UGANDA BUSINESS AND TECHNICAL EXAMINATIONS BOARD

MODULAR ASSESSMENT SYLLABUS FOR NATIONAL CERTIFICATE IN BUILDING CONSTRUCTION

December 2021

1.0 PREAMBLE

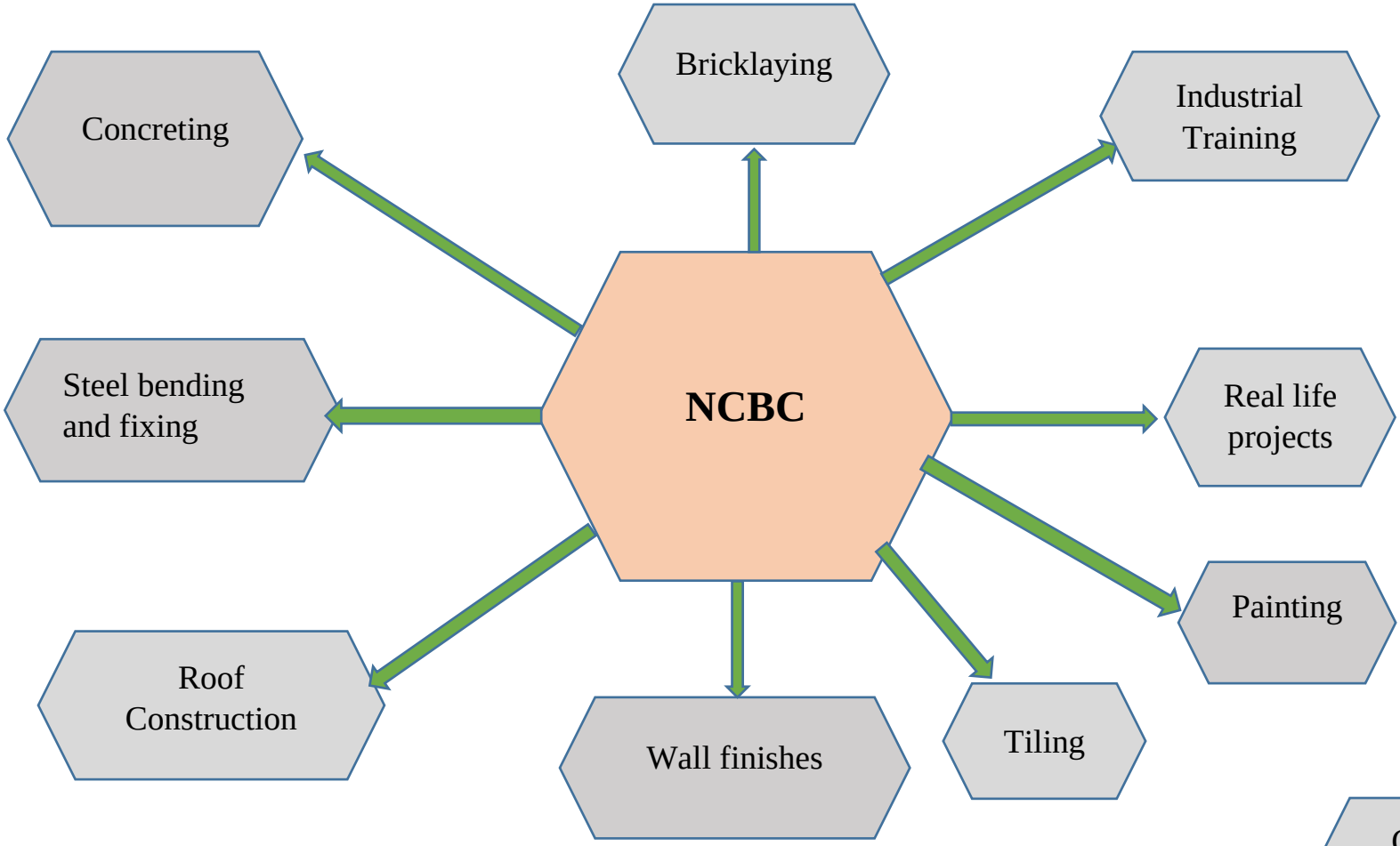
The Ministry of Education and Sports is spearheading modularization of assessment as part of the implementation of the Technical and Vocational Education Training (TVET) policy, 2019 reforms.

This Modular Assessment Syllabus (MAS) has been derived from the NCDC curriculum of National Certificate in Building Construction (2016) which is currently being taught and assessed for trainees.

The syllabus looked at related content in the curriculum and realigned it into nine (9) modules of; Bricklaying, Concreting, Steel bending and fixing, Roof construction, Wall finishes, Tiling, Painting, Real Life project and Industrial training emphasizing skills acquisition for the workforce to stimulate service delivery and infrastructural development both in private and public sectors. Six (6) other support modules have been identified and included which have to be done by trainees who wish to pursue further education. The support modules include; Technician Mathematics, Communication Skills, Computer Applications, Kiswahili, Computer Aided Building Drawing and Entrepreneurship Skills.

The modules are flexible and allow candidates interested in academic progression to join at any time while participating in productive activities for community transformation.

2.0 IDENTIFIED MODULES/COMPETENCY AREAS



Support Modules

Computer Aided Building Drawing

Technician Mathematics

Communication Skills

Kiswahili

Entrepreneurship Skills

Computer Applications

3.0 LEARNING OUTCOMES PER MODULE

MODULE NAME: BRICKLAYING

Upon successful completion of this module, the trainee will be able to:

(i) Identify and select appropriate tools and equipment used in bricklaying.

(ii) Make cost estimates for bricklaying materials.

(iii) Mould bricks and blocks.

(iv) Prepare and use bricklaying materials.

(v) Draw and Interpret building drawings.

(vi) Lay, plumb, square and level bricks and blocks during the construction of buildings.

MODULE NAME: CONCRETING

Upon successful completion of this module, the trainee will be able to:

(i) Identify and select appropriate tools and equipment used in concreting.

(ii) Make cost estimates for concreting materials.

(iii) Prepare and use concrete materials.

(iv) Carryout concrete processes and cure concrete.

(v) Construct floors, beams, lintels, columns, stairs and any other structures in concrete.

MODULE NAME: STEEL BENDING AND FIXING

Upon successful completion of this module, the trainee will be able to:

(i) Identify and select appropriate tools and equipment used in steelworks.

(ii) Make cost estimates for steelworks.

(iii) Prepare, bend and fix all reinforcements during construction and maintenance of buildings.

MODULE NAME: ROOF CONSTRUCTION

Upon successful completion of this module, the trainee will be able to:

(i) Identify and select appropriate tools and equipment used in roofing.

(ii) Make cost estimates for roof construction.

(iii) Prepare and use roofing materials.

(iv) Carryout the roofing of buildings.

(v) Construct ceilings in buildings.

MODULE NAME: WALL FINISHING

Upon successful completion of this module, the trainee will be able to:

(i) Identify and select appropriate tools and equipment used in finishes for buildings

(ii) Make cost estimates for finishing works.

(iii) Prepare and use materials for finishing works.

(iv) Carryout the finishing on buildings.

MODULE NAME: TILING

Upon successful completion of this module, the trainee will be able to:

(i) Identify and select appropriate tools and equipment used for tiling.

(ii) Make cost estimates for tiling works.

(iii) Prepare and use tiling materials.

(iv) Carryout tiling in required areas.

MODULE NAME: PAINTING

Upon successful completion of this module, the trainee will be able to:

(i) Identify and select appropriate tools and equipment used for painting works.

(ii) Make cost estimates for painting works.

(iii) Prepare and use painting materials.

(iv) Carryout painting of buildings.

