270 – DRAUGHTSMANSHIP CRAFT PRACTICE CAP 11, 12, 13, 14 AND CED 11

GOALS

This course is designed to develop in the students the flare for Artistic presentation, skill to produce: well laid basic Architectural drawing, complete set of working drawing, from Architect's sketch design with minimum assistance, and also the ability to present projects in two and three dimensional monochromatically.

EXAMINATION STRUCTUE

The following are trade related courses for this trade:

1. 191 – General Metal Work
2. 192 – General Woodwork
3. 193 – Building/Engineering Drawing

The trade will be examined under the following subjects:

211 – Introduction to Building Construction (CBC 11)
271 – Draughtsmanship (CAD 11, 12, 13,14, 15, CSD 11 and CED 11)

EXAMINATION SCHEME

211 Introduction to Building Construction is obtained in 210 trade syllabus
271 Draughtsmanship. This will comprise of two Papers – Papers I and II

PAPER 1
271-1 – This paper will comprise two sections:

SECTION A: will be forty (40) Multiple Objective choices. Candidates are to attempt all in 40 minutes for 40 marks.

Section B: will be five (5) Essay questions out of which candidates are to attempt four (4) in 2 hours for 60 marks.

PAPER II
271-2 – This paper consist of one practical question (alternative practical) to be attempted in 3 hours for 60marks.

NOTE: This practical DO NOT require cutting list but A2 (420x594)mm size of drawing sheet. Candidates may use more than one drawing sheet per any of the two practicals.

270 – DRAUGHTSMANSHIP CRAFT PRACTICE

MODULE: FREE HAND SKETCHING
CAD: 11

S/N	Topic/Objective	Content	Activities	Resource
1.0	The basic materials and tools used in freehand sketching for artistic production	1.1. Explain the role of art in communication. 1.2. Explain the relationship between fine art and architecture. 1.3. Enumerate the basic tools used in graphic arts. 1.4. List the various materials in graphic arts. 1.5. Illustrate how the materials 1.3 above works. 1.6. Maintain the tools enumerated in1.3 above.	Distinguish between fine art and architecture. Enumerate materials used in graphic arts. Use materials to produce graphical arts.	Charts real objects
2.0	Simple Pencil sketching	1.1. State the various grades of pencils and factors affecting their choice for sketching 1.2. Set up drawing board. 1.3. Sketch various planner shapes e.g. rectangles, circles, triangle etc. 1.4. Define and sketch three-dimensional shapes e.g cones cylinders, prisons, spheres hyperboloids, paraboloid, polyhedral, geodesic domes using line diagrams 1.5. Express the shapes sketched in 2.4 above using pencil tonal effects.	Show various types of pencils Demonstrate how to set up drawing board. Show physical objects of various shapes. Show objects of three dimensional shapes	Various objects Drawing board
3.0	The Principle of	1.1. The principles of		

S/N	Topic/Objective	Content	Activities	Resource
	Shadow casting and shading in sketching	Shadow casting. 1.2. Enumerate the various tonal effects used in graphical productions. 1.3. Illustrated the tonal effects in 3.1 above 1.4. Use the cross-hatching techniques to produce the objects in 2.4 above. 1.5. Apply pointillism technique to produce the shape of objects in 2.4 above.		
4.0	Simple Pen and ink sketching	1.1. Sketch the various types of grades of pens used for sketching and the factors affecting their choice 1.2. Sketch two and three dimensional shapes using pens and ink line method. 1.3. Express the shapes in 4.2. above using the following methods; - cross-hatching techniques - pointillism technique		Various pens
5.0	Colour and colour schemes	1.1. Structure of light 1.2. Describe the principle of visible colour in relation to the reflection and absorption properties of light. 1.3. Identify the various colour 1.4. Illustrate the colour wheel 1.5. Illustrate the principles of contrast and harmony in the use of colour.	Describe the various media for colour productions in graphical work etc Mix various colour to obtain certain effects	Various pens charts Water colour, poster colour oil paint, cryons, chart showing colour wheel.

