

NVC in Carpentry and Joinery (Draft)

**NATIONAL BOARD FOR TECHNICAL EDUCATION
KADUNA**

NATIONAL VOCATIONAL CERTIFICATE

IN

CARPENTRY AND JOINERY

CURRICULUM AND COURSE SPECIFICATIONS

2007

PLOT 'B' BIDA ROAD, P.M.B. 2239, KADUNA-NIGERIA

NATIONAL VOCATIONAL CERTIFICATE IN CARPENTRY AND JOINERY

1.0 Programme Nomenclature

National Vocational Certificate in Carpentry and Joinery

2.0 Goal and Objectives

Goal: Produce Competent hands with job knowledge and practical skills for a successful career in carpentry and joinery.

Objectives: A product of NVC in Carpentry and Joinery should be able to:

- (i) Understand the general and specific techniques in Carpentry and Joinery
- (ii) Construct and erect different types of roof model
- (iii) Draw and interpret constructional drawings
- (iv) Apply portable hand and machine tools to process wood and wood products
- (v) Design and construct floor, wall, and stair framings, including ladders and scaffolds.
- (vi) Construct and install Doors, Windows, Partitions and Cabinets
- (vii) Work as a skilled Carpenter, either in Self-employment or in paid employment.

3.0 Entry requirements for National Vocational Certificate in Carpentry and Joinery

The general entry requirements for the NVC programme are:

- i. Basic Education products (Post-JSS) students with requisite credits in Junior WAEC or NECO
- ii. Post-Secondary students who are unable to gain access to higher education or IIEs, who may have less than 5 credits

4.0 STRUCTURE OF PROGRAMME:

The National Vocational Certificate (NVC) Carpentry and Joinery programme is in flexible modular form, and is structured to have three parts (i.e. NVC Part I, NVC Part II, and NVC Final) each taken in a span of one year. Each part shall have a cogent and flexible structure and content that would allow the trainee a practical working skill unit and the possibility to exit at that level. Each part incorporates six months intensive training in the school and three months of supervised industrial work experience (SIWES).

5.0 EVALUATION SCHEME:

The National Vocation Certificate Examination must be externally moderated. In grading the awards; theory shall constitute- 20%, practical - 50% and SIWES- 30%. If there are group practical/projects, trainees must be assessed periodically on individual basis and records kept. **Note that trainees are to be assessed on completion of every module.**

All failed courses should be re-sited for until when the candidate is able to clear them. The grading shall be Distinction (70 and above), Credit (55-69), Pass (40-54), Fail (0-39) kept.

6.0 SIZE OF THE PROGRAMME:

The programme should have an intake of 25 trainees per stream to a maximum of three streams per session.

CURRICULUM TABLE FOR NVC IN CARPENTRY AND JOINNERY

S/N	MODULE		YEAR 1						YEAR 2						YEAR 3					
			TERM 1		TERM 2		TERM 3	TERM 1		TERM 2		TERM 3	TERM 1		TERM 2		TERM 3			
			T	P	T	P		T	P	T	P		T	P	T	P				
1	Construction Drawing	BLD 101	2	3	2	3	INDUSTRIL ATTACHMENT					INDUSTRIL ATTACHMENT					INDUSTRIL ATTACHMENT			
2	Basic Joinery	CPJ 101	1	6	1	6		2	3	2	3		2	12	2	12				
3	Advance Joinery	CPJ 301												2	3	2		3		
4	Form Work	CPJ 201						1	10	1	10									
5	Framing	CPJ 202						1	10	1	10									
6	Wood Processing	CPJ 102	1	6	1	6														
7	Wood Work Machining I (Portable Powered Tools)	CPJ 203	2	2	2	2		1	10	1	10									
8	Wood work Machining II (Machine Tools)	CPJ 302											2	12	2	12				
9	Intro to Bldg Construction -1	VBC 101	2	6	8	2														
10	Intro to Bldg Construction -2	VBC 202						2	6	8	2									
11	Intro to Bldg Construction - 3	VBC 301											2	6	8	2				
12	Hand tools	CPJ 103	1	5	1	5														
13	Communication Skills	CSE 111	2	0	2	0		2	0	2	0		2	0	2	0				
14	Entrepreneurship		1	0	1	0							2	0	2	0				
15	Introduction to Computer	CAD 101	1	3	1	3														
16	Introduction to Auto Cad	CAD 101						1	3	1	3									
17	Mathematics (Measurements and Calculations)	MTH 101	2	0	2	0		2	0	2	0									
18	Project	CPJ 303												10		10				
			11	27	11	27	8	33	8	33	4	36	4	36						

NVC in Carpentry and Joinery (Draft)

PROGRAMME:	NVC IN CARPENTRY AND JOINERY			
COURSE:	BASIC JOINERY			
CODE:	CPJ 101			
DURATION:	HOURS/WEEK	Lecture: 1hr	Tutorial:	Practical: 6hr
UNITS:	7 Units			
GOAL:	This course is designed to enable trainees acquire adequate knowledge of properties of timber and associated materials.			

GENERAL OBJECTIVES: On completion of this course the students should be able to:-

- 1.0 Know the Properties of timber
- 2.0 Understand various wood species appropriate for a given project
- 3.0 Know various defects in timber and their causes
- 4.0 Know the different sizes of timber and methods of timber conversion.
- 5.0 Understand the various methods of timber seasoning and timber storage.
- 6.0 Know different types of manufactured Boards and laminated plastics
- 7.0 Know the properties and application of various types of paints and oil vanishes

NVC in Carpentry and Joinery (Draft)

PROGRAMME: NATIONAL VOCATIONAL CERTIFICATE IN CARPENTRY AND JOINERY						
COURSE: BASIC JOINERY			COURSE CODE: CPJ 101		CONTACT HOURS: 2-0-1	
GOAL: Acquire adequate knowledge of properties of timber and associated materials.						
COURSE SPECIFICATION: Theoretical Contents:				Practical Contents:		
General Objective: 1.0 Know the properties of timber.						
WEEK	Specific Learning Objective	Teachers Activities	Learning Resources	Specific Learning Objective	Teachers Activities	Learning Resources
	1.1 State the characteristics of Wood. 1.2 Describe the growth and structure of a tree. 1.3 Differentiate the difference between soft and hard wood.	Discuss the characteristics of hardwood and softwood Explain the difference between hardwood and softwood, giving example of each one	<ul style="list-style-type: none"> • Trades Common Core • Wood Technology and Processes • Working Wood • Chalkboard • Recommended textbooks 	1.4 Prepare samples of different soft and hard woods species	<ul style="list-style-type: none"> • Give trainees a cross section of tree Have each student do a quick analysis of the wood and describe their characteristics 	<ul style="list-style-type: none"> • Cross section of a piece of wood

NVC in Carpentry and Joinery (Draft)

General Objective: 2.0 Understand various wood species appropriate for a given project						
WEEK	Specific Learning Objective	Teachers Activities	Learning Resources	Specific Learning Objective	Teachers Activities	Learning Resources
	<p>2.1 Describe various types of Nigerian Timbers and state their characteristics and uses.</p> <p>2.2 Describe methods of timber conversion e.g. live sawing through and through back sawing</p>	<ul style="list-style-type: none"> • List various types of Nigerian timber and identify same to trainee by name. • Explain methods of conversion 	<ul style="list-style-type: none"> • Charts • Lesson notes 	<p>2.1 Identify various types of Nigerian Timbers and state their and uses.</p> <p>2.2 State the properties of each timber.</p> <p>2.3 Illustrate processing procedures used for converting timbers.</p>	<ul style="list-style-type: none"> • Give each trainee a piece of wood. Have each do a quick analysis of the wood and suggest possible uses for the piece of wood. • Check trainees understanding. 	Material (timber) Wood

NVC in Carpentry and Joinery (Draft)

General Objective: 3.0 Know various wood defects and their causes						
WEEK	Specific Learning Objective	Teachers Activities	Learning Resources	Specific Learning Objective	Teachers Activities	Learning Resources
	<p>3.1 Know common wood destroying agents:</p> <p>3.2 Explain the cause of fungus growth on timber, the conditions favourable to its growth and how these could be prevented.</p> <p>3.3 Describe how timber affected by fungus and its environment could be treated to put a permanent stop to the fungus growth.</p>	<p>- Explain the difference between natural and artificial defects in timber</p> <ul style="list-style-type: none"> • Lists and explain seasoning defects • Illustrate characteristics of wood behavior affected by defects 	<p>Pictures of defected woods samples</p>	<ul style="list-style-type: none"> • Identify defects in wood • Produce samples of defected wood 	<p>Give each student a piece of wood. Have each student do a quick analysis of the wood defects.</p>	<p>Material Samples of defected woods</p>

NVC in Carpentry and Joinery (Draft)

General Objective: 4.0 Know different sizes of timber and methods of timber conversion.						
WEEK	Specific Learning Objective	Teachers Activities	Learning Resources	Specific Learning Objective	Teachers Activities	Learning Resources
	<p>4.1 State the different sizes of timber used for wood construction.</p> <p>4.2 List the different methods of timber conversion</p>	<ul style="list-style-type: none"> - List various sizes of timber. • Teacher should bring various sizes of timbers (pieces) to class and identify same to students by size. 	<ul style="list-style-type: none"> • Material (timber) Wood . 	<ul style="list-style-type: none"> • Carry out practical on timber conversion 	<ul style="list-style-type: none"> • Carryout the experiments in conjunction with the trainees. 	<ul style="list-style-type: none"> • Materials • Pieces of timber

NVC in Carpentry and Joinery (Draft)

General Objective: 5.0 Understand the various methods of timber seasoning and storage.						
WEEK	Specific Learning Objective	Teachers Activities	Learning Resources	Specific Learning Objective	Teachers Activities	Learning Resources
	5.1 List the different methods of timber seasoning. 5.2 Describe various methods of storage and preservation of timber.	- Describe various methods of timber seasoning - Explain various means of timber storage and preservation	<ul style="list-style-type: none"> • Charts 	5.3 Arrange timber for seasoning 5.4 Apply preservatives to timber samples 5.5 Practice the correct methods timber storage.	Demonstrate the principle of timber storage and preservation.	<ul style="list-style-type: none"> • Preservatives • Stickers • Planks of different sizes • Brushes.

