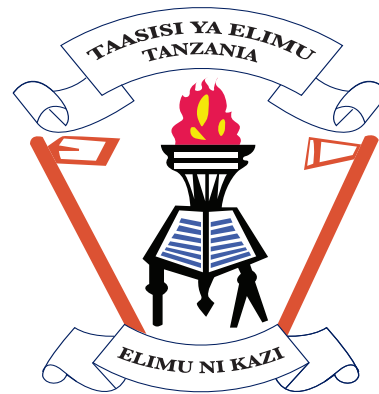


**MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY**  
**TANZANIA INSTITUTE OF EDUCATION**



**BUILDING CONSTRUCTION SYLLABUS FOR TECHNICAL**  
**SECONDARY SCHOOLS**  
**FORM I – IV**

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## DECLARATION

The Building Construction syllabus is approved for use in Technical Secondary Schools in Tanzania.

Approved by .....  
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## 1.0 Introduction

This Building Construction Syllabus is a revised version of 1993 syllabus. Although, some of the subject contents of the phased out syllabus have been retained, changes have been effected in the arrangement of topics and sub topics, addition of new topics and removal of irrelevant and outdated contents. The revised version has taken into consideration the current social, political, economic, global and technological development as well as emerging cross-cutting issues.

This revised syllabus observed a paradigm shift from content based to competence-based pedagogy to give room for the learners to build skills and competencies in Building Construction. It encourages the constructivist approaches to teaching and learning whereas the learner participates actively in the construction of knowledge, skills and attitude.

The syllabus covers the first four years of secondary education, i.e. from Form One to Form Four in Tanzania.

## 2.0 Objectives of Education in Tanzania

Objectives of Building Construction syllabus reflects the general objectives of education in Tanzania, which are to:

- a) guide and promote the development and improvement of the personalities of the citizens of Tanzania, their human resources and effective utilization of those resources in bringing about individual and national development;
- b) promote the acquisition and appreciation of culture, customs and traditions of the people of Tanzania;
- c) promote the acquisition and appropriate use of literacy, social, scientific, vocational, technological, professional and other forms of knowledge, skills and attitudes towards the development and improvement of the condition of man and society;
- d) develop and promote self-confidence and inquiring mind, understanding and respect for human dignity and human rights and readiness to work hard for personal self-advancement and national development;
- e) promote and expand the scope of acquisition, improvement and upgrading of mental, practical, productive and other skills needed to meet the changing needs of industry and the economy;
- f) enable every citizen to understand and uphold the fundamentals of the national constitution as well as the protecting human and civil rights, obligations and responsibilities; and
- g) promote love for work, self and wage employment and improved performance in the production and service sectors.

### 3.0 Objectives of Secondary Education

Objectives of Building Construction syllabus reflects the general objectives of secondary education in Tanzania, which are to:

- a) consolidate, broaden and develop a deeper understanding of the ideas and concepts acquired at the primary level;
- b) enhance and further develop and appreciation for cultural values including national unity, identity, democracy, ethics, personal integrity, readiness to work, human rights, customs, traditions, civic responsibilities and obligations;
- c) develop linguistic ability and effective use of communication skills in Kiswahili, English, and at least one foreign language;
- d) develop readiness for tertiary and higher education, vocational, technical and professional training;
- e) inculcate a sense and ability for self-study, self-confidence and self advancement in new frontiers of science and technology, academic and occupational knowledge and skills; and
- f) develop readiness to join the world of work.

### 4.0 Competencies of the Subject

By the end of the four years course, the student should have developed competencies in:

- a) exploring socio-economic factors in building construction career;
- b) applying building construction skills in preparing construction site;
- c) applying building construction skills in preparing concrete mixes, ratio, bricks, blocks, mortars, temporary support and formworks;
- d) erecting foundations walls, fireplaces, and roof structures;
- e) installing drainage systems, domestic waste water systems, domestic waster supply system and construction of small irrigation works; and
- f) acquire skills in building construction works, service, entrepreneurship and business management.

## 5.0 General Objectives of the Subject

By the end of the four years course, the student should be able to:

- a) improve performance in building construction industry and other economic and social service sector as a trained and skilled person;
- b) prepare construction sites;
- c) prepare concrete mixes, ratio, bricks, blocks, mortars, temporary support and formworks;
- d) erect foundations walls, fireplaces, and roof structures;
- e) install of drainage systems, domestic waste water systems, domestic waster supply system and construction of small irrigation works;  
and
- f) use cost management skills and knowledge in estimating costs for the construction of simple residential buildings.

## 6.0 Structure and Organisation of the Syllabus Content

This syllabus has two parts. The first part comprises class level competencies and class level objectives. The second part is the syllabus content presented in the matrix. The matrix includes; topics, sub-topics and specific objectives to be achieved. It also includes the teaching and learning strategies, teaching and learning resources, assessment criteria/tools and number of period.

### 6.1 Class level competencies

Class level competencies are general competencies intended to be achieved within a class level or within each year of study.

Class level competencies reflect the skills, knowledge and attitudes which the learner should demonstrate within that level of study. However, these competencies are not discrete but rather continuous. It is possible that a particular competency may require more than one year to be developed.

### 6.2 Class level objectives

The class level objectives are objectives intended to be achieved within the class level. These are specific instructional objectives at a particular class level. The class level objectives in this syllabus are stated in general terms and they have been derived from the competencies. For each competence intended to be achieved, one or more objectives have been stated in order to achieve it.

### **6.3 Topics/sub-topics**

This part describes the matter to deal with in the subject. The major topics in this syllabus have been derived from the class level competencies and objectives. Every major topic has been divided into several sub-topics. Each sub-topic comprises of a portion of the content of the topic in question. The sub-topics have also been arranged in a logical order to facilitate learning process. This means that for every sub-topic, there are teaching and learning strategies, teaching and learning resources, assessment strategies and the estimated number of periods.

### **6.4 Specific objectives**

This includes statements that describe results in terms of knowledge, attitude and skills that a student is expected to demonstrate as a result of instructions. The specified competencies in this syllabus are derived from the sub-topics.

### **6.5 Teaching and learning strategies**

Teaching/learning strategies indicate what the teacher and the students are expected to do in the process of teaching and learning. The teacher is free to use them or design his/ her own. The teacher is expected to work as a facilitator for supporting the students to learn. Participatory and cooperative learning-based activities are encouraged.

### **6.6 Teaching and learning resources**

In the teaching and learning process, many resources will be needed in the teaching and learning process. The teacher and the students should work together to collect or improvise resources available within and outside the school environment to implement the syllabus.

### **6.7 Assessment**

The assessment questions strategies in the assessment column of this syllabus aim to ensure that assessment is aligned with the specific objectives. The formative and summative assessment approaches should be geared towards the achievement of all the competencies stated in the syllabus. Assessment should focus on all the levels of cognitive, affective and psycho-motor domains are observed.

### **6.8 Number of periods**

The number of periods has been allocated per sub-topic. Sub-topics with more content are allocated more time.



## **FORM I**

### **CLASS LEVEL COMPETENCIES**

By the end of Form I, the student should have ability to:

- a) explore socio-economic factors related to building construction;
- b) make considerations using building construction as a study career;
- c) apply safety management skills in building construction works; and
- d) use effectively different types of measuring tools in building construction works.

### **CLASS LEVEL OBJECTIVES**

By the end of Form I, the student should be able to:

- a) distinguish the diversity of jobs according to economic sectors, as well as work settings and form of activities in building construction works;
- b) describe the roles and importance of building construction skills in a society;
- c) identify building construction workshops as related to other workshops;
- d) describe safety management's rules and procedures related to building construction works/site;
- e) identify tools, equipment and materials used in building construction work; and
- f) describe different types of measuring instruments used in building construction works/site.

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
<b>1.0 WORKSHOP ORIENTATION</b>	1.1 Introduction to Construction Workshop	<p>The student should be able to:</p> <p>a) Define the term building construction.</p> <p>b) Identify different construction workshops.</p> <p>c) Differentiate building construction workshops.</p>	<p>i) The teacher to use brainstorming questions to guide students to:</p> <ul style="list-style-type: none"> <li>- Define the term building construction</li> <li>- Identify types of construction workshops (i.e., Wood and Masonry workshop).</li> </ul> <p>ii) The teacher to use questions to guide students to differentiate building construction workshops.</p> <p>iii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks done in part (i) and (ii).</p>	<ul style="list-style-type: none"> <li>• Manila sheet</li> <li>• Flip chart</li> <li>• Multimedia projector</li> <li>• Computer</li> <li>• TV Set</li> <li>• Flash disk or memory stick</li> <li>• Visiting workshop</li> <li>• Recorded VHS/CD/ VCD/DVD</li> </ul>	<p>1. Is the student able to define the term building construction?</p> <p>2. Is the student able to identify different types of building construction workshops?</p> <p>3. Is the student able to differentiate building construction workshops?</p>	2

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	1.2 Types of workshops	<p>The student should be able to:</p> <p>a) Identify types of workshops.</p> <p>b) Describe the characteristics of each workshop eg. training and production workshop.</p> <p>c) Explain the uses of each workshop.</p>	<p>i) The teacher to use questions to guide students to identify types of workshops.</p> <p>ii) The teacher to organise students in groups and use questions to guide them to:</p> <ul style="list-style-type: none"> <li>- Describe the characteristics of each workshop eg. training and production workshop.</li> <li>- Explain the uses of each workshop.</li> </ul> <p>iii) Students to present their responses for sharing and discussion.</p>	<ul style="list-style-type: none"> <li>• Manila sheet</li> <li>• Flip chart</li> <li>• Multimedia projector</li> <li>• Computer</li> <li>• TV Set</li> <li>• Recorded VHS/ CD/ VCD/DVD</li> <li>• Visiting workshop</li> </ul>	<p>1. Is the student able to identify types of workshops?</p> <p>2. Is the student able to describe the characteristics of each workshop eg. training and production workshop?</p> <p>3. Is the student able to explain the uses of each workshop?</p>	2

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iv) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks done in part (i) and (ii).			
	1.3 Workshops Tools and Equipment	<p>The student should be able to:</p> <p>a) Differentiate hand tools and machine tools.</p> <p>b) List all hand and machine tools used in building construction workshops.</p> <p>c) Explain the application of each hand and machine tools.</p>	i) The teacher to use questions to guide students to: <ul style="list-style-type: none"> <li>- Differentiate “hand tools” and “machine tools”.</li> <li>- List hand and machine tools based on different trade in construction industry (i.e., Masonry, construction, Wood workshop).</li> </ul>	<ul style="list-style-type: none"> <li>• Different types of Building Construction workshops</li> <li>• Manila sheet</li> <li>• Flip chart</li> <li>• Multimedia projector</li> <li>• Marker pens</li> </ul>	<p>1. Is the student able to differentiate hand tools and machine tools?</p> <p>2. Is the student able to list all hand and machine tools used in building construction workshops?</p>	4

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		d) Use hand tools and machine tools.	<ul style="list-style-type: none"> <li>- Explain the application of each hand and machine tool.</li> <li>ii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks done in part (i).</li> </ul>	<ul style="list-style-type: none"> <li>• Poster with different types of hand tools and m/c tools</li> <li>• Pencil</li> <li>• Building square</li> <li>• Measuring tape</li> <li>• Ruler</li> </ul>	<p>3. Is the student able to explain the application of each hand and machine tools?</p> <p>4. Is the student to use hand tools and machine tools?</p>	
	1.4 Safety Measures in Construction workshops	<p>The student should be able to:</p> <p>a) Identify the rules of personal safety when working in different building construction workshops.</p>	i) The teacher to use brainstorming questions to guide students to identify the rule of personal safety when working in different Building Construction workshops.	<ul style="list-style-type: none"> <li>• Manila sheet</li> <li>• Flip chart</li> <li>• Multimedia projector</li> <li>• Fire extinguisher</li> <li>• Safety boot</li> <li>• Gloves</li> <li>• Safety rules</li> <li>• Safety hat</li> </ul>	1. Can the student identify the rules of personal safety when working in different building construction workshops?	12

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		b) Explain the hand tools and machine tools safety rules in building construction workshop. c) Explain the main causes of accidents in workshops. d) Explain how to maintain hand and machine tools safety rules in different building construction workshops. e) Describe how to avoid/ prevent accidents in workshops.	ii) The teacher to use questions to guide students to explain the hand and machine tools safety rules in building construction workshop. iii) The teacher to organise students in groups and use questions to guide them to: <ul style="list-style-type: none"> <li>- Explain the main causes of accidents in building construction workshops.</li> <li>- Explain how to maintain hand and machine tools safety rules in different building construction workshops</li> </ul>	<ul style="list-style-type: none"> <li>• Posters/ pitches with different lifting techniques</li> <li>• DVD/VCD</li> <li>• Computer</li> <li>• Poster/ pictures with different safety symbols</li> </ul>	2. Can the student explain the hand tools and machine tools safety rules in building construction workshop? 3. Can the student explains the main causes of accidents in building construction workshop? 4. Can the student explain how to maintain machine safety rules in different building construction workshops?	

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		f) Explain and show how to provide first aid in building construction workshops.	iv) The teacher to use questioning strategies (i.e., what, why and how questions) to guide students to: <ul style="list-style-type: none"> <li>- Describe how to avoid/ prevent accidents in workshops</li> <li>- Explain how to provide first aid in building construction workshops</li> </ul> v) Create activities for students to demonstrate on how to provide first aid in building construction workshop.		5. Can the student describe how to avoid/ prevent accidents in Building Construction workshop?  6. Can the student explain how to provide first aid in building construction workshops?	

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			vi) The teacher should monitor and facilitate the activities done on part (iv).  vii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks done in part (i-iv).			
<b>2.0 BUILDING CONSTRUCTION, SCIENCE AND TECHNOLOGY</b>	2.1 Relationship between building construction, science and technology and other construction fields.	The student should be able to: a) Explain the term building construction and technology as science.	i) The teacher to use questions to guide students to explain the meaning of building construction and technology as science.	<ul style="list-style-type: none"> <li>• Chalkboard</li> <li>• Manila sheet</li> <li>• Multimedia projector</li> <li>• Books</li> </ul>	1. Can the student explain the term building construction and technology as science?	4



TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		b) Identify the application of science and technology in building construction in daily life. c) Show relationship between building construction, science and technology and other construction fields. d) Differentiate the science of building construction and technology from other Engineering field.	v) The teacher to organise students in groups and use questions to guide them to: <ul style="list-style-type: none"> <li>- Identify the application of science and technology in building construction in daily life.</li> <li>- Show relationship between building construction, science and technology and other construction fields.</li> </ul>	<ul style="list-style-type: none"> <li>• Poster of different scenarios of science, engineering and technology work in action</li> </ul>	2. Can the student identify the application of science and technology in building construction in daily life? 3. Can the student show relationship between building construction, science and technology and other construction fields?	

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			<p>iii) The teacher should use questioning strategies (i.e., what, why and how questions) to guide students to differentiate the science of building construction and technology from other Engineering field.</p> <p>iv) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks done in part (i-iii).</p>		4. Can the student differentiate the science of building construction and technology from other Engineering field?	

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	2.2 Types of Building Construction Professionals	<p>The student should be able to:</p> <p>a) Identify building construction professionals.</p> <p>b) Describe different building construction occupations.</p> <p>c) Explain the qualifications of each building construction occupation.</p> <p>d) Investigate the diversity of jobs according to economic sector.</p> <p>e) Identify building construction professional bodies</p>	<p>i) The teacher to use brainstorming questions to guide students to:</p> <ul style="list-style-type: none"> <li>- Identify building construction professionals.</li> <li>- Explain different building construction occupations.</li> </ul> <p>ii) The teacher to organise students in groups and use questions to guide them to explain the qualifications of each building construction occupation.</p>	<ul style="list-style-type: none"> <li>• Board</li> <li>• Manila sheet</li> <li>• Flip chart</li> <li>• Books</li> <li>• Multimedia projector</li> <li>• Profesional bodies by laws (e.g. ADRB, CRB, ERB AAT)</li> <li>• Poster of different carriers</li> </ul>	<ol style="list-style-type: none"> <li>1. Can the student identify building construction professionals?</li> <li>2. Can the student describe different building construction occupations?</li> <li>3. Can the student explain the qualifications of each building construction occupation?</li> <li>4. Can the student investigate the diversity of jobs according to economic sector?</li> <li>5. Can a student identify building construction professional bodies?</li> </ol>	4

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			<p>iii) The teacher to use questioning strategies (what, how, and why questions) to guide students to investigate the diversity of jobs according to building construction professional bodies.</p> <p>iv) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks done in part (i-iii).</p>			

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	2.3 Duties and Functions of Building Construction Personnel	<p>The student should be able to:</p> <p>a) Describe duties of building construction personnel.</p> <p>b) Describe responsibilities of building construction personnels.</p> <p>c) Distinguish duties and responsibilities of each occupation form others.</p>	<p>i) The teacher to organise students in groups and use questions to guide them to:</p> <ul style="list-style-type: none"> <li>- Explain duties of building construction personnel (i.e., artisan, craftsman, Technician and Engineers etc).</li> <li>- Explain responsibilities of building construction personnels.</li> </ul> <p>ii) Students to present their responses for sharing and discussion.</p>	<ul style="list-style-type: none"> <li>• Manila sheet</li> <li>• Flip chart</li> <li>• Multimedia projector</li> <li>• Posters</li> <li>• Books</li> </ul>	<p>1. Can the student describe duties of building construction personnel?</p> <p>2. Can the student describe responsibilities of building construction personnels?</p> <p>3. Can the student distinguish duties and responsibilities of each occupation form others?</p>	2

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			<p>iii) The teacher to use questioning strategies (what, how, and why questions) to guide students to distinguish duties and responsibilities of each occupation from others.</p> <p>iv) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks done in part (i-iii)</p>			

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	2.4 The Importance of Building Construction Field in the Society and its Environment Impact	<p>The student should be able to:</p> <p>a) Describe the importance of building construction in the society.</p> <p>b) Identify building construction opportunities in the society.</p>	<p>i) The teacher to use questioning strategies (what, how, and why questions) to guide students to:</p> <ul style="list-style-type: none"> <li>- Describe the importance of building construction in the society.</li> <li>- Identify building construction opportunities in the society.</li> </ul> <p>ii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks done in part (i) and (ii).</p>	<ul style="list-style-type: none"> <li>• Chalk board</li> <li>• Manila sheet</li> <li>• Flip chart</li> <li>• Multimedia projector</li> <li>• Posters</li> <li>• Books</li> <li>• Marker pens</li> </ul>	<p>1. Can the student describe the importance of building construction in the society?</p> <p>2. Can the student identify building construction opportunities in the society?</p>	4

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	2.5 Parts of the Building/ Structure	<p>The students should be able to:</p> <p>a) Describe the super-structure of the building.</p> <p>b) Describe the sub-structure of the building.</p> <p>c) Distinguish the super-structure and sub-structure of the building by using well illustrated skeleton.</p>	<p>i) The teacher to use questions to guide students to:</p> <ul style="list-style-type: none"> <li>- Describe the super-structure of the building.</li> <li>- Explain the sub-structure of the building.</li> </ul> <p>ii) The teacher to use questioning strategies (i.e., what, why and how questions) to guide students to distinguish the super-structure and sub-structure of the building.</p> <p>iii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks done in part (i) and (ii).</p>	<ul style="list-style-type: none"> <li>• Chalk board</li> <li>• Manila sheet</li> <li>• Flip chart</li> <li>• Multimedia projector</li> <li>• Posters</li> <li>• Books</li> <li>• Marker pens</li> <li>• Building Drawing</li> <li>• Site visit</li> <li>• Building model</li> </ul>	<p>1. Can the student describe the super-structure of the building?</p> <p>2. Can the student describe the sub-structure of the building?</p> <p>3. Can the student distinguish the super-structure and sub-structure of the building?</p>	2



TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
<b>3.0 CONSTRUCTION WORKSHOP PRACTICE</b>	3.1 Tools and Equipment	<p>The student should be able to:</p> <ul style="list-style-type: none"> <li>a) Use building construction workshop tools and equipment properly.</li> <li>b) Use different types of construction materials.</li> <li>c) Apply safety procedures and regulation in Building Construction workshops.</li> <li>d) Use workshop equipment to perform simple Building Construction tasks.</li> </ul>	<ul style="list-style-type: none"> <li>i) The teacher to create activities for students to: <ul style="list-style-type: none"> <li>- Use tools and equipment in building construction workshops</li> <li>- Apply safety procedures and regulation in building construction workshop.</li> <li>- Use workshop equipment to perform simple building construction tasks.</li> <li>- Use building construction workshop tools and equipment to measure and mark various works.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Tools and equipment</li> <li>• Material</li> <li>• Poster</li> <li>• Multimedia</li> <li>• TV set</li> <li>• Computer</li> <li>• VHS/CD/ VCD /DVD</li> <li>• Building catalogs.</li> </ul>	<ul style="list-style-type: none"> <li>1. Can the student use building construction workshop tools and equipment properly?</li> <li>2. Can the student use different types of construction materials?</li> <li>3. Can the student apply safety procedures and regulation in Building Construction workshops?</li> <li>4. Can the student use workshop equipment to perform simple Building Construction tasks?</li> </ul>	32

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			ii) The teacher should monitor and facilitate the activities done on part (i). iii) Students to present their work for sharing and discussion. iii) With the aid of preprepared assessment guideline, the teacher should guide students to assess the activities performed in part (i). iv) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks done in part (i-iii).			