4.0 DETAILED LEARNING CONTENT AND COMPETENCIES FOR BRICKLAYING

Submodules	Competencies	Duties and Tasks	Indicative syllabus Content	Duration Contact hours
Introduction to Building Technology	• Administer first aid (snake bites, cuts, electric shocks etc) • Use PPEs • Use, care and maintain tools and equipment	• Ensure safety by use of PPEs • Identify, select and use appropriate tools and equipment in construction works	• Safety, Health and Environment • Tools and Equipment	10
Preliminary Works	• investigates sites and writes reports. • clears the site and makes site layout for material delivery and inconvenience. • sets out the site and its buildings. • plans and programs site works using bar chart, gant charts and arrow diagrams. • estimates, plans and assesses plant and	• Carry out site investigation. • Clear and site out buildings. • Set out buildings.	• Site investigation • Site surveying and levelling (to be limited to levelling and brief introduction tolevelling equipment like boning rods, dumpy level and water level) • Site clearance • Drawings approval • Setting out • Site lay out • Planning and programming site works using bar charts, gant charts, and arrowdiagrams including work measurement,	12

	labour output. • carries out simple site survey, taking of measurements and levelling using dumpy levels and Theodolite or total station.		method study, and work study • Plant and labour output • Site safety regulations observed when investigating sites, clearing, setting out andexecuting works	
Foundation	• sketches designs for raft, pad, pile and strip foundations. • builds basement walls. • applies tanking to basement walls to prevent water effect. • applies DPC, anti-termite solution on hard core and below DPC. • describes the types of soil and relates their strength to the type of proposed foundation.	Select and construct appropriate foundations for buildings	• Definition, regulations, and requirements of a good foundation • Types of foundations for example raft, strip, pad, pile, slab, cellular and stepped foundations • Foundation concrete levelling • Plinth wall • Footings • Basement construction, water and termite prevention • Damp proofing • Types of soils • Site safety regulations observed when working in foundations and	10

			basements	
Excavation	• identifies construction equipment and their application (skimmers, graders, bull dozers, draglines, tractors and scrubber back actors). • applies methods of protecting sides of excavations against collapse. • erects and supports timbering to loose, moderate and firm soils. • sketches timbering to loose, moderate and	Carry out excavations for foundations	• Excavation equipment: skimmers, graders, bull dozers, draglines, tractors scrubber back actors • Timbering to trenches, inspection of shallow and deep trenches • Control of sub-soil water (using various dewatering methods like perimeter trenches, sump holes), plant and transportation of spoil • Site safety regulations observed when excavating, timbering and removing sub water	06

	firm soils. • identifies methods of dewatering excavations (perimeter trenches and sump holes). • transports off soil spoil from site.			
Walling	• describes a wall, its functional requirements, types and their application. • bonds various types of walls. • sketches and draws plans and elevations for various types of walls. • describes the procedure of constructing walls. • finishes walls using common building materials. • points and joints a wall.	Construction walls for buildings using various types of bonding	**Walls** • Description of walls • Functional requirements of walls • Types of walls: fender, sleeper, honey comb, gable, buttressing, cavity, retaining,boundary, parapet, composite, circular, stone • Classification of walls: load bearing and non-load bearing • Pointing and jointing • Wall construction materials: bricks, blocks, stones, timber, concrete and sheets • selects the best and suitable construction material for a particular	12

	Dry bonds the bricks to test the design pattern. • Applies the rules of bonding when bonding walls.		job. • describes the advantages and disadvantages of bricks, blocks, timber, steel, stones and sheets. **Bonding** • Definition, rules, types of bonds i.e. stretcher, English, header, Flemish, broken,herring, bone bond or half brick walls, one brick walls, one and half brick and two brick thick walls • Bonding of acute and obtuse angles in header and stretcher bonds • Bonding stopped ends, square corners, opening with square jambs, toothing andracking back, isolated and attached piers • Bonding in block work for walls and piers • Decorative bonds/ panels	
Scaffolding	• classifies scaffolds. • selects the suitable materials for scaffold.	Erect and dismantle scaffoldings during construction activities	• Scaffolds, types • Materials, regulations and requirements	10

	• erects tubular scaffold and wooden scaffold. • observes the necessary rules and regulations governing scaffold construction. • constructs ladders and trestles as scaffolds. • erects gantries. • stores scaffold materials.		• Fittings, patent scaffold frames • Tubular scaffolds, fittings • Care of equipment, faults in scaffolds, ladders and folding step ladders • Advantages of tubular scaffold over timer scaffolds • Procedure of erecting tubular scaffold • Gantries, cantilever scaffold • Truss-out scaffold • Suspended scaffold • Mobile scaffold • Safety standards, health and environmental regulations to be put in place and	
Bricklaying materials	• identifies the physical and mechanical properties of some building materials. • selects the correct materials for the right work. • carries out sand tests	Select suitable bricklaying materials and use them in construction	• Properties of materials • Effects of Water on Building Materials • Lime • Cement • Mortar • Strength and Stability	74

	for bulking, efflorescence . • describes the principle of Archimedes in regard to oils and body surfaces. • carries out experiments on floatation of liquids. • describes stress, strain, Young's modulus of elasticity, factor of safety, working and ultimate stress. • Carries out practical tests on elasticity of binding wire and other building materials. • describes the importance of building		• Centre of Gravity	

	science. • applies adhesion and cohesion in construction. • carries out water absorption, porosity, capillarity and permeability tests. • tests for dump proof course (DPC) efficiency and applies it. • differentiates between a solute, solvent and solution as applied in construction. • describes efflorescence, its causes, its effects and prevention. • describes drying shrinkage and moisture			

	content. • describes different types of lime and their uses. • mixes and slakes lime. • describes the manufacturing process of cement. • describes the chemical composition of ordinary Portland cement (OPC). • tests cement for soundness, fineness and setting. • describes the types of cement and application. • describes various mortar mixes and where they are used.			

	• differentiates between lime mortar and cement mortar and their application. • describes the mixing of mortar by hand. • mixes mortar to a workable state. • applies mortar well on the required surfaces. • identifies and selects the suitable materials for mortar. • tests water for cleanliness using eyes. • carries out the crushing test of aggregates for mortar mixing. • differentiates between strength and stability.			

	• describes and applies factors affecting stability of walls and piers. • describes slenderness ratio of structures. • calculates slenderness ratio and safe loads in walls and piers. • determines the centre of gravity of regular and irregular shapes applied in building by geometry.			
Building drawing	• identifies, selects and uses the common drawing tools and equipment.	Draw and interpret working drawings	• Introduction to Technical Drawing • Representation of Materials/Hatching • Geometrical Constructions • Projections	84

	• identifies drawing sheets by name and size. • sets the margin, makes the title block and prints lettering on drawing sheets. • identifies hatching for different types of materials. • applies the correct hatching to the required representation. • reads scale on scale rule and draws different types of lines. • constructs different angles, polygons and ellipses to a given scale. • draws to scale		• Bonding • Building Details	

	quadrilaterals, triangles, circles, ellipses and relate them to their application. • constructs to scale segmental, semicircular, 3 and 4 centred arches and relates them to application. • describes the relevance of arches as used in construction, and designs and names of parts of arches. • differentiates orthographic drawings from isometric			

	drawings. • analyses the difference between 1st angle and 3rd angle projections. • draws objects in isometric, oblique and orthographic views. • dimensions items drawn in isometric, oblique and orthographic views. • draws items to a given scale and in isometric, oblique and orthographic views. • transforms isometric drawings to orthographic drawings. • analyses the difference between 3D drawings and orthographic			

	drawings. • sketches 3D drawings and orthographic. • draws the plan of courses one and two, elevation and section to scale. • dry bonds the bricks to test the design pattern. • applies the rules of bonding when bonding walls. • draws to scale timbering to trenches in isometric projection for shallow, moderately deep anddeep trenches. • draws and names the construction			

	details of a suspended timber floor and construction details of a solid ground concrete floor, including the foundation.			
Fireplaces/Chimney Construction	• designs and draws closed energy saving stove and open fireplace. • constructs closed energy saving stoves and open fireplaces for domestic and public use. • constructs and cleans the internal duct of the chimney. • constructs the upper and ground floor hearth. • applies building bylaws in	Construct fireplaces/ chimneys	• Types of fireplaces (open, upper floor open fireplace and closed energy savingfireplaces or built fuel wood energy saving stoves) • Materials used for construction of closed energy saving fireplace • Terminologies applied in fireplace construction • Structural requirements • Construction of upper and ground floor hearth • Chimney construction • Flues for industrial appliances • Flue linings (fire backs, refractory concrete)	08

	fireplace construction and flue linings (fire backs, refractory concrete).		• Bylaws • Damp prevention in chimney stacks • Treatment around the fireplace at roof level • Safety standards, health and environmental regulations to be put in place andobserved when the constructing fireplaces	
Drainage	• sketches the layout of drainage systems. • sets out the drainage layout and excavates the drainage trenches. • sets out the required fall/gradient for both the trench and the piping. • installs drainage fittings. • tests newly laid drainage pipes before back filling. • builds a septic tank and	Construct drainage structures	• Definition • Principles, safety, health and environmental regulations to be observed whenworking on drainage systems • Drainage materials, joints, drainage systems (partial, separate and combinedsystems) • Testing (smoke test, water test, light test ball test) • Inspection chambers, sewers, septic tanks, laying drains, traps,	22