NVC in Carpentry and Joinery (Draft)

General Objective: 6.0 Know the different types of Manufactured Boards and laminated plastics						
WEEK	Specific Learning Objective	Teachers Activities	Learning Resources	Specific Learning Objective	Teachers Activities	Learning Resources
	<p>5.1 State the different types of manufactured boards, fiber boards and laminated plastics.</p> <p>5.2 Identify the various uses of manufactured boards, fibre boards and laminated plastics</p> <p>5.3 Define veneers and discuss the methods of producing wood veneers e.g. slicing, rotary, etc.</p> <p>5.4 State procedures involved in processing manufactured boards and laminated plastics.</p>	<p>- Discuss various types and classifications of manufactured boards and laminated plastics</p> <p>- Explain the procedures involved in producing wood veneers</p> <p>- Discuss the purpose of wood veneers and plastic laminate.</p>	<p>- Chalkboard</p> <p>- Charts</p>	<ul style="list-style-type: none"> • Follow correct procedures in working with manufactured boards, fibred boards and laminated plastics e.g edge treatment for <ul style="list-style-type: none"> - ply woods - blackboard - Chipboard - Lamin board, etc. • Apply wood veneers, plastic laminates in joinery 	<p>Demonstrate various methods of treating the edges of ply woods, etc using tongue and groove, loose tongue, and Dowel Slotted screw.</p>	<ul style="list-style-type: none"> • Veneers ply woods • Hand tools • Manufactured boards • Glue • Solid wood

NVC in Carpentry and Joinery (Draft)

General Objective: 7.0 Know the Properties and Application of various types of Paints and Varnishes.						
WEEK	Specific Learning Objective	Teachers Activities	Learning Resources	Specific Learning Objective	Teachers Activities	Learning Resources
	7.1 Describe the basic constituents of paints. 7.2 Name types of paints and explain their composition, properties and uses. 7.3 Explain the functions of primer, under-coat and finishing paints. 7.4 Identify paint schemes for various building surfaces: e.g. wood, block-work, brick-work, steel, etc. 7.5 Estimate the quantity of paint required for a given house painting job. 7.6 Explain the need for surface preparation before painting. 7.7 State the precautions to be taken to reduce the effect of defects in painting..	<ul style="list-style-type: none"> • Define “Vanish” and “Paint” • Explain the basic components of paints. • Use question and answer technique to explain the functions of primer and under-coat in painting. • Describe the various surface preparation on different materials for painting. • Discuss the need for surface preparations before painting and polishing. 	<ul style="list-style-type: none"> • Specimens of Vanish and Paints. • Lesson note. 	7.1 Carry out experiments to determine spreading power, drying time, and permeability of paint samples. 7.2 Carryout experiments to demonstrate the effect of alkali on given samples of paints. 7.3 Show the effects of defects in painting.	<ul style="list-style-type: none"> • Carryout the experiments in conjunction with the trainees. 	<ul style="list-style-type: none"> • Paints • Wood samples • Brush

Assessment: 20%

Practical: 80%

NVC in Carpentry and Joinery (Draft)

PROGRAMME:	NVC IN CARPENTRY AND JOINNERY		
COURSE:	HAND TOOLS		
CODE:	CPJ 103		
DURATION:	HOURS/WEEK	Lecture: 1hr	Tutorial: Practical: 5hrs
UNITS:	6 Units		
GOAL:	This course is designed to enable trainees acquire adequate knowledge and skills in the use of Hand tools.		

GENERAL OBJECTIVES: On completion of this course the trainee should be able to:-

- 1.0 Understand the Hand tools used in Carpentry and Joinery.
- 2.0 Apply Hand tools in the construction of wood work projects

NVC in Carpentry and Joinery (Draft)

PROGRAMME: NATIONAL VOCATIONAL CERTIFICATE IN CARPENTRY AND JOINNERY						
COURSE: HAND TOOLS			COURSE CODE: CPJ 101		CONTACT HOURS: 2-0-1	
GOAL: Understand the Hand tools used in Carpentry and Joinery.						
COURSE SPECIFICATION: Theoretical Contents:				Practical Contents:		
General Objective: 1.0 Understand the Hand tools used in Carpentry and Joinery.						
WEEK	Specific Learning Objective	Teachers Activities	Learning Resources	Specific Learning Objective	Teachers Activities	Learning Resources
	1.1 State and discuss various measuring Tools 1.2 List and explain various marking out tools. 1.3 State and discuss screwing tools 1.4 List and explain boring and drilling tools. 1.5 State and discuss supporting and holding tools. 1.6 List and explain the following tools: - edge cutting tools - Fastening and Assembling tools - Finishing tools.	<ul style="list-style-type: none"> List and explain the uses of each of the main categories of hand tools listed in 1.6. Describe the methods of using the hand tools. 	<ul style="list-style-type: none"> Charts Recommended textbooks 	1.7 Identify each of the hand tools and state their uses.	<ul style="list-style-type: none"> Observe students a they identify each of the hand tools. Rate students performance 	<ul style="list-style-type: none"> Rating scales

NVC in Carpentry and Joinery (Draft)

General Objective: 2.0 Apply Hand tools in the construction of wood work projects.						
WEEK	Specific Learning Objective	Teachers Activities	Learning Resources	Specific Learning Objective	Teachers Activities	Learning Resources
	<p>1.1 State the safety precautions involved in the use of each of the Hand tools</p> <p>1.2 Explain the procedures involved in maintaining Hand tools</p>	<ul style="list-style-type: none"> • List and discuss safety precautions to be observed when using Hand tools. • Discuss the procedures for carrying out maintenance operation on Hand tools 	<ul style="list-style-type: none"> • Safety Posters • Charts. 	<p>1.1 Carryout simple maintenance work on the following hand tools:</p> <ul style="list-style-type: none"> - Measuring Tools - Marking out Tools - Sawing tools - Supporting and holding tools - edge cutting Tools - Fastening and assembling tools. - Furnishing tools. <p>1.2 Practice correct handling of all the categories of tools listed in 1.3 above.</p>	<ul style="list-style-type: none"> • Demonstrate correct procedure for using Hand tools. • Display safety posters in the workshops. 	<ul style="list-style-type: none"> • Hand tools • Safety posters.

Assessment: 20%

Practical: 80%

NVC in Carpentry and Joinery (Draft)

PROGRAMME:	NVC IN CARPENTRY AND JOINERY		
COURSE:	WOOD PROCESSING		
CODE:	CPJ 101		
DURATION:	HOURS/WEEK	Lecture: 1hr	Tutorial: Practical: 6hrs
UNITS:	7 Units		
GOAL:	This course is designed to enable trainees acquire adequate knowledge and skills in the classification of wood joints and in wood processing.		

GENERAL OBJECTIVES: On completion of this course the students should be able to:-

- 1.0 Know the procedures involved in timber preparation.
- 2.0 Understand the requirements of wood joints and their classifications.
- 3.0 Construct the various types of wood joints.
- 4.0 Know various fixing devices used in Carpentry and Joinery.
- 5.0 Construct Doors and frames.

NVC in Carpentry and Joinery (Draft)

PROGRAMME: NATIONAL VOCATIONAL CERTIFICATE IN CARPENTRY AND JOINERY						
COURSE: WOOD PROCESSING			COURSE CODE: CPJ 101		CONTACT HOURS: 2-0-1	
GOAL: Know the Procedures involved in timber Preparations..						
COURSE SPECIFICATION: Theoretical Contents:				Practical Contents:		
General Objective: 1.0 Know the procedures in timber preparation.						
WEEK	Specific Learning Objective	Teachers Activities	Learning Resources	Specific Learning Objective	Teachers Activities	Learning Resources
	1.1 State the procedures involved in preparing timber flat and squares 1.2 Explain the basic requirements of a good joints 1.3 Describe the various joints according to their different uses.	<ul style="list-style-type: none"> Explain the procedures involved in preparing timber. Show the symbols of flatness and squareness. 	<ul style="list-style-type: none"> Charts Chalkboard 	1.4 Prepare timber flat and square. 1.5 Classify the different wood joints e.g. <ul style="list-style-type: none"> lenthening or end joints Widening or edge joints Framing or angle joints Carcase joints. 	<ul style="list-style-type: none"> Demonstrate the method involved in the preparation of wood flat and square. Observe the students Rate the performance of students. 	<ul style="list-style-type: none"> Try square Planes Gauges.
General Objective: 2.0 Understand the requirements of wood joints and their classifications.						
WEEK	Specific Learning Objective	Teachers Activities	Learning Resources	Specific Learning Objective	Teachers Activities	Learning Resources
	2.1 State the basic requirements of a good joint.	<ul style="list-style-type: none"> Discuss the basic requirements of wood joints. 	<ul style="list-style-type: none"> Charts Chalkboard 			

NVC in Carpentry and Joinery (Draft)

General Objective: 3.0 Construct the various types of wood joints.						
WEEK	Specific Learning Objective	Teachers Activities	Learning Resources	Specific Learning Objective	Teachers Activities	Learning Resources
				3.1 Construct various types of wood joints <ul style="list-style-type: none"> - widening joints e.g. tongue and groove - Lengthening joints e.g. scarf joints - Framing joints e.g. mortise and tenon joints - Lap dovetail joints, etc 	Demonstrate the procedures for carrying out the construction of the various joints listed in 3.1.	<ul style="list-style-type: none"> • Marking gauge • Mortise gauge • Try-square • Planes • Tenon saw
General Objective: 4.0 Know various fixing devices used in Carpentry and Joinery.						
WEEK	Specific Learning Objective	Teachers Activities	Learning Resources	Specific Learning Objective	Teachers Activities	Learning Resources
	4.1 List and describe the following fixing devices: <ul style="list-style-type: none"> - nails - wood screws - threaded bolts - fixing plates - plugs - catches - locks/latch - hinges - door furniture - Castors 4.2 Identify the functions of the various fixing devices	<ul style="list-style-type: none"> - Discuss the procedures involved in fitting fixing devices - Discuss the uses of the various fixing devices. 		4.3 fit and fix the following fixing devices: <ul style="list-style-type: none"> - nails - wood screws - threaded bolts - fixing plates - plugs - catches - lock/latch - hinges - door furniture - Castors 	<ul style="list-style-type: none"> • Demonstrate the procedure involved in fitting and fixing the devices. • Observe trainees as they carry out the practical work. • Rate trainee's 	<ul style="list-style-type: none"> • Driving tools • Boring tools • Cutting tools • Fittings

NVC in Carpentry and Joinery (Draft)

	listed in 4.1.				performance.	
General Objective: 5.0 Construct Doors and Frames..						
WEEK	Specific Learning Objective	Teachers Activities	Learning Resources	Specific Learning Objective	Teachers Activities	Learning Resources
	5.1 Describe the following types of doors: - Unframed (Match Board) doors - Framed Doors - Flush doors - Domestic Garage Doors 5.2 State the procedures for hanging doors 5.3 Describe the different types of frames and procedure for constructing them.	- Explain various types of doors. - Explain the procedures involved in hanging doors.	Chalkboard Charts	5.4 Construct the following types of doors - Unframed (Match board) doors e.g ledged and battened doors - Framed doors e.g a. framed, ledged and battened b. Framed, edged braced and batter doors c. Paneled (solid and/or glazed) - Flush Doors e.g. plane and paneled - Domestic Garage Doors 5.5 Construct different types of frames.	- Demonstrate the construction of the various types of doors.	- Wood marking out tools - Planes - Saws - Chisels

Assessment: 20%

Practical: 80%

NVC in Carpentry and Joinery (Draft)

PROGRAMME:	NVC IN CARPENTRY AND JOINNERY		
COURSE:	WOOD WORK MACHINING I (PORTABLE POWERED TOOLS)		
CODE:	CPJ 203		
DURATION:	HOURS/WEEK	Lecture :1hr	Tutorial: Practical: 10hrs
UNITS:	11 Units		
GOAL:	This course is designed to enable trainees acquire adequate knowledge and skills in the use and application of Portable Powered Hand Tools		

GENERAL OBJECTIVES: On completion of this course the students should be able to:-

- 1.0 Understand general Safety rules for all Portable Powered Hand Tools
- 2.0 Understand the set-up, use, and maintenance of portable power hand tools
- 3.0 Carryout rip and cross-cut operations cut irregular shapes, and machine dadoes, rabbets, and tenons, using cutting equipment
- 4.0 Carryout drilling operations and machine mortises using boring equipment
- 5.0 Carryout sanding and final shaping operations using finishing equipment

NVC in Carpentry and Joinery (Draft)

PROGRAMME: NATIONAL VOCATIONAL CERTIFICATE IN CARPENTRY AND JOINNERY						
COURSE: PORTABLE POWERED HAND TOOLS		COURSE CODE: CPJ 101		CONTACT HOURS: 1-0-2		
GOAL: This course is designed to enable students acquire adequate knowledge and skills in the use and application of Portable Powered Hand Tools.						
COURSE SPECIFICATION: Theoretical Contents:				Practical Contents:		
General Objective: 1.0 Understand the set-up, use and maintenance of portable power tools.						
WEEK	Specific Learning Objective	Teachers Activities	Learning Resources	Specific Learning Objective	Teachers Activities	Learning Resources
	<p>1.1 Describe the two types of portable hand tools used in carpentry and joinery</p> <p>(a) manual hand tools</p> <p>(b) portable electric hand tools and state</p> <p>(i) their application in the preparation, assembly and installation of joinery items</p> <p>(ii) their selection for specific purposes.</p>	<ul style="list-style-type: none"> Take students to the workshop and identify the specific tools, explaining their functions. Show the portable electric tools to students and explain their specific uses, parts and applications 	<ul style="list-style-type: none"> Hand and powered portable tools. 	<p>1.3 Practice the applications of the listed portable powered tools on sample pieces of wood.</p> <p>1.4 Perform maintenance operations involving sharpening of hand planes and chisels</p> <ul style="list-style-type: none"> grinds the plane iron without burning 	<ul style="list-style-type: none"> Demonstrate the applications of powered tools on sample pieces of wood. Evaluate trainees 	<ul style="list-style-type: none"> Portable powered tools. Portable manual hand tools.