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
<b>4.0INTRODUCTION TO BUILDING CONSTRUCTION</b>	4.1 Historical Background / Development of Building Construction and Materials.	<p>The student should be able to:</p> <p>a) Explain the general history of building construction.</p> <p>b) Identify different types of building in construction industry.</p> <p>c) Explain the historical background of brickwork and masonry work.</p> <p>d) Describe the historical background of plumbing, painting and wood works.</p>	<p>i) The teacher to organise students in groups and use questions to guide them to describe the general history of building construction (i.e. Brick work, plumbing, Woodwork, Painting, etc).</p> <p>ii) Students to present their responses for sharing and discussion.</p> <p>iii) The teacher to use question strategies (i.e., what, why and how questions) to guide students to:</p> <ul style="list-style-type: none"> <li>- Describe the historical background of brick works or masonry works.</li> </ul>	<ul style="list-style-type: none"> <li>• Manila sheets</li> <li>• Marker Pens</li> <li>• Posters</li> <li>• Multi media</li> <li>• Building materials</li> <li>• Building model</li> </ul>	<p>1. Can the student explain the general history of building construction?</p> <p>2. Is the student able to identify different types of building in construction industry?</p> <p>3. Is the student able to Explain the historical background of brickwork and masonry work?</p> <p>3. Is the student able to describe the historical background of plumbing, painting and wood works?</p>	3

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			<ul style="list-style-type: none"> <li>- Describe the historical background of plumbing, painting and wood works.</li> </ul> <p>iv) The teacher should give feedback and use students' responses as feedback to support students in explaining the history and historical background of different building construction works.</p>			

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	4.2 Relationship between Building Construction Works and other Trades	<p>The student should be able to:</p> <p>a) Identify major trades that form building construction.</p> <p>b) Describe the role of each trade in building construction.</p> <p>c) Distinguish the role of building construction professional from surveyor, Engineers e.g. structural, electrical, mechanical georitical/ soil engineer, architecture and etc)</p>	<p>i) The teacher to organise students in groups and use questions to guide them to:</p> <ul style="list-style-type: none"> <li>- Identify major trades that form building construction.</li> <li>- Describe the role of each trade in building construction (such as painting, brickwork woodwork etc).</li> </ul>	<ul style="list-style-type: none"> <li>• Chalk Board</li> <li>• Manila sheets</li> <li>• Posters</li> <li>• Multimedia</li> </ul>	<ol style="list-style-type: none"> <li>1. Can the student identify major trades that form building construction.?</li> <li>2. Can the student explain the role of each trade in construction?</li> <li>3. Can the student distinguish the role of building construction professional from surveyor, Engineers?</li> </ol>	3

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		c) Draw a chart showing the schematic presentation of the relationship between building construction trade and other trades.	<ul style="list-style-type: none"> <li>- Distinguish the role of Building construction professionals from surveyor, Engineers, architects and etc)</li> <li>ii) Students to present their responses for sharing and discussion.</li> <li>iii) The teacher to create activities for students to draw a chart showing the schematic presentation of the relationship between building construction trade and other trades.</li> </ul>		4. Can the student draw a chart to show the schematic presentation of building construction trades and their relationships?	

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			v) With the aid of pre-prepared assessment guideline, the teacher should guide students to assess the activities performed in part (iii).  vi) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks done in part (i-iv).			
	4.3 Factors that Govern Changes of Technology in Building Construction	The student should be able to: a) Explain the meaning of building construction technology.	i) The teacher to use question and answer method guide students to explain the term building construction technology.	<ul style="list-style-type: none"> <li>Manila sheets</li> <li>Marker Pens</li> <li>Posters</li> <li>Multi media</li> </ul>	1. Can the student explain the meaning of building construction technology?	3

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		b) Describe the role of building construction technology to individual lives and the society at large. c) Identify major factors that cause changes of building construction technology. d) Explain the use of IT in building construction works. e) Use IT in building construction works.	ii) The teacher to use questioning strategies (i.e., what, why and how questions) to guide students to describe the role of building construction technology to individual lives and the society at large. iii) The teacher to organise students in groups and use questions to guide them to identify and major factors that cause changes of building construction Technology.		2. Can the student describe the role of building construction technology to individual lives and the society at large? 3. Can the student identify major factors that cause changes of building construction Technology? 4. Can the student explain the use of IT in building construction? 5. Can the student use IT in building construction works?	



TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iv) The teacher should create activities for students to use IT in building construction works. v) Students to present their responses for sharing and discussion. vi) The teacher should give feedback and use students' responses as feedback to support students in describing the role of IT in building construction works.			

## **FORM II**

### **CLASS LEVEL COMPETENCIES**

By the end of Form II, the student should have ability to:

- a) carry out site preparation for building construction;
- b) build foundation, walls and fire place for simple buildings;
- c) erect temporary supports for building construction works;
- d) prepare concrete mixes and erect beams and columns for simple buildings; and
- e) identify types of bricks, blocks/mortar and their manufacturing processes.

### **CLASS LEVEL OBJECTIVES**

By the end of Form II, the student should be able to:

- a) explain how to carry out building construction site preparation;
- b) describe how to build foundation, walls and fire place for simple buildings;
- c) explain how to prepare concrete mixes for simple building construction works;
- d) describe how to erect temporary supports for building construction works; and
- e) describe how to erect beams and columns for simple buildings.

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
<b>1.0 BUILDING CONSTRUCTION, SITE ANALYSIS</b>	1.1 Site Analysis	<p>The student should be able to:</p> <ol style="list-style-type: none"> <li>Define the term site analysis.</li> <li>Describe purpose of site analysis.</li> <li>Identify methods of site analysis.</li> </ol>	<ol style="list-style-type: none"> <li>The teacher to use brainstorming questions to guide students to define the term site analysis.</li> <li>The teacher to organise students in groups and use questions to guide them to. <ul style="list-style-type: none"> <li>Explain purpose of site analysis.</li> <li>Identify methods of site analysis.</li> </ul> </li> <li>Students to present their responses for sharing and discussion</li> </ol>	<ul style="list-style-type: none"> <li>Manila sheets</li> <li>Marker Pens</li> <li>Posters</li> <li>Multi media, TV, Computer</li> </ul>	<ol style="list-style-type: none"> <li>Can the student explain site analysis?</li> <li>Can the student explain the purpose of site analysis?</li> <li>Can the student identify all the methods of site analysis?</li> </ol>	3

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iv) The teacher should give feedback and use students' responses as feedback to support students in clarifying the meaning, purposes and methods of site investigation.			
	1.2 Site Preparation	<p>The student should be able to:</p> <p>a) Clarify the meaning of the term construction site preparation.</p> <p>b) Elaborate the purpose of construction site preparation.</p>	<p>i) The teacher to use questions and answer methods to guide students to :</p> <ul style="list-style-type: none"> <li>- Clarify the meaning of the term construction site preparation.</li> </ul>	<ul style="list-style-type: none"> <li>• Manila sheets</li> <li>• Marker Pens</li> <li>• Posters</li> <li>• Multimedia, TV, Computer</li> </ul>	<p>1. Can the student explain the meaning of the term construction site preparation?</p> <p>2. Can the student explain the purpose of construction site preparation?</p>	3

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		c) Identify all major activities done during site preparation.  d) Prepare a sketch to show all site accommodation structures or services.	<ul style="list-style-type: none"> <li>- Elaborate the purpose of construction site preparation.</li> <li>ii) The teacher to use questioning strategies (what, why and how questions) to guide the students to identify the major activities done during site preparation.</li> <li>iii) The teacher to create activities for students to prepare a sketch which shows all site accommodation structures or service.</li> </ul>		3. Can the student identify all major activities done during site preparation?  4. Can the student prepare a sketch to show all site accommodation structure or services?	

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			<p>iii) The teacher should monitor and facilitate the activities done on part (iii).</p> <p>iv) With the aid of preprepared assessment guideline, the teacher should guide students to assess the activities performed in part (iii).The teacher should give feedback and use students' responses as feedback to support students in elaborating the meaning, purposes and methods of site preparation.</p>			

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	1.3 Safety	<p>The student should be able to:</p> <p>a) Define a term safety in building construction.</p> <p>b) Identify site safety regulations related to temporary supports.</p> <p>c) Identify personal safety gears in building construction.</p>	<p>i) The teacher to organize students into small groups and guide them to:-</p> <ul style="list-style-type: none"> <li>- Describe the meaning of safety in building construction site.</li> <li>- Identify safety regulations related to temporary supports (Scaffolds, shores and ladders).</li> <li>- List personal safety gears in building construction.</li> </ul> <p>ii) Students to present their responses for sharing and discussion.</p>	<ul style="list-style-type: none"> <li>• Manila sheets</li> <li>• Marker Pens</li> <li>• Posters</li> <li>• Multimedia, TV, Computer</li> </ul>	<p>1. Can the student describe a term safety in building construction?</p> <p>2. Can the student Identify site safety regulations related to temporary supports?</p> <p>3. Can the student identify personal safety gears in building construction?</p>	8

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iii) The teacher should give feedback and use students' responses as feedback to support students in identifying and explaining safety regulations and gears in building construction works.			
	1.4 Soil Investigation	The students should be able to: a) Define the term soil exploration. b) Elaborate the purpose of soil exploration in building construction.	i) The teacher to use brainstorming questions to guide students to define the term soil exploration. ii) The teacher to use questioning strategies (what, how, and why questions) to guide students to:	<ul style="list-style-type: none"> <li>Manila sheets</li> <li>Marker Pens</li> <li>Posters</li> <li>Multimedia, TV, Computer</li> </ul>	1. Can the student define the term soil exploration?	2



TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		c) Describe methods of soil investigation in building construction work.	<ul style="list-style-type: none"> <li>- Elaborate purpose of soil investigation in building construction.</li> <li>- Describe methods of soil investigation in building construction work.</li> </ul> <p>iii) The teacher should give feedback and use students' responses as feedback to support students in explaining the term, purposes and methods of soil investigation in building construction works.</p>		<p>2. Can the student elaborate the purpose of soil investigation in building construction work?</p> <p>3. Can the student describe methods of soil investigation in building construction work?</p>	2

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	1.5 Classification of soil	<p>The students should be able to:</p> <p>a) Classify the classes of soil.</p> <p>b) Elaborate the characteristics of each classification of soil.</p> <p>c) Describe the effects of soil in building construction work.</p>	<p>i) The teacher to use questions to guide students to classify the classes of soil.</p> <p>ii) The teacher to use questioning strategies (what, how, and why questions) to guide students to:</p> <ul style="list-style-type: none"> <li>- Explain the characteristics of each classification of soil.</li> <li>- Describe the effects of soil in building construction work.</li> </ul> <p>iii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i) and (ii).</p>	<ul style="list-style-type: none"> <li>• Manila sheets</li> <li>• Marker Pens</li> <li>• Posters</li> <li>• Multimedia, TV, Computer</li> </ul>	<p>1. Can the student classify the classes of soil?</p> <p>2. Can the student elaborate the characteristics of soil classification?</p> <p>3. Can the student describe the effects of soil in building construction work?</p>	2

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
<b>2.0 BUILDING MATERIAL</b>	2.1 Timber	<p>The student should be able to:</p> <ol style="list-style-type: none"> <li>Distinguish the difference between hardwood and softwood.</li> <li>Describe methods of falling trees.</li> <li>Elaborate different methods of sawing timber.</li> </ol>	<ol style="list-style-type: none"> <li>The teacher to use questions to guide students to distinguish the different between hardwood and softwood.</li> <li>The teacher to organise students in groups and guide them to:               <ul style="list-style-type: none"> <li>Describe methods of falling trees.</li> <li>Describe different methods of sawing timber.</li> </ul> </li> <li>Students to present their responses for sharing and discussion.</li> <li>The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i) and (ii).</li> </ol>	<ul style="list-style-type: none"> <li>Posters</li> <li>Multimedia, TV, Compute</li> <li>Timber material</li> </ul>	<ol style="list-style-type: none"> <li>Can the student distinguish the different between hardwood and softwood?</li> <li>Can the student describe the methods of falling trees?</li> <li>Can the student elaborate different methods of sawing timber?</li> </ol>	2

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	2.2 Seasoning of Timber	<p>The student should be able to:</p> <p>a) Define the term seasoning of timber.</p> <p>b) Describe methods of seasoning of timber.</p> <p>c) Illustrate the ways of seasoning timber by using drawings.</p> <p>d) Calculate the percentage of moisture content in timber.</p>	<p>i) The teacher to use brainstorming questions to guide students to define the term seasoning of timber.</p> <p>ii) The teacher to use questions to guide students to:</p> <ul style="list-style-type: none"> <li>- Describe methods of seasoning of timber.</li> <li>- Illustrate the ways of seasoning timber by using drawings.</li> </ul> <p>iii) The teacher to create activities for students to calculate the percentage of moisture content in timber.</p>	<ul style="list-style-type: none"> <li>• Manila sheets</li> <li>• Marker Pens</li> <li>• Posters</li> <li>• Multimedia, TV, Compute</li> <li>• Timber material</li> </ul>	<p>1. Can the student define the term seasoning of timber.?</p> <p>2. Can the student describe the methods of seasoning of timber?</p> <p>3. Can the student Illustrate the ways of seasoning timber by using drawings?</p> <p>4. Can the student calculate the percentage of moisture content in timber?</p>	2

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			<p>iv) The teacher should monitor and facilitate the activities done on calculating the percentage of moisture content in timber.</p> <p>v) Students to present their work for sharing and discussion.</p> <p>vi) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-v).</p>			

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	2.3 Defects of Wood	<p>The student should be able to:</p> <p>a) Define the meaning of defect in timber.</p> <p>b) Characterise types of timber defects.</p>	<p>i) The teacher to use questions to guide students to:</p> <ul style="list-style-type: none"> <li>- Define the meaning of defect in timber.</li> <li>- Characterise types of timber defects.</li> </ul> <p>ii) The teacher should give feedback and use students' responses as feedback to support students in characterising the meaning and types of timber defects.</p>	<ul style="list-style-type: none"> <li>• Manila sheets</li> <li>• Marker Pens</li> <li>• Posters</li> <li>• Multimedia, TV, Compute</li> <li>• Timber material</li> </ul>	<p>1. Can the student define the meaning of defect in timber?</p> <p>2. Can the student characterise types of timber defects?</p>	2

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	2.4 Timber Treatment	<p>The student should be able to:</p> <p>a) Elaborate the purpose of timber treatment.</p> <p>b) Identify methods of treating timber for construction work.</p> <p>c) Describe methods of treating timber for construction work.</p>	<p>i) The teacher to use questioning strategies to guide students to elaborate the purpose of timber treatment.</p> <p>ii) The teacher to use questions to guide students in groups to:</p> <ul style="list-style-type: none"> <li>- Identify methods of treating timber for construction work.</li> <li>- Describe methods of treating timber for construction work.</li> </ul> <p>iii) Students to present their responses for sharing and discussion.</p>	<ul style="list-style-type: none"> <li>• Manila sheets</li> <li>• Marker Pens</li> <li>• Posters</li> <li>• Multimedia, TV, Compute</li> <li>• Timber treatment material</li> </ul>	<p>1. Can the student Elaborate the purpose of timber treatment?</p> <p>2. Can the student identify methods of treating timber for construction work?</p> <p>3. Can the student describe methods of treating timber for construction work?</p>	2

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iv) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i) and (ii).			
	2.5 Concrete Materials	<p>The student should be able to:</p> <p>a) List various components of concrete materials.</p> <p>b) Identify types of concrete in construction works.</p> <p>c) Describe the uses of concrete.</p>	<p>i) The teacher to use questions to guide students to:</p> <ul style="list-style-type: none"> <li>- Identify types of concrete in construction works.</li> <li>- List various types of concrete materials.</li> <li>- Identify materials used for concrete.</li> </ul>	<ul style="list-style-type: none"> <li>• Manila sheets</li> <li>• Marker Pens</li> <li>• Books</li> <li>• Multi media</li> <li>• Workshop Material for concrete mixes</li> <li>• Tools / machines/ equipment</li> </ul>	<p>1. Can the student list various types of concrete materials?</p> <p>2. Can the student identify various types of concrete in construction works?</p> <p>3. Can the student describe the uses of concrete?</p>	8



TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		d) Identify materials used for concrete mixing. e) Describe procedures for concrete mixing. f) Elaborate properties of concrete. g) Elaborate the importance of curing of concrete. h) Identify methods of testing strength of concrete. i) Prepare/ determine concrete mixes.	x) The teacher to use questions to guide students in groups to: <ul style="list-style-type: none"> <li>- Describe procedures for concrete mixing.</li> <li>- Describe properties of concrete.</li> <li>- Describe the importance of curing of concrete.</li> <li>- Elaborate how to maintain curing of concrete.</li> <li>- Identify methods of testing strength of concrete.</li> </ul>		4. Can the student Identify materials used for concrete mixing? 5. Can the student describe procedures for concrete mixing? 6. Can the student elaborate properties of concrete? 7. Can the student elaborate the importance of curing of concrete? 8. Can the student identify methods of testing strength of concrete?	

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			<p>iii) The teacher to design activities and guide students in groups to:</p> <ul style="list-style-type: none"> <li>- Prepare concrete mixes.</li> <li>- Manufacturing fresh concrete.</li> <li>- Maintain curing of concrete</li> </ul> <p>iv) The teacher should monitor and facilitate the activities done on part (ii).</p> <p>v) The students to presents their responses for sharing and discussion.</p>		9. Can the student prepare concrete mixes?	

