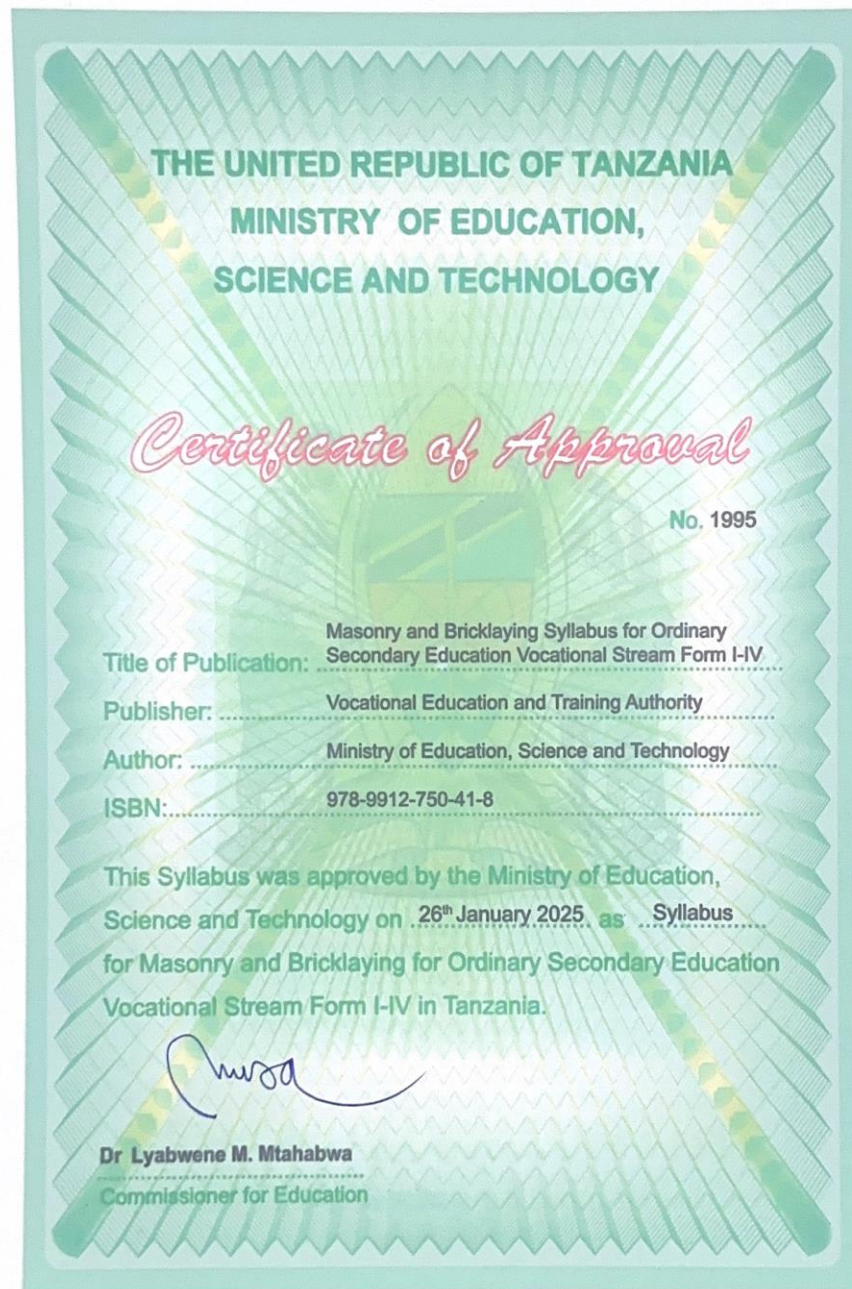


**THE UNITED REPUBLIC OF TANZANIA**

**MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY**



**MASONRY AND BRICKLAYING SYLLABUS FOR ORDINARY SECONDARY  
EDUCATION VOCATIONAL STREAM FORM I-IV.**

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Vocational Education and Training Authority (VETA) 12 VETA Road,  
41104 Tambukareli,

P.O. BOX 802,

Dodoma - Tanzania, Telephone: +255 26 2963661

Website: [www.veta.go.tz](http://www.veta.go.tz)

Email: [info@veta.go.tz](mailto:info@veta.go.tz)

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## **Abbreviations and Acronyms**

<b>Abbreviation</b>	<b>Meaning</b>
BOQ	Bill of Quantities
CA	Computer Application
EET	Entrepreneurship Education and Training
ENG & COMM	English and Communication
EPS	Expanded Polystyrene Walls
FA	Field Attachment
HI	Height of Instrument
LS	Life Skills
MATH.	Mathematics
MB	Masonry and Bricklaying
NEMC	National Environmental Management Council
OHS	Occupational Health and Safety
OSHA	Occupational Safety and Health Authority
PM	Preventive Maintenance
PSC	Printing Science
RC	Reinforced Concrete
RF	Raise and Fall
RL	Reduced Level
TD	Technical Drawing
TIE	Tanzania Institute of Education
VET	Vocational Education and Training
VETA	Vocational Education and Training Authority
WC	Water Closet
SPT	Standard Penetration Test

## **Definition of Key Terms**

**Assessment:** The process of collecting evidence and making judgments on whether competency has been achieved, or whether specific skills and knowledge have been achieved that will lead to the attainment of competency.

**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 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 proved 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 form of practical skills, knowledge and appropriate attitudes.

## **Acknowledgements**

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For and on behalf of:

### **Vocational Education and Training Authority**



CPA. Anthony M. Kasore

### **Director General**

## **1.0 Introduction**

Masonry and Bricklaying is one of the occupations taught in the Ordinary Secondary Education Vocational Stream. Learning Masonry and Bricklaying is essential because Tanzania's growing urbanisation and infrastructure development require skilled artisans in this field. Learning masonry and bricklaying equips students with essential practical skills needed to construct various structures, including walls, pavements, and buildings. These skills support local construction industries and contribute to the country's overall economic development.

Students in the masonry and bricklaying program gain both theoretical knowledge and hands-on experience, preparing them for future careers in the construction industry. The skills acquired are highly sought after and provide a strong foundation for further studies or entrepreneurial ventures. Many graduates become self-employed, managing their own businesses and supporting their families.

An occupation is defined as a specific work area or a group of related job roles that require particular skills, knowledge, and competencies. In the context of masonry and bricklaying, it refers to a specialised trade involving constructing and maintaining buildings and structures using materials like bricks, stones, and concrete blocks. Key tasks in this occupation include interpreting construction drawings, laying foundations, building walls, and performing decorative finishes. Masonry and bricklaying encompass various specialized roles, such as bricklayers, masons, stone masons, block makers, construction supervisors, and foremen. Each role is crucial for the successful execution and management of building projects.

Upon completion of the program, students will possess both theoretical and practical knowledge of masonry and bricklaying, covering everything from material selection to advanced construction techniques. They will be capable of interpreting architectural plans, utilising masonry tools and equipment, and implementing safety practices on construction sites. Also, students will be equipped with the business skills necessary for managing a masonry enterprise, ensuring high standards of quality and innovation in all aspects of the construction industry.

Graduates of the masonry and bricklaying program can find employment in both government and private sectors. Opportunities exist in construction companies, real estate development firms, municipal projects, self-employment, and non-governmental organizations (NGOs) involved in construction and infrastructure development.



The Masonry and Bricklaying Syllabus is designed to guide the teaching and learning at Ordinary Secondary Education Form I-IV Vocational Stream in the United Republic of Tanzania. The syllabus interprets the competences a student needs to develop while learning Masonry and Bricklaying. It contains valuable information that will enable teachers to plan their teaching process and help learners 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 Competencies 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 the ability to:

- (a) Ensuring workplace safety and managing construction sites;
- (b) Maintaining tools, handling equipment, and testing materials;
- (c) Producing masonry works and constructing structures;
- (d) Applying finishing techniques and managing project costs.

### 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 the safety of the workshop and surroundings	1.1 Maintain workshop safety 1.2 Handle accidents and incidents 1.3 Handle fire accidents 1.4 Perform first aid 1.5 Maintain environmental issues
2.0 Preventive maintenance of tools, equipment, and machines	2.1 Maintain tools and equipment 2.2 Maintain machines
3.0 Performing material tests	3.1 Perform site test 3.2 Perform laboratory test

<b>Modules (Main Competence)</b>	<b>Units (Specific competences)</b>
4.0 Making blocks, bricks, and pavings	4.1 Making blocks 4.2 Making bricks 4.3 Making paving blocks and kerbstones 4.4 Making decorations
5.0 Constructing foundations and walls	5.1 Setting out a building 5.2 Excavation of foundation trench 5.3 Constructing foundation 5.4 Constructing walls
6.0 Performing wall and floor finishes	6.1 Making scaffold 6.2 Performing plastering 6.3 Performing floor finish
7.0 Bridging into wall openings	7.1 Constructing lintels 7.2 Constructing arches 7.3 Fixing door and window frames
8.0 Performing basic estimation and costing	8.1 Performing architectural drawings 8.2 Performing costing
9.0 Performing drainage and stone work	9.1 Constructing underground drainage system 9.2 Installing soil appliances 9.3 Constructing sewerage disposal 9.4 Performing stone work
10.0 Performing finishing works	10.1 Fixing tiles, pavements, and parquet 10.2 Performing pointing and jointing 10.3 Making terrazzo 10.4 Decorating internal walls
11.0 Managing small sites	11.1 Building a construction team 11.2 Preparing contracts 11.3 Preparing bill quantities (BOQ) 11.4 Managing site 11.5 Performing site survey
12.0 Constructing upper floors	12.1 Constructing upper floors 12.2 Constructing staircase 12.3 Constructing shores
13.0 Constructing fireplace and flues	13.1 Constructing fireplace and chimney breast 13.2 Constructing chimney flues and fix fireplace appliances
14.0 Performing external finishing and landscaping	14.1 Constructing surface drainage 14.2 Performing landscaping and gardening
15.0 Managing safe work environment	15.1 Managing hazards 15.2 Managing environment
16.0 Managing preventive maintenance	16.1 Planning preventive maintenance 16.2 Supervising preventive maintenance

## **1.0 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.

### **1.1 The teacher**

The teacher is expected to:

- 1.1.1 Help the student to learn and develop the intended competences in Masonry and Bricklaying
- 1.1.2 Use teaching and learning approaches that will allow students with different needs and abilities to:
  - 1.1.2.1.1 Develops the competences needed in the 21<sup>st</sup> Century; and
  - 1.1.2.1.2 Actively participate in the teaching and learning process.
- 1.1.3 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;
- 1.1.4 Create a friendly teaching and learning environment;
- 1.1.5 Prepare and improvise teaching and learning resources;
- 1.1.6 Conduct formative assessment regularly by using tools and methods which assess theory and practice;
- 1.1.7 Treat all the students according to their learning needs and abilities;
- 1.1.8 Protect the student from the risky environment while he or she is at school;
- 1.1.9 Keep track of the student's daily progress;
- 1.1.10 Identify individual student's needs and provide the proper intervention;
- 1.1.11 Involve parents/guardians and the society at large in the student's learning process; and
- 1.1.12 Integrate cross-cutting issues and ICT in the teaching and learning process.

## **1.2 The student**

The student is expected to:

- 1.2.1 Develop the intended competences by participating actively in various learning activities inside and outside the classroom; and
- 1.2.2 Participate in the search for knowledge from various sources, including textbooks, reference books and other publications in online libraries.

## **1.3 The parent/guardian**

The Parents/Guardian is expected to:

- 1.3.1 Monitor the child's academic progress in school;
- 1.3.2 Where possible, provide a child with the needed academic support;

- 1.3.3 Provide a child with a safe and friendly home environment which is conducive for learning;
- 1.3.4 Keep track of a child's progress in behaviour;
- 1.3.5 Provide the child with any necessary materials required in the learning process; and
- 1.3.6 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 which includes but not limited to demonstration, practical/Practical work, observations, role play, simulation, group works, peer teaching/learning, discussions, presentations, field visits, research, and project works. However, a teacher is advised to plan and use other appropriate methods based on the environment or context. All the teaching and learning methods should be integrated with the everyday lives of students. The focus is expected to be on practical application and developing cognitive, affective, and psychomotor skills through learner-centred methods. Vocational teachers act as facilitators, incorporating both school base teaching and 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 or 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 Masonry and Bricklaying 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 which include but not limited to demonstration, 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, examination and project. The

scores obtained from these assessments will be used as Continuous Assessment (CA). Therefore, the continuous assessments shall contribute **9.1**

## **9.1 Project Work**

Project work is a carefully planned and clearly defined task or problem that a student undertakes, either alone 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).

60% and the National Form IV Examination shall be 40%, as indicated in Table 2.

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

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

## **10.0 Number of Periods**

The Masonry and Bricklaying 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 Practical work.

## **11.0 Teaching and Learning Contents**

The contents of the Syllabus are organised into a matrix with seven (07) columns which are main competences, specific competences, learning activities, suggested teaching and learning methods, assessment criteria which is divided into (process assessment, products/service assessment and underpinning knowledge), suggested teaching and learning resources and number of periods as presented in Table 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 per Unit
				Process /Product Assessment	Services Assessment	Knowledge Assessment		
1.0. Maintaining the safety of the workshop and surroundings	1.1. Maintaining Workshop Safety	(a) Maintaining workshop safety rules and regulations	<b>Brainstorming:</b> Engage students in identifying key safety rules and their importance in workshop environments. <b>Demonstration:</b> Show students how to enforce safety regulations, such as proper signage, cleanliness, and tool storage <b>Practical work:</b> Guide students in implementing and monitoring workshop safety	The student should be able to: <ul style="list-style-type: none"> <li>• Select relevant safety gears</li> <li>• Take precautions against health and safety hazards.</li> <li>• Clean workshop, tools, equipment and workshop surroundings</li> <li>• Apply safety gears</li> <li>• Dispose of different types of wastes as per OHS</li> </ul>	Workshop rules and regulations are adhered to	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b> The student should explain different methods for maintaining workshop safety rules and regulations <b>Principles:</b> The student should be able to explain the principles of workshop safety <b>Theories:</b> The student should explain:-	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Safety boots</li> <li>• Gloves</li> <li>• Overalls</li> <li>• Cleaning materials</li> <li>• Hoe</li> <li>• Broom</li> <li>• Brush</li> <li>• Dust covers</li> <li>• Dust mask</li> <li>• Dust bins</li> </ul>	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 per Unit
				Process /Product Assessment	Services Assessment	Knowledge Assessment		
			rules during practical sessions			<ul style="list-style-type: none"> <li>Classification of wastes and their hazards:</li> <li>Importance of cleaning a workshop and surrounding</li> <li>Purpose of each safety gear</li> </ul> <b>Circumstantial knowledge</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>OSHA rules and regulations</li> </ul>		
		(b) Maintaining workshop working environment	<b>Think-Pair-Share:</b> Facilitate discussions where students explore the characteristics of an ideal	The student should be able to: <ul style="list-style-type: none"> <li>Select relevant safety gears</li> <li>Maintain workshop</li> </ul>	Workshop working environment is maintained as per safety rules and regulations	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b> The student should be able to explain strategies for	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>Safety boots</li> <li>Gloves</li> <li>Overalls</li> </ul>	

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 /Product Assessment	Services Assessment	Knowledge Assessment		
			workshop environment <b>Demonstration:</b> Show students how to organise tools, clean workspaces, and maintain lighting and ventilation <b>Practical work:</b> Guide students in improving and maintaining a mock workshop environment <b>Field Visit:</b> Take students to observe well-maintained workshops <b>Videos:</b> Provide visual aids to enhance	<ul style="list-style-type: none"> <li>• Interpreted different safety signs in the workshop</li> <li>• Draw safety signs</li> <li>• Clean workshop, tools, equipment and workshop surroundings</li> <li>• Store equipment and safety gears</li> <li>• Dispose different types of wastes as per OHS</li> </ul>		maintaining a safe workshop working environment <b>Principles:</b> The student should be able to explain the principles of maintaining the workshop working environment <b>Theories:</b> The student should explain:- <ul style="list-style-type: none"> <li>• Possible workshop accidents and their causes and prevention</li> <li>• Methods of disposing of different types of wastes</li> <li>• Classification of wastes and their hazards</li> </ul>	<ul style="list-style-type: none"> <li>• Cleaning materials</li> <li>• Hoe</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> <li>• Broom</li> <li>• Brush</li> <li>• Safety gear (PPE)</li> <li>• Dust covers</li> <li>• Dust mask</li> <li>• Dust bins</li> <li>• Approval</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector2</li> </ul>	

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 /Product Assessment	Services Assessment	Knowledge Assessment		
			students' understanding of workshop maintenance			<ul style="list-style-type: none"> <li>Importance of cleaning a workshop and surrounding</li> </ul> <b>Circumstantial knowledge</b> <b>Detailed knowledge about:</b> OSHA rules and regulations		
		(c) Maintaining personal safety	<b>Group Work:</b> Facilitate discussions where students identify personal safety measures and their importance <b>Demonstration:</b> Show students how to use personal protective equipment (PPE) and	The student should be able to: <ul style="list-style-type: none"> <li>Select relevant safety gears</li> <li>Identify causes of health and safety hazards in a workshop and its surroundings</li> <li>Interpreted different safety signs in the workshop</li> </ul>	Personal safety is maintained as per safety rules and regulations	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b> The student should explain how to maintain personal safety <b>Principles:</b> The student should explain the principles of maintaining safety <b>Theories:</b> The	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>Safety boots</li> <li>Gloves</li> <li>Overalls</li> <li>Cleaning materials</li> <li>Hoe</li> <li>Broom</li> <li>Brush</li> <li>Safety gear (PPE)</li> </ul>	

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 /Product Assessment	Services Assessment	Knowledge Assessment		
			<p>follow safe practices</p> <p><b>Practical work:</b> Guide students in implementing personal safety measures during practical tasks</p> <p><b>Videos:</b> Use instructional videos to help students understand personal safety protocols</p>	<ul style="list-style-type: none"> <li>• Draw safety signs</li> <li>• Clean workshop, tools, equipment and workshop surroundings</li> <li>• Store equipment and safety gears</li> <li>• Apply safety gears</li> </ul>		<p>student should explain:-</p> <ul style="list-style-type: none"> <li>• Workshop accidents, causes, and prevention</li> <li>• Waste disposal methods</li> <li>• Waste classification and hazards</li> <li>• Importance of workshop cleanliness</li> <li>• Purpose of safety gear</li> </ul> <p><b>Circumstantial knowledge</b></p> <p><b>Detailed knowledge about:</b></p> <ul style="list-style-type: none"> <li>• OSHA rules and regulations</li> <li>• Safe working practices</li> </ul>	<ul style="list-style-type: none"> <li>• Dust covers</li> <li>• Dust mask</li> <li>• Dust bins</li> </ul>	

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 /Product Assessment	Services Assessment	Knowledge Assessment		
						<ul style="list-style-type: none"> <li>Waste disposal procedures</li> <li>Workshop rules and regulations</li> </ul>		
		(d) Maintaining safety gears	<b>Brainstorming:</b> Discuss with students the importance of maintaining safety gears for effectiveness and longevity <b>Demonstration:</b> Show students how to inspect, clean, and store safety gear properly <b>Practical work:</b> Guide students in maintaining safety gear such as helmets,	<b>The student should be able to:</b> <ul style="list-style-type: none"> <li>Select relevant safety gears</li> <li>Clean workshop, tools, equipment and workshop surroundings</li> <li>Store equipment and safety gear</li> <li>Apply safety gears</li> </ul>	Safety gear is maintained as per safety rules and regulations	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b> The student should explain how to maintain safety gear <b>Principles:</b> The student should explain the principles of maintaining <b>Theories:</b> The student should explain:-	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>Safety boots</li> <li>Gloves</li> <li>Overalls</li> <li>Cleaning materials</li> <li>Hoe</li> <li>Broom</li> <li>Brush</li> <li>Safety gear (PPE)</li> <li>Dust covers</li> <li>Dust mask</li> <li>Dust bins</li> <li>Computer</li> </ul>	

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 /Product Assessment	Services Assessment	Knowledge Assessment		
			gloves, and goggles <b>Field Visit:</b> Arrange visits to workshop for students to observe safety gear maintenance practices <b>Videos:</b> Provide tutorials to enhance students' understanding of safety gear care			<ul style="list-style-type: none"> <li>Purpose of each safety gear</li> <li>Different safety gears and their importance</li> </ul> <b>Circumstantial knowledge</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>OSHA rules and regulations</li> <li>Safe working practices</li> <li>Workshop rules and regulations</li> </ul>	<ul style="list-style-type: none"> <li>Internet</li> <li>Projector</li> </ul>	
	1.2. Handling Accidents and Incidents	a) Handling mechanical hazards	<b>Think-Pair-Share:</b> Encourage students to discuss common mechanical	<b>The student should be able to:</b> <ul style="list-style-type: none"> <li>Carry out first aid to persons involved in</li> </ul>	Mechanical hazards are handled according to workshop rules and	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b> The student should	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>Tool kit</li> </ul>	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 per Unit
				Process /Product Assessment	Services Assessment	Knowledge Assessment		
			hazards and their impacts <b>Demonstration:</b> Show students how to identify, avoid, and mitigate mechanical hazards in a workshop <b>Practical work:</b> Guide students in handling mechanical hazards safely during practical sessions <b>Field Visit:</b> Take students to a workshop to observe safety measures against mechanical hazards in	accidents related to mechanical hazards • Use service manual • Interpret workshop rules and regulations • React correctly and safely when faced with an emergency • Identify and apply all emergency equipment and supplies • Locate first aid kit • Take the necessary steps to save the victim	regulations	explain how to handle mechanical hazards <b>Principles:</b> The student should explain the principles of handling mechanical hazards <b>Theories:</b> The student should explain:- • Effects of mechanical hazards • Emergency life support • Treatment for fractures • Treatment for an unconscious person • Importance of using safety gears	• Fire extinguisher • Power Machines • Overalls • Rubber gloves • Gloves • Safety boots • Safety clear glasses • First aid kit • First aid poster • Helmet • Gloves • Ear plug • Mask • overall • Safety boots • Gloves • Workshop rules and	

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				Process /Product Assessment	Services Assessment	Knowledge Assessment		
			professional settings <b>Videos:</b> Use tutorials to help students understand hazard identification and control	<ul style="list-style-type: none"> <li>• Report to superiors</li> <li>• Record accidents</li> <li>• Make periodic inspections of the workshop area and equipment</li> <li>• Identify hazard material</li> <li>• Handle hazard material</li> <li>• Use colour code and know what colour represent</li> <li>• Handle mechanical</li> </ul>		<ul style="list-style-type: none"> <li>• Advantages of accident prevention</li> <li>• Usage of colour code and safety signs</li> </ul> <p><b>Circumstantial knowledge Detailed knowledge about:</b></p> <ul style="list-style-type: none"> <li>• Safety precautions while handling accidents and incidents</li> <li>• Safe handling of tools, equipment and machines</li> </ul>	regulations guidelines <ul style="list-style-type: none"> <li>• Service manual</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	
		(b) Handling Physical hazards	<b>Group Work:</b> Facilitate discussions where students	The student should be able to:	Physical hazards are handled according to	<b>Knowledge evidence: Detailed knowledge of:</b>	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 /Product Assessment	Services Assessment	Knowledge Assessment		
			<p>identify types of physical hazards, such as noise, vibration, and heat</p> <p><b>Demonstration:</b> Show students how to manage and mitigate physical hazards using appropriate tools and methods</p> <p><b>Practical work:</b> Guide students in handling physical hazards during workshop tasks</p> <p><b>Field Visit:</b> Take students to construction site to observe physical hazard</p>	<ul style="list-style-type: none"> <li>• Carry out first aid to persons involved in accidents related to physical hazards</li> <li>• Use service manual</li> <li>• Interpret workshop rules and regulations</li> <li>• React correctly and safely when faced with a n emergency</li> <li>• Identify and apply all emergency equipment and supplies</li> <li>• Locate first aid kit</li> </ul>	workshop rules and regulations	<p><b>Method used:</b> The student should be able to explain how to handle physical hazards</p> <p><b>Principles:</b> The student should explain the principles of handling physical hazards</p> <p><b>Theories:</b> The student should explain:-</p> <ul style="list-style-type: none"> <li>• Effects of physical hazards</li> <li>• Emergency life support</li> <li>• Treatment for fractures</li> <li>• Treatment for an unconscious person</li> </ul>	<p>available:</p> <ul style="list-style-type: none"> <li>• Tool kit</li> <li>• Fire extinguisher</li> <li>• Power Machines</li> <li>• Overalls</li> <li>• Rubber gloves</li> <li>• Gloves</li> <li>• Safety boots</li> <li>• Safety clear glasses</li> <li>• First aid kit</li> <li>• First aid poster</li> <li>• Helmet</li> <li>• Gloves</li> <li>• Earplug</li> <li>• Mask</li> <li>• overall</li> <li>• Safety boots</li> <li>• Gloves</li> </ul>	

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 /Product Assessment	Services Assessment	Knowledge Assessment		
			management in real construction settings <b>Videos:</b> Provide visual aids to enhance students' understanding of physical hazard control	<ul style="list-style-type: none"> <li>• Take the necessary steps to save the victim</li> <li>• Report to superiors</li> <li>• Record accidents</li> <li>• Make periodic inspections of the workshop area and equipment</li> <li>• Identify hazard material</li> <li>• Handle hazard material</li> <li>• Use colour code and know what colour represent</li> <li>• Handle physical</li> </ul>		<ul style="list-style-type: none"> <li>• Importance of using safety gears</li> <li>• Advantages of accident prevention</li> <li>• Usage of colour code and safety signs</li> </ul> <p><b>Circumstantial knowledge</b> <b>Detailed knowledge about:</b></p> <ul style="list-style-type: none"> <li>• Safety precautions while handling accidents and incidents</li> <li>• Safe handling of tools, equipment and machines</li> </ul>	<ul style="list-style-type: none"> <li>• Workshop rules and regulations guidelines</li> <li>• Service manual</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	

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 /Product Assessment	Services Assessment	Knowledge Assessment		
		(c) Handling chemical hazards	<b>Brainstorming:</b> Engage students in identifying the risks and handling procedures for hazardous chemicals <b>Demonstration:</b> Show students how to store, label, and safely use chemicals in the workshop <b>Practical work:</b> Guide students in safely handling chemicals during practical tasks <b>Field Visit:</b> Arrange for students to observe	<b>The student should be able to:</b> <ul style="list-style-type: none"> <li>Carry out first aid to persons involved in accidents related to chemical hazards</li> <li>Interpret workshop rules and regulations</li> <li>React correctly and safely when faced with an emergency</li> <li>Identify and apply all emergency</li> </ul>	Chemical hazards are handled according to workshop rules and regulations	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b> The student should be able to explain how to handle chemical hazards effectively <b>Principles:</b> The student should be able to explain the principles of handling chemical hazards: <b>Theories:</b> The student should explain:- <ul style="list-style-type: none"> <li>Effects of physical hazards</li> <li>Emergency life support</li> </ul>	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>Tool kit</li> <li>Fire extinguisher</li> <li>Power Machines</li> <li>Overalls</li> <li>Rubber gloves</li> <li>Gloves</li> <li>Safety boots</li> <li>Safety clear glasses</li> <li>First aid kit</li> <li>First aid poster</li> <li>Helmet</li> <li>Gloves</li> <li>Ear plug</li> <li>Mask</li> <li>overall</li> </ul>	

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 /Product Assessment	Services Assessment	Knowledge Assessment		
			chemical hazard management practices in professional settings <b>Videos:</b> Provide tutorials to help students understand chemical hazard control	equipment and supplies <ul style="list-style-type: none"> <li>• Locate first aid kit</li> <li>• Take the necessary steps to save the victim</li> <li>• Report to superiors</li> <li>• Record accidents</li> <li>• Make periodic inspections of the workshop area and equipment</li> <li>• Identify hazard material</li> <li>• Handle hazard material</li> </ul>		<ul style="list-style-type: none"> <li>• Treatment for fractures</li> <li>• Treatment for an unconscious person</li> <li>• Importance of using safety gears</li> <li>• Advantages of accident prevention</li> <li>• Usage of colour code and safety signs</li> </ul> <b>Circumstantial knowledge</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>• Safety precautions while handling accidents and incidents</li> </ul>	<ul style="list-style-type: none"> <li>• Safety boots</li> <li>• Gloves</li> <li>• Workshop rules and regulations guidelines</li> <li>• Service manual</li> </ul>	

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 /Product Assessment	Services Assessment	Knowledge Assessment		
				<ul style="list-style-type: none"> <li>• Use colour code and know what colour represent</li> <li>• Handle chemical hazards</li> </ul>		<ul style="list-style-type: none"> <li>• Safe handling of tools, equipment and machines</li> </ul>		
		(d) Handling electrical hazards	<b>Think-Pair-Share:</b> Facilitate discussions where students explore common electrical hazards and their impacts  <b>Demonstration:</b> Show students how to identify, prevent, and respond to electrical hazards	<b>The student should be able to:</b> <ul style="list-style-type: none"> <li>• Carry out first aid to persons involved in accidents related to chemical hazards</li> <li>• Interpret workshop rules and regulations</li> <li>• React correctly and</li> </ul>	Electrical hazards are handled according to workshop rules and regulations	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b> The student should be able to explain how to handle electrical hazards:  <b>Principles:</b> The student should explain the principles of handling electrical hazards: <ul style="list-style-type: none"> <li>•</li> </ul> <b>Theories:</b> The	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Tool kit</li> <li>• Fire extinguisher</li> <li>• Power Machines</li> <li>• Overalls</li> <li>• Rubber gloves</li> <li>• Gloves</li> <li>• Safety boots</li> <li>• Safety clear glasses</li> </ul>	

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 /Product Assessment	Services Assessment	Knowledge Assessment		
			<b>Practical work:</b> Guide students in safely working with electrical tools and circuits <b>Field Visit:</b> Take students to construction site to observe electrical safety practices on construction sites <b>Videos:</b> Use tutorials to enhance students' understanding of electrical hazard management	safely when faced with an emergency <ul style="list-style-type: none"> <li>Identify and apply all emergency equipment and supplies</li> <li>Locate first aid kit</li> <li>Take the necessary steps to save the victim</li> <li>Report to superiors</li> <li>Record accidents</li> <li>Make periodic inspections of the workshop</li> </ul>		student should explain:- <ul style="list-style-type: none"> <li>Effects of electrical hazards</li> <li>Emergency life support</li> <li>Treatment for fractures</li> <li>Treatment for an unconscious person</li> <li>Importance of using safety gears</li> <li>Advantages of accident prevention</li> <li>Usage of colour code and safety signs</li> </ul> <b>Circumstantial knowledge Detailed</b>	<ul style="list-style-type: none"> <li>First aid kit</li> <li>First aid poster</li> <li>Helmet</li> <li>Gloves</li> <li>Ear plug</li> <li>Mask</li> <li>overall</li> <li>Safety boots</li> <li>Gloves</li> <li>Workshop rules and regulations guidelines</li> <li>Service manual</li> <li>Computer</li> <li>Internet</li> <li>Projector</li> </ul>	

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 /Product Assessment	Services Assessment	Knowledge Assessment		
				area and equipment <ul style="list-style-type: none"> <li>Identify hazard material</li> <li>Handle hazard material</li> <li>Use colour code and know what colour represent</li> <li>Handle electrical hazards</li> </ul>		<b>knowledge about:</b> <ul style="list-style-type: none"> <li>Safety precautions while handling accidents and incidents</li> <li>Safe handling of tools, equipment and machines</li> <li>Waste disposal methods</li> </ul>		
		(e) Handling ergonomic hazards	Group Discussion: Facilitate a session where students identify ergonomic risks such as improper posture or	<b>The student should be able to:</b> <ul style="list-style-type: none"> <li>Carry out first aid to persons involved in accidents related to</li> </ul>	Ergonomic hazards are handled according to workshop rules and regulations	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b> The student should be able to explain how to handle ergonomic hazards	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>Tool kit</li> <li>Fire extinguisher</li> </ul>	

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				Process /Product Assessment	Services Assessment	Knowledge Assessment		
			repetitive strain <b>Demonstration:</b> Show students how to set up workstations and use tools ergonomically <b>Practical work:</b> Guide students in practising ergonomic techniques during tasks <b>Field Visit:</b> Take students to workshop or construction site observe ergonomic practices in professional environments <b>Videos:</b> Provide instructional videos to	ergonomic hazards <ul style="list-style-type: none"> <li>• Interpret workshop rules and regulations</li> <li>• React correctly and safely when faced with a n emergency</li> <li>• Identify and apply all emergency equipment and supplies</li> <li>• Locate first aid kit</li> <li>• Take the necessary steps to save the victim</li> <li>• Report to superiors</li> </ul>		<b>Principles:</b> The student should explain the principles of handling ergonomic hazards: <b>Theories:</b> The student should explain:- <ul style="list-style-type: none"> <li>• Effects of ergonomic hazards</li> <li>• Emergency life support</li> <li>• Treatment for fractures</li> <li>• Treatment for an unconscious person</li> <li>• Importance of using safety gears</li> <li>• Advantages of accident prevention</li> </ul>	<ul style="list-style-type: none"> <li>• Power Machines</li> <li>• Overalls</li> <li>• Rubber gloves</li> <li>• Gloves</li> <li>• Safety boots</li> <li>• Safety clear glasses</li> <li>• First aid kit</li> <li>• First aid poster</li> <li>• Helmet</li> <li>• Gloves</li> <li>• Ear plug</li> <li>• Mask</li> <li>• overall</li> <li>• Safety boots</li> <li>• Gloves</li> <li>• Workshop rules and regulations guidelines</li> </ul>	



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 /Product Assessment	Services Assessment	Knowledge Assessment		
			enhance students' understanding of ergonomics	<ul style="list-style-type: none"> <li>Record accidents</li> <li>Make periodic inspections of the workshop area and equipment</li> <li>Use colour code and know what colour represent</li> <li>Handle ergonomic hazards</li> </ul>		<ul style="list-style-type: none"> <li>Usage of colour code and safety signs</li> </ul> <b>Circumstantial knowledge</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>Safety precautions while handling accidents and incidents</li> <li>Safe handling of tools, equipment and machines</li> <li>Waste disposal methods</li> </ul>	<ul style="list-style-type: none"> <li>Service manual</li> <li>Computer</li> <li>Internet</li> <li>Projector</li> </ul>	
	1.3. Handling Fire Accidents	(a) Handling firefighting equipment and materials	<b>Brainstorming:</b> Engage students in discussing the types of firefighting equipment and	<b>The student should be able to:</b> <ul style="list-style-type: none"> <li>Select tools, equipment</li> </ul>	Firefighting equipment and materials are handled as per rules and	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b> The student should	The following tools, equipment and safety gear are to be available:	70

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 /Product Assessment	Services Assessment	Knowledge Assessment		
			<p>their uses</p> <p><b>Demonstration:</b> Show students how to operate fire extinguishers and other firefighting tools</p> <p><b>Practical work:</b> Guide students in practising the use of firefighting equipment in simulated scenarios</p> <p><b>Field Visit:</b> Take students to a workshop observe firefighting equipment in professional environments</p>	<p>and safety gears</p> <ul style="list-style-type: none"> <li>Identify common classes of fire</li> <li>Use first aid kit</li> <li>React correctly and safely when faced with different types of fire</li> <li>Check and test fire extinguishers</li> <li>Clean up tools, equipment and working place</li> <li>Store tools, equipment</li> </ul>	regulations	<p>be able to explain how to handle firefighting equipment and materials</p> <p><b>Principles:</b> The student should explain the principles of handling firefighting equipment and materials</p> <p><b>Theories:</b> The student should explain:-</p> <ul style="list-style-type: none"> <li>Importance of checking and servicing fire extinguishers</li> <li>Importance of differentiated firefighting materials</li> </ul>	<ul style="list-style-type: none"> <li>Firefighting rules and regulations</li> <li>Workshop rules and regulations</li> <li>Fire extinguishers</li> <li>Firefighting materials</li> <li>First aid kit</li> <li>Gloves</li> <li>Safety boots</li> <li>Overall</li> <li>Safety clear glasses</li> </ul>	

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 /Product Assessment	Services Assessment	Knowledge Assessment		
				and safety gears				
		(b) Handling different types of fire	<b>Think-Pair-Share:</b> Encourage students to discuss types of fire and their corresponding extinguishing methods <b>Demonstration:</b> Show students how to safely extinguish different types of fire <b>Practical work:</b> Guide students in handling fire safety scenarios using appropriate equipment <b>Field Visit:</b>	<b>The student should be able to:</b> <ul style="list-style-type: none"> <li>• Select tools, equipment and safety gears</li> <li>• Identify common classes of fire</li> <li>• Use first aid kit</li> <li>• React correctly and safely when faced with different types of fire</li> <li>• Apply right class of fire extinguisher</li> </ul>	Different types of fire are handled as per rules and regulations	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b> The student should explain how to handle different types of fire: <b>Principles:</b> The student should explain the principles of handling different types of fire: <b>Theories:</b> The student should explain:- <ul style="list-style-type: none"> <li>• Importance of handling fire accidents</li> </ul>	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Firefighting rules and regulations</li> <li>• Workshop rules and regulations</li> <li>• Fire extinguishers</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> <li>• Firefighting materials</li> <li>• First aid kit</li> <li>• Gloves</li> <li>• Safety boots</li> <li>• Overall</li> </ul>	

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 /Product Assessment	Services Assessment	Knowledge Assessment		
			Take students to a workshop observe fire safety drills in professional settings <b>Videos:</b> Provide visual aids to enhance students' understanding of fire management	<ul style="list-style-type: none"> <li>• Handle different types of fire</li> <li>• Apply right class of firefighting materials</li> <li>• Check and test fire extinguishers</li> <li>• Clean up tools, equipment and working place</li> <li>• Store tools, equipment and safety gears</li> </ul>		<ul style="list-style-type: none"> <li>• Types and common classes of fire</li> <li>• Handle different types of fire</li> <li>• Importance of checking and servicing fire extinguishers</li> <li>• Importance of differentiated firefighting materials</li> </ul> <b>Circumstantial knowledge</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>• Safety precautions while handling fire accidents</li> <li>• Safe handling of tools and equipment</li> </ul>	<ul style="list-style-type: none"> <li>• Safety clear glasses</li> </ul>	

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				Process /Product Assessment	Services Assessment	Knowledge Assessment		
						<ul style="list-style-type: none"> <li>Waste disposal methods</li> </ul>		
	1.4. Performing First Aid	(a) Performing artificial respiration	<b>Brainstorming:</b> Engage students in discussing situations where artificial respiration is necessary and its importance in saving lives <b>Demonstration:</b> Show students the correct techniques for performing artificial respiration on a dummy or simulation model <b>Practical work:</b> Guide students in practising artificial	<b>The student should be able to:</b> <ul style="list-style-type: none"> <li>Select tools and equipment</li> <li>Carry out artificial respiration</li> <li>Sterilize first aid tools</li> <li>Observe safety precautions</li> <li>Store first aid kit</li> </ul>	Artificial respiration is performed according to established first aid protocols and guidelines	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b> The student should explain how to perform artificial respiration <b>Principles:</b> The student should explain the principles of performing artificial respiration- <b>Theories:</b> The student should explain:- <ul style="list-style-type: none"> <li>Different types of accidents</li> </ul>	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>First aid Kit</li> <li>Stretcher</li> <li>Light blanket</li> <li>Sterilizer</li> <li>Towel</li> <li>Overall</li> <li>Medical gloves</li> <li>Safety boots</li> <li>Computer</li> <li>Internet</li> <li>Projector</li> </ul>	70

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 /Product Assessment	Services Assessment	Knowledge Assessment		
			respiration techniques on mannequins under supervision <b>Field Visit:</b> Arrange for students to observe emergency responders demonstrating artificial respiration during training sessions <b>Videos:</b> Provide tutorials to help students understand and visualise artificial respiration procedures			<ul style="list-style-type: none"> <li>Types of artificial respiration</li> <li>The use of accessories in a first aid kit</li> <li>Importance of first aid</li> </ul> <b>Circumstantial knowledge</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>Safety precautions are to be observed while performing first aid</li> <li>Safe handling of first aid kit</li> <li>Waste disposal</li> </ul>		

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
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		(b) Performing first aid to minor wound scalpels	<b>Think-Pair-Share:</b> Facilitate discussions where students explore first aid principles for minor wounds <b>Demonstration:</b> Show students how to clean, dress, and bandage minor wounds safely <b>Practical work:</b> Guide students in practising first aid techniques for minor wounds using first aid kits <b>Field Visit:</b> Arrange for students to	<ul style="list-style-type: none"> <li>• Select tools and equipment</li> <li>• Identify types of injuries</li> <li>• Attend minor wounds</li> <li>• Sterilize first aid tools</li> <li>• Observe safety precautions</li> <li>• Store first aid kit</li> </ul>	First aid for minor wounds from scalpels is performed according to established protocols and guidelines	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b> The student should explain how to perform first aid to minor wound scalpels <b>Principles:</b> The student should explain the principles of performing first aid to minor wound scalpels:- <b>Theories:</b> The student should explain:- <ul style="list-style-type: none"> <li>• Different types of wounds</li> <li>• Different types of accidents</li> </ul>	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• First-aid Kit</li> <li>• Stretcher</li> <li>• Light blanket</li> <li>• Sterilizer</li> <li>• Towel</li> <li>• Overall</li> <li>• Medical gloves</li> <li>• Safety boots</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	

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 /Product Assessment	Services Assessment	Knowledge Assessment		
			observe professional first aid demonstrations in medical or training centres <b>Videos:</b> Use instructional videos to enhance students' understanding of first aid techniques			<ul style="list-style-type: none"> <li>The use of accessories in a first-aid kit</li> <li>Importance of first aid</li> </ul> <b>Circumstantial knowledge</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>Safety precautions to be observed while performing first aid</li> <li>Safe handling of first aid kit</li> <li>Waste disposal</li> </ul>		
2.0. Preventive maintenance of tools, equipment and machine	2.1. Maintaining tools and equipment	(a) Maintaining cutting tools	<b>Brainstorming:</b> Engage students in discussing the importance of maintaining cutting tools for efficiency and	<b>The student should be able to:</b> <ul style="list-style-type: none"> <li>Re-sharpening and</li> </ul>	Cutting tools are maintained according to best practices and safety regulations to	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b> The student should explain different	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>Masonry cutting tools</li> </ul>	315



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 /Product Assessment	Services Assessment	Knowledge Assessment		
			<p>safety</p> <p><b>Demonstration:</b> Show students how to clean, sharpen, and store cutting tools properly</p> <p><b>Practical work:</b> Guide students in maintaining cutting tools such as saws, chisels, and knives</p> <p><b>Field Visit:</b> Take students to workshops or construction site where professionals demonstrate tool maintenance</p> <p><b>Videos:</b> Provide tutorials to help students</p>	<p>oil/grease-cutting tools</p> <ul style="list-style-type: none"> <li>• Store cutting tools safely</li> <li>• Handle different cutting tools safely</li> <li>• Identify faults at early stages</li> </ul>	<p>ensure optimal performance and safety in the workshop environment</p>	<p>procedures of maintaining tools</p> <p><b>Principles:</b> The student should explain principles involved in maintaining workshop tools</p> <p><b>Theories:</b> The student should explain:</p> <ul style="list-style-type: none"> <li>• Types of maintenance</li> <li>• Steps of sharpening</li> <li>• Types of greasing</li> <li>• Oiling</li> <li>• Importance of maintaining tools</li> <li>• Maintenance schedules</li> <li>• Types of tools and their uses</li> </ul>	<ul style="list-style-type: none"> <li>• Oilcan, grease gun</li> <li>• Brushes 1” – 4”</li> <li>• Safety boots</li> <li>• Helmet</li> <li>• Gloves</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	

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 /Product Assessment	Services Assessment	Knowledge Assessment		
			understand cutting tool maintenance procedures			<b>Circumstantial knowledge</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>• Safety precautions when maintaining various tools</li> <li>• Environmental issues</li> <li>• First aid</li> </ul>		
		(b) Maintaining laying tools	Group Discussion: Facilitate a session where students identify the types of laying tools and their maintenance needs <b>Demonstration:</b> Show students how to clean	<b>The student should be able to:</b> <ul style="list-style-type: none"> <li>• Oil/grease laying tools</li> <li>• Store lying tools safely</li> <li>• Handle different laying tools safely</li> </ul>	Laying tools are maintained according to best practices and safety standards to ensure effective performance and safety in the workshop environment	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b> The student should explain different procedures for maintaining tools <b>Principles:</b> The student should explain the principles involved	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Masonry laying tools</li> <li>• Oilcan, grease gun</li> <li>• Brushes 1” – 4”</li> <li>• Safety boots</li> <li>• Helmet</li> </ul>	

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 /Product Assessment	Services Assessment	Knowledge Assessment		
			and calibrate laying tools like trowels and levels <b>Practical work:</b> Guide students in maintaining laying tools during practical sessions <b>Field Visit:</b> Arrange for students to observe professionals maintaining laying tools in construction settings <b>Videos:</b> Use visual aids to enhance students' understanding of tool	<ul style="list-style-type: none"> <li>Identify faults at early stages</li> </ul>		in maintaining workshop tools <b>Theories:</b> The student should explain: <ul style="list-style-type: none"> <li>Types of maintenance</li> <li>Types of greasing</li> <li>Oiling</li> <li>Importance of maintaining tools</li> <li>Maintenance schedules</li> <li>Types of tools and their uses</li> </ul> <b>Circumstantial knowledge</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>Safety precautions when</li> </ul>	<ul style="list-style-type: none"> <li>Gloves</li> <li>Computer</li> <li>Internet</li> <li>Projector</li> </ul>	

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 /Product Assessment	Services Assessment	Knowledge Assessment		
			maintenance			maintaining various tools <ul style="list-style-type: none"> <li>• Environmental issues</li> <li>• First aid</li> </ul>		
		(c) Maintaining measuring tools	<b>Brainstorming:</b> Discuss with students the importance of accuracy in maintaining measuring tools <b>Demonstration:</b> Show students how to clean, calibrate, and store tools like tape measures, theodolites, and laser levels <b>Practical work:</b> Guide students in maintaining measuring tools during	<b>The student should be able to:</b> <ul style="list-style-type: none"> <li>• Oil/grease measuring tools</li> <li>• Store measuring tools safely</li> <li>• Handle different measuring tools safely</li> <li>• Identify faults at early stages</li> </ul>	Measuring tools are maintained according to industry standards and safety regulations to ensure accuracy and reliability in the workshop environment	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b> The student should explain different procedures for maintaining tools <b>Principles:</b> The student should explain the principles involved in maintaining workshop tools <b>Theories:</b> The student should explain: <ul style="list-style-type: none"> <li>• Types of maintenance</li> </ul>	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Masonry measuring tools</li> <li>• Oilcan, grease gun</li> <li>• Brushes 1” – 4”</li> <li>• Safety boots</li> <li>• Helmet</li> <li>• Gloves</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	