NVC in Carpentry and Joinery (Draft)

	1.2 List various portable electric powered tools and their specific uses e.g. (a) crosscut saw (b) the portable drill (c) the planner (d) the portable jig saw (e) the router (f) Disc Sander, Orbital Sander, Bell Sander, (h) Electric Screw driver			<ul style="list-style-type: none"> hones the plane iron to a keen edge 		
General Objective: 2.0 Understand the general safety rules for all portable powered tools.						
WEEK	Specific Learning Objective	Teachers Activities	Learning Resources	Specific Learning Objective	Teachers Activities	Learning Resources
	2.1 Describe the general safety rules for all Portable powered tools.	<ul style="list-style-type: none"> Ask students to mention precautions to be observed in handling portable powered hand tools. 	<ul style="list-style-type: none"> Safety charts, Portable powered tools. 	2.2 Apply knowledge of safety in the use of portable powered tools and safety equipment.	<ul style="list-style-type: none"> Demonstrate the application of safety equipment in the workshops. 	<ul style="list-style-type: none"> Fire Extinguishers Sand buckets First Aid Box Etc.

NVC in Carpentry and Joinery (Draft)

	General Objective: 3.0 Carryout rip and cross-cut operations, cut irregular shapes, and machine dadoes, rabbets, and tenons, using cutting equipment.					
WEEK	Specific Learning Objective	Teachers Activities	Learning Resources	Specific Learning Objective	Teachers Activities	Learning Resources
				3.1 Perform rip plane and cross-cut operations, cut irregular shapes, dadoes, rabbets, and tenons, using portable powered hand tools.	<ul style="list-style-type: none"> • Demonstrate the procedure involved in the operation of portable hand tools. 	<ul style="list-style-type: none"> • Portable powered tools • Pieces of wood
	General Objective: 4.0 Carryout drilling operations and machine Mortises using Portable Drills.					
WEEK	Specific Learning Objective	Teachers Activities	Learning Resources	Specific Learning Objective	Teachers Activities	Learning Resources
	4.1 Describe the uses and methods of operations of drills	Explain the uses and methods of operations of drills.	Recommended texts Charts	4.2 Perform drill and mortising operations using portable drills.	<ul style="list-style-type: none"> • Demonstrate the procedures involved in carrying out drilling and mortising operations. 	<ul style="list-style-type: none"> • Portable drills • Pieces of wood.

NVC in Carpentry and Joinery (Draft)

General Objective: 5.0 Carryout Sanding and Shaping Operations using finishing equipment.						
WEEK	Specific Learning Objective	Teachers Activities	Learning Resources	Specific Learning Objective	Teachers Activities	Learning Resources
				5.1 Carry out finishing operations using; finishing sanders.	<ul style="list-style-type: none"> • Demonstrate the operations of finishing sanders in finishing operations. 	<ul style="list-style-type: none"> • Orbital Sanders

Assessment: 20%

Practical: 80%

NVC in Carpentry and Joinery (Draft)

PROGRAMME:	NVC IN CARPENTRY AND JOINERY		
COURSE:	ADVANCED JOINNERY		
CODE:	CPJ 103		
DURATION:	HOURS/WEEK	Lecture :2hrs	Tutorial: Practical: 12hrs
UNITS:	14 Units		
GOAL:	This course is designed to enable trainees acquire adequate knowledge and skills in the Construction of Carcase Joints.		

GENERAL OBJECTIVES: On completion of this course the students should be able to:-

- 1.0 Construct framed Box Carcases
- 2.0 Understand and apply knowledge and skills in the construction of Housing or shelving joints.
- 3.0 Construct Plinth and Drawer
- 4.0 Apply finishing to Wood projects.
- 5.0 Use machines in production of useful items of furniture.

NVC in Carpentry and Joinery (Draft)

PROGRAMME: NATIONAL VOCATIONAL CERTIFICATE IN CARPENTRY AND JOINERY						
COURSE: ADVANCED JOINERY			COURSE CODE: CPJ 103		CONTACT HOURS: 2-0-1	
GOAL: This course is designed to enable students acquire knowledge and skill in the construction of carcass joints.						
COURSE SPECIFICATION: Theoretical Contents:				Practical Contents:		
General Objective: 1.0 Construct framed and Boxed Carcasses						
WEEK	Specific Learning Objective	Teachers Activities	Learning Resources	Specific Learning Objective	Teachers Activities	Learning Resources
				1.1 Apply knowledge of the method of single dovetail in the construction of simple cabinet. 1.2 Apply the knowledge of principles of framing joints in the construction of framed carcass	- Demonstrate the application of dovetail for the construction of simple cabinet. - Show the procedure for the application of principles of framing joints in frame carcass construction.	<ul style="list-style-type: none"> • Planks • Hand tools • Portable power Machines

NVC in Carpentry and Joinery (Draft)

General Objective: 2.0 Construct Plinths and Drawers.						
WEEK	Specific Learning Objective	Teachers Activities	Learning Resources	Specific Learning Objective	Teachers Activities	Learning Resources
				2.1 Apply knowledge of carcass construction for the construction of plinth or cabinet. 2.2 Apply knowledge of carcass constructions in the construction of drawers for tables and cupboards.	<ul style="list-style-type: none"> • Demonstrate the principles of construction of plinth. • Demonstrate the principles of construction of drawers. 	<ul style="list-style-type: none"> • Planks • Machine tools Etc.
General Objective: : 3.0 Construct Housing or Shelving joints.						
WEEK	Specific Learning Objective	Teachers Activities	Learning Resources	Specific Learning Objective	Teachers Activities	Learning Resources
				3.1 Construct an item of furniture involving: <ul style="list-style-type: none"> - through Housing - Stop Housing - Dovetail Housing - Barefaced Housing, etc. 	<ul style="list-style-type: none"> • Demonstrate the principles involved in construction of furniture involving the listed housing joints. 	<ul style="list-style-type: none"> • Planks • Machines Tools

NVC in Carpentry and Joinery (Draft)

General Objective: : 4.0 Apply Finishings to wood projects.						
WEEK	Specific Learning Objective	Teachers Activities	Learning Resources	Specific Learning Objective	Teachers Activities	Learning Resources
	4.1 Describe the parts of Spray Gum	Explain the parts of spray gum and the methods of Application	Charts Spray gun Paints/finishes	4.2 Prepare surfaces prior to finishing 4.3 Apply basic finishings e.g. - oil paints, French polish,. using spray gum -	<ul style="list-style-type: none"> • Demonstrate the procedures for preparing surfaces prior to finishing • Demonstrate the application of spray gums in carrying out finishing process. 	<ul style="list-style-type: none"> • Spray gun • Kerosine • Paint • Cellulose • Thinner
General Objective: : 5.0 Use machines in the production of useful items of furniture.						
WEEK	Specific Learning Objective	Teachers Activities	Learning Resources	Specific Learning Objective	Teachers Activities	Learning Resources
				5.1 Apply portable powered hand tools and machine tools in the construction of framed and carcass projects.	<ul style="list-style-type: none"> • Demonstrate the application of Hand tools, powered tools and machine tools for the construction of frames and carcass projects. 	<ul style="list-style-type: none"> • Portable powered machines, • Machine tools.

Assessment: 20%

Practical: 80%

NVC in Carpentry and Joinery (Draft)

PROGRAMME:	NVC IN CARPENTRY AND JOINERY		
COURSE:	WOOD WORK MACHINING II (MACHINE TOOLS)		
CODE:	CPJ 203		
DURATION:	HOURS/WEEK	Lecture: 1hr	Tutorial: Practical: 10hrs
UNITS:	11 Units		
GOAL:	This course is designed to enable the trainees acquire adequate knowledge and Skills in Wood Working Machines		

GENERAL OBJECTIVES: On completion of this course the trainees should be able to:-

- 1.0: Know methods of use; safety and operations of the wood working machines.
- 2.0: Carry out operations on circular Rip Saw
- 3.0: Carryout operation on dimension Saw
- 4.0: Carryout operations on the Surface Planner.
- 5.0 Carryout operations on Thicknessing and Combination Planning Machines
- 6.0 Carryout operations on Narrow Bands Saw.
- 7.0 Carryout operations on Mortising Machine
- 8.0 Carryout operations on Tenoning Machine
- 9.0 Carryout operations on Vertical Spindle Molding Machine.

NVC in Carpentry and Joinery (Draft)

PROGRAMME: NATIONAL VOCTIONAL CERTIFICATE IN CARPENTRY AND JOINERY						
COURSE: WOOD WORK MACHINING			COURSE CODE: CPJ		CONTACT HOURS:	
GOAL: This course is designed to enable students acquire adequate knowledge and Skills in Wood Working Machines and Equipment						
COURSE SPECIFICATION: Theoretical Contents:				Practical Contents:		
General Objective: 1.0: Know methods of use, safety precautions and operations of wood working machines.						
WEEK	Specific Learning Objective	Teachers Activities	Learning Resources	Specific Learning Objective	Teachers Activities	Learning Resources
	<p>1.1 Describe the following wood working machines;</p> <ul style="list-style-type: none"> - Band Saw - circular Saw - Radial Arm Saw - Mortising Machine - Tenoning - Vertical Spindle - Molding machine - Planning Machine <p>1.2 Identify safety precautions to be observed in operating wood working machines listed in 1.1 above.</p>	Explain the various components of the machines listed in 1.1 above.	Charts Machines etc.	<p>1.1 Mount and dismount Machine cutting correctly. e.g. Saw blade.</p> <p>1.2 Sharpen saw blades correctly</p> <p>1.3 Set up and use the Machine to carry out its range of functions. E.g. - cutting operations (straight and angular) - trenching operations.</p> <p>1.4 Undertake routine application of safety measure when using the machine.</p> <p>1.5 Carry out routine service and maintenance operations on the machine. E.g. - routine cleaning after use - regular greasing</p>	<ul style="list-style-type: none"> • Guide students in the operation, use and maintenance of a given machine to perform a specific job observing all operational and safety requirements. - Observe and rate trainees performances. 	<ul style="list-style-type: none"> • The specific machine for given operation • Materials

NVC in Carpentry and Joinery (Draft)