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			<p>vi) With the aid of preprepared assessment guideline, the teacher should guide students to assess the activities performed in part (iii).</p> <p>iv) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-vi).</p>			

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	2.6 Metals	<p>The student should be able to:</p> <p>a) Identify different metals used in construction work.</p> <p>b) Elaborate the uses of metal in construction work.</p> <p>c) Differentiate metal and non metal</p>	<p>i) The teacher to use questioning strategies (what, why and how questions to guide students to:</p> <ul style="list-style-type: none"> <li>- Identify different metals used in construction work.</li> <li>- Elaborate the uses of metal in construction work.</li> <li>- Differentiate metal and non metal</li> </ul> <p>ii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i).</p>	<ul style="list-style-type: none"> <li>• Manila sheets</li> <li>• Marker Pens</li> <li>• Posters</li> <li>• Multimedia, TV, Compute</li> <li>• Metal material</li> </ul>	<p>1. Can the student identify different metals used in construction work?</p> <p>2. Can the student elaborate the uses of metal in construction work?</p> <p>3. Can the student differentiate metal and non metal?</p>	2

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	2.7 Glasses	<p>The student should be able to:</p> <p>a) Identify different glasses used in construction work.</p> <p>b) Elaborate the uses of glasses in construction work.</p>	<p>i) The teacher to use questions to guide students to identify different glasses used in construction work.</p> <p>ii) The teacher to organise students in groups and guide them to elaborate the uses of glasses in construction work.</p> <p>iii) Students to present their responses for sharing and discussion.</p> <p>iv) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i) and (ii).</p>	<ul style="list-style-type: none"> <li>Manila sheets</li> <li>Marker Pens</li> <li>Posters</li> <li>Multimedia, TV, Compute</li> <li>Glasses material</li> </ul>	<p>1. Can the student identify different glasses used in construction work?</p> <p>2. Can the student elaborate the uses of glasses in construction work?</p>	2

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	2.8 Plastics	<p>The student should be able to:</p> <p>a) Identify different plastics used in construction work.</p> <p>b) Elaborate the uses of plastics in construction work.</p>	<p>i) The teacher to use questions to guide students to identify different plastics used in construction work.</p> <p>ii) The teacher to organise students in groups and guide them to elaborate the uses of plastics in construction work.</p> <p>iii) Students to present their responses for sharing and discussion.</p> <p>iv) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i) and (ii).</p>	<ul style="list-style-type: none"> <li>Manila sheets</li> <li>Marker Pens</li> <li>Posters</li> <li>Multimedia, TV, Compute</li> <li>Plastic materials</li> </ul>	<p>1. Can the student identify different plastics used in construction work?</p> <p>2. Can the student elaborate the uses of plastics in construction work?</p>	2

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	2.9 Pipes	<p>The student should be able to:</p> <p>a) Identify different pipes used in construction work.</p> <p>b) Elaborate the uses of pipes in construction work.</p>	<p>i) The teacher to use questions to guide students to identify different pipes used in construction work.</p> <p>ii) The teacher to organise students in groups and guide them to elaborate the uses of pipes in construction work.</p> <p>iii) Students to present their responses for sharing and discussion.</p> <p>iv) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i) and (ii).</p>	<ul style="list-style-type: none"> <li>Manila sheets</li> <li>Marker Pens</li> <li>Posters</li> <li>Multimedia, TV, Compute</li> <li>Pipes materials</li> </ul>	<p>1. Can the student identify different pipes used in construction work?</p> <p>2. Can the student elaborate the uses of pipes in construction work?</p>	2

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	2.10 Bricks/ Blocks	<p>The student should be able to:</p> <p>a) Identify types of bricks/ blocks.</p> <p>b) List standard sizes of bricks/ blocks.</p> <p>c) Identify the uses of bricks in wall</p> <p>d) Differentiate types of bricks arrangement.</p>	<p>i) The teacher to organise students in groups and guide them to:</p> <ul style="list-style-type: none"> <li>- Identify types of bricks/ blocks</li> <li>- List of various types of bricks/ blocks.</li> </ul> <p>ii) Students to present their responses for sharing and discussion.</p> <p>iii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i).</p>	<ul style="list-style-type: none"> <li>• Manila sheets</li> <li>• Marker Pens</li> <li>• Posters</li> <li>• Multimedia, TV, Computer</li> <li>• Bricks/Blocks</li> </ul>	<p>1. Can the student identify types of bricks/ blocks?</p> <p>2. Can the student list standard sizes of bricks/ blocks?</p> <p>3. Can the student Identify the uses of bricks in wall?</p> <p>4. Can the student Differentiate types of bricks arrangement?</p>	2



TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	2.11 Procedures for Manufacturing Bricks/ Blocks	<p>The student should be able to:</p> <p>a) Identify materials used for production bricks/ blocks.</p> <p>b) Describe the procedure for producing of bricks/blocks.</p>	<p>i) The teacher to use questions to guide students to:</p> <ul style="list-style-type: none"> <li>- Identify materials used for producing bricks/blocks.</li> <li>- Explain procedure for producing bricks/ blocks.</li> </ul> <p>ii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i)</p>	<ul style="list-style-type: none"> <li>• Manila sheets</li> <li>• Marker Pens</li> <li>• Books</li> <li>• Multi media</li> <li>• Brick/block making machine</li> </ul>	<p>1. Can the student identify materials used for producing bricks/ blocks?</p> <p>2. Can the student describe the procedure for producing bricks/blocks?</p>	2

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	2.12 Functions of Blocks	<p>The student should be able to:</p> <p>a) Describe functions of bricks/blocks.</p> <p>b) Describe functional requirements of bricks/ blocks.</p>	<p>i) The teacher to organise students in groups and guide them to:</p> <ul style="list-style-type: none"> <li>- Describe functions of bricks/blocks.</li> <li>- Describe functional requirements of bricks/ blocks.</li> </ul> <p>ii) Students to present their responses for sharing and discussion.</p> <p>iii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i)</p>	<ul style="list-style-type: none"> <li>• Manila sheets</li> <li>• Marker Pens</li> <li>• Books</li> <li>• Multi media</li> </ul>	<p>1. Can the student describe functions of bricks/blocks?</p> <p>2. Is the student able to describe functional requirements of bricks/ blocks?</p>	2

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	2.13 Mortar Used in Building Construction	<p>The student should be able to:</p> <p>a) Define the term mortar as used in building construction.</p> <p>b) Identify types of mortar used in building construction.</p> <p>c) Identify materials used for manufacturing of mortar used in building construction.</p> <p>d) Describe the procedure for manufacturing of mortar used in building construction.</p> <p>e) Explain properties of mortar used in building construction.</p>	<p>i) The teacher to use brainstorming questions to guide students to define the term mortar as used in building construction.</p> <p>ii) The teacher to organise students in groups and guide them to:</p> <ul style="list-style-type: none"> <li>- Identify types of mortar used in building construction.</li> <li>- Identify materials used for manufacturing of mortar used in building construction.</li> </ul> <p>iii) The teacher to use questioning strategies (what, how and questions) to guide students to:</p>	<ul style="list-style-type: none"> <li>• Manila sheets</li> <li>• Marker Pens</li> <li>• Books</li> <li>• Multi media</li> <li>• Mortar materials</li> </ul>	<p>1. Is the student able to define a term mortar as used in building construction?</p> <p>2. Is the student able to identify types of mortar used in building construction?</p> <p>3. Is the student able to identify materials used for manufacturing of mortar used in building construction?</p> <p>4. Is the student able to describe the procedure for manufacturing of mortar used in building construction?</p>	1

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			<ul style="list-style-type: none"> <li>- Describe the procedure for manufacturing of mortar used in building construction.</li> <li>- Elaborate properties of mortar used in building construction.</li> </ul> <p>v) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-iii).</p>		5. Is the student able to elaborate the properties of mortar used in building construction?	

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
<b>3.0 WORKSHOP PRACTICE</b>	3.1 Workshop Practice in Building Construction	<p>The student should be able to:</p> <p>a) Make bricks/ blocks.</p> <p>b) Mix mortar used in building construction.</p>	<p>i) The teacher to organise students in groups and guide them to describe the processes of making:</p> <ul style="list-style-type: none"> <li>- Bricks/blocks.</li> <li>- Mortar used in building construction.</li> </ul> <p>ii) The teacher to arrange workshop practical and provide materials for making bricks/ blocks and guide students to:</p> <ul style="list-style-type: none"> <li>- Make bricks/ blocks.</li> <li>- Mix mortar</li> <li>- Make mortar.</li> </ul> <p>iii) The teacher to monitor and facilitate the activities done on preparing bricks and mortar.</p>	<p>Workshop.</p> <p>Material for manufacturing bricks/blocks.</p> <p>Tools/machines/ equipment</p>	<p>1. Can the student make bricks/blocks?</p> <p>2. Can the student mix mortar used in building construction?</p>	24

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			<p>iv) Students to present their work for sharing and discussion..</p> <p>v) With the aid of preprepared assessment guideline, the teacher should guide students to assess the activities performed in part (i).</p> <p>vi) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i) and (ii).</p>			

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
<b>4.0 MASONRY WORKS</b>	4.1 Introduction to Masonry Works in Building Construction	<p>The student should be able to:</p> <p>a) Define various terms used in masonry works.</p> <p>b) Describe masonry works in constructions.</p> <p>c) Elaborate application of masonry in construction works.</p>	<p>i) The teacher to use brainstorming questions to guide students to define various terms used in masonry works.</p> <p>ii) The teacher to organise students in groups and guide them to:</p> <ul style="list-style-type: none"> <li>- Elaborate masonry works in constructions.</li> <li>- Explain application of masonry in construction works.</li> </ul> <p>iii) Students to present their responses for sharing and discussion.</p>	<ul style="list-style-type: none"> <li>• Manila sheets</li> <li>• Marker Pens</li> <li>• Multi media</li> <li>• Multimedia, TV, Computer</li> <li>• Model knife</li> </ul>	<p>1. Can the student define various terms used in masonry works?</p> <p>2. Can the student describe masonry works in construction?</p> <p>3. Can the student elaborate application of masonry in construction works?</p>	2

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iv) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-iii)			
	4.2 Bonds and Bonding in masonry works	<p>The student should be able to:</p> <p>a) Define the meaning of the terms bonds and bonding as in masonry works.</p> <p>b) Identify types of masonry bonding.</p> <p>c) Sketch various types of masonry bonding.</p>	<p>i) The teacher to use brainstorming questions to guide students to define the meaning of the terms bonds and bonding as in masonry works</p> <p>ii) The teacher to use questions to guide students to identify types of masonry bonds.</p> <p>iii) Design activities for students to sketch types of masonry bonds.</p>	<ul style="list-style-type: none"> <li>Manila sheets</li> <li>Marker Pens</li> <li>Posters</li> <li>Multimedia, TV, Computer</li> </ul>	<p>1. Can the student define the meaning of the terms bonds and bonding as in masonry works?</p> <p>2. Can the student identify types of masonry bonds?</p>	4



TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			<p>iv) The teacher should monitor and facilitate the activities done on sketching different types of masonry bonds.</p> <p>v) Students to present sketches for various types of masonry bonds.</p> <p>iv) With the aid of preprepared assessment guideline, the teacher should guide students to assess the activities performed in part (i).</p>		3. Can the student sketch various types of masonry bonds?	

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			v) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-iii)			
	4.3 Stone Works	The student should be able to: a) Identify tools/ machines/ equipment used in stone works.	i) The teacher to use questions to guide students to identify tools/ machines/ equipment used in stone works.  ii) With the aid of preprepared assessment guideline, the teacher should guide students to perform the activities in part (iii).	<ul style="list-style-type: none"> <li>• Chalk Board</li> <li>• Manila sheets</li> <li>• Marker Pens</li> <li>• Posters</li> <li>• Multimedia, TV, Computer</li> <li>• Chalk Board</li> <li>• Manila sheets</li> </ul>	1. Can the student list tools/ machines/ equipment used in stone works?	3

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-v).	<ul style="list-style-type: none"> <li>• Marker Pens</li> <li>• Posters</li> <li>• Multimedia, TV, Computer</li> </ul>		
	4.4 Finishing to Stone Masonry Joints	<p>The student should be able to:</p> <ul style="list-style-type: none"> <li>a) Define the term finishing as used in masonry joints.</li> <li>b) Identify types of finishing to stone masonry joints.</li> <li>c) Sketch various stone masonry joints.</li> </ul>	<ul style="list-style-type: none"> <li>i) The teacher to use brainstorming questions to guide students to explain the meaning of the term finishing as used in masonry joints.</li> <li>ii) The teacher to use questions to guide students to identify types of finishing to stone masonry joints.</li> </ul>	<ul style="list-style-type: none"> <li>• Chalk Board</li> <li>• Manila sheets</li> <li>• Marker Pens</li> <li>• Posters</li> <li>• Multimedia, TV, Computer</li> </ul>	<ol style="list-style-type: none"> <li>1. Can the student define the term finishing as used in masonry joints?</li> <li>2. Can the student identify various types of finishing to stone masonry joints?</li> </ol>	2

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			<ul style="list-style-type: none"> <li>iii) The teacher to create activities for students to sketch various masonry joints.</li> <li>iv) The teacher should monitor and facilitate the activities done on part (iii).</li> <li>v) With the aid of preprepared assessment guideline, the teacher should guide students to perform the activities in part (iii)</li> <li>vi) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-v).</li> </ul>		3. Can the student sketch various masonry joints?	

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
<b>5.0 WORKSHOP PRACTICE</b>	5.1 Practice for Masonry Works	<p>The student should be able to:</p> <ol style="list-style-type: none"> <li>Describe the procedures for carrying out masonry walling and finishing works on masonry joints.</li> <li>Make masonry walling.</li> <li>Carry out finishing works on masonry joints.</li> <li>Use tools, machine/ equipment in stone work.</li> </ol>	<ol style="list-style-type: none"> <li>The teacher to organise students in groups and guide them to describe the procedures for carrying out masonry walling and finishing works on masonry joints.</li> <li>The teacher to provide students with tools/ equipment and material in a site and guide them to: <ul style="list-style-type: none"> <li>Carryout masonry walling.</li> <li>Carryout finishing works on masonry joints.</li> </ul> </li> </ol>	<ul style="list-style-type: none"> <li>Site for carrying out masonry walling</li> <li>Tools/ equipment machines</li> <li>Materials</li> </ul>	<ol style="list-style-type: none"> <li>Can the student describe the procedures for carrying out masonry walling and finishing works on masonry joints?</li> <li>Can the student make masonry walling?</li> <li>Can the student carryout finishing works on masonry joints?</li> </ol>	24

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			<p>iii) The teacher should monitor and facilitate the activities done on part (ii)</p> <p>iv) With the aid of preprepared assessment guideline, the teacher should guide students to use the guideline to perform the activities in part (ii).</p> <p>v) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-iii).</p>		4. Can the student use tools, machine/ equipment in stone work?	

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
<b>6.0 FOUNDATION SETTING OUT</b>	6.1 Foundation	<p>The student should be able to:</p> <ul style="list-style-type: none"> <li>a) Define the term foundations.</li> <li>b) Identify types of foundations.</li> <li>c) Classify foundation.</li> <li>d) Describe the purpose of foundations.</li> <li>e) State the functions of foundations.</li> <li>f) State the functional requirements of foundations.</li> </ul>	<ul style="list-style-type: none"> <li>i) The teacher to use brainstorming questions to guide students to: <ul style="list-style-type: none"> <li>- Define the term foundations.</li> <li>- Classify foundation.</li> <li>- Identify types of foundations.</li> </ul> </li> <li>ii) The teacher to use questioning strategies to guide students to: <ul style="list-style-type: none"> <li>- Describe the purpose of foundations.</li> <li>- State the functions of foundations.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Manila sheets</li> <li>• Marker Pens</li> <li>• Books</li> <li>• Multi media</li> <li>• Posters</li> </ul>	<ul style="list-style-type: none"> <li>1. Can the student define the term foundations?</li> <li>2. Can the student identify types of foundations?</li> <li>3. Can the student classify foundation?</li> <li>4. Can the student describe the purpose of foundations?</li> <li>5. Can the student state the functions of foundations?</li> </ul>	3

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			<ul style="list-style-type: none"> <li>- State the functional requirements of foundations.</li> <li>iii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i) and (ii).</li> </ul>		6. Can the student state the functional requirements of foundations?	
	6.2 Setting Out of Building	<p>The student should be able to:</p> <ul style="list-style-type: none"> <li>a) Elaborate the purpose a setting out building.</li> <li>b) Identify methods setting out building.</li> </ul>	i) The teacher to use questioning strategies to guide students to explain the purposes of setting out a building.	<ul style="list-style-type: none"> <li>• Manila sheets</li> <li>• Marker Pens</li> <li>• Books</li> <li>• Multi media</li> </ul>	<ul style="list-style-type: none"> <li>1. Can the student elaborate the purpose of setting out a building?</li> <li>2. Can the student Identify methods setting out building?</li> </ul>	8



TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		b) Differentiate types of setting out building.  c) Distinguish stages in setting out a building.	iv) The teacher to organise students in groups and guide them to: <ul style="list-style-type: none"> <li>- Identify methods of building and setting out building.</li> <li>- Differentiate types of setting out building.</li> </ul> v) Students to present their responses for sharing and discussion.  vi) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i) and (ii).		3. Can the student differentiate types of setting out building.?  4. Is the student able to distinguish stages in setting out a building?	

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	6.3 Building Foundation Trench Excavation	<p>The student should be able to:</p> <p>a) Elaborate the purpose of foundation trench excavation.</p> <p>b) Identify types of timbering to building foundation trenches.</p> <p>c) Sketch various types/method of timbering to foundation trenches.</p>	<p>i) The teacher to use questions to guide students to elaborate the purpose of foundation trench excavation.</p> <p>ii) The teacher to organise students in groups and guide them to identify types of timbering to foundation trenches.</p> <p>iii) The teacher to create activities and guide students to sketch various types/method of timbering to foundation trenches.</p>	<ul style="list-style-type: none"> <li>• Manila sheets</li> <li>• Marker Pens</li> <li>• Books</li> <li>• Multi media</li> <li>• Posters</li> </ul>	<p>1. Can the student elaborate the purpose of building foundation trench excavation?</p> <p>2. Can the student identify types of timbering to foundation trenches?</p> <p>3. Can the student sketch various types/ method of timbering to foundation trenches?</p>	8

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iv) The teacher to monitor and facilitate the activities performed on sketching various types/method of timbering to foundation trenches. v) Students to present their responses for sharing and discussion. vi) With the aid of pre-prepared assessment guideline, the teacher should guide students to use the guideline to perform the activities in part (iii).			

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			vii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-vi).			
	6.4 Dewatering	<p>The student should be able to:</p> <ol style="list-style-type: none"> <li>Define the term dewatering.</li> <li>Mention methods of dewatering water from the trench.</li> <li>Differentiate methods of dewatering.</li> </ol>	<ol style="list-style-type: none"> <li>The teacher to use questions to guide students to:               <ul style="list-style-type: none"> <li>Define the term dewatering.</li> <li>Mention methods of dewatering water from the trench.</li> </ul> </li> </ol>	<ul style="list-style-type: none"> <li>Buckers</li> <li>Pump</li> <li>Multimedia</li> </ul>	<ol style="list-style-type: none"> <li>Can the student define dewatering?</li> <li>Can the student list methods of dewatering water from the trench?</li> <li>Can the students differentiate methods of dewatering?</li> </ol>	3

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iv) The teacher to use questioning strategies (what, why and how questions) to guide students to differentiate methods of dewatering. v) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i) and (ii).			
	6.5 Leveling and Bottoming up a Building Foundation Trenches	The student should be able to: a) Identify tools/ equipment required for leveling and bottoming up a building foundation trenches.	i) The teacher to use questions to guide students to identify tools/ equipment required for leveling and bottoming up foundation trenches.	<ul style="list-style-type: none"> <li>Manila sheets</li> <li>Marker Pens</li> <li>Multi media</li> <li>Posters</li> </ul>	1. Can the student list tools/ equipment required for leveling and bottoming up foundation trenches?	3

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		b) Elaborate procedures of leveling and bottoming up a building foundation trenches.  c) Elaborate the purpose of bottoming up the foundation trench.	ii) Students to present a list of tools/ equipment required for leveling and bottoming up foundation trenches.  iii) The teacher to use questioning strategies (what, why and how questions) to guide students to: <ul style="list-style-type: none"> <li>- Elaborate procedures of leveling and bottoming up a building foundation trenches.</li> <li>- Elaborate the purpose of bottoming up the foundation trench..</li> </ul>		2. Can the student elaborate the procedures of leveling and bottoming up a building foundation trenches?  3. Can the student elaborate the purpose of bottoming up the foundation trench?	