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 /Product Assessment	Services Assessment	Knowledge Assessment		
			workshop exercises <b>Field Visit:</b> Take students to a workshop observe professionals performing tool maintenance <b>Videos:</b> Provide tutorials to help students understand best practices for maintaining measuring tools			<ul style="list-style-type: none"> <li>Types of greasing</li> <li>Oiling</li> <li>Importance of maintaining tools</li> <li>Maintenance schedules</li> <li>Types of tools and their uses</li> </ul> <b>Circumstantial knowledge</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>Safety precautions when maintaining various tools</li> <li>Environmental issues</li> <li>First aid</li> </ul>		
		(d) Maintaining finishing tools	<b>Think-Pair-Share:</b> Encourage	<b>The student should be able to:</b>	Finishing tools are maintained	<b>Knowledge evidence:</b> <b>Detailed</b>	The following tools, equipment and safety gear	

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				Process /Product Assessment	Services Assessment	Knowledge Assessment		
			<p>students to discuss the significance of maintaining finishing tools for quality construction</p> <p><b>Demonstration:</b> Show students how to clean and care for tools like floats, brushes, and trowels</p> <p><b>Practical work:</b> Guide students in maintaining finishing tools during practical sessions</p> <p><b>Field Visit:</b> Arrange for students to visit professional workshops to</p>	<ul style="list-style-type: none"> <li>Oil/grease finishing tools</li> <li>Store finishing tools safely</li> <li>Handle different finishing tools safely</li> <li>Identify faults at early stage</li> </ul>	according to best practices and safety regulations to ensure optimal performance and quality in the workshop environment	<p><b>knowledge of:</b></p> <p><b>Method used:</b> The student should explain different procedures for maintaining finishing tools</p> <p><b>Principles:</b> The student should explain the principles involved in maintaining finishing tools</p> <p><b>Theories:</b> The student should explain:</p> <ul style="list-style-type: none"> <li>Types of maintenance</li> <li>Types of greasing</li> <li>Oiling</li> <li>Importance of maintaining tools</li> </ul>	<p>are to be available:</p> <ul style="list-style-type: none"> <li>Masonry finishing tools</li> <li>Oilcan, grease gun</li> <li>Brushes 1” – 4”</li> <li>Safety boots</li> <li>Helmet</li> <li>Gloves</li> <li>Computer</li> <li>Internet</li> <li>Projector</li> </ul>	

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 /Product Assessment	Services Assessment	Knowledge Assessment		
			observe finishing tool maintenance <b>Videos:</b> Use tutorials to enhance students' understanding of proper maintenance techniques			<ul style="list-style-type: none"> <li>Maintenance schedules</li> <li>Types of tools and their uses</li> </ul> <b>Circumstantial knowledge</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>Safety precautions when maintaining various tools</li> <li>Environmental issues</li> <li>First aid</li> </ul>		
		(e) Maintaining hammering tool	<b>Group Work:</b> Facilitate discussions where students explore the types of hammering tools and their maintenance	<b>The student should be able to:</b> <ul style="list-style-type: none"> <li>Oil/grease hammering tools</li> <li>Store hammering tools safely</li> </ul>	Hammering tools are maintained according to best practices and safety regulations to ensure effective performance	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b> The student should explain different procedures for maintaining tools	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>Masonry hammering tools</li> </ul>	

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 /Product Assessment	Services Assessment	Knowledge Assessment		
			<b>Demonstration:</b> Show students how to inspect, clean, and maintain hammers and mallets <b>Practical work:</b> Guide students in maintaining hammering tools in a workshop setting <b>Field Visit:</b> Take students to a workshop or construction site to observe tool maintenance practices <b>Videos:</b> Provide visual aids to help students understand	<ul style="list-style-type: none"> <li>• Handle different hammering tools safely</li> <li>• Identify faults at early stage</li> </ul>	and safety in the workshop environment	<b>Principles:</b> The student should explain the principles involved in maintaining workshop tools <b>Theories:</b> The student should explain: <ul style="list-style-type: none"> <li>• Types of maintenance</li> <li>• Types of greasing</li> <li>• Oiling</li> <li>• Importance of maintaining tools</li> <li>• Maintenance schedules</li> <li>• Types of tools and their uses</li> </ul> <b>Circumstantial knowledge Detailed knowledge about:</b>	<ul style="list-style-type: none"> <li>• Oilcan, grease gun</li> <li>• Brushes 1” – 4”</li> <li>• Safety boots</li> <li>• Helmet</li> <li>• Gloves</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	



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 /Product Assessment	Services Assessment	Knowledge Assessment		
			hammering tool care			<ul style="list-style-type: none"> <li>• Safety precautions when maintaining various tools</li> <li>• Environmental issues</li> <li>• First aid</li> </ul>		
	2.2. Maintaining Machine	(a) Maintaining power machines	<b>Brainstorming:</b> Engage students in discussing the importance of maintaining power machines for safety and longevity <b>Demonstration:</b> Show students how to inspect, clean, lubricate, and replace parts in power machines <b>Practical work:</b> Guide students	<b>The student should be able to:</b> <ul style="list-style-type: none"> <li>• Interpret machine manual</li> <li>• Prepare maintenance schedule</li> <li>• Detect machine faults</li> <li>• Oil machine</li> <li>• Grease machine</li> <li>• Sharpen cutting tools</li> </ul>	Power machines are maintained according to industry standards and safety regulations to ensure optimal performance, safety, and longevity in the workshop environment	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b> The student should explain different ways of maintaining machine/equipment <b>Principles:</b> The student should explain the principle of performing maintenance to machines	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Power machines Such as ;</li> <li>• Concrete mixer</li> <li>• Poker vibrator</li> <li>• Tile cutting machine</li> <li>• Power drill</li> <li>• Brick making machines</li> </ul>	280 175

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 /Product Assessment	Services Assessment	Knowledge Assessment		
			in performing maintenance tasks on power tools like drills and saws <b>Field Visit:</b> Arrange for students to observe professional power machine maintenance in industrial settings <b>Videos:</b> Use tutorials to enhance students' understanding of power machine maintenance	<ul style="list-style-type: none"> <li>• Perform greasing</li> <li>• Clean working place</li> <li>• Dusting off machines</li> </ul>		<b>Theories:</b> The student should explain: <ul style="list-style-type: none"> <li>• Parts of machines and their maintenance</li> <li>• Types of maintenance in each machine part</li> <li>• The role of lubricants in machines</li> </ul> <b>Circumstantial knowledge</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>• Safety aspects related to machine maintenance</li> <li>• Environmental issues</li> </ul>	<ul style="list-style-type: none"> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> <li>• Pavement block machine</li> <li>• Safety boots</li> <li>• Helmet</li> <li>• Gloves</li> </ul>	

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 /Product Assessment	Services Assessment	Knowledge Assessment		
		(b) Maintaining manual machines	<b>Think-Pair-Share:</b> Encourage students to discuss the role of manual machines in construction and their maintenance <b>Demonstration:</b> Show students how to clean, lubricate, and adjust manual machines like hand presses and planers <b>Practical work:</b> Guide students in maintaining manual machines in a workshop <b>Field Visit:</b>	<b>The student should be able to:</b> <ul style="list-style-type: none"> <li>• Interpret machine manual</li> <li>• Prepare maintenance schedule</li> <li>• Detect machine faults</li> <li>• Oil machine</li> <li>• Grease machine</li> <li>• Sharpen cutting tools</li> <li>• Perform greasing</li> <li>• Clean working place</li> <li>• Dusting off machines</li> </ul>	Manual machines are maintained according to best practices and safety standards to ensure optimal performance, safety, and longevity in the workshop environment	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b> The student should explain different ways of maintaining machine/equipment <b>Principles:</b> The student should explain the principle of performing maintenance to machines <b>Theories:</b> The student should explain: <ul style="list-style-type: none"> <li>• Parts of machines and their maintenance</li> </ul>	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Manual machines Such as ;</li> <li>• Tile cutting machine</li> <li>• Brick-making machines</li> <li>• Pavement block machine</li> <li>• Safety boots</li> <li>• Helmet</li> <li>• Gloves</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	

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 /Product Assessment	Services Assessment	Knowledge Assessment		
			Arrange visits for students to observe professionals maintaining manual machines <b>Videos:</b> Provide tutorials to help students visualise manual machine maintenance			<ul style="list-style-type: none"> <li>Types of maintenance in each machine part</li> <li>The role of lubricants in machines</li> </ul> <b>Circumstantial knowledge</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>Safety aspect related to machine maintenance</li> <li>Environmental issues</li> </ul>		
3.0. Performing material test	3.1. Performing site test	(a) Test clay soil contents	<b>Brainstorming:</b> Engage students in discussing the importance of testing clay soil for construction suitability <b>Demonstration:</b>	<b>The student should be able to:</b> <ul style="list-style-type: none"> <li>Select tools and equipment</li> <li>Select materials</li> </ul>	Clay Soil content is tested as per technical specifications	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b> The student should explain different procedures for	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>Shovel</li> <li>Test tube</li> <li>Gloves</li> </ul>	

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 /Product Assessment	Services Assessment	Knowledge Assessment		
			<p>Show students how to perform plasticity and shrinkage limit tests on clay soil</p> <p><b>Practical work:</b> Guide students in testing clay soil samples in a laboratory setting</p> <p><b>Field Visit:</b> Take students to soil testing laboratories to observe professional testing procedures</p> <p><b>Videos:</b> Use instructional videos to help students understand clay soil testing</p>	<ul style="list-style-type: none"> <li>• Mix materials for the test</li> <li>• Test materials</li> <li>• Hand and stack-tested materials</li> <li>• Clean tools and equipment and store them</li> </ul>		<p>testing clay soil content</p> <p><b>Principles:</b> The student should explain the principles of testing clay soil content:-</p> <p><b>Theories:</b> The student should explain the importance of testing clay soil</p> <p><b>Circumstantial knowledge</b></p> <p><b>Detailed knowledge about:</b></p> <ul style="list-style-type: none"> <li>• Safety procedures observed during clay test and staking tested materials</li> <li>• First aid</li> </ul>	<ul style="list-style-type: none"> <li>• Safety boots</li> <li>• Overall</li> <li>• Helmets</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	

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 /Product Assessment	Services Assessment	Knowledge Assessment		
			techniques			<ul style="list-style-type: none"> <li>Environmental issues</li> </ul>		
		(b) Assessing sand	<p><b>Group Discussion:</b> Facilitate discussions where students identify the qualities of good construction sand</p> <p><b>Demonstration:</b> Show students how to conduct tests such as silt content and particle size distribution</p> <p><b>Practical work:</b> Guide students in assessing sand samples using sieves and other tools</p> <p><b>Field Visit:</b></p>	<p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>Select tools and equipment</li> <li>Select materials</li> <li>Mix materials for the test</li> <li>Test materials</li> <li>Hand and stack-tested materials</li> <li>Clean tools and equipment and store them</li> </ul>	Sand is assessed according to industry standards and best practices to ensure its suitability for construction, landscaping, and industrial applications	<p><b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b> The student should explain the different procedures for testing sand <b>Principles:</b> The student should explain the principles of assessing sand- <b>Theories:</b> The student should explain</p> <ul style="list-style-type: none"> <li>Testing sand</li> <li>Operating testing apparatus</li> </ul>	<p>The following tools, equipment and safety gear are to be available:</p> <ul style="list-style-type: none"> <li>Shovel</li> <li>Test tube</li> <li>Gloves</li> <li>Sand sieves</li> <li>Safety boots</li> <li>Overall</li> <li>Helmets</li> <li>Computer</li> <li>Internet</li> <li>Projector</li> </ul>	

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 /Product Assessment	Services Assessment	Knowledge Assessment		
			Arrange visits for students to observe sand quality assessment at construction sites or labs <b>Videos:</b> Provide tutorials to help students understand sand testing methods			<ul style="list-style-type: none"> <li>Handling materials</li> <li>Stacking tested materials</li> </ul> <b>Circumstantial knowledge</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>Safety procedures observed sand test and staking tested materials</li> <li>First aid</li> <li>Environmental issues</li> </ul>		
	3.2. Perform laboratory test	(a) Testing the strength of concrete	<b>Brainstorming:</b> Discuss with students the importance of testing concrete strength for structural safety <b>Demonstration:</b> Show students	<b>The student should be able to:</b> <ul style="list-style-type: none"> <li>Select tools and equipment</li> <li>Select materials</li> </ul>	Concrete is tested for strength according to industry standards to ensure suitability for construction	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b> The student should explain different procedures for testing the strength	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>Shovel</li> <li>Batching boxes</li> </ul>	210

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 /Product Assessment	Services Assessment	Knowledge Assessment		
			<p>how to perform compression and tensile strength tests on concrete samples</p> <p><b>Practical work:</b> Guide students in testing concrete cubes or cylinders in a laboratory setting</p> <p><b>Field Visit:</b> Take students to testing facilities to observe professional concrete testing</p> <p><b>Videos:</b> Use tutorials to enhance students' understanding of concrete</p>	<ul style="list-style-type: none"> <li>• Mix materials for the test</li> <li>• Test materials</li> <li>• Hand and stack-tested materials</li> <li>• Clean tools and equipment and store them</li> </ul>	applications, safety, and durability	<p>of concrete</p> <p><b>Principles:</b> The student should explain the principles of testing the strength of concrete:-</p> <p><b>Theories:</b> The student should explain:</p> <ul style="list-style-type: none"> <li>• The importance of testing building materials</li> <li>• Different methods of testing materials</li> </ul> <p><b>Circumstantial knowledge</b></p> <p><b>Detailed knowledge about:</b></p> <ul style="list-style-type: none"> <li>• Safety procedures observed the</li> </ul>	<ul style="list-style-type: none"> <li>• Concrete mixer</li> <li>• Cube test blocks,</li> <li>• Concrete Block</li> <li>• Pallets</li> <li>• Gloves</li> <li>• Safety boots</li> <li>• Overall</li> <li>• Helmets</li> </ul>	



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 /Product Assessment	Services Assessment	Knowledge Assessment		
			strength testing			strength of concrete test and staking-tested materials • First aid • Environmental issues		
		(b) Testing strength of blocks	<b>Brainstorming:</b> Engage students in discussing the importance of testing the strength of blocks in construction <b>Demonstration:</b> Show students how to perform compression and impact strength tests on different types of blocks <b>Practical work:</b> Guide students	<b>The student should be able to:</b> <ul style="list-style-type: none"> <li>• Select tools and equipment</li> <li>• Select materials</li> <li>• Mix materials for the test</li> <li>• Test materials</li> <li>• Hand and stack-tested materials</li> <li>• Clean tools and equipment</li> </ul>	Block strength is tested according to industry standards to ensure the suitability and safety of blocks used in construction applications	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b> The student should explain different procedures for testing the strength of blocks <b>Principles:</b> The student should explain the principles of testing the Strength of Blocks <b>Theories:</b> The student should	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Shovel</li> <li>• Cube test blocks</li> <li>• Concrete Block</li> <li>• Pallets</li> <li>• Gloves</li> <li>• Safety boots</li> <li>• Overall</li> <li>• Helmets</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	

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 /Product Assessment	Services Assessment	Knowledge Assessment		
			in testing block samples using compression testing machines in a laboratory setting <b>Field Visit:</b> Arrange visits for students to observe professional testing of blocks in material testing facilities <b>Videos:</b> Provide instructional videos to enhance students' understanding of block testing techniques	and store them		explain: <ul style="list-style-type: none"> <li>• The important of testing building materials</li> <li>• Different methods of testing materials</li> </ul> <b>Circumstantial knowledge</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>• Safety procedures observed strength of blocks test and staking tested materials</li> <li>• First aid</li> <li>• Environmental issues</li> <li>•</li> </ul>		
		(c) Testing bearing	<b>Group Work:</b> Facilitate	<b>The student should be able</b>	The bearing capacity of	<b>Knowledge evidence:</b>	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 per Unit
				Process /Product Assessment	Services Assessment	Knowledge Assessment		
		capacity of soil	discussions where students identify the significance of soil bearing capacity in foundation design <b>Demonstration:</b> Show students how to use tools such as plate load test apparatus and cone penetration testers for assessing soil bearing capacity <b>Practical work:</b> Guide students in performing soil bearing capacity tests in a simulated or controlled field	<b>to:</b> <ul style="list-style-type: none"> <li>• Select tools and equipment</li> <li>• Select materials</li> <li>• Mix materials for test</li> <li>• Test materials</li> <li>• Hand and stack tested materials</li> <li>• Clean tools and equipment and store them</li> </ul>	soil is tested according to industry standards to determine its ability to support structural loads safely and effectively	<b>Detailed knowledge of:</b> <b>Method used:</b> The student should explain different procedures for testing the bearing capacity of soil <b>Principles:</b> The student should explain the principles of testing bearing capacity of soil <b>Theories:</b> The student should explain: <ul style="list-style-type: none"> <li>• The importance of testing building materials</li> <li>• Different methods of testing materials</li> </ul>	and safety gear are to be available: <ul style="list-style-type: none"> <li>• Shovel</li> <li>• Pallets</li> <li>• Bearing capacity testing equipment</li> <li>• Gloves</li> <li>• Safety boots</li> <li>• Overall</li> <li>• Helmets</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	

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 /Product Assessment	Services Assessment	Knowledge Assessment		
			environment <b>Field Visit:</b> Take students to observe geotechnical engineers performing bearing capacity tests at construction sites <b>Videos:</b> Use tutorials to enhance students' understanding of bearing capacity testing procedures and interpretation of results			<b>Circumstantial knowledge</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>• Safety procedures observed bearing capacity of soil test and staking tested materials</li> <li>• First aid</li> <li>• Environmental issues</li> </ul>		

## Form Two

**Table 4: Detailed Contents for Form Two**

Module Title(Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Guiding and Learning Methods	Assessment Criteria			Training Requirements / Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge Assessment		
1.0. Making blocks, bricks and pavings	1.1. Making blocks	(a) Making solid blocks by hand	<b>Brainstorming:</b> Engage students in identifying the materials, tools, and techniques for making solid blocks by hand <b>Demonstration:</b> Show students the steps of mixing concrete, filling moulds, and curing blocks <b>Practical work:</b> Guide students in making solid blocks by hand in a controlled	<ul style="list-style-type: none"> <li>• Select tools and equipment</li> <li>• Select materials</li> <li>• Mix materials and mould brick</li> <li>• Hand and stack bricks</li> <li>• Cure cement blocks</li> <li>• Clean tools and equipment and store them</li> </ul>	Solid blocks are made by hand according to established methods and best practices to ensure quality, durability, and suitability for construction applications	<b>Knowledge evidence:</b> <b>Detailed knowledge of the method used:</b> The student should be able to explain different procedures for making solid blocks by hand <b>Principles:</b> The student should explain the principles involved in making solid blocks by hand <b>Theories:</b> The student should explain: <ul style="list-style-type: none"> <li>• Mixing ratio</li> </ul>	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Shovel</li> <li>• Batching boxes</li> <li>• Mortar</li> <li>• Mould</li> <li>• Wheelbarrow</li> <li>• Water tank</li> <li>• Bucket</li> <li>• Pallets</li> <li>• Gloves</li> <li>• Safety boots</li> <li>• Overall</li> <li>• Helmets</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	140

Module Title(Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Guiding and Learning Methods	Assessment Criteria			Training Requirements / Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge Assessment		
			workshop environment <b>Field Visit:</b> Take students construction site or block producer to observe the manual production of solid blocks at a local site <b>Videos:</b> Use video tutorials to demonstrate proper techniques for making high-quality blocks			<ul style="list-style-type: none"> <li>• Properties of cement, lime, and sand</li> <li>• Different sizes of blocks</li> <li>• Different types of machines</li> <li>• Different types of blocks</li> </ul> <b>Circumstantial knowledge</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>• Safety procedures observed during manufacturing and staking blocks</li> <li>• First aid</li> </ul>		

Module Title(Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Guiding and Learning Methods	Assessment Criteria			Training Requirements / Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge Assessment		
						<ul style="list-style-type: none"> <li>Environmental issues</li> </ul>		
		(b) Making solid blocks by machine	<p>Group Discussion: Facilitate a session where students explore the efficiency and benefits of using machines for making solid blocks</p> <p><b>Demonstration:</b> Show students how to operate block-making machines, including loading materials and handling moulds</p>	<ul style="list-style-type: none"> <li>Prepare materials</li> <li>Set up the machine</li> <li>Operate the machine</li> <li>Inspect block quality</li> <li>Cure blocks</li> <li>Clean and store</li> </ul>	Solid blocks are produced by machine according to industry standards and best practices to ensure consistency, efficiency, and high-quality output in construction applications	<p><b>Knowledge evidence:</b></p> <p><b>Detailed knowledge of the method used:</b> The student should be able to explain different procedures for making solid blocks using a machine</p> <p><b>Principles:</b> The student should explain the principles involved in making solid blocks by machine</p> <p><b>Theories:</b> The student should explain:</p>	<p>The following tools, equipment and safety gear are to be available:</p> <ul style="list-style-type: none"> <li>Block-making machine</li> <li>Shovel</li> <li>Batching boxes</li> <li>Mortar mixer</li> <li>Moulds for blocks</li> <li>Wheelbarrow</li> <li>Water tank</li> <li>Buckets</li> <li>Pallets</li> <li>Gloves</li> <li>Safety boots</li> <li>Overalls</li> </ul>	

Module Title(Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Guiding and Learning Methods	Assessment Criteria			Training Requirements / Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge Assessment		
			<b>Practical work:</b> Allow students to produce solid blocks using a machine in the workshop <b>Field Visit:</b> Arrange site visits for students to observe professional block production using machines <b>Videos:</b> Provide instructional videos to enhance students' understanding of machine-			<ul style="list-style-type: none"> <li>• Mixing Ratio</li> <li>• Properties of Cement, Lime, and Sand</li> <li>• Types of Cement</li> <li>• Different Sizes of Blocks</li> <li>• Different Types of Machine</li> <li>• Different Types of Blocks</li> </ul> <b>Circumstantial knowledge</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>• Safety precautions to be observed when excavating trenches</li> <li>• Environmental issues</li> </ul>	<ul style="list-style-type: none"> <li>• Helmets</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	



Module Title(Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Guiding and Learning Methods	Assessment Criteria			Training Requirements / Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge Assessment		
			based block production			<ul style="list-style-type: none"> <li>First aid</li> </ul>		
		(c) Making hollow blocks by hand	<b>Brainstorming:</b> Discuss with students the differences between solid and hollow blocks, focusing on weight and application <b>Demonstration:</b> Show students how to prepare moulds and mix materials to create hollow blocks manually <b>Practical work:</b> Guide students in making hollow	<ul style="list-style-type: none"> <li>Prepare materials</li> <li>Prepare moulds</li> <li>Mix materials</li> <li>Fill moulds</li> <li>Cure blocks</li> <li>Clean and store tools</li> </ul>	Hollow blocks are made by hand according to established methods to ensure strength, durability, and suitability for construction applications	<b>Knowledge evidence:</b> <b>Detailed knowledge of the method used:</b> The student should be able to explain different procedures for making hollow blocks by hand <b>Principles:</b> Student should explain the principles involved in making hollow blocks by hand <b>Theories:</b> The student should explain: <ul style="list-style-type: none"> <li>Mixing ratio</li> </ul>	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>Shovel</li> <li>Batching boxes</li> <li>Hollow block moulds</li> <li>Mortar mixer</li> <li>Wheelbarrow</li> <li>Water tank</li> <li>Buckets</li> <li>Pallets</li> <li>Gloves</li> <li>Safety boots</li> <li>Overalls</li> <li>Helmets</li> </ul>	

Module Title(Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Guiding and Learning Methods	Assessment Criteria			Training Requirements / Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge Assessment		
			blocks by hand, ensuring proper curing techniques <b>Field Visit:</b> Take students construction site or block producer to observe hollow block production in small-scale operations <b>Videos:</b> Use visual aids to help students understand the manual hollow block-making process			<ul style="list-style-type: none"> <li>• Properties of cement, lime, and sand</li> <li>Types of cement</li> <li>• Different sizes of blocks</li> <li>• Different types of machines</li> <li>• Different types of blocks</li> </ul> <b>Circumstantial knowledge</b> <b>Detailed knowledge about</b> <ul style="list-style-type: none"> <li>• Safety precautions to be observed when excavating trenches</li> <li>• Environmental issues</li> <li>• First aid</li> </ul>	<ul style="list-style-type: none"> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	
		(d) Making hollow	<b>Think-Pair-Share:</b>	Prepare materials	Hollow blocks are	<b>Knowledge evidence:</b>	The following tools,	

Module Title(Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Guiding and Learning Methods	Assessment Criteria			Training Requirements / Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge Assessment		
		blocks by machine	Facilitate discussions where students identify the advantages of making hollow blocks by machine <b>Demonstration:</b> Show students how to operate block-making machines for producing hollow blocks <b>Practical work:</b> Guide students in using a machine to manufacture hollow blocks in a controlled setting	Set up the machine Operate the machine Inspect block quality Cure blocks Clean and store equipment	produced by machine according to industry standards and best practices to ensure consistency, efficiency, and high-quality output for construction applications	<b>Detailed knowledge of the method used:</b> The student should be able to explain different procedures for making hollow blocks using a machine <b>Principles:</b> The student should explain the principles involved in making hollow blocks by machine <b>Theories:</b> The student should explain: <ul style="list-style-type: none"> <li>• Mixing ratio</li> <li>• Properties of cement, lime, and sand</li> </ul>	equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Block-making machine</li> <li>• Shovel</li> <li>• Batching boxes</li> <li>• Mortar mixer</li> <li>• Hollow block moulds</li> <li>• Wheelbarrow</li> <li>• Water tank</li> <li>• Buckets</li> <li>• Pallets</li> <li>• Gloves</li> <li>• Safety boots</li> <li>• Overalls</li> <li>• Helmets</li> <li>• Computer</li> <li>• Internet</li> </ul>	

Module Title(Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Guiding and Learning Methods	Assessment Criteria			Training Requirements / Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge Assessment		
			<b>Field Visit:</b> Take students construction site or block producer to observe automated hollow block production processes in factories <b>Videos:</b> Provide video tutorials to explain advanced techniques for machine-made hollow blocks			<ul style="list-style-type: none"> <li>Types of cement</li> <li>Different sizes of blocks</li> <li>Different types of machines</li> <li>Different types of blocks</li> </ul> <b>Circumstantial knowledge</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>Safety precautions to be observed when excavating trenches</li> <li>Environmental issues</li> <li>First aid</li> </ul>	<ul style="list-style-type: none"> <li>Projector</li> </ul>	
	1.2. Making bricks	(a) Making clay bricks by hand	<b>Group Work: Facilitate group</b>	<ul style="list-style-type: none"> <li>Prepare clay materials</li> </ul>	Clay bricks are produced by hand	<b>Knowledge evidence: Detailed</b>	The following tools, equipment and	140

Module Title(Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Guiding and Learning Methods	Assessment Criteria			Training Requirements / Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge Assessment		
			<p><b>discussions where students identify materials and processes for manual clay brick production</b></p> <p><b>Demonstration: Show students how to prepare clay, shape bricks, and air-dry them</b></p> <p><b>Practical work: Guide students in making clay bricks by hand in a</b></p>	<ul style="list-style-type: none"> <li>• Prepare hand moulds for shaping bricks</li> <li>• Shape bricks manually using hand moulds</li> <li>• Dry bricks under controlled conditions</li> <li>• Cure bricks as required</li> <li>• Clean and store tools and equipment</li> </ul>	according to the methods to ensure quality, durability, and suitability for construction	<p><b>knowledge of the method used:</b> The student should be able to explain different procedures for making clay bricks by hand</p> <p><b>Principles:</b> The student should explain the principles involved in making clay bricks by hand</p> <p><b>Theories:</b> The student should explain:</p> <ul style="list-style-type: none"> <li>• Mixing ratio</li> <li>• Properties of clay</li> <li>• Moulding techniques</li> <li>• Drying process</li> <li>• Firing process</li> </ul>	<p>safety gear are to be available:</p> <ul style="list-style-type: none"> <li>• Shovel</li> <li>• Hand moulds for clay bricks</li> <li>• Clay preparation tools</li> <li>• Wheelbarrow</li> <li>• Water tank</li> <li>• Buckets</li> <li>• Drying racks</li> <li>• Pallets</li> <li>• Gloves</li> <li>• Safety boots</li> <li>• Overalls</li> <li>• Helmets</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	

Module Title(Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Guiding and Learning Methods	Assessment Criteria			Training Requirements / Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge Assessment		
			<p><b>workshop or outdoor space</b></p> <p><b>Field Visit:</b> Arrange visits for students to observe traditional clay brick-making techniques</p> <p><b>Videos:</b> Use tutorials to help students understand the challenges and solutions in manual brick-making</p>			<ul style="list-style-type: none"> <li>• Different sizes of bricks</li> <li>• Safety precautions</li> </ul> <p><b>Circumstantial knowledge</b></p> <p><b>Detailed knowledge about:</b></p> <ul style="list-style-type: none"> <li>• Safety precautions to be observed when of excavating trenches</li> <li>• Environmental issues</li> <li>• First aid</li> </ul>		
		(b) Making clay bricks by machine	<b>Brainstorming:</b> Engage students in discussing the role of	<ul style="list-style-type: none"> <li>• Prepare clay materials</li> <li>• Set up the machine</li> </ul>	Clay bricks are produced by machine according to industry	<p><b>Knowledge evidence:</b></p> <p><b>Detailed knowledge of the method used:</b></p>	The following tools, equipment and safety gear are to be	

Module Title(Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Guiding and Learning Methods	Assessment Criteria			Training Requirements / Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge Assessment		
			<p>mechanisation in improving brick quality and efficiency</p> <p><b>Demonstration:</b> Show students how to operate clay brick-making machines</p> <p><b>Practical work:</b> Guide students in using a machine to produce clay bricks</p> <p><b>Field Visit:</b> Take students construction site or brick producer to observe large-scale clay brick</p>	<ul style="list-style-type: none"> <li>• Operate the machine to mould clay bricks</li> <li>• Inspect brick quality</li> <li>• Cure clay bricks as required</li> <li>• Clean and store equipment</li> </ul>	standards to ensure efficiency, consistency, and high-quality output for construction applications	<p>The student should be able to explain procedures for making clay bricks using a machine</p> <p><b>Principles:</b> The student should explain the principles involved in making clay bricks by machine</p> <p><b>Theories:</b> The student should explain:</p> <ul style="list-style-type: none"> <li>• Mixing ratio</li> <li>• Properties of clay</li> <li>• Types of machines used in making clay bricks</li> </ul>	<p>available:</p> <ul style="list-style-type: none"> <li>• Clay brick-making machine</li> <li>• Shovel</li> <li>• Clay preparation tools</li> <li>• Wheelbarrow</li> <li>• Water tank Buckets</li> <li>• Pallets</li> <li>• Gloves</li> <li>• Safety boots</li> <li>• Overalls</li> <li>• Helmets</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	

Module Title(Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Guiding and Learning Methods	Assessment Criteria			Training Requirements / Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge Assessment		
			manufacturing using machinery <b>Videos:</b> Provide visual aids to enhance students' understanding of machine-based clay brick production			<ul style="list-style-type: none"> <li>• Moulding techniques using machines</li> <li>• Drying process</li> <li>• Firing process</li> <li>• Different sizes of bricks</li> </ul> <b>Circumstantial knowledge</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>• Safety precautions to be observed when of excavating trenches</li> <li>• Environmental issues</li> <li>• First aid</li> </ul>		
		(c) Making cement bricks by hand	<b>Think-Pair-Share:</b> Encourage students to	<ul style="list-style-type: none"> <li>• Prepare materials (cement,</li> </ul>	Cement bricks are produced by hand using	<b>Knowledge evidence:</b> <b>Detailed knowledge of the</b>	The following tools, equipment and	



Module Title(Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Guiding and Learning Methods	Assessment Criteria			Training Requirements / Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge Assessment		
			<p>discuss the process and challenges of making cement bricks manually</p> <p><b>Demonstration:</b> Show students the step-by-step procedure of mixing, moulding, and curing cement bricks by hand</p> <p><b>Practical work:</b> Allow students to make cement bricks manually in a workshop</p> <p><b>Field Visit:</b> Arrange for students to</p>	<p>sand, and water)</p> <ul style="list-style-type: none"> <li>• Prepare moulds for shaping bricks</li> <li>• Mix materials manually to achieve the correct consistency</li> <li>• Shape bricks manually using hand moulds</li> <li>• Cure bricks to meet quality standards</li> <li>• Clean and store tools and moulds</li> </ul>	<p>established methods to ensure quality, strength, and suitability for construction applications</p>	<p><b>method used:</b> The student should be able to explain different procedures for making cement bricks by hand,</p> <p><b>Principles:</b> The student should explain the principles involved in making cement bricks by hand</p> <p><b>Theories:</b> The student should explain:</p> <ul style="list-style-type: none"> <li>• Mixing ratio</li> <li>• Properties of cement, sand, and water</li> <li>• Moulding techniques for hand-made cement bricks</li> </ul>	<p>safety gear are to be available:</p> <ul style="list-style-type: none"> <li>• Shovel</li> <li>• Batching boxes</li> <li>• Hand moulds for cement bricks</li> <li>• Wheelbarrow</li> <li>• Water tank</li> <li>• Buckets</li> <li>• Pallets</li> <li>• Gloves</li> <li>• Safety boots</li> <li>• Overalls</li> <li>• Helmets</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	

Module Title(Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Guiding and Learning Methods	Assessment Criteria			Training Requirements / Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge Assessment		
			visit sites where manual cement brick-making is practised <b>Videos:</b> Use video tutorials to highlight best practices for manual cement brick production			<ul style="list-style-type: none"> <li>• Curing process for cement bricks</li> <li>• Different sizes of bricks</li> </ul> <b>Circumstantial knowledge</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>• Safety precautions to be observed when of excavating trenches</li> <li>• Environmental issues</li> <li>• First aid</li> </ul>		
		(d) Making cement bricks by machine	Group Discussion: Facilitate discussions where students compare	<ul style="list-style-type: none"> <li>• Prepare materials (cement, sand, and water)</li> </ul>	Cement bricks are produced by machine according to industry standards to	<b>Knowledge evidence:</b> <b>Detailed knowledge of the method used:</b> The student	The following tools, equipment and safety gear are to be	

Module Title(Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Guiding and Learning Methods	Assessment Criteria			Training Requirements / Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge Assessment		
			manual and machine-based cement brick production <b>Demonstration:</b> Show students how to operate a cement brick-making machine <b>Practical work:</b> Guide students in producing bricks using a machine in a workshop <b>Field Visit:</b> Take students construction sites or brick producer to observe factory-based	<ul style="list-style-type: none"> <li>• Set up the brick-making machine</li> <li>• Operate the machine to mould cement bricks</li> <li>• Inspect brick quality to ensure specified standards</li> <li>• Cure bricks to maintain durability</li> <li>• Clean and store the machine and tools</li> </ul>	ensure efficiency, consistency, and high-quality output for construction applications	should be able to explain procedures for making cement bricks using a machine <b>Principles:</b> The student should explain the principles involved in making cement bricks by machine <b>Theories:</b> The student should explain <ul style="list-style-type: none"> <li>• Mixing ratio</li> <li>• Properties of cement, sand, and water</li> <li>• Types of machines used in making cement bricks</li> </ul>	available: <ul style="list-style-type: none"> <li>• Cement brick-making machine</li> <li>• Shovel</li> <li>• Batching boxes</li> <li>• Wheelbarrow</li> <li>• Water tank</li> <li>• Buckets</li> <li>• Pallets</li> <li>• Gloves</li> <li>• Safety boots</li> <li>• Overalls</li> <li>• Helmets</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	

Module Title(Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Guiding and Learning Methods	Assessment Criteria			Training Requirements / Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge Assessment		
			cement brick production <b>Videos:</b> Provide instructional videos to help students understand the efficient use of machines for cement bricks			<ul style="list-style-type: none"> <li>• Moulding techniques using machines</li> <li>• Curing process for cement bricks</li> <li>• Different sizes of bricks</li> </ul> <b>Circumstantial knowledge</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>• Safety precautions to be observed when of excavating trenches</li> <li>• Environmental issues</li> <li>• First aid</li> </ul>		
		(e) Burning clay bricks	<b>Brainstorming:</b> Engage students in	• Prepare bricks for firing	Clay bricks are burned using	<b>Knowledge evidence:</b> <b>Detailed</b>	The following tools,	

Module Title(Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Guiding and Learning Methods	Assessment Criteria			Training Requirements / Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge Assessment		
			<p>discussing the importance of burning bricks for strength and durability</p> <p><b>Demonstration:</b> Show students how to set up and operate a kiln for burning clay bricks</p> <p><b>Practical work:</b> Guide students in stacking bricks and managing the burning process in a controlled environment</p> <p><b>Field Visit:</b> Take students to observe professional</p>	<ul style="list-style-type: none"> <li>• Arrange bricks systematically in the kiln for even heat distribution</li> <li>• Monitor and control kiln temperature during firing</li> <li>• Inspect fired bricks for cracks or defects</li> <li>• Cool bricks properly before unloading</li> <li>• Clean and maintain the kiln</li> </ul>	established methods to ensure strength, durability, and resistance to environmental factors in construction applications	<p><b>knowledge of the method used:</b></p> <p>The student should be able to explain the firing process, including preparation, kiln operation, and cooling methods for clay bricks</p> <p><b>Principles:</b></p> <p>The student should explain the principles involved in burning clay bricks</p> <p><b>Theories:</b> the student should explain</p> <ul style="list-style-type: none"> <li>• Importance of burning clay bricks</li> </ul>	<p>equipment and safety gear are to be available:</p> <ul style="list-style-type: none"> <li>• Kiln for burning clay bricks</li> <li>• Firewood or other fuel sources</li> <li>• Thermometers for temperature monitoring</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> <li>• Shovels</li> <li>• Brick tongs</li> <li>• Safety gloves</li> <li>• Safety boots</li> <li>• Fire-resistant overalls</li> <li>• Helmets</li> </ul>	

Module Title(Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Guiding and Learning Methods	Assessment Criteria			Training Requirements / Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge Assessment		
			kiln operations <b>Videos:</b> Provide video tutorials to help students understand the burning process and common issues			<ul style="list-style-type: none"> <li>• Properties of clay suitable for burning</li> <li>• Types of kilns used for burning bricks</li> <li>• Firing process and stages (preheating, firing, cooling)</li> <li>• Factors affecting the quality of burnt bricks</li> </ul> <b>Circumstantial knowledge</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>• Safety precautions to be observed when of excavating trenches</li> </ul>	<ul style="list-style-type: none"> <li>• Masks for protection from smoke and heat</li> </ul>	

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				Process Assessment	Services Assessment	Knowledge Assessment		
						<ul style="list-style-type: none"> <li>• Environmental issues</li> <li>• First aid</li> </ul>		
		(f) Making interlocking bricks	<b>Think-Pair-Share:</b> Facilitate discussions where students explore the benefits and applications of interlocking bricks in construction <b>Demonstration:</b> Show students how to use moulds to create interlocking bricks <b>Practical work:</b> Guide students in producing	<ul style="list-style-type: none"> <li>• Prepare materials (cement, sand, and water)</li> <li>• Prepare interlocking brick moulds</li> <li>• Mix materials to the required consistency</li> <li>• Shape bricks using moulds or machines</li> <li>• Inspect bricks for alignment and interlocking accuracy</li> </ul>	Interlocking bricks are produced using established methods to ensure strength, stability, and ease of construction in various building applications	<b>Knowledge evidence:</b> <b>Detailed knowledge of the method used:</b> The student should be able to explain the procedures for making interlocking bricks <b>Principles:</b> The student should explain the principles involved in making interlocking bricks <b>Theories:</b> The student should	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Interlocking brick moulds or machines</li> <li>• Shovel</li> <li>• Batching boxes</li> <li>• Mortar mixer</li> <li>• Wheelbarrow</li> <li>• Water tank</li> <li>• Buckets</li> <li>• Pallets</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	

Module Title(Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Guiding and Learning Methods	Assessment Criteria			Training Requirements / Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge Assessment		
			interlocking bricks in a workshop <b>Field Visit:</b> Arrange for students to visit construction sites using interlocking bricks <b>Videos:</b> Use visual aids to enhance students' understanding of interlocking brick production	<ul style="list-style-type: none"> <li>• Cure bricks to meet durability standards</li> <li>• Clean and store tools and moulds</li> </ul>		explain <ul style="list-style-type: none"> <li>• Mixing ratio for interlocking bricks</li> <li>• Properties of materials used</li> <li>• Moulding techniques</li> <li>• Curing process</li> <li>• Advantage of interlocking bricks</li> </ul> <b>Circumstantial knowledge</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>• Safety precautions to be observed when of excavating trenches</li> <li>• Environmental issues</li> </ul>	<ul style="list-style-type: none"> <li>• Gloves</li> <li>• Safety boots</li> <li>• Overalls</li> <li>• Helmets</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	



Module Title(Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Guiding and Learning Methods	Assessment Criteria			Training Requirements / Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge Assessment		
						<ul style="list-style-type: none"> <li>First aid</li> </ul>		
	1.3. Making paving blocks and kerbstones	(a) Making paving blocks	<b>Brainstorming:</b> Engage students in discussing the materials and processes involved in making durable paving blocks <b>Demonstration:</b> Show students how to mix concrete, fill moulds, and compact the mixture for paving blocks <b>Practical work:</b> Guide students in making paving blocks using	<ul style="list-style-type: none"> <li>Prepare materials (cement, sand, and water)</li> <li>Prepare and clean paving block moulds</li> <li>Mix materials to achieve the required consistency</li> <li>Fill and compact materials into moulds</li> <li>Cure blocks to meet durability standards</li> <li>Clean and store tools</li> </ul>	Paving blocks are produced using established methods to ensure durability, strength, and aesthetic appeal for various outdoor applications	<b>Knowledge evidence:</b> <b>Detailed knowledge of the method used:</b> The student should be able to explain the procedures for making paving blocks <b>Principles:</b> The student should explain the principles involved in making paving blocks <b>Theories:</b> The student should explain <ul style="list-style-type: none"> <li>Mixing ratio</li> <li>Properties of materials</li> </ul>	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>Paving block moulds or machines</li> <li>Shovel</li> <li>Batching boxes</li> <li>Mortar mixer</li> <li>Wheelbarrow</li> <li>Water tank</li> <li>Buckets</li> <li>Pallets</li> <li>Gloves</li> <li>Safety boots</li> <li>Overalls</li> <li>Helmets</li> <li>Computer</li> </ul>	140

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				Process Assessment	Services Assessment	Knowledge Assessment		
			provided moulds and tools in a workshop <b>Field Visit:</b> Take students to observe the production and quality control of paving blocks at a factory <b>Videos:</b> Provide video tutorials to enhance students' understanding of paving block production techniques	and moulds after use		<ul style="list-style-type: none"> <li>• Types of machines</li> <li>• Moulding techniques</li> <li>• Curing process</li> <li>• Shapes and sizes of paving blocks</li> </ul> <b>Circumstantial knowledge</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>• Safety precautions to be observed when of excavating trenches</li> <li>• Environmental issues</li> <li>• First aid</li> </ul>	<ul style="list-style-type: none"> <li>• Internet</li> <li>• Projector</li> </ul>	
		(b) Making kerbstones	<b>Think-Pair-Share:</b> Encourage	<ul style="list-style-type: none"> <li>• Prepare materials (cement,</li> </ul>	Kerbstones are produced using	<b>Knowledge evidence: Detailed</b>	The following tools,	

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			<p>students to discuss the design and application of kerbstones in construction projects</p> <p><b>Demonstration:</b> Show students how to prepare moulds, mix materials, and cure kerbstones</p> <p><b>Practical work:</b> Allow students to make kerbstones using appropriate tools and moulds in a controlled</p>	<p>sand, and water)</p> <ul style="list-style-type: none"> <li>• Prepare and clean kerbstone moulds</li> <li>• Mix materials to the required consistency</li> <li>• Fill and compact materials into kerbstone moulds</li> <li>• Cure kerbstones to ensure durability</li> <li>• Clean and store tools and moulds after use</li> </ul>	<p>established methods to ensure durability, stability, and aesthetic quality for use in roadways, sidewalks, and landscaping</p>	<p><b>knowledge of the method used:</b> The student should be able to explain procedures for making kerbstones</p> <p><b>Principles:</b> The student should explain the principles involved in making kerbstones</p> <p><b>Theories:</b> The student should explain</p> <ul style="list-style-type: none"> <li>• Mixing ratio</li> <li>• Properties of materials</li> <li>• Types of machines</li> <li>• Moulding techniques</li> </ul>	<p>equipment and safety gear are to be available:</p> <ul style="list-style-type: none"> <li>• Kerbstone moulds or machines</li> <li>• Shovel</li> <li>• Batching boxes</li> <li>• Mortar mixer</li> <li>• Wheelbarrow</li> <li>• Water tank</li> <li>• Buckets</li> <li>• Pallets</li> <li>• Gloves</li> <li>• Safety boots</li> <li>• Overalls</li> <li>• Helmets</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	

Module Title(Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Guiding and Learning Methods	Assessment Criteria			Training Requirements / Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge Assessment		
			environment <b>Field Visit:</b> Arrange visits for students to observe kerbstone production and installation on road construction sites <b>Videos:</b> Use visual aids to help students understand the production process of kerbstones			<ul style="list-style-type: none"> <li>• Curing process</li> <li>• Standard sizes and shapes of kerbstones</li> </ul> <b>Circumstantial knowledge</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>• Safety precautions to be observed when of excavating trenches</li> <li>• Environmental issues</li> <li>• First aid</li> </ul>		
	1.4. Making decorations	(a) Make purpose-made bricks or blocks	<b>Brainstorming:</b> Engage students in discussing customised designs and their	<ul style="list-style-type: none"> <li>• Select tools, equipment, and materials</li> <li>• Prepare and clean</li> </ul>	Purpose-made bricks or blocks are produced using specialized methods to	<b>Knowledge evidence:</b> <b>Detailed knowledge of the method used:</b> The student should be able to	The following tools, equipment and safety gear are to be available:	70

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				Process Assessment	Services Assessment	Knowledge Assessment		
			applications in specialised construction projects <b>Demonstration:</b> Show students the process of designing, moulding, and finishing purpose-made bricks or blocks <b>Practical work:</b> Guide students in producing purpose-made bricks or blocks using custom moulds in a workshop <b>Field Visit:</b> Take students	moulds or machines <ul style="list-style-type: none"> <li>Mix materials to achieve the required consistency</li> <li>Shape bricks or blocks according to specific designs</li> <li>Inspect bricks or blocks for quality and accuracy</li> <li>Cure bricks or blocks to meet durability standards</li> <li>Clean and store tools</li> </ul>	meet specific design, strength, and application requirements for construction projects	explain procedures for making purpose-made bricks or blocks <b>Principles:</b> The student should explain the principles involved in making purpose-made bricks or blocks <b>Theories:</b> The student should explain <ul style="list-style-type: none"> <li>Mixing ratio</li> <li>Properties of materials</li> <li>Types of machines or moulds used</li> <li>Techniques for creating custom</li> </ul>	<ul style="list-style-type: none"> <li>Purpose-made brick or block moulds or machines</li> <li>Shovel</li> <li>Batching boxes</li> <li>Mortar mixer</li> <li>Wheelbarrow</li> <li>Water tank</li> <li>Buckets</li> <li>Pallets</li> <li>Gloves</li> <li>Safety boots</li> <li>Overalls</li> <li>Helmets</li> <li>Computer</li> <li>Internet</li> <li>Projector</li> </ul>	