S/N	Topic/Objective	Content	Activities	Resource
		Explain the importance of colour and their symbolism in design 1.6. State the various media for colour productions in graphical work. 1.7. Use the colours in 5.6. above on the shapes in 4.2 above e.g water colour, poster colour oil paint, cryons coloured pencils, colour pencil etc. 1.8. Use the colours in 5..2 above on shapes in 4.2 above e.g. water colour, poster colour oil paint, cryons, pencils colour film etc.		
6.0	Simple still life and abstract sketching	1.1. Observe a given geometrical objects from a given point e.g. cylinder, cones, cuboids, hemispheres, prism, paraboloids etc.. 1.2. Produce line sketches of the observed objects in their given combinations. 1.3. Apply tonal effects on both monochromatically and multi chromatically to the sketches in 6.2 above showing shades and shadows 1.4. Produce monochromatic and multi chromatic sketches of a given still life objects e.g. tree buildings animals, street scenes human beings etc. 1.5. Produce from imaginative thinking monochromatic and multi chromatic	Sketch the various objects e.g. trees, buildings, animals etc. Sketch the real object	Various shapes e.g. cylinder, cones etc and objects such as tree charts etc

S/N	Topic/Objective	Content	Activities	Resource
		sketches e.g market place, shopping center conferences sessiors street scene, motor park luxury park, office complex etc. 1.6. Produce monochromatic and multi-chromatic abstract design combining various geometrical shape		

CAD 12 - ARCHITECTURAL DRAWING I

S/N	Topic	Content	Activities	Resource
1.0	The materials and equipment required for Architectural drawing	1.1. Enumerate the tools and equipment used in Architectural Drawing productions. 1.2. List the various materials and graphical aids used in Archtectural Drawing. 1.3. Illustrate how the materials in 1.2 above are used for Architectural Drawing productions 1.4. Maintain the tools and equipment enumerated in 1.1 above	Demonstrate the use of these tools and equipment	Various graphical equipment e.g. printing machine.
2.0	How drawing are produced	1.1. Enumerate the various equipment used in Architectural Drawing productions, e.g printing machine, scanning machine, plan printing machine. 1.2. Use equipment in 2.1 above 1.3. maintain the equipment in 2.1 above.	Demonstrate the use of such material and how to maintain them	Various graphical equipment e.g. printing machine.
3.0	Present drawings and code them	1.1. Explain the various systems of coding drawings 1.2. Illustrate how to layout drawings and present them.		
40	The graphical symbos, conventional signs and lettering styles used for Architectural	1.1. Illustrate the various types of lines. 1.2. Explain the principles behind choice of pen points for use in drawing. 1.3. Illustrate the graphical	Draw different types of lines	

S/N	Topic	Content	Activities	Resource
	drawing	symbols and conventional signs used in Architectural drawing. 1.4. State the specification notes used in annotating drawing. 1.5. Illustrate the various styles of lettering used in Architectural drawing. 1.6. Illustrate personal lettering technique 1.7. Illustrate stencil given drawing. 1.8. Illustrate the use of templates e.g.		
5.0	Illustrate the differences between presentation drawing and working drawings	1.1. State the different categories of Architectural drawings. 1.2. Explain the difference between presentation and working drawing. 1.3. State the purpose of the two categories of drawings	Show different architectural drawing Enumerate purpose of two categories drawings.	
6.0	How to trace a given drawing	1.1. Choose pens and pen points for tracing a given drawing. 1.2. Explain the underlining principles in tracing 1.3. Retrace in ink a given set of working drawing using the appropriate tools 1.4. Stencil the retraced set of drawings.	Show how to retrace a given set of working drawing	Tracing paper pens.
7.0	Redraw a given drawing	1.1. Choose appropriate grade of pencils choose the appropriate scales for drawing. 1.2. Draft the plan of a given	Draw plan, sections, sanitary and sit plan	Types of pencils chart

