

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



**WOODWORK AND PAINTING ENGINEERING SYLLABUS
FOR TECHNICAL SECONDARY SCHOOLS**

FORM I – IV

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DECLARATION

The Woodwork and Painting Engineering Syllabus is approved for use in Technical Secondary schools in Tanzania.

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Signature

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1.0 Introduction

This Woodwork and Painting Engineering 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have been effected in the arrangement of topics and sub-topics, addition of new topics and removal of irrelevant and outdated contents.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 Woodwork and Painting Engineering. Competence-based pedagogy encourages the constructivist pedagogic approaches where 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 Woodwork and Painting Engineering syllabus reflect the general aims and objectives of Technical 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 human 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 in Tanzania

Objectives of Woodwork and Painting Engineering syllabus reflect the general aims and 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 an 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 as considerations in Woodwork and painting subject as his/her own career;
- b) producing drawings sketches and patterns for woodwork and painting works;
- c) constructing different types of wooden frameworks;
- d) using and applying different types of paints to decorate various structures;
- e) designing and constructing wooden products, and;
- f) designing decorative patterns on different surfaces.

5.0 Objectives of the Subject

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

- a) demonstrate in real life skills and knowledge of Woodwork and Painting;
- b) use his/her skills acquired in Woodwork and Painting Engineering subject to recognise the opportunities and execute them effectively, and;
- c) use his/her knowledge to contribute in innovation and development of woodwork and painting product.

6.0 The Structure and Organisation of the Syllabus

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

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

6.3 Topics/sub-topics

This part describes the subject matter to deal with a 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 to in a logical order to facilitate learning process. Each sub-topic has teaching and learning strategies, teaching and learning resources, assessment strategies and the estimated number of periods.

6.4 Specific objectives

These include statements that describe results in terms of knowledge, attitude, behaviour, aspiration and skills that the student is expected to demonstrate as a result of instructions. They also reflect the process of attaining the specified competency within the cognitive, affective and psychomotor domains.

6.5 Teaching and learning strategies

Teaching/learning strategies indicate what the teacher and the students are expected to be doing in the process of teaching and learning. The teaching/learning strategies suggested in this syllabus are not exhaustive. 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

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 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 achievements of all the competencies started in the syllabus. Assessment should focus at all levels of cognitive, affective and psychomotor domains.

6.8 Number of periods

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

FORM I

CLASS LEVEL COMPETENCIES

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

- a) explain the importance of woodwork and painting engineering field;
- b) identify the necessary elements of woodwork and painting engineering workshop;
- c) identify tools and equipment used in woodwork and painting engineering workshop, and;
- d) apply safety rules and management skills in woodwork and painting workshop.

CLASS LEVEL OBJECTIVES

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

- a) explain the importance of woodwork and painting engineering field in a society;
- b) identify woodwork and painting workshops as related to other workshops;
- c) use tools, machine and equipment properly in woodwork and painting engineering workshop, and;
- d) practice safety rules and managements in woodwork and painting workshop;

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
1.0 INTRODUCTION TO PAINTING	1.1 Painting Trade	<p>The student should be able to:</p> <ul style="list-style-type: none"> a) Define the term painting. b) Identify different types of paints. c) Explain the functions of each paint. d) Give reasons for painting. 	<ul style="list-style-type: none"> i) The teacher to use brainstorming questions to guide students to: <ul style="list-style-type: none"> - Define the term painting. ii) The teacher should arrange a site visit for students to observe ancient paints and decoration and to guide the students to: <ul style="list-style-type: none"> - Identify types of different paints. - Explain the functions of each paint. - Give reasons for each painting. 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) and (ii). 	<ul style="list-style-type: none"> • Site display • Samples of paints (local and manufactured paints) • Surfaces with paints and decorations 	<ol style="list-style-type: none"> 1. Is the student able to define the term painting? 2. Is the student able to identify types of different paints? 3. Explain the functions of each paint? 4. Can the student give reasons for painting? 	4

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	1.2 Painting and paints Development	The student should be able to: a) Explain the historical background of painting. b) Describe the development of paints in different periods (era).	i) The teacher to arrange students in groups and guide them to: - Explain the historical background of painting. - Describe the development of paints in different periods (era). ii) 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).	<ul style="list-style-type: none"> • Site display • Samples of paints (local and manufactured paints) • Surfaces with paints and decorations 	1. Is the student able to explain the historical background of painting? 2. Can the student describe the development of paints in different periods (era)?	2
	1.3 Painting Importance	The student should be able to: a) Explain the importance of painting. b) Identify the benefits of painting. c) Explain the contribution of painting in the society.	i) The teacher should use questioning strategies (what, why and how questions) to guide students to explain the importance of painting. ii) The teacher to organise students in groups and guide them to: - Identify the benefits of painting. - Explain the contribution of painting in the society.	<ul style="list-style-type: none"> • Site display • Samples of paints (local and manufactured paints) • Surfaces with paints and decorations 	1. Is the student able to explain the importance of painting? 2. Is the student able to identify the benefits of painting? 3. Is the student able to explain the contribution of painting in the society?	4

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND 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) and (ii).			
2.0 WORKSHOP ORIENTATION	2.1 Introduction to Woodwork Workshop	The student should be able to a) Describe woodwork and painting workshops. b) Describe painting workshop. c) Distinguish between woodwork and painting workshop. d) Sketch layout of woodwork and painting workshop.	i) The teacher use questioning strategies (what, why and why) to guide students to: - Describe woodwork workshop - Describe painting workshops. - Distinguish woodwork and painting workshops from other workshops. ii) The teacher to create activities for students to sketch the layout of the woodwork and painting workshop. iii) The teacher should monitor and facilitate students in performing the tasks given in part (ii).	<ul style="list-style-type: none"> • Manila sheet • Flip chart • Multimedia projector • Computer • TV Set • Recorded VHS/ CD/ VCD/DVD • Woodwork workshop 	1. Can the student describe woodwork and painting workshops? 2. Can the student describe painting workshop? 3. Can the student distinguish between woodwork from painting workshop?	2

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iv) Students to present their work 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) and (ii).		3. Can the student sketch layout of woodwork and painting Workshop?	
	2.2 Workshops Tools, Equipment and Machines	The student should be able to: a) Define the terms hand tools and machine tools. b) Classify hand tools used in woodwork and painting workshops. c) List the machine and equipment used in woodwork and painting engineering workshops.	i) The teacher to use brainstorming questions to guide students to define the terms hand and machine tools. ii) The teacher to organise students in groups and guide them to: - Classify hand tools used in woodwork and painting workshop. - List equipment and machine tools used in woodwork and painting workshop. iii) The teacher to use questioning strategies (what, how and why questions) to guide students to: - Explain the uses of different equipment and machines in woodwork and painting workshop.	<ul style="list-style-type: none"> • Manila sheet • Flip chart • Multimedia projector • Marker pens • Poster with different types of hand tools and machine tools 	1. Is the student able to terms hand and machine tools? 2. Is the student able to classify hand tools used in woodwork and painting workshops? 3. Is the student able to list all machine and equipment used in woodwork and painting workshops?	6

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		<p>d) Explain the uses of different equipment and machines in woodwork and painting workshop.</p> <p>e) Explain the uses of all hand tools used in woodwork and painting engineering workshop.</p>	<p>- Explain the uses of all hand tools used in woodwork and painting engineering workshop.</p> <p>iv) Students to present their work for sharing and discussion.</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>		<p>4. Is the student able to explain the uses of different equipment and machines in woodwork and painting workshop?</p> <p>5. Is the student able to explain the uses of all hand tools used in woodwork and painting workshop.?</p>	

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	2.3 Workshop Practice	<p>The student should be able to:</p> <p>a) Use equipment and machines properly in woodwork and painting workshop.</p> <p>b) Use hand tools properly in the woodwork and painting workshop.</p> <p>c) Use workshop tools and equipment in woodwork and painting workshop to perform simple tasks.</p>	<p>i) The teacher to use role play method to guide students to:</p> <ul style="list-style-type: none"> - Use equipment and machines properly in woodwork and painting workshop. - Use hand tools properly in the woodwork and painting workshop. - Use workshop tools and equipment in woodwork and painting workshop to perform simple tasks . <p>ii) The teacher should monitor and facilitate students in performing the tasks given in part (i).</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"> • Tools and equipment • Ferrous and non-ferrous materials • Poster showing different materials • Multimedia • Tv set • Computer • VHS/CD/VCD / DVD • Flash disk, memory stick • Woodwork workshop 	<ol style="list-style-type: none"> 1. Can the student use equipment and machines properly in woodwork and painting engineering workshop? 2. Can the student use hand tools properly in the woodwork and painting workshop? 3. Can the student Use workshop tools and equipment in woodwork and painting workshop to perform simple tasks? 	42

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
3.0 SAFETY RULES AND MANAGEMENT	3.1 Personal Safety Rules and Management	<p>The student should be able to:</p> <p>a) Explain the rules of personal safety in working in woodwork and painting workshops.</p> <p>b) Explain the effects of ignoring personal safety rules in working in woodwork and painting workshops.</p> <p>c) Explain the effects of ignoring personal safety management in working in woodwork and painting workshops.</p> <p>d) Describe do and don'ts for personal safety rules in working in woodwork and painting engineering workshops.</p>	<p>i) The teacher to organise students in groups and guide them to:</p> <ul style="list-style-type: none"> - Explain the rule of personal safety in working in woodwork and painting workshops. - Explain the practices of managing personal safety in working in woodwork and painting workshops. <p>ii) The teacher to use questioning strategies (what, why and why questions) to guide students to:</p> <ul style="list-style-type: none"> - Explain the effects of ignoring personal safety rules in working in woodwork and painting Engineering workshops. - Describe do and don't for personal safety rules in working in woodwork and painting Engineering workshops. <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"> • Manila sheet • Flip chart • Multimedia projector • Fire extinguisher • Posters/ pitches with different lifting techniques • DVD/VCD • Computer • Poster/pictures with different safety symbols 	<ol style="list-style-type: none"> 1. Is the student able to explain the rules of personal safety in working in woodwork and painting workshops? 2. Is the student able to explain the effects of ignoring personal safety rules in working in woodwork and painting workshops? 3. Is the student able to explain the effects of ignoring personal safety management in working in woodwork and painting workshops?. 	4