Module Title(Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Guiding and Learning Methods	Assessment Criteria			Training Requirements / Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge Assessment		
			to observe customised brick and block production in a professional setting <b>Videos:</b> Provide instructional videos to enhance students' understanding of the process	and equipment		shapes and sizes • Curing process • Applications of purpose-made bricks or blocks <b>Circumstantial knowledge</b> <b>Detailed knowledge about:</b> • Safety precautions to be observed when of excavating trenches • Environmental issues • First aid		
		(b) Making vent blocks	<b>Group Discussion:</b> Facilitate a session where students	• Select tools, equipment, and materials	Vent blocks are produced using established methods to	<b>Knowledge evidence:</b> <b>Detailed knowledge of the method used:</b>	The following tools, equipment and safety gear are to be	

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				Process Assessment	Services Assessment	Knowledge Assessment		
			<p>explore the uses of vent blocks for natural ventilation in buildings</p> <p><b>Demonstration:</b> Show students how to design and produce vent blocks using moulds</p> <p><b>Practical work:</b> Guide students in making vent blocks, focusing on proper curing and finishing techniques</p> <p><b>Field Visit:</b> Take students to observe the</p>	<ul style="list-style-type: none"> <li>• Prepare and clean vent block moulds</li> <li>• Mix materials to the required consistency</li> <li>• Fill and shape materials into vent block moulds with accurate designs</li> <li>• Inspect blocks for design precision and structural integrity</li> </ul>	<p>ensure proper airflow, drainage, and structural integrity in various construction applications</p>	<p>The student should be able to explain procedures for making vent blocks</p> <p><b>Principles:</b> The student should explain the principles involved in making vent blocks</p> <p><b>Theories:</b> the student should explain</p> <ul style="list-style-type: none"> <li>• Mixing ratio</li> <li>• Properties of materials</li> <li>• Types of machines or moulds used</li> <li>• Moulding techniques for vent blocks</li> </ul>	<p>available:</p> <ul style="list-style-type: none"> <li>• Vent block moulds</li> <li>• Shovel</li> <li>• Batching boxes</li> <li>• Mortar mixer</li> <li>• Wheelbarrow</li> <li>• Water tank</li> <li>• Buckets</li> <li>• Pallets</li> <li>• Gloves</li> <li>• Safety boots</li> <li>• Overalls</li> <li>• Helmets</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	

Module Title(Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Guiding and Learning Methods	Assessment Criteria			Training Requirements / Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge Assessment		
			production and installation of vent blocks at a construction site <b>Videos:</b> Use video tutorials to help students understand the importance of vent blocks	<ul style="list-style-type: none"> <li>• Cure blocks to meet durability standards</li> <li>• Clean and store tools and equipment</li> </ul>		<ul style="list-style-type: none"> <li>• Curing process</li> <li>• Applications of vent blocks</li> </ul> <b>Circumstantial knowledge</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>• Safety precautions to be observed when of excavating trenches</li> <li>• Environmental issues</li> <li>• First aid</li> </ul>		
		(c) Making louvre blocks	<b>Brainstorming:</b> Discuss with students the architectural significance and functional uses of louvre	<ul style="list-style-type: none"> <li>• Select tools, equipment, and materials</li> <li>• Prepare and clean louvre block moulds</li> <li>• Mix materials to</li> </ul>	Louvre blocks are produced using established methods to provide effective	<b>Knowledge evidence:</b> <b>Detailed knowledge of the method used:</b> The student should be able to explain the	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Louvre block moulds</li> </ul>	



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				Process Assessment	Services Assessment	Knowledge Assessment		
			blocks <b>Demonstration:</b> Show students how to produce louvre blocks using moulds and concrete mixtures <b>Practical work:</b> Guide students in creating louvre blocks in a workshop, ensuring proper alignment and curing <b>Field Visit:</b> Arrange visits for students to observe louvre blocks being used in	achieve the required consistency • Fill and shape materials into moulds to create louvres • Inspect blocks for design accuracy and structural integrity • Cure blocks to ensure strength and durability • Clean and store tools and equipment	ventilation while minimizing the entry of water and debris in various construction applications	procedures for making louvre blocks <b>Principles:</b> The student should explain the principles involved in making louvre blocks <b>Theories:</b> The student should explain • Mixing ratio • Properties of materials • Types of machines or moulds used • Moulding techniques for louvre blocks • Curing process • Applications of louvre blocks	• Shovel • Batching boxes • Mortar mixer • Wheelbarrow • Water tank • Buckets • Pallets • Gloves • Safety boots • Overalls • Helmets	

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			construction projects <b>Videos:</b> Provide visual aids to enhance students' understanding of the production and installation process			<b>Circumstantial knowledge</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>• Safety precautions to be observed when of excavating trenches</li> <li>• Environmental issues</li> <li>• First aid</li> </ul>		
		(d) Making balusters	<b>Think-Pair-Share:</b> Facilitate a session where students discuss the design and use of balusters in building aesthetics <b>Demonstration</b>	<ul style="list-style-type: none"> <li>• Select tools, equipment, and materials</li> <li>• Prepare and clean baluster moulds</li> <li>• Mix materials to the required consistency</li> </ul>	Balusters are produced using established methods to create decorative and functional elements for staircases,	<b>Knowledge evidence:</b> <b>Detailed knowledge of the method used:</b> The student should be able to explain the procedures for making balusters <b>Principles:</b>	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Baluster moulds</li> <li>• Shovel</li> </ul>	

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				Process Assessment	Services Assessment	Knowledge Assessment		
			<b>n:</b> Show students the process of casting and finishing balusters using decorative moulds <b>Practical work:</b> Guide students in making balusters in a workshop, focusing on accuracy and design <b>Field Visit:</b> Take students to observe professional production and installation of balusters in real projects	<ul style="list-style-type: none"> <li>• Fill and compact materials into baluster moulds</li> <li>• Inspect balusters for uniformity and structural integrity</li> <li>• Cure balusters to meet durability standards</li> <li>• Clean and store tools and moulds</li> </ul>	railings, and balconies, enhancing both safety and aesthetics in various architectural applications	The student should explain the principles involved in making balusters <b>Theories:</b> The student should explain <ul style="list-style-type: none"> <li>• Mixing ratio</li> <li>• Properties of materials</li> <li>• Types of moulds used</li> <li>• Moulding techniques for balusters</li> <li>• Curing process</li> <li>• Applications of balusters in construction</li> </ul> <b>Circumstantial knowledge</b> <b>Detailed knowledge about:</b>	<ul style="list-style-type: none"> <li>• Batching boxes</li> <li>• Mortar mixer</li> <li>• Wheelbarrow</li> <li>• Water tank</li> <li>• Buckets</li> <li>• Pallets</li> <li>• Gloves</li> <li>• Safety boots</li> <li>• Overalls</li> <li>• Helmets</li> </ul>	

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				Process Assessment	Services Assessment	Knowledge Assessment		
			<b>Videos:</b> Use instructional videos to help students visualise the casting and finishing processes			<ul style="list-style-type: none"> <li>• Safety precautions to be observed when of excavating trenches</li> <li>• Environmental issues</li> <li>• First aid</li> </ul>		
2.0. Constructing foundations and walls	2.1. Setting out a building	(a) Verifying technical specifications	<b>Brainstorming:</b> Engage students in identifying the importance of verifying technical specifications in construction <b>Demonstration:</b> Show students how to cross-check drawings, materials, and tools against	<ul style="list-style-type: none"> <li>• Understand and interpret technical specifications</li> <li>• Review and verify design drawings and project documents</li> <li>• Compare project specifications with actual site conditions</li> </ul>	Verifying technical specifications is conducted using established methods to ensure that products, materials, or systems meet defined criteria for safety, performance, and compliance in various	<b>Knowledge evidence:</b> <b>Detailed knowledge of the method used:</b> The student should be able to explain procedures for verifying technical specifications <b>Principles:</b> The student should explain the principles	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Technical drawings and specification documents</li> <li>• Measuring tapes and levels</li> <li>• Surveying equipment</li> </ul>	70

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				Process Assessment	Services Assessment	Knowledge Assessment		
			project specifications <b>Practical work:</b> Guide students in verifying technical specifications for a small construction project <b>Field Visit:</b> Arrange site visits for students to observe professionals verifying specifications on-site <b>Videos:</b> Use video tutorials to enhance students' understanding	<ul style="list-style-type: none"> <li>Identify and report discrepancies</li> <li>Propose solutions to address non-conformance issues</li> </ul>	applications	involved in verifying technical specifications <b>Theories:</b> The student should explain <ul style="list-style-type: none"> <li>Importance of verifying technical specifications</li> <li>How to interpret technical drawings and documentation</li> <li>Methods for checking compliance with design standards</li> <li>Tools and equipment for verification</li> </ul>	(e.g., total station) <ul style="list-style-type: none"> <li>Notebook or digital devices for recording findings</li> <li>Safety boots</li> <li>Overalls</li> <li>Helmets</li> <li>Gloves</li> <li>Computer</li> <li>Internet</li> <li>Projector</li> </ul>	

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				Process Assessment	Services Assessment	Knowledge Assessment		
			of specification verification			<ul style="list-style-type: none"> <li>Common errors in technical specifications</li> </ul>		
		(b) Preparing the site for setting out	<p><b>Think-Pair-Share:</b> Encourage students to discuss the steps involved in preparing a site for setting out</p> <p><b>Demonstration:</b> Show students how to clear, level, and mark a construction site for setting out</p> <p><b>Practical work:</b> Allow students to prepare a simulated site</p>	<ul style="list-style-type: none"> <li>Inspect and identify site conditions</li> <li>Clear and remove obstructions from the site</li> <li>Level and compact the ground surface</li> <li>Establish reference points and benchmarks</li> <li>Mark out boundaries as per technical specifications</li> </ul>	The site is prepared using established methods to ensure accurate layout and alignment of structures, facilitating successful execution and compliance with design specifications in various construction projects	<p><b>Knowledge evidence:</b></p> <p><b>Detailed knowledge of the method used:</b> The student should be able to explain procedures for site preparation,</p> <p><b>Principles:</b> The student should explain the principles involved in preparing the site for setting out</p> <p><b>Theories:</b> The student should explain</p> <ul style="list-style-type: none"> <li>Importance of site preparation</li> </ul>	<p>The following tools, equipment and safety gear are to be available:</p> <ul style="list-style-type: none"> <li>Measuring tapes and levels</li> <li>Pegs and marking tools</li> <li>Shovels and rakes</li> <li>Levelling devices (eg, spirit levels or laser levels)</li> <li>Safety boots</li> <li>Overalls</li> </ul>	

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				Process Assessment	Services Assessment	Knowledge Assessment		
			for setting out in a workshop or outdoor area <b>Field Visit:</b> Take students to observe site preparation activities at a professional construction site <b>Videos:</b> Provide visual aids to help students understand site preparation techniques	<ul style="list-style-type: none"> <li>• Ensure compliance with safety standards during site preparation</li> </ul>		<ul style="list-style-type: none"> <li>• Tools and equipment for site preparation</li> <li>• Clearing and levelling the site</li> <li>• Marking reference points and boundaries</li> <li>• Ensuring drainage and stability of the site</li> </ul>	<ul style="list-style-type: none"> <li>• Helmets</li> <li>• Gloves</li> </ul>	
		(c) Setting out a building	Group Discussion: Facilitate discussions where students identify the tools and	<ul style="list-style-type: none"> <li>• Interpret site and technical drawings</li> <li>• Establish reference points and baselines</li> </ul>	Setting out a building is performed using established methods to accurately	<b>Knowledge evidence:</b> <b>Detailed knowledge of the method used:</b> The student should be able to	The following tools, safety gear, and equipment should be available:	

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			techniques used in building setting out <b>Demonstration:</b> Show students how to mark building outlines and reference points using tape measures and theodolites <b>Practical work:</b> Guide students in setting out a small building structure in a simulated environment <b>Field Visit:</b> Arrange for students to	<ul style="list-style-type: none"> <li>• Mark out building corners using pegs and string lines</li> <li>• Verify dimensions and angles to ensure accuracy</li> <li>• Adjust markings as needed to align with specifications</li> <li>• Ensure safety measures are followed during the process</li> </ul>	define the layout and position of structures, ensuring compliance with design specifications and facilitating successful construction	explain procedures for setting out a building <b>Principles:</b> The student should explain the principles involved in setting out a building <b>Theories:</b> The student should explain <ul style="list-style-type: none"> <li>• Importance of setting out a building</li> <li>• Tools and equipment used in setting out</li> <li>• Interpreting site plans and technical drawings</li> </ul>	<ul style="list-style-type: none"> <li>• Pegs and string lines</li> <li>• Measuring tapes and levels</li> <li>• Plumb bobs and theodolites</li> <li>• Spirit levels or laser levels</li> <li>• Shovels for ground preparation</li> <li>• Safety boots</li> <li>• Overalls</li> <li>• Helmets</li> <li>• Gloves</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	



Module Title(Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Guiding and Learning Methods	Assessment Criteria			Training Requirements / Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge Assessment		
			observe professional setting-out processes on construction sites <b>Videos:</b> Use tutorials to enhance students' understanding of accurate building layout practices			<ul style="list-style-type: none"> <li>Establishing reference points and grid lines</li> <li>Techniques for measuring and marking dimensions</li> <li>Verifying accuracy of measurements</li> </ul>		
		(d) Making profile boards	<b>Brainstorming:</b> Engage students in discussing the role of profile boards in building layout <b>Demonstration:</b> Show students how to construct	<ul style="list-style-type: none"> <li>Select tools, equipment, and materials</li> <li>Cut timber or other materials to the required size</li> <li>Assemble boards</li> </ul>	Trench excavation is conducted to create the necessary foundation trenches, ensuring safety and accuracy in preparation	<b>Knowledge evidence:</b> <b>Detailed knowledge of the method used:</b> The student should be able to explain the procedures for making profile boards	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>Measuring tapes and levels</li> </ul>	

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			and align profile boards for a building project <b>Practical work:</b> Guide students in making and positioning profile boards in a workshop or field setting <b>Field Visit:</b> Take students to observe profile board installation on construction sites <b>Videos:</b> Use video tutorials to enhance students' understanding of profile	securely for durability • Set up boards on-site according to building dimensions • Inspect boards for stability and alignment • Ensure compliance with safety standards during the process	for construction activities	<b>Principles:</b> The student should explain the principles involved in making profile boards <b>Theories:</b> The student should explain • Importance of profile boards in construction • Materials used for making profile boards • Tools and equipment required • Techniques for making and installing profile boards • Positioning and aligning profile	<ul style="list-style-type: none"> <li>• Saw for cutting timber</li> <li>• Hammer and nails</li> <li>• Timber or other suitable materials for boards</li> <li>• String lines for alignment</li> <li>• Safety boots</li> <li>• Overalls</li> <li>• Helmets</li> <li>• Gloves</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	

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				Process Assessment	Services Assessment	Knowledge Assessment		
			board construction and usage			boards accurately • Maintenance and reuse of profile boards		
	2.2. Excavation of foundation trench	(a) Examining and marking the foundation size	<b>Brainstorming:</b> Engage students in discussing the importance of accurately examining and marking foundation sizes <b>Demonstration:</b> Show students how to use measuring tapes, levels, and chalk lines to mark foundation sizes	<ul style="list-style-type: none"> <li>• Review site plans and foundation drawings</li> <li>• Inspect site conditions for suitability</li> <li>• Measure and mark foundation dimensions accurately using tools</li> <li>• Verify alignment and accuracy of markings</li> <li>• Adjust markings as required to</li> </ul>	Examining and marking the foundation size is performed to ensure accurate placement and dimensions of the foundation, critical for the structural integrity of the building	<b>Knowledge evidence:</b> <b>Detailed knowledge of the method used:</b> The student should be able to explain procedures for examining and marking foundation size <b>Principles:</b> The student should explain the principles involved in examining and marking the foundation size	The following tools, equipment and safety gear are to be available:  <ul style="list-style-type: none"> <li>• Site plans and foundation drawings</li> <li>• Measuring tapes and levels</li> <li>• Pegs and string lines</li> <li>• Chalk or marking tools</li> </ul>	70

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				Process Assessment	Services Assessment	Knowledge Assessment		
			<b>Practical work:</b> Guide students in measuring and marking foundation dimensions on a prepared site <b>Field Visit:</b> Take students to observe professionals marking foundations on-site <b>Videos:</b> Provide video tutorials to help students understand techniques for accurate foundation marking	meet specifications • Ensure compliance with safety protocols		<b>Theories:</b> The student should explain • Importance of examining and marking foundation size • Tools and equipment used for marking • Interpreting foundation plans and technical drawings • Techniques for measuring and marking foundation dimensions • Verifying alignment and accuracy of markings	• Spirit levels or laser levels • Safety boots • Overalls • Helmets • Gloves • Computer • Internet • Projector	

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				Process Assessment	Services Assessment	Knowledge Assessment		
						<ul style="list-style-type: none"> <li>Common errors in foundation marking and their correction</li> </ul>		
		(b) Trench excavation	<b>Think-Pair-Share:</b> Facilitate discussions where students explore the tools and safety measures for trench excavation <b>Demonstration:</b> Show students how to excavate trenches using hand tools and machinery <b>Practical work:</b> Guide students in	<ul style="list-style-type: none"> <li>Review site plans and specifications for trench dimensions</li> <li>Mark out the trench area</li> <li>Excavate the trench to the required depth and width</li> <li>Monitor alignment and slope stability during excavation</li> <li>Remove debris and maintain a</li> </ul>	Trench excavation is performed according to safety and engineering standards to ensure structural integrity and worker safety	<b>Knowledge evidence:</b> <b>Detailed knowledge of the method used:</b> The student should be able to explain procedures for trench excavation, including marking, digging, and maintaining stability <b>Principles:</b> Student should explain the principles involved in trench	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>Shovels and spades</li> <li>Measuring tapes and levels</li> <li>Pegs and string lines</li> <li>Excavation equipment (e.g., backhoe or manual tools)</li> <li>Safety boots</li> <li>Overalls</li> </ul>	

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				Process Assessment	Services Assessment	Knowledge Assessment		
			excavating trenches for a foundation <b>Field Visit:</b> Arrange for students to observe trench excavation processes at construction sites <b>Videos:</b> Use visual aids to enhance students' understanding of trench excavation techniques and safety protocols	clean work area • Ensure compliance with safety standards throughout the process		excavation	<ul style="list-style-type: none"> <li>• Helmets</li> <li>• Gloves</li> <li>• Safety barriers or trench supports for stability</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	
		(c) Conducting timbering to the trench	<b>Brainstorming:</b> Engage students in discussing the	• Inspect trench dimensions	Conducting timbering to the trench is performed to	<b>Knowledge evidence: Detailed knowledge of the</b>	The following tools, equipment and safety gear are	

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			<p>purpose of timbering trenches to prevent collapse</p> <p><b>Demonstration:</b> Show students how to install timber supports in an excavated trench</p> <p><b>Practical work:</b> Guide students in timbering a trench in a controlled environment</p> <p><b>Field Visit:</b> Take students to observe trench timbering</p>	<p>and soil conditions</p> <ul style="list-style-type: none"> <li>• Select and prepare timber supports</li> <li>• Install timbering to stabilise trench walls</li> <li>• Inspect timbering for proper alignment and stability</li> <li>• Remove timbering safely after excavation tasks are complete</li> <li>• Maintain safety standards</li> </ul>	<p>provide structural support and ensure the safety of workers during excavation processes</p>	<p><b>method used:</b> The student should be able to explain procedures for timbering a trench, including selection, installation, and safe removal of supports</p> <p><b>Principles:</b> Student should explain the principles involved in conducting timbering to the trench</p> <p><b>Theories:</b> The student should explain</p> <ul style="list-style-type: none"> <li>• Importance of examining and</li> </ul>	<p>to be available:</p> <ul style="list-style-type: none"> <li>• Timber planks and wedges</li> <li>• Hammers and nails</li> <li>• Measuring tapes and levels</li> <li>• Safety boots</li> <li>• Overalls</li> <li>• Helmets</li> <li>• Gloves</li> <li>• Trench braces or hydraulic shoring systems for additional support</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	

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				Process Assessment	Services Assessment	Knowledge Assessment		
			techniques on active construction sites <b>Videos:</b> Provide instructional videos to enhance students' understanding of trench timbering methods	throughout the process		marking foundation size <ul style="list-style-type: none"> <li>• Tools and equipment used for marking</li> <li>• Interpreting foundation plans and technical drawings</li> <li>• Techniques for measuring and marking foundation dimensions</li> <li>• Verifying alignment and accuracy of markings</li> <li>• Common errors in foundation marking and their correction</li> </ul>		
		(d) Conducting dewatering	<b>Group Work:</b> Facilitate	<ul style="list-style-type: none"> <li>• Identify sources of</li> </ul>	Dewatering is conducted	<b>Knowledge evidence:</b>	The following tools,	



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			<p>discussions where students identify methods for removing water from construction trenches</p> <p><b>Demonstration:</b> Show students how to use pumps and drainage systems for dewatering</p> <p><b>Practical work:</b> Guide students in setting up and operating dewatering equipment in a simulated trench</p> <p><b>Field Visit:</b></p>	<p>water intrusion in the trench</p> <ul style="list-style-type: none"> <li>• Select appropriate dewatering methods and equipment</li> <li>• Set up pumps or other dewatering systems</li> <li>• Operate equipment to remove water safely and efficiently</li> <li>• Inspect the trench to ensure proper drainage</li> </ul>	to remove groundwater or surface water from the excavation site, ensuring a dry and stable environment for construction activities	<p><b>Detailed knowledge of the method used:</b> The student should be able to explain dewatering procedures, including identifying water sources, selecting methods, and operating equipment</p> <p><b>Principles:</b> The student should explain the principles involved in conducting dewatering</p> <p><b>Theories:</b> The student should explain</p>	<p>equipment and safety gear are to be available:</p> <ul style="list-style-type: none"> <li>• Pumps and hoses for dewatering</li> <li>• Water collection and disposal containers</li> <li>• Shovels for manual drainage</li> <li>• Measuring tools for water levels</li> <li>• Safety boots</li> <li>• Overalls</li> <li>• Helmets</li> <li>• Gloves</li> <li>• Ear protection</li> </ul>	

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				Process Assessment	Services Assessment	Knowledge Assessment		
			Arrange visits for students to observe dewatering processes on-site <b>Videos:</b> Use tutorials to help students understand dewatering techniques and their applications	<ul style="list-style-type: none"> <li>• Maintain and store dewatering equipment after use</li> </ul>		<ul style="list-style-type: none"> <li>• Importance of dewatering</li> <li>• Sources of water in trenches</li> <li>• Methods of dewatering</li> <li>• Tools and equipment for dewatering</li> <li>• Techniques for efficient dewatering</li> <li>• Impact of improper dewatering</li> </ul>	(for noisy equipment) <ul style="list-style-type: none"> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	
		(e) Conducting sandbagging to the trench	<b>Think-Pair-Share:</b> Encourage students to discuss the importance of sandbagging for trench stability	<ul style="list-style-type: none"> <li>• Identify areas of the trench that require sandbagging</li> <li>• Select and prepare sandbag materials</li> </ul>	Sandbagging is conducted to provide additional support and prevent water intrusion in the trench,	<b>Knowledge evidence:</b> <b>Detailed knowledge of the method used:</b> The student should be able to explain sandbagging	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Sandbags and sand</li> </ul>	

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				Process Assessment	Services Assessment	Knowledge Assessment		
			<b>Demonstration:</b> Show students how to fill and position sandbags to reinforce trench walls <b>Practical work:</b> Guide students in sandbagging a trench to prevent soil collapse <b>Field Visit:</b> Take students to observe professional sandbagging at construction sites <b>Videos:</b> Provide visual aids to enhance	<ul style="list-style-type: none"> <li>• Fill sandbags with the appropriate amount of sand</li> <li>• Place and arrange sandbags systematically to stabilise trench walls</li> <li>• Inspect the stability and alignment of the sandbagged trench</li> <li>• Clean and store tools and leftover materials</li> </ul>	enhancing safety and stability during excavation activities	procedures, including material preparation, placement techniques, and trench stabilisation <b>Principles:</b> The student should explain the principles involved in conducting sandbagging to the trench <b>Theories:</b> The student should explain <ul style="list-style-type: none"> <li>• Importance of sandbagging in trench stability</li> <li>• Materials used for sandbagging</li> </ul>	<ul style="list-style-type: none"> <li>• Shovels for filling sandbags</li> <li>• Measuring tools for alignment checks</li> <li>• Safety boots</li> <li>• Overalls</li> <li>• Helmets</li> <li>• Gloves</li> <li>• Eye protection (if necessary)</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	

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				Process Assessment	Services Assessment	Knowledge Assessment		
			students' understanding of sandbagging techniques			<ul style="list-style-type: none"> <li>• Tools and equipment for sandbagging</li> <li>• Techniques for placing sandbags in trenches</li> <li>• Preventing soil erosion and water intrusion with sandbags</li> <li>• Applications of sandbagging in construction</li> </ul>		
		(f) Levelling the foundation base	<b>Brainstorming:</b> Engage students in discussing the purpose of achieving a level foundation base <b>Demonstration:</b> Show	<ul style="list-style-type: none"> <li>• Inspect the foundation base for uneven areas</li> <li>• Select and prepare tools for levelling</li> <li>• Measure and mark areas that need adjustment</li> </ul>	Levelling the foundation base is performed according to construction standards to ensure a stable and even foundation	<b>Knowledge evidence:</b> <b>Detailed knowledge of the method used:</b> The student should be able to explain procedures for levelling the foundation base,	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Levelling tools (e.g., spirit level, laser level)</li> </ul>	

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			<p>students how to use levelling tools like spirit levels and laser levels</p> <p><b>Practical work:</b> Guide students in levelling the base of a foundation in a workshop or site simulation</p> <p><b>Field Visit:</b> Arrange visits for students to observe foundation levelling processes on active construction sites</p> <p><b>Videos:</b> Use tutorials to</p>	<ul style="list-style-type: none"> <li>• Use tools to level and compact the foundation base</li> <li>• Inspect the base to ensure uniformity and stability</li> <li>• Clean and store tools after use</li> </ul>	for the structure	<p>including measuring, marking, and adjusting uneven areas</p> <p><b>Principles:</b> The student should explain the principles involved in levelling the foundation base</p> <p><b>Theories:</b> The student should explain</p> <ul style="list-style-type: none"> <li>• Levelling the foundation base</li> <li>• Tools and equipment used for levelling</li> <li>• Techniques for achieving a level foundation base</li> </ul>	<ul style="list-style-type: none"> <li>• Measuring tapes and string lines</li> <li>• Shovels and rakes</li> <li>• Compactors (manual or powered)</li> <li>• Safety boots</li> <li>• Overalls</li> <li>• Helmets</li> <li>• Gloves</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	

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				Process Assessment	Services Assessment	Knowledge Assessment		
			help students understand advanced levelling techniques			<ul style="list-style-type: none"> <li>• Methods to check and verify level accuracy</li> <li>• Impact of an uneven foundation on structural integrity</li> <li>• Common challenges in levelling and their solutions</li> </ul>		
	2.3. Constructing foundation	(a) Laying the blinding layer	<b>Group Work:</b> Facilitate discussions where students identify materials and steps for laying a blinding layer <b>Demonstration:</b> Show students how	<ul style="list-style-type: none"> <li>• Inspect and prepare the surface for blinding</li> <li>• Select and prepare materials for the blinding layer</li> <li>• Mix materials to achieve the</li> </ul>	The blinding layer is laid according to construction standards to provide a stable, level surface for the foundation and prevent contamination	<b>Knowledge evidence:</b> <b>Detailed knowledge of the method used:</b> The student should be able to explain the procedures for laying the blinding layer, including material	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Mixing tools (e.g., hand mixer, concrete mixer)</li> </ul>	105

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				Process Assessment	Services Assessment	Knowledge Assessment		
			to mix and lay a blinding layer to prepare the foundation base <b>Practical work:</b> Guide students in laying a blinding layer for a small foundation in a workshop setting <b>Field Visit:</b> Take students to observe the application of blinding layers on construction sites <b>Videos:</b> Provide instructional	correct consistency • Lay the blinding layer evenly across the foundation base • Compact and smooth the blinding layer to the required level • Inspect the finished layer for uniformity and thickness	n of the concrete	selection, preparation, and application <b>Principles:</b> The student should explain the principles involved in laying the blinding layer <b>Theories:</b> The student should explain • Importance of Lay Blinding • Properties of Aggregates • Grading of Aggregates • Concrete Mixing • Compact Concrete • Cure	<ul style="list-style-type: none"> <li>• Shovels and rakes</li> <li>• Levelling tools (e.g., spirit level, laser level)</li> <li>• Measuring tapes</li> <li>• Safety boots</li> <li>• Overalls</li> <li>• Helmets</li> <li>• Gloves</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	

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				Process Assessment	Services Assessment	Knowledge Assessment		
			videos to enhance students' understanding of the blinding process					
		(b) Constructing foundation wall	<b>Brainstorming:</b> Engage students in discussing the importance of foundation walls in building stability <b>Demonstration:</b> Show students how to lay bricks or blocks to construct a foundation wall <b>Practical work:</b> Guide students in	<ul style="list-style-type: none"> <li>• Interpret technical drawings for foundation wall dimensions and specifications</li> <li>• Select and prepare materials (e.g., bricks, blocks, mortar)</li> <li>• Lay the first course of bricks or blocks accurately</li> </ul>	The foundation wall is constructed according to engineering standards to support and stabilise the structure above	<b>Knowledge evidence:</b> <b>Detailed knowledge of the method used:</b> The student should be able to explain procedures for constructing a foundation wall, including material preparation, laying techniques, and ensuring structural integrity <b>Principles:</b> The student should explain	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Bricks or blocks</li> <li>• Mortar mixer or hand-mixing tools</li> <li>• Trowels and levels</li> <li>• Measuring tapes and string lines</li> <li>• Plumb bobs</li> <li>• Safety boots</li> <li>• Overalls</li> </ul>	



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				Process Assessment	Services Assessment	Knowledge Assessment		
			constructing a small-scale foundation wall, focusing on alignment and bonding <b>Field Visit:</b> Arrange for students to observe foundation wall construction on-site <b>Videos:</b> Use visual aids to help students understand foundation wall construction techniques	<ul style="list-style-type: none"> <li>• Build up successive courses while maintaining alignment and bonding</li> <li>• Inspect the wall for straightness, level, and proper bonding</li> <li>• Clean tools and workspace after construction</li> </ul>		the principles involved in constructing foundation wall <b>Theories:</b> The student should explain: <ul style="list-style-type: none"> <li>• Interpreting drawings</li> <li>• Mixing mortar</li> <li>• Laying bricks/blocks</li> <li>• Ensuring stability/levelness</li> </ul>	<ul style="list-style-type: none"> <li>• Helmets</li> <li>• Gloves</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	
		(c) Backfilling	<b>Think-Pair-Share:</b> Facilitate	• Inspect the foundation area for	Backfilling is performed according to	<b>Knowledge evidence: Detailed</b>	The following tools, equipment and	

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			<p>discussions where students explore materials and techniques for backfilling</p> <p><b>Demonstration:</b> Show students how to backfill trenches and compact the soil</p> <p><b>Practical work:</b> Guide students in backfilling a trench and ensuring proper compaction</p> <p><b>Field Visit:</b> Take students to observe backfilling</p>	<p>readiness to backfill</p> <ul style="list-style-type: none"> <li>• Select appropriate backfill materials (e.g., soil, gravel)</li> <li>• Place backfill material in layers around the foundation</li> <li>• Compact each layer thoroughly using manual or mechanical compaction tools</li> <li>• Inspect the backfilled area for</li> </ul>	<p>construction standards to provide support and stability to the foundation while preventing water accumulation</p>	<p><b>knowledge of the method used:</b></p> <p>The student should be able to explain procedures for backfilling, including material selection, placement, and compaction techniques</p> <p><b>Principles:</b></p> <p>The student should explain the principles involved in backfilling</p> <p><b>Theories:</b> The student should explain</p> <ul style="list-style-type: none"> <li>• Importance of backfilling</li> </ul>	<p>safety gear are to be available:</p> <ul style="list-style-type: none"> <li>• Backfill materials (e.g., soil, gravel)</li> <li>• Shovels and rakes</li> <li>• Compaction tools (manual or mechanical)</li> <li>• Measuring tapes and levels</li> <li>• Safety boots</li> <li>• Overalls</li> <li>• Helmets</li> <li>• Gloves</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	

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				Process Assessment	Services Assessment	Knowledge Assessment		
			processes on professional construction sites <b>Videos:</b> Provide tutorials to enhance students' understanding of backfilling methods	uniformity and proper compaction • Clean tools and site after backfilling		<ul style="list-style-type: none"> <li>• Types of backfill materials</li> <li>• Compaction techniques</li> <li>• Ensuring proper drainage</li> <li>• Tools and equipment for backfilling</li> </ul>		
		(d) Filling the hardcore	<b>Brainstorming:</b> Engage students in discussing the purpose of hardcore layers in construction <b>Demonstration:</b> Show students how to lay and compact hardcore	<ul style="list-style-type: none"> <li>• Inspect the foundation base to ensure readiness for hardcore filling</li> <li>• Select and prepare hardcore materials (e.g., crushed</li> </ul>	Filling the hardcore is performed according to construction standards to provide a stable base for the foundation and enhance drainage	<b>Knowledge evidence:</b> <b>Detailed knowledge of the method used:</b> The student should be able to explain procedures for filling the hardcore, including material selection,	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Hardcore materials (e.g., crushed stones, gravel)</li> </ul>	

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			materials <b>Practical work:</b> Guide students in filling and levelling a hardcore layer for a simulated foundation <b>Field Visit:</b> Take students to observe the application of hardcore layers on-site <b>Videos:</b> Provide visual aids to enhance students' understanding of hardcore placement techniques	stones, gravel) • Place hardcore material in layers • Level each layer using appropriate tools • Compact each layer thoroughly with manual or mechanical equipment • Inspect the filled area for uniformity and stability		placement, and compaction <b>Principles:</b> The student should explain the principles involved in filling the hardcore <b>Theories:</b> The student should explain • Hardcore filling • Types of hardcore materials • Compaction techniques • Ensuring proper drainage • Tools and equipment used	• Shovels and rakes • Compaction tools (manual or mechanical) • Measuring tapes and levels • Safety boot • Overalls • Helmets • Gloves • Computer • Internet • Projector	
		(e) Setting the formwork	<b>Brainstorming:</b> Engage	• Review technical	Formwork is set according	<b>Knowledge evidence:</b>	The following tools,	

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			<p>students in discussing the importance and types of formwork used in construction</p> <p><b>Demonstration:</b> Show students how to measure, cut, and assemble formwork for foundations or slabs</p> <p><b>Practical work:</b> Guide students in setting up formwork for a small-scale construction project in the workshop</p> <p><b>Field Visit:</b></p>	<p>drawings to determine formwork dimensions and layout</p> <ul style="list-style-type: none"> <li>• Select and prepare formwork materials</li> <li>• Assemble and set up formwork in the required location</li> <li>• Secure formwork to prevent movement during concrete pouring</li> <li>• Inspect formwork for proper alignment,</li> </ul>	to construction standards to shape and support the concrete during the curing process	<p><b>Detailed knowledge of the method used:</b></p> <p>The student should be able to explain procedures for setting formwork, including material selection, assembly, and alignment techniques</p> <p><b>Principles:</b></p> <p>The student should explain the principles involved in setting the formwork</p> <p><b>Theories:</b> The student should explain</p> <ul style="list-style-type: none"> <li>• Formwork in construction</li> </ul>	<p>equipment and safety gear are to be available:</p> <ul style="list-style-type: none"> <li>• Timber or steel formwork materials</li> <li>• Measuring tapes and levels</li> <li>• Saw and hammer for cutting and assembling formwork</li> <li>• Nails, screws, or clamps for securing formwork</li> <li>• Safety boots</li> <li>• Overalls</li> <li>• Helmets</li> <li>• Gloves</li> </ul>	

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			Take students to observe professional formwork setup at construction sites <b>Videos:</b> Provide video tutorials to enhance students' understanding of formwork assembly and quality checks	level, and stability • Clean tools and workspace after formwork setup		<ul style="list-style-type: none"> <li>• Types of formwork materials</li> <li>• Techniques for setting formwork</li> <li>• Ensuring alignment and stability</li> <li>• Tools and equipment used</li> </ul>	<ul style="list-style-type: none"> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	
		(f) Laying reinforcement	<b>Think-Pair-Share:</b> Encourage students to discuss the purpose and placement of reinforcement in concrete	• Review technical drawings to determine reinforcement placement and specifications	Reinforcement is fixed according to construction standards to enhance the structural integrity of the concrete	<b>Knowledge evidence:</b> <b>Detailed knowledge of the method used:</b> The student should be able to explain procedures for	The following tools, equipment and safety gear are to be available: • Reinforcement bars and mesh	

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			structures <b>Demonstration:</b> Show students how to cut, bend, and tie reinforcement bars according to construction drawings <b>Practical work:</b> Guide students in laying reinforcement for a small slab or beam in a controlled environment <b>Field Visit:</b> Arrange for students to observe reinforcement laying	<ul style="list-style-type: none"> <li>• Select and prepare reinforcement materials (e.g., bars, mesh)</li> <li>• Cut and bend reinforcement bars as required</li> <li>• Fix reinforcement in the correct position, maintaining specified spacing</li> <li>• Secure reinforcement using ties or spacers to ensure stability</li> </ul>		laying reinforcement, including material preparation, placement, and securing techniques <b>Principles:</b> The student should explain the principles involved in laying reinforcement <b>Theories:</b> The student should explain <ul style="list-style-type: none"> <li>• Reinforcement</li> <li>• Techniques for laying reinforcement</li> <li>• Proper spacing and alignment</li> <li>• Tools and equipment</li> </ul>	<ul style="list-style-type: none"> <li>• Cutting and bending tools</li> <li>• Measuring tapes and levels</li> <li>• Tying wire and pliers for securing reinforcement</li> <li>• Spacers to maintain proper coverage</li> <li>• Safety boots</li> <li>• Overalls</li> <li>• Helmets</li> <li>• Gloves</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	

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			techniques on-site <b>Videos:</b> Use visual aids to help students understand proper reinforcement practices and spacing					
		(g) Concrete mixing and pouring	<b>Brainstorming:</b> Facilitate a discussion where students explore the components and mix ratios of concrete <b>Demonstration:</b> Show students how to mix concrete manually and with a mixer,	<ul style="list-style-type: none"> <li>• Select and prepare materials (cement, sand, aggregate, and water)</li> <li>• Measure materials accurately to achieve the specified mix ratio</li> <li>• Mix concrete manually or</li> </ul>	Concrete mixing and pouring are performed according to construction standards to ensure the strength and durability of the structure	<b>Knowledge evidence:</b> <b>Detailed knowledge of the method used:</b> The student should be able to explain procedures for concrete mixing and pouring, including material selection, mix ratios, and placement	<p>The following tools, equipment and safety gear are to be available:</p> <ul style="list-style-type: none"> <li>• Cement, sand, aggregate, and water</li> <li>• Concrete mixer or mixing tools</li> </ul>	



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			and pour it into formwork <b>Practical work:</b> Guide students in mixing and pouring concrete for a small construction project in the workshop <b>Field Visit:</b> Take students to observe professional concrete pouring and vibration techniques on construction sites	using a mixer to ensure uniform consistency • Pour concrete into the prepared formwork or area • Compact concrete to remove air voids and ensure even placement • Inspect the poured concrete for uniformity and level		techniques <b>Principles:</b> The student should explain the principles involved in concrete mixing and pouring <b>Theories:</b> The student should explain • Concrete mixing and pouring • Types of concrete mixes • Tools and equipment • Techniques for mixing • Methods for pouring concrete • Compacting concrete	<ul style="list-style-type: none"> <li>• Measuring containers</li> <li>• Shovels, wheelbarrows, and rakes</li> <li>• Vibrators or tamping tools for compaction</li> <li>• Safety boots</li> <li>• Overalls</li> <li>• Helmets</li> <li>• Gloves</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	

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		(h) Curing of concrete	<b>Group Work:</b> Facilitate discussions where students explore the importance of curing in achieving concrete strength <b>Demonstration:</b> Show students different curing methods, such as water curing, plastic sheeting, and curing compounds <b>Practical work:</b> Guide students in curing a small	<ul style="list-style-type: none"> <li>Identify the appropriate curing method based on site conditions and specifications</li> <li>Apply curing techniques such as water spraying, wet coverings, or curing compounds</li> <li>Monitor and maintain moisture levels throughout the curing period</li> <li>Inspect the concrete</li> </ul>	Concrete is cured according to construction standards and specifications to ensure optimal strength and durability	<b>Knowledge evidence:</b> <b>Detailed knowledge of the method used:</b> The student should be able to explain procedures for curing concrete, including selecting methods and maintaining conditions for optimal hydration <b>Principles:</b> The student should explain the principles involved in Curing of concrete <b>Theories:</b> The Student Should <ul style="list-style-type: none"> <li>Curing concrete</li> </ul>	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>Water hoses, sprinklers, or buckets for water curing</li> <li>Wet coverings (e.g., hessian cloth, plastic sheets)</li> <li>Curing compounds (if applicable)</li> <li>Thermometers for monitoring temperature</li> <li>Safety boots</li> </ul>	

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			concrete slab using appropriate methods <b>Field Visit:</b> Arrange for students to observe curing practices on construction sites <b>Videos:</b> Use video tutorials to help students understand the impact of proper curing on concrete performance	regularly to ensure proper hydration and surface quality • Document the curing process and duration for record-keeping		<ul style="list-style-type: none"> <li>• Methods of curing</li> <li>• Tools and equipment for curing</li> <li>• Duration and timing of curing</li> <li>• Effects of improper curing on concrete strength</li> </ul>	<ul style="list-style-type: none"> <li>• Overalls</li> <li>• Helmets</li> <li>• Gloves</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	
	2.4. Constructing walls	(a) Setting the first course	<b>Brainstorming:</b> Engage students in discussing the importance of	• Review site plans to determine dimensions and layout	The first course is set according to construction standards to	<b>Knowledge evidence:</b> <b>Detailed knowledge of the method used:</b>	The following tools, equipment and safety gear are to be	280

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			<p>accurately setting the first course of bricks or blocks</p> <p><b>Demonstration:</b> Show students how to level, align, and mortar the first course of bricks or blocks</p> <p><b>Practical work:</b> Guide students in setting the first course for a small wall in the workshop</p> <p><b>Field Visit:</b> Take students to observe professionals setting the first</p>	<ul style="list-style-type: none"> <li>• Prepare tools, bricks/blocks, and mortar</li> <li>• Lay the first course of bricks/blocks using a string line for alignment</li> <li>• Check level and adjust as necessary to maintain uniformity</li> <li>• Ensure proper spacing and bonding between bricks/blocks</li> <li>• Inspect the first course for stability</li> </ul>	ensure a solid foundation for the structure	<p>The student should be able to explain procedures for setting the first course, including material preparation, alignment, and bonding techniques</p> <p><b>Principles:</b> The student should explain the principles involved in setting the first course</p> <p><b>Theories:</b> The student should explain</p> <ul style="list-style-type: none"> <li>• Constructing walls</li> <li>• Types of walls</li> </ul>	<p>available:</p> <ul style="list-style-type: none"> <li>• Bricks/block s and mortar</li> <li>• String lines and stakes</li> <li>• Spirit level or laser level</li> <li>• Trowels and measuring tapes</li> <li>• Plumb bobs</li> <li>• Safety boots</li> <li>• Overalls</li> <li>• Helmets</li> <li>• Gloves</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	

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			course on-site <b>Videos:</b> Provide instructional videos to enhance students' understanding of alignment and levelling techniques	and alignment		<ul style="list-style-type: none"> <li>• Materials used for wall construction</li> <li>• Tools and equipment required</li> <li>• Techniques for laying bricks or blocks</li> <li>• Types of bonds</li> <li>• Ensuring alignment</li> </ul>		
		(b) Bonding	<b>Think-Pair-Share:</b> Facilitate discussions where students explore different types of bonding, such as stretcher, header, English, and Flemish	<ul style="list-style-type: none"> <li>• Identify and select the appropriate bonding pattern for the structure</li> <li>• Lay bricks/blocks in the specified pattern with proper alignment</li> </ul>	Bonding is established to ensure that masonry units are securely connected, providing strength, stability, and resistance to environmental factors	<b>Knowledge evidence:</b> <b>Detailed knowledge of the method used:</b> The student should be able to explain different bonding patterns, their applications, and the procedures for laying	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Bricks/block s and mortar</li> <li>• String lines and stakes</li> </ul>	

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			<b>Demonstration:</b> Show students how to achieve proper bonding patterns in brick and block construction <b>Practical work:</b> Guide students in practising various bonding techniques on small masonry projects <b>Field Visit:</b> Arrange for students to observe bonding practices at construction	<ul style="list-style-type: none"> <li>• Ensure consistent mortar joints and spacing</li> <li>• Check alignment, level, and plumb of the wall during construction</li> <li>• Inspect the bonding pattern for accuracy and uniformity</li> </ul>		bricks/blocks with proper jointing techniques <b>Principles:</b> student should explain the principles involved in bonding	<ul style="list-style-type: none"> <li>• Spirit level and plumb bobs</li> <li>• Trowels and measuring tapes</li> <li>• Jointing tools</li> <li>• Safety boots</li> <li>• Overalls</li> <li>• Helmets</li> <li>• Gloves</li> </ul>	

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			sites					
		(c) Constructing subsequent courses	<b>Brainstorming:</b> Discuss with students the process of constructing subsequent courses in masonry to achieve structural integrity <b>Demonstration:</b> Show students how to maintain alignment, bonding, and levelling while constructing additional courses <b>Practical work:</b> Guide students in	<ul style="list-style-type: none"> <li>• Prepare tools, bricks/blocks, and mortar for the next courses</li> <li>• Lay additional courses while maintaining alignment with the previous layer</li> <li>• Ensure proper bonding and consistent mortar joint thickness</li> <li>• Check the level, alignment,</li> </ul>	Subsequent courses are constructed according to construction standards to ensure structural integrity and alignment	<b>Knowledge evidence:</b> <b>Detailed knowledge of the method used:</b> The student should be able to explain procedures for constructing subsequent courses, including maintaining alignment, bonding <b>Principles:</b> The student should explain the principles involved in constructing subsequent courses <b>Theories:</b> The	This element can be achieved at construction sites or at school surroundings The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Bricks/blocks and mortar</li> <li>• String lines and stakes</li> <li>• Spirit level and plumb bobs</li> <li>• Trowels and measuring tapes</li> </ul>	

