in manageable groups to discuss the principles and procedures for skidding logs **Demonstration:** Demonstrate to students procedures for skidding logs **Field practical:** Organise the students to visit a nearby forest to skid logs while adhering to safety principles	• Select tools and equipment for skidding logs • Skid logs • Observe safety • Clean tools • Store tools	Skidded logs transported as per stipulated standards	**Knowledge evidence:** **Detailed knowledge of:** **Method used:** The students should explain how to: • Select proper tools for skidding logs • Apply skidding procedures • Apply safety precautions while skidding logs **Principles:** The student should explain principles involved in skidding logs **Theories:** The student should explain: • Skidding	The following tools, materials, safety gear, and equipment are to be available: • Tape measure • Log truck • Skidder • Log loader • Axes • Overalls • Reflectors • Safety boots • Safety helmet • Warning signs and boards	220

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Product/Services Assessment	Knowledge Assessment		
						• procedures • Economical means of transporting logs **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions while skidding logs		
		(b) Forwarding logs	**Group discussion:** Guide the students in manageable groups to discuss the concept of forwarding logs and principles of forwarding logs **Demonstration:** Demonstrate to students how to forward Logs **Field practical:** Organise students to visit a nearby forest to forward logs	• Select tools and equipment for forwarding logs • Forward Logs • Observe safety • Clean tools • Store tools	Logs forwarded as per stipulated standards	**Knowledge evidence:** **Detailed knowledge of:** **Method used:** The students should explain how to: • Select proper tools for forwarding logs • Apply forwarding procedures • Apply safety precautions while forwarding logs **Principles:** The student should	The following tools, materials, safety gear, and equipment are to be available: • Tape measure • Log truck • Forwarder • Log loader • Axes • Overalls • Reflectors • Safety boots • Safety helmet • Warning signs and boards	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Product/Services Assessment	Knowledge Assessment		
						explain principles involved in forwarding logs **Theories:** The student should explain of forwarding procedures **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions while forwarding logs		
		(c) Loading logs	**Brainstorming:** Guide the students in groups to discuss the concept of loading logs **Think-ink-pair-share:** Guide the students through think-ink-pair-share to explore the procedures for loading logs **Field practical:** Organise the students to visit a nearby forest to	• Select tools and equipment for loading logs • Load logs • Observe safety • Clean tools • Store tools	Logs loaded as per stipulated standards	**Knowledge evidence:** **Detailed knowledge of:** **Method used:** The students should explain how to: • Select proper tools for loading logs • Apply loading procedures • Apply safety precautions while loading	The following tools, materials, safety gear, and equipment are to be available: • Tape measure • Log truck • Log loader • Axes • Overall • Reflectors • Safety boots • Safety helmet • Warning	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Product/Services Assessment	Knowledge Assessment		
			load logs while adhering to safety principles			logs **Principles:** The student should explain principles involved in loading logs. **Theories:** The student should explain loading and unloading procedures **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions while loading logs	signs and boards	
		(d) Hauling logs	**Brainstorming:** Guide the students in groups to discuss the concept of hauling logs **Interactive simulation**: Guide the students through interactive simulation to discuss procedures for hauling logs **Field practical:**	• Select tools and equipment for hauling logs • Haul logs • Observe safety • Clean tools • Store tools	Logs hauled as per stipulated standards	**Knowledge evidence:** **Detailed knowledge of:** **Method used:** The students should explain how to: • Select proper tools for hauling logs • Apply hauling procedures • Apply safety	The following tools, materials, safety gear, and equipment are to be available: • Log truck • Log loader • Axes • Overalls • Reflectors • Safety boots • Safety helmet • Warning	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Product/Services Assessment	Knowledge Assessment		
			Take the students to visit a nearby forest to haul logs while adhering to safety principles			precautions while hauling logs **Principles:** The student should explain principles involved in hauling logs. **Theories:** The student should explain: • Short logs transportation • Full tree trunk transportation • Whole tree transportation **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions while hauling logs.	signs and boards	
		(e) Unloading logs	**Interactive simulation**: Guide the students through interactive simulation to explain the concept of	• Select tools and equipment for unloading logs • Unload logs	Logs unloaded as per stipulated standards	**Knowledge evidence:** **Detailed knowledge of:** **Method used:** The	The following tools, materials, safety gear, and equipment are to be available:	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Product/Services Assessment	Knowledge Assessment		
			unloading logs **Group discussion:** Guide the students in groups to discuss and explore the concepts unloading logs **Field practical:** Organise the students to visit a nearby timber yard to unload logs while adhering to safety principles	• Observe safety • Clean tools • Store tools		students should explain how to: • Select proper tools for unloading logs • Apply unloading procedures • Apply safety precautions while unloading **Principles:** The student should explain the principles involved in unloading logs. **Theories:** The student should explain procedures for unloading procedures **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions while unloading logs.	• Log truck • Log loader • Axes • Overall • Reflectors • Safety boots • Safety helmet • Warning signs and boards	
3.0 Performing	3.1 Sorting and	(a) Sorting sawn	**Brainstorming:**	• Select tools	Sawn timber sorted	**Knowledge**	The following	105

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Product/Services Assessment	Knowledge Assessment		
timber yard operations	Stack Timber	timber according to size and species	Guide the students in groups to discuss the concept of sorting sawn timber **Group discussion:** Guide the students in manageable groups to discuss sizes and species of timber, tools for sorting sawn timber according to size and species and procedures for sorting sawn timber according to size and species **Hands-on activities:** Organise manageable groups of students and guide them to select different sizes and species of timber, select tools for sorting sawn timber according to size and species and sort sawn timber according to size and species	for sorting sawn timber • Select different sizes and species of timber • Sort sawn timber according to size and species • Adhere to safety precautions while sorting sawn timber • Clean and store materials, and equipment • Store tools and equipment	according to size and species sorted and stacked	**evidence:** **Detailed knowledge of:** **Methods used:** The student should explain how to: • Sort sawn timber according to size and species • Use tools to sort sawn timber according to size and species • Apply safety precautions while sorting sawn timber according to size and species **Principles:** The student should explain the procedures involved in sorting, stacking and seasoning of sawn timber. **Theories:** The student should explain:	tools, safety gear, and equipment are to be available: • Timber ruler • Measuring tape • Leather gloves • Safety boots • Timber tally sheet	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Product/Services Assessment	Knowledge Assessment		
						• Sizes of sawn timber • Importance of sorting and stack sawn timber according to sizes and species • Natural defects of sawn timber • Processing defects of sawn timber • Factors affecting timber strength **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions involved in sorting timber		
		(b) Recording sawn timber in tally sheet	**Brainstorming:** Guide the students in groups to explain the concept of recording sawn timber in a tally sheet **ICT-based learning**	• Select tools for recording sawn timber in tally sheet • Adhere to safety precautions while	Sawn timber recorded in tally sheet	**Knowledge evidence:** **Detailed knowledge of:** **Methods used:** The student should explain how to: • Record sawn	The following tools, safety gear, and equipment are to be available: • Timber ruler • Measuring tape • Leather	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Product/Services Assessment	Knowledge Assessment		
			approach: Guide the students through the ICT based learning approach to describe the importance of recording sawn timber and procedure for recording sawn timber in a tally sheet **Hands-on activities:** Engage the students in small groups to conduct record sawn timber in tally sheet	recording sawn timber in tally sheet • Clean and store materials and equipment • Store tools and equipment		timber in tally sheet • Use tools to record sawn timber in tally sheet • Apply safety precautions while recording sawn timber in tally sheet **Principles:** The student should explain procedures involved in recording sawn timber **Theories:** The student should explain sizes of sawn **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions involved in recording sawn timber	gloves • Safety boots • Timber tally sheet • Pen • Pencil • Notebook • Marker pen • Bin card • Computer • Multimedia projector • Overhead projector • Flip chat • Marker pen	
		(c) Preparing	**Brainstorming:**	• Select tools,	Foundation for	**Knowledge**	The following	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Product/Services Assessment	Knowledge Assessment		
		foundation for stacking sawn	Guide the students to discuss the concept of foundation and procedure for preparing foundation **Practical demonstration:** Demonstrate to students how to prepare foundation for stacking sawn timber **Hands-on Activity:** Formulate manageable groups of students to prepare foundation	materials, and equipment for preparing foundation • Perform levelling • Prepare foundation • Adhere to safety precautions while preparing foundation • Clean and store materials and equipment • Store tools and equipment	stacking sawn timber prepared as per specifications	**evidence:** **Detailed knowledge of:** **Methods used:** The student should explain how to: • Prepare foundation • Use tools, materials, and equipment to prepare foundation • Apply safety precautions while preparing foundation **Principles:** The student should explain procedures involved in preparing foundation. **Theories:** The student should explain procedures for preparing foundation **Circumstantial**	tools, safety gear, and equipment are to be available: • Bush knife for clearing the land • Hoes • Concrete blocks/bricks • Spirit level • Rope • Mattock • Spade • Bearers of wood sizes 100 x100 • Safety gear	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Product/Services Assessment	Knowledge Assessment		
						knowledge **Detailed knowledge about:** Safety precautions involved in preparing foundation		
		(d) Constructing timber shade	**Brainstorming:** Guide the students to describe the concept of timber shade **Interactive simulation**: Guide the students through interactive simulation to describe procedures for constructing timber shade **Practical activity:** Formulate manageable groups of students and assign them to construct timber shade	• Select tools, materials and equipment for constructing timber shade • Construct timber shade • Adhere to safety precautions while constructing timber shade • Clean and store materials and equipment • Store tools and equipment	Timber shade constructed as per specifications	**Knowledge evidence:** **Detailed knowledge of:** **Methods used:** The student should explain how to: • Construct timber shade • Use tools, materials, and equipment construct timber shade • Apply safety precautions while constructing timber shade **Principles:** The student should explain the procedures involved in constructing timber shade	The following tools, safety gear, and equipment are to be available: • Timber • Nails • Hammer • Spade • Mattock • Wooden stickers • Tape measure • Spirit level • Scaffold • Safety gear • Shade covering materials	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Product/Services Assessment	Knowledge Assessment		
						Theories: The student should explain procedures for constructing timber shade **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions involved in constructing timber shade		
		(e) Stacking and sticking sawn timber	**Brainstorming:** Guide the students to explain the concept of stack and stick-sawn timber and the procedure for stacking and sticking-sawn timber **Practical demonstration:** Demonstrate to students the procedures of stacking and sticking sawn timber **Hands-on activities:** Formulate manageable	• Select tools, materials, and equipment for stacking and stick sawn timber • Stack and stick sawn timber • Adhere to safety precautions while stacking and sticking sawn timber • Clean and	Sawn timber stacked and stuck according to sizes and species	**Knowledge evidence:** **Detailed knowledge of:** **Methods used:** The student should explain how to: • Stack and stick sawn timber • Measure moisture content in timber • Use tools, materials and equipment, to stack and stick sawn timber	The following tools, safety gear, and equipment are to be available: • Sawn timber • Moisture metre • Forklifts and cranes • Stacking frames • Battens • Wooden stickers • Block piers • Timber stack • Sloping roof	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Product/Services Assessment	Knowledge Assessment		
			groups of students to stack and stick sawn timber	store materials and equipment • Store tools and equipment		• Apply safety precautions while stacking and sticking sawn timber **Principles:** The student should explain the procedures involved in constructing timber shade **Theories:** The student should explain importance of timber shade species **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions involved in constructing timber shade	• Safety boots • Leather gloves • Helmet	
		(f) Seasoning timber using kiln	**Brainstorming:** Guide the students to explain the concept of seasoning timber using a kiln and the procedure for seasoning timber	• Select tools, materials, and equipment for seasoning timber using kiln	Timber seasoned using kiln	**Knowledge evidence:** **Detailed knowledge of:** **Methods used:** The student should	The following tools, safety gear, and equipment are to be available • Kiln • Timber	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Product/Services Assessment	Knowledge Assessment		
			using a kiln **Practical demonstration:** Demonstrate to students how to determine moisture content in timber and season timber using kiln **Practical activity:** Guide the students to determine moisture content in timber and seasoning timber using kiln	• Adhere to safety precautions while seasoning timber using kiln • Clean and store materials, and equipment • Store tools and equipment		explain how to: • Season timber using kiln • Use tools, materials, and equipment to season timber using kiln • Apply safety precautions while seasoning timber using kiln **Principles:** The student should explain procedures involved in seasoning timber by using kiln **Theories:** The student should explain: • Importance of seasoning timber by kiln • Natural defects of sawn timber **Circumstantial knowledge** **Detailed knowledge**	• Thermometer • Air Flow Fans • Wooden Racks • Metal Racks • Separation Stickers • Moisture metre • Protective Gear • Preservative	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Product/Services Assessment	Knowledge Assessment		
						about: Safety precautions involved in seasoning timber by kiln		
	3.2 Controlling timber movement	(a) Preparing documents for timber warehouse	**Brainstorming:** Guide the students to describe the concept of timber warehouse **Guest speaker**: Invite a resource person to describe procedure for preparing documents for timber warehouse **Practical demonstration:** Demonstrate to students the procedures/steps for prepare documents for timber warehouse	• Select tools, for preparing documents for timber warehouse • Prepare documents for timber warehouse • Adhere to safety precautions while preparing documents for timber warehouse • Clean and store materials, and equipment • Store tools	Documents for timber warehouse prepared as per specification	**Knowledge evidence:** **Detailed knowledge of:** **Methods used:** The student should explain how to: • Prepare documents for timber warehouse • Use tools to prepare documents for timber warehouse • Apply safety precautions when preparing documents for timber warehouse **Principles:** The student should explain procedures of keeping records	The following tools and safety gear and are to be available: • Timber tally sheet • Tally card • Timber delivery sheet/book: • Timber ledger sheet/book • Safety gear	52