S/N	Topic	Content	Activities	Resource
		design using a given set of drawing or sketches as a guide 1.3. project the elevations and sections 1.4. Define and draft the doors and windows schedules and finishing 1.5. Draw sanitary drawings (soak away, septic tank etc) and site plan. 1.6. trace in ink the drawing drafted in 7.3, 7.4 and 7.5 above 1.7. Stencil and annotate the retraced drawings. 1.8. Code the finished drawings in the conventional order.		
8.0	The element of design	8.1. Explain the composition of forms rhythm, balance, texture. 8.2. Use colour and contrast, scale and dimension. 8.3. Apply proportion as an element of design.	Demonstrate how to use colour and contrast, scale and dimension.	Various colour chart
9.0	The general space requirements for different functions in residential building	1.1. Work out spaces needed for human movement 1.2. Arrange furniture fixture equipment of common usage in a residential building. 1.3. Design kitchen, toilet, living room etc as a unit.	Show space could be worked out. Demonstrate the arrangement of furniture	Charfs, plan of a given building
10.0	Historical development, relevance, types and advantages. The application of various	10.1 The history of development, relevance, types and advantages of each and application of various computer software e.g apply DOS, Auto CAD,	Give a historical background of Architectural development. Types, advantages, various software	Computer system, magic board, corel draw packages

S/N	Topic	Content	Activities	Resource
	computers in the design process.	Archicad, Power point, Power draw, Corel drawing etc 10.2. Application of software in 1.1 above		
11.0	Give student the basic skills needed to use Corel draw software	1.1. The principles of operations, capabilities and system requirements for corel draw package. 1.2. How to draw a simple building or machine using the Corel draw from greeting title to shutdown.	Explain Corel draw, screen loading and guilting. Demonstrate and perform shaping zooming. Demonstrate and perform object arrangement, sketching, scaling etc	-do-

CAD 13 – ARCHITECTURAL DRAWING II

S/N	Topic	Content	Activities	Resource
1.0	The procedure for development and pogramming for full scale drawing	1.0. Read and interpret a given preliminary sketch design 1.1. Determine all the various types of working drawing 1.2. Choose size of drawing sheets 1.3. Select over all dimensions 1.4. Identify significant details 1.5. Prepare complete set of working drawings 1.6. Correlate details on working drawing	Read a given preliminary sketch design. Enumerate various types of working drawings. Prepare complete set of working drawing.	Charts
2.0	Analyze human activities and circulation for simple design	1.1. Identify the functions that take place in a simple building such as snack bar, a 2-bedroom bungalow, kiosk, convenience shops. 1.2. Explain the relationships between a different functions in the simple building enumerated in 2.1 above. 1.3. Enumerate the sequence of events in the building.	Enumerate those functions that take place in building. Show step by step the sequence of events in the building.	Plan for a 2-bedroom bungalow
3.0	The heralding of the various spaces in residential buildings	3.1. State the hierarchical order of the various spaces in a residential building 3.2. Explain the factors affecting the arrangement of these spaces and determination of their size	Discuss the factors affecting the arrangement of these spaces	
4.0	The principle of modular coordination	1.1. Define modular coordination. 1.2. Explain basic principle of modular coordination	Discuss basic methods of modular coordination.	chart

S/N	Topic	Content	Activities	Resource
		1.3. Describe modular draughting methods and convention 1.4. Illustrate the use of modular dimensioning in assembly of component units in Architectural drawing. 1.5. Prepare architectural drawings applying modular draughting techniques for a given design, prepare modular details. 1.6. Provide references and notations to all drawing. State the range of tolerances for 0n-site layout of coordinates.	Apply modular techniques for a given design	
5.0	The concept of schedules	1.1. Explain what schedules are 1.2. Enumerate the various types of schedules 1.3. Prepare the necessary schedules for project handled in 4.4 above.	1.4. Describe schedules. List various types of schedules.	
6.0	The operating building laws, bye-laws and regulations	1.1. Explain building laws, bye-laws and regulations 1.2. State the laws and regulations applicable in your area. 1.3. Describe the procedure for obtaining planning approval in your area.	Describe building laws, bye-laws	
7.0	The conventions and symbols of services elements in building	1.1. Define service drawing 1.2. Identify the type of services drawing e.g. electrical fitting, plumbing/fittings 1.3. State the importance of services drawing amount working drawing 1.4. Prepares services layout drawings for plumbing, electrical and water line	Explain services drawing. List services drawing e.g. electrical plumbing etc.	diagram