General Objective: 2.0: Carryout operation on Circular Rip Saw						
WEEK	Specific Learning Objective	Teachers Activities	Learning Resources	Specific Learning Objective	Teachers Activities	Learning Resources
				2.1 Mount and dismount saw correct blades. 2.2 Fix and adjust the riving knife correctly. 2.3 Set up and use the circular rip saw for the following operations: a. label sawing using canting fence. b. mitring b. Grooving c. Rebating d. Tenoning e. Mitring 2.4 Construct and use jigs and fixtures for intricate jobs e.g. tapering, mitering etc. 2.5 Calculate the speed of the pull up and the peripheral speed of saw. 2.6 Set and sharpen saw blades	<ul style="list-style-type: none"> • Demonstrate the procedures involved • Guide trainees • Observe performance • Rate trainees' performance 	<ul style="list-style-type: none"> • The Specific Circular Saw • Materials

NVC in Carpentry and Joinery (Draft)

General Objective: 3.0: Carryout operations on Dimension Saw						
WEEK	Specific Learning Objective	Teachers Activities	Learning Resources	Specific Learning Objective	Teachers Activities	Learning Resources
				3.1 Set and sharpen saw blade correctly. 3.2 Mount and dismount saw blade correctly. 3.3 Set up and use dimension saw bench to carry out the following operations to specification a. cross cutting to length b. mitring c. tongue and groove d. chamfering e. leveling f. tenoning g. compound angular cutting, h. rebating i. ripping, etc. 3.4 Undertake routine service and maintenance dimension saw	<ul style="list-style-type: none"> • Demonstrate the procedures involved • Guide the trainees • Observe performance • Rate performance 	<ul style="list-style-type: none"> • Dimension Saw • Materials

NVC in Carpentry and Joinery (Draft)

General Objective: 4.0: Carryout operations on the Surface Planner.						
WEEK	Specific Learning Objective	Teachers Activities	Learning Resources	Specific Learning Objective	Teachers Activities	Learning Resources
				<p>4.1 Perform the following operations with the surface planer:</p> <p>a. surfacing and edging b. tapering c. chamfering d. through and stopped rebating.</p> <p>4.2 Mount and dismantle cutters correctly</p> <p>4.3 Grind, hone and set cutters.</p> <p>4.4 Undertake routine service and maintenance of the surface planer.</p>	<ul style="list-style-type: none"> • Demonstrate the procedures involved • Guide the trainees • Observe performance • Rate performance 	<ul style="list-style-type: none"> • Surface Planner • Materials

NVC in Carpentry and Joinery (Draft)

	General Objective: 5.0 Carryout operations on Thicknessing and Combination Planning Machines					
WEEK	Specific Learning Objective	Teachers Activities	Learning Resources	Specific Learning Objective	Teachers Activities	Learning Resources
				5.1 Sharpen and set cutters using:- a. patent device b. wooden straight edge 5.2 Mount and dismantle the cutters correctly. 5.3 Undertake routine service and maintenance of the thicknessing and combination planning machines.	<ul style="list-style-type: none"> • Demonstrate the procedures involved • Guide the trainees • Observe performance Rate performance	<ul style="list-style-type: none"> • Thicknessing and Combination Planning Machine • Materials
	General Objective: 6.0: Carryout operations on Narrow Band Saw.					
WEEK	Specific Learning Objective	Teachers Activities	Learning Resources	Specific Learning Objective	Teachers Activities	Learning Resources
				6.1 Mount and dismantle the saw blade on the wheels correctly 6.2 Set up and use the machine for various band sawing operations. 6.3 Produce and use simple jig for various band sawing operations.	<ul style="list-style-type: none"> • Guide trainees to carry out operations on the narrow band saw observing all operational and safety procedures and regulations 	<ul style="list-style-type: none"> • Band Saw • Materials

NVC in Carpentry and Joinery (Draft)

				<p>6.4 Calculate the length of the band saw blades.</p> <p>6.5 Set and Sharpen saw blade (manually or with sharpening machine).</p> <p>6.6 Braze or butt-weld band saw blade.</p> <p>6.7 Undertake routine service and maintenance of the narrow. band sawing machine.</p>		
General Objective: 7.0: Carryout operations on the Mortising Machine						
WEEK	Specific Learning Objective	Teachers Activities	Learning Resources	Specific Learning Objective	Teachers Activities	Learning Resources
				<p>7.1 Mount and dismantle chain mortiser correctly.</p> <p>7.2 Mount and dismantle chisel mortiser correctly.</p> <p>7.3 Set-up and use the mortising machine for various operations.</p> <p>7.4 Undertake mounting, maintenance on the chain and chisel mortisers.</p>	<ul style="list-style-type: none"> • Demonstrate the procedures involved • Guide the trainees • Observe performance • Rate performance 	<ul style="list-style-type: none"> • Mortising Machine • Materials

NVC in Carpentry and Joinery (Draft)

General Objective: 8.0: Carryout operations on Tenoning Machines						
WEEK	Specific Learning Objective	Teachers Activities	Learning Resources	Specific Learning Objective	Teachers Activities	Learning Resources
				8.1 Mount and dismantle tenoning blade on the machine 8.2 Set-up and use the machine to undertake the cutting of tenons. 8.3 Under take routine service and maintenance of tenoning machines.	<ul style="list-style-type: none"> • Demonstrate the procedures involved • Guide the trainees • Observe performance Rate performance	<ul style="list-style-type: none"> • Tenoning Machines • Materials
General Objective: 9.0: Carryout operations on Vertical Spindle Molding Machine.						
WEEK	Specific Learning Objective	Teachers Activities	Learning Resources	Specific Learning Objective	Teachers Activities	Learning Resources
				9.1 Mount and dismantle cutters on spindler molding machine. 9.2 Set-up and use the spindle machine for cutting different shapes and curves e.g - Moulding - Ogee Curves - Ovolo - Bevels, Chamfers	<ul style="list-style-type: none"> • Demonstrate the procedures involved • Guide the trainees • Observe performance Rate performance	<ul style="list-style-type: none"> • Spindle Moulder • Materials

NVC in Carpentry and Joinery (Draft)

				<p>- Molding, etc.</p> <p>9.3 Undertake service and routine maintenance of the spindle molding machine.</p> <p>9.4 Observe safety precautions in using the spindle molding machine.</p>		
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Assessment: 20%

Practical: 80%

NVC in Carpentry and Joinery (Draft)

PROGRAMME:	NVC IN CARPENTRY AND JOINERY		
COURSE:	FORM WORK		
CODE:	CPJ 201		
DURATION:	HOURS/WEEK	Lecture: 1hr	Tutorial: Practical: 10hrs
UNITS:	11 Units		

GOAL: This module is designed to provide the trainee with the knowledge and skills in the construction and erection of various temporary Form Works.

GENERAL OBJECTIVES: On completion of this course the students should be able to:-

- 1.0 Know the difference between pre-cast (mould boxes) and in-situ (shuttering) work.
- 2.0 Understand and apply the basic requirement for the construction, erection and dismantling of Forms.
- 3.0 Understand and apply the various stages and arrangement for constructing form work suitable for various shapes and purposes.
- 4.0 Understand and construct common forms of scaffold to meet relevant statutory requirements.

NVC in Carpentry and Joinery (Draft)

PROGRAMME: PROGRAMME: NATIONAL VOCATIONAL CERTIFICATE IN CARPENTRY AND JOINERY						
COURSE: FORM WORK I			COURSE CODE: CPJ		CONTACT HOURS: 2-0-1	
GOAL: This module is designed to provide the trainee with the knowledge and skills in the design, construction and erection of various temporary Form Work						
COURSE SPECIFICATION: Theoretical Contents:					Practical Contents:	
General Objective: 1.0 Know the differences between pre-cast and in situ work.						
WEEK	Specific Learning Objective	Teachers Activities	Learning Resources	Specific Learning Objective	Teachers Activities	Learning Resources
	<p>1.1 Define formwork and state its purpose in building and civil engineering work.</p> <p>1.2 Explain the following terms used in formwork construction:- In-situ, pre-cast, stripping, striking, setting/set, cure, mould. State the general requirements of formwork, e.g.</p> <p>a. produce the shape of concrete structure required;</p> <p>b. rigidity and structural stability;</p> <p>c. ease of erection and stripping;</p> <p>d. if built up, boards should be sufficiently light to prevent loss of finished materials from the concrete.</p>	<ul style="list-style-type: none"> • Use question and answer to discuss the purpose of formwork in building and civil engineering works. 		<p>1.4 Sketch/draw details of formwork construction for the following in-situ concrete items:</p> <p>(a) beam (b) floor and roof slab (c) lintel (d) wall (e) concrete straight flight stair and landing (f) site concrete (German floor) (g) column - square, circular and shape (k) tapered footing/foundation base and (j) balconies.</p>		

NVC in Carpentry and Joinery (Draft)

	1.3 State common types of forms – timber and steel and list the merits and demerits of each type of form.	Explain the differences between the common types of forms.				
	General Objective: 2.0 Understand and apply the basic requirement for the construction, erection and dismantling of forms.					
WEEK	Specific Learning Objective	Teachers Activities	Learning Resources	Specific Learning Objective	Teachers Activities	Learning Resources
	2.1 Describe basic requirement for constructing suitable form work.	<ul style="list-style-type: none"> • Explain with examples basic design factors for form work. 	<ul style="list-style-type: none"> • Lesson note • Sample Materials • Posters 	2.2 Set out geometrical profiles of column form work, wall form work, suspended floor and roof form work.	<ul style="list-style-type: none"> • Demonstrate the procedures in constructing Form work. • Observe and rate trainee performances. 	<ul style="list-style-type: none"> • Planks • Tools • Working Drawing

NVC in Carpentry and Joinery (Draft)

	General Objective: 3.0 Understand and apply the various stages and arrangement for constructing form work suitable for various shapes and purposes.					
WEEK	Specific Learning Objective	Teachers Activities	Learning Resources	Specific Learning Objective	Teachers Activities	Learning Resources
	<p>3.1 Describe the stages for constructing the following form works including the sizes of timbers;-</p> <ul style="list-style-type: none"> - Beam - Floor and roof slab - Lintel - Wall <p>Concrete straight flight stair and landing</p> <ul style="list-style-type: none"> - Site concrete - Column – square, circular shape - Tapered footing/foundation base - Balconies 	<ul style="list-style-type: none"> • Explain the stages for constructing form work listed in 3.1 	Working Drawings Charts	3.2 Construct, erect and striking formwork for at least two of the concrete items listed in 3.1	<ul style="list-style-type: none"> • Demonstrate the processes involved in constructing, erection and striking various forms for concrete. - Observe performance - Rate performance 	Tools Working Drawings

NVC in Carpentry and Joinery (Draft)

General Objective: 4.0 Understand and construct the Common forms of Scaffolds to meet the relevant Statutory Requirements.						
WEEK	Specific Learning Objective	Teachers Activities	Learning Resources	Specific Learning Objective	Teachers Activities	Learning Resources
	<p>4.1 Describe the following types of scaffolds:</p> <ul style="list-style-type: none"> - Ladder scaffolds - Trestle scaffolds - Bricklayers scaffolds - Independent tied scaffolds - Systems scaffolds - Mobile scaffold <p>4.2 Determine the sizes of scaffolds - width and thickness of wood-work platform and fender and maximum and minimum projection of board over the ledger in accordance with current safety regulations.</p> <p>4.3 State the purpose of ladder and step.</p> <p>4.4 Determine the sizes of timber used for step and ladder.</p> <p>4.5 State and apply all current safety regulation in the construction,</p>	<p>Define the term “Scaffold” and state its purposes.</p> <ul style="list-style-type: none"> • Explain the basic requirements of good scaffold. • Use sketches to illustrate the parts of scaffold and their functions. • Use drawings to differentiate between dependent and independent scaffolds. • Explain the factors to be considered in the structural design of scaffolds. • Explain the functions of ladder and steps, and state the sizes of timber used. 	<p>Drawings Posters Models of forms Lesson note</p>	<p>4.6 Construct and/or erect wooden and metal scaffolds for heights up to 6 m.</p> <p>4.7 Maintain scaffold in good working condition.</p> <p>4.8 Construct step and ladder in timber; select and use suitable Nigerian timbers.</p> <p>4.9 Apply all current safety regulations in the use of ladders and steps.</p> <p>4.10 State and apply all current safety regulation in the erection, maintenance and use of scaffolds..</p>	<ul style="list-style-type: none"> • Demonstrate the procedures of constructing and erecting of wooden scaffolds up to 6 m. • Observe and rate trainee performance • Demonstrate the knowledge of safety in the use of scaffolds. 	