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Product/Services Assessment	Knowledge Assessment		
						in timber warehouse. **Theories:** The student should explain importance of: • Calculating timber volume • Filling timber tally sheet • Filling tally cards • Keeping timber records **Circumstantial knowledge** **Detailed knowledge about:** Safety precaution involved in keeping timber records in timber warehouse		
		(b) Calculating timber volume	**Brainstorming:** Guide the students to brainstorm the concept of calculating timber volume **Group discussion:**	• Select tools, for calculating timber volume • Calculate timber	Timber volume calculated as per specifications	**Knowledge evidence:** **Detailed knowledge of:** **Methods used:** The student should explain how to:	The following tools and safety gear are to be available: • Calculator • Timber tally sheet	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Product/Services Assessment	Knowledge Assessment		
			Guide the students to discuss how to measure timber dimensions, record timber dimensions, and calculate timber volume **Practical activity:** Guide the students to calculate timber volume in a nearby timber factory or yard	volume • Adhere to safety precautions • Clean and store materials and equipment • Store tools		• Calculate timber volume • Use tools to calculate timber volume • Apply safety precautions when calculating timber volume **Principles:** The student should explain procedures of calculating timber volume **Theories:** The student should explain the importance of calculating timber volume **Circumstantial knowledge Detailed knowledge about:** Safety precaution involved in calculating timber volume	• Safety boots • Overalls • Helmet • Safety boots	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Product/Services Assessment	Knowledge Assessment		
		(c) Maintaining tally cards	**Brainstorming:** Guide the students to describe in groups the concept of tally cards and procedure for maintaining tally cards **Practical demonstration:** Demonstrate to students how to maintain timber records **Practical activity:** Guide the students to maintain timber records, timber inventory, and tally cards	• Select tools, for maintaining tally cards • Maintain tally cards • Adhere to safety precautions • Clean and store materials and equipment • Store tools	Tally cards maintained as per specifications	**Knowledge evidence:** **Detailed knowledge of:** **Methods used:** The student should explain how to: • Maintain tally cards • Use tools to maintain tally cards • Apply safety precautions when maintaining tally cards **Principles:** The student should explain procedures for maintaining tally cards **Theories:** The student should explain the importance of tally cards **Circumstantial knowledge** **Detailed**	The following tools and safety gear are to be available: • Tally cards • Pen • Pencil • Notebook • Safety boots • Overalls • Helmet • Safety boots	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Product/Services Assessment	Knowledge Assessment		
						knowledge about: Safety precaution involved in maintaining timber tally cards		

Form Two

Table 4*: Detailed Contents for Form Two*

Module Title (Main Competence)	Unit Title (Specific Competencies)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
1.0 Preparing wood for treatment	1.1 Receiving timber and poles for treatment	(a) Measuring dimensions	**Brainstorming:** Guide the students to describe the concept of measuring dimensions of timber and poles **Interactive simulation and animation:** Guide the students through interactive simulation and animation to visualise the principles and procedures for measuring dimensions **Practical demonstration:** Demonstrate to students how to measure dimensions of wood **Hands-on activities:** Engage the students in manageable groups through practical activities to demonstrate/perform measurement of poles and sawn timber	• Select tools and equipment for measuring dimensions of wood for treatment • Measure dimensions of wood • Adhere to safety precautions • Clean and store materials and equipment • Store tools	Dimensions of wood for treatment measured as per specification	**Knowledge evidence:** **Detailed knowledge of:** **Methods used:** The student should explain how to: • Use tools to maintain tally cards • Measure dimensions of wood **Principles:** The student should explain procedures involved in measuring dimensions of wood for treatment **Theories**: The student should	The following tools, equipment and safety gear are to be available • Caliper • Diameter tape, • Tape measure • Pen • Pencil • Notebook • Marker pen • Chalk	90

Module Title (Main Competence)	Unit Title (Specific Competencies)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
						explain importance of: • Measure timber and poles dimensions • Keeping records of timber and poles **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions involved in measuring dimensions of wood for treatment		
		(b) Classifying timber according to species	**Interactive simulation**: Guide the students through interactive simulation to visualise the concepts of timber classification and the procedure used **Practical demonstration:** Demonstrate to students how to measure dimensions of wood **Field practical:** Lead the students to visit the school surroundings or a nearby forest to	• Differentiate classes of timber • Adhere to safety precautions • Clean and store materials and equipment • Store tools	Timber classified according to species	**Knowledge evidence:** **Detailed knowledge of:** Methods used: The student should explain how to differentiate timber according to species **Principles:** The student should explain procedures	The following tools, safety gear, and equipment are to be available: • Pen • Pencil • Notebook • Marker pen • Chalk • Safety gear	

Module Title (Main Competence)	Unit Title (Specific Competencies)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
			identify different species of timber			involved in classifying timber according to species **Theories:** The student should explain importance of classifying timber according to size and species **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions involved in classifying timber according to species		
		(c) Recording dimensions	**Interactive simulation**: Guide the students through interactive simulation to visualise the concepts and procedures of recording dimensions **Practical demonstration:** Demonstrate to students how to record dimensions of sawn timber and poles **Hands-on practical:**	• Select tools and equipment for recording dimensions • Record dimensions • Use recording system • Adhere to safety	Dimensions recorded as per specifications	**Knowledge evidence:** **Detailed knowledge of:** **Methods used:** The student should explain how to: • Calculate volume of timber • Use recording system • Apply safety	The following tools, safety gear, and equipment are to be available: • Timber ruler • Measuring tape • Caliper • Diameter tape • Sawn timber tally sheet • Poles tally sheet • Pen	

Module Title (Main Competence)	Unit Title (Specific Competencies)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
			Engage the student to practical activities of recording sawn timber and poles dimensions	precautions • Clean and store materials and equipment • Store tools		precautions when recording dimensions **Principles:** The student should explain the procedures involved in recording dimensions. **Theories:** The student should explain importance of: • Keeping records of timber and poles • Verifying timber and poles documents **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions involved in recording timber and poles	• Pencil • Notebook	
	1.2 Preparing	(a) Debarking	**Interactive simulation**:	• Select tools	Poles debarked	**Knowledge**	The following tools,	120

Module Title (Main Competence)	Unit Title (Specific Competencies)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
	poles and sawn timber for treatment	poles	Guide the students through interactive simulation to visualise the concepts of debarking pole, debarking methods, and procedures **Practical demonstration:** Demonstrate to students the procedure for debarking poles **Practical work:** Organise manageable groups of students and assign them to debark poles	and equipment for recording dimensions • Debark timber poles • Select debarking method • Adhere to safety precautions • Clean and store materials and equipment • Store tools	as per specifications	**evidence:** **Detailed knowledge of:** **Methods used:** The student should explain how to: • Select tools and equipment for recording dimensions • Debark timber poles • Select debarking method • Apply safety precautions when debarking **Principles:** The student should explain procedures involved in debarking poles **Theories:** The student should explain importance of debarking poles	safety gear, and equipment are to be available: • Debarking spud • Debarking knife • Chainsaw (for sizing), • Undebarked green poles, • Notebook • Pencil • Pen. • Axe • Tape measure • Steel wire • Iron caps • Turning hook • Safety gear	

Module Title (Main Competence)	Unit Title (Specific Competencies)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
						Circumstantial knowledge **Detailed knowledge about:** Safety precautions involved in debarking poles		
		(b) Preventing end splits of poles	**Jigsaw**: Guide the students in manageable groups using the jigsaw method to explore the concepts of preventing end splits of poles **Group discussion:** Guide the students to discuss and explore causes of end splitting and techniques for preventing end splits **Practical demonstration:** Demonstrate to students how to prevent end splits of poles **Practical work:** Organise manageable groups of students to prevent end splits of poles	• Select tools and equipment for preventing end splits of poles • Prevent end splits of poles • Adhere to safety precautions • Clean and store materials, and equipment • Store tools	End of splits of poles prevented	**Knowledge evidence:** **Detailed knowledge of:** **Methods used:** The student should explain how to: • Select tools and equipment for recording dimensions • Debark timber poles • Select debarking method • Apply safety precautions when debarking **Principles:** The student should explain procedures involved in preventing end splits	The following tools, safety gear, and equipment are to be available: • Aluminium end plates • Nails • Debarked poles • Hammer • Copper wire • PPE • Notebook • Pencil • Pen	

Module Title (Main Competence)	Unit Title (Specific Competencies)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
						of poles **Theories:** The student should explain importance of preventing end splits of poles **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions involved in preventing end splits of poles		
		(c) Determining moisture content of the pole and sawn timber	**Group discussion:** Guide the students to discuss and explore the concepts concept of moisture content in wood and methods of determining moisture content **Practical demonstration:** Demonstrate to students how to determine moisture content in poles and sawn timber **Hands-on activity:** Organise manageable groups of students to determine moisture	• Select tools and equipment for determine moisture content • Determine moisture content in poles and sawn timber • Remove moisture content in	Moisture content of the pole and sawn timber determined as per specification	**Knowledge evidence:** **Detailed knowledge of:** **Methods used:** The student should explain how to: • Select tools and equipment for determining moisture content • Determine moisture content	The following tools, equipment, and safety gear are to be available: • Sawn timber pieces • Weigh balance • Oven • Pen, • Pencil, Notebook, • Safety gear	

Module Title (Main Competence)	Unit Title (Specific Competencies)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
			content in poles and sawn timber	poles and sawn timber • Adhere to safety precautions • Clean and store materials and equipment • Store tools		• Remove moisture content • Apply safety precautions when debarking **Principles:** The student should explain procedures involved in determining moisture content of the pole and sawn timber **Theories:** The student should explain the importance of determining moisture content of the pole and sawn timber **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions involved in determining the moisture content of		

Module Title (Main Competence)	Unit Title (Specific Competencies)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
						the pole and sawn timber		
		(d) Testing strength of poles	**Group discussion:** Guide the students to discuss and explore the concepts of testing strength of poles and techniques of testing strength of poles **Practical demonstration:** Demonstrate to students how to test the strength of poles **Field visit:** Organise field visits and guide the students to explore the testing of pole strength	• Select tools for testing the strength of poles • Test the strength of poles • Adhere to safety precautions • Clean and store materials and equipment • Store tools	Strength of poles tested as per specification	**Knowledge evidence:** **Detailed knowledge of:** **Methods used:** The student should explain how to: • Select tools for testing the strength of poles • Test the strength of poles • Apply safety precautions when testing the strength of poles **Principles:** The student should explain procedures involved in testing strength of the poles **Theories:** The student should explain importance of testing strength of the pole	The following tools, safety gear, and equipment are to be available: • Sawn timber pieces • Pole strength testing machine • Oven • Pen, • Pencil, Notebook, • Overalls • Helmet • Safety boots • Gloves	

Module Title (Main Competence)	Unit Title (Specific Competencies)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
						Circumstantial knowledge **Detailed knowledge about:** Safety precautions involved in testing strength of the pole		
	1.3 Determining wood defects	(a) Categorising wood defects	**Interactive simulation**: Guide the students through interactive simulation to visualise the concept of defects in wood and wood defects categories **Practical demonstration:** Demonstrate to students how to categorise wood defects **Practical work:** Guide the students to a practical task of categorising wood defects	• Select tools for categorising wood defects • Categorise wood defects • Adhere to safety precautions • Clean and store materials and equipment • Store tools	Wood defects categorised as per specifications	**Knowledge evidence:** **Detailed knowledge of:** **Methods used:** The student should explain how to: • Select tools for categorising wood defects • Categorise wood defects • Apply safety precautions when categorising wood defects **Principles:** The student should explain procedures involved in categorising wood	The following tools, safety gear, and equipment are to be available: • Ruler • Pen, • Pencil, • Notebook, • Sawn timbers and poles • Safety gear	90

Module Title (Main Competence)	Unit Title (Specific Competencies)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
						defects **Theories:** The student should explain importance of categorising wood defects **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions involved in Categorising wood defects		
		(b) Identifying wood destroying organisms	**Interactive simulation**: Guide the students through interactive simulation to visualise the concepts of wood-destroying organisms and types of wood-destroying organisms **Practical demonstration:** Demonstrate to students how to identify wood-destroying organisms **Hands-on activity:** Engage the students to identify wood-destroying organisms	• Select tools for identifying wood-destroying organisms • Identify wood-destroying organisms • Adhere to safety precautions • Clean and store materials and	Wood destroying organisms identified as per specifications	**Knowledge evidence:** **Detailed knowledge of:** **Methods used:** The student should explain how to: • Select tools for identifying wood-destroying organisms • Identify wood-destroying organisms	The following tools, equipment, and safety gear are to be available: • Ruler • Pen, • Pencil, • Notebook, • Sawn timbers and poles. • Safety gear	

Module Title (Main Competence)	Unit Title (Specific Competencies)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
				equipment • Store tools		• Apply safety precautions when identifying wood destroying organisms **Principles:** The student should explain procedures involved in identifying wood destroying organisms. **Theories:** The student should explain importance of identifying wood destroying organisms **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions involved in identifying wood destroying organisms		
		(c) Preventing wood defects	**Interactive simulation**: Guide the students through interactive simulation to visualise	• Select tools for preventing wood defects	Wood defects prevented as per specifications	**Knowledge evidence:** **Detailed knowledge**	The following tools, equipment, and safety gear are to be	