	its soak away pits to standard design specifications. • designs, draws and builds manholes and inspection chambers. • lays drainage fittings and pipes.		cesspools, lagoons, soak away • Principles of septic tank	
Repair and Maintenance of Structures	• prevents rainwater from leaking into the building. • carries out some field assessments of the clients' complaints and writes a report with repair and maintenance recommendations. • estimates the cost of the damage and its associated repair cost. • supports walls under maintenance. • identifies the right methods of demolishing particular works. • sensitizes and warns the public on the expected and avoidable hazards. • carries out real	Repair and maintain structures	• Safety standards, health and environmental regulations to be put in place and observed when carrying out demolition work, repair and maintenance of structures • Regulations governing demolition • Demolition (methods of demolition i.e. pull down , explosives, fire method, ball method, burning, hand method) • Underpinning (precautions and justifications) • Methods of underpinning (Jack piling, needle, pile	20

	underpinning.		underpinning and traditional) • Shoring (flying, dead, raking)	
	TOTAL DURATION			**268**

ASSESSMENT STRATEGIES OF THE BRICKLAYING MODULE

This module will consist of two papers including a theory and a practical. Each of the papers will have a continuous assessment and a final exam.

(a) Continuous assessment (40%)

- Assignments (05%)
- Practicals (25%)
- Class tests (10%)

The continuous assessment shall consist of:

- Workshop/practical work/expert assignments
- Tests
- Assignments consisting of;
  - Class work
  - Written questions to be answered from home (homework)
  - Reports from attended industrial visits, documentaries, Field visits and presentations by professionals

The continuous assessment will be monitored and verified using assessment tools/instruments. This will be done through the tripartite system of assessment.

(b) Final Examination

(i) Theory examination

This paper will consist of **two** sections **A** and **B**. **Section A (Building technology and materials)** will consist of five questions each carrying 20 marks and the trainee will be required to answer **any three** questions. **Section B (Building Drawing)** will consist of three questions each carrying 20 marks and the trainee will be required to answer **any two** questions.

The marks from this exam will be converted to 60% and added to the coursework assessment.

The duration for this paper will be **3 hours.**

(ii) Practical examination

This will consist of **one compulsory practical question**.

The marks from this exam will be converted to 60% and added to the coursework assessment.

The duration for this paper will be **6 hours.**

5.0 DETAILED LEARNING CONTENT AND COMPETENCIES FOR CONCRETING

Submodules	Competencies	Duties and Tasks	Indicative syllabus Content	Duration Contact hours
Concrete materials (Aggregates)	• carries out the sand bulking test using dry sand sample and moistening. • carries out silt test for sand using clear bottle, clean water, sand sample and stirring stick. • grades aggregates using standard sieve meshes. • resizes locally crushed stone aggregate to required size. • describes the good qualities of aggregates. • performs slump and compaction factor tests. • batches the materials to correct ratios. • applies admixtures to concrete.	• Identify and select suitable materials used in concreting works	• Types, qualities, sources • Grading test for coarse and fine aggregates: sieve analysis, hand sieving,sampling (quartering) • Field settling test for sand - silt test • Aggregate crushing value (ACV) test • Shapes: round, irregular, angular, flaky, elongated • Bulking test for sand • Reasons for mixing aggregates with binders • Safety, health and environmental regulations observed when selecting, testing and using aggregates.	10

Production and use of Concrete	• describes the general principles in the use of concrete mixers. • uses concrete mixers. • compacts concrete. • differentiates between gap graded concrete and light weight concrete. • places joints to concrete. • differentiates precast concrete from cast-in-situ concrete. • carries out quality control of concrete.	Prepare, cast and cure concrete and its products	• Properties of fresh and hardened concrete, slump test, compaction factor test, factors affecting workability • Admixtures: types, uses and precautions on their use • Water cement ratio, aggregate-cement ratio • Batching and methods used • General principles in the use of concrete mixers, transporting concrete and placing • Factors to consider when casting concrete in large pores • Why compact and methods of compaction • Terminology applied in concrete • Joints in concrete structures • Mixing and handling concrete in hot weather • Types of concrete: in-situ,	14

			mass, pre-cast, light weight, aerated, non-fine, heavy weight, ready-made, reinforced, pre-stressed, gap-graded, dry lean, granolithic, concrete for bricks and blocks • Mix design and general form work requirements • Quality control of concrete and curing of concrete • Safety, health and environmental regulations observed when working with fresh and hardened concrete	
Formwork	• supports the formwork and casts the reinforced concrete. • sketches, designs and draws the formwork to reinforced concrete lintel or beam. • describes the necessary regulations governing the construction of lintels and beams.	Erect and strike formwork	• Formwork for walls, beams, columns and floor slabs • Materials used for construction of formwork • Building regulations governing formwork construction • Functional requirements • Supporting members to arches • Types of formwork for	10

	• selects the suitable material for the formwork. • describes the necessary regulations governing the construction of formwork. • assembles and disassembles formwork. • maintains, treats and stores formwork materials. •		beams, columns, stairs and canopy	
Floors	• designs, sketches and draws the suspended timber floors, upper timber floors, concrete solidand pre-stressed reinforced concrete floors) to a given scale. • applies various floor finishes. • describes the construction procedures for various floors. • constructs and repairs	Construct floors for buildings	• Floors: suspended timber floors, upper timber floors, concrete solid and pre-stressed reinforced concrete floors • Floor finishes • Floor choice and regulations for floor construction	08

	various floors.			
Bridging of Openings	• frames centres for arches. • supports the centre safely and ready to carry the loads. • sketches, designs and draws segmental, semi-circular, gothic, semi elliptical arches. • bends and binds together the reinforcing bars and stirrups using binding wire. • supports the formwork and casts the reinforced concrete. • sketches, designs and draws the formwork to reinforced concrete lintel or beam. • describes the necessary regulations governing the construction of lintels and beams. •	• Construct arches, lintels, beams	**Arches** • Classification of arches • Types of arches (segmental, gauged, rough, semi-circular, semi elliptical lancet, drop, equilateral and others) • Materials used for arch construction **Lintels and beams** • Description of lintels and beams • Types of lintels and beams (concrete, timber, steel and stone lintels) • Formwork for lintels and beams • Concrete cover to reinforcements • Safety, health and environmental regulations governing the construction of formwork, lintels and beams	10
Stairs	• designs and draws stairs. • constructs stair formwork.	Construct stairs	• Safety, health and environmental regulations	18

	• calculates the number of steps when the rise of each is given. • sketches types of stairs.		observed when constructing stairs • Terminologies • Types: half turn, geometrical dog leg, quarter turn, three quarter turn • Functional requirements • Stair design • Formwork for stairs • Classification: straight and turning	
	TOTAL DURATION			**70**

ASSESSMENT STRATEGIES OF THE CONCRETING MODULE

This module will consist of two papers including a theory and a practical. Each of the papers will have a continuous assessment and a final exam.

(a) Continuous assessment (40%)

- Assignments (05%)
- Practicals (25%)
- Class tests (10%)

The continuous assessment shall consist of:

- Workshop/practical work/expert assignments
- Tests
- Assignments consisting of;
  - Class work
  - Written questions to be answered from home (homework)
  - Reports from attended industrial visits, documentaries, Field visits and presentations by professionals

The continuous assessment will be monitored and verified using assessment tools/instruments. This will be done through the tripartite system of assessment.

(b) Final Examination

(i) Theory examination

This paper will consist of eight questions each carrying 20 marks and the trainee will be required to answer **any five** questions.

The marks from this exam will be converted to 60% and added to the coursework assessment.

The duration for this paper will be **3 hours.**

(ii) Practical examination

This will consist of **one compulsory practical question**.

The marks from this exam will be converted to 60% and added to the coursework assessment.