NVC in Carpentry and Joinery (Draft)

	erection and dismantling of scaffolds.					
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Assessment: 20%

Practical: 80%

NVC in Carpentry and Joinery (Draft)

PROGRAMME:	NVC IN CARPENTRY AND JOINERY		
COURSE:	FRAMING WORK		
CODE:	CPJ 202		
DURATION:	HOURS/WEEK	Lecture :1hr	Tutorial: Practical: 10hrs
UNITS:	11 Units		
GOAL:	This module is designed to provide the trainees with the knowledge and skills to build and erect various permanent carpentry structures		

General Objectives:

On completion of this module, the trainee should be able to:

- 1.0 Understand and apply various methods and techniques of floor/platform construction and finishing.
- 2.0 Construct and erect partitions and screens for various purposes to given specifications.
- 3.0 Understand and construct various roof models and finishing.
- 4.0 Understand and construct various types of windows and frames.

NVC in Carpentry and Joinery (Draft)

PROGRAMME: PROGRAMME: NATIONAL VOCATIONAL CERTIFICATE IN CARPENTRY AND JOINERY						
COURSE: FRAMING WORK			COURSE CODE: CPJ		CONTACT HOURS: 2-0-1	
GOAL: This module is designed to provide the trainee with the knowledge and skills to build and erect various permanent carpentry structures						
COURSE SPECIFICATION: Theoretical Contents:				Practical Contents:		
	General Objective: 1.0 Understand and apply various methods and techniques of floor/platform construction and finishing.					
WEEK	Specific Learning Objective	Teachers Activities	Learning Resources	Specific Learning Objective	Teachers Activities	Learning Resources
	<p>1.1 Explain the purpose of floors/platforms</p> <p>1.2 Classify floors into ground and upper floors stating the main characteristics of each type.</p> <p>1.3 Classify upper floors into single, double and framed and state their applications.</p> <p>1.4 Sketch line diagrams of the four types of floors, and name the members:- sill, joist, girder (RSJ) trimming stringer, sub floor, floor boards, etc. and state the functions of each member.</p> <p>1.5 Describe the applications of the types of floors listed in 1.3</p> <p>1.6 Describe methods of supporting joist in floors and platforms.</p> <p>1.7 Describe types of floor</p>	<ul style="list-style-type: none"> • Use question and answer to explain the purposes of timber floors and platforms. • Explain the two classes of floors and their characteristics. • Use sketches to differentiate between the three classes of upper floor and state their applications. • Use sketches to explain the methods of supporting joists in floor and platforms in floor construction. • Demonstrate the 	<ul style="list-style-type: none"> • Lesson note • Chalkboard • Charts • Samples of Materials • Posters 	<p>1.1 Select materials and tools</p> <p>1.2 Prepare floor joists and other components</p> <p>1.3 Lay floor joists for floors/platforms to specification.</p> <p>1.4 Fix struts to floor/platform joists.</p> <p>1.5 Trim floor openings to receive stairs, trap doors, etc.</p> <p>1.6 Fix flooring to joist or sub-floor and finish ready for polishing.</p>	<ul style="list-style-type: none"> • Demonstrate how joists struts, etc. are laid. • Demonstrate methods of trimming floor openings. • Fix flooring to joists • Apply suitable finish to flooring. • Demonstrate how joists struts, etc are laid. • Demonstrate methods of trimming floor openings. • Fix flooring to 	<ul style="list-style-type: none"> • Tools • Equipment • Materials

NVC in Carpentry and Joinery (Draft)

	<p>coverings/finishings: (a) floor boards - tongue and groove (b) strip flooring on sub-floor of t and g and plywood sheet (c) wood block flooring.</p>	<p>steps involved in laying the floor joist floors and platforms.</p> <ul style="list-style-type: none"> • Using Sketch to explain the method of construction of different types of joints in laying floor board. 		<p>1.7 Apply suitable finish using one of the following:</p> <ol style="list-style-type: none"> varnish/polish pvc tiles. <p>1.8 Sketch detail of wood strip flooring and wood block flooring on a concrete floor showing details of fixing, etc.</p> <p>1.9 Finish wood block and strip floor.</p> <p>1.10 Cost the flooring of a typical project, to include cost of materials, area of flooring, labour and overhead.</p>	<p>joists</p> <ul style="list-style-type: none"> • Apply suitable finish to flooring. • Observe and rate trainee performance. 	
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NVC in Carpentry and Joinery (Draft)

General Objective: 2.0: Construct And Erect Partitions And Screens For Various Purposes To Given Specifications.						
WEEK	Specific Learning Objective	Teachers Activities	Learning Resources	Specific Learning Objective	Teachers Activities	Learning Resources
	<p>2.1 Explain the difference between a screen and a partition.</p> <p>2.2 State the basic requirements of a good partition.</p> <p>2.3 State the function of the following components of a partition (a) struts (b) sill (c) head (d) noggings (e) sheeting/facing panel (f) brace/strut.</p> <p>2.4 State the purposes of insulation in a partition e.g. (a) prevent/reduce sound transmission from one room to the other (b) reduce beat transmission from one room to the other</p>	<ul style="list-style-type: none"> • Differentiate between a screen and a partition • Explain the basic requirements of a good partition. • Explain the various components of a partition. Use sketch where necessary. • Explain the purpose of insulating partitions. • State and explain some insulating materials 	<ul style="list-style-type: none"> • Lesson note • Diagrams • Chalk Board 	<p>2.5 Select suitable timber and other materials (a) abura (b) afara (c) mahogany (d) plywood (e) hardboards, etc</p> <p>2.6 Install and finish the following joinery items on site (a) door and window frame (b) sliding door (c) wall panels - flush or framed (d) screens (e) picture rails (f) insulation materials.</p> <p>2.7 Apply appropriate safety precautions while undertaking the installations.</p>	<ul style="list-style-type: none"> • Explain the reasons for selecting specific timber for partition construction. • Give the trainees group project to carry out observing safety precautions. • Guide the students to undertake any of the projects 	<ul style="list-style-type: none"> • Model of partition • Tools • Equipment • Materials • Working Drawing
			•			
General Objective: 3.0 Understand and construct various roof models and finishing.						
WEEK	Specific Learning Objective	Teachers Activities	Learning Resources	Specific Learning Objective	Teachers Activities	Learning Resources
	3.1 Explain the purpose of	<ul style="list-style-type: none"> • State the functions 		3.1 Prepare working	<ul style="list-style-type: none"> • Demonstrate with trainees' participation the 	<ul style="list-style-type: none"> • Tools • Equipment • Materials

NVC in Carpentry and Joinery (Draft)

	<p>roof in a building.</p> <p>3.2 Explain the basic requirements of a roof design and construction.</p> <p>3.3 Define the following terms and parts associated with roof/ceiling construction (a) span (b) pitch (c) rafters (d) strut (e) tie-beam (f) rise (g) ridge (h) wall plate (i) eaves (j) fascia board (k) purlins (l) ceiling joist (m) barge board.</p> <p>3.4 Explain the functions of the various components of a timber roof listed in 3.3</p> <p>3.5 State the basic factors that determine the slope of the roof</p> <p>3.6 Describe the different types of roof models (a) hipped roof (b) flat roof (c) double roof (d) gable roof</p> <p>3.7 State the sizes of</p>	<p>of roof on a building.</p> <ul style="list-style-type: none"> • State the design requirements of roofs. • Make a sketch of a roof and explain the various roof terms and parts. • Explain the functions of the roof parts. • State the sizes of roof members. • List and explain the reasons for choosing a specific local timber for roof construction. 		<p>drawing</p> <p>3.2 Select tools and materials</p> <p>3.3 Prepare materials/components of roof truss members.</p> <p>3.4 Construct and erect a roof truss to support the following roof coverings (a) corrugated iron sheets (c) Long Span Aluminium Roof Sheets</p> <p>2.5 Sketch details arrangements of members for the ceiling at the eaves of a pitched roof e.g. flat ceiling and parallel eaves to pitch of roof.</p> <p>2.6 Construct a ceiling and install covering and battens (where necessary as finishing.</p> <p>2.7 Trim opening in a ceiling and finish up as appropriate.</p>	<p>methods of constructing roof with tie beam, rafter, purlin, struts, king post, fascia board fixed to wall plate.</p> <ul style="list-style-type: none"> • Supervise the construction of roof and ceiling by trainees. 	
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NVC in Carpentry and Joinery (Draft)

	<p>members of a roof truss.</p> <p>3.8 State the species of local timbers used for roofing and how the timber is treated to prevent it from attack by wood destroying agents.</p> <p>3.9 Calculate the length of rafters.</p> <p>3.10 Explain the stages involved in roof erection.</p>					
General Objective: 4.0 Understand and various types of windows and frames Practical: Construct the main types of windows						
WEEK	Specific Learning Objective	Teachers Activities	Learning Resources	Specific Learning Objective	Teachers Activities	Learning Resources
	<p>4.1 Describe the following common types of windows:</p> <ul style="list-style-type: none"> - Casement windows - Bay windows - Sash windows and window frame joints 	<ul style="list-style-type: none"> • Discuss the various types of commonly found windows giving practical examples 	<ul style="list-style-type: none"> • Charts • Site Visits 	<p>4.2 Draw the plan, and elevation of casement window including the details</p> <p>4.2 Cut out and prepare the menses of the frame, the casement and the beads</p> <p>4.3 Fit and hand the casement</p>	<ul style="list-style-type: none"> • Demonstrate the procedures involved in cutting out, forming and fitting of the window. • Observe performance • Rate performance 	<ul style="list-style-type: none"> • Machines • Materials.