Module Title (Main Competence)	Unit Title (Specific Competencies)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
			the concept of preventing wood defects **ICT-based learning:** Guide the students through ICT-based learning approach to visualise various techniques for preventing wood defects **Practical demonstration:** Demonstrate to students how to prevent natural defects due to fungi and insects, preventing conversion defects, and preventing seasoning defects **Practical activity:** Guide the students to prevent natural defects due to fungi and insects, preventing conversion defects, and preventing seasoning defects	• Prevent natural defects • Prevent defects due to fungi and insects • Prevent conversion defects • Prevent seasoning defects • Identifying tools for preventing wood defects • Adhere to safety precautions • Clean and store materials and equipment • Store tools		**of:** **Methods used:** The student should explain how to: • Select tools for preventing wood defects • Prevent natural defects • Prevent defects due to fungi and insects, • Prevent conversion defects • Prevent seasoning defects **Principles:** The student should explain the procedures involved in preventing wood defects **Theories:** The student should explain importance of preventing wood	available: • Computer • Multimedia projector • Overhead projector • Ruler • Pen • Pencil • Notebook • Sawn timbers • Poles • Safety gear • Simulation guide	

Module Title (Main Competence)	Unit Title (Specific Competencies)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
						defects documents **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions involved in Preventing wood defects		
2.0 Performing wood treatment	2.1 Preparing preservative solutions	(a) Handle preservative chemical	**Think-ink-pair-share:** Guide the students through think-ink-pair-share to explore the concepts of wood preservatives and categories of wood preservatives **Practical demonstration:** Demonstrate to students how to handle preservative chemicals **Practical work:** Organise the students to handle different wood preservative chemicals while observing safety	• Select tools and equipment for handling preservative chemicals • Handle preservative chemicals • Observe safety • Clean tools • Store tools	Preservative chemicals handled as per technical specifications	**Knowledge evidence:** **Detailed knowledge of:** **Method used:** The students should explain how to: • Select proper tools for handling preservative chemicals • Apply preservative chemicals **Principles:** The student should explain principles of: • Handling	The following tools, materials, safety gear, and equipment are to be available: • Preservatives • Gloves • Mask • Eye protector • Ear protector • Safety helmet • Safety boots • Overalls • Plastic gloves	199

Module Title (Main Competence)	Unit Title (Specific Competencies)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
						chemicals • Preparing preservatives solution **Theories:** The student should explain: • Types of preservatives for treating timber and poles • Importance of identifying preservatives **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions involved in handling preservative chemicals		
		(b) Determining wood volume	**Think-ink-pair-share:** Guide the students through think-ink-pair-share to explore the concepts of wood volume, and explain the principles of wood	• Select tools for determining wood volume • Determine wood volume • Observe safety	Wood volume determined as per stipulated standards	**Knowledge evidence:** **Detailed knowledge of:** **Method used:** The students should	The following tools, materials, safety gear, and equipment are to be available: • Caliper	

Module Title (Main Competence)	Unit Title (Specific Competencies)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
			volume determination **Practical demonstration:** Demonstrate to students how to determine wood volume **Field practical:** Organise the students to visit a nearby forest or timber industry to determine wood volume	• Clean tools • Store tools		explain how to: • Select proper tools for determining wood volume • Determine wood volume **Principles:** The student should explain principles of determining wood volume **Theories:** The student should explain importance of determining wood volume **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions involved in determining wood volume	• Tape measure • Mask • Eye protector • Ear protector • Safety helmet • Safety boots • Overalls • Plastic gloves • Notebook • Pen • Pencil • Calculator	
		(c) Performing treatment	**Think-ink-pair-share:** Guide the students through think-	• Select tools for treating wood	Treatment methods well	**Knowledge evidence:**	The following tools, materials, safety gear,	

Module Title (Main Competence)	Unit Title (Specific Competencies)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
		methods	ink-pair-share to explore the concept of wood treatment methods **Practical demonstration:** Demonstrate to students how to perform timber treatment **Hands-on Activities:** Engage the students to perform an activity of timber treatment	• Treat wood • Observe safety • Clean tools • Store tools	performed as per technical specification	**Detailed knowledge of:** **Method used:** The students should explain how to: • Select proper tools for treating wood • Treat wood **Principles:** The student should explain principles of determining moisture content of timber and poles **Theories:** The student should explain procedures for performing wood treatment methods **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions involved in performing treatment	and equipment are to be available: • Brush • Sawn timber • Poles • Spray nozzle/jet • Tape measure • Safety gear • Notebook • Measuring cylinder • Hydrometer • Calculator • Wood treatment tank • Thermometer • Hydrometer chart • Wood preservatives	

Module Title (Main Competence)	Unit Title (Specific Competencies)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
						methods		
		(d) Determining retention and penetration of preservative	**Think-ink-pair-share:** Guide the students through think-ink-pair-share to explore the concepts of retention and penetration of preservatives **Practical demonstration:** Demonstrate to students how to determine retention and penetration of preservative **Hands-on Activities:** Organise students and assign them to determine retention and penetration of preservative	• Select tools for determining retention and penetration of preservative • Determine retention of preservative • Determine penetration of preservative • Observe safety • Clean tools • Store tools	Retention and penetration of preservatives in wood well determined as per standards	**Knowledge evidence:** **Detailed knowledge of:** **Method used**: The students should explain how to: • Select proper tools for determining retention and penetration of preservative in wood • Determine retention and penetration **Principles:** Determining retention and penetration of preservative **Theories:** The student should explain procedures for retention and penetration	The following tools, materials, safety gear, and equipment are to be available: • Treated Sawn timber • Treated poles • Tape measure • Mask • Eye protector • Ear protector • Safety helmet • Safety boots • Overall • Plastic gloves • Notebook • Measuring cylinder • Hydrometer • Calculator • Thermometer • Hydrometer chart	

Module Title (Main Competence)	Unit Title (Specific Competencies)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
						Circumstantial knowledge **Detailed knowledge about:** Safety precautions involved in retention and penetration of preservatives		
	2.2 Operating treatment plant	(a) Identifying wood treatment plant parts and its function	**Think-ink-pair-share:** Guide the students through think-ink-pair-share to explore the concept of wood treatment plant parts **ICT-based learning:** Guide the students through ICT based learning approach to visualise and discuss functions of the wood treatment plant parts **Practical demonstration:** Demonstrate to students how to identify parts of the wood treatment plant and its functions **Field practical:** Organise the students to visit a nearby wood treatment plant to identify parts of the treatment plant and its functions	• Identify parts of wood treatment plant and its function • Adhere to safety principles • Clean tools • Store tools	Wood treatment plant parts and its functions were identified correctly	**Knowledge evidence:** **Detailed knowledge of:** **Method used:** The students should explain how to identify parts of wood treatment plant Determine retention and penetration **Principles:** The student should explain principles of: Identifying Wood treatment plant parts and its function **Theories:** The	The following tools, materials, safety gear, and equipment are to be available: • Computer • Overhead projector • Multimedia projector • Pen • Treatment plant • Mask • Eye protector • Ear protector • Safety helmet • Safety boots • Overalls • Plastic gloves • Notebook	149

Module Title (Main Competence)	Unit Title (Specific Competencies)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
						student should explain wood treatment plant parts and its function **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions involved in identifying wood treatment plant parts and its function		
		(b) Loading timber or poles to the treatment	**Jigsaw**: Guide the students in manageable groups using the jigsaw method to explore the concept and explain procedures of loading timber to the treatment plant **Practical demonstration:** Demonstrate to students how to load timber or poles to the treatment plant **Practical work:** Organise the students to load timber or poles to the treatment plant	• Select tools and equipment for loading timber or poles to the treatment plant • Load timber or poles to the treatment plant • Adhere to safety principles • Clean tools • Store tools	Timber or poles loaded correctly to the treatment plant as per standards	**Knowledge evidence:** **Detailed knowledge of:** **Method used:** The students should explain how to: • Select proper tools for loading timber or poles to the treatment plant • Load timber or poles to the treatment plant	The following tools, materials, safety gear, and equipment are to be available: • Sawn timber • Poles • Loader • Mask • Eye protector • Ear protector • Safety helmet • Safety boots • Overalls • Leather gloves • Notebook	

Module Title (Main Competence)	Unit Title (Specific Competencies)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
						Principles: The student should explain principles of loading timber or poles to the treatment Preservatives **Theories:** The student should explain the procedures for loading timber into treatment plant **Circumstantial knowledge** **Detailed knowledge about:** Loading timber into treatment plant		
		(c) Performing poles or sawn timber pressure treatment process	**Jigsaw**: Guide the students in manageable groups using the jigsaw method to explore poles or sawn timber pressure treatment process **Practical demonstration:** Demonstrate to students how to perform the pressure treatment	• Select tools and equipment for pressure treatment process • Perform pressure treatment process	Pressure treatment process for sawn timber or poles well performed	**Knowledge evidence:** **Detailed knowledge of:** **Method used:** The students should explain how to: • Select proper tools	The following tools, materials, safety gear, and equipment are to be available: • Sawn timber • poles • Tape measure • Mask • Eye protector	

Module Title (Main Competence)	Unit Title (Specific Competencies)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
			process **Practical work:** Organise the students and give them the task of performing the pressure treatment process	• Adhere to safety principles • Clean tools • Store tools		for performing pole or sawn timber pressure treatment process • Perform pole or sawn timber pressure treatment process **Principles:** The student should explain the principles of performing poles or sawn timber pressure treatment process **Theories:** The student should explain pressure treatment processes **Circumstantial knowledge** **Detailed knowledge about:** • Safety precautions involved in treating sawn	• Ear protector • Safety helmet • Safety boots • Overalls • Plastic gloves • Notebook • Treatment plant	

Module Title (Main Competence)	Unit Title (Specific Competencies)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
						timber or poles by pressure treatment process		
	2.3 Performing post-treatment operations	(a) Performing unloading of treated timber and poles from treatment equipment	**Jigsaw**: Guide the students in manageable groups using the jigsaw method to explore the concept and procedure of unloading treated timber and poles from the treatment equipment **Practical demonstration:** Demonstrate to student how to unload timber and poles from the treatment equipment **Practical work:** Organise the students and assign them to unload timber and poles from the treatment equipment	• Select tools and equipment for unloading timber and poles from the treatment equipment • Unload timber and poles from the treatment equipment • Adhere to safety principles • Clean tools • Store tools	Treated poles and timber unloaded correctly from the treatment equipment	**Knowledge evidence:** **Detailed knowledge of:** **Method used:** The students should explain how to: • Select tools and equipment for unloading timber and poles from the treatment equipment • Unload timber and poles from the treatment equipment • Adhere to safety principles **Principles:** The student should explain principles of unloading of treated timber and poles from treatment	The following tools, materials, safety gear, and equipment are to be available: • Treated sawn timber • Treated poles • Mask • Eye protector • Ear protector • Safety helmet • Safety boots • Overalls • Plastic gloves • Notebook • Treatment plant • Loader	149

Module Title (Main Competence)	Unit Title (Specific Competencies)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
						equipment **Theories:** The student should procedures for unloading timber from the treatment equipment **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions involved in unloading timber from the treatment equipment		
		(b) Performing fixation	**Jigsaw**: Guide the students in manageable groups using the jigsaw method to explore the concept and principles of fixation **Practical demonstration:** Demonstrate to students the procedure of performing fixation of the preservative **Hands-on activity:** Organise students into small	• Select tools and equipment for fixation • Perform fixation of the preservative • Test fixation of preservative • Adhere to safety principles • Clean tools • Store tools	Fixation correctly performed	**Knowledge evidence:** **Detailed knowledge of:** **Method used:** The students should explain how to: • Select tools and equipment fixation • Perform fixation of the preservative	The following tools, materials, safety gear, and equipment are to be available: • Treated sawn timber • Treated poles • Mask • Eye protector • Ear protector • Safety helmet	

Module Title (Main Competence)	Unit Title (Specific Competencies)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
			groups to perform the fixation of the preservative			• Test fixation of preservative • Explain importance of fixation **Principles:** The student should explain principles of performing fixation **Theories:** The student should explain fixation processes **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions involved in performing fixation	• Safety boots • Overalls • Plastic gloves • Notebook • Loader	
		(c) Performing stacking of treated timber and poles	**Jigsaw**: Guide the students in manageable groups, using the jigsaw method to explore the concept and explain the techniques of stacking treated timber and poles **Practical demonstration:** Demonstrate to students the	• Select tools and equipment for fixation • Stack-treated timber and poles • Adhere to safety principles • Clean tools	Treated timber and poles stacked properly	**Knowledge evidence:** **Detailed knowledge of:** **Method used:** The students should explain how to: • Select tools and	The following tools, materials, safety gear, and equipment are to be available: • Treated sawn timber • Treated poles • Mask • Eye protector	

Module Title (Main Competence)	Unit Title (Specific Competencies)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
			process/procedure of stacking treated timber and poles **Practical work:** Organise the students into a small groups to stack-treated timber and pole while following proper techniques and safety protocols	• Store tools		equipment for stacking treated timber and poles • Stack-treated timber and poles • Adhere to safety principles **Principles:** The student should explain principles of performing stacking of treated timber and poles **Theories:** The student should explain the processes for stacking of treated timber and poles **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions involved in performing stacking of treated timber and poles	• Ear protector • Safety helmet • Safety boots • Overalls • Plastic gloves • Notebook • Loader • Lifting hook • Turning hook	