The duration for this paper will be **6 hours.**

6.0 DETAILED LEARNING CONTENT AND COMPETENCIES FOR STEEL BENDING AND FIXING

Submodules	Competencies	Duties and Tasks	Indicative syllabus Content	Duration Contact hours
Corrosion	• identifies the causes and remedies of corrosion. • protects reinforcement/steel against corrosion by providing adequate concrete cover.	Protect reinforcements from corrosion	• Corrosion of metals • Types of corrosion • Causes of corrosion • Precautions taken of corrosion • Prevention of corrosion • Concrete covers • Safety, health and environmental regulations observed when using and protectingmetals against the effects of rust	12
Mechanics	• describes a machine and its application. • calculates the support reactions of simply supported, overhanging and cantilever beams. • draws bending moments and shear force diagrams to an approximate scale. • carries out calculations on	Determine bending moments and shear forces in building materials	• Machine: definition of quantities used • Types and uses [lever, pulley, inclined plane, screws, wheel and axle, gears, andwedge (mechanical advantage and velocity ratio) • Stress and strain in simple beams and their calculations Moments: calculating	20

	heat and minimizes heat losses in buildings. • applies different machines in building industry to simplify work. • insulates buildings. • determines the modulus of elasticity. • draws the stress strain graph showing the behaviour of elastic materials.		reactions, drawing bending moment diagram, shear force diagram and uniformly distributed load for simply supported, hanging andcantilever beams • Classification of loads • Elasticity	
Reinforcements	• measures, cuts and bends, fabricates and places reinforcements.	Bend and fix reinforcements	• Functions, • Storage, • Types, • Tools and equipment used in steel bending • Steel bending and binding/tying • Placement and fixing of steel bars	30
	TOTAL DURATION			**62**

ASSESSMENT STRATEGIES OF THE STEEL BENDING AND FIXING MODULE

This module will consist of two papers including a theory and a practical. Each of the papers will have a continuous assessment and a final exam.

(a) Continuous assessment (40%)

- Assignments (05%)
- Practicals (25%)
- Class tests (10%)

The continuous assessment shall consist of:

- Workshop/practical work/expert assignments
- Tests
- Assignments consisting of;
  - Class work
  - Written questions to be answered from home (homework)
  - Reports from attended industrial visits, documentaries, Field visits and presentations by professionals

The continuous assessment will be monitored and verified using assessment tools/instruments. This will be done through the tripartite system of assessment.

(b) Final Examination

(i) Theory examination

This paper will consist of five questions each carrying 20 marks and the trainee will be required to answer **any three** questions.

The duration for this paper will be **2 hours.**

(ii) Practical examination

This will consist of **one compulsory practical question**.

The marks from this exam will be converted to 60% and added to the coursework assessment.

The duration for this paper will be **6 hours.**

7.0 DETAILED LEARNING CONTENT AND COMPETENCIES FOR ROOF CONSTRUCTION

Submodules	Competencies	Duties and Tasks	Indicative syllabus Content	Duration Contact hours
Heat Transfer	• describes temperature, heat, boiling point and melting point. • identifies and describes the three modes of heat transfer. • carries out an experiment on heat transfer through heated metal, heated water and open space. • illustrates using sketches the modes of heat transfer.	Relate heat transfer to construction buildings	• Temperature and expansion due to heat, effects of expansion in buildings, expansion of liquids in buildings • Melting-point, boiling point, specific heat, latent heat • Transfer of heat in solids, liquids, gases, waves • Heat losses in buildings and simple calculations • Thermal insulation and transmission/movement (conductivity, resistivity and transmittance) • Safety standards, health and environmental regulations to be put in place andobserved when	10

			carrying out heating and heat installations	
Roof Construction	• describes a roof and types of roofs. • identifies and selects the suitable materials for roof construction. • designs and locates the roof ventilation on a suitable orientation. • sets out and constructs a	Construct roof for buildings	• Definition of a roof • Types of roofs • Materials for roofs • Functional requirements of roofs, types of roofs, roof coverings • Ventilation of roofs • Choice of roof structure • Framed trusses, timber connectors	12

	roof. • describes the issues to be considered for the choice of the roof. • frames the trusses and timber connectors.		• Safety standards, health and environmental regulations to be put in place andobserved when selecting materials and constructing roof structures • Types of suspended ceilings and advantages	
Ceilings	• selects the suitable ceiling material. • analyses the advantages of ceiling without joints over jointed ceiling. • sets out the frame of ceiling. • finishes the ceiling and its finishing. • measures and cuts the ceiling boards as on design.	Construct ceilings in buildings	• Types (jointed and joint less ceilings) • Basic requirements • Materials (plaster boards, solid timber, manufactured boards, expanded wiremetal lathe) • Acoustic ceiling • Safety standards, health and environmental regulations to be put in place andobserved when selecting and constructing ceilings	10
	TOTAL DURATION			**32**

ASSESSMENT STRATEGIES OF THE ROOF CONSTRUCTION MODULE

This module will consist of two papers including a theory and a practical. Each of the papers will have a continuous assessment and a final exam.

(a) Continuous assessment (40%)

- Assignments (05%)
- Practicals (25%)
- Class tests (10%)

The continuous assessment shall consist of:

- Workshop/practical work/expert assignments
- Tests
- Assignments consisting of;
  - Class work
  - Written questions to be answered from home (homework)
  - Reports from attended industrial visits, documentaries, Field visits and presentations by professionals

The continuous assessment will be monitored and verified using assessment tools/instruments. This will be done through the tripartite system of assessment.

(b) Final Examination

(i) Theory examination

This paper will consist of five questions each carrying 20 marks and the trainee will be required to answer **any three** questions.

The duration for this paper will be **2 hours.**

(ii) Practical examination

This will consist of **one compulsory practical question**.

The marks from this exam will be converted to 60% and added to the coursework assessment.

The duration for this paper will be **6 hours.**

8.0 DETAILED LEARNING CONTENT AND COMPETENCIES FOR WALL FINISHES

Submodules	Competencies	Duties and Tasks	Indicative syllabus Content	Duration Contact hours
Wall finishes	• prepares the background surface ready to receive and bond the coming plaster or render coat. • applies wall/plaster dots that aid equal thickness of incoming coat. • applies mortar on the walls and to a fair level. • cuts the applied and set mortar in reference to the plaster dots. • applies white lime on plastered walls. • applies rough cast. • builds facing bricks on the walls in form of cladding.	Prepare and apply finishes on walls	• Plastering and rendering • Mable plaster • Fair faced brickwork • Claddings • Roughcasting • Pebble dash • Spatter dash • Safety standards, health and environmental regulations to be put in place andobserved when the constructing and installing finishes	12
Gypsum Plasters	• applies gypsum plasters on walls and ceiling surfaces. • manufactures gypsum	Apply gypsum plasters to finish wall and ceiling surfaces.	• Definition of gypsum plasters • Manufacture of gypsum plasters	18

	plaster. • prepares surfaces to receive gypsum plaster. • classifies gypsum plasters.		• Types and uses of plaster; plaster of Paris, anhydrous gypsum plasters • Plaster classification (classes A, B, C, D) • Tests for classes and premixed light weight plasters (BS) • Safety, health and environmental regulations observed when using gypsumplasters and boards	
	TOTAL DURATION			**30**

ASSESSMENT STRATEGIES OF THE STEEL WALL FINISHES MODULE

This module will consist of two papers including a theory and a practical. Each of the papers will have a continuous assessment and a final exam.

(a) Continuous assessment (40%)

- Assignments (05%)
- Practicals (25%)
- Class tests (10%)

The continuous assessment shall consist of:

- Workshop/practical work/expert assignments
- Tests
- Assignments consisting of;
  - Class work
  - Written questions to be answered from home (homework)
  - Reports from attended industrial visits, documentaries, Field visits and presentations by professionals

The continuous assessment will be monitored and verified using assessment tools/instruments. This will be done through the tripartite system of assessment.

(b) Final Examination

(iii) Theory examination

This paper will consist of five questions each carrying 20 marks and the trainee will be required to answer **any five** questions.

The marks from this exam will be converted to 60% and added to the coursework assessment.

The duration for this paper will be **2 hours.**

(iv) Practical examination

This will consist of **one compulsory practical question**.

The marks from this exam will be converted to 60% and added to the coursework assessment.