Assessment: 20%

Practical: 80%

NVC in Carpentry and Joinery (Draft)

COURSE:	CONSTRUCTION DRAWING
CODE:	BLD 101
DURATION:	HOURS/WEEK Lecture :1hr Tutorial: Practical: 3hrs
UNITS:	4 Units
GOAL:	This module is intended to introduce the trainee to the basic principles of construction drawings and to enable him

GENERAL OBJECTIVES: On completion of this course the students should be able to:-

- 1.0 Interpret and apply symbols, and conventions and other standard practices in construction drawing
- 2.0 Identify various architectural draughting materials and equipment and use them effectively in making construction drawings
- 3.0 Understand basic Geometry
- 4.0 Demonstrate knowledge of working drawings.
- 5.0 Understand and Interpret building Plans

NVC in Carpentry and Joinery (Draft)

PROGRAMME: NATIONAL VOCATIONAL CERTIFICATE IN CARPENTRY AND JOINERY						
COURSE: CONSTRUCTION DRAWING			COURSE CODE:		CONTACT HOURS:	
GOAL: This module is intended to introduce the trainee to the basic principles of Construction Drawing						
COURSE SPECIFICATION: Theoretical Contents:				Practical Contents:		
General Objective: 1.0: Interpret and apply symbols and conventions and other standard practices in construction drawing						
WEEK	Specific Learning Objective	Teachers Activities	Learning Resources	Specific Learning Objective	Teachers Activities	Learning Resources
	1.1 Identify various lettering styles. 1.2 Identify various scales in common use and factors that influence the scale. 1.3 List essential information required in the title block and indicates them in standard layout as recommended in B.S. 1192 or similar Nigerian standard. 1.4 Describe dimensioning methods in building. And wood projects.	<ul style="list-style-type: none"> • List the symbols in tabular form on the chalk board and explain their applications. • Display various lettering styles and explain their uses. • Explain the importance of accurate dimensioning in drawings 	<ul style="list-style-type: none"> • Chalk Board • Charts of graphical symbols • A building drawing with various graphical symbols. 	1.1 Draw commonly used graphical symbols and representation in building as contained in B.S. 1192 or similar Nigerian Standard. 1.2 Apply appropriate lettering styles in producing building drawings.	<ul style="list-style-type: none"> • Observe performance • Rate performance 	<ul style="list-style-type: none"> • Drawing papers • Drawing Board

NVC in Carpentry and Joinery (Draft)

General Objective: 2.0: Identify various architectural drawing materials and equipment and use them effectively in making construction drawings.						
WEEK	Specific Learning Objective	Teachers Activities	Learning Resources	Specific Learning Objective	Teachers Activities	Learning Resources
	<p>2.1 Identify various standard sizes of drawing papers and boards explain their uses.</p> <p>2.2 Explain the various metric scales on architect's triangular or flat scales and demonstrate their use in the making of construction drawings.</p>	<ul style="list-style-type: none"> • Describe the characteristics and state the use of:- • Cartridge drawing paper Natural tracing paper Tracing film (acetate paper). 	<ul style="list-style-type: none"> • Chalkboard • Charts 	<p>2.4 Select appropriate instruments and use them effectively in the production of construction drawings NOTE: Essential instruments to be used should include: scales, drawing pens, lettering templates, adjustable set-square, instrument set, irregular (French) curves, T-square/parallel ruling straight edge/draughting machine.</p>	<ul style="list-style-type: none"> • Supervise and evaluate students' projects 	<ul style="list-style-type: none"> •Drawing instruments •Materials Lesson note •Standard drawing sheets of various sizes

NVC in Carpentry and Joinery (Draft)

General Objective: 3.0 Understand basic Geometric Drawings.						
WEEK	Specific Learning Objective	Teachers Activities	Learning Resources	Specific Learning Objective	Teachers Activities	Learning Resources
	<p>3.1 Understand the properties of the following geometric drawings:</p> <ul style="list-style-type: none"> - triangles - Quadrilaterals - Circles - Ellipses - Arcs - Polygons <p>3.2 Know the methods used in development of surface</p>	<ul style="list-style-type: none"> - Explain the properties of geometric shapes. - Explain surface development 	<ul style="list-style-type: none"> - Chalkboard - Charts 	<p>3.3 Construct the following geometrical shapes:</p> <ul style="list-style-type: none"> - triangles - Quadrilaterals - Ellipse - Circles - Arc - Polygons <p>3.4 Practice surface development</p>	<ul style="list-style-type: none"> - Demonstrate the construction of geometric drawings listed in 4.2 by drawing the shapes on the board using appropriate instruments 	<ul style="list-style-type: none"> • Compass • Ruler • Chalk • Drawing Boards • Drawing papers

NVC in Carpentry and Joinery (Draft)

General Objective: 4.0: Understand and Interpret Working Drawings.						
WEEK	Specific Learning Objective	Teachers Activities	Learning Resources	Specific Learning Objective	Teachers Activities	Learning Resources
	<p>4.1 Demonstrate the knowledge of various elevations of practical projects in wood</p> <p>4.2 Demonstrate knowledge of how to prepare bills of quantities.</p>	<ul style="list-style-type: none"> • Describe the various Elevations in wood working drawings e.g. plan, front side elevations. • Describe the format for preparing bill of quantity 	<ul style="list-style-type: none"> • Chalkboard 	<p>4.1 Draw the following:</p> <ul style="list-style-type: none"> - Front view - Side - Plan - Sectional view - Exploded view of simple cabinets <p>4.2 Prepare bills of quantities using acceptable format</p>	<ul style="list-style-type: none"> • Demonstrate the drawing of various elevations. • Demonstrate how bill of quantities are prepared. 	<ul style="list-style-type: none"> • Calculators, • Compasses • Rulers

NVC in Carpentry and Joinery (Draft)

General Objective: 5.0: Understand and Interpret building plans.						
WEEK	Specific Learning Objective	Teachers Activities	Learning Resources	Specific Learning Objective	Teachers Activities	Learning Resources
	5.1 Understand the terms used for building plans. - blue print - floor plans - foundation plans 5.2 Demonstrate knowledge of building layout techniques 5.3 Read foundation line layout	<ul style="list-style-type: none"> • Explain principles of reading building plans. 	Chalkboard	<ul style="list-style-type: none"> - Read blue print - Floor plans - Foundation plans - Foundation line layout • Interpret building sections and Elevations 	<ul style="list-style-type: none"> • Take trainees to appropriate Sites • Present relevant plans. 	<ul style="list-style-type: none"> • Blue print • Building plans. • Site visit

Assessment: 20%

Practical: 80%

NVC in Carpentry and Joinery (Draft)

PROGRAMME:	NVC IN CARPENTRY AND JOINERY		
COURSE:	INTRODUCTION TO BUILDING CONSTRUCTION -1		
CODE:	VBC 101		
DURATION:	HOURS/WEEK 1HR	Tutorial:	Practical: 3 hrs
UNITS:	4 Units		

GOAL: This module is designed to introduce the trainee in the building trades to the basic construction safety, common tools, site preparation, setting out and leveling methods so that he may be able to appreciate the roles of the various trades in the building industry

GENERAL OBJECTIVES: On completion of this course the students should be able to:-

1. Understand the basic workshop safety, site safety principles and methods.
2. Understand common hand tools used in construction trades
3. Understand the basic principles of site preparation
4. Understand setting out principles on site.
5. Understand basic principles of leveling and be able to carry out simple leveling project in construction

NVC in Carpentry and Joinery (Draft)

PROGRAMME: NATIONAL VOCATIONAL CERTIFICATE IN CARPENTRY AND JOINERY						
COURSE: INTRODUCTION TO BUILDING CONSTRUCTION-1			COURSE CODE: VBC 101		CONTACT HOURS: 2-6-8	
COURSE SPECIFICATION: Theoretical Contents:				Practical Contents:		
General Objective: 1.0: Understand basic workshop and site safety principles and methods.				General Objective: Apply basic workshop and site safety principles and methods.		
WEEK	Specific Learning Objective	Teachers Activities	Learning Resources	Specific Learning Objective	Teachers Activities	Learning Resources
1-2	<p>1.1 List the various hazards in the construction site and state their causes and ways of prevention.</p> <p>1.2 Name dangerous gases and liquids in common use in the construction site e.g. paint frames, flammable liquids, acetylene</p> <p>1.3 Define relevant clauses in the factory act on Health, Safety and Welfare Regulations for workers on a construction site.</p> <p>1.4 Define and cite relevant clauses in the factory act on Health, safety and Welfare Regulations for workers on a construction site.</p>	<ul style="list-style-type: none"> • Teacher should arrange to use slide, video films, Computer simulation etc. to • Show films and photo clips of the hazards that can be caused by poisonous and dangerous gases e.g. paint fumes, carbon mono oxide etc. * Use health safety regulation act to explain some points the trainees. 	<ul style="list-style-type: none"> • Well equipped first aid box with drugs, banding cotton wool, iodine etc. • Safety signs, hand, gloves, boots, protective clothing, goggles etc. • Circular saw, grinding, machine, and drilling machines etc. 	<p>1.1 Identify hazardous components of construction equipments e.g. drilling machines, grinding, machine and circular saw etc.</p> <p>1.2 Apply appropriate First Aid Treatment on a victim in need of First Aid. e.g. burns, shocks, accident victims etc.</p> <p>1.3 Undertake habitual maintenance of health, safety and general welfare of the individual. .Identify what safety is and how to prevent accidents, generally.</p> <p>1.4 Select tools for specific craft operations e.g.</p> <p>a. Cutting b. Laying</p>	<ul style="list-style-type: none"> • Various movable hand tools and machines should be displayed and show to students and the methods of safe handling explained. • Show and explain proper handling of construction equipments and how to prevent accidents. • Use dummy to demonstrate the application of 1st Aid on a victims. 	<ul style="list-style-type: none"> • Drilling, grinding cutting machine circular saw, molding machine etc. • Dummy, first Aid box well equipped with drugs, bandage, cotton wool, iodine etc.

NVC in Carpentry and Joinery (Draft)

2-3	<p>1.5 Apply appropriate first Aid treatment on a victim involved in burns, shocks accident victims etc.</p> <p>1.6 Carry out habitual maintenance of health, safety and general welfare of the individual.</p> <p>1.7 Identify what safety is and how to prevent accidents, generally.</p>	<p>Write on the chalkboard for the students to copy the relevant clauses.</p> <p>Give examples for students to learn at home. Use safety equipment to practice the application of first aid on victims, this could be done in the classroom to reinforce the knowledge being imparted to the student.</p>				<ul style="list-style-type: none"> • Safety signs, hand gloves, boots protective clothing goggles etc. • Circular saws, and drilling machined etc
General Objective: 2.0: Understand common hand tools used in construction trades.				General Objective: 2.0. Use common construction hand tools correctly.		
WEEK	Specific Objective	Teachers Activities	Resources	Specific Learning Objective	Teachers Activities	Resources
3-6	<p>2.1 Describe the basic hand tools in plumbing work and state their functions.</p> <p>2.2 Describe the basic hand tools in carpentry and joinery and state their functions.</p> <p>2.3 Describe the basic hand tools in painting and Decorating and state their uses.</p>	<ul style="list-style-type: none"> • Sketch basic plumbing, carpentry and painting workshop hand tools. 	<ul style="list-style-type: none"> • Basic hand tools for: <ul style="list-style-type: none"> a. carpenters b. painters c. plumbers 	<p>2.1 Identify and describe the basic hand tools in block laying and concreting work and state their functions.</p> <p>2.2 Understand the repair, routine care and maintenance of hand tools in use in the workshops.</p>	<ul style="list-style-type: none"> • Show and practically handle block laying and concreting work tools with students. • Show students the basic maintenance of hand tools. 	<ul style="list-style-type: none"> • Basic hand tools for block laying and concreting work.

	General Objective: 3.0: Understand the basic principles of site preparation.			General Objective: 3.0 Carryout Undertake Site Preparation Exercises Observing Necessary Procedures.		
WEEK	Specific Learning Objective	Teachers Activities	Resources	Specific Learning Objective	Teacher's Activities	Resources
6-9	3.1 Define vegetable soil and identify same. 3.2 Describe site preparation and procedures prior to setting out. 3.3 Explain the importance of site investigation and preparation prior to setting out. 3.4 Identify hand tools and mechanical plants used for excavation.	<ul style="list-style-type: none"> • Use question and answer techniques • Show student various hand tools used for earth excavation. • Visit a new construction site with the students. 	<ul style="list-style-type: none"> • Vegetable soil. • Digger, trowel, excavator, anger etc 	3.1 identify and describe vegetable soil 3.2 Guide trainee in site clearance work of a given site	Show students vegetable soil	<ul style="list-style-type: none"> - a given site - trowels - shovels - spades -earth moving equipment. • Builders square • Tape • Pegs • Trammel • Line • Profiles
	General Objective: 4.0: Understand setting out principles on site.			General Objective: Set out simple rectangular building on site.		
WEEK	Specific Learning Objective	Teachers Activities	Resources	Specific Learning Objective	Teacher's Activities	Resources
9-11	4.1 Define and explain the principles of setting out of buildings.	<ul style="list-style-type: none"> • Discuss the principles of setting out of buildings. 	<ul style="list-style-type: none"> • Chalkboard, sketches etc. 	4.1 Set out a simple rectangular building on site.	<ul style="list-style-type: none"> • Demonstrate with practical example. 	<ul style="list-style-type: none"> • Pegs, profile, nails, line, T-square, Iron square etc. * Setting out equipment, etc.