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
					4. Is the student able to describe do and don't for personal safety rules in working in woodwork and painting engineering workshops?	
	3.2 Workshop Safety Rules and Management	<p>The student should be able to:</p> <p>a) Explain the equipment and machine tool safety rules management in Woodwork and Painting workshop.</p> <p>b) Explain hand tools safety rules management in woodwork and painting workshop.</p>	<p>i) The teacher to organise students in groups and guide them to:</p> <ul style="list-style-type: none"> - Explain the equipment and machine tool safety rules management in woodwork and painting workshop. - Explain hand tools safety rules management in woodwork and painting workshop. <p>ii) The teacher to use questioning strategies (i.e. what, why and how questions) to guide students to:</p> <ul style="list-style-type: none"> - Explain the main causes of accidents in woodwork and painting workshop. 	<ul style="list-style-type: none"> • Manila sheet • Flip chart • Multimedia projector • Fire extinguisher • Posters/ pitches with different lifting techniques • DVD/VCD • Computer • Poster/pictures with different safety symbols 	<p>1. Is the student able to explain machine safety rules and management in woodwork and painting workshops?</p> <p>2. Is the student able to explain hand tools safety rules and management in woodwork and painting workshop?</p>	4

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		<p>c) Explain the main causes of accidents in woodwork and painting workshop.</p> <p>d) Describe how to avoid/prevent accidents in woodwork and painting workshop.</p> <p>e) Explain do and Don'ts while working in woodwork and painting workshop.</p>	<ul style="list-style-type: none"> - Describe how to avoid/prevent accident in woodwork and painting workshop. - Explain do and don'ts while working in woodwork and painting workshop <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>		<p>3. Is the student able to explain the main causes of accidents in Woodwork and Painting workshop?</p> <p>4. Can the student describe how to avoid/prevent accidents in the woodwork and painting workshops?</p> <p>5. Can the student explain do and don'ts while working in woodwork and painting workshop?</p>	

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	3.3 Accidents Management	<p>The student should be able to:</p> <p>a) Identify the items of first aid kit.</p> <p>b) Describe the use of items of first aid kit.</p> <p>c) Describe the importance of First Aid Kit in woodwork and painting workshop.</p> <p>d) Explain how to provide First Aid in woodwork and painting workshop.</p> <p>e) Use the items of first aid kit to manage accident in woodwork and painting workshop.</p> <p>f) Provide first aid in woodwork and painting workshop.</p>	<p>i) The teacher to use questions to guide students to</p> <ul style="list-style-type: none"> - Identify the items of first aid kit. - Explain the use of items of first aid kit. <p>ii) The teacher to organise students in groups and guide them to:</p> <ul style="list-style-type: none"> - Explain the importance of First Aid Kit in woodwork and painting workshop. - Explain how to provide First Aid in woodwork and painting workshop. <p>iii) The teacher to use role play method to guide students to:</p> <ul style="list-style-type: none"> - Use the items of first aid kit. - Provide first aid in woodwork and painting workshop. <p>iv) The teacher should monitor and facilitate students in performing the tasks given in part (iii).</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- ii).</p>	<ul style="list-style-type: none"> • Manila sheet • Flip chart • Multimedia projector • Fire extinguisher • Posters/ pitches with different lifting techniques • DVD/VCD • Computer • Poster/pictures with different safety symbols • Flash disk, • Memory stick 	<ol style="list-style-type: none"> 1. Can the student identify the items of first aid kit? 2. Can the student describe the use of items of first aid kit? 3. Can the student describe the importance of First Aid Kit in woodwork and painting workshop? 4. Can the student explain how to provide First Aid in woodwork and painting workshop? 	4

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
					5. Can the student use the items of first aid kit to manage accident in woodwork and painting workshop 6. Can the student provide first aid in woodwork and painting workshop	

FORM II

CLASS LEVEL COMPETENCIES

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

- a) apply painting materials and tools in performing various projects (i.e., different surface finishing);
- b) analyse various types of colour and mix colour using colour circles;
- c) prepare surface and use stencil and templates for lettering;
- d) apply paints for surface finishing;
- e) analyse and use different paints to paint various surfaces;
- f) design tie and dyeing;
- g) apply painting techniques for surface finishing including application of spraying equipment;
- h) use stencils and templates, prepare surface for lettering and tracing of objects; and
- i) prepare surfaces for painting and apply painting techniques.

CLASS LEVEL OBJECTIVES

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

- a) identify, select painting materials and tools to perform various projects (i.e., different surface finishing);
- b) explain painting terms, selecting appropriate colours, use concept of colour circle (colour mixing);
- c) identify tools and surface use stencil and templates for lettering;
- d) use different paints to conduct surface finishing;
- e) use different paints to paint various surfaces;
- f) identify colour and materials for tie and dyeing and design different tie and dye materials;
- g) conduct painting techniques for surface finishing including application of spraying equipment;
- h) use stencils and templates, prepare surface for lettering and tracing of objects; and
- i) prepare surfaces for painting and apply painting techniques

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
1.0 PAINTING MATERIALS	1.1 Composition of Paints	<p>The student should be able to:</p> <ul style="list-style-type: none"> a) Explain the main constituents of water paints. b) Explain the main constituents of oil paints. c) Explain the basic constituents' paints. d) Classify the principal application of paints regarding to their kinds. 	<ul style="list-style-type: none"> i) The teacher to organise students in groups and guide them to: <ul style="list-style-type: none"> - Explain the main constituents of water paints. - Explain the main constituents of oil paints. - Explain the basic constituents of paints (e.g. pigment, binder and thinner). - Classify good paint compositions (i.e., according to their origin, application of the use of the kind). ii) 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). 	<ul style="list-style-type: none"> • Painting materials/tools • Different types of paints 	<ol style="list-style-type: none"> 1. Is the student able to explain the main constituents of water paints? 2. Is the student able to explain the main constituents of oil paints? 3. Is the student able to explain the basic constituents oil paints? 4. Can the student classify the principal application of paints regarding to their kinds, application, use, origin? 	18

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	1.2 Characteristic of Paints	<p>The student should be able to:</p> <p>a) Explain various characteristics of paints.</p> <p>b) Describe the average spreading capacity of paints on smooth porous surface.</p> <p>c) Describe the average spreading capacity of paints on non- porous surfaces.</p> <p>d) Identify different characteristics of pigment, binder thinner and drier.</p>	<p>i) The teacher to organise the students in groups and guide them to:</p> <ul style="list-style-type: none"> - Explain various characteristics of paints. (i.e., spacity, viscocity, average, spread capacity etc.) - Describe the average spreading capacity of paints on smooth porous surfaces. - Describe the average spreading capacity of paints on non-porous surfaces. - Identify different characteristics of pigment, binder thinner and drier. <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"> • Practices should be used to paint surfaces to observe the spreading capacity • Paints • Brushes • Solid surfaces 	<ol style="list-style-type: none"> 1. Can the student explain various characteristics of paints? 2. Can the student describe the average spreading capacity of paint on smooth surface porous? 3. Can the student describe the average spreading capacity of paints on non-porous surfaces? 4. Can the student Identify different characteristics of pigment, binder thinner and drier? 	4

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	1.3 Selection of Paints	<p>The student should be able to:</p> <p>a) Select different paints basing on the type of surface.</p> <p>b) Identify different uses of primers and industrial finishes for metal work, fungicidal paints, insecticidal paints, wood preservative solutions.</p> <p>c) Explain applications of the special paints.</p>	<p>i) The teacher to create activities for students to:</p> <ul style="list-style-type: none"> - Select different paints basing on the type of surface. - Identify different uses of primers and industrial finishes for metal work, fungicidal paints, insecticidal paints, wood preservative solutions. <p>ii) The teacher should monitor and facilitate students in performing the tasks given in part (i).</p> <p>iii) With the aid of prepared assessment guideline, the teacher should guide students to assess the activities performed in part (i).</p> <p>iv) The teacher to use questioning strategies (what, why and how questions) to guide students to explain applications of the special paints.</p>	<ul style="list-style-type: none"> • Specialized paints • Sample of solid surfaces • Objects painted with specialized paints 	<ol style="list-style-type: none"> 1. Can the student select different paints basing on the type of surface? 2. Can the student identify different uses of primers and industrial finishes for metal work, fungicidal paints, insecticidal, paints, wood preservative solutions? 3. Can the student explain applications of the special paints? 	9

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND 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).			
	1.4 Mixing and Application of Paints	The student should be able to: a) Describe the procedure/ process of paint mixing. b) Describe the procedure/ processes of painting. c) Mix the different paints and produce new paint.	i) The teacher to organise students in groups and guide them to: - Describe procedures/ process of paint mixing. - Describe the procedure/ processes of painting ii) Students to present their responses for sharing and discussion. iii) The teacher to design activities for students to mix different paints to observe new paint. iv) The teacher should monitor and facilitate students in mixing different paints to observe new paint. v) With the aid of prepared assessment guideline, the teacher should guide students to use the guideline to assess the activities performed in mixing different paints to observe new paint.	<ul style="list-style-type: none"> • Paint • Empty containers • Stirring sticks 	<ol style="list-style-type: none"> 1. Can the student describe the procedure/ process of paint mixing? 2. Can the student describe the procedure/ processes of painting? 3. Can the student appropriately apply the mixed paints and produce new paint? 	18

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			<ul style="list-style-type: none"> <li data-bbox="858 252 1252 350">vi) The teacher to design activities for students to mix different paints to observe new paint. <li data-bbox="858 373 1252 505">vii) The teacher should monitor and facilitate students in mixing different paints to observe new paint. <li data-bbox="858 528 1252 767">viii) With the aid of prepared assessment guideline, the teacher should guide students to use the guideline to assess the activities performed in mixing different paints to observe new paint. <li data-bbox="858 790 1252 955">ix) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-iii). 			