The duration for this paper will be **6 hours.**

9.0 DETAILED LEARNING CONTENT AND COMPETENCIES FOR PAINTING

Submodules	Competencies	Duties and Tasks	Indicative syllabus Content	Duration Contact hours
Painting	• uses different types of paint. • prepares the surface and applies paint. • identifies defects and remedies. • discusses the advantages of emulsion paint over high gloss paints.	Prepare and paint wall surfaces	• Types of paint – high gloss, oil paint, emulsion paint, silk vinyl, and weatherguard • Surface preparation for paint • Tools and equipment used for paint work • Defects in painting • Advantages of emulsion paints over high gloss • Safety standards, health and environmental regulations to be put in place and observed when selecting paint materials and using paint	10
	TOTAL DURATION			**10**

ASSESSMENT STRATEGIES OF THE PAINTING MODULE

This module will consist of one practical paper which will have a continuous assessment and a final exam.

(a) Continuous assessment (40%)

- Assignments (05%)
- Practicals (25%)
- Class tests (10%)

The continuous assessment shall consist of:

- Workshop/practical work/expert assignments
- Tests
- Assignments consisting of;
  - Class work
  - Written questions to be answered from home (homework)
  - Reports from attended industrial visits, documentaries, Field visits and presentations by professionals

The continuous assessment will be monitored and verified using assessment tools/instruments. This will be done through the tripartite system of assessment.

(b) Final Examination

This will consist of **one compulsory practical question**.

The duration for this paper will be **6 hours.**

10.0 DETAILED LEARNING CONTENT AND COMPETENCIES FOR TILING

Submodules	Competencies	Duties and Tasks	Indicative syllabus Content	Duration Contact hours
Laying of tiles	• calculates the number of tiles for a particular surface. • applies adhesive/ mortar on wall surfaces and lays wall tiles. • cuts the floor or wall tiles. • prepares the sub-base ready to receive and bond the tiles. • selects the correct tiles for the desired purpose.	Prepare and lay tiles both on floors and walls.	• Wall and floor tiles • Calculating number of tiles • Marking and cutting tiles • Setting and laying wall tiles • Setting and laying polyvinyl chloride (PVC) and ceramic floor tiles • Using both adhesive and cement mortar • Applying spacers • Laying floor screed for tiles • Safety, health and environmental regulations to be put in place and observed when laying wall or floor tiles	24
	TOTAL DURATION			**24**

ASSESSMENT STRATEGIES OF THE PAINTING MODULE

This module will consist of one practical paper which will have a continuous assessment and a final exam.

(a) Continuous assessment (40%)

- Assignments (05%)
- Practicals (25%)
- Class tests (10%)

The continuous assessment shall consist of:

- Workshop/practical work/expert assignments
- Tests
- Assignments consisting of;
  - Class work
  - Written questions to be answered from home (homework)
  - Reports from attended industrial visits, documentaries, Field visits and presentations by professionals

The continuous assessment will be monitored and verified using assessment tools/instruments. This will be done through the tripartite system of assessment.

(b) Final Examination

This will consist of **one compulsory practical question**.

The duration for this paper will be **6 hours.**

MODULE NAME: TECHNICIAN MATHEMATICS

MODULE OUTCOME:

The trainee should be able to convert metric units and use them in costing of materials, apply trigonometry to set out simplebuildings, calculate the areas and volumes of various objects and evaluate vectors.

COMPETENCES:

By the end of the module, the trainee should be able to;

- Convert millimetres to metres, kilograms to Newtons and tons.
- Calculate numbers involving highest common multiple (HCM) and lowest common multiple (LCM).
- Calculate percentages in relation to material costing.
- Calculate areas of irregular objects using Simpson, mid ordinate and trapezoidal rules.
- Interpret the drawings by taking scale rule measurements.
- Use the area and volume calculation methods to cost the materials for a given task.
- Cost the bricks, tiles and cement using the areas of irregular figures (Simpson, mid ordinate rule and trapezoidal rule).
- Apply the laws of indices in solving indicial equations.
- Rationalize and manipulates indicial equations.
- Evaluate the logarithms.
- Manipulate trigonometrically ratios of 300, 450, 600 and their application in finding the areas of plots of land and other surfaces.
- Calculate the heights and other distances or sides of triangles.
- Determine the areas of roofs and walls using the sine, cosine and tangent formulae.
- Apply matrices to solve solutions of sets of linear equations.
- Represent the identities applied in complex numbers.
- Add and subtract complex numbers.
- Manipulate equal, polar and exponential forms of equations of complex numbers.
- Graphically represent complex numbers to standard forms.
- Manipulate equations involving vectors by addition, subtraction and multiplication.
- Represent vectors on graphs.

S/N	TASK	CONTENT	DURATION
1.	Carry out measurements and make computations during different construction activities	**Sub-module 1: Basic S.I Units and Arithmetic Algebra** • Metric conversion of S.I Units • Fractions (LCM and HCM) and decimals • Percentages, ratios and proportions	08 Hours
		Sub-module 2: Mensuration • Calculation of area, perimeter, volume and total surface area for regular and irregular figures • Interpretation of given drawings/diagrams • Cost calculations • Areas of irregular figures [Simpson rule, mid ordinate rule, trapezoidal rule.}	12 Hours
		Sub-module 3: Indices and Logarithms • Laws of indices and standard form, fractional indices, negative indices • Indicial equation • Multiplication and division of indices • Rationalisation and equations involving indices • Rules of logarithms • Common logarithms, change of base • Equations involving logarithmic functions, exponential functions andlogarithmic graphs. • Natural logarithms.	20 Hours
		Sub-module 4: Trigonometry • The general angle • Pythagoras theorem • Graphs of trigonometrical functions • Trigonometrical ratios of 30^{o}, 45^{o}, 60^{o}	26 Hours

		• The sine formula • Cosine formula • Tangent formula • Half angle formula • Heights and distances.	
		Sub-module 5: Matrices • Addition and subtraction of matrices • Multiplication and division of a square matrix • Application, order and types of matrices • Transpose and inverse of a square matrix • Determinants • Solution to a set of linear equations.	14 Hours
		Sub-module 6: Complex Numbers • Equal complex numbers • Graphical representation of complex numbers • Polar form of complex numbers • Exponential form of a complex number	16 Hours
		Sub-module 7: Vectors • Introduction to vector representation • Manipulation of vectors • Types of vectors • Addition of vectors • Subtraction of vectors	16 Hours

ASSESSMENT STRATEGIES OF TECHNICIAN MATHEMATICS MODULE

This module will consist of one written paper which will have a continuous assessment and a final exam.

(a) Continuous assessment (40%)

- Assignments (15%)
- Class tests (25%)

The continuous assessment shall consist of:

- Tests
- Assignments consisting of;
  - Class work
  - Written questions to be answered from home (homework)
  - Reports from attended industrial visits, documentaries, Field visits and presentations by professionals

The continuous assessment will be monitored and verified using assessment tools/instruments. This will be done through the tripartite system of assessment.

(b) Final Examination

This paper will consist of eight questions each carrying 20 marks and the trainee will be required to answer **any five** questions.

The marks from this exam will be converted to 60% and added to the coursework assessment.

The duration for this paper will be **3 hours.**

MODULE NAME: LIFE SKILLS

MODULE OUTCOME:

The trainee should be able to write reports, communicate with others and make presentations.

COMPETENCES:

By the end of the module, the trainee should be able to;

- Communicate effectively in the field of work.
- Narrate the order in which events happened and gives objective arguments.
- Prepare seminar documents and makes presentations.
- Prepare a public document and presents it.
- Practice good labour laws and good safety.
- Improve the working environment for effective production and output.