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			building subsequent courses for a small wall in the workshop <b>Field Visit:</b> Take students to observe ongoing masonry construction projects <b>Videos:</b> Use tutorials to enhance students' understanding of proper course construction techniques	and plumb of the wall after each course • Inspect the wall for uniformity and structural integrity		student should explain • Constructing subsequent courses • Techniques for aligning and bonding • Ensuring vertical and horizontal levelness • Tools and equipment required • Checking and maintaining bond patterns	<ul style="list-style-type: none"> <li>• Jointing tool</li> <li>• Safety boots</li> <li>• Overalls</li> <li>• Helmets</li> <li>• Gloves</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	
3.0. Performing wall and floor finishes	3.1. Making scaffold	(a) Making putlog scaffold	Group Discussion: Facilitate a session where	• Select appropriate materials and tools for	Putlog scaffolding is constructed according to	<b>Knowledge evidence:</b> <b>Detailed knowledge of the</b>	The following tools, equipment and safety gear are	70



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			<p>students identify the uses and design of putlog scaffolds</p> <p><b>Demonstration:</b> Show students how to assemble and secure putlog scaffolds for safe use</p> <p><b>Practical work:</b> Guide students in constructing a putlog scaffold in a controlled environment</p> <p><b>Field Visit:</b> Arrange for students to observe putlog</p>	<p>scaffold construction</p> <ul style="list-style-type: none"> <li>• Assemble vertical poles and horizontal putlogs securely</li> <li>• Fix putlogs into walls or support them on ledgers as required</li> <li>• Secure the scaffold with ties, clamps, and braces for stability</li> <li>• Inspect the scaffold for alignment, stability, and safety compliance</li> </ul>	safety and construction standards to provide support for workers and materials during construction activities	<p><b>method used:</b> The student should be able to explain procedures for making a putlog scaffold, including material selection, assembly, and safety precautions</p> <p><b>Principles:</b> The student should explain the principles involved in making putlog scaffold</p> <p><b>Theories:</b> The student should explain</p> <ul style="list-style-type: none"> <li>• Importance of putlog scaffolds</li> <li>• Components of putlog scaffolds</li> </ul>	<p>to be available:</p> <ul style="list-style-type: none"> <li>• Scaffolding poles, putlogs, and ledgers</li> <li>• Clamps and ties for securing scaffold parts</li> <li>• Measuring tapes and levels</li> <li>• Hammers and wrenches</li> <li>• Safety harnesses and fall protection equipment</li> <li>• Safety boots</li> <li>• Overalls</li> </ul>	

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			scaffold construction and use at a construction site <b>Videos:</b> Provide video tutorials to enhance students' understanding of scaffold safety and assembly			<ul style="list-style-type: none"> <li>• Materials used for construction</li> <li>• Tools and equipment required</li> <li>• Techniques for assembling putlog scaffolds</li> </ul>	<ul style="list-style-type: none"> <li>• Helmets</li> <li>• Gloves</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	
		(b) Making independent scaffold	<b>Think-Pair-Share:</b> Encourage students to discuss the design and application of independent scaffolds in construction <b>Demonstratio</b>	<ul style="list-style-type: none"> <li>• Select appropriate materials and tools for scaffold construction</li> <li>• Assemble vertical standards and fix</li> </ul>	Independent scaffolding is constructed according to safety and construction standards to provide a stable and secure working	<b>Knowledge evidence:</b> <b>Detailed knowledge of the method used:</b> The student should be able to explain procedures for making an independent	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Scaffolding poles, ledgers, transoms, and planks</li> </ul>	

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			<b>n:</b> Show students how to build independent scaffolds with proper bracing and alignment <b>Practical work:</b> Guide students in assembling independent scaffolds in a workshop <b>Field Visit:</b> Take students to observe professional scaffold construction on-site <b>Videos:</b> Use visual aids to help students understand	ledgers and transoms • Install bracing and ties to ensure scaffold stability • Secure planks or platforms on the scaffold structure • Inspect the scaffold for alignment, stability, and compliance with safety standards	platform for construction activities	scaffold, including material selection, assembly, and safety precautions <b>Principles:</b> The student should explain the principles involved in making independent scaffold <b>Theories:</b> The student should explain • Importance of independent scaffolds • Components of independent scaffolds • Materials used for construction	• Clamps and ties for securing scaffold parts • Measuring tapes and levels • Hammers and wrenches • Safety harnesses and fall protection equipment • Safety boots • Overalls • Helmets • Gloves • Computer • Internet • Projector	

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			scaffold assembly and safety			<ul style="list-style-type: none"> <li>Tools and equipment required</li> <li>Techniques for assembling independent scaffolds</li> </ul>		
		(c) Making ladder	<b>Brainstorming:</b> Engage students in discussing the types of ladders and their uses in construction <b>Demonstration:</b> Show students how to construct a safe and sturdy ladder using wood or metal <b>Practical work:</b> Guide students in	<ul style="list-style-type: none"> <li>Select appropriate materials and tools for ladder construction</li> <li>Measure and cut materials for rungs and side rails</li> <li>Assemble ladder components, ensuring proper spacing and alignment</li> </ul>	A ladder is constructed according to safety and construction standards to ensure stability and safety for users	<b>Knowledge evidence:</b> <b>Detailed knowledge of the method used:</b> The student should be able to explain procedures for making a ladder, including material selection, assembly techniques, and safety precautions <b>Principles:</b> The student should explain	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>Timber or metal for ladder construction</li> <li>Measuring tapes and levels</li> <li>Saw and hammer or drill for cutting and</li> </ul>	

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			making a ladder in a workshop setting <b>Field Visit:</b> Arrange for students to observe ladder construction and safety checks on-site <b>Videos:</b> Provide video tutorials to enhance students' understanding of ladder construction techniques	<ul style="list-style-type: none"> <li>Secure joints with nails, screws, or brackets for stability</li> <li>Inspect the ladder for structural integrity and safety compliance</li> </ul>		the principles involved in making ladder <b>Theories:</b> The student should explain <ul style="list-style-type: none"> <li>Importance of ladders in construction</li> <li>Types of ladders</li> <li>Materials used for ladder construction</li> <li>Tools and equipment required</li> <li>Techniques for assembling ladders</li> <li>Ensuring stability and weight capacity</li> </ul>	assembling materials <ul style="list-style-type: none"> <li>Nails, screws, or brackets for securing components</li> <li>Safety boots</li> <li>Overalls</li> <li>Helmets</li> <li>Gloves</li> <li>Computer</li> <li>Internet</li> <li>Projector</li> </ul>	
		(d) Dismantling scaffold	<b>Group Work:</b> Facilitate	Inspect the scaffold to	Scaffold is dismantled	<b>Knowledge evidence:</b>	The following tools,	

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			<p>discussions where students explore the importance of safely dismantling scaffolds</p> <p><b>Demonstration:</b> Show students how to carefully dismantle scaffolds, starting from the top and working down</p> <p><b>Practical work:</b> Guide students in dismantling a scaffold in a controlled workshop environment</p> <p><b>Field Visit:</b></p>	<p>ensure it is safe to dismantle</p> <ul style="list-style-type: none"> <li>• Remove planks, braces, and ties systematically, starting from the top</li> <li>• Lower components safely using appropriate tools or lifting mechanisms</li> <li>• Disassemble standards, ledgers, and transoms sequentially</li> <li>• Store scaffold components</li> </ul>	<p>according to safety and construction standards to ensure the safety of workers and the integrity of the components</p>	<p><b>Detailed knowledge of the method used:</b> The student should be able to explain procedures for dismantling scaffolds, including safe handling of materials, systematic removal, and storage techniques</p> <p><b>Principles:</b> The student should explain the principles involved in dismantling scaffold</p> <p><b>Theories:</b> The student should</p>	<p>equipment and safety gear are to be available:</p> <ul style="list-style-type: none"> <li>• Scaffold components (standards, ledgers, braces, planks)</li> <li>• Clamps and ties</li> <li>• Lifting mechanisms for lowering heavy components</li> <li>• Safety harnesses and fall protection equipment</li> <li>• Safety boots</li> <li>• Overalls</li> </ul>	

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			Take students to observe scaffold dismantling at a construction site <b>Videos:</b> Use visual aids to help students understand proper dismantling procedures and safety measures	neatly for reuse or disposal		explain <ul style="list-style-type: none"> <li>• Importance of proper dismantling of scaffolds</li> <li>• Tools and equipment required</li> <li>• Step-by-step process for dismantling scaffolds</li> <li>• Techniques to ensure structural safety</li> <li>• Handling and storing scaffold components</li> </ul>	<ul style="list-style-type: none"> <li>• Helmets</li> <li>• Gloves</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	
	3.2. Performing plastering	(a) Performing internal plaster	<b>Brainstorming:</b> Engage students in discussing the purpose and techniques of internal	<ul style="list-style-type: none"> <li>• Prepare the wall surface by cleaning and wetting it</li> <li>• Mix plaster materials</li> </ul>	Internal plastering is carried out according to specification and standards to provide a	<b>Knowledge evidence:</b> <b>Detailed knowledge of the method used:</b> The student should be able to	The following tools, equipment and safety gear are to be available:	140

Module Title(Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Guiding and Learning Methods	Assessment Criteria			Training Requirements / Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge Assessment		
			plastering <b>Demonstration:</b> Show students how to prepare surfaces, mix plaster, and apply it evenly to walls <b>Practical work:</b> Guide students in applying internal plaster on small sections of walls in a workshop <b>Field Visit:</b> Take students to observe professionals performing internal plastering on	(cement, sand, and water) to achieve the correct consistency • Apply the first coat of plaster evenly across the wall surface • Level and smooth the plaster using trowels and straight edges • Apply the finishing coat for a smooth, uniform surface	smooth and durable finish on interior walls	explain procedures for internal plastering, including surface preparation, material mixing, and application techniques <b>Principles:</b> The student should explain the principles involved in performing internal plaster <b>Theories:</b> The student should explain- <ul style="list-style-type: none"> <li>• Surface preparation</li> <li>• Application of dots</li> <li>• Floating surface</li> </ul>	<ul style="list-style-type: none"> <li>• Trowels and straight edges</li> <li>• Plastering hawks</li> <li>• Mixing tools (manual or mechanical)</li> <li>• Buckets for water and mixing</li> <li>• Measuring containers for materials</li> <li>• Safety boots</li> <li>• Overalls</li> <li>• Helmets</li> <li>• Gloves</li> </ul>	



Module Title(Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Guiding and Learning Methods	Assessment Criteria			Training Requirements / Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge Assessment		
			active construction sites	<ul style="list-style-type: none"> <li>Inspect the wall for consistency, finish quality, and adherence to specifications</li> </ul>				
		(b) Performing external plaster	<b>Think-Pair-Share:</b> Facilitate discussions where students explore the challenges and techniques for external plastering in different weather conditions <b>Demonstration:</b> Show students how to mix and	<ul style="list-style-type: none"> <li>Clean and prepare the wall surface by removing dirt and loose particles</li> <li>Mix plaster materials (cement, sand, and water) to the required consistency</li> <li>Apply the first coat of plaster to the</li> </ul>	External plastering is carried out according to construction standards to protect and enhance the appearance of exterior walls	<b>Knowledge evidence:</b> <b>Detailed knowledge of the method used:</b> The student should be able to explain procedures for external plastering, including surface preparation, material mixing, and application techniques <b>Principles:</b>	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>Trowels and straight edges</li> <li>Plastering hawks</li> <li>Mixing tools (manual or mechanical)</li> </ul>	

Module Title(Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Guiding and Learning Methods	Assessment Criteria			Training Requirements / Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge Assessment		
			apply external plaster, ensuring durability and resistance to environmental factors <b>Practical work:</b> Guide students in performing external plastering on mock walls in a controlled environment <b>Field Visit:</b> Arrange for students to observe external plastering practices on large-scale construction	external surface evenly • Level the plaster using straight edges and trowels • Apply the finishing coat to ensure weather resistance and smoothness • Inspect the surface for cracks, unevenness, and adherence to specifications		The student should explain the principles involved in performing external plaster <b>Theories:</b> The student should explain:- • Importance of external plaster • Surface preparation techniques • Application of dots • Tools and equipment • Techniques for applying and floating	• Buckets for water and mixing • Measuring containers for materials • Ladders or scaffolding for elevated areas • Safety boots • Overalls • Helmets • Gloves	

Module Title(Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Guiding and Learning Methods	Assessment Criteria			Training Requirements / Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge Assessment		
			projects					
		(c) Performing tyrolean	<b>Brainstorming:</b> Engage students in discussing the decorative and protective purposes of Tyrolean finishes <b>Demonstration:</b> Show students how to prepare tyrolean material and apply it using a tyrolean gun or hand tools <b>Practical work:</b> Guide students in applying tyrolean finishes on	<ul style="list-style-type: none"> <li>• Prepare the wall surface by cleaning and wetting it</li> <li>• Mix tyrolean plaster to the required consistency</li> <li>• Load the tyrolean machine or hand tool with the plaster</li> <li>• Apply the plaster evenly using a flicking motion to create texture</li> <li>• Inspect the surface for uniform</li> </ul>	Tyrolean plaster is applied according to safety and construction standards to provide a textured and durable finish on external walls	<ul style="list-style-type: none"> <li>• Detailed knowledge of the method used:</li> <li>• The student should be able to explain procedures for applying tyrolean plaster, including surface preparation, material mixing, and application techniques</li> </ul> <b>Principles:</b> student should explain the principles involved in performing tyrolean	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Tyrolean machine or hand tools</li> <li>• Mixing tools (manual or mechanical)</li> <li>• Buckets for water and mixing</li> <li>• Measuring containers for materials</li> <li>• Trowels for surface preparation</li> <li>• Ladders or scaffolding</li> </ul>	

Module Title(Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Guiding and Learning Methods	Assessment Criteria			Training Requirements / Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge Assessment		
			mock walls in a workshop <b>Field Visit:</b> Take students to observe tyrolean finishes being applied on construction sites <b>Videos:</b> Provide visual aids to enhance students' understanding of tyrolean techniques	texture and coverage • Clean tools and equipment after use		<b>Theories:</b> The student should explain:- • Importance of tyrolean finishes • Materials used for tyrolean plastering • Tools and equipment required • Techniques for application • Achieving consistent texture and patterns	for elevated areas • Safety boots • Overalls • Helmets • Gloves • Computer • Internet • Projector	
		(d) Performing final finish to the plaster (skimming)	<b>Group Work:</b> Facilitate discussions where students identify the tools and techniques	• Inspect the plastered surface to ensure it is ready for skimming	Skimming is performed according to standards and specifications to achieve a	<b>Knowledge evidence:</b> <b>Detailed knowledge of the method used:</b> The student should be able to	The following tools, equipment and safety gear are to be available:	

Module Title(Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Guiding and Learning Methods	Assessment Criteria			Training Requirements / Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge Assessment		
			used for skimming plaster <b>Demonstration:</b> Show students how to mix skimming plaster and achieve a smooth, polished finish <b>Practical work:</b> Guide students in skimming small sections of walls in a controlled environment <b>Field Visit:</b> Arrange visits for students to observe skimming	<ul style="list-style-type: none"> <li>• Mix skimming materials (e.g., fine plaster or gypsum) to achieve the desired consistency</li> <li>• Apply a thin layer of skimming material using a steel trowel or float</li> <li>• Smooth the surface evenly, removing excess material</li> <li>• Inspect the finished surface for</li> </ul>	smooth, even finish on plastered surfaces	<p>explain procedures for skimming, including material preparation, application, and finishing techniques</p> <p><b>Principles:</b> The student should explain the principles involved in performing final finish to the plaster (skimming)</p> <p><b>Theories:</b> The student should explain:</p> <ul style="list-style-type: none"> <li>• Purpose of Skimming</li> <li>• Application of Skimming Material</li> </ul>	<ul style="list-style-type: none"> <li>• Steel trowels and floats for skimming</li> <li>• Mixing tools (manual or mechanical)</li> <li>• Buckets for water and mixing</li> <li>• Measuring containers for materials</li> <li>• Sandpaper for minor corrections</li> <li>• Safety boots</li> <li>• Overalls</li> <li>• Helmets</li> <li>• Gloves</li> </ul>	

Module Title(Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Guiding and Learning Methods	Assessment Criteria			Training Requirements / Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge Assessment		
			being done on professional construction sites	uniformity, smoothness, and absence of imperfections		<ul style="list-style-type: none"> <li>Smoothing the Surface</li> </ul>		
	3.3. Performing floor finish	(a) Performing granolithic floor finish	<b>Brainstorming:</b> Engage students in discussing the advantages of granolithic flooring in high-traffic areas <b>Demonstration:</b> Show students how to mix and apply granolithic concrete and finish it to a smooth surface <b>Practical</b>	<ul style="list-style-type: none"> <li>Prepare the base surface by cleaning and levelling</li> <li>Mix granolithic materials (cement, fine aggregates, and coarse aggregates) to the correct proportions</li> <li>Apply the granolithic layer evenly over the prepared surface</li> </ul>	A granolithic floor finish is applied according to standards and specifications to provide a durable and aesthetically pleasing surface for various applications	<b>Knowledge evidence:</b> <b>Detailed knowledge of the method used:</b> The student should be able to explain procedures for granolithic floor finishing, including surface preparation, material mixing, and finishing techniques <b>Principles:</b> The student should explain the	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>Mixing tools (manual or mechanical)</li> <li>Trowels, floats, and straight edges for levelling</li> <li>Measuring containers for material proportions</li> </ul>	70

Module Title(Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Guiding and Learning Methods	Assessment Criteria			Training Requirements / Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge Assessment		
			<b>work:</b> Guide students in creating a granolithic floor finish in a small workshop area <b>Field Visit:</b> Take students to observe granolithic flooring being applied in large-scale projects <b>Videos:</b> Provide instructional videos to enhance students' understanding of granolithic flooring techniques	<ul style="list-style-type: none"> <li>• Compact and level the layer using appropriate tools</li> <li>• Polish the surface to achieve a smooth, durable finish</li> <li>• Inspect the floor for uniformity, levelness, and adherence to specifications</li> </ul>		principles involved in performing granolithic floor <b>Theories:</b> The student should explain: <ul style="list-style-type: none"> <li>• Purpose of Granolithic Finishing</li> <li>• Purpose of Granolithic Finishing</li> <li>• Applying and finishing the granolithic material</li> </ul>	<ul style="list-style-type: none"> <li>• Polishing tools or machines</li> <li>• Buckets for water and mixing</li> <li>• Safety boots</li> <li>• Overalls</li> <li>• Helmets</li> <li>• Gloves</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	

Module Title(Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Guiding and Learning Methods	Assessment Criteria			Training Requirements / Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge Assessment		
		(b) Performing monolithic finish	<b>Think-Pair-Share:</b> Encourage students to discuss the concept and benefits of monolithic finishes in construction <b>Demonstration:</b> Show students how to achieve a seamless monolithic finish for floors and walls <b>Practical work:</b> Guide students in applying monolithic finishes to	<ul style="list-style-type: none"> <li>• Prepare the base surface by cleaning and wetting it</li> <li>• Mix materials (e.g., concrete or a specialised topping mix) to the required consistency</li> <li>• Pour the material directly onto the prepared surface</li> <li>• Spread and level the material evenly using floats and</li> </ul>	A monolithic finish is applied according to standards and specifications to create a seamless and durable floor surface	<b>Knowledge evidence:</b> <b>Detailed knowledge of the method used:</b> The student should be able to explain procedures for monolithic finishing, including material preparation, application, and finishing techniques <b>Principles:</b> The student should explain the principles involved in performing monolithic finish <b>Theories:</b> The student should	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Mixing tools (manual or mechanical)</li> <li>• Trowels, floats, and straight edges for levelling</li> <li>• Measuring containers for materials</li> <li>• Buckets for water and mixing</li> <li>• Curing tools and materials (e.g., curing compounds)</li> </ul>	



Module Title(Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Guiding and Learning Methods	Assessment Criteria			Training Requirements / Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge Assessment		
			mock construction elements in the workshop <b>Field Visit:</b> Arrange for students to observe professionals performing monolithic finishes on-site <b>Videos:</b> Use visual aids to help students understand advanced monolithic finishing methods	straight edges • Smooth and finish the surface for a seamless look • Inspect the floor for uniformity, levelness, and absence of cracks or joints		explain: • Material composition • Application techniques	or water sprays) • Safety boots • Overalls • Helmets • Gloves • Computer • Internet • Projector	
		(c) Performing floor and wall tiles	<b>Brainstorming:</b> Engage students in discussing the types and	• Clean and prepare surfaces for tiling	The installation of floor and wall tiles is conducted	<b>Knowledge evidence: Detailed knowledge of the method used:</b>	The following tools, equipment and safety gear are to be	

Module Title(Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Guiding and Learning Methods	Assessment Criteria			Training Requirements / Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge Assessment		
			<p>patterns of tiles for floors and walls</p> <p><b>Demonstration:</b> Show students how to measure, cut, and lay tiles with proper adhesive and spacing</p> <p><b>Practical work:</b> Guide students in tiling small floor and wall areas in a workshop</p> <p><b>Field Visit:</b> Take students to observe tiling work in professional construction</p>	<ul style="list-style-type: none"> <li>• Measure and mark the layout for tiles to ensure alignment</li> <li>• Mix adhesive and apply it evenly to the surface</li> <li>• Lay tiles in alignment, maintaining proper spacing with spacers</li> <li>• Apply grout to fill joints and smooth the surface</li> <li>• Inspect the tiled surface for alignment, uniformity,</li> </ul>	according to safety and construction standards to ensure a durable and aesthetically pleasing finish	<p>The student should be able to explain procedures for tiling, including surface preparation, adhesive application, tile placement, and joint grouting</p> <p><b>Principles:</b></p> <p>udent should explain the principles involved in performing floor and wall tiles</p> <p><b>ies:</b> The student should explain:</p> <ul style="list-style-type: none"> <li>• Tile characteristics and properties</li> </ul>	<p>available:</p> <ul style="list-style-type: none"> <li>• Tiles and adhesive</li> <li>• Tile cutters and spacers</li> <li>• Trowels and notched spreaders</li> <li>• Grouting tools and sponges</li> <li>• Measuring tapes and levels</li> <li>• Safety boots</li> <li>• Overalls</li> <li>• Helmets</li> <li>• Gloves</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	

Module Title(Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Guiding and Learning Methods	Assessment Criteria			Training Requirements / Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment	Knowledge Assessment		
			projects <b>Videos:</b> Provide video tutorials to enhance students' understanding of tiling techniques, including grout application and finishing	and cleanliness		<ul style="list-style-type: none"> <li>• Surface preparation and assessment</li> </ul>		

### 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 per Unit
				Process Assessment	Services Assessment	Knowledge Assessment		
1. Bridging into wall openings	1.1. Constructing lintels	(a) Constructing cast in situ lintels	<p><b>Questions and answers:</b> Facilitate student discussion on the materials and tools required for constructing cast-in-situ lintels</p> <p><b>Demonstration:</b> Show students how to set up formwork and pour concrete for cast-in-situ lintels</p> <p><b>Activity:</b> Assign students to prepare formwork, reinforcement, and concrete for cast-in-situ lintels</p> <p><b>Problem-based approach:</b></p>	<p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>• Interpret drawings</li> <li>• Prepare materials</li> <li>• Prepare tools and equipment</li> <li>• Prepare form work</li> <li>• Mix materials</li> <li>• Cast the lintel/Fabricate the lintel</li> <li>• Perform curing</li> <li>• Dismantle the form work</li> <li>• Clean the work area and store tools</li> </ul>	Cast in situ lintels are constructed as per technical specifications to provide structural support over openings, ensuring load distribution and stability in the building framework	<p><b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b> The student should explain different procedures of constructing lintels</p> <p><b>Principles:</b> The student should explain the principles involved in constructing cast in situ lintels</p> <p><b>Theories:</b> The student should explain:</p> <ul style="list-style-type: none"> <li>• Types of lintels</li> <li>• Materials and their properties (Steel)</li> </ul>	<p>The following tools, equipment and safety gear are to be available:</p> <ul style="list-style-type: none"> <li>• Shovel</li> <li>• Concrete mixer</li> <li>• Water tank</li> <li>• Wooden float</li> <li>• Mason line</li> <li>• Spirit level</li> <li>• Steel square/building square</li> <li>• Tape measure</li> <li>• Mortar pan</li> <li>• Chisel</li> <li>• Ladder /stand</li> <li>• Gloves</li> <li>• Overall</li> <li>• Mask</li> <li>• Steel bender</li> <li>• Pincer</li> <li>• Batching box</li> <li>• Wheel barrow</li> </ul>	70

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 Assessment		
			<p>Present a scenario where a cast-in-situ lintel failed under load, and ask students to propose solutions</p> <p><b>Field visit:</b> Take students to a site construction to observe the process of cast-in-situ lintel construction, enhancing their practical understanding</p>			<ul style="list-style-type: none"> <li>Tools and specific functions</li> <li>Different mixing ratios</li> <li>Types of reinforcements</li> <li>Importance of curing</li> </ul> <p><b>Circumstantial knowledge</b> <b>Detailed knowledge about:</b></p> <ul style="list-style-type: none"> <li>Safety procedures to be observed during construction of lintel</li> <li>First aid</li> <li>Environmental issues</li> </ul>	<ul style="list-style-type: none"> <li>Bucket</li> <li>Claw hammer</li> <li>Plumb bob</li> <li>Mortar board</li> <li>Brick pointer</li> <li>Hand saw</li> <li>Pencil</li> <li>Boots</li> <li>Helmet</li> <li>Poker vibrator</li> </ul>	
		(b) Constructing pre-cast lintels	<b>Brainstorm:</b> Guide the students to	<b>The student should be able to:</b>	Pre-cast lintels are	<b>Knowledge evidence: Detailed</b>	The following tools, equipment and 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 Assessment		
			differentiate between in-situ and precast lintel <b>Demonstration</b> : Show students how to mould and reinforce pre-cast lintels <b>Activity:</b> Assign students to mould, cast, and cure pre-cast lintels <b>Project-based approach:</b> Assign students to design and produce pre-cast lintels for a specific structure <b>Field visit:</b> Take students to a site where pre-cast lintels are manufactured, allowing them to gain practical insights into	<ul style="list-style-type: none"> <li>• Interpret drawings</li> <li>• Prepare materials</li> <li>• Prepare tools and equipment</li> <li>• Fix the lintel</li> <li>• Perform curing</li> <li>• Clean the work area and store tools</li> </ul>	constructed as per technical specification to provide reliable structural support over openings such as doors and windows	<b>knowledge of:</b> <b>Method used:</b> The student should explain different procedures of constructing lintels <b>Principles:</b> The student should explain the principles involved in constructing pre-cast lintels <b>Theories:</b> The student should explain: <ul style="list-style-type: none"> <li>• Types of lintels</li> <li>• Materials and their properties (Steel)</li> <li>• Tools and specific functions</li> <li>• Different mixing ratios</li> </ul>	are to be available: <ul style="list-style-type: none"> <li>• Shovel</li> <li>• Water tank</li> <li>• Wooden float</li> <li>• Mason line</li> <li>• Spirit level</li> <li>• Steel square/building square</li> <li>• Tape measure</li> <li>• Mortar pan</li> <li>• Chisel</li> <li>• Ladder /stand</li> <li>• Gloves</li> <li>• Overall</li> <li>• Mask</li> <li>• Wheel barrow</li> <li>• Bucket</li> <li>• Claw hammer</li> <li>• Plumb bob</li> <li>• Mortar board</li> <li>• Brick pointer</li> <li>• Hand saw</li> <li>• Pencil</li> <li>• Boots</li> <li>• Helmet</li> </ul>	

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 Assessment		
			production			<ul style="list-style-type: none"> <li>Types of reinforcements</li> <li>Importance of curing</li> </ul> <b>Circumstantial knowledge</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>Safety procedures to be observed during construction of lintel</li> <li>First aid</li> <li>Environmental issues</li> </ul>		
		(c) Fixing metal and wood lintels	<b>Think-ink-pair-share:</b> Guide students to consider using metal and wood lintels in construction, write their ideas, discuss with	<b>The student should be able to:</b> <ul style="list-style-type: none"> <li>Interpret drawings</li> <li>Prepare materials</li> </ul>	Metal and wood lintels are fixed as per technical specification to ensure structural integrity and proper load-	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b> The student should explain different procedures of	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>Shovel</li> <li>Water tank</li> <li>Wooden float</li> </ul>	

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 Assessment		
			peers, and share <b>Demonstration</b> : Show students the process of fixing metal and wooden lintels securely <b>Activity:</b> Assign students to install metal and wooden lintels for door and window openings <b>Project-based approach:</b> Assign students to fix lintels for a building project <b>Video:</b> Show students videos of lintel installation techniques	<ul style="list-style-type: none"> <li>• Prepare tools and equipment</li> <li>• Fix the lintel</li> <li>• Clean the work area and store tools</li> </ul>	bearing capacity over wall openings	constructing lintels <b>Principles:</b> The student should explain the principles involved in fixing metal and wood lintels <b>Theories:</b> The student should explain: <ul style="list-style-type: none"> <li>• Types of lintels</li> <li>• Materials and their properties (Steel)</li> <li>• Tools and specific functions</li> <li>• Different mixing ratios</li> <li>• Types of reinforcements</li> <li>• Importance of curing</li> </ul> <b>Circumstantial</b>	<ul style="list-style-type: none"> <li>• Mason line</li> <li>• Spirit level</li> <li>• Steel square/building square</li> <li>• Tape measure</li> <li>• Mortar pan</li> <li>• Chisel</li> <li>• Ladder /stand</li> <li>• Gloves</li> <li>• Overall</li> <li>• Mask</li> <li>• Wheel barrow</li> <li>• Bucket</li> <li>• Claw hammer</li> <li>• Plumb bob</li> <li>• Mortar board</li> <li>• Brick pointer</li> <li>• Hand saw</li> <li>• Pencil</li> <li>• Boots</li> <li>• Helmet</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	



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 Assessment		
						<b>knowledge Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>• Safety procedures to be observed during construction of lintel</li> <li>• First aid</li> <li>• Environmental issues</li> </ul>		
	1.2. Constructing arches	(a) Setting arches	<b>Questions and answers:</b> Facilitate students discussing the types of arches and their construction techniques <b>Demonstration :</b> Show students how to set out and construct arches using appropriate	<b>The student should be able to:</b> <ul style="list-style-type: none"> <li>• Interpret drawings</li> <li>• Prepare tools and equipment</li> <li>• Clear the Area</li> <li>• Mark the Opening</li> <li>• Build Formwork</li> </ul>	Arches are set as per technical specifications to provide aesthetic appeal and structural support over openings	<b>Knowledge evidence: Detailed knowledge of: Method used:</b> The student should explain the different procedures for setting arches  <b>Principles:</b> The student should explain the principles	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Mason line</li> <li>• Spirit level</li> <li>• Steel square</li> <li>• Tape measure</li> <li>• Chisel</li> <li>• Ladder /stand</li> <li>• Gloves</li> <li>• Wheel barrow</li> <li>• Claw hammer</li> </ul>	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 per Unit
				Process Assessment	Services Assessment	Knowledge Assessment		
			tools <b>Activity:</b> Assign students to design and set arches for door or window openings <b>Project-based approach:</b> Assign students to construct arches for a specific building project <b>Field visit:</b> Take students to a site where arches are being constructed, allowing them to observe and engage with the construction process firsthand	<ul style="list-style-type: none"> <li>• Check Alignment</li> <li>• Clean the work area and store tools</li> </ul>		involved in setting arches <b>Theories:</b> The student should explain: <ul style="list-style-type: none"> <li>• Types of arches</li> <li>• Materials and their properties</li> <li>• Tools and specific functions</li> <li>• Different types of formwork</li> </ul> <b>Circumstantial knowledge</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>• Safety procedures to be observed when setting arches</li> <li>• First aid</li> <li>• Environmental issues</li> </ul>	<ul style="list-style-type: none"> <li>• Plumb bob</li> <li>• Hand saw</li> <li>• Pencil</li> <li>• Boots</li> <li>• Helmet</li> </ul>	

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		(b) Making centering for arches	<b>Brainstorm:</b> Guide the students to mention importance of centering during arch construction <b>Demonstration:</b> : Show students how to create and install centering for arches <b>Activity:</b> Assign students to construct centering for different types of arches <b>Field visit:</b> Take students to a site where centering is being constructed for arches, enabling them to observe the foundational techniques used	<b>The student should be able to:</b> <ul style="list-style-type: none"> <li>• Interpret drawings</li> <li>• Prepare tools and equipment</li> <li>• Draw the Arc</li> <li>• Cut the Template</li> <li>• Build the Frame</li> <li>• Attach the Arc</li> <li>• Install Diagonal Bracing</li> <li>• Position the Centering</li> <li>• Check Level</li> <li>• Clean the work area and store tools</li> </ul>	Centering for arches is made as per technical standards to support the arch during construction	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b> The student should explain different procedures of constructing the centering frame  <b>Principles:</b> The student should explain the principles involved making centering for arches <b>Theories:</b> The student should explain: <ul style="list-style-type: none"> <li>• Types of arches</li> <li>• Materials and their properties</li> <li>• Tools and specific functions</li> </ul>	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Mason line</li> <li>• Spirit level</li> <li>• Steel square</li> <li>• Tape measure</li> <li>• Chisel</li> <li>• Ladder /stand</li> <li>• Gloves</li> <li>• Wheelbarrow</li> <li>• Claw hammer</li> <li>• Plumb bob</li> <li>• Hand saw</li> <li>• Pencil</li> <li>• Boots</li> <li>• Helmet</li> </ul>	

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				Process Assessment	Services Assessment	Knowledge Assessment		
			in arch construction			<ul style="list-style-type: none"> <li>• Different types of formwork</li> <li>• Arches behaviour under the load</li> </ul> <b>Circumstantial knowledge</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>• Safety procedures to be observed when setting arches</li> <li>• First aid</li> <li>• Environmental issues</li> </ul>		
		(c) Constructing different types of arches	<b>Questions and answers:</b> Facilitate students a discussion on how different arch types affect structural	<b>The student should be able to:</b> <ul style="list-style-type: none"> <li>• Interpret drawings</li> <li>• Prepare materials</li> </ul>	Different types of arches are constructed as per technical specifications	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b> The student should explain different ways	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Shovel</li> <li>• Concrete mixer</li> </ul>	

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			performance and aesthetics <b>Demonstration</b> : Show students how to construct different arch types step by step <b>Problem-based approach:</b> Present a scenario where the wrong type of arch was used for a load-bearing wall, and ask students to propose solutions <b>Video:</b> Show students videos demonstrating the construction of various arch types	<ul style="list-style-type: none"> <li>• Prepare tools and equipment</li> <li>• Prepare form work</li> <li>• Mix materials</li> <li>• Cast the arche</li> <li>• Fix the arches</li> <li>• Perform curing</li> <li>• Dismantle the form work</li> <li>• Clean the work area and store tools</li> </ul>	to meet architectural requirements and structural demands	of constructing arches <b>Principles:</b> The student should explain the principles involved in constructing different types of arches <b>Theories:</b> The student should explain: <ul style="list-style-type: none"> <li>• Types of arches</li> <li>• Why prefer arches in bridging into wall opening</li> <li>• Materials and their properties</li> <li>• Tools and specific functions</li> <li>• Importance of curing</li> </ul> <b>Circumstantial</b>	<ul style="list-style-type: none"> <li>• Water tank</li> <li>• Wooden float</li> <li>• Mason line</li> <li>• Spirit level</li> <li>• Steel square</li> <li>• Tape measure</li> <li>• Mortar pan</li> <li>• Chisel</li> <li>• Ladder /stand</li> <li>• Gloves</li> <li>• Batching box</li> <li>• Wheel barrow</li> <li>• Bucket</li> <li>• Claw hammer</li> <li>• Plumb bob</li> <li>• Mortar board</li> <li>• Hand saw</li> <li>• Pencil</li> <li>• Boots</li> <li>• Helmet</li> <li>• Poker vibrator</li> <li>• Computer</li> <li>• Internet</li> </ul>	

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				Process Assessment	Services Assessment	Knowledge Assessment		
						<b>knowledge Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>Safety precautions to be observed while constructing arches</li> <li>Environmental issues</li> <li>First aid</li> </ul>	<ul style="list-style-type: none"> <li>Projector</li> </ul>	
	1.3. Fixing door and window frames	(a) Fixing window frames	<b>Think-ink-pair-share:</b> Guide students to reflect on the importance of securely fixing window frames, write their thoughts, discuss with	<b>The student should be able to:</b> <ul style="list-style-type: none"> <li>Interpret drawing</li> <li>Prepare materials</li> <li>Prepare tools and equipment</li> </ul>	Window frames are fixed as per engineer requirements to ensure proper alignment, durability, and energy	<b>Knowledge evidence: Detailed knowledge of: Method used:</b> The student should explain different ways of fixing window frames	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>Shovel</li> <li>Water tank</li> <li>Wooden float</li> <li>Mason line</li> </ul>	70

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				Process Assessment	Services Assessment	Knowledge Assessment		
			peers, and share <b>Demonstration</b> : Show students how to position, secure, and align window frames accurately <b>Activity:</b> Assign students to fix window frames in wall openings, ensuring alignment and stability	<ul style="list-style-type: none"> <li>• Mix materials</li> <li>• Fix the frames</li> <li>• Perform curing</li> <li>• Clean the work area and store tools</li> </ul>	efficiency	<p><b>Principles:</b> The student should explain the principles involved in fixing window frames</p> <p><b>Theories:</b> The student should explain:</p> <ul style="list-style-type: none"> <li>• Mixing ratio</li> <li>• Materials and their properties</li> <li>• Tools and specific functions</li> </ul> <p><b>Circumstantial knowledge</b></p> <p><b>Detailed knowledge about:</b></p> <ul style="list-style-type: none"> <li>• Safety procedures to be observed while fixing window frames</li> <li>• First aid</li> </ul>	<ul style="list-style-type: none"> <li>• Spirit level</li> <li>• Steel square</li> <li>• Tape measure</li> <li>• Mortar pan</li> <li>• Chisel</li> <li>• Ladder /stand</li> <li>• Gloves</li> <li>• Batching box</li> <li>• Wheel barrow</li> <li>• Bucket</li> <li>• Claw hammer</li> <li>• Plumb bob</li> <li>• Mortar board</li> <li>• Brick pointer</li> <li>• Hand saw</li> <li>• Pencil</li> <li>• Boots</li> <li>• Helmet</li> </ul>	

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				Process Assessment	Services Assessment	Knowledge Assessment		
						<ul style="list-style-type: none"> <li>Environmental issues</li> </ul>		
		(b) Fixing door frames	<b>Questions and answers:</b> Facilitate student discussion on the types of door frames and their fixing methods <b>Demonstration :</b> Show students how to fix door frames securely using proper tools and techniques <b>Project-based approach:</b> Assign students to install door frames for a construction project <b>Field visit:</b> Take students to a site where door frames are	<b>The student should be able to:</b> <ul style="list-style-type: none"> <li>Interpret drawing</li> <li>Prepare materials</li> <li>Prepare tools and equipment</li> <li>Mix materials</li> <li>Fix the frames</li> <li>Perform curing</li> <li>Clean the work area and store tools</li> </ul>	Door frames are fixed as per engineer requirements to ensure stability, security, and proper operation	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b> The student should explain different ways of fixing door frames <b>Principles:</b> The student should explain the principles involved in fixing window frames <b>Theories:</b> The student should explain: <ul style="list-style-type: none"> <li>Mixing ratio</li> <li>Materials and their properties</li> <li>Tools and specific functions</li> </ul> <b>Circumstantial</b>	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>Shovel</li> <li>Water tank</li> <li>Wooden float</li> <li>Mason line</li> <li>Spirit level</li> <li>Steel square</li> <li>Tape measure</li> <li>Mortar pan</li> <li>Chisel</li> <li>Ladder /stand</li> <li>Gloves</li> <li>Batching box</li> <li>Wheel barrow</li> <li>Bucket</li> <li>Claw hammer</li> <li>Plumb bob</li> </ul>	



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				Process Assessment	Services Assessment	Knowledge Assessment		
			installed, allowing them to observe the installation process and understand the techniques involved			<b>knowledge</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>Safety procedures to be observed while fixing door frames</li> <li>First aid</li> <li>Environmental issues</li> </ul>	<ul style="list-style-type: none"> <li>Mortar board</li> <li>Brick pointer</li> <li>Hand saw</li> <li>Pencil</li> <li>Boots</li> <li>Helmet</li> </ul>	
		(c) Fixing window sills	<b>Think-ink-pair-share:</b> Guide students to reflect on the function and aesthetic role of window sills, write their thoughts, discuss with peers, and share <b>Demonstration</b> : Show students how to fix and level window sills accurately	<b>The student should be able to:</b> <ul style="list-style-type: none"> <li>Prepare materials</li> <li>Prepare tools and equipment</li> <li>Cut the sill to size</li> <li>Position the sill</li> <li>Secure the sill</li> <li>Seal the sill</li> </ul>	Window sills are fixed as per engineer requirements to ensure proper drainage, structural support, and aesthetic appeal	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b> The student should explain different ways of fixing window sills <b>Principles:</b> Students should explain the principles involved in fixing window		

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				Process Assessment	Services Assessment	Knowledge Assessment		
			<b>Activity:</b> Assign students to fix window sills using appropriate materials <b>Field visit:</b> Take students to a site where window sills are being installed, providing them with the opportunity to observe the techniques and processes involved in proper installation	<ul style="list-style-type: none"> <li>• Check alignment</li> <li>• Clean the work area and store tools</li> </ul>		sills <b>Theories:</b> The student should explain: <ul style="list-style-type: none"> <li>• Thermal Expansion</li> <li>• Materials and their properties</li> <li>• Tools and specific functions</li> <li>• Water Movement</li> </ul> <b>Circumstantial knowledge</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>• Safety procedures to be observed while fixing window sill</li> <li>• First aid</li> <li>• Environmental issues</li> </ul>		

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2. Performing basic estimation and costing	2.1. Performing architectural drawings	(a) Drawing floor plans and foundation plans	<b>Think-ink-pair-share:</b> Engage students in drawing floor and foundation plans through individual reflection, paired discussions, and sharing insights with the class <b>Demonstration:</b> Show students how to use drawing tools to create accurate floor and foundation plans <b>Activity:</b> Assign students to draw floor and foundation plans for a small building project <b>Scenario:</b> Simulate a project requiring detailed floor and foundation	<b>The student should be able to:</b> <ul style="list-style-type: none"> <li>• Prepare drawing tools</li> <li>• Plan simple house by freehand sketch</li> <li>• Prepare drawing specifications</li> <li>• Prepare formats and title blocks</li> <li>• Choose a Scale</li> <li>• Outline the perimeter</li> <li>• Add internal walls</li> <li>• Include Doors and Windows</li> <li>• Label the rooms</li> </ul>	Floor plans and foundation plans are created as per engineering standards to provide a detailed layout and structural guidance for construction	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b> The student should explain the methods involved in drawing floor and foundation plans <b>Principles:</b> The student should explain the principles involved in drawing floor plans and foundation plans <b>Theories:</b> The student should explain:- <ul style="list-style-type: none"> <li>• Application of various geometrical lines</li> <li>• Plane and solid geometry</li> </ul>	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Draughting table</li> <li>• Drawing boards</li> <li>• T squares</li> <li>• 30%/60% and 45% or adjustable set square</li> <li>• Drawing pen set</li> <li>• Pair of compasses</li> <li>• Ruler</li> <li>• Erasing shield</li> <li>• Parallelogram</li> <li>• Protractor</li> <li>• Pencil sharpener</li> <li>• Clutch pencils/pencil</li> </ul>	35

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				Process Assessment	Services Assessment	Knowledge Assessment		
			plans and guide students in completing the task	<ul style="list-style-type: none"> <li>Add fixtures and furniture</li> <li>Indicate dimensions</li> </ul>		<ul style="list-style-type: none"> <li>The application of various tools and equipment</li> <li>Building design</li> <li>Space planning</li> <li>Structural members</li> </ul> <b>Circumstantial knowledge:</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>Safe handling of drawing instruments,</li> <li>Safe operation of drawing equipment</li> </ul>	<ul style="list-style-type: none"> <li>Scientific calculators</li> </ul>	
		(b) Drawing elevations	<b>Questions and answers:</b> Facilitate student discussion on	<b>The student should be able to:</b>	Elevations are created as per engineering standards to	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b>	The following tools, equipment and safety gear are to be available:	

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			<p>the components and significance of elevations in construction</p> <p><b>Demonstration</b> : Show students how to use tools to draft building elevations</p> <p><b>Project-based approach:</b> Assign students to prepare elevations for a specific building design</p> <p><b>Experimentation:</b> Allow students to compare and analyse different elevation styles</p> <p><b>Scenario:</b> Simulate a project requiring detailed elevations and guide students in creating them</p> <p><b>Video:</b> Show</p>	<ul style="list-style-type: none"> <li>• Prepare drawing tools</li> <li>• Gather Materials</li> <li>• Prepare drawing specifications</li> <li>• Prepare formats and title blocks</li> <li>• Choose a Scale</li> <li>• Draw the baseline</li> <li>• Outline the Building Shape</li> <li>• Include Doors and Windows</li> <li>• Detail roof structure</li> <li>• Add textures and materials</li> <li>• Label elements</li> </ul>	provide a detailed representation of external views of a structure	<p>The student should explain the methods involved in drawing elevations</p> <p><b>Principles:</b> The student should explain the principles involved in drawing elevations</p> <p><b>Theories:</b> The student should explain:-</p> <ul style="list-style-type: none"> <li>• Application of various geometrical lines</li> <li>• Plane and solid geometry</li> <li>• The application of various tools and equipment</li> </ul>	<ul style="list-style-type: none"> <li>• Draughting table</li> <li>• Drawing boards</li> <li>• T squares</li> <li>• 30%/60% and 45% or adjustable set square</li> <li>• Drawing pen set</li> <li>• Pair of compasses</li> <li>• Ruler</li> <li>• Erasing shield</li> <li>• Parallelogram</li> <li>• Protractor</li> <li>• Pencil sharpener</li> <li>• Clutch pencils/pencil</li> <li>• Scientific calculators</li> </ul>	

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			students videos of professional elevation drafting techniques	<ul style="list-style-type: none"> <li>Indicate dimensions</li> </ul>		<ul style="list-style-type: none"> <li>Building design</li> <li>Spatial</li> <li>Environmental design</li> </ul> <b>Circumstantial knowledge:</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>Safe handling of drawing instruments,</li> <li>Safe operation of drawing equipment</li> </ul>		
		(c) Drawing sections	<b>Think-Pair-Share:</b> Facilitate a session where students discuss the significance of sectional drawings in construction <b>Demonstration</b> : Show students	<b>The student should be able to:</b> <ul style="list-style-type: none"> <li>Prepare drawing tools</li> <li>Gather Materials</li> <li>Prepare formats and title blocks</li> </ul>	Sections are created as per engineering standards to provide a detailed view of the internal structure and relationships	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b> The student should explain the methods involved in drawing sections <b>Principles:</b> The	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>Draughting table</li> <li>Drawing boards</li> <li>T squares</li> </ul>	