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
2.0 COLOUR	2.1 Colour Circle	<p>The student should be able to:</p> <p>a) Define the concept of colour.</p> <p>b) Explain arrangement of colour circle.</p> <p>c) Distribute colour in colour circle.</p> <p>d) Draw the color circle.</p>	<p>i) The teacher to use questions to guide the students to:</p> <ul style="list-style-type: none"> - Define the colour concept such as hue, purity, value, tint, shade, primary colour, secondary colour, tertiary colour. - Explain arrangement of colour circle. <p>ii) The teacher to create activities for students to:</p> <ul style="list-style-type: none"> - Distribute colour in colour circle (e.g. tints, hue, broken colours etc and six and twelve colour circle). - Make observation of colour circle sketches. - Draw the colour circle. <p>iii) The teacher should monitor and facilitate students in performing the tasks given in part (ii).</p> <p>iv) With the aid of prepared assessment guideline, the teacher should guide students to assess the activities performed in part (ii).</p>	<ul style="list-style-type: none"> • Chalk • Projector • Manila sheet • Marker pens • Computer • Sketches of colour circles. 	<ol style="list-style-type: none"> 1. Can the student define colour concept? 2. Can the student explain arrangement of the colour circle? 3. Can the student distribute colour in colour circle? 4. Can the student draw the colour circle? 	18

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND 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) and (ii).			
	2.2 Colour scheme	The student should be able to: a) Describe the colour scheme from colour circle. b) Explain functions of colour scheme. c) Draw colour scheme of monochromatic complementary, contrasting, polychromatic, analogous. d) Apply colour scheme from the colour circle.	i) The teacher to organise student in groups and guide them to: - Describe the colour scheme from colour circle. - Explain functions of colour scheme. ii) Students to present their responses for sharing and discussion. iii) The teacher to create activities for students to: - Draw colour scheme of monochromatic complementary, contrasting, polychromatic, and analogous. - Apply colour scheme from the colour circle (e.g. monochromatic complementary, contrasting, polychromatic, analogous). iv) The teacher should monitor and facilitate students in performing the tasks given in part (iii).	<ul style="list-style-type: none"> • Posters showing colour schemes • Projector • Computer • Video 	<ol style="list-style-type: none"> 1. Can the student describe the colour scheme and its work? 2. Can the student explain functions of colour scheme? 3. Can the student draw colour scheme of monochromatic complementary, contrasting, polychromatic, and analogous? 4. Can the student apply colour scheme from the colour circle? 	18

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			v) With the aid of 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 given in part (i) and (iii).			
3.0 WATER PAINTS	3.1 Water Paints and Distemper	The student should be able to: a) Identify the functions of non-washable and washable distemper water paints, oil bound emulsion. b) Identify colours and distemper. c) Apply water paint to surfaces. d) Apply thin water paints and distempers. e) Detect colour behaviour of various surfaces.	i) The teacher to organise students in groups and guide them to: - Identify functions of non-washable and washable distemper water paints, oil bound emulsion. - Identify colours and distemper. ii) Students to present their responses for sharing and discussion. iii) The teacher to create activities for students to: - Apply water paint to surfaces. - Apply thin water paints and distempers.	Various types of water paints.	1. Can the student identify the functions of non-washable and washable distemper water paints, oil bound emulsion? 2. Can the student identify colours and distemper? 3. Can the student apply water paint to surfaces?	18

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			<ul style="list-style-type: none"> - Detect colour behaviour of various surface. iv) The teacher should monitor and facilitate students in performing the tasks given in part (iii). v) With the aid of 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 given in part (i) and (iii). 		<ul style="list-style-type: none"> 4. Can the student apply thin water paints and distempers? 5. Can the student detect colour behaviour of various surfaces? 	
	3.2 Texture of Paints, Stains and Staining	<p>The student should be able to:</p> <ul style="list-style-type: none"> a) Identify materials used for texturing and their application. b) Identify different types of stains. c) Apply different methods of staining on different surfaces. d) Design texturing materials. 	<ul style="list-style-type: none"> i) The teacher to use questions to guide students to: <ul style="list-style-type: none"> - Identify materials used for texturing and its application. - Identify different types of stains. ii) The teacher to create activities for students to: <ul style="list-style-type: none"> - Apply different methods of staining on surfaces. - Design texturing materials. 	<p>Poster showing texture of paint, stains and staining</p> <ul style="list-style-type: none"> • Computer • Projector • Video 	<ul style="list-style-type: none"> 1. Can the student identify materials used for texturing and its application? 2. Can the student identify different types of stains? 3. Can the student apply different methods of staining on different surfaces? 	18

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iii) The teacher should monitor and facilitate students in performing the tasks given in part (ii). iv) With the aid of prepared assessment guideline, the teacher should guide students to assess 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) and (ii).		4. Can the student design texturing materials?	
	3.3 Varnish and Polish	The student should be able to: a) Explain the importance of varnish and polish. b) Identify the principle materials used to make varnish.	i) The teachers use questioning strategies (i.e. why and how) to guide students to: - Explain importance of varnish and polish. - Identify the principle materials used to make varnish (e.g. natural gum). - Identify materials used to make polishes and their applications.	<ul style="list-style-type: none"> • Real objects • Varnish and polish 	1. Can the student explain the importance of varnish and polish? 2. Can the student identify the principle materials used to make varnish e.g. natural gum?	18

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		<p>c) Identify materials used to make polishes and their applications.</p> <p>d) Describe methods used in applying varnish.</p> <p>e) Apply varnish on a surface.</p> <p>f) Describe methods used in applying polish.</p> <p>g) Apply polish on a surface.</p>	<p>- Describe methods used in applying varnish.</p> <p>- Describe methods used in applying polish.</p> <p>ii) Students to present their responses for sharing and discussion.</p> <p>iii) The teacher to create activities for students to:</p> <p>- Apply varnish on a surface.</p> <p>- Apply polish on a surface.</p> <p>iv) The teacher should monitor and facilitate students in performing the tasks given in part (iii).</p> <p>v) With the aid of prepared assessment guideline, the teacher should guide students to use the guideline 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) and (iii).</p>		<p>3. Can the student identify materials used to make polishes and their applications?</p> <p>4. Can the student describe methods used in applying varnish?</p> <p>5. Can the student apply varnish on a surface.?</p> <p>6. Can the student describe methods used in applying polish?</p> <p>7. Can the student apply polish on a surface?</p>	

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	3.4 Cellulose Finishes and Decorative Effects	<p>The student should be able to:</p> <p>a) Define the term cellulose finishes</p> <p>b) Define the term scumble and stippling.</p> <p>c) Explain the constituents of cellulose finishes.</p> <p>d) Explain the function of cellulose finishes.</p> <p>e) Apply cellulose finishes and decorative effects on a given surface.</p> <p>f) Apply scribbling and stippling on a given surface.</p>	<p>i) The teacher to use brainstorming questions to guide students to:</p> <ul style="list-style-type: none"> - Define the term cellulose finishers. - Define the term scumble and stippling. <p>ii) The teacher to organise students in groups and guide them to:</p> <ul style="list-style-type: none"> - Explain the constituents of cellulose finishes. - Explain the function of cellulose finishes. <p>iii) Students to present their responses for sharing and discussion.</p> <p>iv) The teacher to create activities for students to:</p> <ul style="list-style-type: none"> - Apply scribbling and stippling on a given surface. - Apply cellulose finishes and decorative effects on a given surface. <p>v) The teacher should monitor and facilitate students in performing the tasks given in part (iv).</p>	<ul style="list-style-type: none"> • Finishes objects • Paints • Decorated objects • Cellulose finishes • Posters showing different decorative effects 	<ol style="list-style-type: none"> 1. Can the student define the term cellulose finishes? 2. Can the student define the term scumble and stippling? 3. Can the student explain the constituents of cellulose finishes? 4. Can the student explain the function of cellulose finishes? 5. Can the student apply cellulose finishes and decorative effects on a given surface? 6. Can the student apply scribbling and stippling on a given surface? 	12

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			vi) With the aid of prepared assessment guideline, the teacher should guide students to assess the activities performed in part (iv). vii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i- iv).			
4.0 TIE AND DYING	4.1 Patterns Design	The student should be able to: a) Explain the concepts of tie and dying. b) Identify materials used in tie and dying. c) Explain methods used in tie and dying. d) Describe patterns and design mixing used in tie and dying. e) Draw different patterns and design used on dying.	i) The teacher to use question to guide students to: - Explain the concepts of tie and dying. - Identify materials used in tie and dying. ii) The teacher to use questioning strategies (what, how and why questions) to guide students to: - Explain methods used in tie and dying. - Describe patterns and design mixing used for tie and dying. iii) The teacher to create activities for students to: - Draw different patterns used on dying.	<ul style="list-style-type: none"> • Patterns designs • Paints • Tie and dyes • Books for references 	1. Can the student explain the concepts of tie and dying? 2. Can the student identify materials used in tie and dying? 3. Can the student explain methods used in tie and dying? 4. Can the student describe patterns and design mixing used for tie and dying?	18

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		f) Design different pattern of tie and dying. g) Apply variation of colour values to match the required colour for given patterns.	<ul style="list-style-type: none"> - Design different pattern of tie and dying. - Apply variation of colour values (e.g. tint and shade) to match the required colour for given patterns. iv) The teacher should monitor and facilitate students in performing the tasks given in part (iii). v) With the aid of 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 given in part (i- iii). 		5. Can the student draw different patterns to be used on dying? 6. Can the student design different pattern of tie and dying? 7. Can the student apply variation of colour values to match the required colour for given patterns?	
	4.2 Mixing and Application of Dyes	The student should be able to: a) Explain the processes of mixing required colour for given pattern.	i) The teacher should organise students in groups and guide them to: <ul style="list-style-type: none"> - Explain the processes of mixing required colour for given pattern. 	<ul style="list-style-type: none"> • Paints • Dyes • Stirring tools • Patterns • Surfaces of objects 	1. Can the student explain the processes of mixing required colour for given pattern?	9

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		b) Explain the processes of applying tie and dyes for given patterns. c) Mix the required colours for given patterns. d) Match colours for given patterns. e) Apply dyes on the required surface.	<ul style="list-style-type: none"> - Explain the processes of applying tie and dyes for given patterns. ii) Students to present their responses for sharing and discussion. iii) The teacher to create activities for students to: <ul style="list-style-type: none"> - Mix colour on given patterns. - Do practical activities on matching colours for given patterns. - Apply dyes on the required surface. iv) The teacher should monitor and facilitate students in performing the tasks given in part (iii). v) With the aid of 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 given in part (i) and (iii). 		2. Can the student explain the processes of applying tie and dyes for given patterns? 3. Can the student match the required colours for given patterns? 4. Can the student match colours for given patterns? 5. Can the student apply dyes on the required surface?	