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iv) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-iii).			
	6.6 The purpose of Blinding to Building Foundation Trench	<p>The student should be able to:</p> <p>a) Identify suitable blinding materials for building foundation trench.</p> <p>b) Describe the purpose of blinding to foundation trench.</p>	<p>i) The teacher to use brainstorming questions to guide students to identify blinding materials for building foundation trench.</p> <p>ii) The teacher to organise students in groups and guide them to:</p>	<ul style="list-style-type: none"> <li>• Manila sheets</li> <li>• Marker Pen</li> <li>• Books</li> <li>• Multi media</li> <li>• TV, computer</li> </ul>	1. Can the student identify suitable blinding materials for building foundation trench?	2

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		c) Elaborate the procedures for applying blinding materials to foundation.	<ul style="list-style-type: none"> <li>- Identify suitable blinding materials for building foundation trench.</li> <li>- Elaborate the purpose of blinding foundation trench.</li> </ul> <p>iii) The teacher should use questioning strategies to guide the students to explain procedures for blinding foundation trench.</p>		<p>2. Can the student describe the purpose of blinding to building foundation trench?</p> <p>3. Can the student elaborate the procedures for applying blinding materials to foundation?</p>	



TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iv) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-iii).			
<b>7.0 WORKSHOP PRACTICE</b>	7.1 Practical on Building Setting Out	The student should be able to: a) Prepare site for building setting out b) Excavate foundation trenches. c) Carryout leveling and bottoming up for building foundation trench.	i) The teacher to organise students in groups and guide them to explain procedures for preparing site for building setting out. ii) Students to present procedures for preparing site for building setting out for sharing and discussion.	<ul style="list-style-type: none"> <li>• Construction site</li> <li>• Tools / machines/ equipment</li> <li>• Construction site Tools / machines/ Equipment for setting out</li> </ul>	1. Can the student prepare site for setting out a building?  2. Can the student excavate foundation trenches?	32

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		c) Set out a simple Buildings.	<p>iv) Use questioning strategies (what, why and how questions) to guide students explain how to:</p> <ul style="list-style-type: none"> <li>- Excavate foundation trenches.</li> <li>- Carryout leveling and bottoming up for building foundation trench. Use angle measurements</li> </ul> <p>Set out a simple Buildings</p> <p>iv) The teacher to organize a study visit at the selected site, provide students with tools/ equipment and guide students to:</p>	<ul style="list-style-type: none"> <li>• Tools / machines/ equipment for excavation of trenches</li> <li>• Construction site, tools / machines/ equipment for leveling and bottoming up foundation trench</li> </ul>	<p>5. Can the student carryout leveling and bottoming up for building foundation trench?</p> <p>6. Can the student set out simple buildings?</p>	

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			<ul style="list-style-type: none"> <li>- Prepare site for building setting out.</li> <li>- Excavate foundation trenches.</li> <li>- Carryout leveling and bottoming up for building foundation trench.</li> <li>- Set out a simple Buildings.</li> </ul> <p>vii) The teacher to monitor and facilitate the activities performed on part (iv).</p>			

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			<p>viii) With the aid of preprepared assessment guideline, the teacher should guide students to assess the activities performed in part (iv).</p> <p>ix) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-vi).</p>			

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
<b>8.0 WALLS</b>	8.1 Concept of walls	<p>The student should be able to:</p> <ol style="list-style-type: none"> <li>Define a term wall.</li> <li>Identify types of walls and their uses.</li> <li>Mention standard sizes of wall.</li> <li>Describe classes of walls.</li> </ol>	<ol style="list-style-type: none"> <li>The teacher to use brainstorming questions to guide students to define a term wall.</li> <li>The teacher to organise students in groups and guide them to:               <ul style="list-style-type: none"> <li>Identify types of walls and their uses.</li> <li>Describe classes of walls.</li> <li>Mention standard sizes of walls.</li> </ul> </li> <li>Students to present their responses for sharing and discussion.</li> </ol>	<ul style="list-style-type: none"> <li>Manila sheets</li> <li>Marker Pens</li> <li>Posters</li> <li>Multimedia, TV, Computer</li> <li>Tindor</li> <li>Cement</li> <li>Sand</li> <li>Bricks</li> <li>Blocks</li> <li>Wall materials</li> </ul>	<ol style="list-style-type: none"> <li>Can the student define the term wall?</li> <li>Can the student list various types of walls and their uses?</li> <li>Can the student mention various standard sizes of wall?</li> <li>Can the student describe classes of walls?</li> </ol>	2

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iv) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-iii).			
	8.2 Wall functions and Functional Requirements	The student should be able to: a) Identify functions of walls. b) Describe functional requirements of walls.	i) The teacher to use questions to guide students to identify various functions of walls. ii) The teacher to organise students in groups and guide them to explain functional requirements of walls. iii) Students to present their responses for sharing and discussion.	<ul style="list-style-type: none"> <li>Manila sheets</li> <li>Marker Pens</li> <li>Posters</li> <li>Multimedia, TV, Computer</li> </ul>	1. Can the student list various functions of walls?  2. Is the student able to describe functional requirements of walls?	2

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iv) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i) and (ii).			
	8.3 Wall Finishing Material, (plaster, rendering, and stucco)	The student should be able to: a) Identify types of wall finishes. b) Elaborate the procedure for applying wall finishes. c) Distinguish the difference between plaster, rendering, and stucco.	i) The teacher to use questions to guide student to identify types of wall finishing materials. ii) The teacher to use questioning strategies (what, how and why questions) to guide students to: - Explain procedures for applying wall finishes.	<ul style="list-style-type: none"> <li>Manila sheets</li> <li>Marker Pens</li> <li>Posters</li> <li>Multimedia, TV, Computer</li> <li>Wall finishing materials</li> <li>Chalk Board</li> </ul>	1. Can the student list various types of wall finishes?  2. Can the student elaborate the procedure for applying wall finishes?	8

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		c) Conduct all types of wall finishes.	<ul style="list-style-type: none"> <li>- Explain differences between various types of wall finishes.</li> <li>iv) The teacher to provide students with tools wall finishing materials and guide them to carryout activities on wall finishes.</li> <li>v) The teacher to monitor and facilitate the activities performed on wall finishes.</li> </ul>		<p>3. Is the student able to distinguish the difference between plaster, rendering and stucco?</p> <p>4. Can the student conduct all types of wall finishes?</p>	



TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			v) With the aid of preprepared assessment guideline, the teacher should guide students to perform the activities in part (iii).  vii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-v).			
	8.4 Bridging of Openings	The student should be able to: a) Define the terms bridging and opening.	i) The teacher to use brainstorming questions to guide students to define the terms bridging and opening.	<ul style="list-style-type: none"> <li>Manila sheets</li> <li>Marker Pens</li> <li>Multimedia, TV, Computer</li> <li>Poster</li> </ul>	1. Can the student define the terms bridging and opening?	12

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		b) Identify methods of bridging of openings. c) Characterise the important features/ methods of bridging of openings. d) Sketch the different methods of Bridging of openings.	ii) The teacher to use questions to guide students to: <ul style="list-style-type: none"> <li>List methods of bridging openings.</li> <li>Explain the different methods of bridging openings.</li> </ul> iii) The teacher to organise students in groups and guide them to explain the important features of different methods of bridging of openings.	•	2. Can the student list the methods of bridging of openings? 3. Can the student characterise the important features of different methods of bridging of openings? 4. Can the student sketch different methods of Bridging of openings?	12

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iv) The teacher to design activities for students to sketch various methods of bridging of openings.  v) The teacher to monitor and facilitate the activities performed on sketching various methods of bridging of openings.  vi) Students to present sketches for various methods of bridging of openings.			

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			<p>vii) With the aid of preprepared assessment guideline, the teacher should guide students to perform the activities in part (iv)</p> <p>viii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-vii)</p>			

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	8.5 Door and Frame Fixing	<p>The students should be able to:</p> <p>a) Describe the procedure for fixing doors and frames.</p> <p>b) Fix frames and doors.</p>	<p>i) The teacher to use questioning strategies (what, how, and why questions) to guide the students to describe the procedure for fixing doors and frames.</p> <p>ii) The teacher to create activities for students to fix frames and doors.</p> <p>iii) The teacher to monitor and facilitate the activities performed on fixing frames and doors.</p> <p>iv) Students to present fixed frames and doors for sharing and discussion.</p>	<ul style="list-style-type: none"> <li>• Manila sheets</li> <li>• Marker Pens</li> <li>• Multimedia, TV, Computer</li> <li>• Tools, machines and equipment materials for door and frame fixing.</li> </ul>	<p>1. Can the student describe the procedure for fixing doors and frames?</p> <p>2. Can the student fix frames and doors?</p>	

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			<p>v) With the aid of preprepared assessment guideline, the teacher should guide students to assess the activities performed in part (ii).</p> <p>vi) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-v).</p>			

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	8.6 Doors and Windows Frame Fixing Methods (Metals, Timber, Aluminium)	<p>The student should be able to:</p> <p>a) Identify methods of fixing frames.</p> <p>b) Describe the important features / items of fixing frames.</p> <p>c) Describe different methods of fixing frame.</p> <p>d) Describe classification function and types of doors and windows frame.</p>	<p>i) The teacher to use questions to guide students to:-</p> <ul style="list-style-type: none"> <li>- Identify methods of fixing frames (doors and windows).</li> </ul> <p>ii) The teacher to organise students in groups and guide them to:</p> <ul style="list-style-type: none"> <li>- Describe important features of fixing frames (doors and windows).</li> <li>- Describe different methods of fixing frame (doors and windows frame).</li> </ul>	<ul style="list-style-type: none"> <li>• Manila sheets</li> <li>• Marker Pens</li> <li>• Books</li> <li>• Multi media</li> <li>• Site visit</li> <li>• Posters</li> <li>• Wood</li> <li>• Fixing materials</li> </ul>	<p>1. Can the student identify methods of fixing frames?</p> <p>2. Can the student describe the important features / items of fixing frames?</p> <p>3. Can the student describe different methods of fixing frame?</p> <p>4. Can the student describe classification function and types of doors and windows frame?</p>	2

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			<p>iii) The teacher to use questioning strategies (what, how, and why questions) to guide the students to describe function and types of doors and windows frame.</p> <p>iv) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-iii).</p>			



TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	8.7 Functions and Functional Requirement of External Wall Finishes (Glazing and copings and tiles) Painting and jointing.	<p>The student should be able to:</p> <p>a) List types of external wall finishes.</p> <p>b) Identify materials used for wall finishes.</p> <p>c) Elaborate the functions of external wall finishes.</p> <p>d) Elaborate the functional requirements of external wall finishes.</p>	<p>i) The teacher to use questions to guide students to:-</p> <ul style="list-style-type: none"> <li>- List types of external wall finishes.</li> <li>- Identify materials used for wall finishes.</li> </ul> <p>ii) The teacher to organise students in groups and guide them to:</p> <ul style="list-style-type: none"> <li>- Elaborate the functions of external wall finishes.</li> <li>- Elaborate the functional requirements of external wall finishes.</li> </ul>	<ul style="list-style-type: none"> <li>• Manila sheets</li> <li>• Marker Pen</li> <li>• Multi media</li> <li>• Book</li> <li>• Book</li> </ul>	<p>1. Can the student list type of external wall finishes?</p> <p>2. Can the student identify materials used for wall finishes?</p> <p>3. Can the student elaborate the functions of external wall finishes?</p> <p>4. Can the student elaborate the functional requirements of external wall finishes?</p>	4

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iii) Students to present their responses for sharing and discussion. iv) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-iii).			
	8.8 Coping and Corbel	Students should be able to: a) Identify the meaning of coping and corbel. b) Identify types of coping and corbel.	i) The teacher to use questions to guide students to: - Identify the meaning of coping and corbel. - Identify types of coping and corbel.	<ul style="list-style-type: none"> <li>Workshop.</li> <li>Material for constructing wall.</li> <li>Tools/ equipment.</li> </ul>	1. Can the student identify the meaning of coping and corbel? 2. Can the student identify types of coping and corbel?	2

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		c) Elaborate purposes of coping and corbel to the exposed wall.	ii) The teacher to organise students in groups and guide them to elaborate purposes of coping and corbel to the exposed wall.  iii) Students to present their responses for sharing and discussion.  iv) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-iii).		3. Can the student elaborate purposes of coping and corbel to the exposed wall?	

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	8.9 Pointing and Jointing	<p>The student should be able to:</p> <ol style="list-style-type: none"> <li>Define the meaning of pointing and jointing.</li> <li>Mention different types of pointing and jointing.</li> <li>Differentiate pointing and jointing.</li> </ol>	<ol style="list-style-type: none"> <li>The teacher to use brainstorming questions to guide students to explain the meaning of pointing and jointing.</li> <li>The teacher to organise students in groups and guide them to               <ul style="list-style-type: none"> <li>Mention different types of pointing and jointing.</li> <li>Differentiate pointing and jointing.</li> </ul> </li> <li>Students to present their responses for sharing and discussion.</li> </ol>	<ul style="list-style-type: none"> <li>Posters</li> <li>Text books</li> </ul>	<ol style="list-style-type: none"> <li>Can the student define the meaning of pointing and jointing?</li> <li>Can the student mention different types of pointing and jointing?</li> <li>Can the students differentiate pointing and jointing?</li> </ol>	

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iv) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-iii).			
<b>9.0 WORKSHOP PRACTICE</b>	9.1 Practical for Constructing Wall	The student should be able to erect walls using various types of bonds.	i) The teacher to organise activities in a selected site, and require students to erect walls using various types of bond.  ii) The teacher to monitor and facilitate student in wall building processes.	<ul style="list-style-type: none"> <li>• Workshop.</li> <li>• Material for constructing wall (water, sand, cement, bricks)</li> <li>• Tools/ equipment.</li> </ul>	Can the student erect walls using various types of bond?	32

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			<p>iii) With the aid of preprepared assessment guideline, the teacher should guide students to assess the activities performed in part (i) .</p> <p>iv) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i) and (iii).</p>			

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
<b>10.0 TEMPORARY SUPPORT</b>	10.1 Scaffolds, Shores and Ladder	<p>The student should be able to:</p> <ol style="list-style-type: none"> <li>Explain the function of scaffolds, shores and ladder.</li> <li>Describe type scaffolds.</li> <li>Describe type of shores.</li> <li>Explain functions of ladders.</li> </ol>	<ol style="list-style-type: none"> <li>The teacher should use questioning strategies to guide students to: -               <ul style="list-style-type: none"> <li>Explain the functions of Scaffolds, shores and ladder.</li> <li>Describe type scaffolds.</li> <li>Describe type of shores.</li> <li>Explain functions of ladders.</li> </ul> </li> <li>The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i).</li> </ol>	<ul style="list-style-type: none"> <li>Manila sheets</li> <li>Marker Pens</li> <li>Posters</li> <li>Books</li> <li>Multimedia, TV, Computer</li> </ul>	<ol style="list-style-type: none"> <li>Can the student explain the function of scaffolds, shores and ladder?</li> <li>Can the student describe types of scaffolds?</li> <li>Can the student describe types of shores?</li> <li>Can the student explain functions of ladders?</li> </ol>	6

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	10.2 Formwork and Centring	<p>The student should be able to:</p> <p>a) Define formwork and centring terminologies.</p> <p>b) Explain functions of a formwork and centring in building construction.</p> <p>c) Describe various types of formwork.</p> <p>d) Describe types of centring.</p>	<p>i) The teacher to use questions to guide students to define formwork and centring terminologies.</p> <p>ii) The teacher to organise students in groups and guide them to:</p> <ul style="list-style-type: none"> <li>- Explain the functions of a form work and centring in building.</li> <li>- Describe various types of formwork.</li> <li>- Describe types of centring.</li> </ul> <p>iii) Students to present their responses for sharing and discussion.</p>	<ul style="list-style-type: none"> <li>• Manila sheet</li> <li>• Marker Pen</li> <li>• Posters</li> <li>• Multimedia, TV, Computer</li> </ul>	<p>1. Can the student define formwork and centring terminologies.</p> <p>2. Can the student explain functions of a form work and centring in building construction?</p> <p>3. Can the student describe various types of formwork?</p> <p>4. Can the student describe types of centring?</p>	6



TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iv) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-iii).			
	10.3 Scaffold and Formwork Terminologies	<p>The student should be able to:</p> <p>a) Define scaffolds terminologies</p> <p>b) Define formwork terminologies.</p> <p>c) Differentiate between scaffolds terminologies and formwork terminologies.</p>	<p>i) The teacher to use brainstorming questions to guide students to:</p> <ul style="list-style-type: none"> <li>- Define scaffolds terminologies</li> <li>- Define formwork terminologies.</li> </ul> <p>ii) The teacher to organise students in groups and guide them to differentiate scaffolds terminologies from formwork terminologies.</p>	<ul style="list-style-type: none"> <li>• Manila sheets</li> <li>• Marker Pens</li> <li>• Posters</li> <li>• Books</li> <li>• Multimedia, TV, Computer</li> </ul>	<p>1. Can the student define scaffolds terminologies?</p> <p>2. Can the student define form work terminologies?</p> <p>3. Can the student differentiate scaffolds terminologies from formwork terminologies.</p>	2

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iii) Students to present their responses for sharing and discussion. iv) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-iii).			
	10.4 Practical on Erecting Scaffold, Formwork and Shores	The student should be able to: a) Erect Scaffolds. b) Erect formwork. c) Fix centring d) Erect shores	i) The teacher to arrange site visit and provide students with tools/ equipment and materials and guide them to: - Erect scaffolds. - Erect formwork. - Fix centring. - Erect shores.	<ul style="list-style-type: none"> <li>• Site visit</li> <li>• Tools / machines / equipment</li> <li>• Materials for erecting temporary supports</li> </ul>	1. Can the student erect Scaffolds? 2. Can the student erect formwork? 3. Can the student fix Centring?	24

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iv) The teacher to monitor and facilitate the activities done on erecting scaffolds, formwork and centring. v) The students to present their work for sharing and discussion. vi) With the aid of preprepared assessment guideline, the teacher should guide students to assess the activities performed in part (i) . vii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-iv).		4. Can the student Erect shores?	

## **FORM III**

### **CLASS LEVEL COMPETENCIES**

By the end of Form III, the student should have ability to:

- a) Construct roofs for buildings.
- b) Construct floors for buildings.
- c) Erect stair and staircases for buildings.
- d) Install domestic cold water supply system in buildings.
- e) Install domestic hot water supply system in buildings.

### **CLASS LEVEL OBJECTIVES**

By the end of Form III, the student should be able to:

- a) Construct roofs and floors for buildings.
- b) Construct stair and staircase for buildings.
- c) Carry out installation of pipes for cold and hot water supply systems in buildings.

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
<b>1.0 FLOORS</b>	1.1 Introduction to Floors	<p>The student should be able to:</p> <ol style="list-style-type: none"> <li>Identify different types of floors.</li> <li>Identify parts of a floor structure.</li> <li>Classify types of floors.</li> <li>Identify parts or members of a floor structure?</li> <li>Sketch various parts of a floor.</li> </ol>	<ol style="list-style-type: none"> <li>The teacher to use questions to guide students to: -               <ul style="list-style-type: none"> <li>Identify different types of floors.</li> <li>Identify parts/ members of a floor structure.</li> </ul> </li> <li>The teacher to organise students in groups and guide them to classify types of floors.</li> <li>The teacher to create activities for students to sketch various parts of a floor.</li> </ol>	<ul style="list-style-type: none"> <li>Manila sheet</li> <li>Posters</li> <li>Multimedia, TV, Computer</li> </ul>	<ol style="list-style-type: none"> <li>Can the student identify different types of floors?</li> <li>Can the student identify parts of a floor structure.</li> <li>Can the student classify types of floors?</li> <li>Can the student identify parts or members of a floor structure?</li> <li>Can the student sketch various parts of a floor?</li> </ol>	6

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iv) The teacher to monitor and facilitate the activities done on sketching various parts of floor.  v) With the aid of preprepared assessment guideline, the teacher should guide students to perform the activities in part (iii) .  vi) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-iv).			