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			<p>how to draw sections for walls, floors, and roofs</p> <p><b>Practical work:</b> Guide students in creating sectional drawings for provided building plans</p> <p><b>ICT-Based Learning:</b> Use videos or software to demonstrate the components visible in sectional views</p> <p><b>Project-Based Approach:</b> Assign students to draw and present a sectional view for a given plan</p>	<ul style="list-style-type: none"> <li>Choose a Scale</li> <li>Select the cut location</li> <li>Mark the cut line</li> <li>Draw the base line</li> <li>Add interior elements</li> <li>Add doors and windows</li> <li>Detail structural components</li> <li>Add textures and materials</li> <li>Indicate dimensions</li> </ul>	between different elements	<p>student should explain the principles involved in drawing sections</p> <p><b>Theories:</b> The student should explain:-</p> <ul style="list-style-type: none"> <li>Application of various geometrical lines</li> <li>Plane and solid geometry</li> <li>The application of various tools and equipment</li> <li>Building design</li> <li>Spatial</li> <li>Environmental design</li> </ul> <p><b>Circumstantial knowledge:</b></p> <p><b>Detailed knowledge about:</b></p>	<ul style="list-style-type: none"> <li>30%/60% and 45% or adjustable set square</li> <li>Drawing pen set</li> <li>Pair of compasses</li> <li>Ruler</li> <li>Erasing shield</li> <li>Parallelogram</li> <li>Protractor</li> <li>Pencil sharpener</li> <li>Clutch pencils/pencil</li> <li>Scientific calculators</li> </ul>	

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						<ul style="list-style-type: none"> <li>Safe handling of drawing instruments,</li> <li>Safe operation of drawing equipment</li> </ul>		
	2.2. Performing costing	(a) Preparing list of materials and items	<p><b>Group Work:</b> Facilitate group discussions where students collaborate to identify and quantify materials for a construction task</p> <p><b>Demonstration:</b> Show students how to prepare professional material lists and format bills of quantities</p> <p><b>Practical work:</b> Guide students in preparing a bill of quantities for a specified</p>	<p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>Interprets Standard quantities of material and specifications</li> <li>Create the materials list</li> <li>Review and revise</li> <li>Prepare final document</li> </ul>	List of materials and items is prepared as per standard methods of measurement to ensure all necessary components are accounted for in the construction process	<p><b>Knowledge evidence:</b></p> <p><b>Detailed knowledge of:</b></p> <p><b>Method used:</b> The students should explain different procedures of preparing list of materials and items</p> <p><b>Principles:</b> The student should explain the principles involved in preparing list of materials and items</p> <p><b>Theories:</b> The student should</p>	<p>The following tools, equipment and safety gear are to be available:</p> <ul style="list-style-type: none"> <li>Drawings</li> <li>Scale rule</li> <li>Flip chart</li> <li>Marker pen</li> <li>A4 photocopy paper</li> <li>Scientific calculators</li> </ul>	35



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			construction project <b>ICT-Based Learning:</b> Train students to use spreadsheet tools for organising and calculating materials and costs			<p>explain:</p> <ul style="list-style-type: none"> <li>• Material technical specifications and Standards</li> <li>• Costing procedures for Maximum profit</li> <li>• Trade calculations</li> </ul> <p><b>Circumstantial knowledge: Detailed knowledge about:</b></p> <ul style="list-style-type: none"> <li>• Safety precautions to be observed while performing tasks</li> <li>• Value for money observed</li> </ul>		

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		b) Calculating material cost	<b>Brainstorming:</b> Facilitate a session where students discuss factors affecting material costs, such as market trends and transport costs <b>Demonstration :</b> Show students step-by-step calculations for estimating material costs in various scenarios <b>Practical work:</b> Allow students to calculate material costs using real-world price lists and project specifications <b>ICT-Based Learning:</b> Guide students in using	<b>The student should be able to:</b> <ul style="list-style-type: none"> <li>• Interprets Standard quantities of material and specifications</li> <li>• Determine unit costs</li> <li>• Calculate quantity needed</li> <li>• Sum all material costs</li> <li>• Document the calculations</li> <li>• Review and revise</li> <li>• Prepare final document</li> </ul>	Material cost is calculated as per standard methods of measurement to provide an accurate estimate of expenses for construction	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b> The students should explain different procedures of calculating material cost <b>Principles:</b> The student should explain the principles involved in calculating material cost <b>Theories:</b> The student should explain: <ul style="list-style-type: none"> <li>• Material technical specifications and Standards</li> <li>• Costing procedures for</li> </ul>	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Drawings</li> <li>• Scale rule</li> <li>• Flip chart</li> <li>• Marker pen</li> <li>• A4 photocopy paper</li> <li>• Scientific calculators</li> </ul>	

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 Assessment		
			spreadsheet tools to automate cost calculations and analysis			Maximum profit <ul style="list-style-type: none"> <li>• Trade calculations</li> </ul> <b>Circumstantial knowledge:</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>• Safety precautions to be observed while performing tasks</li> <li>• Value for money observed</li> </ul>		
		(c) Calculating labour and profit	<b>Group Work:</b> Facilitate group tasks where students estimate labour costs and profit margins for a given construction project	<b>The student should be able to:</b> <ul style="list-style-type: none"> <li>• Identify labor categories</li> <li>• Determine labor rates</li> </ul>	Labor and profit are calculated as per standard methods of measurement to ensure a comprehensive understanding	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b> The students should explain different procedures of calculating	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Drawings</li> <li>• Scale rule</li> <li>• Flip chart</li> <li>• Marker pen</li> </ul>	

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 Assessment		
			<b>Demonstration</b> : Show students how to calculate wages, overheads, and profit percentages step-by-step <b>Practical work:</b> Guide students in preparing detailed labour and profit calculations based on sample case studies <b>ICT-Based Learning:</b> Teach students to use spreadsheet tools for calculating and presenting labour and profit estimates <b>Videos:</b> Provide videos showing real-world examples of	<ul style="list-style-type: none"> <li>Estimate labor hours</li> <li>Determine profit margin</li> <li>Document calculations</li> <li>Review and validate</li> </ul>	g of project costs and financial viability	labour cost and profit <b>Principles:</b> The student should explain the principles involved in calculating labour and profit <b>Theories:</b> The student should explain: <ul style="list-style-type: none"> <li>Cost-Benefit Analysis</li> <li>Costing procedures for Maximum profit</li> <li>Trade calculations</li> <li>Profit Maximization</li> <li>Economic Theory of Labor</li> </ul> <b>Circumstantial knowledge:</b>	<ul style="list-style-type: none"> <li>A4 photocopy paper</li> <li>Scientific calculators</li> </ul>	

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 Assessment		
			cost breakdowns and profit analysis in construction			<b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>• Safety precautions to be observed while performing tasks</li> <li>• Value for money observed</li> </ul>		
3. Performing Drainage and Stone Work	3.1. Constructing under ground drainage system	(a) Installing separate system	<b>Brainstorming:</b> Engage <b>students</b> in discussing the purpose and design of a separate drainage system <b>Demonstration:</b> Show students the steps for installing pipes, traps, and fittings in a separate system <b>Practical work:</b> Guide <b>students</b> in setting up a small-scale separate	<b>The student should be able to:</b> <ul style="list-style-type: none"> <li>• Interpret drawings</li> <li>• Set out structures</li> <li>• Carry out excavation work</li> <li>• Lay drainage pipes</li> <li>• Control levels</li> <li>• Make joints</li> </ul>	Separate system is installed as per wastewater management regulations to ensure functionality and compliance within the overall project structure	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b> The student should explain different methods of laying drainage <b>Principles:</b> The student should explain the principles involved in installing	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Shovel</li> <li>• Wooden float</li> <li>• Mason line</li> <li>• Spirit level</li> <li>• Steel square</li> <li>• Tape measure</li> <li>• Mortar pan</li> <li>• Chisel</li> <li>• Gloves</li> </ul>	70

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 Assessment		
			<p>system in the workshop</p> <p><b>Field Visit:</b> Take <b>students</b> to observe professionals installing a separate drainage system at a construction site</p> <p><b>Videos:</b> Use video demonstrations to help <b>students</b> visualise the layout and functioning of separate systems</p>	<ul style="list-style-type: none"> <li>• Back fill and construct cover</li> <li>• Cure the structures</li> <li>• Test drawings system</li> <li>• Clean tools and store at safe place</li> <li>• Clean workplace</li> </ul>		<p>separate system</p> <p><b>Theories:</b> The student should explain:</p> <ul style="list-style-type: none"> <li>• Setting out</li> <li>• Constructing drainage</li> <li>• Importance of levels</li> <li>• Gradients</li> <li>• Storage capacities</li> </ul> <p><b>Circumstantial knowledge</b></p> <p><b>Detailed knowledge about:</b></p> <ul style="list-style-type: none"> <li>• Safety precautions to be observed during construction of drainage and sewerage structures</li> <li>• First aid</li> <li>• Environmental issues</li> </ul>	<ul style="list-style-type: none"> <li>• Leveling instrument</li> <li>• Batching box</li> <li>• Wheel barrow</li> <li>• Bucket</li> <li>• Claw hammer</li> <li>• Plumb bob</li> <li>• Mortar board</li> <li>• Hand saw</li> <li>• Pencil</li> <li>• Boots</li> <li>• Helmet</li> </ul>	

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 Assessment		
		(b) Installing combined system	<b>Think-Pair-Share:</b> Encourage students to explore the design and advantages of a combined drainage system <b>Demonstration :</b> Show students how to connect wastewater and rainwater pipes in a combined system <b>Practical work:</b> Guide students in assembling and installing a combined system in a controlled environment <b>ICT-Based Learning:</b> Use diagrams and software to explain to students the	<b>The student should be able to:</b> <ul style="list-style-type: none"> <li>• Interpret drawings</li> <li>• Set out structures</li> <li>• Carry out excavation work</li> <li>• Lay drainage pipes</li> <li>• Control levels</li> <li>• Make joints</li> <li>• Back fill and construct cover</li> <li>• Cure the structures</li> <li>• Test drawings system</li> <li>• Clean tools and store at safe place</li> <li>• Clean workplace</li> </ul>	Combined system is installed as per technical specifications and relevant regulations to ensure effective integration and functionality within the overall project framework	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b> The student should explain different methods of laying drainage <b>Principles:</b> The student should explain the principles involved installing combined system <b>Theories:</b> The student should explain: <ul style="list-style-type: none"> <li>• Setting out</li> <li>• Constructing drainage</li> <li>• Importance of levels</li> <li>• Gradients</li> <li>• Storage capacities</li> </ul> <b>Circumstantial</b>	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Shovel</li> <li>• Wooden float</li> <li>• Mason line</li> <li>• Spirit level</li> <li>• Steel square</li> <li>• Tape measure</li> <li>• Mortar pan</li> <li>• Chisel</li> <li>• Gloves</li> <li>• Leveling instrument</li> <li>• Batching box</li> <li>• Wheel barrow</li> <li>• Bucket</li> <li>• Claw hammer</li> <li>• Plumb bob</li> <li>• Mortar board</li> <li>• Hand saw</li> <li>• Pencil</li> <li>• Boots</li> <li>• Helmet</li> </ul>	

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 Assessment		
			layout of combined systems <b>Questions and Answers:</b> Conduct Q&A sessions to address students' queries about combined systems			<b>knowledge Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>Safety precautions to be observed during construction of drainage and sewerage structures</li> <li>First aid</li> <li>Environmental issues</li> </ul>		
		(c) Installing partially system	<b>Brainstorming:</b> Discuss with students the situations where partially combined systems are used <b>Demonstration :</b> Show students the process of integrating separate and	<b>The student should be able to:</b> <ul style="list-style-type: none"> <li>Interpret drawings</li> <li>Set out structures</li> <li>Carry out excavation work</li> <li>Lay drainage pipes</li> </ul>	Partially combined system is installed as per relevant guidelines and regulations to ensure effective operation	<b>Knowledge evidence: Detailed knowledge of: Method used:</b> The student should explain different methods of laying drainage <b>Principles:</b> The student should explain the	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>Shovel</li> <li>Wooden float</li> <li>Mason line</li> <li>Spirit level</li> <li>Steel square</li> <li>Tape measure</li> <li>Mortar pan</li> </ul>	



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 Assessment		
			combined system components <b>Practical work:</b> Allow students to practice installing a partially combined system in the workshop <b>Field Visit:</b> Arrange visits for students to observe partially combined systems in operation <b>Videos:</b> Provide visual aids to help students understand the system's design and functionality	<ul style="list-style-type: none"> <li>• Control levels</li> <li>• Make joints</li> <li>• Back fill and construct cover</li> <li>• Cure the structures</li> <li>• Test drawings system</li> <li>• Clean tools and store at safe place</li> <li>• Clean workplace</li> </ul>		principles involved installing partially system <b>Theories:</b> The student should explain: <ul style="list-style-type: none"> <li>• Setting out</li> <li>• Constructing drainage</li> <li>• Importance of levels</li> <li>• Gradients</li> <li>• Storage capacities</li> </ul> <b>Circumstantial knowledge</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>• Safety precautions to be observed during construction of drainage and sewerage structures</li> </ul>	<ul style="list-style-type: none"> <li>• Chisel</li> <li>• Gloves</li> <li>• Levelling instrument</li> <li>• Batching box</li> <li>• Wheel barrow</li> <li>• Bucket</li> <li>• Claw hammer</li> <li>• Plumb bob</li> <li>• Mortar board</li> <li>• Hand saw</li> <li>• Pencil</li> <li>• Boots</li> <li>• Helmet</li> </ul>	

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 Assessment		
						<ul style="list-style-type: none"> <li>First aid</li> <li>Environmental issues</li> </ul>		
	3.2. Installing soil appliances	(a) Installing water closet {WC}	<b>Think-Pair-Share:</b> Facilitate discussions among students on the types and functions of water closets <b>Demonstration :</b> Show students how to properly install water closets, including connections to the drainage system <b>Practical work:</b> Guide students in the step-by-step installation of water closets in a controlled environment <b>Field Visit:</b> Take students to	<b>The student should be able to:</b> <ul style="list-style-type: none"> <li>Interpret drawings</li> <li>Set out</li> <li>Prepare requisite materials,</li> <li>Take measurements</li> <li>Mix materials</li> <li>Install traps</li> <li>Install soil WC</li> <li>Check levels and alignment</li> <li>Test installed WC for leakage</li> <li>Clean and store tools</li> </ul>	Water closet (WCs) is installed according to plumbing codes and manufacturer specifications to ensure proper functionality and compliance within the overall system	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b> The student should explain different procedures of installing soil appliances <b>Principles:</b> The student should explain the principles involved installing water closet <b>Theories:</b> The student should explain: <ul style="list-style-type: none"> <li>Setting out</li> <li>Constructing drainage</li> <li>Importance of levels</li> </ul>	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>Shovel</li> <li>Water bucket</li> <li>Wooden float</li> <li>Mason line</li> <li>Spirit level</li> <li>Steel square</li> <li>Tape measure</li> <li>Mortar pan</li> <li>Gloves</li> <li>Batching box</li> <li>Wheel barrow</li> <li>Bucket</li> <li>Club hammer</li> <li>Plumb bob</li> <li>Mortar board</li> <li>Pencil</li> </ul>	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 per Unit
				Process Assessment	Services Assessment	Knowledge Assessment		
			observe the installation of WCs on a construction site <b>Videos:</b> Use videos to demonstrate proper installation and maintenance of water closets			<ul style="list-style-type: none"> <li>• Specifications when setting out and installing soil appliances</li> <li>• The importance of ventilation</li> <li>• Flushing system</li> </ul> <b>Circumstantial knowledge</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>• Safety precautions to be observed while installing soil appliances</li> <li>• Environmental</li> </ul>	<ul style="list-style-type: none"> <li>• Boots</li> <li>• Helmet</li> <li>• Cold chisel</li> </ul>	

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 Assessment		
						requirements		
		(b) Installing flushing cisterns	<b>Brainstorming:</b> Engage students in identifying the types of flushing cisterns and their components <b>Demonstration :</b> Show students how to install and connect flushing cisterns to water closets <b>Practical work:</b> Allow students to practice installing flushing cisterns in the workshop <b>ICT-Based Learning:</b> Use animations to demonstrate the mechanism and water-saving features of flushing cisterns <b>Questions and</b>	<b>The student should be able to:</b> <ul style="list-style-type: none"> <li>• Interpret drawings</li> <li>• Prepare the Installation Area</li> <li>• Install the Mounting Brackets</li> <li>• Attach the Flush Valve,</li> <li>• Position the Cistern</li> <li>• Secure the Cistern</li> <li>• Connect the Water Supply</li> <li>• Check for Leaks</li> <li>• Test the Flush Mechanism</li> <li>• Clean and store tools</li> </ul>	Flushing cisterns are installed according to plumbing codes and manufacturer specifications to ensure effective operation and compliance with overall system requirements	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b> The student should explain different procedures of installing flushing cisterns <b>Principles:</b> The student should explain the principles involved in installing flushing cisterns <b>Theories:</b> The student should explain: <ul style="list-style-type: none"> <li>• Setting out</li> <li>• Constructing drainage</li> <li>• Importance of levels</li> <li>• Specifications when</li> </ul>	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Shovel</li> <li>• Water bucket</li> <li>• Wooden float</li> <li>• Mason line</li> <li>• Spirit level</li> <li>• Steel square</li> <li>• Tape measure</li> <li>• Mortar pan</li> <li>• Gloves</li> <li>• Batching box</li> <li>• Wheel barrow</li> <li>• Bucket</li> <li>• Club hammer</li> <li>• Plumb bob</li> <li>• Mortar board</li> <li>• Pencil</li> <li>• Boots</li> <li>• Helmet</li> </ul>	

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 Assessment		
			<b>Answers:</b> Address students' concerns about common issues in cistern installation			setting out and installing soil appliances <ul style="list-style-type: none"> <li>The importance of ventilation</li> <li>Flushing system</li> <li>Waste Management</li> </ul> <b>Circumstantial knowledge</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>Safety precautions to be observed while installing soil appliances</li> </ul> Environmental requirements	<ul style="list-style-type: none"> <li>Cold chisel</li> </ul>	

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 Assessment		
		(c) Installing urinals, baths, sinks and basins	<b>Group Work:</b> Facilitate group discussions where students plan the installation process for different fixtures <b>Demonstration :</b> Show students the correct methods for installing urinals, baths, sinks, and basins <b>Practical work:</b> Guide students in installing these fixtures in a simulated environment <b>Field Visit:</b> Arrange visits for students to observe professionals installing sanitary fixtures	<b>The student should be able to:</b> <ul style="list-style-type: none"> <li>• Interpret drawings</li> <li>• Prepare the Installation Area</li> <li>• Mark the Installation Height</li> <li>• Install the Wall Bracket</li> <li>• Connect the Waste Pipe</li> <li>• Secure the Urinal</li> <li>• Connect the Water Supply</li> <li>• Check for Leaks</li> <li>• Clean and store tools</li> </ul>	Urinals, baths, sinks, and basins are installed according to plumbing codes and manufacturer specifications to ensure proper functionality and compliance within the overall system	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b> The student should explain different procedures of installing urinals, baths, sinks and basins <b>Principles:</b> The student should explain the principles involved in installing urinals, baths, sinks and basins <b>Theories:</b> The student should explain: <ul style="list-style-type: none"> <li>• Setting out</li> <li>• Constructing drainage</li> <li>• Importance of levels</li> <li>• Specifications when</li> </ul>	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Shovel</li> <li>• Water bucket</li> <li>• Wooden float</li> <li>• Mason line</li> <li>• Spirit level</li> <li>• Steel square</li> <li>• Tape measure</li> <li>• Mortar pan</li> <li>• Gloves</li> <li>• Batching box</li> <li>• Wheel barrow</li> <li>• Bucket</li> <li>• Club hammer</li> <li>• Plumb bob</li> <li>• Mortar board</li> <li>• Pencil</li> <li>• Boots</li> <li>• Helmet</li> </ul> Cold chisel	

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 Assessment		
			<b>Videos:</b> Provide instructional videos to enhance students' understanding of fixture installation			setting out and installing soil appliances <ul style="list-style-type: none"> <li>• The importance of ventilation</li> <li>• Flushing system</li> <li>• Waste Management</li> </ul> <b>Circumstantial knowledge</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>• Safety precautions to be observed while installing soil appliances</li> <li>• Environmental</li> </ul>		

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 Assessment		
						requirements		
	3.3. Constructing sewerage disposal	(a) Constructing inspection chambers/G taps	<b>Brainstorming:</b> Discuss with students the purpose and placement of inspection chambers and gully traps <b>Demonstration:</b> Show students the construction process, including brickwork, concrete, and finishing <b>Practical work:</b> Guide students in constructing small-scale chambers and traps in the workshop <b>Project-Based Approach:</b> Assign students to design and build an	<b>The student should be able to:</b> <ul style="list-style-type: none"> <li>• Interpret drawing</li> <li>• Prepare tools, machines and equipment</li> <li>• Prepare material</li> <li>• Prepare site</li> <li>• Perform setting out</li> <li>• Carry out excavation works</li> <li>• Prepare the Base</li> <li>• Construct the Chamber Walls</li> <li>• Prepare a floor</li> </ul>	Inspection chambers and ground taps (G taps) are constructed as per standard and technical specifications to facilitate maintenance and inspection of drainage systems	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b> The student should explain different methods for constructing inspection chambers <b>Principles:</b> The student should explain the principles involved in constructing inspection chambers/G taps <b>Theories:</b> The student should explain: <ul style="list-style-type: none"> <li>• Types of sewerage disposal</li> <li>• Connection of pipes</li> </ul>	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Shovel</li> <li>• Batching box</li> <li>• Concrete mixer</li> <li>• Wheel barrow</li> <li>• Water tank</li> <li>• Bucket</li> <li>• Mason line</li> <li>• Spirit level</li> <li>• Straight edge</li> <li>• Plumb bob</li> <li>• Steel trowel</li> <li>• Steel square</li> <li>• Mortar pan</li> <li>• Poker vibrator</li> <li>• Ladder</li> <li>• Scaffold</li> <li>• Levelling instrument</li> <li>• Gloves</li> <li>• Boots</li> </ul>	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 per Unit
				Process Assessment	Services Assessment	Knowledge Assessment		
			inspection chamber for a drainage system <b>Videos:</b> Use videos to demonstrate best practices in chamber construction	<ul style="list-style-type: none"> <li>• Perform finishing works</li> <li>• Perform curing</li> <li>• Backfill the Trench</li> <li>• Cover the Inspection Chamber</li> <li>• Clean and store tools</li> </ul>		<ul style="list-style-type: none"> <li>• Constructed sewage disposal</li> <li>• Functions of inspection chambers</li> <li>• Functional requirements of inspection chambers</li> </ul> <b>Circumstantial knowledge</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>• Safety precautions to be observed while constructing sewerage disposal</li> <li>• Environmental issues</li> <li>• First aid</li> </ul>	<ul style="list-style-type: none"> <li>• Overall</li> <li>• Helmet</li> </ul>	
		(b) Connecting pipes to	<b>Think-Pair-Share:</b> Engage	<b>The student should be able</b>	Pipes are connected to	<b>Knowledge evidence:</b>	The following tools, equipment	

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		septic tanks, sewers, chambers, soak away pit and cesspool	<p>students in identifying the tools and techniques for pipe connections in different systems</p> <p><b>Demonstration</b> : Show students how to connect pipes to various systems using appropriate fittings and adhesives</p> <p><b>Practical work:</b> Allow students to practice pipe connections in a controlled workshop environment</p> <p><b>Field Visit:</b> Take students to observe professionals connecting pipes on-site</p> <p><b>Videos:</b> Provide</p>	<p><b>to:</b></p> <ul style="list-style-type: none"> <li>• Interpret drawing</li> <li>• Prepare tools, machines and equipment</li> <li>• Prepare material</li> <li>• Prepare site</li> <li>• Perform setting out</li> <li>• Carry out excavation works</li> <li>• Cut the Pipe</li> <li>• Connect the Pipe</li> <li>• Check for Proper Alignment</li> <li>• Check gradient</li> <li>• Test the Connections</li> <li>• Backfill the Trench</li> </ul>	septic tanks, sewers, chambers, soakaway pits, and cesspools as per wastewater management regulations to ensure functionality and compliance within the overall project structure	<p><b>Detailed knowledge of:</b></p> <p><b>Method used:</b> The student should explain different methods for connecting pipes to septic tanks, sewers, chambers, soak away pit and cesspools</p> <p><b>Principles:</b> The student should explain the principles involved in connecting pipes to septic tanks, sewers, chambers, soak away pits and cesspools</p> <p><b>Theories:</b> The student should explain:</p> <ul style="list-style-type: none"> <li>• Types of sewerage disposal</li> </ul>	<p>and safety gear are to be available:</p> <ul style="list-style-type: none"> <li>• Pipe vices</li> <li>• Pipe wrenches</li> <li>• Spirit level</li> <li>• Tape measure/steel ruler</li> <li>• Trowels</li> <li>• Rawl plug drill</li> <li>• Hacksaw/pipe cutter</li> <li>• Cold chisel</li> <li>• Gloves, safety boots, overalls</li> <li>• Blow lamp</li> <li>• Wooden float</li> <li>• Shovels</li> <li>• Leveling machine</li> </ul>	

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				Process Assessment	Services Assessment	Knowledge Assessment		
			instructional videos to help students visualise the connections	<ul style="list-style-type: none"> <li>Clean and store tools</li> </ul>		<ul style="list-style-type: none"> <li>Connection of pipes</li> <li>Constructed sewage disposal</li> <li>Types of pipe</li> <li>Methods of determining gradient</li> </ul> <p><b>Circumstantial knowledge</b> <b>Detailed knowledge about:</b></p> <ul style="list-style-type: none"> <li>Safety precautions to be observed while constructing sewerage disposal</li> <li>Environmental issues</li> <li>First aid</li> </ul>		
		(c) Constructing septic tanks and bio digester	<b>Group Discussion:</b> Discuss with students the	<b>The student should be able to:</b>	Septic tanks and bio digesters are constructed as	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b>	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 Assessment		
			design considerations and applications of septic tanks and biodigesters <b>Demonstration</b> : Show students how to lay out and construct septic tanks and biodigesters step-by-step <b>Practical work:</b> Guide students in constructing a small-scale septic tank or biodigester <b>Project-Based Approach:</b> Assign students to design and construct a biodigester for a given scenario <b>Videos:</b> Use visual aids to show the construction process of septic	<ul style="list-style-type: none"> <li>• Interpret drawing</li> <li>• Prepare tools, machines and equipment</li> <li>• Prepare material</li> <li>• Prepare site</li> <li>• Perform setting out</li> <li>• Carry out excavation works</li> <li>• Prepare the Base</li> <li>• Construct the tank Walls</li> <li>• Prepare a floor</li> <li>• Construct Baffles</li> <li>• Perform finishing works</li> <li>• Perform curing</li> </ul>	per technical specifications to ensure effective wastewater treatment and compliance with environmental regulations	<b>Method used:</b> The student should explain different methods for constructing septic tanks and bio digester <b>Principles:</b> The student should explain the principles involved in constructing septic tanks and bio digester <b>Theories:</b> The student should explain: <ul style="list-style-type: none"> <li>• Types of sewerage disposal</li> <li>• Connection of pipes</li> <li>• Constructed sewage disposal</li> <li>• Construction Materials</li> <li>• Types of pipe</li> </ul>	available: <ul style="list-style-type: none"> <li>• Shovel</li> <li>• Batching box</li> <li>• Concrete mixer</li> <li>• Wheel barrow</li> <li>• Water tank</li> <li>• Bucket</li> <li>• Mason line</li> <li>• Spirit level</li> <li>• Straight edge</li> <li>• Plumb bob</li> <li>• Steel trowel</li> <li>• Steel square</li> <li>• Mortar pan</li> <li>• Poker vibrator</li> <li>• Ladder</li> <li>• Scaffold</li> <li>• Leveling instrument</li> <li>• Gloves</li> <li>• Boots</li> <li>• Overall</li> <li>• Helmet</li> </ul>	

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 Assessment		
			tanks and biodigesters	<ul style="list-style-type: none"> <li>• Connect Inlet and Outlet Pipes</li> <li>• Backfill the Trench</li> <li>• Cover the septic tank</li> <li>• Clean and store tools</li> </ul>		<ul style="list-style-type: none"> <li>• Methods of determining gradient</li> </ul> <p><b>Circumstantial knowledge</b></p> <p><b>Detailed knowledge about:</b></p> <ul style="list-style-type: none"> <li>• Safety precautions to be observed while constructing sewerage disposal</li> <li>• Environmental issues</li> <li>• First aid</li> </ul>		
		(d) Constructing soak-away pit/cesspool	<b>Brainstorming:</b> Facilitate a discussion where students identify the purpose and principles of soakaway pits and cesspools in drainage systems	<b>The student should be able to:</b> <ul style="list-style-type: none"> <li>• Interpret drawing</li> <li>• Prepare tools, machines and equipment</li> </ul>	Soakaway pits and cesspools are constructed as per technical specifications to ensure effective drainage and compliance with	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b> The student should explain different methods for constructing septic tanks and	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Shovel</li> <li>• Batching box</li> <li>• Concrete mixer</li> <li>• Wheel barrow</li> </ul>	

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				Process Assessment	Services Assessment	Knowledge Assessment		
			<b>Demonstration</b> : Show students the process of excavating, lining, and finishing soakaway pits <b>Practical work:</b> Guide students in constructing a small-scale soakaway pit in a workshop or controlled environment <b>Field Visit:</b> Arrange visits for students to observe professionals constructing soakaway pits on-site <b>Videos:</b> Use videos to demonstrate the construction and functionality of soakaway pits	<ul style="list-style-type: none"> <li>• Prepare material</li> <li>• Prepare site</li> <li>• Perform setting out</li> <li>• Carry out excavation works</li> <li>• Prepare the Base</li> <li>• Construct perforated pit Walls</li> <li>• Perform curing</li> <li>• Connect Inlet Pipes</li> <li>• Backfill the Trench</li> <li>• Cover the pit</li> <li>• Clean and store</li> </ul>	environmental regulations	bio digester <b>Principles:</b> The student should explain the principles involved in constructing soak away pit/cesspool <b>Theories:</b> The student should explain: <ul style="list-style-type: none"> <li>• Types of sewerage disposal</li> <li>• Connection of pipes</li> <li>• Constructed sewage disposal</li> <li>• Construction Materials</li> <li>• Types of pipe</li> <li>• Methods of determining gradient</li> </ul> <b>Circumstantial knowledge</b> <b>Detailed knowledge</b>	<ul style="list-style-type: none"> <li>• Water tank</li> <li>• Bucket</li> <li>• Mason line</li> <li>• Spirit level</li> <li>• Straight edge</li> <li>• Plumb bob</li> <li>• Steel trowel</li> <li>• Steel square</li> <li>• Mortar pan</li> <li>• Poker vibrator</li> <li>• Ladder</li> <li>• Scaffold</li> <li>• Leveling instrument</li> <li>• Gloves</li> <li>• Boots</li> <li>• Overall</li> <li>• Helmet</li> </ul>	

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 Assessment		
						<b>about:</b> <ul style="list-style-type: none"> <li>• Safety precautions to be observed while constructing sewerage disposal</li> <li>• Environmental issues</li> <li>• First aid</li> </ul>		
	3.4. Performing stonework	(a) Performing stone dressing	<b>Think-Pair-Share:</b> Encourage students to explore tools, techniques, and purposes of stone dressing <b>Demonstration</b> : Show students how to use chisels, hammers, and other tools for stone dressing <b>Practical work:</b> Guide students in practicing	<b>The student should be able to:</b> <ul style="list-style-type: none"> <li>• Prepare tools and equipment</li> <li>• Select stones</li> <li>• Mark the Stone</li> <li>• Initial Shaping</li> <li>• Refining the Shape</li> <li>• Refining the Shape</li> <li>• Smoothing the Surface</li> </ul>	Stones dressed according to technical standards to achieve specific dimensions and aesthetics	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b> The student should explain different methods for dressing stones <b>Principles:</b> The student should explain the principles involved in performing stone Dressing <b>Theories:</b> The	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Wheel barrow</li> <li>• Steel square</li> <li>• Sledge hammer</li> <li>• Spalling hammer</li> <li>• Chisel set</li> <li>• Grinding machine</li> <li>• Punch</li> <li>• Jointer</li> </ul>	70

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 Assessment		
			stone dressing techniques on sample stones <b>Field Visit:</b> Arrange site visits for students to observe professional stone dressing in practice <b>Videos:</b> Provide video tutorials to enhance students' understanding of different stone dressing methods	<ul style="list-style-type: none"> <li>• Check for Accuracy</li> <li>• Clean tools and store</li> </ul>		student should explain: <ul style="list-style-type: none"> <li>• Properties of stones</li> <li>• Cutting and dressing stones</li> <li>• Selecting</li> <li>• Types of stones and their uses</li> <li>• Importance of wetting stones</li> </ul> <b>Circumstantial knowledge</b> <b>Detailed knowledge</b> <b>about:</b> <ul style="list-style-type: none"> <li>• Safety precautions to be observed while performing tasks</li> <li>• First aid</li> <li>• Environmental issues</li> </ul>	<ul style="list-style-type: none"> <li>• Gloves</li> <li>• Overall</li> <li>• Helmet</li> </ul>	



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 Assessment		
		(b) Laying stones for walls	<b>Brainstorming:</b> Engage students in discussing the process and alignment techniques for laying stones <b>Demonstration :</b> Show students the correct methods for laying stones to form a stable wall <b>Practical work:</b> Guide students in laying stones for small-scale walls, focusing on alignment and bonding <b>Project-Based Approach:</b> Assign students to construct a section of a stone wall as part of a practical project <b>Videos:</b> Use	<b>The student should be able to:</b> <ul style="list-style-type: none"> <li>• Interpret drawing</li> <li>• Select stones</li> <li>• Cut and dress stones</li> <li>• Prepare the surface for stonework</li> <li>• Construct stonework</li> <li>• Perform curing</li> <li>• Clean tools and store</li> </ul>	Stones are laid for walls as per technical specifications to ensure structural integrity and aesthetic appeal	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b> The student should explain different methods for laying stone walls <b>Principles:</b> The student should explain the principles involved in laying stones for walls <b>Theories:</b> The student should explain: <ul style="list-style-type: none"> <li>• Properties of stones</li> <li>• Cutting and dressing stones</li> <li>• Selecting</li> <li>• Types of stones and their uses</li> </ul>	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Brick trowel</li> <li>• Pointing trowel</li> <li>• Wooden float</li> <li>• Shovel</li> <li>• Batching box</li> <li>• Concrete mixer</li> <li>• Wheelbarrow</li> <li>• Water tank</li> <li>• Bucket</li> <li>• Mason line</li> <li>• Plumb bob</li> <li>• Spirit level</li> <li>• Straight edge</li> <li>• Steel square</li> <li>• Mortar pan</li> <li>• Sledge hammer</li> <li>• Spalling hammer</li> <li>• Chisel set</li> </ul>	

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 Assessment		
			instructional videos to show professional stone wall construction techniques			<ul style="list-style-type: none"> <li>Importance of wetting stones</li> <li>Thermal Properties</li> <li>Types of stone bonding</li> </ul> <b>Circumstantial knowledge</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>Safety precautions to be observed while performing tasks</li> <li>First aid</li> <li>Environmental issues</li> </ul>	<ul style="list-style-type: none"> <li>Punch</li> <li>Saw</li> <li>Jointer</li> <li>Gloves</li> <li>Overall</li> <li>Helmet</li> <li>Bush knife (panga)</li> </ul>	
		(c) Laying stones for bridges	<b>Group Discussion:</b> Discuss with students the	<b>The student should be able to:</b>	Stones are laid for bridges according to	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b>	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
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			<p>specific considerations for using stones in bridge construction</p> <p><b>Demonstration</b> : Show students how to place and secure stones for structural stability in bridges</p> <p><b>Practical work:</b> Allow students to practice laying stones for a bridge structure</p> <p><b>Field Visit:</b> Take students to observe stone-laying processes in bridge construction projects</p> <p><b>Videos:</b> Use videos to explain techniques for</p>	<ul style="list-style-type: none"> <li>• Interpret drawing</li> <li>• Select stones</li> <li>• Cut and dress stones</li> <li>• Prepare the surface for stone work</li> <li>• Construct stone work</li> <li>• Perform curing</li> <li>• Clean tools and store</li> </ul>	technical specifications to ensure structural stability and safety	<p><b>Method used:</b> The student should explain different methods for laying stone walls</p> <p><b>Principles:</b> The student should explain the principles involved laying stones for bridges</p> <p><b>Theories:</b> The student should explain:</p> <ul style="list-style-type: none"> <li>• Properties of stones</li> <li>• Cutting and dressing stones</li> <li>• Selecting</li> <li>• Types of stones and their uses</li> <li>• Importance of wetting stones</li> </ul>	<p>available:</p> <ul style="list-style-type: none"> <li>• Brick trowel</li> <li>• Pointing trowel</li> <li>• Wooden float</li> <li>• Shovel</li> <li>• Batching box</li> <li>• Concrete mixer</li> <li>• Wheelbarrow</li> <li>• Water tank</li> <li>• Bucket</li> <li>• Mason line</li> <li>• Plumb bob</li> <li>• Spirit level</li> <li>• Straight edge</li> <li>• Steel square</li> <li>• Mortar pan</li> <li>• Sledge hammer</li> <li>• Spalling hammer</li> <li>• Chisel set</li> <li>• Punch</li> <li>• Saw</li> <li>• Jointer</li> <li>• Gloves</li> </ul>	

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 Assessment		
			achieving structural stability in stone bridges			<ul style="list-style-type: none"> <li>Thermal Properties</li> <li>Types of stone bonding</li> </ul> <b>Circumstantial knowledge</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>Safety precautions to be observed while performing tasks</li> <li>First aid</li> <li>Environmental issues</li> </ul>	<ul style="list-style-type: none"> <li>Overall</li> <li>Helmet</li> <li>Bush knife (panga)</li> </ul>	
		(d) Constructing a stone deck	<b>Brainstorming:</b> Facilitate a session where students explore the purpose and techniques of constructing stone decks <b>Demonstration</b>	<b>The student should be able to:</b> <ul style="list-style-type: none"> <li>Interpret drawing</li> <li>Select stones</li> <li>Cut and dress stones</li> </ul>	A stone deck is constructed according to technical specifications to provide a durable and aesthetically	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b> The student should explain different methods for	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>Brick trowel</li> <li>Pointing trowel</li> </ul>	

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				Process Assessment	Services Assessment	Knowledge Assessment		
			<p>: Show students the proper alignment and placement of stones for decks</p> <p><b>Practical work:</b> Guide students in constructing a small-scale stone deck in a workshop</p> <p><b>Project-Based Approach:</b> Assign students to design and construct a section of a stone deck</p> <p><b>Videos:</b> Provide visual aids to enhance students' understanding of deck construction</p>	<ul style="list-style-type: none"> <li>• Prepare the surface for stonework</li> <li>• Construct stonework</li> <li>• Perform curing</li> <li>• Clean tools and store</li> </ul>	pleasing surface	<p>laying stone walls</p> <p><b>Principles: :</b> The student should explain the principles involved constructing a stone deck</p> <p><b>Theories:</b> The student should explain:</p> <ul style="list-style-type: none"> <li>• Properties of stones</li> <li>• Cutting and dressing stones</li> <li>• Selecting</li> <li>• Types of stones and their uses</li> <li>• Importance of wetting stones</li> <li>• Thermal Properties</li> <li>• Types of stone bonding</li> </ul> <p><b>Circumstantial</b></p>	<ul style="list-style-type: none"> <li>• Wooden float</li> <li>• Shovel</li> <li>• Batching box</li> <li>• Concrete mixer</li> <li>• Wheelbarrow</li> <li>• Water tank</li> <li>• Bucket</li> <li>• Mason line</li> <li>• Plumb bob</li> <li>• Spirit level</li> <li>• Straight edge</li> <li>• Steel square</li> <li>• Mortar pan</li> <li>• Sledge hammer</li> <li>• Spalling hammer</li> <li>• Chisel set</li> <li>• Punch</li> <li>• Saw</li> <li>• Jointer</li> <li>• Gloves</li> <li>• Overall</li> <li>• Helmet</li> <li>• Bush knife (panga)</li> </ul>	

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				Process Assessment	Services Assessment	Knowledge Assessment		
						<b>knowledge</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>• Safety precautions to be observed while performing tasks</li> <li>• First aid</li> <li>• Environmental issues</li> </ul>		
4. Performing Finishing Works	4.1. Fixing tiles, pavements and parquet	(a) Fixing floor tiles	<b>Think-Pair-Share:</b> Facilitate discussions among students on the types and patterns of floor tiles and their uses <b>Demonstration :</b> Show students how to prepare surfaces, apply adhesives, and fix floor tiles	<b>The student should be able to:</b> <ul style="list-style-type: none"> <li>• Select tools and equipment</li> <li>• Estimate materials</li> <li>• Select materials</li> <li>• Prepare work place</li> <li>• Mix materials</li> </ul>	Floor tiles are fixed according to finishing standards to ensure durability, aesthetic appeal, and proper alignment	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b> The student should explain different method of fixing tiles <b>Principles:</b> The student should explain the principles involved fixing floor tiles	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Shovel</li> <li>• Batching box</li> <li>• Wheel barrow</li> <li>• Water tank</li> <li>• Bucket</li> <li>• Mason line</li> <li>• Spirit level</li> <li>• Straight edge</li> </ul>	140

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 Assessment		
			<b>Practical work:</b> Allow students to practice fixing floor tiles in a controlled environment <b>Field Visit:</b> Arrange site visits for students to observe professionals fixing floor tiles <b>Videos:</b> Use video tutorials to help students visualise tile-fixing processes and patterns	<ul style="list-style-type: none"> <li>• Cut tiles</li> <li>• Lay tiles</li> <li>• Apply grout</li> <li>• Clean the tiled floor</li> <li>• Clean tools and store</li> </ul>		<b>Theories:</b> Student should explain: <ul style="list-style-type: none"> <li>• Types of floor tiles</li> <li>• Types of wall tiles</li> <li>• Uses of various tools and equipment</li> <li>• Curing procedures</li> </ul> <b>Circumstantial knowledge</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>• Safety procedures to be observed while performing finishing works</li> <li>• Environmental issues</li> </ul>	<ul style="list-style-type: none"> <li>• Plumb bob</li> <li>• Wooden float</li> <li>• Steel float</li> <li>• Steel square</li> <li>• Mortar pan</li> <li>• Gloves</li> <li>• Boots</li> <li>• Overall</li> <li>• Helmet</li> <li>• Tile cutter</li> <li>• Brush</li> <li>• Scalper</li> </ul>	

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 Assessment		
		(b) Fixing wall tiles	<b>Brainstorming:</b> Engage students in identifying the materials, tools, and steps for fixing wall tiles <b>Demonstration :</b> Show students the process of surface preparation and fixing wall tiles with proper alignment <b>Practical work:</b> Guide students in practicing wall tile fixing in a simulated setting <b>Field Visit:</b> Take students to observe the fixing of wall tiles at a construction site. <b>Videos:</b> Use instructional	<b>The student should be able to:</b> <ul style="list-style-type: none"> <li>• Select tools and equipment</li> <li>• Estimate materials</li> <li>• Select materials</li> <li>• Prepare work place</li> <li>• Mix materials</li> <li>• Cut tiles</li> <li>• Lay tiles</li> <li>• Apply grout</li> <li>• Clean the tiled floor</li> <li>• Clean tools and store</li> </ul>	Wall tiles are fixed according to finishing standards to ensure durability, aesthetic appeal, and proper alignment	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b> The student should explain different method of fixing tiles <b>Principles:</b> The student should explain the principles involved fixing wall tiles <b>Theories:</b> Student should explain: <ul style="list-style-type: none"> <li>• Types of floor tiles</li> <li>• Types of wall tiles</li> <li>• Uses of various tools and equipment</li> <li>• Curing procedures</li> </ul> <b>Circumstantial knowledge</b>	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Shovel</li> <li>• Batching box</li> <li>• Wheelbarrow</li> <li>• Water tank</li> <li>• Bucket</li> <li>• Mason line</li> <li>• Spirit level</li> <li>• Straight edge</li> <li>• Plumb bob</li> <li>• Wooden float</li> <li>• Steel float</li> <li>• Steel square</li> <li>• Mortar pan</li> <li>• Gloves</li> <li>• Boots</li> <li>• Overall</li> <li>• Helmet</li> <li>• Tile cutter</li> <li>• Brush</li> <li>• Scalper</li> </ul>	



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				Process Assessment	Services Assessment	Knowledge Assessment		
			videos to show advanced wall tiling techniques			<b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>Safety procedures to be observed while performing finishing works</li> </ul> Environmental issues		
		(c) Fixing walkway pavements	<b>Group Work:</b> Facilitate group discussions where students plan the layout and materials for walkway pavements <b>Demonstration :</b> Show students how to lay and secure paving materials like bricks or stones <b>Practical work:</b> Guide students in fixing	<b>The student should be able to:</b> <ul style="list-style-type: none"> <li>Select tools and equipment</li> <li>Estimate materials</li> <li>Select materials</li> <li>Prepare the Site</li> <li>Install a Base Layer</li> <li>Add a Sand Layer</li> </ul>	Walkway pavements are fixed according to finishing standards to ensure durability, aesthetic appeal, and proper alignment	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b> The student should explain different method of fixing walk way pavements <b>Principles:</b> The student should explain the principles involved fixing walk way pavements	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>Shovel</li> <li>Batching box</li> <li>Wheel barrow</li> <li>Water tank</li> <li>Bucket</li> <li>Mason line</li> <li>Spirit level</li> <li>Straight edge</li> <li>Plumb bob</li> </ul>	

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 Assessment		
			walkway pavements, focusing on alignment and durability <b>Project-Based Approach:</b> Assign students to design and construct a section of a walkway pavement <b>Videos:</b> Provide video tutorials to demonstrate professional pavement fixing techniques	<ul style="list-style-type: none"> <li>• Lay pavements</li> <li>• Check Alignment and Level</li> <li>• Fill Joints</li> <li>• Clean tools and store</li> </ul>		<ul style="list-style-type: none"> <li>• <b>Theories:</b> Student should explain:</li> <li>• Types of walk way pavements</li> <li>• Aesthetic Design</li> <li>• Uses of various tools and equipment</li> <li>• Curing procedures</li> <li>• <b>Circumstantial knowledge</b></li> <li>• <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>• Safety procedures to be observed while performing finishing works</li> <li>• Environmental issues</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Wooden float</li> <li>• Steel float</li> <li>• Steel square</li> <li>• Mortar pan</li> <li>• Gloves</li> <li>• Boots</li> <li>• Overall</li> <li>• Helmet</li> <li>• Paver cutter</li> <li>• Brush</li> <li>• Scalper</li> </ul>	