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
5.0 SPRAYING AND SPRAY EQUIPMENT	5.1 Spraying and Spray Equipment	<p>The student should be able to:</p> <ul style="list-style-type: none"> a) Define the term spraying. b) Identify spraying equipment. c) Explain the use of spraying equipment. d) Use equipment properly during spraying. e) Perform spraying activities. f) Remedy problems that arise during spraying. g) Examine problems that arise during spraying. 	<ul style="list-style-type: none"> i) The teacher to use brainstorming questions to guide students to define the term “spraying”. ii) The teacher to use questions to guide students to: <ul style="list-style-type: none"> - Identify spraying equipment. - Explain the use of spraying equipment. iii) The teacher to use role play methods for students to: <ul style="list-style-type: none"> - Use equipment properly during spraying. - Perform spraying activities. - Remedy problems that arise during spraying. iv) The teacher should monitor and facilitate students in performing the tasks given in part (iii). v) With the aid of prepared assessment guideline, the teacher should guide students to assess the activities performed in part (iii). vi) The teacher to use questioning strategies (what, why & how questions) to guide students to examine problems that arise during spraying. 	Spray equipment i.e. compressors, spraying guins etc	<ul style="list-style-type: none"> 1. Can the student properly define the term spraying? 2. Can the student Identify spraying equipment? 3. Can the student explain the use of spraying equipment? 4. Can the student Use equipment properly during spraying? 5. Can the student well perform spraying activities? 6. Can the students remedy the problems that arise during spraying? 7. Can the student examine problems that arise during spraying? 	8

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND 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), (ii), (iii) and (iv).			
6.0 SIGN WRITING AND STENCILING	6.1 Tools for Sign Writing and Stenciling	The student should be able to: a) List the appropriate tools for sign writing. b) Prepare the tools for sign writing. c) Prepare the surface for sign writing and colouring. d) Use tools for sign writing and stenciling.	i) The teacher to use questions to guide students to list appropriate tools use for sign writing. ii) The teacher to create activities for students to: - Prepare tools for sign writing. - Prepare the surface for sign writing and colouring. - Use tools for sign writing and stenciling. iii) The teacher should monitor and facilitate students in performing the tasks given in part (ii). iv) With the aid of prepared assessment guideline, the teacher should guide students to use the guideline to assess 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) and (ii).	Tools such as stencils templates, sable, stick, distempers etc	1. Can the student list the appropriate tools for sign writing? 2. Can the student prepare the tools for sign writing? 3. Can the student prepare the surface for sign writing and colouring? 4. Can the student use tools for sign writing and stenciling?	8

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
7.0 OIL PAINT	7.1 Constituents of Oil Paints	<p>The student should be able to:</p> <p>a) Identify the ingredients of oil paints.</p> <p>b) List functions of each oil paint ingredients.</p> <p>c) Apply oil paints to various surfaces.</p>	<p>i) The teacher to organise students in group and guide them to:</p> <ul style="list-style-type: none"> - Identify ingredients of oil paints (such as, base, extender, and pigment, vehicle thinner and drier). - List functions of each oil paint ingredients. <p>ii) Students to present their work for sharing and discussion.</p> <p>iii) The teacher to create activities for students to apply oil paints to various surfaces.</p> <p>iv) The teacher should monitor and facilitate students in performing the tasks given in part (iii).</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) and (iii).</p>	<ul style="list-style-type: none"> • Oil paints • Thinner • Pigments • Video • Projector • Computer • Brushes • Spraying gun • Spray 	<ol style="list-style-type: none"> 1. Can the student identify the ingredients of oil paints such as, base, extender, pigment vehicle thinner and drier? 2. Can the student list functions of each oil paint ingredients? 3. Can the student apply oil paints to various surfaces? 	10

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
8.0 FUNCTIONAL REQUIREMENT OF PAINTS	8.1 Characteristic of Good ideal Paints	The student should be able to: a) Define the term ideal paints. b) List all characteristics of good ideal paints. c) Identify the mixing ratio of oil ingredients.	i) The teacher to use brainstorming questions to guide students to define the term ideal paints ii) The teacher to use questions to guide students to: - List characteristics of good paints. - Identify mixing ratio of oil ingredients. 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).	Paints mixed in different ratios	1. Can the student define the term ideal paints? 2. Can the student list all characteristics of good paints? 3. Can the student identify the mixing ratio of oil ingredients?	2
	8.2 Paint Defects	The student should be able to: a) Define the term paint defects. a) Identify paint defects. b) Describe typical paint defects	i) The teacher to use brainstorming questions to guide students to define the term paint defect. ii) The teacher to use questioning strategies (what, how and why questions) to guide students to: - Identify paint defects (such as bleeding, blistering, blooming, chalking, cracking/ grazing, flanking peeling, grinning and specifications)	Object with paint defects	1. Can the student define the term paint defects? 2. Can the student identify paint defects? 3. Can the student describe typical paint defect?	

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			<ul style="list-style-type: none"> - Describe each paint defects. iii) The teacher should give feedback and use students' responses as feedback to support students in identifying paint defects. 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). 			
9.0 PAINTING TECHNIQUES	9.1 Preparation and Painting System	<p>The student should be able to:</p> <ul style="list-style-type: none"> a) Identify the behaviour and treatment of various surfaces. b) Prepare various surfaces for painting. c) Paint from priming to finishing. d) Apply paints to different surfaces regarding to their coats. 	<ul style="list-style-type: none"> i) The teacher to use questioning strategies (what, why and how questions) to guide students to identify behaviour and treatment of various surfaces (e.g, wood, metal and cement surfaces). ii) The teacher to create activities for students to: <ul style="list-style-type: none"> - Prepare various surfaces for painting. - Paint from priming to finishing. - Apply paints to different surfaces regarding to their coats. 	<ul style="list-style-type: none"> • Paints • Tools for painting • Surfaces of various sold objects • Video • Computer • Projector • Brushes • Spraying gun • Spray 	<ul style="list-style-type: none"> 1. Can the student identify the behaviour and treatment of various surfaces? 2. Can the student prepare various surfaces for painting? 3. Can the student paint from priming to finishing? 	18

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iii) The teacher should monitor and facilitate students in performing the tasks given in part (ii). iv) The teacher to prepare assessment guideline as a guide for students to observe and assess painting and sequence of painting.		4. Can the student apply paints to different surfaces regarding to their coats?	
10.0 VARNISHES AND FINISHES	10.1 Materials and Application	The student should be able to: a) Explain qualities of good varnishes and finishes materials. b) Describe the characteristics of various finishing materials. c) Describe the characteristics of various varnished materials.	i) The teacher to use questioning strategies (i.e., what, why and how questions) to guide students to explain the qualities of good varnishes and finishes materials (e.g. varnishes, paints, polishes, filler etc). ii) The teacher to organise students in groups and guide them to: - Describe the characteristics of various finishing materials. - Describe the characteristics of various varnished materials.	Varnishes, polishes, paints, fillers and stains.	1. Can the student explain qualities of good varnishes and finishes materials e.g. varnishes, paints, polishes, filler etc? 2. Can the student describe the characteristics of various finishing materials?	8

TOPIC	SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iii) Students to present their work 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) and (ii).		3. Describe the characteristics of various vanished materials?	
	10.2 Surface Preparation	The student should be able to: a) Describe different types of surfacing materials. b) Prepare a surface of a piece of wood starting with the highest grade to the lowest grade.	i) The teacher to use questions to guide students to describe different types of surfacing materials. ii) The teacher to create activities for students to prepare a surface of a piece of wood starting with the highest grade to the lowest grade. iii) Students to present their work 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) and (ii).	<ul style="list-style-type: none"> • Pieces of wood • Abrasives • Materials • Tools 	1. Can the student describe different types of surfacing materials? 2. Can the student prepare a surface of a piece of wood starting with the highest grade to the lowest grade?	4

FORM III

CLASS LEVEL COMPETENCE

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

- a) identify types of wood, perform conversion, seasoning, preservation, storage, and board manufacturing and identify wood defects;
- b) select wood which are free from defects and prepare for projects making;
- c) select types of glues and apply them in timber structures, erect scaffolds, shores and conduct timbering to trenches, perform formwork and centering;
- d) identify joints and apply skills to join various timber structures, identify types of partition, materials and construct various types of partitions; and
- e) manufacture various types of furniture, including various types of doors, shutters and frames.

CLASS LEVEL OBJECTIVES

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

- a) identify types of wood and their applications to label the log structure and perform wood convention, seasoning, preservation storage and identifying wood defects and their remedial;
- b) select and apply wood which are free from defects;
- c) identify, select, make joints and join them to obtain composite wooden structures;
- d) select and use glue for joining wooden frame work as well as to make cabinet making;
- e) select and apply temporary supports to various structures during construction activities;
- f) differentiate types and materials for partition and construct various partition structures; and
- g) understand the concept of doors in the sense of fabricating and installation.

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVE	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
1.0 TIMBER	1.1 Types of Trees	<p>The student should be able to:</p> <p>a) Classify types of trees and their products.</p> <p>b) Explain the functions of the tree parts.</p> <p>c) Explain the functions of parts of the tree log.</p> <p>d) Sketch the parts of a tree log.</p> <p>e) Label the parts of a tree log.</p>	<p>i) The teacher to organise students in groups and guide them to:</p> <ul style="list-style-type: none"> - Classify types of trees and the products (i.e. hard and soft wood). - Explain functions of the tree parts. - Explain functions of parts of tree log. <p>ii) Students to present their responses for sharing and discussion.</p> <p>iii) The teacher to design activities for students to:</p> <ul style="list-style-type: none"> - Sketch parts of the tree log - Label the parts of the tree log. <p>iv) The teacher should monitor and facilitate students in performing the tasks given in part (iii).</p> <ul style="list-style-type: none"> - With the aid of prepared assessment guideline, the teacher should guide students to use the guideline to assess activities performed in part (iii). 	<ul style="list-style-type: none"> • Trees • Log • Wood (hard and soft) • Posters showing different types of trees 	<ol style="list-style-type: none"> 1. Can the student classify types of trees and their products? 2. Can the student explain the functions of the tree parts? 3. Can the student explain the functions of parts of the tree log? 4. Can the student sketch the parts of the tree log? 5. Can the student well label the parts of a tree log? 	8

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVE	TEACHING AND LEARNING STRATEGIES	TEACHING AND 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) and (iii).			
	1.2 Timber Conversion	The student should be able to: a) Define the concept timber conversion. b) Explain methods of timber conversion. c) Explain quarter through and through quarter and tangential sawing.	i) The teacher to use questions to guide students to: - Define the concept timber conservation. - Explain methods of timber conservation. ii) The teacher to organise students in groups and guide them explain quarter through and through quarter and tangential sawing. iii) Students to present their work 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) and (ii).	<ul style="list-style-type: none"> • Log of a tree • Gig-saw • Posters showing various method of wood conversation 	<ol style="list-style-type: none"> 1. Can the student perfectly define the timber conversion? 2. Can the student explain methods of timber conversion? 3. Is the student able to explain quarter through and through quarter and tangential sawing? 	9

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVE	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	1.3 Seasoning	The student should be able to: a) Define the term seasoning. b) Identify methods of seasoning. c) Arrange timber during seasoning.	i) The teacher to use questions to guide students to: - Define the term seasoning. - Identify methods of seasoning (i.e., natural and artificial seasoning). ii) The teacher to create activities for students to arrange timber during seasoning. iii) The teacher should monitor and facilitate students in performing the tasks given in part (ii). 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).	<ul style="list-style-type: none"> • Wood • Room for seasoning • Posters showing various ways of seasoning • Video • Computer • Projector 	<ol style="list-style-type: none"> 1. Can the student define the term seasoning? 2. Can the student identify methods of seasoning? 3. Can the student arrange timber during seasoning? 	12
	1.4 Preservation and Storage	The student should be able to a) Explain different methods of treating and preserving timber.	i) The teacher to conduct a field study for students to observe methods of wood preservation and storage and then guide them to explain different methods of wood preservation and storage.	<ul style="list-style-type: none"> • Wood • Brushes • Site (real situation) 	<ol style="list-style-type: none"> 1. Can the student explain different methods of treating and preserving timber? 	15