NVC in Carpentry and Joinery (Draft)

11-17	<p>4.2 Sketch, and describe the method of pegging out the perimeter walls of a building.</p> <p>4.3 Explain with sketches the use of timber profiles in setting out</p> <p>4.4 Identify and explain the basic equipment required for setting out on site.</p> <p>4.5 Describe at least two ways to check accuracy of a given setting out.</p> <p>4.6 Describe the process of construction of plain and irregular shapes for irregular shapes.</p> <p>4.7 Identify the line and peg method.</p> <p>4.8 Sketch, and describe the method of pegging out the perimeter walls of a building.</p> <p>4.9 Explain with sketches the use of timber profiles in setting out</p> <p>4.10 Identify and explain the basic equipment required for setting out on site.</p>	<ul style="list-style-type: none"> • Use sketches to explain why timber is used as setting out profiles. • Describe the basic equipment needed for setting out. 				
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NVC in Carpentry and Joinery (Draft)

	General Objective: 5.0: Understand basic principles of leveling and be able to carry out simple leveling project in construction.			General Objective: Construct of simple foundation for domestic building		
WEEK	Specific Learning Objective	Teachers Activities	Resources	Specific Learning Objective	Teacher's Activities	Resources
17-24	<p>5.1 Define leveling.</p> <p>5.2 Identify various tools and equipment used in transferring levels i.e.</p> <p>a. Plumb level and pegs b. water level c. bunny rods and pegs d. leveling instrument.</p> <p>5.3 Describe the process of leveling i.e. rise and fall method and instrument height.</p>	<ul style="list-style-type: none"> • Guide trainee in construction of solid walls • List various equipment used in leveling. • Describe each method of leveling and their accuracy. • Explain the two methods. <ul style="list-style-type: none"> a. rise and fall, and b. instrument height. • Compute reduced level from given data and ask trainees to do same 	<ul style="list-style-type: none"> • Spirit/Plumb level • Transparent tiny rubble tube • Pegs • Borning rods • Dumpy level • Titing level 	Construct solid walls of thickness ½B-1½B involving ends, junction and quoins in English and Flemish bonds	<ul style="list-style-type: none"> • Guide trainee in construction of solid walls to the thickness of ½B-1½B involving ends, junctions and quoins in English bond and Flemish bond. 	<ul style="list-style-type: none"> • Bricks, Trowel, Spirit ,level jointing board, mortar etc

Assessment: 20%

Practical: 80%

PROGRAMME: NATIONAL VOCATIONAL CERTIFICATE IN CARPENTRY AND JOINERY

MODULE: INTRODUCTION TO BUILDING CONSTRUCTION-2

Course Code: VBC 202

Contact Hours: 2-6-8

GOAL: This module is designed to introduce the trainee in the building trades to the basic construction principles in substructure work and other elements of building construction.

GENERAL OBJECTIVES:

On completion of this module, the trainee should be able to:

1. Understand basic principles of construction of foundation
2. Understand and be able to apply basic principles and practice relating to substructure construction
3. Understand the principles of ground and upper floor construction in timber and concrete
4. Understand the principle of constructing load bearing walls
5. Know materials and methods used in fixing openings

NVC in Carpentry and Joinery (Draft)

PROGRAMME: NATIONAL VOCATIONAL CERTIFICATE IN CARPENTRY AND JOINERY						
COURSE: INTRODUCTION TO BUILDING CONSTRUCTION-2			COURSE CODE: VBC 202		CONTACT HOURS: 2-6-8	
COURSE SPECIFICATION: Theoretical Contents:				Practical Contents:		
General Objective: 1.0: Understand the Basic Principles of Constructing Foundations.				General Objective: 6.0 Design and Construct Simple Foundations for Domestic Buildings.		
WEEK	Specific Learning Objective	Teachers Activities	Resources	Specific Learning Objective	Teachers Activities	Resources
1-5	1.1 Define and explain the functions of foundation. 1.2 Describe the different types of foundations indicating their suitability. 1.3 State the problems that may be encountered during the construction work in the following situations:- a. water logged site b. pit/alluvial soil c. congested one plot side d. site requiring demolition of existing structures. 1.4 Describe equipment and methods used in excavating foundation trenches. 1.5 Sketch and describe temporary supports to the sides of deep trenches in various soils.	<ul style="list-style-type: none"> • Show pictures of excavating machines • Explain the functions of the equipment. 	<ul style="list-style-type: none"> • Chalkboard etc. • Films, clips, pictures, sketches etc. 	<ul style="list-style-type: none"> * Organize and lay strip foundation under the supervision by the teacher. 	.Show basic methods of constructing foundation	<ul style="list-style-type: none"> • Cement • Mortar • Aggregates • Equipment and tools • Concrete

NVC in Carpentry and Joinery (Draft)

	General Objective: 2.0: Understand the Basic Principles And Practice Relating to Substructure Construction.			General Objective: 2.0: Apply Principles of Sub-structure in Construction.		
WEEK	Specific Learning Objective	Teachers Activities	Resources	Specific Learning Objective	Teachers Activities	Resources
5-10	2.1 Identify the properties of different types of soil 2.2 Select the necessary tools for manual excavation. 2.3 Describe mechanism by drawing various earths moving equipment. 2.4 Distinguish between site and soil investigation 2.5 Describe the various ways of site drainage. 2.6 Define the bearing capacity of a soil. 2.7 Solve some problems involving bearing capacity.	- Samples of soils displayed and their properties identified. - Display charts posters and pictures illustrating the mechanism of the earth moving equipments. - Identify various ways of site drainage.	<ul style="list-style-type: none"> • Real object i.e. sample of soils. • Charts. • Pictures. • Chalkboard. • Complete drawing instrument. • T. Square. • Pair of compass. • Lesson notes 	2.1 Carry out sub structural work beginning from site clearance to trench excavation And preparation of excavated surfaces to receive concrete. 2.2 pour concrete to surface of excavated surfaces and lay blocks on foundation concrete,	Guide trainee in the execution of sub structural work.	Digger, shovels, profile line etc. - Timber scaffold tabular scaffold. - Coupler, Putlog Transom. Mixer, coarse aggregate fine aggregate, cement, water etc, Blocks, trowel, spirit level joint board hawk, mortar etc.

NVC in Carpentry and Joinery (Draft)

10-12	<p>2.8 Identify methods of preventing collapse of trench.</p> <p>2.9 Define the angle of response.</p> <p>2.10 Identify with sketches the timbering system for the following situations.</p> <ol style="list-style-type: none"> a. Shallow trench in moderately firm soil. b. Shallow trench in loose soil. c. Shallow trench in water logged area. <p>2.11 State necessary precautions for safe working conditions.</p> <p>2.12 State the reasons of the following craft practice.</p> <ol style="list-style-type: none"> a. Ramping of trench base before casting concrete foundation. b. Casting concrete foundation. c. Antiterm application d. Ramming in layers very deep refill. <p>2.13 Describe the functions of foundations.</p> <ol style="list-style-type: none"> a. List types of foundations. b. Sketch different types of foundations. c. Identify their uses. 	<p>-Sump hole</p> <p>-Laying of perforated pipes.</p> <p>-Dewatering etc.</p> <p>-The teacher draws the timbering suitable for loose shallow trench and gives assignment.</p> <p>- Teacher names types of timber used in timbering trenches</p> <p>-Explain safe working condition in excavated trenches</p> <p>Materials used for concrete for foundation.</p>	<ul style="list-style-type: none"> - Complete drawing instrument. - T-Square - Pairs of compass. - Lesson notes 			
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NVC in Carpentry and Joinery (Draft)

	General Objective: 3.0: Understand the Principles of ground and upper floor construction in timber and Concreting			General Objective: 3.0: Construct timber/concrete floors.		
WEEK	Specific Learning Objective	Teachers Activities	Resources	Specific Learning Objective	Teachers Activities	Resources
12-16	<p>3.1 Describe and state the various functions of floors</p> <p>3.2 Describe various types of floors and methods of construction.</p> <p>3.3 Describe various types of floorings and their application.</p> <p>3.4 Describe the equipment and methods used in mixing concrete on site.</p>	<p>Identify the various types of floors available and describe the functions of each type to the student.</p>	<ul style="list-style-type: none"> • Concrete aggregates 	<p>3.1 Select appropriate tools and equipment for floor construction</p> <p>3.2 Transfer/spread level with pegs to ensure a flat surface.</p> <p>3.3 Spread concrete to required thickness and vibrate adequately.</p> <p>3.4 Cure concrete adequately</p> <p>3.5 Prepare and lay joist to level using appropriate joint</p>	<p>*Guide trainee in the selection of tools and construction of timber and concrete floors.</p>	<ul style="list-style-type: none"> • Trowel, Spirit level, Pegs, Nails, • Vibrator <p>etc</p>

NVC in Carpentry and Joinery (Draft)

	General Objective: 4.0: Understand the Principles of Constructing Load Bearing Walls.			General Objective: 4.0: Prepare Wall Opening and Fix Components Accurately.		
WEEK	Specific Learning Objective	Teachers Activities	Resources	Specific Objective	Teachers Activities	Resources
16-20	<p>4.1 Know the principal functions of external walls and internal walls.</p> <p>4.2 Describe various types of wall units in common use.</p> <p>4.3 Know typical mixes for mortar used for bonding wall units in 4.2 above.</p> <p>4.4 Describe the procedures and precautions involved in mixing of concrete and mortar on</p> <p>4.5 Explain the function, method of placing and position of DPC in walls.</p>	<p>*List functions of external walls and their uses</p> <p>*List types of ratio in mortar mix for bonding</p> <p>* Describe D.P.C. and differentiate between D.P.C. and D.P.M.</p>	<p>*Block, Cement, sharp sand, plaster sand, water,D.P.M,etc</p>	<p>4.1 set out and erect simple straight walls.</p>	<ul style="list-style-type: none"> • Guide trainees in laying straight wall 	<ul style="list-style-type: none"> • *Block, Cement, sharp sand, plaster sand, water,D.P.M,etc
	General Objective: 5.0: Know materials and methods used in fixing openings.			General Objective: 5.0:		
WEEK	Specific Learning Objective	Teachers Activities	Resources	Specific Learning Objective	Teachers Activities	Resources
20-24	<p>5.1 Identify Nigerian timbers and timber products suitable for window and door construction.</p> <p>5.2 State the functions of openings in dwellings e.g. light, ventilation, privacy, inclusion of external</p>	<ul style="list-style-type: none"> • Explain the difference between wooden shutter windows and doors, steel windows and doors, crittal-Hope type Windows and 	<p>Pictures/Posters</p> <ul style="list-style-type: none"> • Charts • Door/window Schedules of a given project <ul style="list-style-type: none"> •Conduct visit to Aluminum company 			

NVC in Carpentry and Joinery (Draft)

	<p>weather. 5.3 Describe with sketches various types of timber and metal doors and windows including their mode of operation.</p>	<p>doors. • Aluminum projected windows and sliding doors etc.</p>				
	<p>5.4 Describe various types of ironmongery and state their uses. 5.5 Explain the need for the provision of weathering structures (e.g sill) at openings and describe with sketches structures</p>					

Assessment: 20%

Practical: 80%

PROGRAMME: NATIONAL VOCATIONAL CERTIFICATE IN CARPENTRY AND JOINERY

MODULE: INTRODUCTION TO BUILDING CONSTRUCTION-3

Course Code: VBC 301

Contact Hours: 2-6-8

GOAL: This module is designed to introduce the trainee in the building trades to the function and principle of roof construction ,types of finishing and installation of types of services in the building industry

GENERAL OBJECTIVES:

On completion of this module, the trainee should be able to:

1. Understand the function and principles of construction of construction of basic roofs
2. Understand the application of common types of finishes in the building trade
3. Know the basic principles of installation of various types of services in dwellings.