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 Assessment		
		(d) Fixing parquet	<b>Brainstorming:</b> Discuss with students the properties, uses, and patterns of parquet flooring <b>Demonstration :</b> Show students how to prepare surfaces and fix parquet tiles with proper adhesive <b>Practical work:</b> Allow students to practice laying parquet tiles in a workshop <b>Field Visit:</b> Arrange visits for students to observe parquet installation in high-end construction projects <b>Videos:</b> Use visual aids to demonstrate	<b>The student should be able to:</b> <ul style="list-style-type: none"> <li>• Select tools and equipment</li> <li>• Estimate materials</li> <li>• Select materials</li> <li>• Prepare work place</li> <li>• Apply Adhesive</li> <li>• Lay the Parquet Tiles</li> <li>• Check Alignment and Level</li> <li>• Clean the tiled floor</li> <li>• Clean tools and store</li> </ul>	Parquet flooring is fixed according to finishing standards to ensure durability, aesthetic appeal, and proper alignment	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b> The student should explain different methods of fixing parquet <b>Principles:</b> The student should explain the principles involved fixing parquet <ul style="list-style-type: none"> <li>• <b>Theories:</b> Student should explain:               <ul style="list-style-type: none"> <li>• Types of parquet</li> <li>• Aesthetic Design</li> <li>• Uses of various tools and equipment</li> <li>• Curing procedures</li> </ul> </li> </ul>	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Shovel</li> <li>• Batching box</li> <li>• Wheel barrow</li> <li>• Water tank</li> <li>• Bucket</li> <li>• Mason line</li> <li>• Spirit level</li> <li>• Straight edge</li> <li>• Plumb bob</li> <li>• Wooden float</li> <li>• Steel float</li> <li>• Steel square</li> <li>• Mortar pan</li> <li>• Gloves</li> <li>• Boots</li> <li>• Overall</li> <li>• Helmet</li> <li>• Tile cutter</li> <li>• Brush</li> <li>• Scalper</li> </ul>	

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 Assessment		
			parquet installation techniques and patterns			<ul style="list-style-type: none"> <li>Adhesives and Finishing Products</li> <li>Moisture Control</li> </ul> <b>Circumstantial knowledge</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>Safety procedures to be observed while performing finishing works</li> <li>Environmental issues</li> </ul>		
	4.2. Performing pointing and jointing	(a) Pointing a masonry work / stonework	<b>Brainstorming:</b> Facilitate a discussion where students identify the importance and types of pointing in masonry work	<b>The student should be able to:</b> <ul style="list-style-type: none"> <li>Prepare materials</li> <li>Prepare tools and equipment</li> </ul>	Pointing is carried out as per finishing techniques to masonry or stonework to prevent water ingress,	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b> The student should explain different methods of	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>Shovel</li> <li>Pointing trowel</li> <li>Batching box</li> </ul>	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 per Unit
				Process Assessment	Services Assessment	Knowledge Assessment		
			<b>Demonstration</b> : Show students how to perform pointing on masonry and stonework <b>Practical work:</b> Guide students in practicing different pointing techniques in the workshop <b>Field Visit:</b> Take students to observe professional pointing on masonry structures <b>Videos:</b> Use instructional videos to enhance students' understanding of pointing techniques	<ul style="list-style-type: none"> <li>• Prepare the Mortar</li> <li>• Clean the Joints</li> <li>• Dampen the Joints</li> <li>• Carry out pointing works</li> <li>• Remove Excess Mortar</li> <li>• Perform curing</li> <li>• Clean tools and store</li> </ul>	improve appearance, and enhance durability	pointing <b>Principles:</b> The student should explain the principles involved pointing a masonry work / stonework <b>Theories:</b> The student should explain: <ul style="list-style-type: none"> <li>• Pointing</li> <li>• Types of pointing</li> <li>• Curing</li> <li>• Cost estimate</li> </ul> <b>Circumstantial knowledge</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>• Safety precautions to be observed while</li> </ul>	<ul style="list-style-type: none"> <li>• Wheelbarrow</li> <li>• Water tank</li> <li>• Bucket</li> <li>• Mason line</li> <li>• Spirit level</li> <li>• Straight edge</li> <li>• Plumb bob</li> <li>• Steel square</li> <li>• Steel float</li> <li>• Mortar pan</li> <li>• Ladder</li> <li>• Scaffold</li> <li>• Gloves</li> <li>• Boots</li> <li>• Overall</li> <li>• Helmet</li> <li>• Brush</li> </ul>	

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 Assessment		
						performing pointing and pointing <ul style="list-style-type: none"> <li>• First aid</li> <li>• Environmental issues</li> </ul>		
		(b) Pointing a block wall	<b>Think-Pair-Share:</b> Facilitate discussions among students on the purpose and aesthetics of pointing a block wall <b>Demonstration :</b> Show students how to apply pointing to a block wall with proper alignment and finishing <b>Practical work:</b> Guide students in pointing a block wall in the workshop <b>Field Visit:</b>	<b>The student should be able to:</b> <ul style="list-style-type: none"> <li>• Prepare materials</li> <li>• Prepare tools and equipment</li> <li>• Prepare the Mortar</li> <li>• Clean the Joints</li> <li>• Dampen the Joints</li> <li>• Carry out pointing works</li> <li>• Remove Excess Mortar</li> <li>• Perform curing</li> </ul>	Pointing of a block wall is performed as per finishing techniques to ensure structural integrity, prevent water ingress, improve aesthetics, and enhance durability	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b> The student should explain different methods of pointing <b>Principles:</b> The student should explain the principles involved pointing a block wall <b>Theories:</b> The student should explain: <ul style="list-style-type: none"> <li>• Pointing</li> <li>• Types of pointing</li> </ul>	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Shovel</li> <li>• Pointing trowel</li> <li>• Batching box</li> <li>• Wheel barrow</li> <li>• Water tank</li> <li>• Bucket</li> <li>• Mason line</li> <li>• Spirit level</li> <li>• Straight edge</li> <li>• Plumb bob</li> <li>• Steel square</li> <li>• Steel float</li> <li>• Mortar pan</li> <li>• Ladder</li> <li>• Scaffold</li> </ul>	

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 Assessment		
			Take students to observe the pointing of block walls at construction sites <b>Videos:</b> Provide instructional videos to show professional techniques for pointing block walls	<ul style="list-style-type: none"> <li>Clean tools and store</li> </ul>		<ul style="list-style-type: none"> <li>Curing</li> <li>Cost estimate</li> </ul> <b>Circumstantial knowledge</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>Safety precautions to be observed while performing pointing and pointing</li> <li>First aid</li> <li>Environmental issues</li> </ul>	<ul style="list-style-type: none"> <li>Gloves</li> <li>Boots</li> <li>Overall</li> <li>Helmet</li> <li>Brush</li> </ul>	
		(c) Pointing a brick wall	<b>Brainstorming:</b> Engage students in discussing the purpose and techniques of pointing brick walls for structural integrity and aesthetics	<b>The student should be able to:</b> <ul style="list-style-type: none"> <li>Prepare materials</li> <li>Prepare tools and equipment</li> <li>Prepare the Mortar</li> </ul>	Pointing of a brick wall is performed as per finishing techniques to ensure structural integrity, prevent water	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b> The student should explain different methods of pointing	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>Shovel</li> <li>Pointing trowel</li> <li>Batching box</li> </ul>	

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 Assessment		
			<b>Demonstration</b> : Show students the step-by-step process of pointing a brick wall using the appropriate tools and materials <b>Practical work:</b> Guide students in practicing pointing techniques on a brick wall in the workshop	<ul style="list-style-type: none"> <li>• Clean the Joints</li> <li>• Dampen the Joints</li> <li>• Carry out pointing works</li> <li>• Remove Excess Mortar</li> <li>• Perform curing</li> <li>• Clean tools and store</li> </ul>	ingress, improve aesthetics, and enhance durability	<b>Principles:</b> The student should explain the principles involved pointing a block wall <b>Theories:</b> The student should explain: <ul style="list-style-type: none"> <li>• Pointing</li> <li>• Types of pointing</li> <li>• Curing</li> <li>• Cost estimate</li> </ul> <b>Circumstantial knowledge</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>• Safety precautions to be observed while performing pointing and pointing</li> <li>• First aid</li> </ul>	<ul style="list-style-type: none"> <li>• Wheelbarrow</li> <li>• Water tank</li> <li>• Bucket</li> <li>• Mason line</li> <li>• Spirit level</li> <li>• Straight edge</li> <li>• Plumb bob</li> <li>• Steel square</li> <li>• Steel float</li> <li>• Mortar pan</li> <li>• Ladder</li> <li>• Scaffold</li> <li>• Gloves</li> <li>• Boots</li> <li>• Overall</li> <li>• Helmet</li> <li>• Brush</li> </ul>	



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 Assessment		
						<ul style="list-style-type: none"> <li>Environmental issues</li> </ul>		
		(d) Performing jointing	<b>Think-Pair-Share:</b> Encourage students to discuss the importance and methods of jointing in masonry construction <b>Demonstration :</b> Show students how to perform different types of jointing, such as flush, concave, and recessed joints <b>Practical work:</b> Allow students to practice jointing techniques on small masonry structures in the workshop <b>Field Visit:</b>	<b>The student should be able to:</b> <ul style="list-style-type: none"> <li>Prepare materials</li> <li>Prepare tools and equipment</li> <li>Prepare the Mortar</li> <li>Clean the Joints</li> <li>Dampen the Joints</li> <li>Carry out jointing works</li> <li>Remove Excess Mortar</li> <li>Perform curing</li> <li>Clean tools and store</li> </ul>	Jointing is performed as per finishing technique to enhance the aesthetic appeal, structural integrity, and weather resistance of the joints between bricks or blocks	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b> The student should explain different methods of jointing <b>Principles:</b> The student should explain the principles involved in performing jointing <b>Theories:</b> The student should explain: <ul style="list-style-type: none"> <li>Jointing</li> <li>Types of pointing</li> <li>Curing</li> <li>Cost estimate</li> </ul> <b>Circumstantial</b>	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>Shovel</li> <li>Jointer</li> <li>Batching box</li> <li>Wheelbarrow</li> <li>Water tank</li> <li>Bucket</li> <li>Mason line</li> <li>Spirit level</li> <li>Straight edge</li> <li>Plumb bob</li> <li>Steel square</li> <li>Steel float</li> <li>Mortar pan</li> <li>Ladder</li> <li>Scaffold</li> <li>Gloves</li> <li>Boots</li> <li>Overall</li> <li>Helmet</li> <li>Brush</li> </ul>	

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 Assessment		
			Organise visits for students to observe jointing work in ongoing masonry projects			<b>knowledge</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>Safety precautions to be observed while performing pointing and jointing</li> <li>First aid</li> <li>Environmental issues</li> </ul>		
	4.3. Making terrazzo	(a) Making and fixing Terrazzo tiles	<b>Brainstorming:</b> Engage students in identifying materials and tools needed for making and fixing terrazzo tiles <b>Demonstration :</b> Show students the process of mixing, moulding, and curing terrazzo	<b>The student should be able to:</b> <ul style="list-style-type: none"> <li>Interpret drawing</li> <li>Prepare materials</li> <li>Prepare the Mixing Area</li> <li>Mix the Ingredients</li> <li>Pour the Mixture into Molds</li> </ul>	Terrazzo tiles are made and fixed as per finishing standards to ensure durability, aesthetic appeal, and proper alignment	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b> The student should explain different method of making and fixing terrazzo tiles <b>Principles:</b> The student should explain the	The following tools, equipment and safety gear are to be available: available:- <ul style="list-style-type: none"> <li>Shovel</li> <li>Batching box</li> <li>Concrete mixer</li> <li>Wheel barrow</li> <li>Water tank</li> </ul>	70

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 Assessment		
			tiles <b>Practical work:</b> Guide students in making terrazzo tiles and fixing them on prepared surfaces <b>Project-Based Approach:</b> Assign students to create a small area with terrazzo tiles, including preparation and fixing <b>Videos:</b> Provide instructional videos to help students understand terrazzo tile production and installation techniques	<ul style="list-style-type: none"> <li>• Level the Surface</li> <li>• Curing the Tiles</li> <li>• Grinding and Polishing</li> <li>• Prepare the Installation Surface</li> <li>• Apply the Adhesive</li> <li>• Lay the Terrazzo Tiles</li> <li>• Check Alignment</li> <li>• Grouting</li> <li>• Clean Excess Grout</li> <li>• Final Curing</li> <li>• Clean and store tools</li> </ul>		principles involved making and fixing Terrazzo tiles <b>Theories:</b> The student should explain: <ul style="list-style-type: none"> <li>• Mixing ratio</li> <li>• Types of terrazzo</li> <li>• Function of terrazzo</li> <li>• Materials estimate</li> <li>• Thermal Expansion</li> <li>• Aesthetic Design</li> </ul> <b>Circumstantial knowledge</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>• Safety precautions to be observed while performing task</li> </ul>	<ul style="list-style-type: none"> <li>• Bucket</li> <li>• Mason line</li> <li>• Spirit level</li> <li>• Straight edge</li> <li>• Plumb bob</li> <li>• Steel square</li> <li>• Steel trowel</li> <li>• Mortar pan</li> <li>• Levelling instrument</li> <li>• Gloves</li> <li>• Boots</li> <li>• Overall</li> <li>• Helmet</li> <li>• Terrazzo grinding machine</li> <li>• Terrazzo grinding stone</li> <li>• Hand brush</li> <li>• Roller brush</li> <li>• Soft broom</li> <li>• Squeezer Cleaner</li> </ul>	

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 Assessment		
						<ul style="list-style-type: none"> <li>First aid</li> <li>Environmental issues</li> </ul>		
		(b) Cast Terrazzo floor	<b>Brainstorming:</b> Facilitate a session where students discuss the benefits and applications of terrazzo flooring <b>Demonstration</b> : Show students how to prepare the surface, mix terrazzo material, and cast it on the floor <b>Practical work:</b> Allow students to practice casting a small section of terrazzo flooring in the workshop <b>Field Visit:</b> Take students to observe terrazzo floor casting	<b>The student should be able to:</b> <ul style="list-style-type: none"> <li>Interpret drawing</li> <li>Prepare materials</li> <li>Carry out setting</li> <li>Prepare tools and equipment</li> <li>Mix the Terrazzo Material</li> <li>Pour the Terrazzo Mixture</li> <li>Troweling the Surface terrazzo</li> <li>Grind the terrazzo</li> </ul>	Terrazzo floor is casted as per technical to enhance its aesthetic appeal, durability, and versatility	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b> The student should explain different method of casting terrazzo floor <b>Principles:</b> The student should explain the principles involved casting Terrazzo floor <b>Theories:</b> The student should explain: <ul style="list-style-type: none"> <li>Mixing ratio</li> <li>Types of terrazzo</li> <li>Function of terrazzo</li> <li>Materials estimate</li> </ul>	The following tools, equipment and safety gear are to be available: available:- <ul style="list-style-type: none"> <li>Shovel</li> <li>Batching box</li> <li>Concrete mixer</li> <li>Wheel barrow</li> <li>Water tank</li> <li>Bucket</li> <li>Mason line</li> <li>Spirit level</li> <li>Straight edge</li> <li>Plumb bob</li> <li>Steel square</li> <li>Steel trowel</li> <li>Mortar pan</li> <li>Leveling instrument</li> <li>Gloves</li> </ul>	

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 Assessment		
			and finishing at a construction site <b>Videos:</b> Use videos to explain advanced techniques for casting and polishing terrazzo floors	<ul style="list-style-type: none"> <li>Polish terrazzo surface</li> <li>Cleaning the Surface</li> <li>Clean and store tools</li> </ul>		<ul style="list-style-type: none"> <li>Thermal Expansion</li> <li>Aesthetic Design</li> </ul> <b>Circumstantial knowledge</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>Safety precautions to be observed while performing task</li> <li>First aid</li> <li>Environmental issues</li> </ul>	<ul style="list-style-type: none"> <li>Boots</li> <li>Overall</li> <li>Helmet</li> <li>Terrazzo grinding machine</li> <li>Terrazzo grinding stone</li> <li>Hand brush</li> <li>Roller brush</li> <li>Soft broom</li> <li>Squeezer Cleaner</li> </ul>	
		(c) Applying epoxy finish	<b>Group Discussion:</b> Discuss with students the advantages and uses of epoxy finishes in construction <b>Demonstration :</b> Show students	<b>The student should be able to:</b> <ul style="list-style-type: none"> <li>Prepare Materials and Tools</li> <li>Prepare the Surface</li> <li>Mix the Epoxy</li> </ul>	Epoxy finish applied as per finishing standards to enhance durability, provide a seamless appearance, and resist	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b> The student should explain different methods of applying epoxy	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>Gloves</li> <li>Boots</li> <li>Overall</li> <li>Helmet</li> </ul>	

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 Assessment		
			<p>the surface preparation and application process for epoxy finishes</p> <p><b>Practical work:</b> Guide students in applying epoxy finishes on small surfaces in a controlled environment</p> <p><b>Videos:</b> Provide video tutorials to help students understand the proper mixing, application, and curing of epoxy finishes</p> <p><b>Project-Based Approach:</b> Assign students to apply an epoxy finish to a workshop projects</p>	<ul style="list-style-type: none"> <li>• Apply the Epoxy Finish</li> <li>• Add Color or Decorative Elements</li> <li>• Cure the surface</li> <li>• Clean and store tools</li> </ul>	wear, chemicals, and stains	<p>finishing</p> <p><b>Principles:</b> The student should explain the principles involved applying epoxy finish</p> <p><b>Theories:</b> The student should explain:</p> <ul style="list-style-type: none"> <li>• Mixing ratio</li> <li>• Materials estimate</li> <li>• Types of Epoxy</li> <li>• Aesthetic Design</li> <li>• Tools and Equipment</li> </ul> <p><b>Circumstantial knowledge</b></p> <p><b>Detailed knowledge about:</b></p> <ul style="list-style-type: none"> <li>• Safety precautions to be observed while</li> </ul>	<ul style="list-style-type: none"> <li>• Hand brush</li> <li>• Roller brush</li> <li>• Soft broom</li> <li>• Squeezer Cleaner</li> <li>• Mixing containers</li> <li>• Stir sticks</li> </ul>	

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 Assessment		
						performing task <ul style="list-style-type: none"> <li>• First aid</li> <li>• Environmental issues</li> </ul>		
	4.4. Decorating internal walls	(a) Fixing wall master	<b>Brainstorming:</b> Engage students in identifying the uses and types of wall master finishes <b>Demonstration:</b> Show students how to apply wall master using tools such as trowels and floats <b>Practical work:</b> Allow students to practice applying wall master on a small section of a wall <b>Field Visit:</b> Take students to observe professional	<b>The student should be able to:</b> <ul style="list-style-type: none"> <li>• Prepare tools and equipment</li> <li>• Prepare materials</li> <li>• Prepare the surface</li> <li>• Install the New Wall Master</li> <li>• Check Alignment and Stability</li> <li>• Clean the worked area</li> <li>• Clean and store tools</li> </ul>	Wall master is fixed as per finishing standards provide aesthetic enhancement , water resistance and durability	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b> The student should explain different methods of fixing wall master <b>Principles:</b> The student should explain the principles involved fixing wall master <b>Theories:</b> The student should explain: <ul style="list-style-type: none"> <li>• Types of internal wall decoration</li> </ul>	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Gloves</li> <li>• Boots</li> <li>• Overall</li> <li>• Helmet</li> <li>• Hand brush</li> <li>• Roller brush</li> <li>• Soft broom</li> <li>• Squeezer Cleaner</li> <li>• Drill machine</li> <li>• Screwdriver</li> </ul>	70

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 Assessment		
			wall master applications at a construction site <b>Videos:</b> Provide instructional videos to guide students through wall master application techniques			<ul style="list-style-type: none"> <li>Importance of decorating a wall</li> <li>Materials estimate</li> </ul> <b>Circumstantial knowledge</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>Safety precautions to be observed while fixing wall master</li> <li>First aid</li> <li>Environmental issues</li> </ul>		
		(b) Fixing wallpapers	<b>Brainstorming:</b> Facilitate a discussion where students explore the types, patterns, and installation methods of wallpapers	<b>The student should be able to:</b> <ul style="list-style-type: none"> <li>Prepare tools and equipment</li> <li>Prepare materials</li> </ul>	Wall papers are fixed as per finishing standards provide aesthetic enhancement , surface improvement	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b> The student should explain different methods of	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>Gloves</li> <li>Boots</li> <li>Overall</li> </ul>	



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 Assessment		
			<b>Demonstration</b> : Show students how to prepare walls and install wallpapers accurately <b>Practical work:</b> Guide students in cutting, aligning, and fixing wallpapers on walls in the workshop <b>Videos:</b> Use video tutorials to help students understand the process and tools required for wallpaper installation <b>Questions and Answers:</b> Engage students in discussing common challenges and solutions in wallpaper fixing	<ul style="list-style-type: none"> <li>• Prepare the surface</li> <li>• Install the New Wall paper</li> <li>• Check Alignment and Stability</li> <li>• Clean the worked area</li> <li>• Clean and store tools</li> </ul>	water resistance and durability	fixing wall paper <b>Principles:</b> The student should explain the principles involved fixing wall papers <b>Theories:</b> The student should explain: <ul style="list-style-type: none"> <li>• Types of internal wall decoration</li> <li>• Importance of decorating a wall</li> <li>• Materials estimate</li> </ul> <b>Circumstantial knowledge</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>• Safety precautions to be observed</li> </ul>	<ul style="list-style-type: none"> <li>• Helmet</li> <li>• Hand brush</li> <li>• Roller brush</li> <li>• Soft broom</li> <li>• Squeezer</li> <li>• Cleaner</li> <li>• Drill machine</li> <li>• Screwdriver</li> </ul>	

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 Assessment		
						while fixing wallpaper <ul style="list-style-type: none"> <li>• First aid</li> <li>• Environmental issues</li> </ul>		
		(c) Applying gypsum	<b>Think-Pair-Share:</b> Encourage students to discuss the benefits and applications of gypsum in wall and ceiling finishes <b>Demonstration :</b> Show students how to mix and apply gypsum plaster on walls and ceilings <b>Practical work:</b> Allow students to practice applying gypsum plaster on prepared surfaces in a workshop	<b>The student should be able to:</b> <ul style="list-style-type: none"> <li>• Prepare tools and equipment</li> <li>• Prepare materials</li> <li>• Prepare the surface</li> <li>• Mix the Gypsum</li> <li>• Apply the First Coat</li> <li>• Smooth the Surface</li> <li>• Apply Additional Coats</li> <li>• Apply Final Smoothing</li> <li>• Clean the work area</li> </ul>	Wall papers is applied as per finishing standards to provide aesthetic enhancement , surface improvement water resistance and durability	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b> The student should explain different methods of applying gypsum <b>Principles:</b> The student should explain the principles involved applying gypsum <b>Theories:</b> The student should explain: <ul style="list-style-type: none"> <li>• Types of internal wall decoration</li> </ul>	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Gloves</li> <li>• Boots</li> <li>• Overall</li> <li>• Helmet</li> <li>• Hand brush</li> <li>• Roller brush</li> <li>• Soft broom</li> <li>• Squeezer Cleaner</li> <li>• Steel float</li> <li>• Scraper</li> <li>• Mixing bucket</li> </ul>	

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 Assessment		
			<b>Field Visit:</b> Take students to observe gypsum plaster application in a professional setting <b>Videos:</b> Provide visual aids to demonstrate the mixing, application, and finishing of gypsum	<ul style="list-style-type: none"> <li>Clean and store tools</li> </ul>		<ul style="list-style-type: none"> <li>Types of Gypsum Products</li> <li>Importance of decorating a wall</li> <li>Materials estimate</li> <li>Application Tools and Techniques</li> </ul> <b>Circumstantial knowledge</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>Safety precautions to be observed while applying gypsum</li> <li>First aid</li> <li>Environmental issues</li> </ul>		

## 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		Knowledge Assessment	Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment			
1.0. Managing Small Sites	1.1. Building a construction team	(a) Organising and establishing building team	<b>Brainstorming:</b> Engage students in identifying key roles and responsibilities within a building team <b>Demonstration:</b> Show students how to organise a building team with clear hierarchies and communication structures <b>Group Work:</b> Assign students to form building teams and establish organisational structures <b>Project-Based</b>	The students should be able to: <ul style="list-style-type: none"> <li>• Prepare a working team</li> <li>• Identify members of the construction team</li> </ul>	Building team established in compliance with specified roles and construction regulations	<b>Knowledge evidence:</b> <b>Detailed knowledge of:</b> <b>Method used:</b> The students should explain different methods of organising and establishing a building team <b>Principles:</b> The student should explain the principles involved in organising and establishing building team <b>Theories:</b> The students should explain:	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Organisational charts</li> <li>• Construction project plans</li> <li>• Whiteboards or flip charts</li> <li>• helmets, gloves, and boots</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	35

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria		Knowledge Assessment	Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment			
			<b>Approach:</b> Ask students to organise a team for a simulated construction project <b>Videos:</b> Use instructional videos to demonstrate real-world examples of effective team organisation			<ul style="list-style-type: none"> <li>• Team dynamics and their impact on project performance</li> <li>• Leadership styles in construction management</li> <li>• Conflict resolution techniques in a team setting</li> </ul> <b>Circumstantial Knowledge:</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>• Construction team organisation in adherence to legal and safety standards</li> <li>• Ethical considerations</li> </ul>		

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria		Knowledge Assessment	Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment			
						in team leadership and management		
		(b) Assigning roles of building team	<b>Think-Pair-Share:</b> Encourage students to discuss suitable roles and responsibilities for team members in construction <b>Demonstration:</b> Show students how to assign roles based on skills and project requirements <b>Practical work:</b> Guide students to assign roles in their building teams and justify their choices <b>Project-Based Approach:</b>	The students should be able to: <ul style="list-style-type: none"> <li>Identify the required roles within a building team</li> <li>Assign roles to team members based on their skills and experience</li> </ul>	Roles assigned effectively align with team members' skills and project requirements The building team functions efficiently with clear communication and collaboration	<b>Knowledge Evidence:</b> <b>Detailed knowledge of:</b>  <b>Method Used:</b> The students should explain different methods of assigning roles in a team  <b>Principles:</b> The student should explain the principles involved in assigning roles of building team <b>Theories:</b> The students should explain:	The following tools, equipment and safety gear are to be available:  <b>Suggested Resources</b> <ul style="list-style-type: none"> <li>Organisational charts</li> <li>Construction project plans and specifications</li> <li>helmets, gloves, and boots for practical exercises</li> <li>Communication whiteboards, flip charts</li> </ul>	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria		Knowledge Assessment	Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment			
			Assign students to simulate role allocation for a specific construction task <b>Videos:</b> Provide visual examples of role delegation in large construction projects			<ul style="list-style-type: none"> <li>• Team dynamics and leadership in construction</li> <li>• Conflict resolution strategies</li> <li>• The impact of proper role assignment on project outcomes</li> </ul> <p><b>Circumstantial Knowledge: Detailed knowledge about:</b></p> <ul style="list-style-type: none"> <li>• Construction standards and regulations</li> <li>• Ethical considerations in team management</li> </ul>	<ul style="list-style-type: none"> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	
	1.2. Preparing contracts	(a) Preparing operation cost	<b>Group Work:</b> Facilitate group	The students should be able	Operation cost prepared	<b>Knowledge Evidence:</b>	The following tools, equipment	35

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria		Knowledge Assessment	Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment			
			activities where students calculate operation costs for a given construction project <b>Demonstration:</b> Show students the components of operation costs, including labour, materials, and overheads <b>Practical work:</b> Guide students in preparing an operation cost breakdown using provided scenarios <b>ICT-Based Learning:</b> Train students to use spreadsheet software for operation cost calculations	to: <ul style="list-style-type: none"> <li>• Identify components of operation costs</li> <li>• Collect and compile cost data</li> <li>• Apply estimation methods to calculate costs</li> <li>• Prepare a detailed cost breakdown</li> <li>• Align costs with budget and standards</li> </ul>	accurately, aligning with project specifications and budget constraints	<b>Detailed knowledge of:</b> <b>Method Used:</b> The student should explain methods for estimating operation costs, including data collection and cost calculation techniques <b>Principles:</b> The student should explain the principles involved in preparing operation cost <b>Theories:</b> The student should explain: <ul style="list-style-type: none"> <li>• Cost estimation techniques</li> <li>• Impact of accurate cost</li> </ul>	and safety gear are to be available: <ul style="list-style-type: none"> <li>• Construction project cost sheets and templates</li> <li>• Material price lists and labour rate schedules</li> <li>• Cost estimation calculators</li> <li>• Writing notebooks, pens, and calculators</li> <li>• Reference materials on construction cost standards and budgeting</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	



Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria		Knowledge Assessment	Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment			
			<b>Questions and Answers:</b> Address students' queries regarding common challenges in cost estimation			preparation on project success • Budgeting principles in construction management <b>Circumstantial Knowledge:</b> <b>Detailed knowledge about:</b> • Regulatory requirements for cost preparation • Ethical considerations in cost estimation		
		(b) Preparing mode of payment and obligations	<b>Brainstorming:</b> Discuss with students the different payment modes and obligations in construction	The student should be able to: <ul style="list-style-type: none"><li>Identify key payment milestones for</li></ul>	Payment plan prepared accurately, aligning with project milestones, timelines, and	<b>Knowledge Evidence:</b> <b>Detailed knowledge of:</b>  <b>Method Used:</b> The student	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"><li>Sample construction</li></ul>	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria		Knowledge Assessment	Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment			
			<p>contracts</p> <p><b>Demonstration:</b> Show students how to draft a payment schedule with milestones and responsibilities</p> <p><b>Practical work:</b> Guide students to prepare a mode of payment plan for a project</p> <p><b>Project-Based Approach:</b> Assign students to create a detailed payment and obligation schedule for a case study</p> <p><b>Videos:</b> Use videos to explain professional payment structures in construction</p>	<p>construction projects</p> <ul style="list-style-type: none"> <li>• Develop a payment schedule aligned with project timelines</li> <li>• Prepare payment terms that adhere to contract agreements and regulations</li> </ul>	contractual agreements	<p>should explain different methods of preparing payment schedules and terms</p> <p><b>Principles:</b> The student should explain the principles involved in preparing mode of payment and obligations</p> <p><b>Theories:</b> The student should explain:</p> <ul style="list-style-type: none"> <li>• Types of payment modes (e.g., milestone-based,</li> </ul>	<p>contracts with payment schedules</p> <ul style="list-style-type: none"> <li>• Payment schedule templates and guidelines</li> <li>• Writing notebooks, pens, and calculators</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria		Knowledge Assessment	Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment			
			projects			percentage completion) <ul style="list-style-type: none"> <li>Importance of clear and transparent payment terms</li> </ul> <p><b>Circumstantial Knowledge:</b>  <b>Detailed knowledge about:</b></p> <ul style="list-style-type: none"> <li>Legal and contractual regulations for payments in construction</li> <li>Ethical considerations in payment planning</li> </ul>		
		(c) Preparing working schedule	<b>Think-Pair-Share:</b> Facilitate a discussion where students explore the	<b>The student should be able to:</b> <ul style="list-style-type: none"> <li>Interpret drawings</li> </ul>	A working schedule created effectively to ensure smooth project	<b>Knowledge Evidence:</b> <b>Detailed knowledge of:</b> <b>Method Used:</b>	The following tools, equipment and safety gear are to be available:	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria		Knowledge Assessment	Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment			
			<p>importance of a working schedule in construction projects</p> <p><b>Demonstration:</b> Show students how to create a Gantt chart or other visual schedules</p> <p><b>Practical work:</b> Allow students to prepare a working schedule for a simulated construction task</p> <p><b>ICT-Based Learning:</b> Guide students in using project management software like MS Project to create schedules</p> <p><b>Videos:</b> Provide video tutorials to help students</p>	<ul style="list-style-type: none"> <li>• Prepare working schedule</li> </ul>	execution	<p>The student should explain methods for identifying tasks, allocating timelines, and coordinating schedules</p> <p><b>Principles:</b> The student should explain the principles involved in preparing working schedule</p> <p><b>Theories:</b> The student should explain:</p> <ul style="list-style-type: none"> <li>• Critical path method (CPM) and Gantt chart techniques</li> <li>• Importance of flexibility in</li> </ul>	<ul style="list-style-type: none"> <li>• Sample construction project data for practice</li> <li>• Gantt chart and CPM templates</li> <li>• Writing notebooks, pens, and calculators</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria		Knowledge Assessment	Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment			
			understand scheduling tools and techniques			project schedules <b>Circumstantial Knowledge: Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>• Regulatory requirements for project schedules</li> <li>• Ethical considerations in resource allocation and scheduling</li> </ul>		
		(d) Preparing material schemes	<b>Group Discussion:</b> Encourage students to identify the materials needed for different construction phases <b>Demonstration:</b>	<b>The student should be able to:</b> <ul style="list-style-type: none"> <li>• Review the working drawings</li> <li>• Identify components</li> </ul>	Material scheme prepared accurately, aligning with project needs and timeline	<b>Detailed knowledge of: Method Used:</b> The student should explain methods for identifying materials, estimating quantities, and	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Sample construction project material lists</li> </ul>	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria		Knowledge Assessment	Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment			
			<p>Show students how to categorise and plan for materials in a construction project</p> <p><b>Practical work:</b> Guide students in preparing a material scheme for a project</p> <p><b>ICT-Based Learning:</b> Train students to use spreadsheet tools to organise and track material schemes</p> <p><b>Videos:</b> Use visual examples to demonstrate professional material planning processes</p>	<ul style="list-style-type: none"> <li>• Extract material information</li> <li>• Determine quantities</li> <li>• Classify materials</li> <li>• Develop a material scheme</li> </ul>		<p>scheduling deliveries</p> <p><b>Principles:</b> The student should explain the principles involved in preparing The student should explain the principles involved in preparing working schedule</p> <p><b>Theories:</b> The student should explain:</p> <ul style="list-style-type: none"> <li>• Material estimation techniques</li> <li>• Importance of timely material procurement in project efficiency</li> </ul>	<ul style="list-style-type: none"> <li>• Material estimation and procurement templates</li> <li>• Writing notebooks, pens, and calculators</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria		Knowledge Assessment	Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment			
						<b>Instantial Knowledge:</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>• Regulatory and safety standards for material handling and procurement</li> <li>• Ethical considerations in sourcing and procurement</li> </ul>		
	1.3. Preparing bill quantities (BOQ)	(a) Interpreting drawings	<b>Brainstorming:</b> Facilitate a session where students identify key elements of construction drawings  <b>Demonstration:</b> Show students how to read and interpret symbols,	The students should be able to: <ul style="list-style-type: none"> <li>• Accurately interpret different types of construction drawings</li> <li>• Identify and explain</li> </ul>	Drawings interpreted in compliance with design specifications and construction standards	<b>Knowledge evidence:</b> <b>Method used:</b> The students should explain methods like manual preparation and computer-aided BOQ preparation <b>Principles:</b>	The following tools, equipment and safety gear are to be available: The following tools, equipment and safety gear are to be available:	70

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria		Knowledge Assessment	Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment			
			<p>dimensions, and annotations on drawings</p> <p><b>Practical work:</b> Provide students with sample drawings to interpret and identify construction details</p> <p><b>Project-Based Approach:</b> Assign students to interpret drawings and prepare a construction plan</p> <p><b>Videos:</b> Use tutorials to enhance students' understanding of technical drawings</p>	symbols and annotations used in the drawings		<p>The student should explain the principles involved in interpreting drawings</p> <p><b>Theories:</b> The students should explain:</p> <ul style="list-style-type: none"> <li>• BOQ structure (preliminaries, works, summary)</li> <li>• Impact of BOQ on budgeting and cost control</li> <li>• Pricing techniques for labour, materials, and overheads</li> </ul> <p><b>Circumstantial Knowledge:</b> The students should explain:</p>	<ul style="list-style-type: none"> <li>• Organisational charts</li> <li>• Construction project plans and technical drawings</li> <li>• Whiteboards or flip charts for annotations</li> <li>• Helmets, gloves, and boots for site-related activities</li> <li>• Drawing instruments such as scales, rulers, and protractors</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	



Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria		Knowledge Assessment	Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment			
						<ul style="list-style-type: none"> <li>• Compliance with standards and regulations</li> <li>• Ethical practices in cost estimation</li> <li>• Coordination with design teams and clients</li> </ul>		
		(b) Estimate material quantities (BOQ)	<p><b>Group Work:</b> Guide students in collaboratively estimating material quantities for a given plan</p> <p><b>Demonstration:</b> Show students how to calculate quantities using formulas and specifications</p>	<p>The students should be able to:</p> <ul style="list-style-type: none"> <li>• Understand BOQ's purpose and components</li> <li>• Measure and calculate material quantities</li> <li>• Identify material types required</li> </ul>	Material quantities are estimated in compliance with the Bill of Quantities (BOQ) format and project requirements	<p><b>Knowledge evidence:</b> <b>Method used:</b> The students should explain methods for estimating material quantities</p> <p><b>Principles:</b> The student should explain the principles involved in estimating material</p>	<p>The following tools, equipment and safety gear are to be available:</p> <ul style="list-style-type: none"> <li>• Measuring tapes and rulers</li> <li>• Digital or manual calculators</li> <li>• Construction project plans and drawings</li> </ul>	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria		Knowledge Assessment	Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment			
			<p><b>Practical work:</b> Allow students to create a bill of quantities (BOQ) for a small project</p> <p><b>ICT-Based Learning:</b> Teach students to use software like Excel for material quantity estimation</p> <p><b>Videos:</b> Provide instructional videos to help students understand BOQ preparation techniques</p>	<ul style="list-style-type: none"> <li>• Use measurement units</li> <li>• Compile and present a clear BOQ</li> <li>• Understand the cost implications of estimates</li> </ul>		<p>quantities (BOQ)</p> <p><b>Theories:</b> The students should explain:</p> <ul style="list-style-type: none"> <li>• Unit rate analysis and its role in material quantity estimation</li> <li>• Conversion of drawings and specifications into measurable quantities</li> <li>• Importance of wastage allowances and contingencies in material estimation</li> </ul> <p><b>Circumstantial Knowledge:</b> The students should explain:</p>	<ul style="list-style-type: none"> <li>• Standard measurement guides (e.g., CESMM, SMM7)</li> <li>• Graph papers, notebooks, and pens</li> <li>• Helmets, gloves, and boots</li> <li>• Whiteboards or flip charts</li> <li>• Sample BOQs for practice</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria		Knowledge Assessment	Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment			
						<ul style="list-style-type: none"> <li>• Adherence to codes and standards for material estimation</li> <li>• Best practices in minimising material waste during estimation</li> <li>• Collaboration with stakeholders to validate estimated quantities</li> </ul>		
		(c) Estimating operation costs	<b>Brainstorming:</b> Engage students in identifying components of operation costs in construction  <b>Demonstration:</b> Show students how to calculate and allocate costs	The students should be able to: <ul style="list-style-type: none"> <li>• Identify specific cost elements</li> <li>• Calculate labour costs based on time and skill level</li> </ul>	Operation costs are estimated in compliance with project specifications and financial guidelines	<b>Knowledge evidence:</b> The students should explain manual and software-based cost estimation methods  <b>Principles:</b>	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Digital or manual calculators</li> </ul>	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria		Knowledge Assessment	Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment			
			for labour, equipment, and overheads <b>Practical work:</b> Guide students in estimating operation costs for a sample project <b>ICT-Based Learning:</b> Train students to use software for operation cost analysis <b>Questions and Answers:</b> Address students' challenges in cost estimation and allocation	<ul style="list-style-type: none"> <li>• Estimate material costs</li> <li>• Account for tools and equipment costs</li> <li>• Include overhead and indirect costs in estimates</li> <li>• Compile a detailed cost estimate</li> </ul>		The student should explain the principles involved in estimating operation costs <b>Theories:</b> The students should explain: <ul style="list-style-type: none"> <li>• Fixed and variable costs</li> <li>• Depreciation and maintenance cost calculations</li> <li>• Market impact on costs</li> </ul> <b>Circumstantial Knowledge:</b> The students should explain: <ul style="list-style-type: none"> <li>• Compliance with regulations</li> </ul>	<ul style="list-style-type: none"> <li>• Construction project plans and financial reports</li> <li>• Standard cost guides and reference manuals</li> <li>• Graph papers, notebooks, and pens</li> <li>• Whiteboards or flip charts for calculations and discussions</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria		Knowledge Assessment	Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment			
						<ul style="list-style-type: none"> <li>• Ethical cost estimation practices</li> <li>• Collaboration with finance teams</li> </ul>		
	1.4. Managing site	(a) Laying out site	<b>Think-Pair-Share:</b> Encourage students to discuss the importance of proper site layout in construction <b>Demonstration:</b> Show students how to mark boundaries, levels, and reference points on a site <b>Practical work:</b> Guide students to lay out a construction site using measuring	The students should be able to: <ul style="list-style-type: none"> <li>• Understand site layout principles</li> <li>• Measure and mark site boundaries</li> <li>• Establish reference points and lines</li> <li>• Use surveying tools</li> <li>• Identify key features (eg, access points, utilities)</li> </ul>	Site laid out in compliance with design specifications, safety standards, and construction regulations	<b>Knowledge evidence:</b> <b>Method used:</b> The students should explain methods for site layout <b>Principles:</b> The student should explain the principles involved in lay out site <b>Theories:</b> The students should explain: <ul style="list-style-type: none"> <li>• The role of benchmarks and reference</li> </ul>	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Measuring tapes and rulers</li> <li>• Pegs, strings, and hammers for boundary marking</li> <li>• Levels (e.g., spirit level, dumpy level) and plumb bobs</li> <li>• Total stations and GPS equipment</li> </ul>	70

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				Process Assessment	Services Assessment			
			tools <b>Field Visit:</b> Take students to observe site layout procedures on a professional project <b>Videos:</b> Use instructional videos to enhance students' understanding of site layout techniques	<ul style="list-style-type: none"> <li>• Create a layout plan for construction</li> </ul>		points in site layout <ul style="list-style-type: none"> <li>• Techniques for setting out key structural elements (eg, columns, walls)</li> </ul> <b>Circumstantial Knowledge:</b> The students should explain: <ul style="list-style-type: none"> <li>• Legal considerations in boundary marking</li> <li>• Importance of teamwork and communication during site layout</li> </ul>	<ul style="list-style-type: none"> <li>• Construction site plans and technical drawings</li> <li>• Graph papers, notebooks, and pens</li> <li>• Helmets, gloves, and boots for safety</li> <li>• Whiteboards or flip charts for site layout instructions</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	
		(b) Establishing site services	<b>Group Work:</b> <b>Facilitate group discussions where students identify essential site services like</b>	The students should be able to:	Site services established in compliance with project requirements, safety standards,	<b>Knowledge evidence:</b> <b>Method used:</b> The students should explain basic methods	The following tools, equipment and safety gear are to be available::	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria		Knowledge Assessment	Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment			
			<b>water, electricity, and waste management</b>  <b>Demonstration:</b> <b>Show students how to plan and implement site services for construction</b>  <b>Practical work:</b> <b>Guide students to establish basic site services in a simulated setting</b>  <b>Field Visit:</b> Take students to observe site service setup at a real construction project  <b>Videos:</b> Provide visual examples	<ul style="list-style-type: none"> <li>• Identify necessary site services</li> <li>• Plan service connections and access points</li> <li>• Ensure compliance with regulations</li> <li>• Coordinate with utility providers</li> <li>• Create a service distribution layout</li> </ul>	and construction regulations	for setting up site services <b>Principles:</b> The student should explain the principles involved in establishing site services <b>Theories:</b> The students should explain: <ul style="list-style-type: none"> <li>• Importance of site service planning in project efficiency</li> <li>• Safety standards for temporary utilities on construction sites</li> </ul> <b>Circumstantial Knowledge:</b> The students	<ul style="list-style-type: none"> <li>• Steel tape measure (30m)</li> <li>• Halk line</li> <li>• Marker pens</li> <li>• Brick trowels</li> <li>• Mortar boards</li> <li>• Spades</li> <li>• Spirit levels</li> <li>• Mixing pans</li> <li>• Hoes</li> <li>• Shovels</li> <li>• Hard helmets</li> <li>• Leather gloves</li> <li>• Rubber boots</li> <li>• N95 dust masks</li> <li>• Flexible hoses (25mm)</li> <li>• Water drums</li> <li>• Buckets (20L)</li> <li>• Wheelbarrows</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria		Knowledge Assessment	Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment			
			to help students understand site service management			should explain: <ul style="list-style-type: none"> <li>• Local regulations for temporary site services</li> <li>• Coordination with utility providers to ensure compliance and availability</li> </ul>		
		(c) Establishing purchasing, storage and issuing systems	<b>Brainstorming:</b> Engage students in identifying key elements of a purchasing, storage, and issuing system <b>Demonstration:</b> Show students how to organise and track materials using inventory management techniques	The students should be able to: <ul style="list-style-type: none"> <li>• Identify purchasing needs and sources</li> <li>• Develop a storage plan for materials</li> <li>• Implement an issuing system for inventory</li> </ul>	Purchasing, storage, and issuing systems established in compliance with inventory management practices, project requirements, and construction regulations	<b>Knowledge evidence:</b> <b>Method used:</b> The students should explain methods of creating purchase orders and maintaining procurement records Organising storage systems (eg, shelving, labelling) and	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Purchase order forms</li> <li>• Inventory management records</li> <li>• Material receipt books</li> <li>• Label printers</li> <li>• Barcode scanners</li> </ul>	



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				Process Assessment	Services Assessment			
			<b>Practical work:</b> Guide students to create a purchasing and storage plan for a project <b>ICT-Based Learning:</b> Train students to use software for managing material flow and records <b>Videos:</b> Use tutorials to show students professional practices in procurement and storage	<ul style="list-style-type: none"> <li>• Track inventory levels effectively</li> <li>• Maintain clear documentation for transactions</li> </ul>		Implementing issuing logs for tracking materials  <b>Principles:</b> The student should explain the principles involved in establishing purchasing, storage and issuing systems  <b>Theories:</b> The students should explain: <ul style="list-style-type: none"> <li>• Importance of cost control in procurement</li> <li>• Strategies for efficient storage to minimise waste and damage</li> </ul>	<ul style="list-style-type: none"> <li>• Hard helmets</li> <li>• Gloves</li> <li>• Safety boots</li> <li>• High-visibility vests</li> <li>• Storage racks and shelves</li> <li>• Lockable cabinets for valuable items</li> <li>• Pallet jacks</li> <li>• Forklifts (if needed)</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	