S/N	TASK	CONTENT	DURATION
1.	Interact and communicate with other workers within the work sites and other communities	**Sub-module 1: Introduction to Communication Skills** • Fundamental skills: ✓ reading, ✓ listening ✓ note taking and note making ✓ speaking and interaction skills • Conducting meetings and interviews • Interpersonal skills • Workplace communication	6 Hours
		Sub-module 2: Writing Skills • Academic writing: - technical and scientific report writing - curriculum vitae and resume writing - authority and delegation letters - writing of circulars • Office and business writing: - intra and inter-office communication - business correspondence and memo writing - advert and announcement writing	10 Hours

		Sub-module 3: Introduction to HIV and AIDS • Background of HIV and AIDS : meaning, definition, history, currenttrends and prevalence • Myths and misconception on HIV and AIDS • Basic facts on HIV and AIDS. (This sub-module could be left to be covered in Health and safety)	4 Hours
		Sub-module 4: Discourse Writing • Definition and descriptive writing • Comparison and contrast • Narration and arguments	10 Hours
		Sub-module 5: **Presentations** • Seminar document preparation and presentation • Classroom report preparation and assessment presentations • Public document preparation and presentations	6 Hours
		Sub-module 6: Spread and Control Measures of HIV and AIDS • Modes of transmission • Risk factors • Prevention of HIV and AIDS • Behaviour change	4 Hours
		Sub-module 7: Oral Communication Skills • Listening and speaking • Conducting meetings and interviews • Phone messaging • Customer care language	6 Hours
		Sub-module 8: Working Environment • Labour laws and regulations	4 Hours

		• Health and safety • Environment • Gender and mainstreaming of gender • Population growth / trends • Human rights • Social structure • Economic structure	
		• Sub-module 9: Impact and Interventions of HIV and AIDS • Impact of HIV and AIDS • Interventions to combat HIV and AIDS • Counselling and testing • Treatment, care and support • Mitigation of stigma and discrimination • Disclosure of HIV status • HIV and AIDS workplace policy for Uganda	06 Hours

ASSESSMENT STRATEGIES OF COMMUNICATION SKILLS MODULE

This module will consist of one written paper which will have a continuous assessment and a final exam.

(a) Continuous assessment (40%)

- Assignments (15%)
- Class tests (25%)

The continuous assessment shall consist of:

- Tests
- Assignments consisting of;
  - Class work
  - Written questions to be answered from home (homework)
  - Reports from attended industrial visits, documentaries, Field visits and presentations by professionals

The continuous assessment will be monitored and verified using assessment tools/instruments.

This will be done through the tripartite system of assessment.

(b) Final Examination

This paper will consist of eight questions each carrying 20 marks and the trainee will be required to answer **any five** questions.

The marks from this exam will be converted to 60% and added to the coursework assessment.

The duration for this paper will be **3 hours.**

MODULE NAME: COMPUTER APPLICATIONS

MODULE OUTCOME:

The trainee should be able to connect and use computer in report writing, presentation, print documents and communication through internet.

COMPETENCES:

By the end of the module, the trainee should be able to;

- Identify icons on desktop and their application.
- Start, create or open a Word window.
- Work with text and manage files.
- Use Word menus for document editing, e.g. copy, paste, cut.
- Save a Word document.
- Save a document in different formats and to a storage media, e.g. flash disc.
- Format a page and documents.
- Merge, deletes and inserts excel cells.
- Make the spreadsheets.
- Format spreadsheets for printing.
- Prepare bills of quantities (accounts figures) using excel.
- Apply excel formulae in adding, multiplying, subtracting and dividing calculations.
- Draw charts and graphs using excel and the Internet.
- Prepare work on Ms PowerPoint slides.
- Edit the work on slides.
- Activate animations on the selected slide design.
- Make a PowerPoint presentation.
- Run a full slide show.
- Differentiates between wireless and cable networking.
- Connect a network cable to computers.
- Install network modem to a personal computer (PC).
- Troubleshoot simple network connection problems.
- Write and send email messages.
- Read received mails.
- Draw charts and graphs using the Internet.
- Copy files and save documents from one location to another

S/N	TASK	CONTENT	DURATION
1.	Apply computer office packages in writing reports, data analysis, presentation and use of internet to communicate	**Sub-module 1: Introduction to Computer** • Origin of computers • Types of computers and computer hardware (central processing unit (CPU),hard disk drives, modem, keyboard, etc) • Computer accessories: scanners, projectors, external speakers • Keyboard basics: function keys, numeric keys and navigation keys • Starting a computer, closing down the computer Computer software: classification, types, usage and computer components;(video card, network cards, cables, read only memory (ROM), random access memory (RAM), monitors, printers, cameras, processors)	10 Hours
		Sub-module 2: Operating System • Functions of an operating system • Types, classification and benefits of operating systems • Installation of Widows operating system and application software	6 Hours
		Sub-module 3: Desktop Main Menu • Start menu • Applications menu • Working with the desktop: background, screen saver • Manipulating open Windows: resizing, maximizing, minimizing, task pane,and tiling Windows, etc • Copying files from different locations Icons, files and folders	04 Hours
		Sub-module 4: Word Processing	20 Hours

		• Starting, creating and opening a Word window • Working with text • Word menus for document editing e.g. copy, paste, cut • Saving a Word document • Saving a document in different formats and to a storage media, e.g. flash disc • Formatting a page and documents: paper size, background colours • Working with tables: rows and columns • Working with drawings, ClipArt and pictures • Mail merging	
		Sub-module 5: Working with Spreadsheets • Creating an excel document • Opening and closing an excel document • Entering data to a worksheet, editing and formatting a datasheet • Using formulas and functions • Creating/plotting charts and graphs from excel data values • Inserting tables to excel worksheet. • Printing a spreadsheet; page setup, gridlines	16 Hours
		Sub-module 6: PowerPoint Presentations •Creating a new presentation •Opening and closing a presentation •Saving a presentation document •Transferring a presentation to a storage media in different formats •Adding and formatting text, pictures and media •Creating and running a slideshow • Printing presentation slides.	14 Hours
		Sub-module 7: Printing, Scanning and Copying	8 Hours

		Documents • Printing documents • Working with printer cartridges and toners • Scanning documents and pictures • Copying documents	
		Sub-module 8: Internet and Electronic Mail • The Internet, web browsers • Opening a website; website address (url) • Internet searching and search engines • Saving information from the Internet, downloading files, music, pictures to the computer • Electronic mail (email): • creating email accounts • email folders and attachments • attaching documents to outgoing email • downloading email attachments from incoming email • formatting mail • searching mail • Printing mail	16 Hours
		Sub-module 9: Basic Networking • Introduction to computer networking • Types of network: wide area networks (WAN), local area network (LAN) • Types of communication media: cables, wireless, optic fibres • Local area network topologies: star, ring, mesh, bar • Connecting a computer to a network • Configuring an Internet Protocol Address (IPA) • Creating a simple network of at least two	18 Hours

		computers • Sharing files between computers on a simple network • Troubleshooting simple connection problems • Connecting and configuring a printer on a network	

ASSESSMENT STRATEGIES OF THE COMPUTER APPLICATIONS MODULE

This module will consist of one practical paper which will have a continuous assessment and a final exam.

(a) Continuous assessment (40%)

- Assignments (05%)
- Practicals (25%)
- Class tests (10%)

The continuous assessment shall consist of:

- Workshop/practical work/expert assignments
- Tests
- Assignments consisting of;
  - Class work
  - Written questions to be answered from home (homework)
  - Reports from attended industrial visits, documentaries, Field visits and presentations by professionals

The continuous assessment will be monitored and verified using assessment tools/instruments. This will be done through the tripartite system of assessment.

(b) Final Examination

This paper will consist of **three practical questions** carrying 50 marks each. The trainee will be required to answer any two questions.

The duration for this paper will be **2 hours.**

MODULE NAME: REAL LFE PROJECT

MODULE OUTCOME:

The trainee should be able to set out buildings, build, erect, support formwork and observe construction regulations.

COMPETENCES:

By the end of the module, the trainee should be able to;

- Appreciate his/her existence as an upcoming technician.
- Take care of the tools and equipment under his/her control.
- Select the appropriate materials for the project.
- Identify the correct tools, equipment and machines for the project/job.
- Develop a designed sketch of the required work.
- Follow sequence for operation.
- Interpret working drawing.
- Observe safety and health at the sites and workshops.
- Treat formwork against concrete getting stack on the sides.
- Cure cement finished products and surfaces for at least 14 days.
- Carryout site fencing/hoarding.
- Mould clay bricks and burns them.
- Manufacture pavers, concrete and ventilated improved pit latrine (VIP) slabs.
- Construct floors concrete floors.
- Set out buildings.
- Estimate and costs for the required materials.
- Negotiate for labour of doing work.