S/N	Topic	Content	Activities	Resource
8.0	The importance of services drawings	8.1. Describe various types of pipe fittings 8.2. Draw the water supply for a given drainage 8.3 Draw the drainage and waste disposal system for building drainages (septic tank, soak away, cess pool etc)	Enumerate the types of pipe fittings Draw the drainage and waste disposal system	Diagrams
9.0	Basic pipe and duct draughting	1.1. Describe the various types of pipe/duct 1.5. concrete 1.2. Explain the use of pipes in building work e.g. waterpipe, gas pipe, sewage pipe etc 1.3. Illustrate the various symbols and convention used in pipe draughting 1.4. State the factors affecting choice of pipes for different purpose e.g. gas, water and sewage pipe. 1.5. Illustrate the various types of valves 1.6. Explain the factors affecting choice of valves 1.7. Draw a typical flow diagram for a given pies 1.8. Explain the functions of instrumentation.	List the various types of pipe/duct. Discuss the use of pipes in building work. Sketch various symbols and convention used in pipe draughting. List the factors affecting choice of pipes	Diagram, charts
10.0	The production of electrical fittings and installation in building drawing	10.1. Describe the various ways of heating and cooling system. 10.2. Explain the principle of air conditioning 10..3. Describe the various types of air conditioner system in building 1.4. Enumerate the advantages and disadvantages of each type 1.5. Illustrate the installation techniques of each type	Explain heating and Cooling system. Types of air conditioner Advantages and Disadvantages. Factors affecting design of central air conditioner system	Draw instrument diagram

CAD 14 – DELINEATION

S/N	Topic/Objective	Content	Activities	Resources
1	Three dimensional drawings of a simple building design	1.1. Determine the position of view for isometric, oblique and axonometric projections for a given simple building. 1.2. Project isometrically, obliquely and axonometrically the chosen view for the given design 1.3. Enumerate the various types of perspective 1.4. Determine the position of view for the various types of perspective 1.5. Project a one-point perspective of the given bungalow from the chosen view. 1.6. Project a bird's eye view of the given bungalow from the chosen view. 1.7. Project a two-point approach perspective of the given bungalow. 1.8. Project a three point perspective of the given bungalow	Explain types of projection Draw isometric, oblique and axonometric projections. List types of perspective	Charts Plan of a bungalow
2	The principle of light and shade	1.1. Explain the principle of light transmittance on solid objects. 1.2. Relate the principle of light transmittance to shade and shadow effects 1.3. Illustrate the various graphical techniques used in shading and shadow casting. 1.4. Illustrate the difference in effects on plane and curved surfaces. 1.5. Illustrate the principles	Describe the principle of light transmittance on solid objects. Differentiate plane and curved surfaces. Explain principles of shading and shadow casting	Plane and curved objects

S/N	Topic/Objective	Content	Activities	Resources
		of shading and shadow casting 1.6. shade and cast shadow on a given simple two-dimensional and three-dimensional set of drawings. 1.7. use artificial aids to portray required, graphic effects, e.g. letratones, letrasets, furnish plates etc		
3	Monochromatic drawings in two and three dimensions with shades and shadows introducing life elements.	1.1. Render plan and sections showing furnishings, traffic flow, trees, human beings, and other life elements. 1.2. Render site plans casting shades and shadows. 1.3. Draw elevations choosing appropriate points of pens for the various planes. 1.4. Cast shades and shadows on the elevations introducing life elements such as cars, trees, human figures, animals sky scenes etc. 1.5. Cast shade and shadows on the projected isometric, oblique, axonometric and perspective drawings projected in 1.1 to 1.7 above 1.6. Introduce life and landscape elements monochromatic	Draw plan and sections to show furnishings, traffic flow, trees. Show how shades and shadows are cast in site plans Use appropriate points of pens and draw elevations	Various objects, pens. Charts.
4	The various equipment and materials required in photography	1.1. Define photography 1.2. Enumerate the various equipment used in photography e.g. film	Explain what is photography List various types of	Cameras Chart