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	1.2 Floors Finishes	<p>The students should be able to:</p> <p>a) Identify types of floor finishes.</p> <p>b) Identify material needed for floor finishes.</p> <p>c) Explain the functions of each of the materials required for floor finishes.</p>	<p>i) The teacher to use questions to guide students to identify types of floor finishes.</p> <p>ii) The teacher to organise students in groups and guide them to:</p> <ul style="list-style-type: none"> <li>- Identify material needed for floor finishes.</li> <li>- Explain the functions of each of the materials required for floor finishes.</li> </ul> <p>iii) The students to present their responses for sharing and discussion.</p>	<ul style="list-style-type: none"> <li>• Manila sheet</li> <li>• Posters</li> <li>• Multimedia, TV, Computer</li> <li>• Construction materials</li> </ul>	<p>1. Can the student identify types of floor finishes?</p> <p>2. Can the student identify material needed for floor finishes?</p> <p>3. Can the student explain the functions each of the required materials for floor finishes?</p>	2

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iv) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-iii).			
	1.3 Floor Construction	<p>The student should be able to:</p> <p>a) Describe the steps of construction solid ground floor. (floor on grade)</p> <p>b) Describe the steps of construction upper floor construction.</p>	<p>i) The teacher to organise students in groups and guide them to:</p> <ul style="list-style-type: none"> <li>- Describe the steps of construction solid ground floor.</li> <li>- Describe the steps of construction upper floor construction.</li> </ul>	<ul style="list-style-type: none"> <li>• Manila sheets</li> <li>• Marker Pens</li> <li>• Posters</li> <li>• Multimedia, TV, Computer</li> <li>• Construction materials</li> </ul>	<ol style="list-style-type: none"> <li>1. Can the student describe steps of construction solid ground?</li> <li>2. Can the student describe the steps of upper floor construction?</li> <li>3. Can the student describe the steps of raised timber floor construction?</li> </ol>	4



TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		c) Explain the steps of construction raised timber floor.	<ul style="list-style-type: none"> <li>- Explain the steps of construction raised timber floor.</li> <li>iv) The students to present their responses for sharing and discussion.</li> <li>iii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i) and (ii).</li> </ul>			
	1.4 Practice	<p>The student should be able to construct:-</p> <ul style="list-style-type: none"> <li>a) Solid ground floor.</li> <li>b) Raised timber ground floor.</li> </ul>	i) The teacher to arrange a study visit to the selected site, provide students with tools/ equipment and materials and guide them to construct:	<ul style="list-style-type: none"> <li>• Site visits</li> <li>• Tools / machines.</li> <li>• Equipment</li> <li>• Materials</li> </ul>	1. Can the student construct solid ground floor?	24

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		c) Upper floor.	<ul style="list-style-type: none"> <li>- Solid ground floor.</li> <li>- Raised timber ground floor.</li> <li>- Upper floor.</li> </ul> <p>ii) The teacher to monitor and facilitate the activities done on constructing the above mentioned types of floor.</p> <p>iii) With the aid of preprepared assessment guideline, the teacher should guide students to perform the activities in part (i) .</p>		<p>2. Can the student construct raised timber ground floor?</p> <p>3. Can the student construct upper floor?</p>	

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iv) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-iii).			
<b>2.0 ROOFS</b>	2.1 Introduction to Roofs	<p>The student should be able to:</p> <ol style="list-style-type: none"> <li>Define roof terminologies.</li> <li>Describe the classifications of roofs.</li> <li>Use sketch and diagrams to explain the difference between flat and pitched roof</li> </ol>	<ol style="list-style-type: none"> <li>The teacher to use brainstorming questions to guide students to define roof terminologies.</li> <li>The teacher to use questions to guide students in groups to: <ul style="list-style-type: none"> <li>Describe the classifications of roofs.</li> </ul> </li> </ol>	<ul style="list-style-type: none"> <li>Manila sheets</li> <li>Marker Pens</li> <li>Posters</li> <li>Multimedia, TV, Computer</li> </ul>	<ol style="list-style-type: none"> <li>Can the student define roof terminologies?</li> <li>Can the student describe classifications of roofs?</li> </ol>	2

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			<ul style="list-style-type: none"> <li>- Use sketch and diagrams to explain the difference between flat and pitched roof</li> </ul> iii) The students to present their responses for sharing and discussion. iv) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-iii).		3. Can the student use sketch and diagrams to explain the difference between flat and pitched roof?	
	2.2 Functions and functional requirements of roofs	The student should be able to: a) State functions of a roofs.	i) The teacher to use questions to guide students to: - State functions of roofs.	<ul style="list-style-type: none"> <li>• Manila sheets</li> <li>• Marker Pens</li> <li>• Posters</li> <li>• Multimedia, TV, Computer</li> </ul>	1. Can the student state functions of roofs?	2

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		b) Describe functional requirements of a roofs.	<ul style="list-style-type: none"> <li>- Describe functional requirements of roofs.</li> <li>ii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i).</li> </ul>	<ul style="list-style-type: none"> <li>• Roofing materials</li> </ul>	2. Can the student describe functional requirements of roofs?	
	2.3 Types and Parts of Roofs	<p>The student should be able to:</p> <ul style="list-style-type: none"> <li>a) Identify types and parts of roofs.</li> <li>b) Describe various parts of roofs.</li> <li>c) Describe various types of roofs.</li> </ul>	<ul style="list-style-type: none"> <li>i) The teacher to use questions to guide students in groups to: <ul style="list-style-type: none"> <li>- Identify types and parts of roofs.</li> <li>- Describe various parts of roofs.</li> <li>- Describe various types of roofs.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Manila sheets</li> <li>• Marker Pens</li> <li>• Posters</li> <li>• Multimedia, TV, Computer</li> </ul>	<ul style="list-style-type: none"> <li>1. Can the student identify types and parts of roofs?</li> <li>2. Can the student describe various parts of roofs?</li> </ul>	3

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			ii) The students to present their responses for sharing and discussion. iii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i).		3. Can the student describe various types of roofs?	
	2.4 Roof Structures	The student should be able to: a) Define the term roof structure. b) Identify parts or members of a roof structure.	i) The teacher to use brainstorming questions to guide students to define the term roof structures. ii) The teacher to organise students in groups and guide them to identify parts or members of a roof structure	<ul style="list-style-type: none"> <li>Manila sheets</li> <li>Marker Pens</li> <li>Posters</li> <li>Multimedia, TV, Computer</li> </ul>	1. Can the student explain what a roof structure is? 2. Can the student identify parts or member of a roof structure?	2

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		c) Sketch various parts or members of a roof structures.	iv) Students to present their responses for sharing and discussion. v) The teacher to create activities for students to sketch various parts/ members of a roof structures. v) The teacher to monitor and facilitate the activities done on sketching various parts/ members of a roof structures. vi) With the aid of preprepared assessment guideline, the teacher should guide students to perform the activities in part (iv).		3. Can the student sketch various parts or members of a roof structure?	

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iv) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-vi).			
	2.5 Roof Covering Materials	<p>The student should be able to:</p> <p>a) Explain the term roof covering materials.</p> <p>b) Identify types of materials required for roof covering.</p> <p>c) Describe functions of each of each material required for roof covering.</p>	<p>i) The teacher to use questions to guide students to explain the term roof covering materials.</p> <p>ii) Guide students in group to identify types of materials required for roof covering.</p>	<ul style="list-style-type: none"> <li>Manila sheets</li> <li>Marker Pens</li> <li>Posters</li> <li>Multimedia, TV, Computer</li> </ul>	<p>1. Can the student explain the term roof covering material?</p> <p>2. Can the student Identify types of materials required for roof covering?</p>	2



TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iii) The teacher to use strategic questions (what, why and how questions) to guide students to describe functions of each material required for roof covering.  iv) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-iii).		3. Can the student describe functions of each of each material required for roof covering?	
	2.6Practice	The student should be able to: a) Explain the procedure for erecting roof structure.	i) The teacher to organise students in groups and guide them to: - Explain the procedure for erecting roof structure.	<ul style="list-style-type: none"> <li>• Site visits</li> <li>• Tools / machines / equipment</li> <li>• Roof materials</li> </ul>	1. Can the student explain the procedure for erecting roof structure?	24

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		b) Explain the procedure for fixing roof covering materials. c) Erect roof structure. d) Fix roof covering materials.	<ul style="list-style-type: none"> <li>- Explain the procedure for fixing roof covering materials.</li> </ul> ii) The teacher to arrange a site visit and provide them with tools/ equipment and materials and guide them to: <ul style="list-style-type: none"> <li>- Erect roof structure.</li> <li>- Fix roof covering materials.</li> </ul> iii) The teacher to monitor and facilitate the activities done on erecting and fixing roofs.		2. Can the student explain the procedure for fixing roof covering materials? 3. Can the student erect roof structure? 4. Can the student fix roof covering materials?	

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			<p>v) Students to present their work for sharing and discussion.</p> <p>vi) With the aid of preprepared assessment guideline, the teacher should guide students to perform the activities in part (ii).</p> <p>vii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-v).</p>			

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
<b>3.0 STAIR AND STAIRCASE</b>	3.1 Introduction to Stair and Staircase	<p>The student should be able to:</p> <p>a) Explain the difference between a stair and staircase.</p> <p>b) Identify the functions and functional requirements of a stair construction.</p> <p>c) Identify the functional materials required for stair construction.</p>	<p>i) The teacher to use questioning strategies to guide students to explain the difference between a stair and staircase.</p> <p>ii) The teacher to organise students in groups and guide them to:</p> <ul style="list-style-type: none"> <li>- Explain the functions of each of the material required for stair construction.</li> <li>- Identify the functional materials required for stair construction.</li> </ul> <p>iii) Students to present their work for sharing and discussion.</p>	<ul style="list-style-type: none"> <li>• Manila sheet</li> <li>• Marker Pens</li> <li>• Posters</li> <li>• Multimedia, TV, Computer</li> </ul>	<p>1. Can the student explain the difference between a stair and staircase?</p> <p>2. Can the student identify the functional materials required for stair construction?</p> <p>3. Can the student explain the functions of the functional materials required for stair construction?</p>	2

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iv) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-iii).			
	3.2 Terminologies Used in Stair	<p>The student should be able to:</p> <p>a) Define various terminologies used in stair.</p> <p>b) List various terms used in stair.</p> <p>c) Describe each type of stairs.</p> <p>d) Sketch plans and elevations of various types of stairs.</p>	<p>i) The teacher to use brainstorming questions to guide students to define various terminologies used in stair plans and elevations.</p> <p>ii) The teacher to organise students in groups and guide them to:</p> <ul style="list-style-type: none"> <li>- List various terms used in stair.</li> <li>- Describe each type of stairs.</li> </ul>	<ul style="list-style-type: none"> <li>• Manila sheets</li> <li>• Marker Pens</li> <li>• Posters</li> <li>• Multimedia, TV, Computer</li> </ul>	<p>1. Can the student define various terminologies used in stair?</p> <p>2. Can the student list various terms used in stair?</p> <p>3. Can the student describe each types of stairs?</p>	6

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			<p>iii) The teacher to create an activity for students to sketch plans and elevations of various types of stairs.</p> <p>iv) The teacher to monitor and facilitate the activities done on sketching plans and elevations of various stairs.</p> <p>v) Students to present their responses for sharing and discussion.</p> <p>vi) With the aid of preprepared assessment guideline, the teacher should guide students to perform the activities in part (iii).</p>		4. Can the student sketch plans and elevations of various stairs?	

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			<p>vii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-vi)</p> <p>viii) The teacher to monitor and facilitate the activities done on sketching plans and elevations of various ramps and thresholds.</p> <p>ix) Students to present their responses for sharing and discussion..</p>			

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	3.3 Ramps and Thresholds	<p>The student should be able to:</p> <p>a) Differentiate ramps from thresholds.</p> <p>b) Sketch plans and elevations of various ramps and thresholds.</p>	<p>i) The teacher to use questioning strategies to guide students to differentiate ramps from thresholds.</p> <p>ii) The teacher to create activities for students to sketch plans and elevations of various ramps and thresholds.</p> <p>iii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-v).</p>	<ul style="list-style-type: none"> <li>Manila sheets</li> <li>Marker Pens</li> <li>Posters</li> <li>Multimedia, TV, Computer</li> </ul>	<p>1. Can the student differentiate ramps from thresholds?</p> <p>2. Can the student sketch plans and elevations of various ramps and thresholds?</p>	3



TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	3.4 Stair Dimensioning	<p>The student should be able to:</p> <p>a) Explain rules and procedures governing stair construction.</p> <p>b) State the standard dimensions of stairs.</p> <p>c) Prepare drawing of simple stair.</p>	<p>i) The teacher to organise students in groups and guide them to: -</p> <ul style="list-style-type: none"> <li>- Explain rules and procedures governing stair design.</li> <li>- State the standard dimensions of stairs.</li> </ul> <p>ii) The teacher to create activities for students to prepare drawing of simple stair.</p> <p>iii) The teacher to monitor and facilitate the activities done on drawing simple stair.</p>	<ul style="list-style-type: none"> <li>• Manila sheets</li> <li>• Marker Pens</li> <li>• Posters</li> <li>• Multi media</li> </ul>	<p>1. Is the student able to explain the rules and procedures governing the stair design?</p> <p>2. Can the student state the standard dimensions of stairs?</p> <p>3. Can the student prepare drawing of simple stair?</p>	8

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			<p>iv) Students to present their work for sharing and discussion.</p> <p>v) With the aid of preprepared assessment guideline, the teacher should guide students to perform the activities in part (ii).</p> <p>vi) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-v).</p>			

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	3.5 Practice	<p>The student should be able to:</p> <p>a) Construct a simple concrete stair.</p> <p>b) Erect a simple timber stair.</p> <p>c) Erect other types stairs.</p>	<p>i) The teacher to arrange a study visit to the selected site and provide students with tools/ equipment and materials and guide them to: -</p> <ul style="list-style-type: none"> <li>- Construct a simple concrete stair.</li> <li>- Erect a simple timber stair.</li> <li>- Erect other types stairs (i.e., spiral metal etc.)</li> </ul> <p>ii) The teacher to monitor and facilitate the activities done on erecting different types of stairs.</p> <p>iii) Students to present their work for sharing and discussion.</p>	<ul style="list-style-type: none"> <li>• Site visits</li> <li>• Tools / machines</li> <li>• Equipment</li> <li>• Materials</li> <li>• Masonry and Bricklaying/ workshop</li> </ul>	<p>1. Can the student construct a simple concrete stair?</p> <p>2. Can the student erect a simple timber stair?</p> <p>3. Can the student erect other types stairs?</p>	32

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iv) With the aid of preprepared assessment guideline, the teacher should guide students to perform the activities in part (i).  v) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-iv).			
<b>4.0 PIPING SYSTEM</b>	4.1 Fixture and Fittings	The student should be able to:  a) Define the terms fixtures and pipe fittings.	i) The teacher to use brainstorming questions to guide students to define the terms fixtures and pipe fittings.	<ul style="list-style-type: none"> <li>• Chalk Board</li> <li>• Manila sheets</li> <li>• Marker Pens</li> <li>• Books</li> <li>• Multi media</li> </ul>	1. Can the student define the terms fixtures and pipe fittings?	4

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		b) Describe various types of fixtures and pipe fittings.  c) Explain the function of various fixtures and pipe fittings.	iv) The teacher to organise students in groups and guide them to: - - Describe various types of fixtures and pipe fittings. - Explain function of various fixtures and pipe fittings.  v) Students to present their work for sharing and discussion.  vi) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-iii).		2. Can the student describe various types of fixtures and pipe fittings?  3. Is the student able to explain the function of fixtures and pipe fittings?	

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	4.2 Pipe Bending and Supports	<p>The student should be able to:</p> <p>a) Describe various types of pipe bends.</p> <p>b) Describe various types of pipe supports.</p> <p>c) Explain procedures of bending and supporting pipes.</p> <p>d) Sketch various types of pipe supports.</p>	<p>i) The teacher to use questions to guide students to:</p> <ul style="list-style-type: none"> <li>- Describe various types of pipe bends</li> <li>- Describe various types of pipe support.</li> </ul> <p>ii) The teacher to organise students in groups and guide them to explain procedures of bending and supporting pipes</p> <p>iii) Students to present their response for sharing and discussion.</p> <p>iv) The teacher to create activities for students to sketch various types of pipe supports.</p>	<ul style="list-style-type: none"> <li>• Manila sheets</li> <li>• Marker Pens</li> <li>• Posters</li> <li>• Multi media</li> </ul>	<p>1. Can the student describe various types of pipe bends?</p> <p>2. Can the student describe various types of pipe supports?</p> <p>3. Is the student able to explain procedures of bending and supporting pipes?</p> <p>4. Is the student able to sketch various types of pipe supports?</p>	4

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			<p>v) The teacher to monitor and facilitate the activities done on sketching various types of pipe supports.</p> <p>vi) With the aid of preprepared assessment guideline, the teacher should guide students to assess the activities performed in part (iv).</p> <p>vii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-vi).</p>			

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	4.3 Threading	<p>The student should be able to:</p> <p>a) Describe various types/ sizes of pipe threads .</p> <p>b) Explain procedures of threading pipes.</p>	<p>i) The teacher to organise students in groups and guide them to:</p> <ul style="list-style-type: none"> <li>- Describe various types/sizes of pipe threads.</li> <li>- Explain procedures of threading pipes.</li> </ul> <p>ii) Students to present their responses for sharing and discussion.</p> <p>iii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i) and (ii).</p>	<ul style="list-style-type: none"> <li>• Manila sheets</li> <li>• Marker Pens</li> <li>• Posters</li> <li>• Multi media</li> </ul>	<p>1. Can the student describe various types/ sizes of pipe threads?</p> <p>2. Is the student able to explain procedures of threading pipes?</p>	3



TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	4.4 Practice Pipe Installation	<p>The student should be able to: -</p> <p>a) Cut pipes and thread pipes.</p> <p>b) Bend pipes.</p> <p>c) Fix and support pipes.</p>	<p>i) The teacher to take students to plumbing workshop, provide them with tools/ equipment and materials and guide them to: -</p> <ul style="list-style-type: none"> <li>- Cut and thread pipes.</li> <li>- Bend pipes.</li> <li>- Fix and support pipes.</li> </ul> <p>ii) The teacher to monitor and facilitate the activities done on cutting, bending, fixing and supporting pipes.</p>	<ul style="list-style-type: none"> <li>• Plumbing workshop</li> <li>• Site visits</li> <li>• Tools / machines</li> <li>• Equipment</li> <li>• Materials</li> </ul>	<p>1. Can the student cut and thread pipes?</p> <p>2. Can the student bend pipes?</p> <p>3. Can the student fix and support pipes?</p>	32

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iv) With the aid of preprepared assessment guideline, the teacher should guide students to perform the activities performed in part (ii).  v) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-iii).			
	4.5 Water Mains and its Distributions	The student should be able to: a) Identify the terms water mains and distribution pipes.	i) The teacher to use questions to guide students to: - - Identify the terms water mains and distribution pipes.	<ul style="list-style-type: none"> <li>Manila sheets.</li> <li>Marker Pens.</li> <li>Posters.</li> <li>Multimedia, TV, Computer.</li> </ul>	1. Is the student able to identify the terms water mains and distribution pipes.	6

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		b) Explain functions of water mains and their distribution pipes. c) Describe various types of water mains and its distribution pipe systems. d) Explain procedures/ principles governing installation of water mains and distribution pipe systems. e) Sketch various water mains and distribution pipe system.	<ul style="list-style-type: none"> <li>- Explain the functions of water mains and their distribution pipes.</li> <li>ii) The teacher to organise students in groups and guide them to:               <ul style="list-style-type: none"> <li>- Describe various types of water mains and its distribution pipe systems.</li> <li>- Explain procedures / principles governing installation of water mains and distribution pipe systems.</li> </ul> </li> <li>iii) The teacher to create activities for students sketch various water mains and distribution pipe system.</li> </ul>		2. Is the student able to explain functions of water mains and their distribution pipes? 3. Can the student describe various types of water mains and its distribution pipe systems? 4. Is the student able to explain procedures/ principles governing installation of water mains and distribution pipe systems?	

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			<p>iv) The teacher to monitor and facilitate the activities done on sketching various water mains and distribution pipe system.</p> <p>v) With the aid of preprepared assessment guideline, the teacher should guide students to assess the activities performed in part (iii).</p> <p>vi) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-v).</p>		5. Can the student sketch various types of water mains and distribution pipe systems?	