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVE	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		b) Use stressing-brushing, dipping, spraying methods in treating timber. c) Use pressure methods in treating/preserving timber.	ii) The teacher to design activities for students to: <ul style="list-style-type: none"> - Use stressing- brushing, dipping, spraying methods in treating timber. - Use pressure methods in treating/preserving timber. iii) The teacher should monitor and facilitate students in performing the tasks given in part (ii). iv) With the aid of prepared assessment guideline, the teacher should guide students to use the guideline to assess activities done treating and preserving timber. v) The teacher to use students' responses as feedback to support students to explain and use different methods of wood preservation and storage		2. Can the student use stressing-brushing, dipping, spraying methods in treating timber? 3. Can the students use pressure methods in treating/preserving timber?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVE	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	1.5 Defects of timber	The student should be able to: a) Identify various timber defects. b) Explain the effect of timber defects. c) Classify types of timber defects.	i) The teacher to organise students in groups and guide them to: - Identify various timber defects - Explain the effect of timber defects. - Classify types of wood defects (e.g. natural seasoning, decaying fungus growth and insect attack). ii) 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).	Different types of wood that are affected by defects • Computer • Projector • Video • Posters showing various wood affected by defects	1. Can the student identify various timber defects? 2. Can the student explain the effect of timber defects? 3. Can the student classify types of timber defects?	
	1.6 Manufactured Board	The student should be able to: a) Define the term manufactured board. b) Identify types of manufactured board.	i) The teacher to use questions to guide students to: - Define the term manufacture board. - Identify types of manufactured boards (e.g. plywood, fiber-board, chip board, and straw boards.)	• Various types of manufactured boards • Sketches of manufactured boards	1. Can the student define the term manufactured board? 2. Can the student identify types of manufactured board?	4

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVE	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		<p>c) List the characteristics of each manufactured board.</p> <p>d) Describe sizes of manufacturing board and their uses.</p>	<ul style="list-style-type: none"> - List characteristics of various manufactured board. - Describe sizes of manufacturing board and their uses. <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"> • Posters showing various manufactured board • Sample of wood bar 	<p>3. Can the student list the characteristics of each manufactured board?</p> <p>4. Can the student describe sizes of manufacturing board and their uses?</p>	
2.0 TRUING UP WOOD	2.1 Selection of wood	<p>The student should be able to:</p> <p>a) Explain the importance of selecting appropriate timber for various works.</p> <p>b) Explain the importance of selecting timber which are free from defects.</p> <p>c) Select timber which are free defect for various work.</p>	<p>i) The teacher to organise students in groups and guide them to:</p> <ul style="list-style-type: none"> - Explain the importance of selecting appropriate timber for various works (i.e., planning twisting, warping, bending and tearing). - Explain the importance of selecting timber which are free from defects. <p>ii) Students to present their responses for sharing and discussion.</p>	<ul style="list-style-type: none"> • Timber with various defects • Sketches of wood with defect • Poster with wood defects • Video • Computer • Projector 	<p>1. Can the student explain the importance of selecting appropriate timber for various works?</p> <p>2. Can the student explain the importance of selecting timber which are free from defects?</p> <p>3. Can the student select timber which are free defect for various work?</p>	8

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVE	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			<ul style="list-style-type: none"> iii) The teacher to arrange a site visit to the wood yard for students to observe various types of wood defects and guide students to select timber which are free defect for various work (i.e., for planing twisting, warping, bending and tearing). iv) The teacher should monitor and facilitate students in performing the tasks given in part (iii). v) With the aid of prepared assessment guideline, the teacher should guide students to use the guideline to assess activities performed 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-iii). 			

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVE	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	2.2 Preparation of Wood	<p>The student should be able to:</p> <p>a) Describe the procedure of timber sizing.</p> <p>b) Prepare a piece of wood face side face edge to get the board smooth, flat, square and sizing.</p>	<p>i) The teacher to organise students in groups and guide them to describe the procedure of timber sizing.</p> <p>ii) Students to present their work for sharing and discussion.</p> <p>iii) The teacher to create activities for students to perform a practical in preparing/plaining wood into correct size, smooth flat and square.</p> <p>iv) The teacher should monitor and facilitate students in performing the tasks given in part (iii).</p> <p>v) With the aid of prepared assessment guideline, the teacher should guide students to use the guideline to assess 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-iii)</p>	<ul style="list-style-type: none"> • Plain • Piece of wood 	<ol style="list-style-type: none"> 1. Can the student describe the procedure of timber sizing? 2. Can the student prepare plain a piece of wood face side face edge to get the board smooth, flat, square and sizing? 	9

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVE	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
3.0 ADHESIVES	3.1 Types and Uses of Glue	The student should be able to: a) Define the term glue. b) Explain characteristics of glues. c) Describe properties of glues. d) Differentiate types of glues .	i) The teacher to use questions to guide students to: - Define the term glue. - Identify types of glues. ii) The teacher to organise students in groups and guide them to: - Explain characteristics of glues - Describe properties of glues. - Differentiate types of glues (e.g. animal glue, resin, bean glue etc.) 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) and (ii).	<ul style="list-style-type: none"> • Glues • Pieces of wood with various joints • Damps • Different types of glues 	<ol style="list-style-type: none"> 1. Can the student define the term glue? 2. Can the student explain the characteristics of glues? 3. Can the student describe properties of glues? 4. Can the student differentiate types of glues? 	4
	3.2 Use of Glue	The student should be able to: a) Explain uses of glue.	i) The teacher to use questions to guide students to explain uses of glue. ii) The teacher to organise a practical work for students to apply glue in different joints.	<ul style="list-style-type: none"> • Glues • Pieces of wood with various joints • Damps • Different types of glues 	<ol style="list-style-type: none"> 1. Can the student explain uses of glue? 2. Can the student apply glue in different wood joints? 	4

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVE	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		b) Apply glue in different wood joints.	iii) The teacher should monitor and facilitate students in performing the tasks given in part (ii). iv) With the aid of prepared assessment guideline, the teacher should guide students to assess the activities performed on applying glue on wood joints. 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).			
4.0 IRON MONGERY	4.1 Types of Joints and their Uses	The student should be able to: a) Explain different types of joints that are used in woodwork. b) State the uses of various joints used in woodwork workshop	i) The teacher to organise students in groups and guide them to: - Explain different types of joints that are used in Woodwork. - State the uses of various joints in woodwork workshop. ii) Students to present their responses for sharing and discussion.	<ul style="list-style-type: none"> • Piece of wood • Tools necessary for wood joints 	1. Can the student explain different types of joints, construction of joint? 2. Can the student state the uses of various joints?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVE	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		<p>c) Classify all types of joints that are used in woodwork.</p> <p>d) Construct various types of joints e.g. widening joint, lengthening joint and framing joint.</p>	<p>iii) The teacher to use questioning strategies (what, why and how questions) to guide students to classify types of joints that are used in woodwork (e.g. widening joint, lengthening joints and framing joints).</p> <p>iv) The teacher to create activities for students to:</p> <ul style="list-style-type: none"> - Construct various types of joints (e.g. widening joint, lengthening joint and framing joint). - Classify all types of joints that are used in Woodwork. <p>v) The teacher should monitor and facilitate students in performing the tasks given in part (iv).</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-iv).</p>		<p>3. Can the student classify types of joints that are used in woodwork e.g. widening joint, lengthening joints and framing joints?</p> <p>4. Can the student construct various types of joints e.g. widening joint, lengthening joint and framing joint?</p>	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVE	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	4.2 Introduction to Iron Monger	<p>The student should be able to:</p> <p>a) Define the term iron monger.</p> <p>b) Identify types of iron mongery.</p> <p>a) Differentiate types of iron monger.</p>	<p>i) The teacher to use questions to guide students to:</p> <ul style="list-style-type: none"> - Define the term iron monger - Identify types of iron monger (e.g. metal fixing that penetrate timbers, metal fixing that allow movement and metal fixing that provide security). <p>ii) The teacher to use questioning strategies (what, why and how questions) to guide students to differentiate types of iron monger.</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>	Nails, screw, bolts, hinges locks (in various types)	<ol style="list-style-type: none"> 1. Can the student define the term iron monger? 2. Can the student identify types of iron monger? 3. Can the student differentiate types of iron monger? 	4

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVE	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	4.3 Process of Iron Monger	<p>The student should be able to:</p> <p>a) List metal fixing that penetrate timbers.</p> <p>b) Identify metal fixing that allow movement.</p> <p>c) Identify metal fixing that provide security.</p> <p>d) Use different types of iron monger for the different purposes.</p>	<p>i) The teacher to organise students in groups and guide them to:</p> <ul style="list-style-type: none"> - List metal fixing that penetrate timbers. - Identify metal fixing that allow movement. - Identify metal fixing that provide security. <p>ii) Students should present their responses for sharing and discussion.</p> <p>iii) The teacher to organise practical works on iron monger for student to use different types of iron monger for the different purposes.</p> <p>iv) The teacher should monitor and facilitate students in performing the tasks given in part (iii).</p> <p>v) With the aid of 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-iii).</p>	Nails, screw, bolts, hinges locks (in various types)	<ol style="list-style-type: none"> 1. Can the student list metal fixing that penetrate timbers? 2. Can the student identify metal fixing that allow movement? 3. Can the student identify metal fixing that provide security? 4. Can the student use different types of iron monger for the different purposes? 	4

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVE	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
5.0 FURNITURE	5.1 Furniture making	The student should be able to: a) Identify tools that facilitate furniture making. b) List procedures that are used in preparation of cutting list, timber selection, cutting and planning to size. c) Trim timber d) Make joint on timber. e) Assemble joint on timber. f) Finish joint on timber.	i) The teacher to use questions to guide students to identify tools that facilitate furniture making. ii) The teacher to use questioning strategies to guide students to explain procedures that are used in preparing cutting, listing, timbering, selection, cutting and planning different sizes of furniture. iii) The teacher to organise practical works for students to do practical work on: - Trimming timber - Making joint on timber. - Assembling joint on timber. - Make joint making. - Finish joint on timber. iv) The teacher should monitor and facilitate students in performing the tasks given in part (iii). v) With the aid of assessment guideline, the teacher should guide students to assess the activities performed in part (iii).	<ul style="list-style-type: none"> • Pieces of wood • Tools and equipment for furniture making 	<ol style="list-style-type: none"> 1. Can the student identify tools that will facilitate for furniture making? 2. Can the student list procedures that are used in preparation of cutting list, timber selection, cutting and planning to size? 3. Can the student trim timber? 4. Can the student make joint on timber? 5. Can the student assemble joint on timber? 6. Can the student finish joint on timber? 	8