Form Three

Table 5: *Detailed Contents for Form Three*

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
1.0 Maintaining saws	1.1 Servicing saw blades	(a) Removing blunt saw blades and worn-out guides	**Jigsaw**: Guide the students in manageable groups using the jigsaw method to explore the procedure of removing blunt saw blades and worn-out guides **ICT-based learning:** Guide the students through ICT-based learning approach to visualise procedures of removing saw blades and worn-out guides **Practical demonstration:** Demonstrate to students the procedure of removing blades and worn-out guides **Hands-on activity:** Guide the students in small groups to safely remove blades and worn-out guides while following proper techniques and safety protocols	• Select tools and equipment • Remove blades and worn-out guides • Adhere to safety precautions • Clean and store materials and equipment • Store tools	Blunt saw blades and worn-out guides removed	**Knowledge evidence:** **Detailed knowledge of:** **Methods used:** The student should explain how to: • Select tools and equipment • Remove blades and worn-out guides • Apply safety precautions when removing blades and worn-out guides **Principles:** The student should explain procedures involved in removing blunt saws and guide **Theories:** The student should	The following tools, equipment, and safety gear are to be available: • Overalls • Safety boots • Gloves • Spanner • Flip charts • Marker pen • Multimedia power point • White chalks	195

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
						explain procedures for removing blunt saws and guide **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions involved in removing blunt saws and guide		
		(b) Locating cracks in saw blades	**Think-ink-pair-share:** Guide the students through think-ink-pair-share to explore the concept of crakes in saw blade, and procedure of locating cracks in saw blades **Practical demonstration:** Demonstrate to students the procedure of locate cracks in saw blades **Hands-on activity:** Engage the students in small groups to locate cracks in saw blades while following proper procedures and safety rules	• Select tools and equipment • Locate cracks in saw blades • Adhere to safety precautions • Clean and store materials and equipment • Store tools	Cracks in saw blades located	**Knowledge evidence:** **Detailed knowledge of:** **Methods used:** The student should explain how to: • Select tools and equipment • Adhere to safety **Principles:** The student should explain procedures involved in locate cracks in saw blades	The following tools, equipment, and safety gear are to be available: • Overalls • Safety boots • Gloves • Magnified glasses • Flip charts • Marker pen • Multimedia power point • White chalks	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
						Theories: The student should explain procedures for locating cracks in saw blades **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions involved in locating cracks in saw blades		
		(c) Locating lumps in saw blades	**Think-ink-pair-share:** Guide the students through think-ink-pair-share to explore the concept of lumps in saw blades, and explain procedures of locating lumps in saw blades **Practical demonstration:** Demonstrate to students the procedure of how to locate lumps in saw blades **Practical work:** Guide the students in small groups to locate lumps in	• Select tools and equipment • Locate lumps in saw blades • Adhere to safety precautions • Clean and store materials and equipment • Store tools	Lumps in saw blades located as per specifications	**Knowledge evidence:** **Detailed knowledge of:** **Methods used:** The student should explain how to: • Select tools and equipment • Locate lumps in saw blades • Adhere to safety **Principles:** The student should explain procedures involved in locating	The following tools, equipment, and safety gear are to be available: • Overall • Safety boots • Gloves • Flip charts • Marker pen • Multimedia power point • White chalks	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
			saw blades while following proper procedures and safety rules			lumps in saw blade **Theories:** The student should explain procedure for locating lumps in saw blade **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions involved in locating lumps in saw blade		
		(d) Locating depressions in saw blades	**Think-ink-pair-share:** Guide the students through think-ink-pair-share to explore the concept of depressions in saw blades, and procedure of locating depressions in saw blades **Practical demonstration:** Demonstrate to students the procedure of how to locate depressions in saw blades **Practical work:** Guide the students in locating depressions in saw	• Select tools and equipment • Locate depressions in saw blades • Adhere to safety precautions • Clean and store materials and equipment • Store tools	Depressions in saw blades located as per specifications	**Knowledge evidence:** **Detailed knowledge of:** **Methods used:** The student should explain how to: • Select tools and equipment • Locate depressions in saw blades • Adhere to safety precautions	The following tools, equipment, and safety gear are to be available: • Overalls • Safety boots • Gloves • Flip charts • Marker pen • Multimedia power point • White chalks • A set of straight edges	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
			blades			**Principles:** The student should explain procedures involved in locating depressions in saw blades **Theories:** The student should explain: • Defects of saw blades • Defects features of saw blades **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions involved in Locate depressions in saw blades	• Bench	
		(e) Replacing saw blades and guides	**Brainstorming:** Guide the students to explore the concept of replacing the saw blades and guides, and the procedure involved **Practical demonstration:**	• Select tools and equipment • Replace saw blades and guides • Adhere to safety precautions • Clean and store materials and	Saw blades and guides replaced as per specifications	**Knowledge evidence:** **Detailed knowledge of:** **Methods used:** The student should explain how to: • Select tools and	The following tools, equipment, and safety gear are to be available • Overalls • Safety boots • Gloves • Sawmill	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
			Show the students how to replace saw blades and guides	equipment • Store tools		equipment • Replace saw blades and guides • Adhere to safety **Principles:** The students should explain the procedures involved in replacing saw blades and guides **Theories:** The student should explain saw blades and guides **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions involved to replace saw blades and guides	machine • Saw blade • Flip charts • Marker pen • Multimedia PowerPoint • White chalks	
	1.2 Repairing saw blades	(a) Repairing cracks in saw blades	**Brainstorming:** Guide the students to explore the concept of repairing cracks in saw blades, and the procedure	• Select tools and equipment • Check cracks in saw blade • Repair cracks in	Cracks in saw blades repaired as per specifications	**Knowledge evidence:** **Detailed knowledge of:** **Methods used:**	The following tools, equipment, and safety gear are to be available:	117

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
			involved **Practical demonstration:** Show to students the procedure of repairing cracks in saw blades **Practical work:** Guide the students to repair cracks in saw blades	saw blades • Adhere to safety • Clean and store materials and equipment • Store tools		The student should explain how to: • Select tools and equipment • Repair cracks in saw blades • Adhere to safety **Principles:** The student should explain principles of repairing cracks on saw blades **Theories:** The student should explain the importance of repairing cracks on saw blades **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions involved in repairing cracks in saw blade	• Anvil • A set of saw doctoring hammers • Mechanical hammer • Drill bit • Centre punch • Bench • Cotton cloth • Safety helmet • Safety boots • Overalls • Gloves • White board • Marker pen • Chalk	
		(b) Removing lumps in saw blades	**Brainstorming:** Guide the students to	• Select tools and equipment	Lumps in saw blades	**Knowledge evidence:**	The following tools, equipment,	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
			explore the concept of removing lumps in saw blades, and the procedure for removing lumps in saw blades **Practical Demonstration:** Show to students to the procedure of removing lumps in saw blades **Practical work:** Guide the students in removing lumps from saw blades while following proper procedures and safety rule	• Check lumps in saw blade • Remove lumps in saw blades • Adhere to safety • Clean and store materials and equipment • Store tools	removed as per specifications	**Detailed knowledge of: Methods used:** The student should explain how to: • Select tools and equipment • Remove lumps in saw blades • Adhere to safety **Principles:** The student should explain the principles of removing lumps on saw blades **Theories:** The student should explain the importance of removing lumps on saw blades **Circumstantial knowledge Detailed knowledge about:** Safety precautions involved in	and safety gear are to be available: • Anvil • A set of saw doctoring hammers • Bench • Cotton cloth • Safety helmet • Safety boots • Overalls • Gloves • Whiteboard • Marker pen • Chalk • A set of saws doctoring straight edges	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
						removing lumps in saw blades		
		(c) Removing depressions in saw blades	**Brainstorming:** Guide the students to explore the concept of removing depressions in saw blades, and the procedure involved **Practical demonstration:** Show to students how to remove depressions in saw blades **Practical work:** Guide the students in removing depressions in saw blade, while following procedures and safety rules	• Select tools and equipment • Check lumps in saw blade • Remove depressions in saw blades • Adhere to safety • Clean and store materials and equipment • Store tools	Depressions in saw blades removed as per specifications	**Knowledge evidence:** **Detailed knowledge of:** **Methods used:** The student should explain how to remove depressions in saw blades **Principles:** The student should explain principles of removing depression on saw blades **Theories:** The student should explain the importance of removing lumps on saw blades on saw blades **Circumstantial knowledge** **Detailed knowledge about:**	The following tools, equipment, and safety gear are to be available: • Anvil • A set of saw doctoring hammers • Bench • Cotton cloth • Safety helmet • Safety boots • Overalls • Gloves • White board • Marker • Chalk • A set of saw doctoring straight	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
						Safety precautions involved in removing depression in saw blade		
	1.3 Performing teeth geometry	(a) Sharpening saw blade	**Brainstorming:** Guide the students to explore the concept of sharpening saw blade, and procedure for sharpening saw blade **Demonstration:** Show to students the procedure of sharpening saw blade **Practical work:** Organise the students to sharpen saw blades in the saw shop	• Select tools and equipment for sharpening saw blade • Set saw blade teeth to clearance angle • Set saw blade teeth to hook angle • Set saw blade teeth to sharpness angle • Gullet saw blade • Adhere to safety principles • Clean and store materials and equipment • Store tools	Saw blade sharpened according to technical specifications	**Knowledge evidence:** **Detailed knowledge of:** **Methods used:** The student should explain how to: • Select tools and equipment • Sharpen saw blade • Perform saw blade teeth geometry • Adhere to safety **Principles:** The student should explain the procedures involved in sharpening saw blade **Theories:** The student should	The following tools, equipment, and safety gear are to be available: • Sharpening machine • Bench • Cotton cloth • Safety helmet • Safety boots • Overalls • Gloves • Whiteboard • Marker pen • Chalk • Protector • Square • A set of saw doctoring straight • Grinding wheel • Cutting disc • Flat file	117

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
						explain the importance of: • Equalizing saw blades teeth • Sharpening saw blades teeth • Cleaning saw blades **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions involved in sharpening saw blade		
		(b) Filing saw blade teeth	**Brainstorming:** Guide the students to explore the concept of filing saw blade teeth, and explain the procedure involved **Practical demonstration:** Show to students the procedure of filing saw blade teeth **Hands-on activity:** Engage the students to file	• Select tools and equipment for filing saw blade teeth • Filing saw blade teeth • Adhere to safety principles • Clean and store materials and equipment • Store tools	Saw blade teeth filed as per technical specifications	**Knowledge evidence:** **Detailed knowledge of:** **Methods used:** The student should explain how to: • Select tools and equipment for filing saw blade teeth • Filing saw blade teeth	The following tools, equipment, and safety gear are to be available: • Flat file • Bench • Cotton cloth • Safety helmet • Safety boots • Overalls • Gloves	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
			the saw blade teeth in the saw shop as per required procedures and safety rules			• Perform saw blade teeth geometry • Adhere to safety **Principles:** The student should explain procedures involved in filing saw blade **Theories:** The student should explain the importance of filing saw blade **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions involved in filing saw blade	• Whiteboard • Marker pen • Chalk	
		(c) Setting saw blade teeth	**Brainstorming:** Guide the students to explore the concept of setting the saw blade teeth, and the importance of setting saw blade teeth	• Select tools and equipment for setting saw blade teeth • Set saw blade teeth • Adhere to safety	Saw blade teeth set according to technical specifications	**Knowledge evidence:** **Detailed knowledge of:** **Methods used:** The student should explain:	The following tools, equipment, and safety gear are to be available: • Setting bench • Cotton cloth	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
			Practical demonstration: Demonstrate to students how to set saw blade teeth **Hands-on Activity:** Engage the students to set the saw blade teeth in the saw shop as per required procedures and safety rules	principles • Clean tools, materials and equipment • Store tools and equipment		• Importance of setting saw blade teeth • Adhere to safety **Principles:** The student should explain procedures involved in setting saw blade teeth **Theories:** The student should explain the importance of setting saw blades teeth **Circumstantial knowledge Detailed knowledge about:** Safety precautions involved in setting saw blade teeth	• Safety helmet • Safety boots • Overalls • Gloves • Whiteboard • Marker pen • Chalk • Dial gauge • Spring set	
	1.4 Packing saw blade	(a) Packing circular saw blade	**Brainstorming:** Guide the students to explore the concept of packing the circular saw blade, and explain the technique of packing	• Select tools and equipment for packing circular saw blade • Packing circular saw blade	Circular saw blade packed according to technical specifications	**Knowledge evidence: Detailed knowledge of: Methods used:** The student should	The following tools, equipment, and safety gear are to be available: • Storage bench	117