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	4.6 Taping from Water Main	<p>The student should be able to:</p> <p>a) Explain the meaning of the term fittings for taping water from water mains.</p> <p>b) Describe various methods / procedures of taping water from water main.</p> <p>c) Sketch the diagram showing fittings for taping water from water main supply</p>	<p>i) The teacher to use questions to guide students to: -</p> <ul style="list-style-type: none"> <li>- Explain the meaning of the term fittings for taping water from water mains.</li> <li>- Describe various methods / procedures of taping water from water main.</li> </ul> <p>ii) The teacher to create activities for students to sketch fittings for taping water from water main.</p>	<ul style="list-style-type: none"> <li>• Manila sheets</li> <li>• Marker Pens</li> <li>• Posters</li> <li>• Multimedia, TV, Computer</li> </ul>	<p>1. Is the student able to explain the meaning of the term fittings for taping water from water mains?</p> <p>2. Can the student describe various methods / procedures of taping water from water main?</p> <p>3. Can the student sketch the diagram showing fittings for taping water from water mains?</p>	4

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			<p>iii) The teacher to monitor and facilitate the activities done on sketching the diagram showing fittings for taping water from water mains.</p> <p>iv) Students to present their work for sharing and discussion.</p> <p>v) With the aid of preprepared assessment guideline, the teacher should guide students to assess the activities performed in part (ii).</p>			

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			vi) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-v).			
	4.7 Practice for Installing Piping System	<p>The student should be able to:</p> <p>a) Select pipe materials for installing piping system.</p> <p>b) Select tools and equipments for installing and piping system.</p> <p>c) Thread pipe.</p> <p>d) Install simple piping system</p>	<p>i) The teacher to organise activities at plumbing workshop and guide students to:</p> <ul style="list-style-type: none"> <li>- Select pipe materials for installing piping system.</li> <li>- Select tools and equipments for installing and piping system.</li> <li>- Thread pipe.</li> <li>- Install simple piping system.</li> </ul>	<ul style="list-style-type: none"> <li>• Plumbing workshop</li> <li>• Tools and equipments</li> <li>• Pipe materials</li> <li>• Lubricants</li> <li>• Threat seal</li> <li>• Site kit</li> </ul>	<ol style="list-style-type: none"> <li>1. Can the student select pipe materials for installing piping system?</li> <li>2. Can the student select tools and equipments for installing piping system?</li> <li>3. Can the student thread pipe?</li> <li>4. Can the student install simple piping system?</li> </ol>	18

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			<p>ii) The teacher to monitor and facilitate the activities done on installing simple piping system.</p> <p>iii) With the aid of preprepared assessment guideline, the teacher should guide students to perform the activities in part (i).</p> <p>iv) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-iii).</p>			



TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
<b>5.0 WATER SUPPLY</b>	5.1 Sources of Water	<p>The student should be able to: -</p> <p>a) Identify sources of water.</p> <p>b) Explain the merits and demerits of various sources of water.</p>	<p>i) The teacher to use questions to guide students to identify sources of water supply.</p> <p>ii) Use questioning strategies (what, why and how questions) to guide students to explain the merits and demerits of various sources of water.</p> <p>iii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i) and (ii).</p>	<ul style="list-style-type: none"> <li>Manila sheets</li> <li>Marker Pens</li> <li>Posters</li> <li>Multimedia, TV, Computer</li> </ul>	<p>1. Can the student identify various sources of water?</p> <p>2. Is the student able to explain the merits and demerits of various sources of water?</p>	2

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	5.2 Types of water and their Uses	The student should be able to: a) Identify types of water. b) Explain uses of water.	i) The teacher to use questions to guide students to: - - Identify types of water. - Explain uses of water. ii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i).	<ul style="list-style-type: none"> <li>Manila sheets</li> <li>Marker Pens</li> <li>Posters</li> <li>Multimedia, TV, Computer</li> <li>Text books</li> </ul>	1. Is the student able to identify types of water? 2. Is the student able to explain types of water and their uses?	1
	5.3 Water Treatment	The student should be able to: a) Identify various water borne diseases.	i) The teacher to use questions to guide students to: - - Identify various water borne diseases. - Explain methods of water treatment.	<ul style="list-style-type: none"> <li>Manila sheets</li> <li>Marker Pens</li> <li>Posters</li> <li>Multimedia, TV, Computer</li> </ul>	1. Can the student identify various water borne diseases?	6

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		b) Explain methods of water treatment.  c) Describe procedures involved in various methods of water treatment.	ii) The teacher to organise students in groups and guide them to describe procedures involved in various methods of water treatment.  iii) Student to present their responses for sharing and discussion,  iv) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-iii).		2. Can the student explain methods of water treatment?  3. Can the student describe procedures involved in various methods of water treatment?	

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	5.4 Systems of Cold Water Supply	<p>The student should be able to:</p> <p>a) Describe. systems of cold-water supply.</p> <p>b) Sketch with the various systems of cold-water supply.</p> <p>c) Draw various systems of cold water supply.</p>	<p>i) The teacher to use questions to guide students to describe various systems of cold water supply.</p> <p>ii) The teacher to create activities for students to:</p> <ul style="list-style-type: none"> <li>- Sketch a diagram systems of cold water supply.</li> <li>- Draw various systems of cold water supply.</li> </ul> <p>iii) The teacher to monitor and facilitate the activities done on drawing systems of cold-water supply.</p>	<ul style="list-style-type: none"> <li>• Manila sheets</li> <li>• Marker Pen</li> <li>• Posters</li> <li>• Multimedia, TV, Computer</li> </ul>	<ol style="list-style-type: none"> <li>1. Can the student describe systems of cold water supply?</li> <li>2. Can the student sketch various systems of cold water supply?</li> <li>3. Can the student draw various systems of cold water supply?</li> </ol>	6

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iv) With the aid of preprepared assessment guideline, the teacher should guide students to perform the activities in part (ii).  v) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-iv).			
	5.5 System of Hot Water Supply	The student should be able to: a) Describe systems of hot-water supply.	i) The teacher to use questions to guide students to describe various systems of hot water supply.	<ul style="list-style-type: none"> <li>Manila sheets</li> <li>Marker Pens</li> <li>Posters</li> <li>Multimedia, TV, Computer</li> </ul>	1. Can the student describe systems of hot-water supply?	6

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		b) Sketch various systems of hot-water supply. c) Draw various systems of hot-water supply.	ii) The teacher to create activities for students to: <ul style="list-style-type: none"> <li>- Sketch a diagram systems of hot-water supply.</li> <li>- Draw various systems of hot-water supply.</li> </ul> iii) The teacher to monitor and facilitate the activities done on drawing systems of hot-water supply. iv) With the aid of preprepared assessment guideline, the teacher should guide students to perform the activities in part (ii).		2. Can the student sketch various systems of hot water supply? 3. Can the student draw various systems of hot-water supply?	

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			v) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-iv).			
	5.6 Heaters	<p>The student should be able to:</p> <p>a) Identify various types of water heaters.</p> <p>b) Describe the operating principles of various types of water heaters.</p>	<p>i) Teacher to organise students in pair and guide them to think and share various types of water heaters.</p> <p>ii) The teacher to use questioning strategies to guide students to describe the operating principles of various types of water heaters.</p>	<ul style="list-style-type: none"> <li>Manila sheets</li> <li>Marker Pens</li> <li>Posters</li> <li>Multimedia, TV, Computer</li> </ul>	<p>1. Can the student identify various types of water heaters?</p> <p>2. Can the student describe the operating principles of various types of water heaters?</p>	6

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i) and (ii).			
	5.7 Practice	<p>The student should be able to fix:</p> <p>a) Cold water supply distribution system.</p> <p>b) Hot water supply system.</p>	<p>i) The teacher to arrange plumbing workshop / site visit and provide students with tools/ equipment and materials and guide them to fix :</p> <ul style="list-style-type: none"> <li>- Cold water supply distribution system.</li> <li>- Hot water systems.</li> </ul> <p>ii) Students to present their work for sharing and discussion.</p>	<ul style="list-style-type: none"> <li>• Plumbing workshop</li> <li>• Site visits</li> <li>• Tools / machines</li> <li>• Equipment</li> <li>• Materials</li> </ul>	<p>1. Can the student fix cold water supply distribution system?</p> <p>2. Can the student to fix hot water system?</p>	24



TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			<p>iii) The teacher to monitor and facilitate the activities done on fixing cold and water supply system.</p> <p>iv) With the aid of preprepared assessment guideline, the teacher should guide students to perform the activities in part (i).</p> <p>v) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-iv).</p>			

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
<b>6.0 FIRE PLACE</b>	6.1 Introduction to Fire Place	<p>The student should be able to:</p> <p>a) Explain the term fireplace.</p> <p>b) Explain the importance of a fireplace.</p>	<p>i) The teacher to use questions to guide students to explain the term fireplace.</p> <p>ii) The teacher to use questioning strategies (what, why and how questions) to guide students to explain the importance of a fireplace.</p> <p>iii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i) and (ii).</p>	<ul style="list-style-type: none"> <li>• Manila sheets</li> <li>• Marker Pens</li> <li>• Books</li> <li>• Multi media</li> </ul>	<p>1. Can the student explain the term fireplace?</p> <p>2. Can the student explain the importance of a fireplace?</p>	1

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	6.2 Functions and Functional Requirement of a Fireplace	The student should be able to: a) Identify function of a fireplace. b) Describe functional requirements of a fireplace.	i) The teacher to use questions to guide students to: - Identify functions of fireplace. - Describe functional requirements of a fireplace.  ii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i).	<ul style="list-style-type: none"> <li>Manila sheets</li> <li>Marker Pens</li> <li>Books</li> <li>Multimedia TV, Computer</li> </ul>	1. Can the student identify function of a fireplace?  2. Can the student describe functional requirements of a fireplace?	1
	6.3 Types of fire place (plans and elevations)	The student should be able to: a) Identify types/ shapes of fireplace place plans.	i) The teacher to use questions to guide students to:- - Identify types of fireplace plans.	<ul style="list-style-type: none"> <li>Manila sheets</li> <li>Marker Pen</li> <li>Book</li> <li>Multimedia TV, Computer</li> </ul>	1. Can the student identify types/ shapes of fireplace place plans?	3

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		b) Identify types/ shapes of fireplace elevations. c) Mention standard sizes of fireplace.	- List various types of fireplace plans. - Mention standard sizes of fireplace. iv) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i).		2. Can the student identify types/ shapes of fireplace elevation? 3. Can the student mention standard sizes of fireplace?	
	6.4 Parts of Fire Place	The student should be able to: a) Identify parts of fireplace. b) Explain functions of various parts of fireplace.	i) The teacher to use questions to guide students to: - Identify parts of fireplace. - Explain functions of various parts of fireplace.	<ul style="list-style-type: none"> <li>Manila sheets</li> <li>Marker Pen</li> <li>Posters</li> <li>Multimedia TV</li> <li>Computer</li> </ul>	1. Can the student identify parts of fireplace? 2. Can the student explain functions of various parts of fireplace?	3

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		c) Sketch various parts of fireplace.	ii) The teacher to create activities for students to sketch various parts of fireplace.  iii) The teacher to monitor and facilitate the activities done on sketching various parts of fireplace.  iv) Students to present their work for sharing and discussion.  v) With the aid of preprepared assessment guideline, the teacher should guide students to perform the activities in part (ii).		3. Can the student sketch various parts of fireplace?	

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iv) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-v).			
	6.5 Fire Place Appliances	<p>The student should be able to:</p> <p>a) Identify fireplace appliances.</p> <p>b) Explain functions of fireplace appliances</p>	<p>i) The teacher to use questions to guide students to:-</p> <ul style="list-style-type: none"> <li>- Identify fireplace appliances.</li> <li>- Explain functions of fireplace appliances.</li> </ul> <p>ii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i).</p>	<ul style="list-style-type: none"> <li>• Manila sheets</li> <li>• Marker Pens</li> <li>• Posters</li> <li>• Multimedia, TV, Computer</li> </ul>	<p>1. Can the student identify fireplace appliances?</p> <p>2. Can the student explain functions of fireplace appliances?</p>	2

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	6.6 Methods of Construction of Fire Places	<p>The student should be able to:</p> <p>a) Identify materials for construction of fireplace.</p> <p>b) Identify methods of construction of fire places.</p> <p>c) Explain procedure for constructing a fireplace.</p> <p>d) Construct a fire place.</p>	<p>i) The teacher to use questions to guide students to identify:-</p> <ul style="list-style-type: none"> <li>- Materials for construction of fireplace.</li> <li>- Methods of construction of fire places.</li> </ul> <p>ii) The teacher to use questioning strategies to guide students to discuss procedure for constructing a fireplace.</p> <p>iii) The teacher to create activities for students to construct a fire place.</p>	<ul style="list-style-type: none"> <li>• Manila sheets</li> <li>• Marker Pens</li> <li>• Posters</li> <li>• Multimedia TV, Computer</li> </ul>	<ol style="list-style-type: none"> <li>1. Can the student identify materials for construction of fireplace?</li> <li>2. Can the student identify methods of construction of fire places?</li> <li>3. Can the student explain procedure for constructing a fireplace?</li> <li>4. Can the student construct a fire place?</li> </ol>	6

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iv) The teacher to monitor and facilitate the activities done on constructing a fireplace. v) Students to present their work for sharing and discussion. vi) With the aid of preprepared assessment guideline, the teacher should guide students to perform the activities in part (iii). vii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-vi).			



TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
<b>7.0 BEAMS AND COLUMNS</b>	7.1 Functions and Functional Requirements of Beams and Columns	<p>The student should be able to:</p> <p>a) Define the terms columns and beams.</p> <p>b) Identify functions of columns and beams.</p> <p>c) Identify functional requirements of columns and beams.</p>	<p>i) The teacher to use brainstorming questions to guide students to define the terms columns and beams.</p> <p>ii) The teacher to use questioning strategies to guide students to identify:-</p> <ul style="list-style-type: none"> <li>- Functions of beams and columns.</li> <li>- Functional requirements of beams and columns.</li> </ul> <p>iii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i) and (ii).</p>	<ul style="list-style-type: none"> <li>• Chalk Boar</li> <li>• Manila sheet</li> <li>• Marker Pens</li> <li>• Poster</li> <li>• Books</li> <li>• Multimedia, TV, Computer</li> </ul>	<p>1. Can the student define the terms columns and beams.</p> <p>2. Can the student list functions of columns and beams?</p> <p>3. Can the student list functional requirements of columns and beams?</p>	2

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	7.2 Types and shapes of columns and beams	<p>The student should be able to:</p> <p>a) Describe types and shapes of columns.</p> <p>b) Describe types and shapes of beams.</p>	<p>i) The teacher to use questions to guide students to describe types and shapes of:</p> <ul style="list-style-type: none"> <li>- Columns.</li> <li>- Beams</li> </ul> <p>ii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i).</p>	<ul style="list-style-type: none"> <li>• Chalk Board</li> <li>• Manila sheets</li> <li>• Marker Pens</li> <li>• Posters</li> <li>• Books</li> <li>• Multimedia, TV, Computer</li> </ul>	<p>1. Can the student describe types and shapes of columns?</p> <p>2. Can the student describe types and shapes of beams?</p>	2
	7.3 Beam and Column Casting	<p>The student should be able to:</p> <p>a) Describe the process of casting columns.</p> <p>b) Describe the process of casting beams.</p>	<p>i) The teacher to use questions to guide students to describe the process of casting:</p> <ul style="list-style-type: none"> <li>- Columns.</li> <li>- Beams.</li> </ul> <p>ii) The teacher should arrange students in groups and guide them to:</p>	<ul style="list-style-type: none"> <li>• Manila sheets</li> <li>• Marker Pens</li> <li>• Books</li> <li>• Multi media</li> <li>• Multi media</li> <li>• Colum and beam casting materials</li> </ul>	<p>1. Can the student describe the process of casting columns?</p> <p>2. Can the student describe the process of casting beams?</p>	2

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		c) Describe the basics of reinforced concrete  d) Describe steel fixation procedure	- Describe the basics of reinforced concrete  - Describe steel fixation procedure.  iii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i).		3. Can the student describe the basics of reinforced concrete?  4. Can the student describe steel fixation procedure?	
	7.4 Practical for Casting Beams and Columns	The student should be able to: a) Erect formworks for beam/column casting.	i) The teacher to arrange a study visit to the selected sites, provide students with tools / equipment and materials and guide them to:	<ul style="list-style-type: none"> <li>• Site visits</li> <li>• Tools / machines / Equipment for erecting formwork</li> </ul>	1. Can the student erect formworks for beam/column casting?	16

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		b) Erect Scaffolds to facilitate beam/column casting. c) Cast Column. d) Cast beams.	<ul style="list-style-type: none"> <li>- Erect formworks for beam/column casting.</li> <li>- Erect Scaffolds to facilitate beam/column casting.</li> <li>- Cast Column.</li> <li>- Cast beams.</li> </ul> ii) The teacher to monitor and facilitate the activities done on part (i). iii) Students to present their work for sharing and discussion. iv) With the aid of preprepared assessment guideline, the teacher should guide students to perform the activities in part (i).	<ul style="list-style-type: none"> <li>• Tools / machines / Equipment for casting beams and columns</li> <li>• Materials</li> </ul>	2. Can the student erect scaffolds to facilitate beam/column casting? 3. Can the student cast column? 4. Can the student cast beams?	

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			v) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-iv).			
<b>8.0 DRAINAGE AND RAIN WATER HARVESTING SYSTEMS</b>	8.1 Rain Water Harvesting	The student should be able to: a) Explain the term rain water harvesting. b) Describe various methods of rain water harvesting.	i) The teacher to use brainstorming questions to guide students to explain the term rain water harvesting. ii) The teacher to organise students in groups and guide them to describe various methods of rain water harvesting. iii) Students to present their responses for sharing and discussion.	<ul style="list-style-type: none"> <li>• Chalk Board</li> <li>• Manila sheets</li> <li>• Marker Pens</li> <li>• Books</li> <li>• Multi media</li> <li>• Site visits</li> </ul>	1. Is the student able to explain the concept of rain water harvesting?  2. Can the student describe various methods of rain water harvesting?	2

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i) and (ii).			
	8.2 Gutters	<p>The student should be able to:</p> <p>a) Define the term gutter.</p> <p>b) Describe methods of fixing gutters.</p> <p>c) Describe with the aid of sketches various types of gutters.</p>	<p>i) The teacher to use brainstorming questions to guide students to define the term gutter.</p> <p>ii) The teacher to use questions to guide students to describe methods of fixing gutters.</p> <p>iii) The teacher to organise students groups and guide them to describe with the aid of sketches various types of gutters.</p>	<ul style="list-style-type: none"> <li>• Chalk Board</li> <li>• Manila sheets</li> <li>• Marker Pens</li> <li>• Books</li> <li>• Multi media</li> <li>• Site visits</li> </ul>	<p>1. Can the student explain the term gutter?</p> <p>2. Can the student describe the methods of fixing gutters?</p> <p>3. Can the student describe with the aid of sketches various types of gutters?</p>	4

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iv) Students to present their responses for sharing and discussion.  v) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-iv).			
	8.3 Canals Taping from Sources	The student should be able to: a) Explain the important factors to be considered when dealing with canals taping from sources.	i) The teacher to use questioning strategies to guide students to explain important factors to be considered when dealing with canals taping from sources.	<ul style="list-style-type: none"> <li>Chalk Board</li> <li>Manila sheets</li> <li>Marker Pens</li> <li>Posters</li> <li>Multimedia, TV, Computer</li> <li>Site visits</li> </ul>	1. Is the student able to explain the important factors when dealing with canals taping from sources?  2. Can the students describe methods of canals taping from sources?	3

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		b) Describe methods of canals tapping from sources.	ii) The teacher to use questions to guide students to describe methods of canals tapping from sources.  iii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i) and (ii).			
	8.4 Channel Mechanism for Irrigation	The student should be able to: a) Define the term irrigation.	i) The teacher to use brainstorming questions to guide students to define the term irrigation.	<ul style="list-style-type: none"> <li>Manila sheets</li> <li>Marker Pens</li> <li>Posters</li> <li>Multimedia, TV, Computer.</li> <li>Site visits</li> </ul>	1. Can the student define the term irrigation?	2



TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		b) Describe the important factors to be considered when dealing with channel mechanism for irrigation.	ii) The teacher to use questioning strategies (what, how, and why questions) to guide students to describe factors to be considered when dealing with channel mechanism for irrigation.  iii) The teacher should give feedback and use students' responses as feedback to support in describing factors to be considered when dealing with channel mechanism for irrigation.		2. Can the student describe the important factors to be considered when dealing with channel mechanism for irrigation?	

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	8.5 Types of Drainage Systems	<p>The student should be able to:</p> <p>a) Define the term drainage system.</p> <p>b) Identify types of drainage systems.</p> <p>c) Explain qualities of a good drainage System.</p> <p>d) Sketch types of drainage systems</p>	<p>i) The teacher to use questions to guide students in pairs to:</p> <ul style="list-style-type: none"> <li>- Define the term drainage system.</li> <li>- Identify types of drainage systems.</li> <li>- Explain qualities of a good drainage System</li> </ul> <p>ii) Students to present their responses for sharing and discussion.</p> <p>iii) The teacher to create activities for students to sketch various types of drainage systems.</p> <p>iv) The teacher to monitor and facilitate the activities done on sketching various types of drainage systems</p>	<ul style="list-style-type: none"> <li>• Manila sheets</li> <li>• Marker Pens</li> <li>• Posters</li> <li>• Multimedia, TV, Computer</li> <li>• Site visits</li> </ul>	<p>1. Can the student define the term drainage system?</p> <p>2. Can the student identify types of drainage systems?</p> <p>3. Can the student explain qualities of a good drainage System</p> <p>4. Can the student sketch various types of drainage systems?</p>	4

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			v) With the aid of preprepared assessment guideline, the teacher should guide students to perform the activities in part (iii). vi) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-v).			
	8.6 Septic tank, cess pool/ soak way pit	The student should be able to: a) Explain methods of sewage disposal and their working principle.	i) The teacher to organise students in groups and guide them to explain methods of sewage disposal and their working principles.	<ul style="list-style-type: none"> <li>Manila sheets</li> <li>Marker Pens</li> <li>Posters</li> <li>Multi media, TV, Computer</li> </ul>	1. Can the student explain methods of sewage disposal and their working principles?	6

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		b) Explain factors that govern the selection of the dimensions of septic tank, cess pool / soak way pits.	ii) The teacher to use questioning strategies to guide students to explain factors that govern the selection of the dimensions or sizes of septic tank, cess pool/ soak way pit. iii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i) and (ii) .		2. Can the student explain factors that govern the selection of the dimensions of septic tank, cess pool / soak way pits.?	
	8.7 Piping Installation and Manholes	The student should be able to: a) Identify factors that govern the selection of size of a drainage pipe.	i) The teacher to use questions to guide students to: - Identify factors that govern the selection of size of a drainage pipe.	<ul style="list-style-type: none"> <li>Manila sheets</li> <li>Marker Pens</li> <li>Posters</li> <li>Multi media, TV, Computer</li> </ul>	1. Can the student identify factors that govern the selection of size of a drainage pipe?	6

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		b) Explain factors that govern the selection of manhole size and location. c) Explain procedures of drainage pipe installation. d) Explain procedures for manhole construction.	- Explain factors that govern the selection of manhole size and location. ii) Students in groups to explain procedures of drainage pipe installation. iii) The teacher to use questioning strategies to guide students to explain procedures of manhole construction. iv) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-iii) .		2. Can the student explain factors that govern the selection of manhole size and location? 3. Can the student explain procedures of drainage pipe installation? 4. Can the student explain procedures for manhole construction?	