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				Process Assessment	Services Assessment	Knowledge Assessment		
						<b>Circumstantial Knowledge:</b> The students should explain: <ul style="list-style-type: none"> <li>• Adhering to procurement and storage regulations</li> <li>• Coordination between purchasing, storage, and construction teams</li> </ul>		
		(d) Supervising workers on site	<b>Brainstorming:</b> Engage students in identifying key responsibilities and best practices for supervising workers on a construction site  <b>Demonstration:</b> Show students how to	The students should be able to: <ul style="list-style-type: none"> <li>• Assign tasks to workers</li> <li>• Monitor work progress and quality</li> <li>• Provide guidance and</li> </ul>	Workers supervised on-site, ensuring compliance with project plans, safety standards, and construction regulations	<b>Knowledge evidence:</b> <b>Method used:</b> The students should explain different methods of supervising workers on-site <b>principles:</b> student should explain the	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Task allocation sheets</li> <li>• Daily work logs</li> </ul>	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria		Knowledge Assessment	Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment			
			<p>communicate effectively and delegate tasks to workers on-site</p> <p><b>Practical work:</b> Allow students to simulate supervision by assigning tasks to a team in a workshop or field activity</p> <p><b>Field Visit:</b> Arrange a site visit where students can observe professional supervision techniques in action</p> <p><b>Videos:</b> Use videos to show students examples</p>	<p>support as needed</p> <ul style="list-style-type: none"> <li>• Ensure adherence to safety protocols</li> <li>• Communicate expectations</li> <li>• Resolve conflicts</li> </ul>		<p>principles involved in supervising workers on site</p> <p><b>Theories:</b> The students should explain:</p> <ul style="list-style-type: none"> <li>• The effects of supervision on team performance</li> <li>• Leadership styles in on-site management</li> <li>• Conflict management approaches in a team setting</li> </ul> <p><b>Circumstantial Knowledge:</b> <b>Detailed knowledge about:</b></p> <ul style="list-style-type: none"> <li>• Compliance with labor laws and regulations</li> </ul>	<ul style="list-style-type: none"> <li>• Progress monitoring checklists</li> <li>• Communication tools (eg, walkie-talkies)</li> <li>• Hard helmets</li> <li>• Gloves</li> <li>• Safety boots</li> <li>• High-visibility vests</li> <li>• Site plans and drawings</li> <li>• Whiteboards or flip charts for instructions</li> <li>• First aid kits</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria		Knowledge Assessment	Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment			
			of effective site supervision and team management			<ul style="list-style-type: none"> <li>Ethical considerations in supervision practices</li> </ul>		
	1.5. Performing site survey	(a) Determining boundaries	<p><b>Think-Pair-Share:</b> Facilitate a discussion where students explore tools and methods for determining boundaries on a construction site</p> <p><b>Demonstration:</b> Show students how to use measuring tapes, total stations, and other equipment for boundary determination</p> <p><b>Practical work:</b> Guide students in marking boundaries for a simulated</p>	<p>The students should be able to:</p> <ul style="list-style-type: none"> <li>Identify property lines and boundaries</li> <li>Use surveying tools (eg, levelling instruments)</li> <li>Mark boundaries on-site</li> <li>Verify boundary information through documentation</li> <li>Communicate boundary</li> </ul>	Boundaries determined in compliance with survey standards, legal requirements, and project specifications	<p><b>Knowledge evidence:</b></p> <p><b>Method used:</b> The students should explain different techniques for establishing and marking boundaries</p> <p><b>Principles:</b> The student should explain the principles involved in determining boundaries</p> <p><b>Theories:</b> The students should explain:</p> <ul style="list-style-type: none"> <li>The role of boundary</li> </ul>	<p>The following tools, equipment and safety gear are to be available:</p> <p>Measuring tapes (30m or longer)</p> <ul style="list-style-type: none"> <li>Survey pegs and markers</li> <li>Chalk line or string line</li> <li>Compass or GPS device</li> <li>Spirit levels</li> <li>Hard helmets</li> <li>Gloves</li> <li>Safety boots</li> <li>High-visibility vests</li> <li>Site plans and topographical maps</li> </ul>	70

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria		Knowledge Assessment	Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment			
			construction project <b>Field Visit:</b> Take students to observe boundary marking at a professional site <b>Videos:</b> Provide video demonstrations to help students understand the importance and techniques of boundary determination	details to the team		determination in project planning • The impact of inaccurate boundary setting on project outcomes • The importance of stakeholder engagement in boundary definition <b>Circumstantial Knowledge:</b> <b>Detailed knowledge about:</b> • Legal implications of boundary determination • Ethical considerations	• Total station or theodolite • Whiteboards or flip charts for instructions • Computer • Internet • Projector	

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				Process Assessment	Services Assessment			
						in land use and property rights		
		(b) Determining benchmark and beacon	<p><b>Group Work:</b> Facilitate discussions where students identify the significance of benchmarks and beacons in construction projects</p> <p><b>Demonstration:</b> Show students how to establish benchmarks and beacons using levelling instruments</p> <p><b>Practical work:</b> Guide students to determine and set benchmarks and beacons in a workshop or on-site</p>	<p>The students should be able to:</p> <ul style="list-style-type: none"> <li>• Identify suitable locations for benchmarks and beacons</li> <li>• Establish accurate elevation points for benchmarks</li> <li>• Set up beacons for reference during surveying</li> <li>• Ensure benchmarks and beacons are clearly marked</li> </ul>	Benchmarks and beacons are determined in compliance with survey standards and project specifications	<p><b>Knowledge evidence:</b> <b>Method used:</b> The students should explain various techniques for establishing and utilizing benchmarks and beacons in construction</p> <p><b>Principles:</b> The student should explain the principles involved in determining benchmark and beacon</p> <p><b>Theories:</b> The students should explain:</p>	<p>The following tools, equipment and safety gear are to be available: Measuring tapes (30m or longer)</p> <ul style="list-style-type: none"> <li>• Survey pegs and markers</li> <li>• Chalk line or string line</li> <li>• Plumb bob</li> <li>• Spirit levels</li> <li>• Hard helmets</li> <li>• Gloves</li> <li>• Safety boots</li> <li>• High-visibility vests</li> <li>• Site plans and topographical maps</li> <li>• Total station or theodolite</li> </ul>	70

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria		Knowledge Assessment	Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment			
			<b>Field Visit:</b> Arrange visits for students to observe the setting of benchmarks and beacons in real projects  <b>Videos:</b> Use animations to illustrate benchmark and beacon determination techniques for students	<ul style="list-style-type: none"> <li>Document their locations and specifications</li> </ul>		<ul style="list-style-type: none"> <li>The role of benchmarks and beacons in project alignment and accuracy</li> <li>The impact of accurate benchmarks on construction quality</li> <li>The significance of technology in determining benchmarks and beacons</li> </ul> <b>Circumstantial Knowledge: Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>Legal requirements for benchmarks</li> </ul>	<ul style="list-style-type: none"> <li>Levelling instruments (e.g., dumpy level or automatic level)</li> <li>Whiteboards or flip charts for instructions</li> <li>Computer</li> <li>Internet</li> <li>Projector</li> </ul>	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria		Knowledge Assessment	Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment			
						and beacons in construction • Ethical considerations in surveying and land measurement practices		
		(c) Taking readings and booking	<b>Brainstorming:</b> Discuss with students the purpose and types of readings taken in construction surveying <b>Demonstration:</b> Show students how to use levelling equipment and record accurate readings <b>Practical work:</b> Guide students in taking readings and booking them	The students should be able to: • Use surveying instruments to take accurate readings • Record measurements systematically • Ensure data accuracy and consistency • Organise readings for easy reference	Readings taken and recorded in compliance with survey procedures and project requirements	<b>Knowledge evidence:</b> <b>Method used:</b> The students should explain the processes involved in measuring, recording, and booking data in construction projects <b>Principles:</b> The students should explain the following principles:	The following tools, equipment and safety gear are to be available: • Measuring tapes (30m or longer) • Survey notebooks and logbooks • Pencils and erasers for recording data • Spirit levels • Plumb bobs • Hard helmets • Gloves	



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			in a field notebook during a simulated activity <b>Field Visit:</b> Take students to observe professionals taking and booking readings on-site <b>Videos:</b> Provide video tutorials to enhance students' understanding of booking procedures	<ul style="list-style-type: none"> <li>• Document findings clearly in a logbook</li> </ul>		student should explain the principles involved in taking readings and booking <b>Theories:</b> The students should explain: <ul style="list-style-type: none"> <li>• The significance of data accuracy in project management</li> <li>• The role of technology in enhancing measurement and recording practices</li> <li>• The impact of effective data management on decision-making</li> </ul> <b>Circumstantial</b>	<ul style="list-style-type: none"> <li>• Safety boots</li> <li>• High-visibility vests</li> <li>• Levelling instruments (e.g., dumpy level, automatic level, or total station)</li> <li>• Tripods for levelling instruments</li> <li>• Whiteboards or flip charts for instructions</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	

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				Process Assessment	Services Assessment			
						<b>Knowledge:</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>• Compliance with industry standards for data recording and reporting</li> </ul>		
		(d) Booking levelling readings	<b>Group Discussion:</b> Discuss with students the importance of accurately booking levelling readings in construction  <b>Demonstration:</b> Show students the standard format for recording levelling readings  <b>Practical work:</b> Allow students to	The students should be able to: <ul style="list-style-type: none"> <li>• Perform levelling measurements using appropriate tools</li> <li>• Record levelling readings systematically and accurately</li> <li>• Maintain a clear and</li> </ul>	Levelling readings booked in compliance with standard surveying practices and project requirements	<b>Knowledge evidence:</b> <b>Method used:</b> The students should explain the process of booking levelling readings and the importance of consistency in documentation  <b>Principles:</b> Student should explain the principles involved in	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Survey notebooks and logbooks.</li> <li>• Pencils and erasers for recording readings.</li> <li>• Spirit levels.</li> <li>• Measuring tapes (30m or longer).</li> <li>• Plumb bobs.</li> </ul>	

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			<p>practice booking levelling readings during a workshop activity</p> <p><b>ICT-Based Learning:</b> Teach students to use digital tools for recording and analysing levelling readings</p> <p><b>Videos:</b> Provide visual examples to help students understand levelling and booking processes</p>	<p>organised logbook for documentation</p> <ul style="list-style-type: none"> <li>• Ensure consistency in recording techniques.</li> <li>• Interpret levelling data for further analysis</li> </ul>		<p>booking levelling readings</p> <p><b>Theories:</b> The students should explain:</p> <ul style="list-style-type: none"> <li>• The importance of levelling in construction and its impact on project outcomes</li> <li>• The relationship between accurate levelling readings and overall site safety.</li> <li>• The role of technology in improving the accuracy of levelling data.</li> </ul> <p><b>Circumstantial</b></p>	<ul style="list-style-type: none"> <li>• Hard helmets.</li> <li>• Gloves.</li> <li>• Safety boots.</li> <li>• High-visibility vests.</li> <li>• Levelling instruments (e.g., dumpy level, automatic level, or total station).</li> <li>• Tripods for levelling instruments.</li> <li>• Whiteboards or flip charts for instructions</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	

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				Process Assessment	Services Assessment	Knowledge Assessment		
						<b>Knowledge:</b> <b>Detailed knowledge about:</b> <ul style="list-style-type: none"> <li>• Compliance with surveying standards and best practices for recording readings.</li> <li>• Ethical considerations related to data accuracy and transparency in reporting levelling results.</li> </ul>		
		(e) Analysing data by HI and RF	<b>Think-Pair-Share:</b> Encourage students to discuss the Height of Instrument (HI) and Rise and Fall (RF) methods	The students should be able to: <ul style="list-style-type: none"> <li>• Calculate Height of Instrument (HI) from the</li> </ul>	Data analysed using Height of Instrument (HI) and Rise and Fall (RF) methods, ensuring compliance with	<b>Knowledge evidence:</b> <b>Method used:</b> The students should explain the procedures for calculating and analyzing	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Survey notebooks and logbooks.</li> </ul>	

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			<p>for data analysis</p> <p><b>Demonstration:</b> Show students how to calculate elevations and differences using HI and RF methods.</p> <p><b>Practical work:</b> Guide students in analysing data from levelling exercises using these methods</p> <p><b>ICT-Based Learning:</b> Train students to use spreadsheet tools for automating HI and RF calculations</p> <p><b>Questions and Answers:</b> Conduct a Q&amp;A session to address students' queries about common</p>	<p>benchmark and instrument setup</p> <ul style="list-style-type: none"> <li>• Determine Rise and Fall (RF) values based on levelling readings</li> <li>• Analyse the data using the Rise and Fall method to assess elevation changes</li> <li>• Interpret the results to evaluate site contours and levels</li> <li>• Document calculations and findings clearly for</li> </ul>	<p>surveying standards and project specifications</p>	<p>elevation data using the Rise and Fall method</p> <p><b>Principles:</b> The student should explain the principles involved in analysing data by HI and RF</p> <p><b>Theories:</b> The students should explain:</p> <ul style="list-style-type: none"> <li>• The role of HI and RF in levelling and establishing accurate site elevations</li> <li>• The impact of accurate data analysis on construction quality and safety</li> </ul>	<ul style="list-style-type: none"> <li>• Pencils, erasers, and calculators for manual calculations.</li> <li>• Data tables and templates for HI (Height of Instrument) and RF (Rise and Fall) methods.</li> <li>• Hard helmets.</li> <li>• Gloves.</li> <li>• Safety boots.</li> <li>• High-visibility vests.</li> <li>• Levelling instruments (e.g., dumpy level, automatic level, or total station).</li> </ul>	

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				Process Assessment	Services Assessment			
			errors in data analysis	future reference		<ul style="list-style-type: none"> <li>• The relationship</li> <li><b>Circumstantial Knowledge: Detailed knowledge about:</b></li> <li>• Compliance with surveying and engineering standards for data analysis.</li> <li>• Ethical considerations in reporting and interpreting elevation data accurately.</li> </ul>	<ul style="list-style-type: none"> <li>• Tripods for levelling instruments.</li> <li>• Whiteboards or flip charts for step-by-step data analysis demonstrations</li> <li>• . Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	
2.0. Constructing upper floors	2.1. Constructing upper floors	(a) Constructing formwork	<b>Brainstorming:</b> Discuss with students the types, materials, and purposes of formwork in construction <b>Demonstration:</b>	Students should be able to: <ul style="list-style-type: none"> <li>• Identify required materials for formwork</li> </ul>	Formwork constructed and safely in compliance with design specifications, safety standards	<b>Knowledge evidence:</b> <b>Method used:</b> The students should explain the procedures for constructing formwork for	The following tools, equipment and safety gear are to be available:: <ul style="list-style-type: none"> <li>• Hammers and nails.</li> </ul>	70

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			<p>Show students the step-by-step process of constructing formwork for various structural elements</p> <p><b>Practical work:</b> Guide students in constructing small-scale formwork in a workshop</p> <p><b>Field Visit:</b> Arrange visits for students to observe formwork assembly at a construction site.</p> <p><b>Videos:</b> Provide video demonstrations to help students visualise professional formwork</p>	<ul style="list-style-type: none"> <li>• Design formwork per specifications</li> <li>• Assemble formwork accurately</li> <li>• Ensure formwork is level and aligned</li> <li>• Inspect for safety before pouring concrete</li> </ul>		<p>concrete structures.</p> <p><b>Principles:</b> The student should explain the principles involved in constructing formwork</p> <p><b>Theories:</b> The students should explain:</p> <ul style="list-style-type: none"> <li>• Role of formwork in shaping concrete.</li> <li>• Impact on structural integrity and project efficiency.</li> </ul> <p><b>Circumstantial Knowledge:</b> <b>Knowledge about:</b> Material</p>	<ul style="list-style-type: none"> <li>• Handsaws and circular saws.</li> <li>• Measuring tapes and rulers.</li> <li>• Spirit levels.</li> <li>• Clamps and wrenches.</li> <li>• Hard helmets.</li> <li>• Gloves.</li> <li>• Safety boots.</li> <li>• Safety goggles.</li> <li>• Timber, plywood, or metal sheets for formwork.</li> <li>• Screws and fasteners.</li> <li>• Supporting props or scaffolding.</li> <li>• Whiteboards or flip charts for</li> </ul>	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria		Knowledge Assessment	Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment			
			construction techniques			selection for formwork. • Safe assembly and dismantling practices. • Ethical considerations in environmental impact.	construction guidelines	
		(b) Performing structural load calculation.	<b>Group Work:</b> Facilitate discussions where students identify factors influencing structural loads. <b>Demonstration:</b> Show students how to calculate live, dead, and environmental loads using standard formulas. <b>Practical work:</b>	Students should be able to: • Understand different load types (dead, live, wind, etc.). • Calculate total loads on masonry structures. • Apply building codes and safety factors.	Structural load calculations were performed accurately and in compliance with engineering principles and project specifications.	<b>Knowledge evidence:</b> <b>Method used:</b> The students should explain the procedures for calculating structural loads, including dead loads, live loads, and environmental loads. <b>Principles:</b> student should	The following tools, equipment and safety gear are to be available: • Basic structural analysis tools (e.g., beam calculators, load tables) • Drafting tools (e.g., rulers, protractors) • Load calculation	



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			<p>Allow students to calculate structural loads for a sample construction project.</p> <p><b>ICT-Based Learning:</b> Teach students to use structural analysis software for load calculations.</p> <p><b>Videos:</b> Use tutorials to explain complex load calculations to students.</p>	<ul style="list-style-type: none"> <li>Analyse load distribution in bricklaying.</li> </ul>		<p>explain the principles involved in performing structural load calculation.</p> <p><b>Theories:</b></p> <ul style="list-style-type: none"> <li>The students should explain:</li> <li></li> <li>The role of load factors in structural design.</li> <li>The impact of load calculations on material selection and structural integrity.</li> </ul> <p><b>Circumstantial Knowledge:</b></p> <p><b>Knowledge about:</b></p>	<p>worksheets or templates</p> <ul style="list-style-type: none"> <li>Access to structural load calculation manuals</li> <li>Safety gear (e.g., helmets, gloves)</li> <li>Whiteboards or flip charts</li> <li>Computer</li> <li>Internet</li> <li>Projector</li> </ul>	

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						<ul style="list-style-type: none"> <li>• Compliance with building codes and standards.</li> <li>• Ethical considerations in reporting and applying load calculations accurately.</li> </ul>		
		(c) Fixing conduit and drain pipes	<b>Brainstorming:</b> Engage students in identifying the materials and tools required for fixing conduits and drain pipes <b>Demonstration:</b> Show students how to fix conduits and pipes with proper alignment and sealing <b>Practical work:</b> Guide students in	The student should be able to: <ul style="list-style-type: none"> <li>• Fix conduit and drain pipes.</li> <li>• Prepare the working team for installation.</li> <li>• Identify necessary tools and materials for the task.</li> <li>• Ensure all connections</li> </ul>	Conduit and drain pipes fixed in as per design specifications and construction standards	<b>Knowledge evidence:</b> <b>Method used:</b> The students should explain the procedures for installing and securing conduit and drain pipes.  <b>Principles:</b> The student should explain the principles involved in	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Pipe cutters and hacksaws.</li> <li>• Measuring tapes and rulers.</li> <li>• Pipe wrenches and adjustable spanners.</li> <li>• Screwdrivers and drills.</li> </ul>	

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			installing conduits and drain pipes in a simulated environment <b>Field Visit:</b> Take students to observe professional pipe installation on-site <b>Videos:</b> Use instructional videos to demonstrate advanced pipe installation techniques for students	are secure and leak-free. • Observe safety protocols during installation.		fixing conduit and drain pipes. <b>Theories:</b> • The students should explain: • • The role of materials used in conduit and drain pipe installation. • The impact of proper installation on system efficiency and longevity. <b>Circumstantial Knowledge:</b> <b>Knowledge about:</b>  • Techniques for sealing and insulating pipes.	<ul style="list-style-type: none"> <li>Files and deburring tools.</li> <li>Hard helmets.</li> <li>Gloves.</li> <li>Safety boots.</li> <li>Safety goggles.</li> <li>PVC, metal, or conduit pipes.</li> <li>Pipe fittings (e.g., elbows, tees, couplings).</li> <li>Pipe clamps and fasteners.</li> <li>Whiteboards or flip charts for installation instructions</li> <li>Computer</li> <li>Internet</li> <li>Projector</li> </ul>	

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						<ul style="list-style-type: none"> <li>• Safety practices during installation and maintenance.</li> </ul>		
		(d) Laying concrete	<p><b>Think-Pair-Share:</b> Encourage students to explore the steps and tools involved in concrete laying</p> <p><b>Demonstration:</b> Show students how to prepare surfaces, mix, pour, and level concret.</p> <p><b>Practical work:</b> Allow students to lay and finish concrete for a small-scale project in the workshop</p> <p><b>Field Visit:</b></p>	<p>The student should be able to:</p> <ul style="list-style-type: none"> <li>• Prepare the site for concrete laying.</li> <li>• Measure and mix concrete to the appropriate consistency.</li> <li>• Lay concrete to required specifications and levels.</li> <li>• Use tools to smooth and finish the surface.</li> </ul>	Concrete laid uniformly as per design specifications, construction standards, and safety regulations	<p><b>Method used:</b> The students should explain the procedures for preparing and laying concrete, including mixing, pouring, and finishing</p> <p><b>Principles:</b> The student should explain the principles involved in Laying concrete</p> <p><b>Theories:</b> The students should explain:</p> <ul style="list-style-type: none"> <li>• The role of curing in</li> </ul>	<p>The following tools, equipment and safety gear are to be available:</p> <ul style="list-style-type: none"> <li>• Shovels and spades.</li> <li>• Trowels and floats (wooden and steel).</li> <li>• Measuring tapes.</li> <li>• Wheelbarrows.</li> <li>• Concrete vibrators.</li> <li>• Hard helmets.</li> <li>• Gloves.</li> <li>• Safety boots.</li> <li>• Safety goggles.</li> <li>• Dust masks.</li> </ul>	

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			Arrange site visits for students to observe large-scale concrete pouring and finishing <b>Videos:</b> Provide visual aids to help students understand concrete laying techniques	<ul style="list-style-type: none"> <li>Observe curing processes to ensure proper strength development</li> </ul>		achieving strength and durability <ul style="list-style-type: none"> <li>The impact of environmental factors on concrete setting and finishing.</li> </ul> <b>Circumstantial Knowledge:</b> <b>Knowledge about:</b> <ul style="list-style-type: none"> <li>Compliance with industry standards and specifications.</li> <li>Safety practices to prevent accidents during concrete placement.</li> </ul>	<ul style="list-style-type: none"> <li>Concrete mixing pan or concrete mixer.</li> <li>Batching boxes or weighing scales.</li> <li>Water hoses.</li> <li>Whiteboards or flip charts for mixing and laying instructions</li> <li>Computer</li> <li>Internet</li> <li>Projector</li> </ul>	
	2.2. Constructing staircase	(a) Constructing formwork	<b>Brainstorming:</b> Facilitate discussions where students explore	The student should be able to:	Formwork constructed in compliance with structural design	<b>Knowledge evidence:</b>  <b>Method used:</b>	The following tools, equipment and safety gear are to be	105

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			<p>the importance of formwork in construction</p> <p><b>Demonstration:</b> Show students how to construct formwork for beams, columns, and slabs</p> <p><b>Practical work:</b> Guide students in building formwork for a small project</p> <p><b>Project-Based Approach:</b> Assign students to design and construct formwork for a specified structural element</p> <p><b>Videos:</b> Use visual demonstrations to illustrate advanced</p>	<ul style="list-style-type: none"> <li>• Construct formwork for the staircase.</li> <li>• Measure and cut materials accurately for formwork.</li> <li>• Assemble formwork securely to maintain shape during concrete pouring.</li> <li>• Ensure formwork is level and aligned correctly.</li> <li>• Reinforce formwork to prevent movement during the curing process.</li> </ul>	specifications and construction standards	<p>The students should explain the procedures for designing and constructing formwork for staircases</p> <p><b>Principles:</b> The student should explain the principles involved in constructing formwork</p> <p><b>Theories:</b></p> <ul style="list-style-type: none"> <li>• The students should explain:</li> <li>• The role of formwork in shaping staircases and ensuring safety during construction.</li> <li>• The impact of quality</li> </ul>	<p>available</p> <ul style="list-style-type: none"> <li>• Hammers</li> <li>• Nails</li> <li>• Handsaws</li> <li>• Circular saws</li> <li>• Measuring tapes</li> <li>• Rulers</li> <li>• Spirit levels</li> <li>• Clamps</li> <li>• Wrenches</li> <li>• Hard helmets</li> <li>• Gloves</li> <li>• Safety boots</li> <li>• Safety goggles</li> <li>• Timber</li> <li>• Plywood</li> <li>• Metal sheets for formwork</li> <li>• Screws</li> <li>• Fasteners</li> <li>• Supporting props</li> <li>• Scaffolding</li> <li>• Whiteboards</li> </ul>	

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			formwork techniques for students			<p>formwork on the final appearance and functionality of the staircase.</p> <p><b>Circumstantial Knowledge:</b></p> <p><b>Knowledge about:</b></p> <ul style="list-style-type: none"> <li>• Selection of materials suitable for staircase formwork.</li> <li>• Safety practices during assembly and dismantling of formwork.</li> </ul>	<ul style="list-style-type: none"> <li>• Flip charts</li> </ul>	
		(b) Fixing reinforcements	<p><b>Group Discussion:</b></p> <p>Discuss with students the importance of reinforcement in</p>	<p>The student should be able to:</p> <ul style="list-style-type: none"> <li>• Identify required</li> </ul>	Reinforcements fixed in compliance with design specifications and construction	<p><b>Knowledge evidence:</b></p> <p><b>Method used:</b></p> <p>The students should explain</p>	<p>The following tools, equipment and safety gear are to be available:</p> <ul style="list-style-type: none"> <li>• Rebar cutters</li> </ul>	

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			<p>concrete structures</p> <p><b>Demonstration:</b> Show students how to cut, bend, and fix reinforcements according to design specifications</p> <p><b>Practical work:</b> Guide students in fixing reinforcements for a small-scale beam or slab in a workshop</p> <p><b>Field Visit:</b> Take students to observe reinforcement fixing at a construction site</p>	<p>reinforcements</p> <ul style="list-style-type: none"> <li>• Measure and cut reinforcements</li> <li>• Position and secure reinforcements in formwork.</li> <li>• Ensure proper spacing according to specifications.</li> </ul>	standards.	<p>the procedures for placing and securing reinforcement bars (rebar) in concrete structures.</p> <p><b>Principles:</b> The student should explain the principles involved in fixing reinforcements</p> <p><b>Theories:</b></p> <ul style="list-style-type: none"> <li>• The students should explain:</li> <li>• The role of reinforcement in enhancing the tensile strength of concrete.</li> </ul>	<ul style="list-style-type: none"> <li>• Rebar benders</li> <li>• Rebar tying tools (manual or automatic)</li> <li>• Measuring tapes</li> <li>• Chalk lines</li> <li>• Pliers</li> <li>• Wire cutters</li> <li>• Hammers</li> <li>• Levels</li> <li>• Wrenches</li> <li>• Hard helmets</li> <li>• Gloves</li> <li>• Safety boots</li> <li>• Safety goggles</li> <li>• High-visibility vests</li> <li>• Reinforcement bars (rebars)</li> <li>• Binding wire</li> <li>• Spacer blocks</li> <li>• Bar supports</li> <li>• Whiteboards or flip charts for instructions</li> </ul>	



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			<b>Videos:</b> Provide video tutorials to demonstrate reinforcement techniques for students			<ul style="list-style-type: none"> <li>• The impact of reinforcement placement on overall structural integrity.</li> </ul> <b>Circumstantial Knowledge:</b> <b>Knowledge about:</b> <ul style="list-style-type: none"> <li>• Techniques for tying and securing rebar effectively.</li> <li>• Safety practices to prevent accidents during reinforcement installation.</li> </ul>	<ul style="list-style-type: none"> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	
		(c) Laying concrete	<b>Brainstorming:</b> Engage students in discussing the design and structural	The student should be able to:	Concrete laid evenly, ensuring compliance with structural design,	<b>Knowledge evidence:</b>  <b>Method used:</b> The students	The following tools, equipment and safety gear are to be available:	

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			requirements of staircases, focusing on the role of concrete in strength and durability <b>Demonstration:</b> Show students the step-by-step process of laying concrete for a staircase, including formwork preparation, reinforcement placement, and pouring techniques <b>Practical work:</b> Guide students in constructing and concreting a small-scale staircase model in a workshop or training area	<ul style="list-style-type: none"> <li>• Prepare the site for concrete laying.</li> <li>• Mix concrete to the correct consistency.</li> <li>• Pour concrete evenly into the formwork.</li> <li>• Use tools to smooth and finish the surface.</li> <li>• Ensure proper curing of the concrete.</li> </ul>	construction standards, and safety regulations	should explain the procedures for preparing, mixing, pouring, and finishing concrete.  <b>Principles:</b> The student should explain the principles involved in laying concrete <b>Theories:</b> The students should explain: <ul style="list-style-type: none"> <li>• The role of curing in concrete hardening and strength development.</li> <li>• The effects of environmental conditions on</li> </ul>	<ul style="list-style-type: none"> <li>• Concrete mixers (portable or truck-mounted)</li> <li>• Wheelbarrows for transporting concrete</li> <li>• Shovels and spades for placing concrete</li> <li>• Concrete rakes (come-alongs) for spreading</li> <li>• Screeds for leveling</li> <li>• Bull floats for initial smoothing</li> <li>• Hand trowels and floats for finishing</li> </ul>	

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			<b>Field Visit:</b> Arrange visits for students to observe professionals laying concrete for staircases at a construction site <b>Project-Based Approach:</b> Assign students to design and lay concrete for a staircase as part of a simulated construction project, ensuring they follow proper procedures and safety measures <b>ICT-Based Learning:</b> Teach students to use construction software to design and plan staircase			concrete setting and finishing processes. <b>Circumstantial Knowledge about:</b> <ul style="list-style-type: none"> <li>• Compliance with industry standards and project specifications.</li> <li>• Safety measures to prevent hazards during concrete pouring and finishing activities.</li> </ul>	<ul style="list-style-type: none"> <li>• Edgers and groovers for joint work</li> <li>• Concrete vibrators for consolidation</li> <li>• Curing blankets or plastic sheeting for curing process</li> <li>• Hard helmets</li> <li>• Gloves</li> <li>• Safety boots</li> <li>• Safety goggles</li> <li>• High-visibility vests</li> <li>• Dust masks or respirators</li> <li>• measuring tapes and rulers</li> <li>• Formwork materials (e.g., wood or metal forms)</li> </ul>	

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			concrete laying, including volume calculations and material estimates				<ul style="list-style-type: none"> <li>• Reinforcement materials (e.g., rebar or mesh)</li> <li>• Water source and hoses for mixing and curing</li> <li>• Whiteboards or flip charts for instructions</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	
		(d) Fixing balusters/hand rails	<b>Brainstorming:</b> Engage students in discussing the purpose and types of balusters and handrails used in construction  <b>Demonstration:</b> Show students the proper methods	The student should be able to: <ul style="list-style-type: none"> <li>• Select appropriate balusters and handrails.</li> <li>• Measure and mark positions accurately.</li> </ul>	Balusters and handrails fixed securely in compliance with design specifications, safety standards, and construction regulations.	<b>Knowledge evidence:</b>  <b>Method used:</b> The students should explain the procedures for installing balusters and handrails securely.	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Measuring tape</li> <li>• Level</li> <li>• Drill with appropriate bits</li> </ul>	

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			<p>for measuring, aligning, and fixing balusters and handrails</p> <p><b>Practical work:</b> Allow students to fix balusters and handrails on a small-scale staircase or balcony</p> <p><b>Field Visit:</b> Take students to observe professionals installing balusters and handrails at a site</p> <p><b>Videos:</b> Provide students with video tutorials</p>	<ul style="list-style-type: none"> <li>Securely attach balusters and handrails to the staircase.</li> <li>Ensure stability and alignment of the installed components.</li> <li>Follow safety standards during installation.</li> </ul>		<p><b>Principles:</b> The student should explain the principles involved in fixing balusters/handrails.</p> <p><b>Theories:</b> The students should explain:</p> <ul style="list-style-type: none"> <li>The role of balusters and handrails in providing safety and support.</li> <li>The impact of materials and finishes on durability and maintenance.</li> </ul> <p><b>Circumstantial Knowledge:</b> <b>Knowledge</b></p>	<ul style="list-style-type: none"> <li>Screwdrivers</li> <li>Saw (hand saw or mitre saw)</li> <li>Rubber mallet</li> <li>Chisels</li> <li>Clamps</li> <li>Wrenches</li> <li>Allen keys</li> <li>Adhesive (wood glue or epoxy)</li> <li>Sandpaper or sanding block</li> <li>Hard helmets</li> <li>Gloves</li> <li>Safety boots</li> <li>Safety goggles</li> <li>Dust masks</li> <li>Balusters (wooden or metal)</li> <li>Handrails</li> <li>Newel posts</li> <li>Baluster shoes (if applicable)</li> </ul>	

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						<b>about:</b> <ul style="list-style-type: none"> <li>• Tools and techniques for accurate installation and securing of handrails and balusters.</li> <li>• Safety practices to prevent injuries during installation.</li> </ul>	<ul style="list-style-type: none"> <li>• Fasteners (screws, nails, brackets)</li> <li>• Finishing materials (paint, stain, varnish)</li> <li>• Whiteboards or flip charts for instructions</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	
	2.3. Constructing shores	(a) Constructing racking and rider shores	<b>Think-Pair-Share:</b> Facilitate a session where students discuss the purpose and applications of racking and rider shores.  <b>Demonstration:</b> Show students how to construct	The student should be able to: <ul style="list-style-type: none"> <li>• Interpret working drawings for shoring construction</li> <li>• Prepare shoring</li> </ul>	Racking and rider shores constructed and securely in compliance with design specifications, safety standards, and construction regulations	<b>Knowledge evidence:</b> <b>Method used:</b> The students should explain the procedures for constructing racking and rider shores to support structures during construction.	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Measuring tapes (30m or longer)</li> <li>• Hammers</li> <li>• Handsaws and circular saws</li> <li>• Spirit levels</li> </ul>	105

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			<p>and position racking and rider shores for structural support</p> <p><b>Practical work:</b> Guide students in building racking and rider shores in a workshop</p> <p><b>Field Visit:</b> Arrange site visits for students to observe the construction of shoring systems</p> <p><b>Videos:</b> Use visual aids to demonstrate best practices for constructing shoring systems for students</p>	<p>members to specifications</p> <ul style="list-style-type: none"> <li>• Set out shoring accurately at designated locations</li> <li>• Install shoring members securely</li> <li>• Reinforce shoring for added stability</li> <li>• Dismantle shoring safely after use</li> <li>• Clean the work area post-construction.</li> <li>• Store tools properly for future use</li> </ul>		<p><b>Principles:</b> The student should explain the principles involved in constructing racking and rider shores.</p> <p><b>Theories:</b> The students should explain:</p> <ul style="list-style-type: none"> <li>• The role of racking and rider shores in preventing structural failure during construction.</li> <li>• The impact of soil conditions and environmental factors on</li> </ul>	<ul style="list-style-type: none"> <li>• Plumb bobs</li> <li>• Chalk lines</li> <li>• Wrenches</li> <li>• Screwdrivers</li> <li>• Drills with appropriate bits</li> <li>• Clamps</li> <li>• Hard helmets</li> <li>• Gloves</li> <li>• Safety boots</li> <li>• High-visibility vests</li> <li>• Safety goggles</li> <li>• Timber beams and planks for rakers and wall plates</li> <li>• Needles (horizontal supports)</li> <li>• Cleats and bracing materials</li> <li>• Sole plates</li> </ul>	

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						shoring effectiveness. <b>Circumstantial Knowledge:</b> <b>Knowledge about:</b> <ul style="list-style-type: none"> <li>• Materials and tools required for constructing effective shores.</li> <li>• Safety measures to mitigate risks associated with working at heights and heavy loads.</li> </ul>	<ul style="list-style-type: none"> <li>• Nails, screws, and fasteners</li> <li>• Scaffolding components</li> <li>• Whiteboards or flip charts for instructional purposes</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	
		(b) Constructing flying shore	<b>Brainstorming:</b> Engage students in exploring the uses and materials for constructing flying shores.	The student should be able to: <ul style="list-style-type: none"> <li>• Understand the purpose of flying shores.</li> </ul>	Flying shore constructed and securely as per design specifications, and safety standards.	<b>Knowledge evidence:</b> <b>Method used:</b> The students should explain the procedures for constructing	The following tools, equipment and safety gear are to be available:	



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			<p><b>Demonstration:</b> Show students how to assemble flying shores to support walls during construction</p> <p><b>Practical work:</b> Guide students in constructing small-scale flying shores in a workshop</p> <p><b>Field Visit:</b> Take students to observe flying shore installation on professional construction projects</p> <p><b>Videos:</b> Provide video tutorials to help students</p>	<ul style="list-style-type: none"> <li>• Interpret working drawings for construction.</li> <li>• Measure and cut materials accurately.</li> <li>• Assemble and install flying shores for support.</li> <li>• Reinforce for stability and safety.</li> <li>• Safely dismantle after use.</li> <li>• Clean the work area and store tools properly</li> </ul>		<p>flying shores to support walls or structures temporarily.</p> <p><b>Principles:</b> The student should explain the principles involved in constructing flying shore</p> <p><b>Theories:</b> The students should explain:</p> <ul style="list-style-type: none"> <li>• The role of flying shores in preventing structural collapse during construction or renovation.</li> <li>• The effects of environmental conditions on</li> </ul>	<ul style="list-style-type: none"> <li>• Measuring tapes (30m or longer)</li> <li>• Hammers</li> <li>• Handsaws and circular saws</li> <li>• Spirit levels</li> <li>• Plumb bobs</li> <li>• Chalk lines</li> <li>• Wrenches</li> <li>• Screwdrivers</li> <li>• Drills with appropriate bits</li> <li>• Clamps</li> <li>• Hard helmets</li> <li>• Gloves</li> <li>• Safety boots</li> <li>• High-visibility vests</li> <li>• Safety goggles</li> <li>• Timber beams and planks for rakers and wall plates</li> </ul>	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria		Knowledge Assessment	Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment			
			understand the design and installation of flying shores			the performance of flying shores. <b>Circumstantial Knowledge:</b> <b>Knowledge about:</b> <ul style="list-style-type: none"> <li>• Selection of materials suitable for constructing flying shores</li> <li>• Safety practices to prevent accidents during the installation and use of flying shores</li> </ul>	<ul style="list-style-type: none"> <li>• Needles (horizontal supports)</li> <li>• Cleats and bracing materials</li> <li>• Sole plates</li> <li>• Nails, screws, and fasteners</li> <li>• Scaffolding components</li> <li>• Whiteboards or flip charts for instructional purposes.</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	
		(c) Constructing dead shores	<b>Group Discussion:</b> Facilitate a session where students identify situations requiring dead	The student should be able to: <ul style="list-style-type: none"> <li>• Understand dead shores.</li> </ul>		<b>Knowledge evidence:</b>  <b>Method used:</b> The students should explain the procedures	The following tools, equipment and safety gear are to be available:	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria		Knowledge Assessment	Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment			
			shores and their structural benefits <b>Demonstration:</b> Show students the step-by-step process of constructing dead shores for temporary support <b>Practical work:</b> Guide students in building dead shores for a small-scale structure <b>Field Visit:</b> Arrange visits for students to observe professionals constructing dead shores <b>Videos:</b> Provide visual demonstrations to help students	<ul style="list-style-type: none"> <li>• Interpret working drawings.</li> <li>• Measure and cut materials.</li> <li>• Assemble and install shores.</li> <li>• Ensure stability.</li> <li>• Dismantle safely and clean up.</li> </ul>		for constructing dead shores.  <b>Principles:</b> The student should explain the principles involved in constructing dead shores  <b>Circumstantial Knowledge:</b> <b>Knowledge about:</b> <ul style="list-style-type: none"> <li>• Materials and tools needed.</li> <li>• Safety measures for working under support.</li> </ul>	<ul style="list-style-type: none"> <li>• Measuring tapes (30m or longer)</li> <li>• Spirit levels</li> <li>• Plumb bobs</li> <li>• Hammers</li> <li>• Saws (hand saws or circular saws)</li> <li>• Drills and bits</li> <li>• Wrenches</li> <li>• Screwdrivers</li> <li>• Chalk lines</li> <li>• Pencils and markers</li> <li>• Hard helmets</li> <li>• Gloves</li> <li>• Safety boots</li> <li>• Safety goggles</li> <li>• High-visibility vests</li> <li>• Timber beams and posts for shores</li> </ul>	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria		Knowledge Assessment	Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment			
			learn the techniques of dead shore construction				<ul style="list-style-type: none"> <li>• Needles (horizontal supports)</li> <li>• Sole plates</li> <li>• Bracing materials</li> <li>• Nails and screws</li> <li>• Ladders or scaffolding</li> <li>• Whiteboards or flip charts for instructions</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	
3.0. Constructing fireplace and flues	3.1. Constructing fireplace and chimney breast	(a) Constructing fireplace	<b>Brainstorming:</b> Facilitate a session where students discuss the components and functions of a fireplace  <b>Demonstration:</b> Show students the	The student should be able to: <ul style="list-style-type: none"> <li>• Interpret working drawings</li> <li>• Prepare tools and materials</li> </ul>	Fireplace constructed in as per design specifications, and safety standards	<b>Knowledge evidence:</b>  <b>Method used:</b> The students should explain the procedures for constructing a fireplace.	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Measuring tape</li> <li>• Level</li> <li>• Masonry trowel</li> </ul>	105

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				Process Assessment	Services Assessment			
			<p>process of laying bricks and aligning components to construct a fireplace</p> <p><b>Practical work:</b> Guide students in building a small-scale fireplace in a workshop</p> <p><b>Field Visit:</b> Take students to observe the construction of fireplaces in real projects</p> <p><b>Videos:</b> Use video tutorials to help students visualise the techniques and materials for</p>	<ul style="list-style-type: none"> <li>• Set up fireplace structure</li> <li>• Lay bricks</li> <li>• Construct chimney</li> <li>• Perform curing</li> <li>• Clean and store tools</li> <li>• Maintain clean work area</li> </ul>		<p><b>Principles:</b> The student should explain the principles involved in constructing fireplace</p> <p><b>Theories:</b> The students should explain:</p> <ul style="list-style-type: none"> <li>• Role of the fireplace in heating and aesthetics.</li> <li>• Impact of materials on heat retention and safety.</li> </ul> <p><b>Circumstantial Knowledge:</b> <b>Knowledge about:</b></p> <ul style="list-style-type: none"> <li>• Materials and tools required</li> </ul>	<ul style="list-style-type: none"> <li>• Brick hammer</li> <li>• Chisels</li> <li>• Circular saw with masonry blade</li> <li>• Drill with masonry bits</li> <li>• Wheelbarrow for mixing mortar</li> <li>• Shovels and hoes</li> <li>• Buckets for water and mortar</li> <li>• Hard helmets</li> <li>• Safety goggles</li> <li>• Gloves</li> <li>• Safety boots</li> <li>• Dust masks or respirators</li> <li>• Hearing protection (if using power tools)</li> </ul>	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria		Knowledge Assessment	Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment			
			fireplace construction			for construction. • Safety measures during installation and use.	<ul style="list-style-type: none"> <li>• Firebricks</li> <li>• Heat-resistant mortar</li> <li>• Dampers</li> <li>• Flue liners</li> <li>• Chimney caps</li> <li>• Scaffolding or ladders</li> <li>• Whiteboards or flip charts for instructional purposes</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	
		(b) Constructing chimney breast and decorating	<b>Think-Pair-Share:</b> Encourage students to discuss the purpose and design considerations of a chimney breast.	The student should be able to: <ul style="list-style-type: none"> <li>• Interpret design specifications</li> <li>• Prepare tools and materials</li> </ul>	Chimney breast constructed and decorated as per design specifications, aesthetic requirements, and construction standards.	<b>Knowledge evidence:</b>  <b>Method used:</b> The students should explain the procedures for constructing a chimney breast and applying	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Batch box.</li> <li>• Shovel</li> <li>• Mortar pan.</li> <li>• Square.</li> <li>• Brick trowel.</li> </ul>	

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				Process Assessment	Services Assessment			
			<p><b>Demonstration:</b> Show students how to construct a chimney breast, including alignment and finishing techniques</p> <p><b>Practical work:</b> Guide students in constructing and decorating a small-scale chimney breast</p> <p><b>Field Visit:</b> Take students to observe professionals constructing chimney breasts on-site</p> <p><b>Videos:</b> Provide instructional</p>	<ul style="list-style-type: none"> <li>• Build chimney breast structure</li> <li>• Ensure proper alignment and level</li> <li>• Apply finishing techniques</li> <li>• Decorate with chosen materials</li> <li>• Perform quality checks</li> <li>• Clean work area and tools</li> </ul>		<p>decorative finishes.</p> <p><b>Principles:</b> The student should explain the principles involved in constructing chimney breast and decorating</p> <p><b>Theories:</b> The students should explain:</p> <ul style="list-style-type: none"> <li>• Role of the chimney breast in ventilation and aesthetics.</li> <li>• Impact of design on functionality and style.</li> </ul> <p><b>Circumstantial Knowledge:</b> <b>Knowledge</b></p>	<ul style="list-style-type: none"> <li>• Manila line.</li> <li>• Water tank.</li> <li>• Wheel barrow.</li> <li>• Straight edge.</li> <li>• Gloves.</li> <li>• Spirit level.</li> <li>• Tape measure.</li> <li>• Painting trowel.</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria		Knowledge Assessment	Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment			
			videos to help students understand decoration and finishing techniques			<b>about:</b> <ul style="list-style-type: none"> <li>• Materials and tools for construction and decoration.</li> <li>• Safety measures during construction and finishing processes.</li> </ul>		
	3.2. Constructing chimney flues and fix fireplace appliances	(a) Constructing chimney flues	<b>Group Work:</b> Facilitate group discussions where students identify the design and materials required for chimney flues <b>Demonstration:</b> Show students the process of constructing chimney flues, including proper alignment and	The student should be able to: <ul style="list-style-type: none"> <li>• Interpret design specifications</li> <li>• Prepare tools and materials</li> <li>• Construct flue liners</li> <li>• Ensure proper alignment and sizing</li> </ul>	Chimney flues constructed in compliance with design specifications, safety standards, and construction regulations.	<b>Knowledge Evidence:</b> <b>Method Used:</b> The students should explain the procedures for constructing chimney flues and fixing fireplace appliances. <b>Principles:</b> The student should explain	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Batch box.</li> <li>• Shovel</li> <li>• Mortar pan.</li> <li>• Square.</li> <li>• Brick trowel.</li> <li>• Manila line.</li> <li>• Water tank.</li> <li>• Wheelbarrow.</li> <li>• Straight edge.</li> </ul>	105