S/N	TASK	CONTENT	DURATION
1.	Carry out a complete real life project to enhance the skills gained during the specified period of study	**Possible projects (choose one, or two or a maximum of three projects that are to be completed during. A real project should be verifiable)** • Construction of a straight flight stair, thresholds or ramps • Making of road and compound pavers and kerbs • Construction of school compound road kerbs and pavers	**112 Hours** (Term I = 40 Hours, Term II = 40 Hours and Third Term = 32 Hours)

		• Landscaping/levelling the school compound to some defined level, plantingthe designed green environment and building retaining walls to that effect • Building a rest shade including the roof • Building a boundary wall including finishing • Construction of a VIP latrine in the community, church/ mosque or within theinstitution • Carrying out site fencing/hoarding • Moulding clay bricks and burning them • Manufacturing concrete culverts and VIP slabs • Plastering walls to required finish • Flooring concrete floors • Setting out buildings and negotiating for labour of doing work • Estimating and costing for the required materials • Constructing a gate house • Constructing a kitchen • Renovating institutional and neighbourhood buildings, aprons, roofs and surface finishing • Building bathrooms • Building tank stands • Building open channel water ways **Note:** • The selected project(s) should be completed by the end of First Year. • Safety, health and environmental regulations should be observed	

MODULE NAME: INDUSTRIAL TRAINING

MODULE OUTCOME:

The trainee should be able to attain practical skills in building construction and its management.

COMPETENCES:

By the end of the module, the trainee should be able to;

- Perform building construction and its related tasks.
- Manufacture products using mass and reinforced concrete.
- Plumb and levels walls.
- Apply plaster and render on surfaces.
- Write and makes presentations on industrial/field/site work.
- Set out and starts erecting simple buildings.
- Erect lintel and beam formwork.
- Keep site records.

S/N	TASK	CONTENT	DURATION
1.	Perform different routine tasks in the industry or world of work in the area of building construction	• Safety standards, health and environmental regulations to be put in place and observed when moving and executing tasks in the industry or site • Acquaintance with industry and sites • Familiarization with equipment, tools and sites • Acquisition of skills in repair, maintenance and construction of new buildings and structures • Manufacture of mass and reinforced concrete products • Road works culvert installation, simple bridge construction • Setting out buildings • Erecting formwork and scaffold Drainage works	288 Hours

MODULE NAME: ENTREPRENEURSHIP SKILLS

MODULE OUTCOME:

The trainee should be able to exhibit the characteristics and qualities of a good entrepreneur, conduct a feasibility study and design a business plan, produce goods/services for sale, market the products, and

manage financial and human resources of the business.

COMPETENCES:

By the end of the module, the trainee should be able to;

- Determine the sources of business ideas.
- Scan the environment for business opportunities.
- Generate ideas for the business.
- Select a viable business idea.
- Obtain business rights.
- Exploit business opportunities.
- Register a business.
- Mobilize resources for starting a business.
- Locate a business in a suitable environment.
- Determine the cost of production.
- Set quality standards in production.
- Design appropriate packaging for the product.
- Add value to the product.
- Carry out a market survey.
- Identify the market for the product.
- Apply the 4Ps in marketing a product.
- Distribute products using the most suitable channels.
- Promote the product for sale.
- Maintain basic business records.
- Compute business profits/losses.
- Prepare simple cash flow statements.
- Manage revenues and expenditures to maximise profits.
- Orient the business employees.
- Maintain a motivated workforce.
- Appraise staff.
- Incorporate a compensation policy for his/her employees.
- Share responsibilities with employees.
- Devise means of overcoming barriers to creative thinking.

- Select the most appropriate form of business ownership to operate.
- Prepare a simple business plan.
- Prepare a simple budget for the business.
- Register a business.
- Mobilize resources for starting a business.
- Locate a business in a suitable environment.
- Source for contract information
- Prepare bid documents.
- Comply with the tender requirements.
- Execute contracts economically and efficiently.
- Open and manages a bank account.
- Differentiate between commercial banks and micro-finance institutions.
- Acquire and services a loan.
- Select the most appropriate insurance policy (ies) for the business.
- Observe the insurance principles.
- Manage the challenges encountered in insurance.
- Seek compensation when loss is suffered.
- Recognize the importance of paying taxes.
- Identify the taxes paid by small businesses.
- Calculate the tax payable.
- File tax returns.

S/N	TASK	CONTENT	DURATION
1.	Manage contracts, lobby for financial services for the business, insure the	**Sub-module 1: Introduction to Entrepreneurship** • Meaning of entrepreneurship • Qualities of an entrepreneur • Entrepreneurial ethics	03 Hours
		Sub-module 2: Environmental Analysis	10 Hours

	business and pay the taxes.	• Meaning of environment • Scanning the environment for business opportunities • Generating business ideas • Evaluation and selection of business ideas • Protection of business (Trademark and patent rights)	
		Sub-module 3: Innovation and Creativity • Meaning of innovation and creativity • Characteristics of innovative and creative persons • Forces of innovation • Barriers to creativity and innovation	04 Hours
		Sub-module 4: Business Planning • Forms of small business ownership (Sole proprietorship and Partnership) • Uses of a business plan • Parts of a business plan • Writing a simple business plan • Developing a simple budget	09 Hours
		Sub-module 5: Implementing a Business Plan • Registering a sole proprietorship and partnership • Mobilising business resources ✓ Financial resources ✓ Human resources ✓ Plant, machinery and equipment • Locating a business	04 Hours
		Sub-module 6: Production • Production costing • Packaging (Protection , Handling, Preservation and presentation of a product)	06 Hours

		• Value addition	
		Sub-module 7: Marketing • Market survey • Marketing mix - Price, Place, People, Product (4Ps) • Sales promotion	06 Hours
		Sub Module 8: Financial Management • Bookkeeping (recording transactions, source documents, journals, balancing accounts, trial balance, bank reconciliation) • Simple income statement, balance sheet and cash flow statements	12 Hours
		Sub-module 9: Human Resource Management • Orientation • Importance of motivation • Performance appraisal • Compensation in compliance with labour laws • Need for delegation and challenges encountered • Common causes of conflicts in small enterprises • Importance of teamwork • Settling conflicts at workplace	06 Hours
		Sub-module 10: Contracting Process • Sources of contract information • Bid preparation • Contract execution and compliance	06 Hours
		Sub-module 11: Banking • Services offered by commercial banks, micro finance institutions and SACCOs • Types of accounts (savings, current and fixed deposit) • Acquiring and servicing loans	06 Hours

		Sub-module 12: Insurance for Small Businesses • Life assurance and property insurance • Principles of insurance • Process of getting compensation	6 Hours
		Sub-module 13: Taxation • Reasons for paying taxes • Common taxes paid by small businesses - Local service tax - Property tax - Value added tax (VAT) - Income tax - Market dues - Ground rent - Trade licence • Calculating VAT and income tax payable • Filing tax returns	6 Hours

ASSESSMENT STRATEGIES OF ENTREPRENEURSHIP SKILLS MODULE

This module will consist of one written paper which will have a continuous assessment and a final exam.

(a) Continuous assessment (40%)

- Assignments (15%)
- Class tests (25%)

The continuous assessment shall consist of:

- Tests
- Assignments consisting of;
  - Class work
  - Written questions to be answered from home (homework)
  - Reports from attended industrial visits, documentaries, Field visits and presentations by professionals

The continuous assessment will be monitored and verified using assessment tools/instruments.

This will be done through the tripartite system of assessment.

(b) Final Examination

This paper will consist of eight questions each carrying 20 marks and the trainee will be required to answer **any five** questions.

The marks from this exam will be converted to 60% and added to the coursework assessment.

The duration for this paper will be **3 hours.**

MODULE NAME: KISWAHILI

MODULE OUTCOME:

The trainee should be able to communication in Kiswahili during execution and management of engineering works.

COMPETENCES:

By the end of the module, the trainee should be able to;

- Acknowledge the importance of learning and using Kiswahili language.
- Greet peers, supervisors and others in Kiswahili.
- Name places and people in their capacities.
- Appreciate others by saying thank you and well-done in Kiswahili.
- Count numbers 0-1,000,000 in Kiswahili.
- Identify and names the parts of the human body in Kiswahili.
- Name domestic animals, birds and insects in Kiswahili.
- Mention the days of the week, names the months of the year and tells the true dates.
- Identify and names the tools and equipment and states their uses in Kiswahili.
- Differentiate the responsibilities and tasks performed by technicians in Kiswahili.
- Identify and names the materials used in engineering.
- Develop good attitude towards work, customers and the general public.
- Welcome and handles customers with care and willingness in Kiswahili.
- Advertise the product in Kiswahili.