## FORM IV

### CLASS LEVEL COMPETENCIES

By the end of Form IV, the student should have ability to:

- a) use plumbing science to determine the behaviour of flowing water, identify functions and functional requirements of sanitary appliances and perform installation of sanitary appliances;
- b) use gas welding, arc welding, riveting, forging, screw and bolts in joining metals;
- c) install rain water harvesting system and use water for domestic and irrigation; and
- d) estimate all cost of materials, labour charge, opportunity cost and time factor costs.

### CLASS LEVEL OBJECTIVES

By the end of Form IV, the student should be able to:

- a) apply plumbing science to determine water flow requirements for building;
- b) identify pumps and their applications for water supply and distribution in building;
- c) install all types of sanitary appliances in buildings;
- d) apply various methods of joining metals for building construction;
- e) apply drainage systems, rain water harvesting and irrigation system; and
- f) carry out cost estimates of a building project.

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
<b>1.0 PLUMBING SCIENCE</b>	1.1 Pressure/ Atmospheric Pressure	<p>The student should be able to:</p> <p>a) Define the terms pressure and atmospheric pressure.</p> <p>b) Calculate pressure at different points in water distribution pipes.</p>	<p>i) The teacher to use questions to guide students to define the terms pressure and atmospheric pressure.</p> <p>ii) The teacher to create activities for students to calculate pressure at different points in water distribution pipes.</p> <p>iii) The teacher to monitor and facilitate the activities done on calculating pressure at different points in water distribution pipes.</p> <p>iv) Students to present their work for sharing and discussion.</p>	<ul style="list-style-type: none"> <li>Chalk Board</li> <li>Manila sheets</li> <li>Marker Pens</li> <li>Posters</li> <li>Multimedia, TV, Computer</li> <li>Text books</li> </ul>	<p>1. Can the student define the terms pressure and atmospheric pressure?</p> <p>2. Can the student calculate pressure at different points in water distribution pipes?</p>	4

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			v) With the aid of preprepared assessment guideline, the teacher should guide students to perform the activities in part (iii).  vi) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-v).			
	1.2 Losses of Pressure in Pipes	The student should be able to: a) Describe losses of pressure in pipes. b) Calculate losses of pressure in pipes.	i) The teacher to use questions to guide students to describe losses of pressure in pipes.  ii) The teacher to create activities and guide students in groups to calculate losses of pressure in pipes.	<ul style="list-style-type: none"> <li>Chalk Board</li> <li>Manila sheets</li> <li>Marker Pens</li> <li>Poster</li> <li>Multimedia, TV, Computer</li> </ul>	1. Can the student describe losses of pressure in pipes?	4



TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			<ul style="list-style-type: none"> <li>ii) The teacher to monitor and facilitate the activities done on calculating losses of pressure in pipes.</li> <li>iv) With the aid of preprepared assessment guideline, the teacher should guide students to assess the activities performed in part (ii).</li> <li>v) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-iv).</li> </ul>		2. Can the student calculate losses of pressure in pipes?	

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	1.3 Types of Flow (gravity/ mechanical)	<p>The student should be able to:</p> <p>a) Describe the properties of gravity flow.</p> <p>b) Describe the properties of mechanical flow.</p> <p>c) Explain features of gravity and mechanical flow.</p>	<p>i) The teacher to use questions to guide students to: -</p> <ul style="list-style-type: none"> <li>- Describe the properties of gravity flow.</li> <li>- Describe the properties of mechanical flow.</li> <li>- Explain feature of gravity and mechanical flow.</li> </ul> <p>ii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i).</p>	<ul style="list-style-type: none"> <li>• Chalk Board</li> <li>• Manila sheets</li> <li>• Marker Pens</li> <li>• Posters</li> <li>• Multimedia, TV, Computer</li> </ul>	<p>1. Can the student identify and describe the properties gravity flow?</p> <p>2. Can the student describe properties of mechanical flow?</p> <p>3. Can the student explain features of gravity and mechanical flow?</p>	2

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			<p>iii) With the aid of preprepared assessment guideline, the teacher should guide students to assess the activities performed on calculating the water head at different points in water distribution pipes</p> <p>iv) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-v).</p>			

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	1.5 Flow Measurements	<p>The student should be able to:</p> <p>a) Explain how water flow measurements is done in distribution pipes.</p> <p>b) Explain how water flow measurement is done in water mains.</p> <p>c) Determine flow of water in distribution pipes.</p>	<p>i) The teacher to use questions to guide students to:</p> <ul style="list-style-type: none"> <li>- Explain how water flow measurement is done in distribution pipes.</li> <li>- Explain how water flow measurement is done in water mains.</li> </ul> <p>ii) The teacher should take students to the plumbing workshop/physics laboratory, provide students with tools/ equipment and guide them to determine the pressure in water distribution pipes.</p> <p>iii) The teacher to monitor and facilitate the activities done on determining the pressure in water distribution pipes.</p>	<ul style="list-style-type: none"> <li>• Chalk Board</li> <li>• Manila sheets</li> <li>• Marker Pens</li> <li>• Posters</li> <li>• Multimedia, TV, Computer</li> <li>• Site visits</li> <li>• Tools / machines.</li> <li>• Equipment</li> <li>• Physics laboratory.</li> <li>• Plumbing workshop</li> </ul>	<p>1. Is the student able to explain how water flow measurements is done in distribution pipes?</p> <p>2. Is the student able to explain how water flow measurement is done in water mains?</p> <p>3. Can the student determine the pressure in water distribution pipes?</p>	2

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iv) Students to present their work for sharing and discussion. v) With the aid of preprepared assessment guideline, the teacher should guide students to assess the activities performed on determining the pressure in water distribution pipes. vi) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-v).			

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	1.6Practice	<p>The student should be able to:</p> <p>a) Measure the water head.</p> <p>b) Determine the rate of flow of water or volume of water consumed.</p>	<p>i) The teacher to arrange practical activities at plumbing workshop/ physics laboratory, provide students with tools/ equipment and guide them to:</p> <ul style="list-style-type: none"> <li>- Measure water head.</li> <li>- Determine the rate of flow of water or volume of water consumed /water consumption.</li> </ul> <p>ii) The teacher to monitor and facilitate the activities done on part (i).</p> <p>iii) Students to present their work for sharing and discussion.</p>	<ul style="list-style-type: none"> <li>• Plumbing workshop</li> <li>• Site visits</li> <li>• Tools / machines.</li> <li>• Equipment</li> <li>• Physics laboratory</li> </ul>	<p>1. Can the student measure the water head?</p> <p>2. Can the student determine the rate of flow of water or volume of water consumed?</p>	12

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iv) With the aid of preprepared assessment guideline, the teacher should guide students to assess the activities performed in part (i).  v) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-iv).			
<b>2.0 PUMPS</b>	2.1 Introduction to Pumps	The student should be able to: -  a) Define various terms used in pumps for water supply system.	i) The teacher to use brainstorming questions to guide students to define various terms used in pumps for water supply system.	<ul style="list-style-type: none"> <li>• Chalk Board</li> <li>• Manila sheets</li> <li>• Marker Pens</li> <li>• Posters</li> <li>• Multimedia, TV, Computer</li> </ul>	1. Can the student define various terms used in pumps for water supply system?	2

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		b) Identify sources of energy for driving pumps.  c) Identify the important factors during selection of pumps for water supply and distribution.	ii) The teacher to organise students in groups and guide them to identify sources of energy for driving pumps.  iii) Students to present their work for sharing and discussion.  iv) The teacher to use questioning strategies (what, why and how questions) to guide students to identify the important factors to consider during selection of pumps for water supply and distribution.		2. Can the student identify the sources of energy for driving pumps?  3. Can the student identify important factors during selection of pumps for water supply and distribution?	



TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iv) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-iv).			
	2.2 Types of Pumps	<p>The student should be able to:</p> <p>a) Identify types of pumps</p> <p>b) Describe the important features of pumps.</p>	<p>i) The teacher to organise students in groups and guide them to:</p> <ul style="list-style-type: none"> <li>- Identify types of pumps</li> <li>- Describe the important features of pumps.</li> </ul> <p>ii) Students to present their work for sharing and discussion.</p>	<ul style="list-style-type: none"> <li>• Chalk Board</li> <li>• Manila sheet</li> <li>• Marker Pens</li> <li>• Posters</li> <li>• Multimedia, TV, Computer</li> </ul>	<p>1. Can the student identify types of pumps?</p> <p>2. Can the student describe the important features of pumps?</p>	1

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i) and (ii).			
	2.3 Application of Pumps	<p>The student should be able to:</p> <p>a) Explain the application of pumps in water supply and distribution systems?</p> <p>b) Describe the distribution of pumps in water supply and systems?</p>	<p>i) The teacher to use questioning strategies (what, why and how questions) to guide students to:</p> <ul style="list-style-type: none"> <li>- Explain the application of pumps in water supply and distribution systems.</li> <li>- Describe the distribution of pumps in water supply and systems.</li> </ul>	<ul style="list-style-type: none"> <li>• Chalk Board</li> <li>• Manila sheets</li> <li>• Marker Pens</li> <li>• Posters</li> <li>• Multimedia, TV, Computer</li> </ul>	<p>1. Is the student able to explain the application of pumps in water supply and distribution systems?</p> <p>2. Is the student able to describe the distribution of pumps in water supply and systems?</p>	1

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i).			
	2.4 Practice for Installing Pumps	<p>The student should be able to:</p> <p>a) Estimate flow of water in water supply and distribution systems.</p> <p>b) Select pump for proper water supply and distribution systems.</p>	<p>i) The teacher to organise activities at the plumbing workshop and provide students tools, equipment, pump materials and require them to:</p> <ul style="list-style-type: none"> <li>- Estimate flow of water in water supply and distribution systems.</li> <li>- Select pump for proper water supply and distribution systems.</li> </ul>	<ul style="list-style-type: none"> <li>• Pumps</li> <li>• Water Source</li> <li>• Pipes</li> <li>• Fittings</li> <li>• Tools and equipment</li> <li>• Pumps manuals</li> </ul>	<p>1. Can the student estimate flow of water in water supply and distribution systems?</p> <p>2. Can the student select pump for proper water supply and distribution systems?</p>	16

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		c) Install pumps in water supply and distribution systems.	<ul style="list-style-type: none"> <li>- Install pumps in water supply and distribution systems.</li> <li>ii) The teacher to monitor and facilitate the activities done on part (i).</li> <li>iii) Students to present their work for sharing and discussion.</li> <li>iv) With the aid of preprepared assessment guideline, the teacher should guide students to assess the activities performed in part (i).</li> </ul>		3. Can the student install pumps in water supply and distribution systems?	

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iv) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-iv)			
<b>3.0 SANITARY APPLIANCES</b>	3.1 Introductions to Sanitary Appliances	<p>The student should be able to:</p> <p>a) Define the term sanitary appliances.</p> <p>b) Explain the importance of sanitary appliances.</p>	<p>i) Students in pairs to discuss the term sanitary appliances.</p> <p>ii) Students to present their responses for sharing and discussion.</p> <p>iii) The teacher to use questioning strategies to guide students to explain the importance of sanitary appliances.</p>	<ul style="list-style-type: none"> <li>Chalk Board.</li> <li>Manila sheets.</li> <li>Marker Pens.</li> <li>Poster.</li> <li>Multimedia, TV, Computer.</li> </ul>	<p>1. Can the student define the term sanitary appliances?</p> <p>2. Can the student explain the importance of sanitary appliances?</p>	1

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-iii).			
	3.2 Types of Sanitary Appliances	<p>The student should be able to:</p> <p>a) Identify different types of sanitary appliances.</p> <p>b) Explain factors to be considered when selecting sanitary appliances.</p>	<p>i) The teacher to use questions to guide students to:-</p> <ul style="list-style-type: none"> <li>- Identify sanitary appliances.</li> <li>- Identify various types sanitary appliances.</li> </ul> <p>ii) The teacher to use questioning strategies (why and how questions to guide students to explain factors to be considered when selecting sanitary appliances.</p>	<ul style="list-style-type: none"> <li>• Chalk Board</li> <li>• Manila sheets</li> <li>• Marker Pens</li> <li>• Posters</li> <li>• Multimedia, TV, Computer</li> </ul>	<p>1. Can the student identify different types of sanitary appliances?</p> <p>2. Can the student explain factors to be considered when selecting sanitary appliances?</p>	3

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i) and (ii).			
	3.3 Functions and Functional Requirements of sanitary appliances	<p>The student should be able to:-</p> <p>a) State functions of sanitary appliances.</p> <p>b) State functional requirements of sanitary appliances.</p>	<p>i) The teacher to use questioning strategies (why and how questions to guide students to:-</p> <ul style="list-style-type: none"> <li>- State functions of sanitary appliances.</li> <li>- State functional requirements of sanitary appliances.</li> </ul>	<ul style="list-style-type: none"> <li>• Chalk Board</li> <li>• Manila sheets</li> <li>• Marker Pens</li> <li>• Posters</li> <li>• Multimedia, TV, Computer</li> </ul>	<p>1. Can the student state functions of sanitary appliances?</p> <p>2. Can the student state functional requirements of sanitary appliances?</p>	2

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i).			
	3.4 Fixing Sanitary Appliances	The student should be able to: a) Describe various methods of fixing sanitary appliances. b) Fix sanitary appliances.	i) The teacher should guide students in groups to discuss methods of fixing sanitary appliances. ii) Students to present their responses for sharing and discussion. iii) The teacher to take the students at the plumbing workshop / site provide them with tools/ equipment and sanitary appliances and guide them to fix sanitary appliances.	<ul style="list-style-type: none"> <li>• Chalk Board</li> <li>• Manila sheets</li> <li>• Marker Pens</li> <li>• Posters</li> <li>• Multimedia, TV, Computer</li> <li>• Plumbing workshop</li> <li>• Site visits</li> <li>• Tools / machines</li> <li>• Equipment</li> <li>• Materials / Sanitary appliances</li> </ul>	1. Can the student describe various methods of fixing sanitary appliances?  2. Can the student fix sanitary appliances?	16



TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			<ul style="list-style-type: none"> <li>iii) The teacher to monitor and facilitate the activities done on fixing sanitary appliances</li> <li>v) Students to present their work for sharing and discussion.</li> <li>vi) With the aid of preprepared assessment guideline, the teacher should guide students to assess the activities performed in part (ii).</li> <li>vii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-vi).</li> </ul>			

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	3.5 Traps for Sanitary Appliance	<p>The student should be able to:</p> <p>a) Describe various traps for sanitary appliance.</p> <p>b) Explain functions and functional requirements of traps for sanitary appliance.</p> <p>c) Sketch various traps for sanitary appliance.</p>	<p>i) The teacher to guide students in groups to:</p> <ul style="list-style-type: none"> <li>- Describe various types of traps for sanitary appliance.</li> <li>- Explain functions and functional requirements of traps for sanitary appliance.</li> </ul> <p>ii) The teacher to create activities for students to sketch various traps for sanitary appliance.</p> <p>iii) The teacher to monitor and facilitate the activities done on sketching various traps for sanitary appliance.</p>	<ul style="list-style-type: none"> <li>• Chalk Board</li> <li>• Manila sheet</li> <li>• Marker Pens</li> <li>• Posters</li> <li>• Multimedia, TV, Computer</li> <li>• Plumbing workshop</li> <li>• Site visits</li> <li>• Plumbing workshop</li> </ul>	<ol style="list-style-type: none"> <li>1. Can the student describe various types of traps for sanitary appliance?</li> <li>2. Can the student explain functions and functional requirements of traps for sanitary appliance?</li> <li>3. Can the student sketch various types of traps for sanitary appliance?</li> </ol>	4

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iv) Students to present their work for sharing and discussion.  v) With the aid of preprepared assessment guideline, the teacher should guide students to assess the activities performed in part (ii).  vi) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-v).			

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	3.6 Causes of Water Seal Loss and its Remedy	<p>The student should be able to:</p> <p>a) Define the term water seal and remedy.</p> <p>b) Explain functions of water seal and remedy.</p> <p>c) Explain causes of water seal loss.</p> <p>d) Explain remedy to water seal loss.</p>	<p>i) The teacher to use brainstorming questions to guide students to define the term water seal and remedy.</p> <p>ii) The teacher to guide students in groups to:</p> <ul style="list-style-type: none"> <li>- Explain functions of water seal and remedy.</li> <li>- Explain causes of water seal loss.</li> <li>- Explain remedy to water seal loss.</li> </ul> <p>iii) Students to present their work for sharing and discussion.</p> <p>iv) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-v).</p>	<ul style="list-style-type: none"> <li>• Chalk Board</li> <li>• Manila sheets</li> <li>• Marker Pens</li> <li>• Poster</li> <li>• Multimedia, TV, Computer</li> </ul>	<p>1. Is the student able to define the term water seal and remedy?</p> <p>2. Can the student explain functions of water seal and remedy?</p> <p>3. Can the student explain causes of water seal loss?</p> <p>4. Can the student explain remedy to water seal loss?</p>	3

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	3.7 Practice for Installing Sanitary Appliance	<p>The student should be able to:</p> <p>a) Identify proper sanitary appliances.</p> <p>b) Identify tools and equipment for installing sanitary appliances.</p> <p>c) Install sanitary appliance.</p>	<p>i) The teacher to organise a site visit and require students to:</p> <ul style="list-style-type: none"> <li>- Identify proper sanitary appliances.</li> <li>- Identify tools and equipment for installing sanitary appliances.</li> <li>- Install sanitary appliance.</li> </ul> <p>ii) The teacher to monitor and facilitate the activities done on part (i).</p> <p>iii) Students to present their work for sharing and discussion.</p>	<ul style="list-style-type: none"> <li>• Sanitary appliances</li> <li>• Manual</li> <li>• Tools and equipment</li> <li>• Fittings</li> <li>• Pipes</li> </ul>	<p>1. Can the student identify proper sanitary appliances?</p> <p>2. Can the student identify tools and equipment for installing sanitary appliances?</p> <p>3. Can the student install sanitary appliance?</p>	16

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iv) With the aid of preprepared assessment guideline, the teacher should guide students to assess the activities performed on part (i).  v) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-iv).			
<b>4.0 METAL JOINING</b>	4.1 Soldering	The student should be able to: a) Define the term soldering. b) Describe materials and tools used in soldering.	i) The teacher should use brainstorming questions for students to define the term soldering.	<ul style="list-style-type: none"> <li>• Chalk Board</li> <li>• Manila sheets</li> <li>• Marker Pens</li> <li>• Posters</li> <li>• Multi media, tv, computer</li> </ul>	1. Can the student define the term soldering?	4

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		c) Explain safety precautions in soldering. d) Explain the application of soldering.	v) The teacher to use questioning strategies (what, why and how questions) to guide students to: - - Describe materials and tools used in soldering. - Explain safety precautions in soldering. - Explain the application of soldering. vi) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i) and (ii).	<ul style="list-style-type: none"> <li>• Steel materials</li> <li>• Welding materials</li> </ul>	2. Can the student describe materials and tools used in soldering? 3. Can the student explain safety precautions in soldering? 4. Can the student explain the applications of soldering?	