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				Process Assessment	Services Assessment			
			ventilation <b>Practical work:</b> Guide students in constructing chimney flues using bricks or prefabricated components <b>Field Visit:</b> Take students to observe professional chimney flue construction. <b>Videos:</b> Provide video tutorials to enhance students' understanding of chimney flue construction	<ul style="list-style-type: none"> <li>• Use mortar and materials</li> <li>• Integrate with chimney breast</li> <li>• Perform quality checks</li> <li>• Clean work area and tools</li> </ul>		the principles involved in constructing chimney flues <b>Theories:</b> The students should explain: <ul style="list-style-type: none"> <li>• Role of flues in smoke ventilation.</li> <li>• Impact of design on safety and aesthetics.</li> </ul> <b>Circumstantial Knowledge:</b> <b>Knowledge about:</b> <ul style="list-style-type: none"> <li>• Materials and tools for construction and installation.</li> <li>• Safety measures</li> </ul>	<ul style="list-style-type: none"> <li>• Gloves.</li> <li>• Spirit level.</li> <li>• Tape measure.</li> <li>• Painting trowel</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria		Knowledge Assessment	Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment			
						during the processes.		
		(b) Fixing heat appliances	<b>Brainstorming:</b> Engage students in identifying different types of heat appliances and their applications <b>Demonstration:</b> Show students the installation process for heat appliances such as fireplaces and stoves <b>Practical work:</b> Guide students in fixing heat appliances in a simulated environment <b>Field Visit:</b> Arrange visits for students to observe	The student should be able to: <ul style="list-style-type: none"> <li>• Interpret installation specifications.</li> <li>• Prepare tools and materials.</li> <li>• Secure appliances to the structure.</li> <li>• Connect flues and vents properly.</li> <li>• Ensure proper clearances and safety measures.</li> <li>• Perform finishing touches around appliances.</li> </ul>	Heat appliances fixed securely in compliance with manufacturer guidelines, safety standards, and construction regulations.	<b>Knowledge Evidence:</b> Student should explain procedures for fixing heat appliances to chimney flues. <b>Principles:</b> The student should explain the principles involved in fixing heat appliances <b>Theories:</b> The students should explain: <ul style="list-style-type: none"> <li>• Role of heat appliances in home heating and comfort.</li> </ul>	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Measuring tape</li> <li>• Spirit level</li> <li>• Masonry drill bits</li> <li>• Hammer drill</li> <li>• Chisels</li> <li>• Trowels</li> <li>• Screwdrivers</li> <li>• Wrenches</li> <li>• Caulking gun</li> <li>• Utility knife</li> <li>• Hard helmets</li> <li>• Safety goggles</li> <li>• Gloves</li> <li>• Safety boots</li> <li>• Dust masks or respirators</li> </ul>	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria		Knowledge Assessment	Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment			
			professionals installing heat appliances <b>Videos:</b> Use videos to help students understand safety and efficiency considerations during installation	<ul style="list-style-type: none"> <li>• Clean tools and store.</li> <li>• Clean working area</li> </ul>		<ul style="list-style-type: none"> <li>• Impact of installation design on performance and safety. <b>Circumstantial Knowledge:</b> <b>Knowledge about:</b></li> <li>• Tools and materials required for appliance installation.</li> <li>• Safety measures to follow during the installation process.</li> </ul>	<ul style="list-style-type: none"> <li>• Hearing protection (if using power tools)</li> <li>• Heat appliance (e.g., stove, fireplace insert)</li> <li>• Chimney or flue system components</li> <li>• Heat-resistant mortar</li> <li>• Fireproof insulation materials</li> <li>• Fasteners and brackets suitable for high temperatures</li> <li>• Sealants rated for heat exposure</li> <li>• Whiteboards or flip charts</li> </ul>	

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				Process Assessment	Services Assessment			
							for instructional purposes <ul style="list-style-type: none"> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	
4.0. Performing external finishing and landscaping	4.1. Constructing surface drainage	(a) Planning for surface water removal	<b>Think-Pair-Share:</b> Facilitate a session where students discuss the importance of surface water removal and drainage systems <b>Demonstration:</b> Show students how to design and plan surface water drainage systems <b>Practical work:</b> Guide students in planning and laying out a drainage system for surface water removal <b>Field Visit:</b> Take	The student should be able to: <ul style="list-style-type: none"> <li>• Assess site drainage needs.</li> <li>• Interpret drainage plans and specifications.</li> <li>• Identify water flow paths.</li> <li>• Select drainage methods and materials.</li> <li>• Design drainage layout to</li> </ul>	Surface water removal planned in conformance with drainage design, environmental standards	<b>Knowledge Evidence:</b> <b>Method Used:</b> The students should explain procedures for planning surface water removal systems.  <b>Principles:</b> The student should explain the principles involved in planning for surface water removal <b>Theories:</b> The students	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Measuring tapes and rulers</li> <li>• Laser levels for accurate slope measurement</li> <li>• Drafting tools for creating drainage plans</li> <li>• Surveying equipment (e.g., total station)</li> </ul>	140

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			students to observe drainage planning and implementation on construction sites <b>Videos:</b> Provide instructional videos to enhance students' understanding of surface water management	prevent pooling. • Ensure compliance with local regulations		should explain:  • Role of drainage in landscape management. • Impact of design on water flow. <b>Circumstantial Knowledge:</b> <b>Knowledge about:</b>  • Materials and tools for drainage systems. • Safety measures during installation.	<ul style="list-style-type: none"> <li>• Hard helmets</li> <li>• Safety boots</li> <li>• High-visibility vests</li> <li>• Gloves</li> <li>• Safety goggles</li> <li>• Topographical maps and site plans</li> <li>• Whiteboards or flip charts for instructional purposes</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	
		(b) Constructing open and closed	<b>Brainstorming:</b> Engage students in identifying materials and	The student should be able to:	Open and closed channels for rainwater constructed in	<b>Knowledge Evidence:</b> Understanding of channel	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		Knowledge Assessment	Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment			
		channels for rainwater	<p>designs for open and closed rainwater channels</p> <p><b>Demonstration:</b> Show students how to construct open and closed channels with proper gradients and alignment</p> <p><b>Practical work:</b> Guide students in constructing rainwater channels in a workshop or outdoor setting.</p> <p><b>Field Visit:</b> Arrange site visits for students to observe professionals building rainwater channels</p> <p><b>Videos:</b> Provide</p>	<ul style="list-style-type: none"> <li>• Interpret design specifications for channels.</li> <li>• Prepare tools and materials required for construction.</li> <li>• Assess site conditions for channel placement.</li> <li>• Excavate and shape the channel bed.</li> <li>• Construct open channels with appropriate slopes.</li> <li>• Build closed channels using suitable materials.</li> <li>• Clean tools and store</li> </ul>	conformance with design specifications, and environmental standards	<p>design for rainwater management.</p> <p><b>Method Used:</b> The students should explain procedures for constructing open and closed rainwater channels.</p> <p><b>Principles:</b> The student should explain the principles involved in constructing open and closed channels for rainwater.</p> <p><b>Theories:</b> The students should explain:</p>	<p>available:</p> <ul style="list-style-type: none"> <li>• Measuring tapes and rulers</li> <li>• Laser levels for accurate slope measurement</li> <li>• Masonry trowels and floats</li> <li>• Concrete mixers (for closed channels)</li> <li>• Shovels and spades</li> <li>• Compaction tools (e.g., hand tampers)</li> <li>• Saw for cutting channel materials</li> <li>• Safety barriers and signage</li> </ul>	

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				Process Assessment	Services Assessment			
			visual aids to demonstrate the construction process for rainwater channels	<ul style="list-style-type: none"> <li>• Clean working area</li> </ul>		<ul style="list-style-type: none"> <li>• Role of channels in managing rainwater flow.</li> <li>• Impact of design on efficiency and sustainability.</li> </ul> <p><b>Circumstantial Knowledge:</b></p> <p><b>Knowledge about:</b></p> <ul style="list-style-type: none"> <li>• Materials and tools for channel construction.</li> <li>• Safety measures during the construction process.</li> </ul>	(for construction zones) <ul style="list-style-type: none"> <li>• Hard helmets</li> <li>• Safety goggles</li> <li>• Gloves</li> <li>• Safety boots</li> <li>• High-visibility vests</li> <li>• Dust masks or respirators (if working with concrete or dust)</li> <li>• Precast concrete channel sections (for closed channels)</li> <li>• Gravel and sand (for bedding and backfill)</li> <li>• Geotextile fabric (to</li> </ul>	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria		Knowledge Assessment	Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment			
							prevent soil erosion) • Drainage pipes and fittings (for closed systems) • Excavators or trenching tools (depending on scale) • Whiteboards or flip charts for instructional purposes • Computer • Internet • Projector	
		(c) Harvesting rainwater	<b>Brainstorming:</b> Engage students in identifying materials and designs for open and closed rainwater channels	The student should be able to: • Identify suitable locations for rainwater	Rainwater harvested in conformance with design specifications and environmental standards	<b>Knowledge Evidence:</b> Understanding of rainwater harvesting techniques. <b>Method Used:</b> The students	The following tools, equipment and safety gear are to be available: • Measuring tape • Spirit level	



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				Process Assessment	Services Assessment			
			<b>Demonstration:</b> Show students how to construct open and closed channels with proper gradients and alignment <b>Practical work:</b> Guide students in constructing rainwater channels in a workshop or outdoor setting <b>Field Visit:</b> Arrange site visits for students to observe professionals building rainwater channels <b>Videos:</b> Provide visual aids to demonstrate the construction process for	harvesting systems. • Interpret design specifications and guidelines. • Select appropriate materials for collection and storage. • Install gutters and downspouts. • Construct storage tanks or cisterns. • Ensure proper filtration systems are in place. • Implement overflow and drainage solutions.		should explain procedures for harvesting rainwater effectively.  <b>Principles:</b> The student should explain the principles involved in harvesting rainwater <b>Theories:</b> The students should explain:  • Role of rainwater harvesting in resource management. • Impact of design on water quality and usability.	• PVC or metal cutters • Drill with appropriate bits • Screwdrivers • Wrenches • Gutter installation tools • Ladders • Hard helmets • Safety goggles • Gloves • Safety boots • High-visibility vests • Catchment Area. • Gutters and Downspouts. • First-Flush Diverters. • Filters. • Storage Tanks. • Pumps	

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			rainwater channels	<ul style="list-style-type: none"> <li>• Clean tools and store.</li> <li>• Clean working area.</li> </ul>		<b>Circumstantial Knowledge:</b> <b>Knowledge about:</b> <ul style="list-style-type: none"> <li>• Materials and tools for rainwater harvesting systems.</li> <li>• Safety measures during installation and maintenance.</li> </ul>	<ul style="list-style-type: none"> <li>• Distribution System</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	
		(d) Constructing underground water tank	<b>Brainstorming:</b> Engage students in discussing the purpose, design, and materials for constructing underground water tanks <b>Demonstration:</b> Show students the step-by-step	The student should be able to: <ul style="list-style-type: none"> <li>• Interpret design specifications and site plans for the tank.</li> <li>• Assess soil conditions and site suitability.</li> </ul>	Underground water tank constructed in conformance with design specifications, safety standards, and construction regulations.	<b>Knowledge Evidence:</b> Understanding of underground water tank design and construction. <b>Method Used:</b> The students should explain procedures for	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Excavators</li> <li>• Trenching tools</li> <li>• Shovels</li> <li>• Spades</li> </ul>	

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				Process Assessment	Services Assessment			
			<p>process of excavation, reinforcement, and tank construction</p> <p><b>Practical work:</b> Guide students in constructing a small-scale underground water tank in a workshop or controlled environment</p> <p><b>Field Visit:</b> Arrange for students to observe professionals constructing underground water tanks on-site</p> <p><b>Videos:</b> Provide video demonstrations to enhance students'</p>	<ul style="list-style-type: none"> <li>• Prepare tools and materials for construction.</li> <li>• Excavate the site to the required dimensions</li> <li>• Construct the tank walls</li> <li>• Ensure proper waterproofing techniques are applied</li> <li>• Implement access points and drainage features</li> <li>• Clean tools and store</li> <li>• Clean working area</li> </ul>		<p>constructing an underground water tank.</p> <p><b>Principles:</b> The student should explain the principles involved in constructing underground water tank.</p> <p><b>Theories:</b> The students should explain:</p> <ul style="list-style-type: none"> <li>• Role of underground tanks in water storage and conservation.</li> <li>• Impact of design on water quality and accessibility.</li> </ul> <p><b>Circumstantial</b></p>	<ul style="list-style-type: none"> <li>• Concrete mixers</li> <li>• Trowels</li> <li>• Floats</li> <li>• Rebar cutters</li> <li>• Rebar benders</li> <li>• Measuring tapes</li> <li>• Levelling Instrument</li> <li>• Waterproofing application brushes</li> <li>• Waterproofing application rollers</li> <li>• Hard helmets</li> <li>• Safety goggles</li> <li>• Gloves</li> <li>• Safety boots</li> <li>• High-visibility vests</li> <li>• Dust masks</li> <li>• Harnesses</li> <li>• Fall protection equipment</li> </ul>	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria		Knowledge Assessment	Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment			
			understanding of underground water tank construction techniques			<b>Knowledge:</b> <b>Knowledge about:</b> <ul style="list-style-type: none"> <li>• Materials and tools for tank construction.</li> <li>• Safety measures during the construction process.</li> </ul>	<ul style="list-style-type: none"> <li>• Formwork materials (e.g., plywood, metal panels)</li> <li>• Reinforcement steel bars (rebar)</li> <li>• Waterproofing membranes</li> <li>• Waterproofing coatings</li> <li>• Dewatering pumps</li> <li>• Compaction tools</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	
	4.2. Performing landscaping and gardening.	(a) Planning for outside building environments	<b>Group Discussion:</b> Facilitate a session where students identify the key elements of planning outside building	The student should be able to: <ul style="list-style-type: none"> <li>• Assess site conditions and environmental factors.</li> </ul>	Outside building environments are planned effectively as per landscape design, environmental standards, and	<b>Knowledge Evidence:</b> Understanding of outdoor space design and planning. <b>Method Used:</b> The students	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Measuring tapes</li> <li>• Laser levels</li> </ul>	70

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				Process Assessment	Services Assessment			
			environments, such as landscaping and drainage. <b>Demonstration:</b> Show students how to plan and layout outdoor features like paths, gardens, and parking areas <b>Practical work:</b> Guide students in creating layouts and models for outside building environments <b>Field Visit:</b> Take students to observe well-planned outside building environments in real construction projects <b>Videos:</b> Use instructional	<ul style="list-style-type: none"> <li>Identify zoning regulations and building codes.</li> <li>Evaluate existing landscape and topography.</li> <li>Develop a layout plan for outdoor spaces.</li> <li>Incorporate drainage and erosion control measures.</li> <li>Select materials for landscaping and hardscaping.</li> </ul>	construction regulations.	<p>should explain procedures for planning outside building environments.</p> <p><b>Principles:</b> The student should explain the principles involved in planning for outside building environments.</p> <p><b>Theories:</b> The students should explain:</p> <ul style="list-style-type: none"> <li>Role of landscaping in enhancing building appeal.</li> <li>Impact of design on sustainability</li> </ul>	<ul style="list-style-type: none"> <li>Drafting tools</li> <li>Soil testing kits</li> <li>Surveying equipment</li> <li>Hard helmets</li> <li>Safety boots</li> <li>High-visibility vests</li> <li>Gloves</li> <li>Safety goggles</li> <li>Topographical maps</li> <li>Computer</li> <li>Internet</li> <li>Projector</li> </ul>	

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 Assessment		
			videos to show students best practices in outdoor space planning			and biodiversity. <b>Circumstantial Knowledge:</b> <b>Knowledge about:</b>  <ul style="list-style-type: none"> <li>• Materials and tools for outdoor construction.</li> <li>• Safety measures during planning and implementation</li> <li>• Share</li> </ul>		
		(b) Treating vegetable soil around the building.	<b>Brainstorming:</b> Engage students in discussing the importance of soil treatment for	The student should be able to: <ul style="list-style-type: none"> <li>• Identify soil treatments.</li> </ul>	Vegetable soil around the building treated as per environmental	<b>Knowledge Evidence:</b> Understanding of soil treatment and health.	The following tools, equipment and safety gear are to be available:	

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				Process Assessment	Services Assessment			
			landscaping and preventing erosion <b>Demonstration:</b> Show students how to prepare and treat soil using organic and chemical methods <b>Practical work:</b> Guide students in treating and preparing soil for planting around buildings <b>Field Visit:</b> Take students to observe soil treatment and landscaping processes on-site <b>Videos:</b> Provide video tutorials to help students understand soil treatment methods	<ul style="list-style-type: none"> <li>• Prepare the area.</li> <li>• Apply treatments.</li> <li>• Incorporate treatments.</li> <li>• Implement erosion control.</li> <li>• Monitor plant growth.</li> <li>• Document work done.</li> <li>• Clean tools and equipment.</li> <li>• Maintain a clean workspace.</li> </ul>	standards and landscaping requirements.	<p><b>Method Used:</b> The students should explain procedures for treating vegetable soil around buildings.</p> <p><b>Principles:</b> The student should explain the principles involved in treating vegetable soil around the building.</p> <p><b>Theories:</b> The students should explain:</p> <ul style="list-style-type: none"> <li>• Role of soil treatment in supporting</li> </ul>	<ul style="list-style-type: none"> <li>• Shovels</li> <li>• Garden forks</li> <li>• Rakes</li> <li>• Soil pH testing kits</li> <li>• Compost spreaders</li> <li>• Mulching equipment</li> <li>• Gloves</li> <li>• Safety boots</li> <li>• Protective eyewear</li> <li>• Dust masks (if handling fine organic materials)</li> <li>• Compost bins</li> <li>• Organic mulch materials (e.g., straw, wood chips)</li> <li>• Green manure seeds (e.g., clover, rye)</li> <li>• Irrigation tools</li> </ul>	

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				Process Assessment	Services Assessment			
						vegetation growth. • Impact of soil management on building longevity and aesthetics. <b>Circumstantial Knowledge:</b> <b>Knowledge about:</b>  • Materials and tools for soil treatment. • Safety measures during soil handling and treatment processes.	• Soil amendments (e.g., lime, sulfur) • Computer • Internet • Projector	
		(c) Designing and building routes	<b>Think-Pair-Share:</b> Facilitate discussions where students explore the factors	The student should be able to:	Routes are designed and built as per project specifications,	<b>Knowledge Evidence:</b> <b>Method Used:</b> The students should explain	The following tools, equipment and safety gear are to be available:	



Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria		Knowledge Assessment	Training Requirements/ Suggested Resources	Number of Periods per Unit
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			<p>affecting route design, such as terrain and traffic</p> <p><b>Demonstration:</b> Show students how to design routes using topographical maps and software tools</p> <p><b>Practical work:</b> Guide students in designing and marking routes for a small-scale project.</p> <p><b>Field Visit:</b> Take students to observe route construction and planning at a construction site.</p> <p><b>Videos:</b> Use videos to help students visualise the process of designing and</p>	<ul style="list-style-type: none"> <li>Assess site conditions and requirements.</li> <li>Identify the purpose and type of route (e.g., pedestrian, vehicle).</li> <li>Plan route layout considering safety and accessibility.</li> <li>Select appropriate materials for construction.</li> <li>Prepare the ground and clear vegetation.</li> <li>Install surface materials (e.g., paving, gravel).</li> </ul>	safety standards, and construction regulations	<p>procedures for designing and building routes, such as pathways or driveways.</p> <p><b>Principles:</b> The student should explain the principles involved in designing and building routes</p> <p><b>Theories:</b> The students should explain:</p> <ul style="list-style-type: none"> <li>Role of effective route design in landscape functionality.</li> <li>Impact of materials and layout on</li> </ul>	<ul style="list-style-type: none"> <li>Surveying equipment</li> <li>Measuring tapes</li> <li>Levelling instrument</li> <li>Drafting tools</li> <li>Compaction equipment</li> <li>Excavation tools</li> <li>Concrete mixers</li> <li>Trowels and floats</li> <li>Hard helmets</li> <li>Safety goggles</li> <li>Gloves</li> <li>Safety boots</li> <li>High-visibility vests</li> <li>Dust masks or respirators</li> <li>Hearing protection</li> </ul>	

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				Process Assessment	Services Assessment			
			constructing routes.	<ul style="list-style-type: none"> <li>• Implement signage and safety features.</li> <li>• Clean the work area and store tools</li> </ul>		durability and user experience. <b>Circumstantial Knowledge:</b> <b>Knowledge about:</b> <ul style="list-style-type: none"> <li>• Materials and tools for route construction.</li> <li>• Safety measures during the building process.</li> </ul>	(e.g., earplugs, earmuffs) <ul style="list-style-type: none"> <li>• Topographical maps</li> <li>• Geotechnical analysis tools</li> <li>• Earthmoving machinery</li> <li>• Paving machines</li> <li>• Rollers for compaction</li> <li>• Drainage installation equipment</li> <li>• Signage and barricades for site safety</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	
5.0. Managing safe work environment	5.1. Managing hazards	(a) Controlling mechanical hazards	<b>Brainstorming:</b> Engage students in identifying common mechanical	The student should be able to:	Mechanical hazards controlled as per safety standards, OSHA	<b>Knowledge Evidence:</b> <b>Method Used:</b> The students should explain	The following tools, equipment and safety gear are to be available:	70

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria		Knowledge Assessment	Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment			
			hazards in construction and their causes <b>Demonstration:</b> Show students how to use protective equipment and implement safety measures to control hazards <b>Practical work:</b> Guide students in identifying and mitigating mechanical hazards during simulated activities <b>Field Visit:</b> Take students to observe safety protocols for controlling mechanical hazards on-site <b>Videos:</b> Provide	<ul style="list-style-type: none"> <li>Identify common mechanical hazards.</li> <li>Assess risks associated with machinery.</li> <li>Implement safety protocols.</li> <li>Use personal protective equipment (PPE).</li> <li>Install proper machine guarding.</li> <li>Follow safe operating procedures.</li> <li>Conduct a risk assessment of work areas.</li> <li>Propose control</li> </ul>	regulations, and workplace procedures	procedures for identifying and controlling mechanical hazards in the workplace.  <b>Principles:</b> The student should explain the principles involved in controlling mechanical hazards <b>Theories:</b> The students should explain: <ul style="list-style-type: none"> <li>Role of safety protocols in minimizing mechanical hazards.</li> <li>Impact of proper training and equipment</li> </ul>	<ul style="list-style-type: none"> <li>Lockout/tagout devices</li> <li>Machine guards</li> <li>Emergency stop controls</li> <li>Safety interlocks</li> <li>Warning signs and labels</li> <li>Hard helmets</li> <li>Safety goggles</li> <li>Gloves</li> <li>Safety boots</li> <li>High-visibility vests</li> <li>Guardrails and barriers</li> <li>Personal protective equipment (PPE) appropriate to specific hazards</li> <li>First aid kits</li> </ul>	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria		Knowledge Assessment	Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment			
			safety videos to help students understand hazard prevention techniques	measures for identified hazards.		<p>maintenance on safety.</p> <p><b>Circumstantial Knowledge:</b></p> <p><b>Knowledge about:</b></p> <ul style="list-style-type: none"> <li>• Tools and equipment commonly associated with mechanical hazards.</li> <li>• Safety measures and personal protective equipment (PPE) required.</li> </ul>	<ul style="list-style-type: none"> <li>• Fire extinguishers</li> <li>• Emergency eyewash stations</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	
		(b) Controlling chemical hazards	<p><b>Group Discussion:</b></p> <p>Facilitate a session where students identify chemical hazards in construction,</p>	<p>The student should be able to:</p> <ul style="list-style-type: none"> <li>• Identify chemical hazards associated</li> </ul>	Chemical hazards controlled as per safety standards, OSHA regulations, and workplace	<p><b>Knowledge Evidence:</b></p> <p><b>Method Used:</b></p> <p>The students should explain procedures for identifying and</p>	<p>The following tools, equipment and safety gear are to be available:</p> <ul style="list-style-type: none"> <li>• Lockout/tagout devices</li> </ul>	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria		Knowledge Assessment	Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment			
			<p>such as exposure to adhesives and solvents</p> <p><b>Demonstration:</b> Show students proper handling, storage, and disposal of hazardous chemicals</p> <p><b>Practical work:</b> Guide students in practising safe procedures for working with chemicals</p> <p><b>ICT-Based Learning:</b> Use online tools or videos to train students on chemical safety standards and regulations.</p> <p><b>Questions and Answers:</b> Engage students in a</p>	<p>with masonry materials (e.g., cement, adhesives).</p> <ul style="list-style-type: none"> <li>Assess risks related to chemical exposure during mixing and application.</li> <li>Implement safety protocols for handling and mixing chemicals.</li> <li>Use appropriate personal protective equipment (PPE) such as gloves, masks, and goggles.</li> </ul>	procedures.	<p>controlling chemical hazards in various environments.</p> <p><b>Principles:</b> The student should explain the principles involved in controlling chemical hazards</p> <p><b>Theories:</b> The students should explain:</p> <ul style="list-style-type: none"> <li>Role of safety protocols in preventing chemical exposure and accidents.</li> <li>Impact of proper storage</li> </ul>	<ul style="list-style-type: none"> <li>Machine guards</li> <li>Emergency stop controls</li> <li>Safety interlocks</li> <li>Warning signs and labels</li> <li>Hard helmets</li> <li>Safety goggles</li> <li>Gloves</li> <li>Safety boots</li> <li>High-visibility vests</li> <li>Guardrails and barriers</li> <li>Personal protective equipment (PPE) appropriate to specific hazards</li> <li>First aid kits</li> <li>Fire extinguishers</li> </ul>	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria		Knowledge Assessment	Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment			
			Q&A session to clarify doubts about handling chemical hazards	<ul style="list-style-type: none"> <li>• Store chemicals safely and according to regulations.</li> <li>• Label all chemical containers clearly and accurately.</li> <li>• Maintain a clean and organised workspace to prevent chemical contamination.</li> </ul>		and handling procedures on safety. <b>Circumstantial Knowledge:</b> <b>Knowledge about:</b> <ul style="list-style-type: none"> <li>• Types of chemicals and their hazards.</li> <li>• Safety measures, including Personal Protective Equipment (PPE) and spill response techniques.</li> </ul>	<ul style="list-style-type: none"> <li>• Emergency eyewash stations</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	
		(c) Controlling physical hazards	<b>Brainstorming:</b> Discuss with students the types of physical hazards in construction, such	The student should be able to: <ul style="list-style-type: none"> <li>• Identify common</li> </ul>	Physical hazards are controlled per safety standards, OSHA regulations, and	<b>Knowledge Evidence:</b> <b>Method Used:</b> The students should explain procedures for	The following tools, equipment and safety gear are to be available:	

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			as noise, heat, and vibrations <b>Demonstration:</b> Show students how to implement controls like barriers, PPE, and engineering solutions <b>Practical work:</b> Guide students in setting up safety measures to control physical hazards in a simulated environment <b>Field Visit:</b> Take students to observe how professionals manage physical hazards on construction sites <b>Videos:</b> Use visual aids to enhance students'	physical hazards in masonry and bricklaying (e.g., noise, vibration, manual handling). • Assess risks associated with physical hazards in the workplace. • Implement safety protocols for manual lifting and carrying. • Use appropriate personal protective equipment (PPE) for physical hazards (e.g.,	workplace procedures.	identifying and controlling physical hazards in the workplace or environment.  <b>Principles:</b> The student should explain the principles involved in controlling physical hazards <b>Theories:</b> The students should explain:  • Role of safety measures in preventing accidents and injuries related to physical hazards. • Impact of ergonomic	• Guardrails and barriers • Non-slip mats • Proper lighting equipment • Warning signage • Ergonomic tools • Hard helmets • Safety goggles • Gloves • Safety boots • High-visibility vests • Hearing protection (e.g., earplugs, earmuffs) • Personal protective equipment (PPE) appropriate to	

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			understanding of controlling physical hazards	hearing protection, gloves). • Recognize and mitigate slip, trip, and fall hazards on site. • Ensure proper ergonomics when performing tasks to minimize strain. • Use tools and equipment safely to reduce the risk of injury. • Conduct regular inspections of the work area for physical hazards.		design and proper equipment use on safety. <b>Circumstantial Knowledge about:</b> • Common types of physical hazards (e.g., slips, trips, falls, noise). • Safety measures, including training, signage, and the use of protective equipment.	specific hazards • First aid kits • Fire extinguishers • Emergency eyewash stations • Fall arrest systems • Computer • Internet • Projector	



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				Process Assessment	Services Assessment			
				<ul style="list-style-type: none"> <li>• Maintain a clean and organized workspace to minimize risks.</li> </ul>				
		(d) Carrying out risk assessment.	<p><b>Think-Pair-Share:</b> Facilitate discussions where students explore the steps involved in carrying out a risk assessment</p> <p><b>Demonstration:</b> Show students how to identify hazards, assess risks, and propose mitigation measures</p> <p><b>Practical work:</b> Guide students in performing a risk assessment for a construction site</p> <p><b>ICT-Based</b></p>	<p>The student should be able to:</p> <ul style="list-style-type: none"> <li>• Understand the importance of risk assessments.</li> <li>• Identify potential hazards in the work environment.</li> <li>• Evaluate the likelihood and severity of risks.</li> <li>• Gather relevant</li> </ul>	Risk assessment is carried out as per safety standards, OSHA regulations, and workplace procedures	<p><b>Knowledge Evidence:</b> <b>Method Used:</b> The students should explain procedures for conducting a risk assessment in various environments.</p> <p><b>Principles:</b> The student should explain the principles involved in carrying out risk assessment.</p> <p><b>Theories:</b> The students</p>	<p>The following tools, equipment and safety gear are to be available:</p> <ul style="list-style-type: none"> <li>• Risk assessment templates and checklists</li> <li>• Hazard identification forms</li> <li>• Surveying equipment for site analysis</li> <li>• Hard helmets</li> <li>• Safety goggles</li> <li>• Gloves</li> <li>• Safety boots</li> </ul>	

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				Process Assessment	Services Assessment			
			<b>Learning:</b> Teach students to use risk assessment templates and software for documentation <b>Videos:</b> Provide video tutorials to help students understand the risk assessment process	information for assessment. • Use appropriate risk assessment tools. • Develop a risk assessment report with findings. • Propose control measures to mitigate risks		should explain: • Risk assessment is the role of preventing accidents and ensuring safety. • Impact of risk prioritization on resource allocation and safety measures. <b>Circumstantial Knowledge:</b> <b>Knowledge about:</b> • Tools and techniques for risk assessment (e.g., checklists, matrices).	• High-visibility vests • First aid kits • Fire extinguishers • Emergency eyewash stations • Safety signage and barriers • Computer • Internet • Projector	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria		Knowledge Assessment	Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment			
						<ul style="list-style-type: none"> <li>• Documentation and communication of assessment findings and recommendations.</li> </ul>		
	5.2.Managing environment	(a) Managing air pollution	<b>Brainstorming:</b> Engage students in identifying sources of air pollution in construction and their impacts. <b>Demonstration:</b> Show students how to implement dust control measures like wetting surfaces and using barriers <b>Practical work:</b> Guide students in setting up air pollution management	The student should be able to: <ul style="list-style-type: none"> <li>• Identify sources of air pollution in masonry and</li> <li>• Implement control measures to reduce dust and emissions</li> <li>• Use appropriate personal protective equipment (PPE) to</li> </ul>	Air pollution managed as per environmental standards, OSHA regulations, and workplace procedures	<b>Knowledge Evidence:</b> Understanding of air pollution sources and their impacts. <b>Method Used:</b> The students should explain procedures for assessing and managing air pollution in various environments. <b>Principles:</b> The student should explain	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Water sprayers for dust suppression</li> <li>• Dust control barriers and screens</li> <li>• Low-emission machinery and equipment</li> <li>• Air quality monitoring devices</li> </ul>	35

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				Process Assessment	Services Assessment			
			measures in a simulated setting <b>Field Visit:</b> Take students to observe air pollution control methods in use on a construction site <b>Videos:</b> Use instructional videos to demonstrate air pollution management techniques	minimize exposure • Apply best practices for material handling and storage to reduce airborne particles		the principles involved in managing air pollution <b>Theories:</b> The students should explain: • Role of pollution control technologies and practices in reducing emissions. • Impact of public awareness and community engagement on air quality improvement. <b>Circumstantial Knowledge:</b> <b>Knowledge about:</b>	• Proper waste disposal containers • Respirators or dust masks • Protective eyewear • Gloves • High-visibility clothing • Safety helmets • Enclosed chutes for material disposal • Wheel-washing stations for vehicles • On-site waste treatment facilities • Computer • Internet • Projector	

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria		Knowledge Assessment	Training Requirements/ Suggested Resources	Number of Periods per Unit
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						<ul style="list-style-type: none"> <li>• Common sources of air pollution (e.g., industrial, vehicular, natural).</li> <li>• Air pollution management strategies include monitoring, reporting, and mitigation measures.</li> </ul>		
		(b) Managing water pollution	<b>Group Discussion:</b> Discuss with students the causes and effects of water pollution from construction activities  <b>Demonstration:</b> Show students how to use silt	The student should be able to: <ul style="list-style-type: none"> <li>• Identify sources of water pollution.</li> <li>• Control waste as per OSHA regulations.</li> </ul>	Water pollution managed as per environmental standards, OSHA regulations, and workplace procedures.	<b>Knowledge Evidence:</b> Understanding of water pollution sources and their effects on ecosystems and human health.  <b>Method Used:</b> The students	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Silt fences</li> <li>• Sediment basins</li> <li>• Erosion control blankets</li> </ul>	

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			traps, sedimentation tanks, and other methods to manage water pollution <b>Practical work:</b> Guide students in implementing water pollution control measures in a simulated environment <b>Field Visit:</b> Arrange site visits for students to observe water pollution management in real-world construction projects <b>Videos:</b> Provide visual aids to enhance students' understanding of water pollution			should explain procedures for assessing and managing water pollution in various environments.  <b>Principles:</b> The student should explain the principles involved in managing water pollution <b>Theories:</b> The students should explain: • Role of pollution prevention strategies in safeguarding water resources.	<ul style="list-style-type: none"> <li>• Storm drain inlet protection devices</li> <li>• Gloves</li> <li>• Safety boots</li> <li>• High-visibility vests</li> <li>• Hard helmets</li> <li>• Protective eyewear</li> <li>• Water pumps for dewatering</li> <li>• Portable sediment tanks</li> <li>• Erosion control wattles</li> <li>• Concrete washout containers</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	

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				Process Assessment	Services Assessment			
			control techniques			<ul style="list-style-type: none"> <li>• Impact of community involvement and education on water conservation efforts.</li> </ul> <p><b>Circumstantial Knowledge:</b></p> <p><b>Knowledge about:</b></p> <ul style="list-style-type: none"> <li>• Common sources of water pollution (e.g., agricultural runoff, industrial discharges, sewage).</li> <li>• Strategies for water pollution management, including monitoring, remediation,</li> </ul>		

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				Process Assessment	Services Assessment			
						and sustainable practices.		
		(c) Managing land pollution	<b>Think-Pair-Share:</b> Facilitate discussions where students identify sources and solutions for land pollution in construction. <b>Demonstration:</b> Show students how to segregate and dispose of construction waste properly. <b>Practical work:</b> Guide students in implementing land pollution control measures on a project. <b>Field Visit:</b> Take students to observe land pollution	The student should be able to: <ul style="list-style-type: none"> <li>• Identify sources of land pollution.</li> <li>• Implement waste reduction strategies.</li> <li>• Recycle and reuse materials where possible.</li> <li>• Control hazardous materials as per OSHA regulations.</li> </ul>	Land pollution managed as per environmental standards, OSHA regulations, and workplace procedures.	<b>Knowledge Evidence:</b> The students should explain procedures for assessing and managing land pollution in various contexts. <b>Principles:</b> The student should explain the principles involved in managing land pollution <b>Theories:</b> The students should explain: <ul style="list-style-type: none"> <li>• Role of waste management practices in</li> </ul>	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Waste segregation bins</li> <li>• Erosion control blankets</li> <li>• Silt fences</li> <li>• Protective gloves</li> <li>• Safety boots</li> <li>• High-visibility vests</li> <li>• Hard helmets</li> <li>• Protective eyewear</li> <li>• Excavators for contaminated soil removal</li> </ul>	



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				Process Assessment	Services Assessment			
			management strategies on a construction site. <b>Videos:</b> Use videos to help students visualise effective land pollution management practices.			<p>reducing land pollution.</p> <ul style="list-style-type: none"> <li>• Impact of community engagement and awareness on land conservation efforts.</li> </ul> <p><b>Circumstantial Knowledge:</b></p> <p><b>Knowledge about:</b></p> <ul style="list-style-type: none"> <li>• Common sources of land pollution (e.g., industrial waste, hazardous materials, littering).</li> <li>• Strategies for land pollution management, including remediation</li> </ul>	<ul style="list-style-type: none"> <li>• Soil remediation units</li> <li>• Erosion control wattles</li> <li>• Stabilized construction entrances</li> <li>• Geotextiles</li> </ul>	

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						techniques and sustainable land use practices. • Share		
6.0. Managing preventive maintenance	6.1.Planning preventive maintenance	(a) Preparing schedules for preventive maintenance of tools, machines, and equipment.	<b>Brainstorming:</b> Engage students in identifying the importance of preventive maintenance in construction. <b>Demonstration:</b> Show students how to prepare a schedule for maintaining tools and machines. <b>Practical work:</b> Guide students in creating a maintenance schedule for a given set of equipment. <b>ICT-Based Learning:</b> Teach	The student should be able to: • Understand service manuals and workshop rules. • Inspect the workshop and equipment regularly. • Document inspection findings. • Create preventive maintenance plans and schedules. • Use safety signage.	Schedules for preventive maintenance of tools, machines, and equipment prepared as per operational requirements, manufacturer guidelines, and workplace standards.	<b>Knowledge Evidence:</b> <b>Method Used:</b> The students should explain procedures for preparing maintenance schedules. <b>Principles:</b> The student should explain the principles of preparing schedules for preventive maintenance of tools, machines, and equipment. <b>Theories:</b> • The students should explain:	The following tools, equipment and safety gear are to be available: • Asset inventory lists • Manufacturer manuals and maintenance guidelines • Inspection checklists • Maintenance history records • Hard helmets • Safety goggles • Gloves • Safety boots • High-visibility vests	35

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			students to use software for scheduling and tracking preventive maintenance. <b>Videos:</b> Provide visual aids to help students understand preventive maintenance scheduling techniques.	<ul style="list-style-type: none"> <li>• Manage workshop inventory.</li> <li>• Sources and related content</li> </ul>		<ul style="list-style-type: none"> <li>• Role of preventive maintenance in minimizing operational downtime.</li> <li>• Impact of effective scheduling on productivity.</li> </ul> <b>Circumstantial Knowledge:</b> <b>Knowledge about:</b> <ul style="list-style-type: none"> <li>• Types of tools and machines requiring maintenance.</li> <li>• Tools and techniques for creating and managing maintenance schedules.</li> </ul>	<ul style="list-style-type: none"> <li>• Lubrication equipment</li> <li>• Replacement parts and consumables</li> <li>• Documentation tools (e.g., digital devices for record-keeping)</li> </ul>	
		(b) Preparing inspection	<b>Brainstorming:</b> Engage students	The student should be able	Inspection checklist for	<b>Knowledge Evidence:</b>	The following tools, equipment	

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		checklist for tools, equipment, and machines.	<p>in identifying key inspection points for tools, equipment, and machines.</p> <p><b>Demonstration:</b> Show students how to create a detailed inspection checklist, including safety and functionality checks.</p> <p><b>Practical work:</b> Guide students in preparing and using inspection checklists for workshop tools.</p> <p><b>ICT-Based Learning:</b> Train students to use digital tools or software for creating and managing</p>	<p>to:</p> <ul style="list-style-type: none"> <li>• Identify key inspection parameters for tools, equipment, and machines.</li> <li>• Develop a comprehensive inspection checklist.</li> <li>• Ensure the checklist meets safety and operational standards.</li> <li>• Update the checklist as needed.</li> </ul>	tools, equipment, and machines prepared as per operational requirements, safety standards, and workplace procedures.	<p><b>Method Used:</b> The students should explain how to prepare inspection checklists for various tools and equipment.</p> <p><b>Principles:</b> The student should explain the principles of preparing inspection checklist for tools, equipment, and machines.</p> <p><b>Theories:</b> The students should explain:</p> <ul style="list-style-type: none"> <li>• Role of checklists in ensuring thorough inspections.</li> </ul>	<p>and safety gear are to be available:</p> <ul style="list-style-type: none"> <li>• Inspection checklist templates (digital or paper-based)</li> <li>• Manufacturer manuals and maintenance guidelines</li> <li>• Measuring instruments (e.g., calipers, multimeters)</li> <li>• Diagnostic tools specific to equipment</li> <li>• Documentation tools (e.g., tablets, notebooks)</li> <li>• Hard helmets</li> <li>• Safety goggles</li> </ul>	

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			inspection checklists. <b>Videos:</b> Provide instructional videos to help students understand best practices for inspecting tools and machines.			<ul style="list-style-type: none"> <li>• Impact of regular inspections on equipment reliability and lifespan.</li> </ul> <b>Circumstantial Knowledge:</b> <b>Knowledge about:</b> <ul style="list-style-type: none"> <li>• Key components to include in inspection checklists.</li> <li>• Techniques for documenting inspection findings and actions.</li> </ul>	<ul style="list-style-type: none"> <li>• Gloves appropriate for the equipment</li> <li>• Safety boots</li> <li>• High-visibility vests</li> <li>• Access to the tools, equipment, and machines being inspected</li> <li>• Reference materials for industry standards</li> <li>• Digital devices for checklist management</li> <li>• Storage for completed inspection records</li> <li>• Calibration tools for</li> </ul>	

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				Process Assessment	Services Assessment			
							measurement accuracy	
	6.2.Supervising preventive maintenance	(a) Performing preventive maintenance of tools, equipment, and machines	<b>Think-Pair-Share:</b> Facilitate a session where students discuss the importance of preventive maintenance for construction equipment. <b>Demonstration:</b> Show students how to clean, lubricate, and perform routine maintenance tasks on tools and machines <b>Practical work:</b> Guide students in performing preventive maintenance on a variety of tools and equipment in	The student should be able to: <ul style="list-style-type: none"> <li>• Identify tools, equipment, and machines requiring maintenance</li> <li>• Follow the preventive maintenance schedule and procedures</li> <li>• Inspect and clean tools, equipment, and machines.</li> <li>• Record maintenance activities for future reference</li> </ul>	Preventive maintenance of tools, equipment, and machines performed effectively as per maintenance schedules, manufacturer guidelines, and workplace standards.	<b>Knowledge Evidence:</b> <b>Method Used:</b> The students should explain how to perform preventive maintenance tasks effectively. <b>Principles:</b> student should explain the principles involved in performing preventive maintenance of tools, equipment, and machines <b>Theories:</b> The students should explain:	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Lubrication devices (e.g., grease guns, oilers)</li> <li>• Cleaning supplies (e.g., brushes, solvents)</li> <li>• Calibration instruments (e.g., multimeters, callipers)</li> <li>• Replacement parts and consumables</li> <li>• Hard helmets</li> <li>• Safety goggles</li> </ul>	35

Module Title (Main Competence)	Unit Title (Specific Competences)	Elements (Learning Activities)	Suggested Teaching and Learning Methods	Assessment Criteria		Knowledge Assessment	Training Requirements/ Suggested Resources	Number of Periods per Unit
				Process Assessment	Services Assessment			
			a workshop <b>Field Visit:</b> Take students to observe professionals performing preventive maintenance in a real construction setting <b>Videos:</b> Use video tutorials to help students understand advanced preventive maintenance techniques			<ul style="list-style-type: none"> <li>• Role of preventive maintenance in preventing equipment failures.</li> <li>• Impact of maintenance on overall productivity and cost savings.</li> </ul> <b>Circumstantial Knowledge about:</b> <ul style="list-style-type: none"> <li>• Specific maintenance tasks for various tools and equipment.</li> <li>• Best practices for documenting maintenance</li> </ul>	<ul style="list-style-type: none"> <li>• Protective gloves</li> <li>• Safety boots</li> <li>• High-visibility vests</li> <li>• First aid kits</li> <li>• Fire extinguishers</li> <li>• Lockout/tagout devices</li> <li>• Maintenance logs and documentation tools</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	

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						activities and outcomes.		
		(b) Performing preventive maintenance of the working environment	<b>Brainstorming:</b> Engage students in identifying the elements of a safe and functional working environment in construction. <b>Demonstration:</b> Show students how to maintain cleanliness, organise tools, and manage waste effectively on-site <b>Practical work:</b> Guide students in implementing preventive maintenance measures to ensure a safe working environment.	The student should be able to: <ul style="list-style-type: none"> <li>• Identify hazards in the working environment.</li> <li>• Develop a plan to address and prevent hazards</li> <li>• Ensure cleanliness and organisation of the workspace.</li> <li>• Inspect and maintain safety equipment and facilities</li> </ul>	Preventive maintenance of the working environment performed effectively as per safety standards, environmental regulations, and workplace procedures.	<b>Knowledge Evidence:</b> <b>Method Used:</b> The students should explain how to conduct preventive maintenance in the working environment.  <b>Principles:</b> Student should explain the principles involved in performing preventive maintenance of the working environment. <b>Theories:</b> The students should explain:	The following tools, equipment and safety gear are to be available: <ul style="list-style-type: none"> <li>• Lubrication devices (e.g., grease guns, oilers)</li> <li>• Cleaning supplies (e.g., brushes, solvents)</li> <li>• Calibration instruments (e.g., multimeters, callipers)</li> <li>• Replacement parts and consumables</li> <li>• Hard helmets</li> <li>• Safety goggles</li> </ul>	



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				Process Assessment	Services Assessment			
			<b>Field Visit:</b> Arrange for students to observe preventive maintenance activities in professional construction environments <b>Videos:</b> Provide visual aids to enhance students' understanding of maintaining a safe and efficient working environment			<ul style="list-style-type: none"> <li>• Role of preventive maintenance in minimizing hazards.</li> <li>• Impact of a well-maintained environment on productivity and morale.</li> </ul> <b>Circumstantial Knowledge about:</b> <ul style="list-style-type: none"> <li>• Key areas to inspect and maintain in the working environment.</li> <li>• Strategies for implementing regular maintenance routines and improvements</li> </ul>	<ul style="list-style-type: none"> <li>• Protective gloves</li> <li>• Safety boots</li> <li>• High-visibility vests</li> <li>• First aid kits</li> <li>• Fire extinguishers</li> <li>• Lockout/tagout devices</li> <li>• Maintenance logs and documentation tools</li> <li>• Computer</li> <li>• Internet</li> <li>• Projector</li> </ul>	

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