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
			circular saw blade **Practical demonstration:** Demonstrate to students how to pack circular saw blade **Hands-on Activity:** Engage the students to pack circular saw blades in storage area as per required procedures and safety rules	• Adhere to safety principles • Clean tools, materials, and equipment • Store tools, materials and equipment		explain: • Importance of packing circular saw blades properly • Procedures for packing circular saw blade • Adhere to safety principles **Principles:** The student should explain procedures involved in packing circular saw blades properly **Theories:** The student should explain the importance of packing circular saw **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions involved in packing	• Safety helmet • Safety boots • Overall • Gloves • Whiteboard • Marker pen • Chalk • Circular saw blade	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
						circular saw blades		
		(b) Packing band saw blade	**Brainstorming:** Guide the students to explore the concept of packing the band saw blade, and describe the technique of packing band saw blade **Practical demonstration:** Demonstrate to students how to pack band saw blade **Practical work:** Organise students to pack band saw blades in storage area as per required procedures and safety rules	• Select tools and equipment for packing band saw blade • Packing band saw blade • Adhere to safety principles • Clean tools, materials, and equipment • Store tools, materials and equipment	Band saw blade packed according to technical specifications	**Knowledge evidence:** **Detailed knowledge of:** **Methods used:** The student should explain: • Importance of packing band saw blades • Procedures of packing band saw blade • Adhere to safety principles **Principles:** The student should explain procedures involved in packing band blades properly **Theories:** The student should explain the importance of packing band saw blades	The following tools, equipment, and safety gear are to be available: • Storage bench • Safety helmet • Safety boots • Overalls • Gloves • Whiteboard • Marker pen • Chalk • Band saw blade	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
						Circumstantial knowledge **Detailed knowledge about:** Safety precautions involved in packing band saw blades		
		(c) Packing frame saw blade	**Brainstorming:** Guide the students to explore the concept of packing the frame saw blade, and explain the technique of packing frame saw blade **Practical demonstration:** Demonstrate to students how to pack frame saw blade **Hands-on Activity:** Organise the students to pack frame saw blades in the storage area as per required techniques and safety rules	• Select tools and equipment for packing frame saw blade • Packing frame saw blade • Adhere to safety principles • Clean tools, materials, and equipment • Store tools, materials and equipment	Frame saw blade packed according to technical specifications	**Knowledge evidence:** **Detailed knowledge of:** **Methods used:** The student should explain: • Importance of packing frame saw blades • Procedures for packing frame saw blade • Adhere to safety principles **Principles:** The student should explain procedures involved in packing frame saw blades properly	The following tools, equipment, and safety gear are to be available: • Storage bench • Safety helmet • Safety boots • Overalls • Gloves • Whiteboard • Marker pen • Chalk • Frame saw blade	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
						Theories: The student should explain the importance of packing frame saw blades **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions involved in packing frame saw blades.		
2.0 Sawing logs	2.1 Sorting logs	(a) Receiving logs at log yard	**Interactive simulation**: Guide the students through interactive simulation to visualise the concept of log yard and techniques for receiving logs at log yard **Practical demonstration:** Demonstrate to students how to receive logs at log yard **Practical work:** Engage the students in the activities of receiving logs at log yard	• Select tools and equipment for receiving logs at log yard • Receive logs at log yard • Adhere to safety principles • Clean tools • Store tools	Logs received at log yard properly	**Knowledge evidence:** **Detailed knowledge of:** **Method used:** The students should explain how to: • Select tools and equipment for receiving logs at log yard • Receive logs at log yard • Adhere to safety principles	The following tools, materials, safety gear, and equipment are to be available: • Tape measure • Log caliper • Log tally sheet • Turning hook • Lifting hook • Loader • Gloves • Dust mask • Safety helmet • Safety boots	185

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
						Principles: The student should procedures receiving logs at log yard **Theories:** The student should explain the importance of: • Measuring logs diameter • Measuring logs length • processed **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions involved in receiving logs at log yard	• Overalls • Simulation guide	
		(b) Sorting logs according to diameter class and species	**Interactive simulation**: Guide the students through interactive simulation to visualise the concept and techniques of sorting logs **Practical demonstration:** Demonstrate to students how	• Select tools and equipment for sorting logs • Measure log length • Measure log diameter • Adhere to safety principles	Logs sorted correctly according to diameter classes and species	**Knowledge evidence:** **Detailed knowledge of:** **Method used:** The students should explain how to:	The following tools, materials, safety gear, and equipment are to be available: • Tape measure • Log caliper • Log tally	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
			to measure log length and measure log diameter **Hands-on Activity:** Engage the students to sort logs according to diameter class and species	• Clean tools • Store tools		• Select tools and equipment for sorting logs • Measure log length • Measure log diameter • Adhere to safety principles **Principles:** The student should procedures involved in sorting logs **Theories:** The student should explain the importance of classifying logs according to diameter class and species processed **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions involved in	sheet • Turning hook • Lifting hook • Loader • Gloves • Dust mask • Safety helmet • Safety boots • Overalls	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
						receiving logs at log yard		
		(c) Recording log dimensions in tally sheet	**Interactive simulation**: Guide the students through interactive simulation to visualise the concept and techniques of recording log dimensions in tally sheet **Practical demonstration:** Demonstrate to students how to record log dimensions in tally sheet **Practical work:** Engage the students to record log dimensions in tally sheet	• Select tools and equipment for recording log dimensions in tally sheet • Record log dimensions in tally sheet • Adhere to safety principles • Clean tools • Store tools	Log recorded properly in tally sheet	**Knowledge evidence:** **Detailed knowledge of:** **Method used:** The students should explain how to: • Select tools and equipment for recording log dimensions • Record log dimension in tally sheet • Adhere to safety principles **Principles:** The student should procedures recording log dimension in tally sheet . **Theories:** The student should explain the importance of	The following tools, materials, safety gear, and equipment are to be available: • Tape measure • Log caliper • Log tally sheet • Turning hook • Lifting hook • Loader • Gloves • Dust mask • Safety helmet • Safety boots • Overalls	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
						recording log dimension in tally sheet **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions involved in recording log dimensions in tally sheet		
		(d) Determining daily logs volume processed	**Interactive simulation**: Guide the students through interactive simulation to visualise the concept of the log volume **Group discussion:** Guide the students through manageable groups to discuss and explore parameters for determining log volume and importance of determining log volume **Practical demonstration:** Demonstrate to students how to determine log volume	• Select tools and equipment for determining log volume • Identify parameters for calculating log volume • Adhere to safety principles • Clean tools • Store tools	Daily log volume processed determined correctly	**Knowledge evidence:** **Detailed knowledge of:** **Method used:** The students should explain how to: • Select tools and equipment for determining log volume • Identify parameters for calculating log volume • Adhere to safety principles	The following tools, materials, safety gear, and equipment are to be available: • Log tally sheet • Caliper • Tape measure • Calculator • Pen • Pencil • Notebook • Ruler	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
			Hands-on activity: Engage the students to determine the daily log volume processed			**Principles:** The student should be involved in determining the daily log volume processed **Theories:** The student should explain the importance of determining daily logs volume processed **Circumstantial knowledge Detailed knowledge about:** Safety precautions involved in determining daily log volume		
	2.2 Producing sawn timber	(a) Determining sawing pattern	**Group discussion:** Guide the students in manageable groups to discuss and explore the concept of sawing patterns **Practical demonstration:**	• Identify sawn pattern • Determine sawing pattern • Adhere to safety principles • Clean tools	Sawing pattern correctly determined	**Detailed knowledge of:** **Method used:** The students should explain how to: • Identify sawn pattern	The following tools, materials, safety gear, and equipment are to be available: • Notebook • Ball pen	232

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
			Demonstrate to students how to determine sawing pattern **Hands-on activity:** Engage the students to determine sawing pattern	• Store tools		• Determine sawing pattern • Adhere to safety principles **Principles:** The student should explain principles of sawing patterns. **Theories:** The student should explain importance of: • Through sawing • Quarter sawing • Grade sawing **Circumstantial knowledge** **Detailed knowledge about**: Safety precautions involved in sawing logs	• Sawmill machine • Gloves • Dust mask • Safety helmet • Safety boots • Overalls	
		(b) Operating sawmill	**Group discussion:** Guide the students to discuss and explore concept of sawmill and procedures of operating sawmill machine	• Select tools and equipment for operating sawmill machine • Identify sawmill	Sawmill operated as per stipulated procedures	**Detailed knowledge of:** **Method used:** The students should	The following tools, materials, safety gear, and equipment are to be available:	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
			Practical demonstration: Demonstrate to students how to identify sawmill machine parts and its functions, and operate sawmill **Practical work:** Organise students to operate sawmill machine as per required methods of operation	machine parts and its functions • Operate sawmill • Adhere to safety • Clean tools • Store tools		explain how to: • Select tools and equipment for operating sawmill machine • Identify sawmill machine parts and its functions • Apply sawing methods **Principles:** The student should explain principles of operating sawmill **Theories:** The student should explain importance of operating sawmill properly **Circumstantial knowledge** **Detailed knowledge about**: Safety precautions involved in operating sawmill	• Tally sheet • Saw logs • Turning hook • Bell logger • Wedge • An axe • Chainsaw • Ball pen • Sawmill machine • Gloves • Dust mask • Safety helmet • Safety boots • Overalls	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
		(c) Re-sawing cants and slabs	**Group discussion:** Guide the students to discuss and explore the concept and the procedures of cant and slab of re-sawing **Practical demonstration:** Demonstrate to students how to re-sawing cants and slabs **Hands-on Activity:** Engage students in re-sawing cants and slabs as per the specified guidelines	• Select tools and equipment for re-sawing cants and slabs • Re-sawing cants and slabs • Adhere to safety principles • Clean tools • Store tools	Cants and slabs re-sawed correctly according to technical specifications	**Detailed knowledge of:** **Method used:** The students should explain how to: • Select tools and equipment for re-sawing cants and slabs • Re-sawing cants and slabs • Adhere to safety principles **Principles:** The student should explain principles of re-sawing cants and slabs **Theories:** The student should explain the importance of re-sawing cants and slabs **Circumstantial knowledge Detailed**	The following tools, materials, safety gear, and equipment are to be available: • Tally sheet • Cants • Slabs • Bell logger • Wedge • An axe • Ball pen • Sawmill machine • Gloves • Dust mask • Safety helmet • Safety boots • Overalls • Eye glasses	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
						knowledge about: Safety precautions involved in re-sawing cants and slabs		
		(d) Edging side boards	**Group discussion:** Guide the students in manageable groups to discuss and explore the concept of edging sideboards **Practical demonstration:** Demonstrate to students how to edge sideboards **Hands-on Activity:** Engage the students to edge sideboards as per the specifications	• Select tools and equipment for edging sideboards • Edge sideboard • Adhere to safety principles • Clean tools • Store tools	Sideboards edged as per technical specifications	**Detailed knowledge of:** **Method used:** The students should explain how to: • Select tools and equipment for edging sideboards • Edge sideboard • Adhere to safety principles **Principles:** The student should explain the principles of edging sideboards **Theories:** The student should explain the importance of edging sideboards	The following tools, materials, safety gear, and equipment are to be available: • Tally sheet • Cants • Slabs • Bell logger • Wedge • An axe • Ball pen • Sawmill machine • Gloves • Dust mask • Safety helmet • Safety boots • Overalls • Eye glasses	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
						Circumstantial knowledge Detailed knowledge about: Safety precautions involved in edging sideboards		

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
		(e) Trimming sawn boards	**Group discussion:** Guide the students in manageable groups to discuss and explore the concept, and the procedure of trimming sideboards **Practical demonstration:** Demonstrate to students how to trim sideboards **Hands-on activity:** Engage the students to trim sideboards as per specifications	• Select tools and equipment for trimming sideboards • Trim sideboard • Adhere to safety principles • Clean tools • Store tools	Sideboards trimmed as per technical specifications	**Detailed knowledge of:** **Method used:** The students should explain how to: • Select tools and equipment for trimming sideboards • Trim sideboard • Adhere to safety principles **Principles:** The student should explain the principles of trimming sideboards **Theories:** The student should explain the importance of trimming sideboards **Circumstantial knowledge** **Detailed knowledge about**: Safety precautions involved in trimming sideboards	The following tools, materials, safety gear, and equipment are to be available: • Tally sheet • Cants • Slabs • Bell logger • Wedge • An axe • Ball pen • Sawmill machine • Gloves • Dust mask • Safety helmet • Safety boots • Overalls • Eye glasses	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
3.0 Utilising wood by-products	3.1 Processing wood by-products	(a) Categorising wood by-products	**Jigsaw**: Guide the students in manageable groups using the jigsaw method to explore the concept, and outline the categories of wood by-products **Practical demonstration:** Demonstrate to students how to categorise wood by-products **Practical work:** Engage students to categorise wood by-products in the processing factory as per technical specifications	• Select tools and equipment for categorising wood by-products • Categorise wood by-products • Adhere to safety principles • Clean tools • Store tools	Wood by-products categorised according to technical specifications	**Detailed knowledge of:** **Method used:** The students should explain how to: • Select tools and equipment for categorising wood by-products • Adhere to safety principles **Principles:** The student should explain the principles of categorising wood by-products **Theories:** The student should explain importance of categorising wood by-products **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions involved in	The following tools, materials, safety gear, and equipment are to be available: • Sawdust • Slabs • Offcuts • Chips • Ball pen • Sawmill machine • Gloves • Dust mask • Safety helmet • Safety boots • Overalls • Eye glasses	117