S/N	Topic/Objective	Content	Activities	Resources
		1.3. Describe how these equipment functions 1.4. Maintain the equipment in 4.3. above. 1.5. Enumerate the various materials used in photography their functions and care.	equipment used in photography. List materials used in photography	
5	The basic principles in photography	1.1. Explain light transmission in relation to photography. 1.2. describe the influence of light on photo sensitive materials 1.3. Illustrate the principle of reflection, refraction and absorption of light by various materials. 1.4. Explain colour reflection, refraction and absorption. State how the principle of light transmittance is used in a pin-hole camera.	Discuss the influence of light on photo sensitive materials Describe reflection, refraction and absorption	Prisms chart
6	The various cameras used in architectural photography	1.1. Identify the parts of the cameras above. 1.2. State the functions of the parts identified above. 1.3. Describe the operational procedure of each type of camera. 1.4. Enumerate the various types of specifications of film used for various cameras and factors affecting their choice for use 1.5. Choose film for a given single reflex camera 1.6. Load the film in the camera 1.7. focus various still life objects from chosen view points. 1.8. Snap the objects above	List different types of cameras. Illustrate with diagrams the functions of the part of camera Focus and snap various still objects	Camera of various types Video cameras, films still object, e.g. table trees etc.

S/N	Topic/Objective	Content	Activities	Resources
		1.9. Snap moving objects from a chosen view point		
7	How to produce good photography prints	1.1. Describe the procedure for developing a film 1.2. List the various items used in film development 1.3. State the precautions to be taken in film development 1.4. Develop the film snapped in 6.8 and 6.9 above 1.5. Enumerate the various items used in photographic printing 1.6. State the required precautions in photographic printing 1.7. State the different types of prints e.g. contact prints enlargement etc. 1.8. Print black and white photographs	Show how to develop a film List materials for printing films snapped Different types of prints e.g. contact prints enlargement etc Explain black and white photographs	Film Chemicals used for developmen t printing materials
8.0	How to present various projects with the aid of photography	8.1. Interpret and juxtapose photographic images in printing to achieve certain desired effects 8.2. Present various models photographically. 8.3. Use photography as aid in perspective drawing 8.4. Describe how various project reports are presented using photographs 8.5. Present photographic folio	Explain various models photographically Illustrate photographic folio	-do-

MODULE: DELINEATION

CODE: CAD 15

S/N	Topic/Objective	Content	Activities	Resource
1.0	The importance of service drawing	1.1. Define services drawings 1.2. Illustrate the signs, symbols and conventions of services drawing 1.3. Enumerate the various types of services drawing e.g. plumbing, electrical, telcom etc 1.4. State the importance of services drawing amongst working drawings. 1.5. Prepare service layout drawings for a given simple project.	Draw the signs, symbols and conventions of services drawing List various types of services drawing e.g. plumbing, electrical etc.	Chart
2.0	Plumbing and waste disposal drawings	1.1. Describe the various types of plumbing works in buildings 1.2. Illustrate a typical plumbing network in a given two-bedroom bungalow. 1.3. Illustrate the types of drainage and sewage system. 1.4. Draw the water supply system for a given simply project with annotations and specifications notes. 1.5. Draw the drainage and waste disposal system for the project in 2.4 above 1.6. Prepare the sewage disposal drawings for the project in 2.4 above	Discuss the types of plumbing works in buildings Draw various types of drainage, sewage system and waste disposal	Charts building plan drawing.
3.0	Basic pipe and duct draughting	3.1. Describe the various types of pipe and ducts	Show various types of pipe and ducts	Charts various