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVE	TEACHING AND LEARNING STRATEGIES	TEACHING AND 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-iii).			
6.0 TEMPORARY SUPPORT	6.1 Scaffolds	The student should be able to: a) Define the term scaffolds. b) Explain different types of scaffolds. c) List the uses of scaffolds. d) Erect various types of scaffolds.	i) The teacher to use brainstorming questions to guide students to define the term scaffolds. ii) The teacher to use questions to guide students to: - Explain different types of scaffold (e.g. Put log, tied independent and tower scaffolds). - List the uses of scaffolds. iii) The teacher to organise a site visit that is using scaffolds and guide students to identify types and uses of scaffold. vii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-iv).	<ul style="list-style-type: none"> • Pieces of timber strings • Scaffolds 	<ol style="list-style-type: none"> 1. Can the student define the term scaffolds? 2. Can the student explain different types of scaffolds? 3. Can the student well list the uses of scaffolds? 4. Can the student erect various types of scaffolds? 	8

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVE	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	6.2 Shoring	<p>The student should be able to:</p> <p>a) Define the term shoring.</p> <p>b) Identify various types of shores.</p> <p>c) Explain uses of shore.</p> <p>d) Explain timber terminologies.</p> <p>e) Erect various types of shores.</p>	<p>i) The teacher to use brainstorming questions to guide students to define the term shoring.</p> <p>ii) The teacher to organise students in group and guide them to:</p> <ul style="list-style-type: none"> - Identify various types of shores e.g. raking, flying, dead, light dead shores and needle. - Explain uses of shore. - Explain timber terminologies. <p>iii) Students to present their responses for sharing and discussion.</p> <p>iv) The teacher to conduct a study tour for students to observe various activities on shoring and guide students to identify type of shores in position.</p> <p>v) The teacher to create activities for students to erect various types of shores.</p>	<ul style="list-style-type: none"> • Pieces of wood • Nails • Claw hammer • Cross-saw 	<ol style="list-style-type: none"> 1. Can the student define the term shoring? 2. Can the student identify various types of shores and their uses? 3. Can the student explain uses of shore? 4. Can the student explain timber terminologies? 5. Can the student erect various types of shores? 	9

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVE	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			<p>vi) The teacher should monitor and facilitate students in performing the tasks given in part (iv) and (v).</p> <p>vii) With the aid of assessment guideline, the teacher should guide students to assess the activities performed in part (iv) and (v)</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-v).</p>			
	6.3 Timbering to Trenches	<p>The student should be able to:</p> <p>a) Explain functions of timbering to trench.</p> <p>b) Describe factors that influence timbering.</p> <p>c) Perform a practical work about timbering to trenches.</p>	<p>i) The teacher to use questions for students to explain functions of timbering to trench.</p> <p>ii) The teacher to organise a class discussion for students to describe the factors that influence timbering.</p> <p>iii) The teacher to create activities for student to:</p> <ul style="list-style-type: none"> - Perform a practical work about timbering to trenches. 	<ul style="list-style-type: none"> • Timber • Nails • Cutting saw • Hammer (claw) • Hoes, spades etc 	<ol style="list-style-type: none"> 1. Can the student explain functions of timbering to trench? 2. Can the student describe factors that influence timbering? 	18

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVE	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		d) Conduct timbering according to the nature of the soil (cohesive non-cohesive) the depth of foundation etc.	<ul style="list-style-type: none"> - Conduct timbering according to the nature of the soil (cohesive non-cohesive) the depth of foundation. iv) The teacher should monitor and facilitate students in performing the tasks given in part (iii). i) With the aid of 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 given in part (i-iii). 		<ul style="list-style-type: none"> 3. Can the student perform a practical work about timbering to trenches? 4. Can the student conduct timbering according to the nature of the soil (cohesive non-cohesive) the depth of foundation etc and to describe terminology of timber? 	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVE	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	6.4 Formwork	<p>The student should be able to:</p> <p>a) Explain necessity of erecting formwork.</p> <p>b) Explain methods of erecting form work.</p> <p>c) Develop a practical examples depending on the situations.</p>	<p>i) The teacher to organise a class discussion for students to:</p> <ul style="list-style-type: none"> - Explain necessity of erecting formwork. - Explain methods of erecting formwork. <p>ii) Students to present their responses for sharing and discussion.</p> <p>iii) The teacher to conduct a field trip to observe various types of formworks and guide student to:</p> <ul style="list-style-type: none"> - Explain the process of formwork design. - Develop examples of formwork depending on the situations. <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>	<ul style="list-style-type: none"> • Timber (pcs) • Nails • Poles • Site • Toolkit 	<ol style="list-style-type: none"> 1. Can the student explain necessity of erecting form work? 2. Explain methods of erecting formwork? 3. Can the student develop a practical examples depending on the situations? 	18

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVE	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	6.5 Centering	<p>The student should be able to:</p> <p>a) Define the term centering.</p> <p>b) Identify position for centering.</p> <p>c) Describe methods of centering and setting-out.</p> <p>d) Use all methods of centering e.g. trammel method and the method of setting out.</p>	<p>i) The teacher to use brainstorming questions to guide students to define the term centering.</p> <p>ii) The teacher to organise group discussion for students to:</p> <ul style="list-style-type: none"> - Identify position for centering e.g. arches segmental semi-circular, elliptical arch. - Describe methods of centering and setting-out. <p>iii) The teacher to conduct a field study for students to observe the mechanism of centering and guide them to:</p> <ul style="list-style-type: none"> - Perform simple practical on arches centering. - Perform simple practical on setting-out. <p>iv) The teacher should monitor and facilitate students in performing the tasks given in part (iii).</p> <p>v) With the aid of assessment guideline, the teacher should guide students to assess the activities performed in part (iii).</p>	<ul style="list-style-type: none"> • Pieces of timber • Nails • Claw hammer • Cutting saw • Arch opening • Tool kit 	<ol style="list-style-type: none"> 1. Can the student define the term centering? 2. Can the student identify position for centering? 3. Can the student describe methods of centering and setting-out? 4. Can the student use all methods of centering e.g. trammel method and the method of setting out? 	8

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVE	TEACHING AND LEARNING STRATEGIES	TEACHING AND 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-iii).			
	6.6 Partition	The student should be able to: a) Explain the meaning of the term partition. b) Identify different types of partitions c) Analyses operations involved in building partitions. d) Describe materials used in erecting partitions. e) Erect different types of partitions. f) Explain functions of partitions.	i) The teacher to use brainstorming questions to guide students explain the meaning of the term partition. ii) The teacher to conduct site visit for students to observe various mechanism of partitions and guide students in groups to: - Identify different types of partitions e.g. common or stand, partition, sound proof portions. - Analyse operations involved in building partitions. - Describe materials used in erecting partitions. - Explain functions of partition.	- Sketches of various partitions - Materials for partitioning - Toolkit	1. Can the student explain the meaning of the term partition? 2. Can the student identify types of partitions? 3. Can the student analyse operations involved in building partitions and materials used? 4. Can the student describe materials used in erecting partitions?	8

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVE	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			<ul style="list-style-type: none"> iii) The teacher to create activities for students to erect different types of partitions. iv) The teacher should monitor and facilitate students in performing the tasks given in part (ii) and (iii). v) With the aid of assessment guideline, the teacher should guide students to assess the activities performed in part (ii) and (iii). vi) The teacher to use questioning strategies to guide students to explain functions of partition. vii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i, ii, iii and vii). 		<ul style="list-style-type: none"> 5. Can the student erect different types of partitions? 6. Can the student explain functions of partition? 	

FORM IV

CLASS LEVEL COMPETENCE

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

- a) manufacture various types of window frames, shutters and fix them in wall openings;
- b) identify type of roofs to construct roof structures and perform roof structural treatment;
- c) construct ceiling frame work (brandering) and fix ceiling materials (chip board, hard board etc);
- d) construct various types of wooden floor frame work, finishing and decoration; and
- e) design and construct wooden stair and stair case.

CLASS LEVEL OBJECTIVES

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

- a) identify types of window frames, shutters, materials and to manufacture all components of windows;
- b) construct various types of roof structure and perform roof structure treatment;
- c) perform brandering for holding board;
- d) identify types of wooden floors and to use skills to construct wooden floors with various shapes and decorations; and
- e) design various types of stair and staircase.

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVE	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
1.0 DOORS AND WINDOWS	1.1 Introduction to Doors	The student should be able to: a) Define the term door. b) Explain various types of doors. c) State functions of doors. d) Prepare sketch sections of doors. e) Install doors	i) The teacher to use brainstorming questions to guide students to define the term door. ii) The teacher to conduct a study visit for students to observe types of doors and guide them in groups to: - Identify various types of doors. - Explain functions of doors. iii) The teacher to conduct a site visit for students observe activities in installing windows and then to guide them to: - Prepare sketch sections of doors. - Install door iv) The teacher should monitor and facilitate students in performing the tasks given in part (ii) and (iii). v) With the aid of assessment guideline, the teacher should guide students to assess the activities perform on part (ii) and (iii).	<ul style="list-style-type: none"> • Sketch of Doors • Real objects (doors on site) • Posters showing various types of doors • Video • Computer • Projector • Tool kit 	<ol style="list-style-type: none"> 1. Can the student define the term door? 2. Can the student explain various types of doors? 3. Can the student state functions of doors? 4. Can the student prepare sketch sections of door? 5. Can the student install doors? 	2

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVE	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			vi) Students to present their responses for sharing and discussion. vii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-iii).			
	1.2 Door Frame	The student should be able to: a) Identify various type of door frames. b) Explain the construction details of door frames. c) Explain the methods of installing door frames. d) Describe the procedure for fabrications of door frames.	i) The teacher to conduct a field study for students to observe variety of door frames and then guide them in groups to: - Identify various type of door frames. - Explain the construction details of door frames. - Explain the methods of installing door frames. - Describe the procedure for fabrications. ii) The teacher to create activities for students to: - Prepare sketch sections of door frames. - Install the door frame.	<ul style="list-style-type: none"> • Real objects (door frames) • Material for door frames. 	1. Can the student identify various type of door frames? 2. Can the student explain the construction details of door frames? 3. Can the student explain the methods of installing door frames? 4. Can the student describe the procedure for fabrications of door frames?	8

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVE	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		e) Prepare sketch sections of door frames. f) Install the door frames.	iii) The teacher should monitor and facilitate students in performing the tasks given in part (ii) and (iii). iv) With the aid of assessment guideline, the teacher should guide students to assess the activities performed on part (ii) and (iii). 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).		5. Can the student prepare sketch sections of door frames? 6. Can the student install the door frames?	
	1.3 Door Shutters	The student should be able to: a) Identify the standard size of doors shutters. b) Prepare sketch sections of door shutters.	i) The teacher to use questions to guide students to identify standard size of door shutters. ii) The teacher to create activities for students to: - Prepare sketch sections of door shutters? - Construct various types of door shutters.	<ul style="list-style-type: none"> • Door models • Door sketches • Tools, dowel etc • Door shutter modes • Tools, glue, dowels etc 	1. Can the student identify the standard size of door shutters? 2. Can the students prepare sketch a sections of door shutters?	8