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
						categorising wood by-products		
		(b) Preparing wood by-products for value addition	**Jigsaw**: Guide the students in manageable groups using the jigsaw method to explore concept of preparing wood by-products for value addition **Practical demonstration:** Demonstrate to students how to prepare wood by-products for value addition **Practical work:** Engage students to prepare wood by-products for value addition in the processing factory as per required standards	• Select tools and equipment for preparing wood by-products • Prepare wood by-products for value addition • Adhere to safety principles • Clean tools • Store tools	Wood by-products for value addition prepared as per technical standards	**Detailed knowledge of:** **Method used:** The students should explain how to: • Select tools and equipment for preparing wood by-products • Prepare wood by-products • Adhere to safety principles **Principles:** The student should explain principles of preparing wood by-products for value addition **Theories:** The student should explain procedures for preparing wood by-products **Circumstantial knowledge**	The following tools, materials, safety gear, and equipment are to be available: • Sieve • Sawdust • Slabs • Offcuts • Chips • Ball pen • Sawmill machine • Gloves • Dust mask • Safety helmet • Safety boots • Overalls • Eye glasses	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
						Detailed knowledge about: Safety precautions involved in preparing wood by-products for value addition		
		(c) Adding value to wood by-products	**Jigsaw**: Guide the students in manageable groups using the jigsaw method to explore the concept of adding value to wood by-products **Practical demonstration:** Demonstrate to students how to add value to wood by-products and testing the quality of processed products **Hands-on activity:** Engage the students to add value to wood by-products in the processing factory as per required standards	• Select tools and equipment for adding value to wood by-products • Add value to wood by-products • Testing the quality of processed products • Adhere to safety principles • Clean tools • Store tools	Wood by-products added value according to technical specifications	**Detailed knowledge of:** **Method used:** The students should explain how to: • Select tools and equipment for adding value to wood by-products • Add value to wood by-products • Adhere to safety principles **Principles:** The student should explain the principles of adding value to wood by-products. **Theories:** The student should explain:	The following tools, materials, safety gear, and equipment are to be available: • Processing equipment • Sieve • Sawdust • Slabs • Offcuts • Chips • Ball pen • Sawmill machine • Gloves • Dust mask • Safety helmet • Safety boots • Overalls • Eye glasses	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
						• Methods of processing wood by-products • Techniques of processing wood by-products • Uses of wood by-products • Conditions to store added value products **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions involved in handling wood by-products.		
		(d) Storing added value products	**Jigsaw**: Guide the students in manageable groups using the jigsaw method to explore the concept, and the techniques for storing added-value products	• Select tools and equipment for storing added value products • Store added value products • Adhere to safety principles	Added value products stored as per technical standards	**Detailed knowledge of:** **Method used:** The students should explain: • Condition to store added value products	The following tools, materials, safety gear, and equipment are to be available: • Storage room • Trolley • Added value	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
			Practical demonstration: Demonstrate to students how to store added value products **Practical work:** Engage the students to store added value products in the storage area	• Clean tools • Store tools		• Safety principles when storing added-value products **Principles:** The student should explain the principles of storing added-value products. **Theories:** The student should explain conditions to store added-value products **Circumstantial knowledge Detailed knowledge about:** Safety precautions involved in storing wood by-products	products • Gloves • Dust mask • Safety helmet • Safety boots • Overalls • Eye glasses	
		(e) Handling wood by-products residues	**Jigsaw**: Guide the students in manageable groups using the jigsaw method to explore the concept and techniques of	• Select tools and equipment for handling wood by-products residues • Handle wood by-	Wood by-products residues handled as per technical	**Detailed knowledge of:** **Method used:** The students should explain:	The following tools, materials, safety gear, and equipment are to be available:	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
			handling wood by-products residues **Practical demonstration:** Demonstrate to students how to handle wood by-products residues **Hands-on activity:** Engage the students to handle wood by-products residues processing factory as per required guidelines	products residues • Adhere to safety principles • Clean tools • Store tools	specifications	• Importance of handling wood by-products residue properly • Safety principles when storing added value products **Principles:** The student should explain the principles of handling wood by-products residue properly **Theories:** The student should explain procedures for handling wood by-products residue properly **Circumstantial knowledge Detailed knowledge about:** Safety precautions involved in	• Storage room • Trolley • Wood by-products residues • Gloves • Dust mask • Safety helmet • Safety boots • Overalls • Eye glasses	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods
				Process Assessment	Services Assessment	Knowledge Assessment		
						handling wood by-products residue properly		