S/N	Topic/Objective	Content	Activities	Resource
		3.2. Enumerate with examples the various terms used in pipe draughting 1.3. Explain the uses of pipes in building works e.g. conduit, water, sewage 1.4. Illustrate the various symbols and conventions used in pipe draughting 1.5. State the factors affecting choice of pipe for different purposes e.g. gas piping, water pipe, sewage pipe etc. 1.6. draw the various types of piping works enumerated in 3.5. above for a given building project. 1.7. Illustrate the various types of piping control and fittings stating their functions 1.8. draw a typical flow diagram for a given piping reticulation with instrumentation system e.g. in the oil industry 1.9. Explain the functions of instrumentation system.	Describe use of conduct water, sewage etc. Draw various symbols and conventions used in pipe draughting. Describe types and functions of valves Illustrate a flow diagram for a given piping reticulations	kinds of pipes and pictures
4.0.	Drawing of air-conditioning, heating and ventilation system for buildings.	1.1. Describe the various ways of heating and cooling houses 1.2. Explain the principle of air conditioning 1.3. Enumerate the advantages and disadvantages of each types. 1.4. Illustrate the installation techniques in 4.3. of	Discuss air-conditioning and types in building Show techniques of installation. Show installation drawing of a given design of central air-condition system.	Charts

S/N	Topic/Objective	Content	Activities	Resource
		each type 1.5. State the guiding factors in the design of a central air conditioning system 1.6. Prepare installation drawings of a given design of a central air conditioning system 1.7. State the factors affecting the sizes of ducts for central air conditioning system 1.8. Describe the various types of artificial ventilators and how they function e.g. fans, extractors, etc. 1.9. Illustrate the installation techniques of such type 1.10. Prepare installation drawing for the various types. 1.11. Describe the various types of heating systems in buildings 1.12. Prepare installation drawings for the various heating systems and state their merit and demerits	Explain artificial ventilators and their functions. Explain types of heating systems	
5.0	The production of duct drawings for elevators and escalators	1.1. State the differences between elevators and escalators with their attendant advantages and disadvantages. 1.2. Describe the various types of elevators 1.3. State the factors affecting the choice of each type and their space requirements. 1.4. Draw the various types of elevators and their duct	Differentiate between elevators and escalators. Illustrate types of elevators. Explain how to install escalators Illustrate types of escalators	charts

S/N	Topic/Objective	Content	Activities	Resource
		1.5. Explain how the duct sizes for elevators are determined. 1.6. Describe the requirements for installing an escalator 1.7. Draw an escalator with the duct provisions 1.8. Explain how the duct sizes for escalators are determined.		
6.0	Reinforced concrete structural detailing.	1.1. Draw the various symbols sign and conventions used in structural detailing 1.2. Draw a typical reinforced concrete structural frame plan with notation. 1.3. Draw reinforced concrete structural frame building on sectional elevators. 1.4. Draw with full reinforced concrete details of structural elements viz foundation (independent bases, piles, strip footing, raft columns, beams, slab, cone-way, two ways flat slabs, solid slabs, precast slabs, hollow-tile, slabs, garage floors etc. Cantilerer, lintels, stairs, walls (panel walls plain and reinforced concrete walls, basement retaining walls) 1.5. Prepare detailed bending scheduling of bars in reinforcement of	Demonstrate with sketches the concept and typical concrete structure and frame plan with notations. Draw pictorial drawings of various types of reinforced concrete structures. Put dimension line in given drawing and observe all the rules. Put dimension lines in a given drawing and observe all the rules	

S/N	Topic/Objective	Content	Activities	Resource
		structural members. 1.6. Undertake detailing of reinforced concrete structural buildings. 1.7. Draw a typical reinforced concrete structure and frame plan with notation		
7.0	The arrangement and detail drawing of steel structures.	1.1. Prepare typical title blocks of drawings. 1.2. State recommended scale for site plans general arrangement, marking plans detail drawing and enlarge details. 1.3. Explain the various drawing sizes in use: sketches, details, general arrangement in detailing. 1.4. State the information contained in the material list. 1.5. Describe details recommended for lines, sections and dimension. 1.6. Show representation of rolled and form steel section for universal beam, universal column, joint, channel, angle, tee, rectangular, hollow section, circular hollow stanchions 1.7. Draw grids and marking plans in two storey buildings for the following members, stanchions, crane grinders, purlins sheeting rails, bracing gable stanchions beams etc.	Draw and show typical conventional plan/sections in dictating various forms. Such as universal beams, column, hollow sections etc. Draw/sketch metric representation of two various sections of structural/joints Demonstrate with sketches various techniques Showing structural members. Draw typical symbols representations of joint using bolts, rivets and walling etc	Use of chalkboard Drawing instrument. Transparent papers and projectors. Chalkboard drawing papers drawing instruments.