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVE	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		c) Construct various types of door shutters.	iii) The teacher to guide students to do project on the construction of door shutters. iv) The teacher should monitor and facilitate students in performing the tasks given in part (ii) and (iii). v) With the aid of assessment guideline, the teacher should guide students to assess the activities perform on part (ii) and (iii). vi) Students to present their responses for sharing and discussion. vii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-iii).	<ul style="list-style-type: none"> • Sketches of doors shutters • Tools, nails etc • Tool kit 	3. Can the student construct of various door shutters?	
	1.4 Door Lining and Casing	The student should be able to: a) Explain the meaning of door lining and casing.	i) The teacher to use brainstorming questions to guide students to explain the meaning of door lining and types.	Models of door lining	1. Can the student describe the meaning of door lining and casing?	6

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVE	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		b) Explain parts of door lining and casing. c) Differentiate between door lining and casing. d) Prepare a sketch section of door lining. e) Construct door lining. f) Fixing door lining.	ii) The teacher to use questioning strategies (what, why and how questions) to guide students to differentiate between door lining and casing. iii) The teacher to organise practical activities for student to: - Prepare a sketch section of door lining. - Construct door lining. - Fixing door lining. iv) The teacher should monitor and facilitate students in performing the tasks given in part (iii). v) With the aid of assessment guideline, the teacher should guide students to assess the activities perform on 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-iii).		2. Can the student explain parts of door lining and casing? 3. Can the student differentiate between door lining and casing? 4. Prepare a sketch section of door lining? 5. Can the student construct door lining? 6. Can the student fix door lining?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVE	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	1.5 Introduction to Windows	<p>The student should be able to:</p> <p>a) Define the term window.</p> <p>b) Identify various types of windows.</p> <p>c) Explain functions of window and standardize window.</p> <p>d) Prepare sketch sections of window.</p>	<p>i) The teacher to use brainstorming questions to guide students to define the term window.</p> <p>ii) The teacher to conduct a study visit for students to observe types of windows and guide then in groups to:</p> <ul style="list-style-type: none"> - Identify various types of windows. - Explain functions of window and standardize window. - Prepare sketch sections of window. <p>iii) The teacher should monitor and facilitate students in performing the tasks given in part (ii).</p> <p>iv) With the aid of assessment guideline, the teacher should guide students to assess the activities perform on part (ii).</p> <p>v) Students to present their responses 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-ii).</p>	<ul style="list-style-type: none"> • Sketches of windows • Real objects (windows on site) • Posters showing various types of windows • Video • Computer • Projector 	<ol style="list-style-type: none"> 1. Can the student define the term window? 2. Can the student identify various types of windows? 3. Is the student able to explain functions of window and standardize window? 4. Can the student prepare sketch sections of window? 	8

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVE	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	1.6 Window Frames	<p>The student should be able to:</p> <p>a) Identify various types of window frames.</p> <p>b) Explain the construction details of window frames.</p> <p>c) Explain the methods of installing window frames.</p> <p>d) Describe the procedure for fabrications and installation of window frames.</p> <p>e) Prepare sketch sections of window frames.</p> <p>f) Construct various window frames.</p>	<p>i) The teacher to conduct a field study for students to observe variety of window frames and then guide them in groups to:</p> <ul style="list-style-type: none"> - Identify various type of window frames. - Explain the construction details of window frames e.g. frames with fixed parts and those with moving parts. - Explain the methods of installing window frames. - Describe the procedure for fabrications of window frames. <p>ii) The teacher to create activities for students to:</p> <ul style="list-style-type: none"> - Prepare sketch sections of window frames. - Construct various window frames <p>iii) The teacher should monitor and facilitate students in performing the tasks given in part (ii) and (iii).</p>	<ul style="list-style-type: none"> • Real objects (window frames) • Materials for window frames • Toolkit 	<ol style="list-style-type: none"> 1. Can the student identify various types of window frames? 2. Can the student explain the construction details of window frames? 3. Can the student explain the methods of installing window frames? 4. Can the student describe the procedure for fabrications window frames? 5. Can the student prepare sketch sections of window frames? 6. Can the student construct various window frames. 	8

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVE	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iv) With the aid of assessment guideline, the teacher should guide students to assess the activities perform on part (ii) and (iii). 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).			
	1.7 Window Shutters	The student should be able to: a) Define the term shutters. b) Identify the standard size of windows shutters. c) Prepare sketch sections of window shutters. d) Construct various types of windows shutters.	i) The teacher to use questions to guide students to: - Define the term shutters. - Identify standard size of window shutters. ii) The teacher to create activities for students to: - Prepare sketch sections of window shutters? - Construct various types of windows shutters. iii) The teacher to guide students to do project on the construction of windows shutters.	<ul style="list-style-type: none"> • Window models • Window sketches • Tools, dowel etc • Door shutter modes • Door shutter sketches • Tools, glue, dowels etc • Sketches of window shutters • Tools, nails etc 	1. Can the student define the term shutters? 2. Can the student identify the standard size of window shutters? 3. Can the students prepare sketch a sections of window shutters?	8

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVE	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iv) The teacher should monitor and facilitate students in performing the tasks given in part (ii) and (iii). v) With the aid of assessment guideline, the teacher should guide students to assess the activities perform on part (ii) and (iii). vi) Students to present their responses for sharing and discussion. vii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-iii).		4. Can the student construct of various windows shutters?	
	1.8 Glazing and Louvers	The student should be able to: a) Explain the meaning of glazing and louvers. b) Identify various types of louvers (sizes).	i) The teacher to use brainstorming questions to explain the meaning of glazing and louvers. ii) The teacher to use questions to guide students to identify various types of louvers (sizes).	<ul style="list-style-type: none"> • Glasses • Putty • Knives • Louvre's models • Glazed window shutter • Tool kit 	1. Can the student explain the meaning of grazing and louvers? 2. Can the student identify various types of louvers (sizes)?	9

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVE	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		c) Describe the process of fixing glass to window shutters and louvers. d) Fix glass to window shutters and louvers.	iii) The teacher to conduct the field study to observe the process of glazing and glass fixing and then guide students in groups to describe the process of fixing glass to window shutters and louvers iv) The teacher to conduct practical activities for students to fix glass to window shutters and louvers. v) The teacher should monitor and facilitate students in performing the tasks given in part (iv). vi) With the aid of assessment guideline, the teacher should guide students to assess the activities perform on part (iv). vii) Students to present their responses for sharing and discussion. viii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-iv).		3. Can the student describe the process of fixing glass to window shutters and louvers? 4. Can the student fix glass to window shutters and louvers?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVE	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
2.0 ROOFS	2.1 Structural Members of Roof	The student should be able to: a) List all members of roof structure. b) Sketch section members of roof structure.	i) The teacher to use question and answers method to guide students to list all members of roof structure. ii) The teacher to conduct a site visit to observe the construction process and then guide them to sketch a sketch of member of roof structure (e.g. trussed roof). iii) The teacher should monitor and facilitate students in performing the tasks given in part (ii). iv) With the aid of assessment guideline, the teacher should guide students to assess the activities perform on part (ii). 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) and (ii).	<ul style="list-style-type: none"> • Sketches • Manila with operational sequences • Posters • Sketches • Manila with operational sequences • Posters 	1. Can the student list all members of roof structure? 2. Can the student sketch members of roof structure?	9

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVE	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	2.2 Types of Roofs	<p>The student should be able to:</p> <p>a) Explain structural design of roofs.</p> <p>b) Identify various type of roofs.</p> <p>c) Describe the functions and functional requirements of roofs.</p>	<p>i) The teacher to use question and answers method to guide learners to:</p> <ul style="list-style-type: none"> - Explain structural design of roofs. - Identify various type of roofs. <p>ii) The teacher to use questioning strategies (what, why and how questions) to guide students to describe the functions and functional requirements of roofs.</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"> • Site • Sketches of various types of roofs • Posters • Video • Computer • Projector 	<ol style="list-style-type: none"> 1. Is the student able to explain structural design of roofs? 2. Can the student identify various types of roofs? 3. Can the student describe the functions and functional requirements of roofs? 	8

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVE	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	2.3 Construction of different types of Roofs	<p>The student should be able to:</p> <p>a) Explain all roof terminology.</p> <p>b) Describe the construction sequence of roofs.</p> <p>c) Describe the construction operations of roofs.</p> <p>d) Construct different types of roofs following sequencing operations e.g. pitching, and flat roof.</p>	<p>i) The teacher to organise a site visit to observe the wood construction process and guide student to:</p> <ul style="list-style-type: none"> - Explain all roof terminologies. - Describe the construction sequence of roofs (e.g. pitched roof and flat roofs.) - Describe the construction operations of roofs. <p>ii) The teacher to create activities for student to construct different types of roofs following sequencing operations (e.g. pitching, and flat roofs).</p> <p>iii) The teacher should monitor and facilitate students in performing the tasks given in part (ii).</p> <p>iv) With the aid of assessment guideline, the teacher should guide students to assess the activities perform on 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) and (ii).</p>	<ul style="list-style-type: none"> • Sketches • Manila with operational sequences • Posters 	<ol style="list-style-type: none"> 1. Can the student explain all roof terminologies? 2. Can the student describe the construction sequence of roofs e.g. pitched roof and flat roofs? 3. Can the student describe the construction operations of roofs? 4. Can the student construct different types of roofs following sequencing operations? 	9

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVE	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	2.4 Roof Covering Materials	The student should be able to: a) Explain properties of roof coverings. b) Describe different types of roof coverings. c) State functions and functional requirements of roof coverings. d) Fix various types of roof coverings materials.	i) The teacher to use brainstorming questions to guide students to explain properties of roof covering. ii) The teacher to organise field tour for students to observe types of roof coverings and then guide students to: - Describe different types of roof coverings (e.g. corrugated iron sheet, asphalts). - State functions and functional requirements of roof covering. iii) The teacher to use questioning strategies (what, why and how questions) to guide students to state functions and functional requirement of roof covering iv) The teacher to create activities for students for students to fix various types of covering materials. v) The teacher should monitor and facilitate students in performing the tasks given in part (iv).	<ul style="list-style-type: none"> • Sketches • Real objects (covering) • Posters showing different types of roof coverings materials • Building construction text books 	<ol style="list-style-type: none"> 1. Can the student explain the properties of roof coverings? 2. Can the student describe types of roof coverings e.g. corrugated iron sheet, asphalts, etc? 3. Can the student state functions and functional requirement of roof coverings? 4. Can the student fix various types of covering materials? 	9