NVC in Carpentry and Joinery (Draft)

PROGRAMME: NATIONAL VOCATIONAL CERTIFICATE IN CARPENTRY AND JOINERY						
MODULE: INTRODUCTION TO BUILDING CONSTRUCTION-3				Course Code: VBC 301		CONTACT HOURS: 2-6-8
General Objective: 1.0 Understands the Function and Principles of Construction of Basic Roof Types.				General Objective: 1.0 Design and Construct Simple Roof for Specific Functions.		
WEEK	Specific Learning Objective	Teachers Activities	Learning Resources	Specific Learning Objective	Teachers Activities	Learning Resources
1-6	1.1 Define and describe with sketches, basic roof types and profiles e.g. beam and slabs as in concrete flat roofs, lattice and similar guiders, trusses (Howe truss, double roof, truss rafter, standard fink French Truss, North light truss, couple, umbrella, bow string, etc), portal frames, shell roofs, folded plates etc.	*Describe and explain the component of roof carcassing. *Sketch roof carcassing component in details. *Give trainees assignment	* Pencil *Drawing table *Set square	1.1Design and construct a simple roof complete with carcassing component.	*Guide trainees in the design and construction of roof with the carcassing	<ul style="list-style-type: none"> • Timber • Nails • Hammer,etc
6-7	1.2 Describe the materials and maximum allowable span and application of the Various roof types in 1.1. 1.3 Name and define various roof coverings suitable for tropical use and identify the areas suitable for their use in Nigeria.	• Show the pictorial representation of the various roof types to the student while describing each.	• Pictures, Charts, Drawings, film clips			

NVC in Carpentry and Joinery (Draft)

	General Objective 2.0: Understand the types of finishes in building trade.			General Objective 2.0: Apply finishes in building.		
WEEK	Specific Learning Objective	Teachers Activities	Resources	Specific Learning Objective	Teachers Activities	Resources
7-15	2.1 List external and internal wall finishes and explain their applications, e.g. paint, wall paper, premix finishes, etc. 2.2 State the function of ceiling in houses. 2.3 Describe with sketches various types of ceiling construction and ceiling finishes in the tropics e.g. normal ceiling, suspended ceiling etc. 2.4 List various types of finishes for joinery works and explain their application e.g. vanish, polish, paint etc.	<ul style="list-style-type: none"> • Guide the students. 	<ul style="list-style-type: none"> • Berger paint and other brand names, ceiling board etc, 	<ul style="list-style-type: none"> * Organize and execute the various types of finishes in the building trades. 	Demonstrate practically the application of paint	<ul style="list-style-type: none"> • Berger paint and other brand names, ceiling board etc,
	General Objective: 3.0 Know the Various Types of Installation of Services In Building.			General Objective: 3.0 Select and Install Various Types of Services in Building.		
WEEK	Specific Learning Objective	Teachers Activities	Resources	Specific Learning Objective	Teachers Activities	Resources
15-19	3.1 Explain the basic principles of a good drainage system. 3.2 Describe with sketches the installation standards relating to cold and; hot water supply.	<ul style="list-style-type: none"> • State the use of hand gloves and wearing of rubber shoes to prevent shock. 	<ul style="list-style-type: none"> • Hand gloves, shoes etc. 	3.1 Identify types of sanitary wares and fittings 3.2 Carry out jointing of sanitary fittings 3.3 Installation of sanitary wares and fittings	<ul style="list-style-type: none"> * Show trainees types of sanitary wares and fittings. * Guide trainees in jointing of sanitary fittings * Install sanitary wares in the 	Sanitary fittings -WC -sink

NVC in Carpentry and Joinery (Draft)

19-20	<p>3.3 Sanitary wares; fittings e.g. sinks, bath, W.C. shower, wash hand basin, Urinals, etc.</p> <p>3.4 Explain with sketches construction standards relating to the construction of domestic drainage system, e.g. Inspection chamber/cesspool, septic tank, soak away.</p> <p>3.5 Explain the functions of good insulation and lighting in dwellings.</p>				workshop for trainees comprehension	-bath -wash hand basin,etc
20-22	<p>3.6 Describe the different modes of supply and installation systems of electricity in dwellings e.g. simple phase, 3- phase supply (conduit or surface wiring system)</p> <p>3.7 Identify and describe various electrical fixtures stating their functions and explain their installation principles.</p>	<ul style="list-style-type: none"> • Use a detailed Electrical drawing to teach the student the key. 	<ul style="list-style-type: none"> • Electrical drawing of a typical building. 			
22-24	<p>3.8 List the precautions to be taken to ensure safe electrical installation in dwellings.</p> <p>3.9 Interpret electrical circuit symbols and drawings.</p>					

Assessment: 20%

Practical: 80%

PROGRAMME:

NVC IN CARPENTRY AND JOINNERY

COURSE:

INTRODUCTION TO COMPUTER AIDED DESIGN

CODE:

CAD 101

DURATION:

HOURS/WEEK 1HR Tutorial: Practical: 3 hrs

UNITS:

4 Units

GOAL:

This course is designed to enable trainees acquire basic knowledge of computer aided design packages.

GENERAL OBJECTIVES: On completion of this course the students should be able to:-

- 1.0 Understand and interpret computer generated drawings.
- 2.0 Produce basic drawing of existing building or elements of buildings using computer aided design software packages.
- 3.0 Know the various types of wood joints and their classifications.

NVC in Carpentry and Joinery (Draft)

PROGRAMME: NATIONAL VOCATIONAL CERTIFICATE IN CARPENTRY AND JOINERY						
COURSE: INTRODUCTION TO COMPUTER AIDED DESIGN		COURSE CODE: CPJ 102		CONTACT HOURS: 2HRS		
GOAL:						
COURSE SPECIFICATION: Theoretical Contents:				Practical Contents:		
General Objective: 1.0 Understand and interpret computer generated drawings.						
WEEK	Specific Learning Objective	Teachers Activities	Learning Resources	Specific Learning Objective	Teachers Activities	Learning Resources
	1.1 Identify various computer aided design packages in Use 1.2 Understand different computer generated building drawings. 1.3 Identify various scales in common use in computer aided design.	<ul style="list-style-type: none"> • Explain various computer aided design packages in use. • Explain and interpret different computer generated building drawing. • Explain the various scales and function keys in computer aided design 	<ul style="list-style-type: none"> • Charts • Board • Computer • Computer generated building drawing. 			

NVC in Carpentry and Joinery (Draft)

		<ul style="list-style-type: none"> packages. 				
General Objective: 2.0 Produce basic drawing of existing building for element of buildings using computer aided design.						
WEEK	Specific Learning Objective	Teachers Activities	Learning Resources	Specific Learning Objective	Teachers Activities	Learning Resources
	2.1 State the basic requirements of a good joint.	<ul style="list-style-type: none"> Discuss the basic requirements of wood joints. 	<ul style="list-style-type: none"> Charts Chalkboard 			
General Objective: 3.0 Know the requirements of wood joints and their classifications.						
WEEK	Specific Learning Objective	Teachers Activities	Learning Resources	Specific Learning Objective	Teachers Activities	Learning Resources
				2.1 Produce working drawings using computer aided design packages. 2.2 Produce basic drawing of existing buildings using computer aided design packages.	<ul style="list-style-type: none"> Draw working drawings using computer aided design packages. Draw existing buildings using computer aided packages. Observe and evaluate trainees. 	<ul style="list-style-type: none"> Computers Computer aided design packages Computer printer.

Assessment: 20%

Practical: 80%

LIST OF TOOLS AND EQUIPMENT RECOMMENDED FOR CARPENTRY AND JOINED

S/NO	TOOLS	RECOMMENDED
1.	Paint brushes (various sizes)	10
2.	Marking gauge/mortise gauge	20
3.	Marking knives	10
4.	Try square	20
5.	Mitre square	10
6.	Sliding bevel	10
7.	Measuring tape (metric)	10
8.	Jack plane	20
9.	Smoothing plane	10
10.	Rebate plane	5
11.	Multi-plough plane	5
12.	Spoke shaves (straight/round)	10
13.	Rip saw	10
14.	Crosscut/hand saw	10
15.	Tenon saw	10
16.	Panel saw	10
17.	Coping saw	10
18.	Key hole saw	5

NVC in Carpentry and Joinery (Draft)

19.	Dovetail/back saws	20
20.	Firmer chisel	20 sets
21.	Mortise chisel	10 sets
22.	Turning chisel	3 sets
23.	Twist bits	5 sets
24.	Counters ink	2
25.	Rose	2
26.	Ratchet braces	10
27.	Breast drills	5
28.	Drill bits	2 set
29.	Screw driver (se of 6)	5 set
30.	Mallet	20
31.	Claw hammer	10
32.	Pein hammer	10
33.	Warrington hammer	10
34.	Bradawl	10
35.	Pincers	10
36.	'F' cramp	5
37.	Sash cramp	5
38.	Gee ('G') cramp	5
39.	Bench-hold fast	5
	MISCELLANEOUS	
40.	Triangle files (set)	5
41.	Flat files	5
42.	Scraper (flat)	5
43.	Dividers	5

NVC in Carpentry and Joinery (Draft)

44.	Round files (set)	5
45.	½ Round files	5
46.	Scraper (cabinet)	5
47.	Calipers (set) inside and outside	5
50.	Dowelling jig	2
51.	Rasps	5
	UTILITIES	
52.	Extinguishers (including fire buckets)	4
53.	Workbenches (compta)	15
54.	First aid box	1
	MACHINE WOOD WORKING SHOP	
1.	Circular saw bench	1
2.	Thicknesser (optional)	1
3.	Surface planner	1
4.	Wood-lathe	2
5.	Band saw (optional)	1
6.	Compressor & spraying units	1
	POWER HAND TOOLS (OPTIONAL)	
1.	Circular saw	1
2.	Pian err tar	1
3.	Orbital sander	1
4.	Disc sander	1
5.	Jib saw	1
6.	Blower	1
7.	Sprayer	1
8.	Drill	1

RECOMMENDED TEXTBOOKS

1. Porter, B. (1990) *Carpentry and Joinery 1*, Edward Arnold Publishers, London
2. Porter, B. (1991) *Carpentry and Joinery 2*, Edward Arnold Publishers, London.
3. Porter, B. (2001) *Carpentry and Joinery 3*, Butter Worth-Heinemann, Boston.
4. Bayliss, R. (1979) *Carpentry and Joinery 1,2, and 3*, Hutchinson & Company (Publishers)
5. Feirer, J.L. and Hutchings, G.R. (1986), *Carpentry and Building Construction* Glencoe; Macmilan/Mac Graw-Hill, Columbus, Ohio.
6. Katz, Leszlo. (1980) Revised Edition. *The Art of Woodworking and furniture Appreciation*
7. Drucker and Funkelstein (1990), *Recepes for Surfce – Decorative Paint Finishers Made simple.*

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