Form Four

Table 6: *Detailed Contents for Form Four*

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge assessments		
1.0 Managing a safe work environment	1.1 Managing hazards	(a) Controlling mechanical hazards	**Jigsaw**: Guide the students in manageable groups using the jigsaw method to explore the concept and principles of hazards and controlling mechanical hazard **Practical demonstration:** Demonstrate to students how to control mechanical hazards **Field practical:** Engage the students to control mechanical hazards in the workshop and forest area while following safety rules and standards	• Select tools and equipment for controlling mechanical hazards • Control mechanical hazards • Adhere to safety principles • Clean tools • Store tools	Mechanical hazards controlled as per stipulated standards	**Detailed knowledge of:** **Method used:** The students should explain: • Importance of controlling mechanical hazards • Tools and equipment used to control mechanical hazards **Principles:** The student should explain the principles of controlling mechanical hazards **Theories:** The student should explain controlling mechanical hazards **Circumstantial knowledge** **Detailed knowledge about:** Safety	The following tools, materials, safety gear, and equipment are to be available: • Workshop • Gloves • Dust mask • Safety helmet • Safety boots • Overalls • Gloves • Eyeglasses • Notebook • Ball pen • Pencil	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge assessments		
						precautions while controlling mechanical hazards		
		(b) Controlling chemical hazards	**Jigsaw**: Guide the students in manageable groups using the jigsaw method to explore the concept of chemical hazard and principles for controlling chemical hazards **Practical demonstration:** Demonstrate to students how to control chemical hazards **Practical work:** Engage the students in controlling control chemical hazards in workshop	• Select tools and equipment for controlling chemical hazards • Control chemical hazards • Adhere to safety principles • Clean tools • Store tools	Chemical hazards controlled as per stipulated standards	**Detailed knowledge of:** **Method used:** The students should explain: • Importance of controlling chemical hazards • Tools and equipment used to control chemical hazards **Principles:** The student should explain the principles of: • Preparing inspection checklists • Preparing warning signs and safety instructions **Theories:** The student should explain: • Function of	The following tools, materials, safety gear, and equipment are to be available: • Workshop • Plastic gloves • Dust mask • Safety helmet • Safety boots • Overalls • Gloves • Eyeglasses • Notebook • Ball pen • Pencil	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge assessments		
						inspection checklist • Importance of carrying out accident investigation place **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions while controlling mechanical hazards		
	1.2 Carrying out risk assessment	(a) Controlling risk	**Jigsaw**: Guide the students in manageable groups using the jigsaw method to explore the concept of risk and the principles for controlling risk **Practical demonstration:** Demonstrate to students how to carry out risk assessment **Practical work:** Engage the students in controlling risk hazards around school premises or workshop while following	• Select tools and equipment • Identify risk • Identify safety hazardous materials • Prepare universal workshop colour codes and know what the colour represents	Risk controlled as per OSHA standards	**Detailed knowledge of:** **Method used:** The students should explain: • Advantages of risk assessment • Tools and equipment used to control risk • Safe wastes disposal • Safety precautions when controlling risk assessment	The following tools, materials, safety gear, and equipment are to be available: • Service manuals • OSHA rules and regulations • Workshop rules • Camera • Risk assessment sheet • Mask	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge assessments		
			safety precautions	• Control risk • Adhere to safety principles • Clean tools • Store tools		**Principles:** The student should explain the principles of reacting correctly and safely when faced with an emergency **Theories:** The student should explain: • Risk assessment • Advantages of risk assessment **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions while carrying out risk assessment	• Ear protector • Eye protector • Gloves • Overall • Safety helmet • Safety boots • Safety glasses	
		(b) Managing safety gear	**Jigsaw**: Guide the students in manageable groups using the jigsaw method to explore the concept of safety gear and principles and procedure of managing safety gear **Practical demonstration:** Demonstrate to students the	• Select tools and equipment • Identify safety gear • Manage safety gear • Adhere to safety principles	Safety gear managed as per OSHA standards	**Detailed knowledge of:** **Method used:** The students should explain: • Types of safety gear • Advantages of managing safety gear	The following tools, materials, safety gear, and equipment are to be available: • Service manuals • OSHA rules and regulations	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge assessments		
			procedure of managing safety gear **Practical activity:** Engage the students to manage safety gear as per OSHA standards	• Clean tools • Store tools		• Tools and equipment used to manage safety gear • Safety precautions when managing safety gear **Principles:** The student should explain the principles of applying correctly emergency equipment and supplies **Theories:** The student should explain importance of handling hazardous materials **Circumstantial knowledge** **Detailed knowledge about:** • Safe handling of tools and equipment • Safe wastes disposal	• Mask • Ear protector • Eye protector • Gloves • Overalls • Safety helmet • Safety boots • Safety glasses	
		(c) Managing workshop safety rules	**Jigsaw**: Guide the students in manageable groups using the	• Identify tools, machines, accessories, and	Workshop safety rules managed as	**Detailed knowledge of:** **Method used:** The	The following tools, materials, safety gear, and	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge assessments		
			jigsaw method to explore the concept of managing workshop safety rules **Practical demonstration:** Demonstrate to students how to manage workshop safety rules **Field practical:** Engage the students to manage workshop safety rules in school workshop while following safety principles	equipment in workshop • Identify and apply correctly emergency equipment and supplies • Make periodic inspections of workshop area and all equipment and prepare report • Manage workshop safety rules • Adhere to safety principles • Clean tools • Store tools	per standards	students should explain: • Advantages of managing safety in the workshop • Tools and equipment used to manage safety in the workshop • Safety precautions when managing safety gear **Principles:** The student should explain the principles of managing workshop safety rules **Theories:** The student should explain managing workshop safety rules **Circumstantial knowledge** **Detailed knowledge about:** Safe handling of tools and equipment	equipment are to be available: • Workshop • Service manuals • OSHA rules and regulations • Mask • Ear protector • Eye protector • Gloves • Overalls • Safety helmet • Safety boots • Safety glasses	
	1.3 Managing environmental	(a) Managing air pollution	**Think-ink-pair-share:** Guide the students through	• Select tools and	Air pollution managed as	**Detailed knowledge of:**	The following tools, materials,	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge assessments		
	pollution		think-ink-pair-share to explore the concept of air pollution, and describe different types of pollution and how to manage **Practical demonstration:** Demonstrate to students how to manage air pollution **Study visit:** Take students on a study visit within and outside the school to observe pollution and engage them in managing air pollution	equipment for managing air pollution • Identify causes of air pollution • Handle waste • Manage air pollution • Prepare inspection report • Adhere to safety principles • Clean tools • Store tools	per OSHA rules and regulations	**Method used:** The students should explain: • Effects of air pollution • Advantages of managing air pollution • Tools and equipment used to manage air pollution • Safety precautions when managing air pollution **Principles:** The student should explain the principles of managing air pollution **Theories:** The student should explain: • Importance of safe working environment • Types of environmental pollution	safety gear, and equipment are to be available: • Tool kit • Spirit level • Wheelbarrow • Safety boots • Safety helmet • Gloves • Overalls • Cleaning materials • Hoe • Broom • Brush • Dust covers • Dust mask • Dust bin	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge assessments		
						Circumstantial knowledge **Detailed knowledge about:** Safety knowledge while managing air pollution		
		(b) Managing water pollution	**Think-ink-pair-share:** Guide the students through think-ink-pair-share to explore the concept of water pollution **Practical demonstration:** Demonstrate to students how to manage water pollution **Field visit:** Take the students around the school and its surroundings to observe and manage water pollution as per OSHA rules and regulations	• Select tools and equipment for managing water pollution • Identify causes of water pollution • Manage to manage water pollution • Monitor good environmental practices • Adhere to safety principles • Clean tools • Store tools	Water pollution managed as per OSHA rules and regulations	**Detailed knowledge of:** **Method used:** The students should explain: • Effects of water pollution • Advantages of managing water pollution • Tools and equipment used to manage water pollution • Safety precautions when managing water pollution **Principles:** The student should explain: • Advantages of monitoring environmental pollution	The following tools, materials, safety gear, and equipment are to be available: • Tool kit • Spirit level • Wheelbarrow • Safety boots • Safety helmet • Gloves • Overalls • Cleaning materials • Hoe • Broom • Brush • Dust covers • Dust mask • Dust bin	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge assessments		
						• Importance of preparing environmental management schedule **Circumstantial knowledge** **Detailed knowledge about:** • Safety knowledge while managing water pollution • Safe wastes disposal		
		(c) Managing land pollution	**Think-ink-pair-share:** Guide the students through think-ink-pair-share to explore the concept of land pollution **Practical demonstration:** Demonstrate to students how to identify causes of land pollution and manage to manage land pollution **Field visit:** Lead students around the school and its surroundings to observe and manage land	• Select tools and equipment for managing land pollution • Identify causes of land pollution • Manage to manage land pollution • Conduct safety awareness training to subordinates	Land pollution managed as per OSHA rules and regulations	**Detailed knowledge of:** **Method used:** The students should explain: • OSHA rules and regulations • Effects of land pollution • Advantages of managing land pollution • Tools and equipment used to manage land pollution	The following tools, materials, safety gear, and equipment are to be available: • Tool kit • Spirit level • Wheelbarrow • Safety boots • Safety helmet • Gloves • Overalls • Cleaning materials • Hoe • Broom	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge assessments		
			pollution as per OSHA rules and regulations	• Adhere to safety principles • Clean tools • Store tools		• Safety precautions when managing land pollution **Principles:** The student should explain the principles of managing land pollution **Theories:** The student should explain: • Importance of managing land pollution • Importance of controlling wastes **Circumstantial knowledge** **Detailed knowledge about:** • Safety knowledge while managing environmental pollution • Safe handling of tools and equipment	• Brush • Dust covers • Dust mask • Dust bin	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge assessments		
						• Safe wastes disposal		
	1.4 Managing fire accidents	(a) Assess fire accident	**Think-ink-pair-share:** Guide the students through think-ink-pair-share to explore the concept and classes of fire accident **Practical demonstration:** Demonstrate to students how to identify sources of fire and assess fire accident **Hands-on activity:** Engage the students to access fire accidents in and outside the school premises	• Select tools and equipment for assessing fire accidents • Identify sources of fire • Assess fire accident • Adhere to safety • Clean tools • Store tools	Fire accidents are assessed as per rules and regulations	**Detailed knowledge of:** **The method used:** The students should explain: • Importance of managing fire accident regulations • Effects of fire on the working environment • Advantages of assessing fire accidents • Tools and equipment used to assess fire • Safety precautions when assessing fire accidents **Principles:** The student should explain the principles of assessing fire accident **Theories:** The student should	The following tools, materials, safety gear, and equipment are to be available: • Fire-fighting rules and regulations • Fire extinguishers • Fire-fighting materials • Water hose pipes • First aid kit • Gloves • Safety boots • Safety helmet • Overalls • Light blankets • Nose masks • Eye protector • Ear protector • Ladder	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge assessments		
						explain How to assess fire accident **Circumstantial knowledge** **Detailed knowledge about:** Safety knowledge while assessing fire accidents		
		(b) Preparing fire prevention plan	**Think-ink-pair-share:** Guide the students through think-ink-pair-share to explore the concept of a fire prevention plan and the principles of fire prevention **Practical demonstration:** Demonstrate to students how to use tools and equipment for fire prevention and predict season with the high frequency of fire incidence **Practical activity:** Engage the students to prepare fire prevention plans in the school as per stipulated standards	• Select tools and equipment for fire prevention • Uses of tools, and equipment for fire prevention • Predict season with the high frequency of fire incidence • Prepare fire prevention plan • Adhere to safety principles • Clean tools	Fire prevention plan prepared as per stipulated standards	**Detailed knowledge of:** **The method used:** The students should explain: • Importance of a fire prevention plan • Tools and equipment used to prepare a fire prevention plan • Safety precautions when preparing a fire prevention plan **Principles:** The student should explain principles of: • Assessing fire sources • Maintaining fire	The following tools, materials, safety gear, and equipment are to be available: • Firefighting rules and regulations • Workshop rules and regulations • Fire extinguishers • Firefighting materials • Water hose pipes • First aid kit • Safety helmet • Overall • Light	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge assessments		
				• Store tools		extinguishers **Theories:** The student should explain: • Importance of fire and prevention plan • Importance of managing fire accidents • Importance of servicing fire extinguishers **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions while preparing fire prevention plan	blankets • Nose masks • Eye protector • Ear protector • Safety glasses	
		(c) Training subordinates on firefighting	**Think-ink-pair-share:** Guide the students through think-ink-pair-share to explore the concept and principles of firefighting **Practical demonstration:** Demonstrate to students how to formulate a firefighting plan,	• Select tools and equipment for fighting fire • Formulate a firefighting plan • Locate points to put fire extinguishers	Subordinates well trained on firefighting	**Detailed knowledge of:** **The method used:** The students should explain: • Methods of fighting different types of fire • Tools and equipment used for	The following tools, materials, safety gear, and equipment are to be available: • Fire-fighting rules and regulations • Fire extinguishers	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge assessments		
			locate points to put fire extinguishers, service fire extinguishers, and manage different types of fire **Practical work:** Engage the students to train subordinates on firefighting	• Service fire extinguishers • Manage different types of fire • Adhere to safety principles • Clean tools • Store tools		fighting fire • Safety precautions when fighting against fire **Principles:** The student should explain principles of training subordinates on firefighting **Theories:** The student should explain importance of training fire-fighting crew **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions while training fire-fighting crew	• Firefighting materials • Water hose pipes • First aid kit • Light blankets • Nose masks • Eye protector • Ear protector • Ladder	
2.0 Managing preventive maintenance	2.1 Planning preventive maintenance duration	(a) Preparing schedules of preventive maintenance of tools, machines, and equipment	**Brainstorming:** Guide the students to explore the concept of preventive maintenance schedule **Group discussion:** Guide the students in manageable groups to discuss	• Interpreting service manual • Applying workshop rules and regulation • Selecting	Schedules of preventive maintenance of tools, machines, and equipment prepared per set standards	**Knowledge evidence:** **Detailed knowledge of:** **Methods used:** The student should explain how to: • Identify tools and	The following tools, equipment, and safety gear are to be available: • General hand tools kit • Workshop	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge assessments		
			and explore how to interpret service manual and apply workshop rules and regulation **Practical demonstration:** Demonstrate to students how to interpret service manual and prepare preventive maintenance schedule **Practical work:** Engage the students to prepare schedules of preventive maintenance of tools, machines, and equipment	tools and equipment • Observing • Preparing preventive maintenance schedule • Clean tools, and equipment • Store tools, and equipment • Adhering to safety		equipment • Interpret service manual • Prepare preventive maintenance schedule • Observe safety **Principles:** The student should explain the principles of: • Preparing colour code and safety signs • Preparing preventive maintenance schedule **Theories:** The student should explain: • Importance of interpreting service manuals • Importance of preparing workshop inspection schedule	tools, equipment, and machines • Service manuals • Workshop rules and regulations • Gloves • Overalls	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge assessments		
						Circumstantial knowledge **Detailed knowledge about:** Safety precautions while planning preventive maintenance		
		(b) Preparing inspection checklist of tools, machines, and equipment	**Think-ink-pair-share:** Guide the students through think-ink-pair-share to explore the concept of inspection check list **Group discussion:** Guide the students through manageable groups to discuss the periodic inspection of workshop and prepare workshop inspection report **Practical demonstration:** Demonstrate to students how to prepare inspection check list and workshop inventory **Practical work:** Engage the students to prepare inspection check list of tools, machines, and equipment	• Select tools and equipment • Prepare inspection check list • Prepare workshop inventory • Clean tools, and equipment • Store tools, and equipment • Adhering to safety	Inspection check list of tools, machines, and equipment prepared per set standards	**Knowledge evidence:** **Detailed knowledge of:** **Methods used:** The student should explain how to: • Identify tools and equipment • Interpret service manual • Prepare preventive maintenance schedule • Observe safety **Principles:** The student should explain the principles of: • Preparing preventive maintenance schedule	The following tools, equipment and safety gear are to be available: • General hand tools kit • Workshop tools, equipment and machines • Service manuals • Workshop rules and regulations • Gloves • Overalls	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge assessments		
						• Preparing workshop inventory **Theories:** The student should explain: • Importance of preparing preventive maintenance schedule • Importance of preparing maintenance reports • Importance of cleaning and storing tools and equipment **Circumstantial knowledge** **Detailed knowledge about** • Safe handling of tools and equipment • Proper wastes disposal		
	2.2 Supervising preventive	(a) Performing preventive	**Think-ink-pair-share:** Guide the students through	• Select tools and	Preventive maintenance	**Detailed knowledge of:**	The following tools, materials,	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge assessments		
	maintenance	maintenance of tools, machines, and equipment	think-ink-pair-share to describe the concept of performing preventive maintenance and to perform preventive maintenance of tools, machines, and equipment **Practical demonstration:** Demonstrate to students how to perform preventive maintenance of tools, machines, and equipment **Practical work:** Engage the students to perform preventive maintenance of tools, machines, and equipment in the school workshop	equipment for performing preventive maintenance of tools, machines, and equipment • Prepare and apply workshop preventive maintenance schedule • Plan and conduct preventive maintenance training • Perform preventive maintenance of tools, machines and equipment • Interpret service manual • Adhere to safety principles	of tools, machines, and equipment performed as per technical standards	**The method used:** The students should explain how to: • Prepare safety signs and colour code • Practice good electrical safety • Tools and equipment used for preventive maintenance • Safety precautions when performing preventive maintenance **Principles:** The student should explain the principles of: • Preparing and applying preventive maintenance schedule • Preparing and use safety signs and colour code **Theories:** The student should	safety gear, and equipment are to be available: • General hand tools kit • Workshop tools, equipment and machines • Service manuals • Workshop rules and regulations • Gloves • Overalls • Safety boots • Safety glasses • Safety helmet • Mask • Ear protector	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge assessments		
						explain: • Importance of preparing and applying preventive maintenance schedule • Importance of preparing and use safety signs and colour codes **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions while conducting preventive maintenance		
		(b) Performing preventive maintenanc e of the working environmen t	**Brainstorming:** Guide the students to explore the concept of performing preventive maintenance of the working environment **Group discussion:** Guide the students through manageable groups to explain how to perform preventive maintenance of the working environment	• Select tools and equipment for performing preventive maintenance of the working environment • Monitor good environmental practices	Preventive maintenance working environment performed as per technical standards	**Detailed knowledge of:** **The method used:** The students should explain how to: • Plan preventive maintenance of the working environment • Importance of following good environmental	The following tools, materials, safety gear, and equipment are to be available: • General hand tools kit • Workshop tools, equipment and machines • Service	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge assessments		
			Practical demonstration: Demonstrate to students how to perform preventive maintenance of the working environment **Practical activity:** Organise the students to perform preventive maintenance of the working environment	• Perform preventive maintenance of the working environment • Adhere to safety principles		practices • Tools and equipment used for preventive maintenance **Principles:** The student should explain the principles of: • Planning preventive maintenance • Conducting preventive maintenance **Theories:** The student should explain: • Importance of planning and conducting preventive maintenance • Importance of following good environmental practices **Circumstantial knowledge** **Detailed knowledge**	manuals • Workshop rules and regulations • Gloves • Overalls • Safety boots • Safety glasses • Safety helmet • Mask • Ear protector	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge assessments		
						about: • Safe handling of tools and equipment • Proper wastes disposal		
3.0 Managing wood processing industry activities	3.1 Planning wood processing activities	(a) Preparing budgeting components	**Jigsaw**: Guide the students in manageable groups using the jigsaw method to explain the concepts of preparing budgeting components **ICT-based learning:** Guide the students in small groups through ICT learning approach to identify parts of budgeting component and how to prepare budget components **Practical demonstration:** Demonstrate to students how to prepare budget components **Practical activity:** Engage the students to prepare budget components as per required standards	• Identify parts of budgeting components • Prepare budget components • Adhere to safety principles • Clean tools, and equipment • Store tools, and equipment	Budgeting components prepared as per set standards	**Knowledge evidence:** **Detailed knowledge of:** **Methods used:** The student should explain: • Importance of preparing budget components • Procedures for preparing budget components • Adhere to safety principles **Principles:** The student should explain principles of preparing budget component. **Theories:** The student should explain importance of budgeting	The following tools and equipment are to be available: • Calculator • Computer set • Printer	109

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge assessments		
						components **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions involved in preparing budgeting component		
		(b) Budgeting wood processing activities	**Group discussion:** Guide the students through small groups to discuss the concepts of budgeting in wood processing activities **Interactive simulation:** Guide the students through interactive simulation to visualise wood processing activities **Practical demonstration:** Demonstrate to students how to: • processing • Select tools and equipment used to budgeting activities • Budgeting wood processing activities • Adhere to safety principles **Practical activity:**	• Identify wood processing activities • Select tools and equipment used to budgeting activities • Categorise costs involved in budgeting wood processing activities • Budgeting wood processing activities • Printing budget	Wood processing activities budgeted as per standards	**Knowledge evidence:** **Detailed knowledge of:** **Methods used:** The student should explain: • Importance of budgeting wood processing activities • Parts of budgeting wood processing activities • Adhere to safety principles **Principles:** The student should explain principles of budgeting wood processing activities	The following tools and equipment are to be available: • Calculator • Computer set • Printer • Photocopier • Stationaries • Simulation guides	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge assessments		
			Engage the students i budgeting wood processing activities	• Adhere to safety principles • Clean tools, and equipment • Store tools, and equipment		**Theories:** The student should explain the importance of planning wood industry activities **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions involved in budgeting wood processing activities		
		(c) Valuing wood products	**Brainstorming:** Guide the students in small groups to brainstorm on the concept of concept of valuing wood products **Interactive simulation and animation:** Guide the students through interactive simulation and animation to visualise the wood products, tools, and equipment used to valuing wood products **Practical demonstration:** Demonstrate to students how to value wood products	• Identify wood products • Identify tools and equipment • Valuing wood products • Assess the quality of wood products • Adhere to safety principles • Clean tools, and equipment	Wood products valued as per standards	**Knowledge evidence:** **Detailed knowledge of:** **Methods used:** The student should explain: • Importance of valuing wood products • Valuing wood products • Asses the quality of wood products • Adhere to safety principles **Principles:** The student should	The following tools and equipment are to be available: • Calculator • Computer set • Printer • Pen • Notebook	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge assessments		
			Practical activity: Engage the students to valuing wood products as per required standards	• Store tools, and equipment		explain the principles of valuing wood product **Theories:** The student should explain the importance of valuing wood products **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions involved in valuing wood products		
	3.2 Establishing operational duties and manpower administration	(a) Recruiting staff	**Think-ink-pair-share:** Guide the students through think-ink-pair-share to describe the concept of recruiting staffs **Group discussion:** Organise the students in small groups to explain how to recruit staff and identify areas to recruit staff **Demonstration:** Demonstrate to students how to identify areas to recruit staff	• Identify areas to recruit staff • Recruit staff • Clean tools, and equipment • Store tools, and equipment	Staff recruited as per labour rules and regulations.	**Knowledge evidence:** **Detailed knowledge of:** **Methods used:** The student should explain: • Importance of recruiting staff • Identify tools and equipment used to recruit staff • Identify areas to recruit staff • Recruit staff • Adhere to safety	The following tools and equipment are to be available: • Calculator • Computer • Attendance register • Payroll • Overhead projector • Pen • Notebook	109