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVE	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			vi) With the aid of assessment guideline, the teacher should guide students to assess the activities perform on part (iv). vii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-iv).			
	2.5 Treatment of Roof Skeleton (Members) and Roof Covering	The student should be able to: a) Explain methods used in the treatment of roof members. b) Explain methods used in the treatment of roof coverings. c) Perform treatment of roof members by using different preservation methods.	i) The teacher to organise students in groups and guide them to: - Explain methods used in the treatment of roof members e.g. chemical for wood preservation etc. - Explain methods used in the treatment of roof coverings (e.g. paints, roof compound etc) ii) Students to present their responses for sharing and discussion. iii) The teacher to arrange practical activities and guide students to: - Treat roof members using different preservation methods.	<ul style="list-style-type: none"> • Roofing compounds, red oxides, pints, chemicals for wood preservations from insect attack • Building construction text books 	1. Can the student explain methods used in the treatment of roof members? 2. Can the student explain methods used in the treatment of roof coverings? 3. Can the student perform treatment of roof members by using different preservation methods?	9

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVE	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		d) Perform treatment of roof coverings by using different preservation methods.	<ul style="list-style-type: none"> - Treat roof coverings using different preservation methods. v) The teacher should monitor and facilitate students in performing the tasks given in part (iii). vi) With the aid of assessment guideline, the teacher should guide students to assess the activities performed on 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-iii). 		4. Perform treatment of roof coverings by using different preservation methods?	
	2.6 Eaves	<p>The student should be able to:</p> <ul style="list-style-type: none"> a) Identify types of eaves b) Explain methods used for construction of eaves. c) Construct eaves 	<ul style="list-style-type: none"> i) The teacher to conduct class discussion for students to: <ul style="list-style-type: none"> - Identify types of eaves. - Explain methods used for construction of eaves. ii) Students to present their responses for sharing and discussion. iii) The teacher to create activities for students to construct eaves. iv) The teacher should monitor and facilitate students in performing the tasks given in part (iii). 	<ul style="list-style-type: none"> • Site sketches of various types of eaves • Building construction Text books • Materials for constructing eaves • Tool kit 	<ul style="list-style-type: none"> 1. Can the student identify types of eaves? 2. Can the student explain methods used for construction of eaves? 3. Can the student construct eaves? 	4

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVE	TEACHING AND LEARNING STRATEGIES	TEACHING AND 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).			
	2.7 Connectors	<p>The student should be able to:</p> <p>a) Define the term connectors. Identify types of wood connectors used in trussed roofs.</p> <p>b) Describe methods of connecting trussed roofs.</p> <p>c) Use different types of wood connectors used in trussed roof to connect roofs</p>	<p>i) The teacher to use questions to guide students to:</p> <ul style="list-style-type: none"> - Define the term connectors. - Identify types of wood connectors used in trussed roof e.g. foot head connectors, bolts and nuts, plates etc. - Describe methods of connecting trussed roofs. <p>ii) The teacher to conduct site visit for students to observe various types of connectors and guide them to:</p> <ul style="list-style-type: none"> - Describe method of connecting trussed roofs with use of connectors. - Connect trussed roofs by using connectors. - Use different types of wood connectors used in trussed roof to connect roofs. 	<ul style="list-style-type: none"> • Plate connector • Bolts and nuts • Foot head connectors 	<ol style="list-style-type: none"> 1. Is the student able to define the term connectors? 2. Is the student able to identify types of wood connectors used in trussed roof? 3. Can the student describe the methods of connecting trussed roofs? 4. Is the student able to use different types of connectors used in trussed roof to connect roofs? 	9

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVE	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iii) The teacher should monitor and facilitate students in performing the tasks given in part (iii). iv) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-iii).			
3.0 CEILING	3.1 Framework Fixing	The student should be able to: a) Identify materials to be used in manufacturing framework. b) Describe methods used in framework fabrication. c) Describe methods used to fabricate ceiling framework. d) Use principle of board fixation to fix frame.	i) The teacher use questions and answers to guide students to identify materials to be used in manufacturing framework. ii) The teacher to conduct class discussion for students to: - Describe methods used in framework fabrication. - Describe methods used to fabricate ceiling frame. iii) Students to present their responses for sharing and discussion. iv) The teacher to create activities for students to use principle of board fixation like joints (tongue and groove, rebate etc.) On hard board, straw boards, plywood, chipboard to fix frames.	<ul style="list-style-type: none"> • Manufactured boards • Wood • Nails • T&G wood • Jack hammer • Tool kit 	1. Can the student identify materials used in manufacturing framework? 2. Can the student describe methods used in framework fabrication? 3. Can the student describe methods used to fabricate ceiling frame? 4. Can the student use principles of board fixation to fix boards and frames?	8

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVE	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			<p>v) The teacher should monitor and facilitate students in performing the tasks given in part (iv).</p> <p>vi) With the aid of assessment guideline, the teacher should guide students to assess the activities performed on 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-iv).</p>			
	3.2 Board Fixing	<p>The student should be able to:</p> <p>a) Identify materials to use to manufacture boards.</p> <p>b) Describe methods used in fixing board.</p> <p>c) Describe methods used to fabricate ceiling board and board fixation.</p>	<p>i) The teacher to use questions and answers to guide students to identify materials to be used to manufacture boards.</p> <p>ii) The teacher to conduct class discussion for students to:</p> <ul style="list-style-type: none"> - Describe methods used in fixing board. - Describe methods used to fabricate ceiling board and board fixation. <p>iii) Students to present their responses for sharing and discussion.</p>	<ul style="list-style-type: none"> • Manufactured boards • Wood • Nails • T&G wood • Jack hammer • Tool kit 	<ol style="list-style-type: none"> 1. Can the student identify materials to use to manufacture boards? 2. Can the student describe methods used in fixing board? 3. Can the student describe methods used to fabricate ceiling board and board fixation? 	8

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVE	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
		d) Use principles of board fixation to fix board.	iv) The teacher to create activities for students to use principles of board fixation like joints (tongue and groove, rebate etc.) on hard board, straw boards, plywood, chipboard to fix board. v) The teacher should monitor and facilitate students in performing the tasks given in part (iv). vi) With the aid of assessment guideline, the teacher should guide students to assess the activities performed on part (iv). 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 use principles of board fixation to fix board?	

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVE	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
4.0 WOODEN FLOORS	4.1 Types of Wooden Floors	The student should be able to: a) Explain the term wooden floor. b) Explain the functions and functional requirements of wooden floors.	i) The teacher to use questions to guide students to explain the term wooden floor. ii) The teacher to conduct class discussion for students to explain functions and functional requirements of a wooden floor iii) Students to present their responses for sharing and discussion.	<ul style="list-style-type: none"> • Sample of the wooden floor • Site 	<ol style="list-style-type: none"> 1. Can the student explain the term wooden floor? 2. Can the student explain functions and functional requirements of the wooden floor? 	8

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVE	TEACHING AND LEARNING STRATEGIES	TEACHING AND 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).			
	4.2 Construction of Wooden Floors	The student should be able to: a) Describe the mechanism of construction of different types of floors. b) Identify all floor covering methods. c) Describe methods of laying floor boards. d) Explain procedure of constructing different types of floors. e) Construct different types of floors.	i) The teacher to conduct site visit for students to observe various floor structures and guide students to: - Describe the mechanism of construction of different types of floors namely wooden floor, raised wood floor, single floor, double floor, fire place opening floor etc. - Identify all floor covering methods. ii) The teacher to organise students in groups and guide them to: - Describe methods of laying floor boards. - Explain procedure of constructing different types of floors iii) Students to present their responses for sharing and discussion.	<ul style="list-style-type: none"> • Site • Sketches • Models of floor finish (pieces of boards) • Materials for constructing wooden floor • Tool kit 	<ol style="list-style-type: none"> 1. Can the student describe the mechanism of construction of different types of floors? 2. Can the student identify all floor covering methods? 3. Can the student describe methods of laying floor boards? 4. Can the student explain procedure of constructing different types of floors? 	15

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVE	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
			iv) The teacher to create activities for students to construct different types of floors. v) The teacher should monitor and facilitate students in performing the tasks given in part (iv). vi) With the aid of assessment guideline, the teacher should guide students to assess the activities performed on part (iv). vii) The teacher should give feedback and use students' responses as feedback to support students in performing the tasks given in part (i-iv).		5. Can the student construct different types of floors?	
5.0 WOODEN STAIRS AND STAIR CASE	5.1 Introduction	Student should be able to: a) Explain the concept of stair and staircase. b) Give historical background of stairs and their development.	i) The teacher to use brainstorming questions to guide students to explain the concept stair and staircase. ii) The teacher to use questioning strategies to (what, why and how questions) to guide students to give historical background of stairs and their development. 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).	<ul style="list-style-type: none"> • Sketches • Real object (stair) • Model of stair • Posters • Video • Computer • Projector 	1. Can the student explain the concept of stair and staircase? 2. Can the student give historical background of stairs and their development?	8

TOPIC	SUB-TOPIC	SPECIFIC OBJECTIVE	TEACHING AND LEARNING STRATEGIES	TEACHING AND LEARNING RESOURCES	ASSESSMENT	NO. OF PERIODS
	5.2 Functions and Design for Construction of Wooden Stairs	<p>The student should be able to:</p> <p>a) State the functions and functional requirements of wooden stair.</p> <p>b) Explain all terminologies of stair.</p> <p>c) Explain operations involved in building a straight flight.</p> <p>d) Classify wooden stairs according to plan and construction of string.</p> <p>e) Plan a wooden stair.</p>	<p>i) The teacher to organise students in groups and guide them to:</p> <ul style="list-style-type: none"> - State the function and functional requirements of wooden stair. - Explain all terminologies of stair. <p>ii) The teacher to conduct a site visit for students to observe types of stair on site and then guide them to:</p> <ul style="list-style-type: none"> - Explain terminologies of stair members e.g. string, riser, going, treads etc. - Explain operations involved in building a straight flight - Classify wooden stairs according to plan and construction of stair. - Explain operations involved in building a straight flight. <p>iii) The teacher to create activities for students to:</p> <ul style="list-style-type: none"> - Plan a wooden stair. - Erect wooden stairs according to space/ context. 	<ul style="list-style-type: none"> • Sketches of plan, elevations and sections • Stairs on site • Materials for constructing wooden stairs • Toolkit 	<ol style="list-style-type: none"> 1. Can the student state the functions and functional requirements of wooden stair? 2. Can the student explain all terminologies of stair? 3. Can the student explain operations involved in building a straight flight? 4. Can the student classify wooden stairs according to plan and construction of string? 5. Can the student plan a wooden stair? 	9

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		f) Erect wooden stairs according to space/ context.	iv) The teacher should monitor and facilitate students in performing the tasks given in part (iii). v) With the aid of assessment guideline, the teacher should guide students to assess the activities performed on 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).		6. Can the student erect wooden stairs according to space/ context?	