S/N	Topic/Objective	Content	Activities	Resource
		1.8. State specification for types strength, diameter, tolerance for bolts. 1.9. Show representation for bolts and holes in plan and elevators on steel work drawings. 1.10. Define terms for butt and fillet holds and rivets and indicate them on the drawing using symbols with different abbreviations. 1.11. Prepare detail drawings for beam perkins sheeting rails, plate girders, trusses and lattice girders for different sections. 1.12. Prepare stresses and layout sheet of typical roof trusses		

CED II – ELECTRICAL/ELECTRONIC DRAUGHTING

S/N	Topic/Objective	Content	Activities	Resource
1.0	The Electrical and Electronic graphic symbols in common use.	1.1. Identify Electrical and Electronic graphic symbols in common use 1.2. Sketch by freehand the components in 1.1 above. 1.3. Draw the electrical/electronic symbols identified in 1.1. above using appropriate draughtsmanship equipment and materials.	Illustrate Electrical and Electronic graphic symbols in common use Draw the above using draughtsmanship equipment and materials	Draughts-manship equipment and materials
2.0	The block diagram representation of electrical and electronic circuits	1.1. State the methods of block diagram representations 1.2. Explain the merits of each method in 2.1. 1.3. Explain the methods of labeling block diagrams 1.4. State the merit and demerit of block diagram representatives. 1.5. Draft art work for printed circuit boards 1.6. Draft logic diagrams	Draw block diagrams. Label a block diagram. Draft art work for printed circuit board.	Diagrams printed circuit boards
3.0	Schematic and wiring diagrams of electrical and electronic circuits	3.1. Explain the term "schematic diagram" 3.2. Explain the merits of schematic diagrams 3.3. Draft various schematic diagrams e.g transistor circuit, electrical panel etc. 3.4. Explain the term "wiring diagram" 3.5. State the merit and demerits of wiring diagrams 3.6. Draft various wiring and circuit diagrams 3.7. State the relevant IEE regulations relating to the various diagrams in 3.6. above.	Illustrate the schematic diagram" Draft schematic diagrams e.g transfer circuits electrical panel etc	Circuit board diagrams

S/N	Topic/Objective	Content	Activities	Resource
4.0	Draughting of electrical/electronic connecting diagrams	1.1. Explain the term connecting diagrams 1.2. State the merit and demerit of connecting diagrams 1.3. State the various types of connecting diagrams 1.4. Explain the uses of the various types of connecting diagrams in 4.3 above 1.5. Explain the tem "point to point diagram" 1.6. Draft point to point diagrams 1.7. Explain the term "highway diagrams' 1.8. Draft baseline diagrams 1.9. Explain the term baseline diagram 1.10. Draft "highway diagrams' 1.11. Define lineless diagrams 1.12. Draft lineless diagrams 1.13. Draft various electrical and electronic designs or circuit using connection diagrams.	List types of connection diagrams Describe point to point and highway diagrams. Draft each of the above	Diagram Charts Drafting instruments
5.0	Production of electrical installation drawings	1.1. Describe the various types of electrical drawing e.g. block diagrams, circuit diagrams, schematic diagrams etc 1.2. Illustrate the symbol and conversion used in electrical installation drawings 1.3. Enumerate the various types of electrical loads, resistive load, inductive load, capacitive load etc.	Differentiate between block diagrams, circuit diagrams, schematic diagrams etc Show symbol and conversion used in electrical installation drawings. Illustrate single line diagram, switching	Ditto

S/N	Topic/Objective	Content	Activities	Resource
			circuits and branch circuits	
6.0	Production of telecommunication drawings	1.1. Describe the various systems of telecommunication services to building. 1.2. Draw the telephone wiring system for a given building project. 1.3. Draw the audio-visual wiring for a given building project. 1.4. Draw the security and fire-alarm system for a given building project		