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge assessments		
			and recruit staff **Practical work:** Engage the students in small groups to conduct to recruit staff			principles **Principles:** The student should explain principles of: • Recruiting staff • Succession plan **Theories:** The student should explain importance of: • Recruiting staff duties • Succession plan **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions involved in recruiting staff		
		(b) Developing manpower	**Brainstorming:** Guide the students in small groups to brainstorm on the concept of developing manpower **Group discussion:** Organise the students in manageable groups to determine assets and	• Organise tools and materials • Determine assets and resources • Prepare worker duties • Determine	Manpower developed as per labour rules and regulations	**Knowledge evidence:** **Detailed knowledge of:** **Methods used:** The student should explain how to: • Organise tools and materials • Determine assets	The following tools and equipment are to be available: • Calculator • Computer • Attendance register • Overhead projector	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge assessments		
			resources, prepare worker duties**,** determine types of job performed**,** create specific jobs requirement**,** formulate job list, prepare training needs, and train subordinates **Practical demonstration:** Demonstrate to students how to handle staff welfare, organise tools and materials, determine assets and resources, prepare worker duties, determine types of job performed, create specific job requirements, formulate job lists, prepare training needs, and train subordinates **Hands-on activities:** Engage the students in small groups to handle staff welfare, organise tools and materials, determine assets and resources, prepare worker duties, determine types of job performed, create specific jobs requirement, formulate job list, prepare training needs, and train subordinates	types of job performed • Create specific jobs requirement • Formulate job list • Clean tools, and equipment • Store tools, and equipment		and resources • Prepare worker duties • Determine types of job performed • Create specific jobs requirement • Formulate job list • Prepare training needs • Train subordinates **Principles:** The student should explain principles of developing manpower specific job requirement **Theories:** The student should explain importance of: • Developing manpower • Preparing workers duties **Circumstantial knowledge** **Detailed knowledge**	• Pen • Notebook	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge assessments		
						about: Safety precautions involved in developing manpower		
		(c) Handling staff welfare	**Think-ink-pair-share:** Guide the students through think-ink-pair-share to explain the concept of handling staff welfare **Group discussion:** Organise the students in manageable groups to explore the health and well-being of staff, skills development, competency training, workplace safety Protocols and to build teamwork **Practical demonstration:** Demonstrate to students how to: Handle staff welfare **Hands-on activities:** Engage the students to handle welfare per labour rules and regulations	• Health and well-being of staff • Skills development • Competency training • Workplace safety Protocols • How to build teamwork • Clean tools, and equipment • Store tools, and equipment	Staff welfare handled as per labour rules and regulations	**Knowledge evidence:** **Detailed knowledge of:** **Methods used:** The student should explain: • Health and well-being of staff • Skills development • Competency training • Workplace safety Protocols • How to build teamwork **Principles:** The student should explain principles of handling staff welfare **Theories:** The student should explain importance of preparing workers duties	The following tools and equipment are to be available: • Calculator • Computer • Attendance register • Overhead projector • Pen • Notebook	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge assessments		
						Circumstantial knowledge **Detailed knowledge about:** Safety precautions involved in handling staff welfare		
	3.3 Planning wood processing workshop layout	(a) Planning wood processing machines layout	**Brainstorming:** Guide the students in small groups to brainstorm on the concept of wood processing machines layout **Interactive simulation**: Guide the students through interactive simulation to visualise workshop layout, wood processing machines and installing wood processing machine **Practical demonstration:** Demonstrate to students how to draw workshop layout, align workshop machines, select tools and machine, and identifying wood processing machines, install wood processing machine **Practical work:** Engage the students to plan	• Draw workshop layout • Align workshop machines • Select tools and machine • Identifying wood processing machines • Install wood processing machine • Organise tools and machine • Clean tools, and equipment • Store tools, and equipment • Adhere to	Wood processing workshop layout planned as per set standards	**Knowledge evidence:** **Detailed knowledge of:** **Methods used:** The student should explain how to: • Draw workshop layout • Align workshop machines • Organise tools and machine • Describe wood processing workshop • Identify wood processing machines • Adhere to safety • Install wood processing machine Organise tools and machine	The following tools and equipment are to be available: • Tape measure • Drawing set • Pegs • Drawing papers • Spirit level • Thread • Hammer • Calculator • Computer set • A3 paper • Spirit level • Thread • Safety gear	73

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge assessments		
			wood processing machine layout	safety		**Principles:** The student should explain principles of planning layout of machines in workshop. **Theories:** The student should explain importance of: • Laying out machines in workshop • Aligning machines in workshop **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions in planning machines in workshop.		
		(b) Equipping wood processing workshop	**Jigsaw**: Guide the students in manageable groups using the jigsaw method to explain the concept of equipping wood processing workshop	• Select wood processing machines • Install wood processing machine • Organise tools	Wood processing workshop equipped as per set standards	**Knowledge evidence:** **Detailed knowledge of:** **Methods used:** The student should explain how to:	The following tools and equipment are to be available: • Tape measure • Drawing set • Pegs	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge assessments		
			Practical demonstration: Demonstrate to students how to install wood processing machine **Practical work:** Engage the students to equip wood processing workshop as per set standards	and machine • Clean tools, and equipment • Store tools, and equipment • Adhere to safety		• Describe wood processing workshop • Identify wood processing machines • Install wood processing machine • Organise tools and machine • Adhere to safety **Principles:** The student should explain principles of performing layout of machines in workshop. **Theories:** The student should explain importance of equipping wood processing workshop **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions in equipping wood	• Drawing papers • Spirit level • Thread • Hammer • Calculator • Computer set • A3 paper • Spirit level • Thread • Safety gear	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge assessments		
						processing workshop		
	3.4 Performing wood processing operations	(a) Preparing work schedule	**Jigsaw**: Guide the students in manageable groups using the jigsaw method to explain the concept of work schedule **ICT-based learning:** Guide the students in small groups through ICT learning approach to describe how to prepare work schedule **Practical demonstration:** Demonstrate to students how to prepare work schedule **Hands-on activities:** Engage the students to prepare work schedule as per technical specifications	• Describe how to prepare work schedule • Describe prepare work schedule • Clean tools, and equipment • Store tools, and equipment • Adhere to safety	Work schedule prepared as per technical specifications	**Knowledge evidence:** **Detailed knowledge of:** **Methods used:** The student should describe how to prepare work schedule **Principles:** The student should explain principles of preparing work schedule **Theories:** The student should explain: • Importance of organizing logging tools, equipment and machines • Importance of organizing sawmill tools, equipment and machines **Circumstantial knowledge** **Detailed knowledge**	The following tools and equipment are to be available: • Computer • Multimedia projector • Overhead projector • Tape measure • Log caliper • Logging tools, equipment, and machines • Sawmill tools, equipment, and machines • Measuring ruler	109

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge assessments		
						about: Safety precautions in Preparing work schedule		
		(b) Supervising wood processing activities	**Brainstorming:** Guide the students in small groups to brainstorm on the concept of supervising wood processing activities	• Identify wood processing activities • Identify logging	Wood processing activities supervised as per technical	**Knowledge evidence:** **Detailed knowledge of:** **Methods used:** The student should explain how to: • Identify wood	The following tools, equipment, and safety gear are to be available: • Tape	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge assessments		
			Practical demonstration: Demonstrate to students how to supervise logging and sawmill activities **Hands-on activities:** Engage the students to supervise wood processing activities as per technical specifications	• activities • Supervise logging activities • Supervise sawmill activities • Clean tools, and equipment • Store tools, and equipment • Adhere to safety	specifications	• processing activities • Identify logging activities • activities • Observe safety **Principles:** The student should explain principles of: • Supervise logging activities • Supervise sawmill **Theories:** The student should explain the: • Importance of preparing work schedule • Importance of coordinating wood processing activities **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions in supervising wood	• measure • Log caliper • Logging tools, equipment, and machines • Sawmill tools, equipment, and machines • Measuring ruler • Safety gear	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge assessments		
						processing activities		
		(c) Coordinating wood processing activities	**Think-ink-pair-share:** Guide the students through think-ink-pair-share to explain how to coordinate wood	• Coordinate wood processing activities	Wood processing activities coordinated as	**Knowledge evidence: Detailed knowledge of:**	The following tools, equipment and safety gear are to be	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge assessments		
			processing activities **Group discussion:** Guide the students to explain how to organise logging tools, equipment, and machines, and organise sawmill tools, equipment, and machines **Demonstration:** Demonstrate to students how to coordinate wood processing activities, organise logging tools, equipment, and machines, organise sawmill tools, and equipment and machines processing activities **Field practical:** Engage field visit and let the students coordinate wood processing activities as per technical specifications	• Observe safety • Organise sawmill tools, equipment and machines • Clean tools, and equipment • Store tools, and equipment • Adhere to safety	per technical specifications	**Methods used:** The student should explain how to: • Coordinate wood processing activities • organise logging tools, equipment and machines • Observe safety **Principles:** The student should explain principles of coordinating wood industries activities **Theories:** The student should explain principles of coordinating wood industries activities **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions in coordinating wood processing activities	available: • Tape measure • Log caliper • Logging tools, equipment and machines • Sawmill tools, equipment, and machines • Measuring ruler • Safety gear	
	3.5 Marketing	(a) Preparing price	**Brainstorming:**	• Select tools	Price for wood	**Detailed knowledge**		

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge assessments		
	wood products and by-products	for wood products and by-products	Guide the students in small groups to brainstorm on the concept of pricing wood products, and by-products, and state the principles of preparing price **Practical demonstration:** Demonstrate to students how to: determine components of marketing product, place price and promotion (4P's), prepare prices for wood products and by-products **Hands-on activities:** Engage the students to prepare prices for wood products and by-products	and equipment for preparing prices for wood products and by-products • Identify wood products and by-products • Identify marketing channel • Carry out a marketing survey • Prepare prices for wood products and by-products	products and by-products correctly prepared	**of:** **The method used:** The students should explain: • Importance of marketing • Components of marketing • Marketing channel • Seasonality of the products **Principles:** The student should explain principles of pricing products **Theories:** The student should explain: • Competitors in business • Product seasonality in marketing • Factors of market opportunities **Circumstantial knowledge**	The following tools, materials, and equipment are to be available: • Market survey tools • Computer set • Calculator • banners • Brochure • Leaflet • Notebook • Ball pen	73

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge assessments		
						Detailed knowledge about: Rules and regulations governing forests		
		(b) Providing customer service	**Brainstorming:** Guide the students in small groups to brainstorm on the concept of providing customer services and principles of providing customer services **Practical demonstration:** Demonstrate to students how to determine the type of consumer, collect information of the customer, determine product quality, and provide customer services **Hands-on activities:** Engage the students in manageable groups to provide customer services	• Select tools and equipment • Determine the type of consumer • Collect information about the customer • Determine product quality • Provide customer services • Adhere to safety principles	Customer services provided as per stipulated standards	**Detailed knowledge of:** **The method used:** The students should explain: • Importance of customer services • Consumers of wood products and by-products • Principles of collecting information about the consumer **Principles:** The student should explain the principles of providing customer service **Theories:** The student should explain: • Importance of marketing	The following tools, materials, and equipment are to be available: • Market survey tools • Computer set • Calculator • banners • Brochure • Leaflet • Notebook • Ball pen	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge assessments		
						• Marketing channels • Components of marketing Product, Place Price, and Promotion (4P's) **Circumstantial knowledge** **Detailed knowledge about:** Rules and regulations governing forests products.		
	3.6 Preparing reports	(a) Collecting information	**ICT-based learning:** Guide the students in small groups through ICT based learning approach to collect information **Group discussion:** Guide the students to explain the procedures and importance of collecting information **Practical demonstration:** Demonstrate to students how to collect information, use Microsoft Word, use Microsoft Excel, organise the report and print report	• Select tools for collecting information • Collect information • Use Microsoft Word • Use Microsoft Excel • Organise the Report • Print reports • Adhere to	Information collected properly as per standards	**Detailed knowledge of:** **The method used:** The students should explain: • Importance of using computer software • Importance editing and setting a document before printing • Report writing standard • Adhere to safety principles	The following tools, materials, and equipment are to be available: • Computer set • Printer • Photocopier • Calculator • Notebook • Ball pen • Marker pen • Flip chart	73

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge assessments		
			Hands-on activities: Engage the students in collecting information and prepare relevant report	safety principles		**Principles:** The student should explain principles of collecting information **Theories:** The student should explain the: • Importance of collecting information • Importance of using computer software **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions involved in collecting information		
		(b) Submitting relevant reports	**Think-ink-pair-share:** Guide the students through think-ink-pair-share to explore the concept of submitting report **Brainstorming:** Guide the students in small groups to explain the	• Select tools and equipment for submitting report • Determine methods for submitting	Relevant reports submitted as per standards	**Detailed knowledge of:** **The method used:** The students should explain: • Methods of submitting relevant reports • Importance of	The following tools, materials, and equipment are to be available: • Computer set • Printer • Photocopier • Calculator • Notebook	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria			Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge assessments		
			techniques for submitting report **Practical demonstration:** Demonstrate to students to the procedure of submitting relevant report **Hands-on activities:** Engage the students to submit relevant report	report • Submit relevant report Adhere to safety principles		submitting report • Adhere to safety principles **Principles:** The student should explain principles of writing reports **Theories:** The student should explain the importance of editing and setting a document before printing **Circumstantial knowledge** **Detailed knowledge about:** Safety precautions involved in preparing reports	• Ball pen • Marker pen • Flip chart	

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