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	4.2 Arc Welding	<p>The student should be able to:</p> <p>a) Identify types of arc welding.</p> <p>b) Identify material and tools used in arc welding.</p> <p>c) Explain safety precautions applied in arc welding.</p> <p>d) Explain the application of arc welding.</p>	<p>i) The teacher to questions to guide students to identify types of arc welding.</p> <p>ii) The teacher to organise students in groups and guide them to:</p> <ul style="list-style-type: none"> <li>- Describe material and tools used in arc welding.</li> <li>- Explain safety precautions applied in arc welding.</li> </ul> <p>iii) The teacher to use questioning strategies (why, what and how questions) to guide students to:-</p> <ul style="list-style-type: none"> <li>- Explain safety precautions applied in arc welding.</li> <li>- Explain application of arc welding.</li> </ul>	<ul style="list-style-type: none"> <li>• Chalk Board</li> <li>• Manila sheets</li> <li>• Marker Pens</li> <li>• Posters</li> <li>• Multimedia, TV, Computer</li> <li>• Steel materials</li> <li>• Welding materials</li> </ul>	<p>1. Can the student identify types of arc welding?</p> <p>2. Can the student identify material and tools used in arc welding?</p> <p>3. Can the student explain safety precautions applied in arc welding?</p> <p>4. Can the student explain the application of arc welding?</p>	8



TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iv) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-iii)			
	4.3 Gas-welding	<p>The student should be able to:</p> <p>a) Identify types of gas welding.</p> <p>b) Identify materials and tools used in gas welding.</p> <p>c) Explain safety precautions applied in gas welding.</p> <p>d) Explain the application of gas welding.</p>	<p>i) The teacher to use questions to guide students to -</p> <ul style="list-style-type: none"> <li>- Identify types of gas welding.</li> <li>- Identify materials and tools used in gas welding</li> </ul> <p>ii) The teacher to use questioning strategies (why, what and how questions) to guide students to:</p> <ul style="list-style-type: none"> <li>- Explain safety precautions applied in gas welding.</li> </ul>	<ul style="list-style-type: none"> <li>• Chalk Board</li> <li>• Manila sheets</li> <li>• Marker Pens</li> <li>• Posters</li> <li>• Multi media, TV, Computer.</li> <li>• Welding materials like steel rod</li> </ul>	<ol style="list-style-type: none"> <li>1. Can the student identify types of gas welding?</li> <li>2. Can the student identify materials and tools used in gas welding?</li> <li>3. Can the student explain safety precautions applied in gas welding?</li> </ol>	12

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			<ul style="list-style-type: none"> <li>- Explain application of gas welding.</li> </ul> iii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i) and (ii).		4. Can the student explain the application of gas welding?	
	4.4 Riveting and Forging	The student should be able to: <ol style="list-style-type: none"> <li>Identify types of riveting and forging.</li> <li>Identify materials and tools used in riveting and forging.</li> </ol>	i) The teacher to guide students to: - <ul style="list-style-type: none"> <li>- Identify types of riveting and forging.</li> <li>- Identify materials and tools used in riveting and forging.</li> </ul>	<ul style="list-style-type: none"> <li>• Chalk Board</li> <li>• Manila sheets</li> <li>• Marker Pens</li> <li>• Posters</li> <li>• Multi media, TV, Computer</li> </ul>	1. Can the student identify types of riveting and forging?  2. Can the student identify materials and tools used in riveting and forging?	6

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		c) Explain safety precautions applied in riveting and forging.  d) Explain the application of riveting and forging.	ii) The teacher to use questioning strategies (why, what and how questions) to guide students to:  - Explain safety precautions applied in riveting and forging.  - Explain application of riveting and forging.  iii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i) and (ii).		3. Can the student explain safety precautions applied in riveting and forging?  4. Can the student explain the application of riveting and forging?	

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	4.5 Screw and Bolts	<p>The student should be able to:</p> <p>a) Describe types of screw and bolts.</p> <p>b) Describe type of joints where screw and bolts can be applied.</p> <p>c) Explain the uses of screw and bolts joint.</p> <p>d) Describe materials and tools used in screw and bolts joints?</p> <p>e) Explain safety precautions applied in screw and bolts joints.</p>	<p>i) The teacher to use questions to guide students to:</p> <ul style="list-style-type: none"> <li>- Describe types of screws and bolts.</li> <li>- Describe materials and tools used in screw and bolts joints.</li> <li>- Explain the uses of screw and bolts joint.</li> </ul> <p>ii) The teacher to use questioning strategies to guide students to explain safety precautions applied in screw and bolts joints.</p>	<ul style="list-style-type: none"> <li>• Chalk Board</li> <li>• Manila sheets</li> <li>• Marker Pens</li> <li>• Posters</li> <li>• Multi media, TV, Computer</li> </ul>	<p>1. Can the student describe types of screw and bolts?</p> <p>2. Can the student describe type of joints where screw and bolts can be applied?</p> <p>3. Can the student explain the uses of screw and bolts joint?</p> <p>4. Can the student describe materials and tools used in screw and bolts joints?</p>	6

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i) and (ii).		5 Can the student explain safety precautions applied in screw and bolts joints?	
	4.6 Practice	The student should be able to: a) Carry out soldering. b) Carryout arc welding, c) Carryout gas welding. d) Fix screw/ riveted joint.	i) The teacher to assign students to work at the plumbing workshop and guide them to:- - Carry out soldering. - Carryout arc welding, - Carryout gas welding. - Fix screw riveted joint.	<ul style="list-style-type: none"> <li>Plumbing workshop</li> <li>Tools / machines</li> <li>Equipment</li> <li>Materials</li> <li>Site visits</li> </ul>	1. Can the student carry out soldering? 2. Can the student carryout arc welding? 3. Can the student carryout gas welding? 4. Can the student fix screw/riveted joint?	36

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			<ul style="list-style-type: none"> <li>ii) The teacher to monitor and facilitate the activities performed on part (i).</li> <li>iii) Students to present their work for sharing and discussion.</li> <li>iv) With the aid of preprepared assessment guideline, the teacher should guide students to assess the activities performed in part (i).</li> <li>v) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-iv).</li> </ul>			

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
<b>5.0 COST ESTIMATE</b>	5.1 Description of Cost Estimate	<p>The student should be able to:</p> <ol style="list-style-type: none"> <li>Explain the meaning of estimating and costing.</li> <li>List various terms used in estimating and costing.</li> <li>Explain the advantages of costing and estimating.</li> <li>Identify how costing is applied in different professions</li> </ol>	<ol style="list-style-type: none"> <li>The teacher to use brainstorming questions to guide students to:               <ul style="list-style-type: none"> <li>Explain the meaning of estimating and costing.</li> <li>List various terms used in estimating and costing.</li> </ul> </li> <li>The teacher to use questioning strategies to guide students to explain the advantages of costing and estimating.</li> <li>The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i) and (ii).</li> <li>Teacher to use sample BOQ to see how costing is being calculated.</li> </ol>	<ul style="list-style-type: none"> <li>Manila sheets</li> <li>Marker Pens</li> <li>Posters</li> <li>Multi media, TV, Computer</li> </ul>	<ol style="list-style-type: none"> <li>Can the student explain what is meant by estimating and costing?</li> <li>Can the student list various terms used in estimating and costing?</li> <li>Can the student explain the advantages of costing and estimating?</li> <li>Can the student explain how costing in BOQ done?</li> </ol>	2

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	5.2 Types and Purposes of Cost Estimation	<p>The student should be able to:</p> <p>a) Identify various types of cost estimate as applied in construction works.</p> <p>b) Explain the purpose of cost estimate of construction works.</p> <p>c) Explain the uses of various types of cost estimate as applied in construction works.</p>	<p>i) The teacher to use questions to guide students to identify types of cost estimate as applied in construction works.</p> <p>ii) The teacher to guide students in groups to:</p> <ul style="list-style-type: none"> <li>- Explain the purpose of cost estimate of construction works.</li> <li>- Explain the uses of various types of cost estimate as applied in construction works.</li> </ul> <p>ii) Students to present their responses for sharing and discussion.</p>	<ul style="list-style-type: none"> <li>• Manila sheets</li> <li>• Marker Pens</li> <li>• Posters</li> <li>• Multimedia, TV, Computer</li> </ul>	<ol style="list-style-type: none"> <li>1. Can the student identify various types of cost estimate as applied in construction works?</li> <li>2. Can the student explain the purpose of cost estimate of construction works?</li> <li>3. Is the student able to explain the uses of various types of cost estimate as applied in construction works?</li> </ol>	2



TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i).			
	5.3 Methods of Cost Estimation	<p>The student should be able to:</p> <p>a) Identify methods of cost estimate for construction works.</p> <p>b) Explain the uses of various methods of cost estimate of construction works.</p>	<p>i) The teacher should guide students in groups to:</p> <ul style="list-style-type: none"> <li>- Identify methods of cost estimate for construction works.</li> <li>- Explain the uses of various methods of cost estimate of construction works.</li> </ul> <p>ii) Students to present their responses for sharing and discussion.</p>	<ul style="list-style-type: none"> <li>• Manila sheets</li> <li>• Marker Pens</li> <li>• Posters</li> <li>• Multimedia, TV, Computer</li> </ul>	<p>1. Can the student identify methods of cost estimate for construction works?</p> <p>2. Is the student able to explain the uses of various methods of cost estimate of construction works?</p>	6

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i).			
	5.4 Estimation of costs	<p>The student should be able to:</p> <p>a) Explain the procedure of estimating costs of various simple construction works.</p> <p>b) Estimates cost of various simple construction works.</p>	<p>i) The teacher to guide students in groups to estimate cost of a simple construction work.</p> <p>ii) The teacher to create activities for students to estimate cost of a simple construction work.</p> <p>iii) The teacher to monitor and facilitate the activities performed on estimating costs of a simple construction work.</p>	<ul style="list-style-type: none"> <li>Manila sheets</li> <li>Marker Pens</li> <li>Posters</li> <li>Calculators</li> <li>Multimedia, TV, Computer</li> </ul>	<p>1. Can the student explain the procedure of estimating costs of various simple construction works?</p> <p>2. Can the student estimate cost of various simple construction works?</p>	2

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iv) Students to present their work for sharing and discussion. v) With the aid of preprepared assessment guideline, the teacher should guide students to assess the activities performed in part (ii). vi) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i).			

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
<b>6.0 SCHEDULES OF MATERIAL</b>	6.1 Definition	<p>The student should be able to:</p> <p>a) Define the term schedule.</p> <p>b) Describe features of material schedule.</p> <p>c) Explain different types of building material schedules.</p>	<p>i) The teacher to use brainstorming questions to guide students to define the term schedule.</p> <p>ii) The teacher to use questions to guide students to:</p> <ul style="list-style-type: none"> <li>- Describe features of material schedule.</li> <li>- Explain different types of building material schedules (e.g. door, window and room finish).</li> </ul> <p>iii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i) and (ii).</p>	<ul style="list-style-type: none"> <li>• Drawing instruments equipment</li> <li>• Multimedia, TV, Computer</li> <li>• Drawing materials</li> <li>• Sample BOQ</li> </ul>	<p>1. Is the student able to define the term schedule?</p> <p>2. Is the student able to describe features of material schedule?</p> <p>3. Is the student able to explain different types of building material schedules?</p>	1

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	6.2 Use of Material Schedule	<p>The student should be able to:</p> <p>a) Explain the importance of each material schedule.</p> <p>b) Explain the uses of building material schedules.</p>	<p>i) The teacher to guide students in groups to:</p> <ul style="list-style-type: none"> <li>- Explain the importance of each material schedule.</li> <li>- Explain the uses of building material schedules. Explain the uses of building material schedules.</li> </ul> <p>ii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i).</p>	<ul style="list-style-type: none"> <li>• Drawing instruments equipments</li> <li>• Multimedia, TV, Computer</li> <li>• Drawing materials</li> </ul>	<p>1. Can the student explain the importance of each material schedule?</p> <p>2. Can the student explain the uses of building material schedules?</p>	1

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	6.3 Preparation of Various Material Schedules	<p>The students should be able to:</p> <p>a) Describe common methods of preparing building material schedule.</p> <p>b) Prepare building material schedule using various common methods.</p>	<p>i) The teacher to guide students in groups to describe common methods of preparing building material schedules.</p> <p>ii) The teacher to create activities for students to prepare building material schedule using various common methods.</p> <p>iii) The teacher to monitor and facilitate the activities performed on preparing building material schedule using various common methods.</p>	<ul style="list-style-type: none"> <li>• Drawing instruments equipment</li> <li>• Multimedia, TV, computer</li> <li>• Drawing materials</li> </ul>	<p>1. Can the student describe common methods of preparing building material schedule?</p> <p>2. Can the student prepare building material schedule using various common methods?</p>	4

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			<p>iv) Students to present their work for sharing and discussion.</p> <p>v) With the aid of preprepared assessment guideline, the teacher should guide students to assess the activities performed in part (ii).</p> <p>vi) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-v).</p>			

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<b>7.0 THE PROGRESS CHART</b>	7.1 Definition	<p>The student should be able to:</p> <ol style="list-style-type: none"> <li>Define the term progress chart.</li> <li>Identify types of progress charts.</li> <li>Prepare simple arrow diagrams.</li> </ol>	<ol style="list-style-type: none"> <li>The teacher to use brainstorming questions to guide students to define the term progress chart.</li> <li>The teacher to use questions to guide students to identify types of progress charts.</li> <li>The teacher to create activities for students to prepare simple arrow diagrams.</li> <li>The teacher to monitor and facilitate the activities performed on preparing simple arrow diagrams.</li> </ol>	<ul style="list-style-type: none"> <li>Drawing instruments/ equipment</li> <li>Multimedia, TV, Computer</li> <li>Drawing materials</li> <li>Excel</li> </ul>	<ol style="list-style-type: none"> <li>Can the student define the term progress chart?</li> <li>Can the student explain types of progress charts?</li> <li>Can the student prepare simple arrow diagrams?</li> </ol>	4



TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			v) Students to present their work for sharing and discussion.  vi) With the aid of preprepared assessment guideline, the teacher should guide students to perform the activities in part (iii)  vii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-vi).			

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	7.2 Progress Chart in Building Projects	<p>The student should be able to:</p> <p>a) Explain the importance of progress chart in building projects.</p> <p>b) Explain the uses of progress chart in building projects.</p> <p>c) Explain the importance of progress of a simple building project..</p>	<p>i) The teacher to use questioning strategies (what, why and questions) to guide students to:</p> <ul style="list-style-type: none"> <li>- Explain the importance of progress chart in building projects.</li> <li>- Explain the uses of progress chart in building projects.</li> <li>- Explain the importance of progress of a simple building project.</li> </ul> <p>ii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i)</p>	<ul style="list-style-type: none"> <li>• Drawing instruments/ equipment</li> <li>• Multimedia, TV, Computer</li> <li>• Drawing materials</li> </ul>	<ol style="list-style-type: none"> <li>1. Can the student explain the importance of progress chart in building projects?</li> <li>2. Can the student explain the uses of progress chart in building projects?</li> <li>3. Can the student explain the importance of progress of a simple building project?</li> </ol>	2

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	7.4 Bar chart	<p>The student should be able to:</p> <p>a) Describe the procedure for preparing a simple bar chart for a building project.</p> <p>b) Prepare simple project program for a building project.</p>	<p>i) The teacher to guide students in groups to prepare a simple bar chart for a building project.</p> <p>ii) Students to present their responses for sharing and discussion.</p> <p>iii) The teacher to create activities and guide students in groups to prepare simple project program for a building project.</p> <p>iv) The teacher to monitor and facilitate the activities performed on preparing simple project program for a building project.</p>	<ul style="list-style-type: none"> <li>• Drawing instruments/ equipment</li> <li>• Multimedia, TV, Computer</li> <li>• Drawing, materials</li> <li>• Excel</li> </ul>	<p>1. Can the student describe the procedure for preparing a simple bar chart for a building project?</p> <p>2. Can the student prepare simple project program for a building project?</p>	4

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			v) With the aid of preprepared assessment guideline, the teacher should guide students to perform the activities in part (iii)  vi) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-v)			
<b>8.0 IRRIGATION SYSTEM</b>	8.1 Introduction to Irrigation System	The students should be able to: a) Explain the meaning of irrigation system.	i) The teacher to use brainstorming questions to guide students to explain the term irrigation system.	<ul style="list-style-type: none"> <li>• Manila sheets</li> <li>• Marker pens</li> <li>• Posters</li> <li>• Multi media, TV, computer</li> </ul>	1. Can the student explain the meaning of irrigation system?	2

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		b) Explain the crop water requirement.	ii) The teacher to use questions to guide students to explain the requirement of crop water.  iii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i) and (ii).		2. Can the student explain the crop water requirement?	
	8.2 Advantages and disadvantages of irrigation System	The students should be able to: a) Explain the advantages of irrigation farming. b) Explain the disadvantages of over irrigation.	i) The teacher to guide students in groups to: - Explain the advantages of Irrigation farming. - Explain the disadvantages of over Irrigation.	<ul style="list-style-type: none"> <li>Manila sheets</li> <li>Maker pens</li> <li>Posters</li> <li>Multimedia, TV, Computer</li> </ul>	1. Can the student explain the advantages of irrigation farming?  2. Is the student able to explain the disadvantages of over irrigation?	

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			iii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i).			
	8.3 Source of water for irrigation	<p>The students should be able to:</p> <p>a) Identify sources of water for irrigation.</p> <p>b) Explain the advantage and disadvantages of each sources of water for irrigation.</p>	<p>i) The teacher to use questions to guide students to identify sources of water for irrigation.</p> <p>ii) The teacher to organise students in groups and guide them to explain the advantages and disadvantages of each water sources for irrigation.</p> <p>iii) Students to present their responses for sharing and discussion.</p>	<ul style="list-style-type: none"> <li>Manila sheets</li> <li>Marker Pens</li> <li>Posters</li> <li>Multi media, TV, Computer</li> </ul>	<p>1. Can the student identify sources of water for irrigation?</p> <p>2. Can the student explain the advantages and disadvantages of each sources of water for irrigation?</p>	

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iv) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-iii).			
	8.4 Classification of irrigation systems	The student should be able to: a) Explain Classification of irrigation systems. b) Explain how each classification of irrigation systems operate.	i) The teacher to organise students in groups and guide them to: - Explain Classification of irrigation systems. - Explain how each classification of irrigation systems operate. ii) Students to present their responses for sharing and discussion.	<ul style="list-style-type: none"> <li>Manila sheets</li> <li>Marker Pens</li> <li>Posters</li> <li>Multi media, TV, Computer</li> </ul>	1. Can the student explain classification of irrigation systems?  2. Can the student explain how each classification of irrigation systems operate?	2

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i).			
	8.5 Methods/ Techniques of Irrigation System Layout	The student should be able to: i) Identify methods / techniques of irrigation system layout. b) Explain how each methods/ techniques of irrigation system layout. c) Explain how each classification of irrigation systems layout operate.	i) The teacher to use questions to guide students to identify methods/ techniques of irrigation system layout ii) Students in groups to: - Explain how each methods/ techniques of irrigation system layout. - Explain how each classification of irrigation systems layout operate.	<ul style="list-style-type: none"> <li>Manila sheets</li> <li>Marker Pens</li> <li>Posters</li> <li>Multi media, TV, Computer</li> </ul>	1. Can the student identify each method / technique of irrigation system layout?  2. Can the student explain how each method/ technique of irrigation system layouts?	2



TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i) and (ii).		3. Can the student explain how each classification of irrigation systems layout operate?	
	8.6 Practice for Installing Irrigation System	The student should be able to: a) Select suitable source of water. b) Identify tools and materials required for installing irrigation system c) Install irrigation system.	i) The teacher to organise a field visit and guide students to: - Select suitable source of water. - Identify tools and materials required for installing irrigation system - Install irrigation system. ii) The teacher to monitor and facilitate the activities performed on installing irrigation system.	<ul style="list-style-type: none"> <li>• Pipes</li> <li>• Source of water supply</li> </ul>	1. Can the students select suitable source of water? 2. Can the students identify tools and materials required for installing irrigation system? 3. Can the students install irrigation system?	

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/ LEARNING STRATEGIES	TEACHING/ LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iii) With the aid of preprepared assessment guideline, the teacher should guide students to assess the activities performed on part (i)  iv) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-iii).			