S/N	TASK	CONTENT	DURATION
1.	Interact and communicate with clients in Kiswahili	**Sub-module 1: Introduction to Kiswahili** • Origin and spread of Kiswahili • Importance of Kiswahili to Ugandans and other East African countries	2 Hours
		Sub-module 2: Polite Language • Greetings to peers, age mates, parents, elderly and supervisors • Salutations at different times of the day • Appreciation and saying `thank you' for work done, gifts, food and so on • Asking for directions, assistance, food and so on • Names of places, like schools, hospitals, markets, garages, roads, airports, water wells, forests, villages, towns, sites, hills • Names of people and professional titles like	18 Hours

		technicians, nurses, messengers,watchmen, drivers, doctors, teachers and students	
		Sub-module 3: Comprehension • Vowels a e i o u • Consonants b, ch, d, dh, f, g, gh, h, j, k, l, m, n, ng, ny, p, r, s, sh, t, th, v, w, y, z. • Counting and numbers 0-9, 10- 1,000,000 • Daily and common activities and sayings: `welcome', `have a seat', `thank you', `wish you well', `sorry' • Parts of the human body like head, legs, hands	10 Hours
		Sub-module 4: General Vocabulary • Names of domestic animals like goats, sheep, cows, pigs, rabbits, dogs, cats • Names of domestic birds like ducks, turkeys, hens • Names of insects like mosquitoes, flies, cockroaches • Months in a year, days of the week, dates and telling time • Names of objects like doors, windows • Common usage of Kiswahili, home and garden activities • Common mistakes to be avoided	10 Hours
		Sub-module 5: Specific Trade (Professional related) Vocabulary • Names of tools and equipment used by a technician • Tasks performed by a technician • Titles of officers in engineering • Names of materials used in engineering	6 Hours

		Sub-module 6: Customer Care and Language • Attitude to customers, public and the job • Public relations and persuasive business language • Advert of products • Handling customers: welcoming them, asking whether they need help, andthanking them	10 Hours

ASSESSMENT STRATEGIES OF KISWAHILI MODULE

This module will consist of one written paper which will have a continuous assessment and a final exam.

(a) Continuous assessment (40%)

- Assignments (15%)
- Class tests (25%)

The continuous assessment shall consist of:

- Tests
- Assignments consisting of;
  - Class work
  - Written questions to be answered from home (homework)
  - Reports from attended industrial visits, documentaries, Field visits and presentations by professionals

The continuous assessment will be monitored and verified using assessment tools/instruments. This will be done through the tripartite system of assessment.

(b) Final Examination

The paper shall consist of **two** sections; Section **A** (General Kiswahili) and Section **B** (Professional). Section **A** shall consist of **five** questions and a candidate will be required to answer any **three**. Section **B** shall consists of **three** questions and a candidate shall be required to answer any **two**. All questions shall carry equal marks.

The marks from this exam will be converted to 60% and added to the coursework assessment.

The duration for this paper will be **3 hours.**

MODULE NAME: COMPUTER AIDED BUILDING DRAWING

MODULE OUTCOME:

The trainee should be able to design, draw and produce drawings of different building elements and working drawings in computer.

COMPETENCES:

By the end of the module, the trainee should be able to;

- Install automatic computer aided drawing (AutoCAD) into the computer.
- Identify and uses AutoCAD commands during the development of the drawing.
- Develop the design perception of some form, makes the sketch and uses AutoCAD to draw it.
- Draw the ground plan, the correct section and the elevations.
- Design and draw the roof details, the door and window elevations.
- Make the title block and writes supporting specifications for foundation, neat walls, roof, ceilings and schedules.
- Print the complete drawing.
- Identify and uses AutoCAD commands to draw the required and designed arch on the window, door and other openings.
- Construct semi-circular arches, segmental, three centred, four centred, drop gothic, lancet and equilateral on a specified opening to the correct measurements.
- Supports the wood centre with props and sole plates during arch construction.
- Draw the plans, sections and elevations of inspection chambers and manholes, water closets and sinks, septic tanks, soak away pits and cesspools.
- Develop the block and drainage site layout plan showing the position of the proposed drainage pipeline in accordance with the existing site conditions and designed gradient.
- Draw specified cladding finishes to the satisfaction of the client.
- Apply cladding units on the intended surface.
- Design, draw and make recessed and projecting plaster and render coats to form a decorative cladding on walls and ceiling surfaces.
- Plan and design the site layout in accordance with the site contours, topography and clients interest.
- Design and draw boundary walls, giving provisions of draining off the surface water from the compound.
- Design and draw formwork for lintels, beams and slabs.
- Draw the shoring support systems.
- Set out and construct formwork.
- Design and draw stair formwork.
- Determine the number of steps for a designed stair.
- Construct stairs, thresholds and ramps.

S/N	TASK	CONTENT	DURATION
1.	Draw and produce working drawings using autoCAD	**Sub-module 1: AutoCAD Basics** • Introduction to computer aided drawing (CAD) • Need for CAD • AutoCAD commands (lines, offset, trim, extend, erase, mirror, fillet, hatch, scale, dimension, layers, blocks, zoom, chamfer, circle and arcs) • Drawing of simple structures like plan, section and elevations of ventilated improved latrine, gate house, kitchen, one- to two-bedroom building plans • Strip and pad foundations details and specification of materials • Roof truss, wall plate, purlins, rafters, lean to roofs, concrete flat roofs, hippedroof, gable end roof and joints used during roof construction • Hard board, soft board, timber and concrete ceilings • Facias and barge boards • Elevations of panelled, framed, brace and ledged, flush doors and windows	30 Hours
		Sub-module 2: Construction of Arches • Drawing of arches on the real designed simple building plans: ✓ semi-circular ✓ segmental ✓ three centred ✓ four centred ✓ drop gothic ✓ lancet	08 Hours

		✓ equilateral ✓ wood centre ✓ supporting arch centres	
		Sub-module 3: Drainage Facilities • Drawing of water supply and drainage facilities on the real designed simple building plans: ✓ inspection chambers and manholes ✓ water closets and sinks ✓ septic tanks ✓ soak away pits ✓ cesspools ✓ open channels to gradient	10 Hours
		Sub-module 4: Cladding • Supporting cladding upon bonder course, concrete nib • Corbel plate and bonder • Facing bricks and tile finishes • Plaster and render coats finish designs (recessing and projecting)	06 Hours
		Sub-module 5: Elementary Landscaping • Block and structural site layout planning and design: ✓ site levelling ✓ orientation of the building ✓ greening provisions (hedges, beauty shrubs, flower patterns, grass and tree planting logic) ✓ parking provisions ✓ open water runway channels and drainage ✓ boundary walls • access roads	06 Hours

		Sub-module 6: Temporary Works • Formwork (definition, types and regulations) • AutoCAD plans, cross and vertical sections of: ✓ formwork for lintels/ ring beams/floor slabs ✓ walls, canopies, kerbs, balconies • Shoring (definition, types, detailed drawings and regulations) • Gantries • Hoardings	14 Hours
		Sub-module 7: Stairs • Straight flight • Dog leg • Open well • Geometrical • Thresholds • Ramps	10 Hours

ASSESSMENT STRATEGIES OF THE COMPUTER AIDED DESIGN MODULE

This module will consist of one practical paper which will have a continuous assessment and a final exam.

(a) Continuous assessment (40%)

- Assignments (05%)
- Practicals (25%)
- Class tests (10%)

The continuous assessment shall consist of:

- Workshop/practical work/expert assignments
- Tests
- Assignments consisting of;
  - Class work
  - Written questions to be answered from home (homework)

- Reports from attended industrial visits, documentaries, Field visits and presentations by professionals

The continuous assessment will be monitored and verified using assessment tools/instruments. This will be done through the tripartite system of assessment.

(b) Final Examination

This paper will consist of **three practical questions** carrying 50 marks each. The trainee will be required to answer any **two** questions.

The duration for this paper will be **3 hours.**

Summary of the expected duration for modules

S/N	Module Name	Training duration (hours)
1.	Bricklaying	268
2.	Concreting	70
3.	Steel Bending and fixing	62
4.	Wall finishes	30
5.	Roof construction	32
6.	Tiling	24
7.	Painting	10
8.	Real life project	112
		608
9.	Computer Aided Building drawing	84
10.	Computer applications	112
11.	Technician Mathematics	112
12.	Life skills	56
13.	Entrepreneurship	84
14.	Kiswahili	56
	TOTAL	**616**
		1112
	Recess	
15.	Industrial training	288