



ZIMBABWE

MINISTRY OF PRIMARY AND SECONDARY EDUCATION

WOOD TECHNOLOGY AND DESIGN SYLLABUS

FORM 1 - 4

2015-2022

**Curriculum Development and Technical Services,
P.O. Box MP 133, Mount Pleasant, Harare**

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1.0 PREAMBLE

1.1 Introduction

The Wood Technology and Design syllabus covers Forms 1-4. The problem solving approach will be at the centre of implementation of this syllabus. It also ensures access to learning and teaching Wood Technology and Design regardless of gender and different physical abilities.

The syllabus promotes learners' development of psychomotor skills and ensures that they develop socially, physically, emotionally and cognitively. It serves as a firm foundation for entry into the construction industry, self-reliance, entrepreneurship and further studies in Wood Technology and Design.

production of agricultural commodities. The syllabus will help all learners to acquire marketing and value addition skills.

- workshop safety and health
- science of materials (indigenous and exotic)
- use and maintenance of woodworking tools and equipment
- problem solving
- construction and production techniques
- workshop calculations and costing
- drawing and design
- Enterprise skills.

1.2 Rationale

The syllabus will develop qualities which will emphasize the learners' role in making and shaping of their environment. It fosters the learner's ability to employ problem solving skills which will promote the application of scientific and technological knowledge. The syllabus will promote entrepreneurial, recreational and other life skills relevant in the contemporary society. The learning area will enable learners to appreciate the dignity of labour, integrity (unhu/ubuntu) and patriotism. It will also enable learners to value the use of different materials in design. This would allow greater flexibility in solving practical problems encountered in everyday life. An integral part of the syllabus will be the development of the learners' appreciation of the significance of the principal raw materials used in the workshop. The learner will be made aware of the subject's environmental and economical impact and provide solutions. The syllabus will inculcate the culture of maintenance and self-reliance.

1.4 Assumptions

The syllabus assumes that learners have:

- drawing and measuring skills
- knowledge of some woodworking tools, equipment and materials
- knowledge of different wood artefacts
- information communication technology and skills
- numeracy and scientific skills
- engaged in individual and group work activities
- knowledge of environment, health and safety

1.3 Summary of Content

The Form 1 – 4 Agriculture syllabus will cover theory and practical activities in areas of soil, water, plant and animal management, farm tools and machinery and agri-business. This four-year learning phase seeks to develop skills in sustainable soil, water, plant and animal management, farm tools and machinery as well as

1.5 Cross-cutting themes

In order to foster competency development for further studies, life and work, the following cross-cutting themes have to be taken into consideration in the teaching and learning of Wood Technology and Design:

- Gender
- Children's rights and responsibilities
- Disaster risk management
- Financial Literacy
- Life Skills (HIV/ AIDS)
- Child Protection

- Heritage Studies
- Collaboration
- Environmental Issues
- Inclusivity
- Respect (unhu/Ubuntu)

2.0 PRESENTATION OF THE SYLLABUS

The Wood Technology and Design Syllabus is a single document covering Forms 1-4. It contains the Preamble, Aims, Syllabus Objectives, Syllabus Topics, Scope and Sequence, Competence matrix and Assessment.

3.0 Aims

The syllabus aims to help learners to:

- 3.1 use Wood Technology and Design as a means of sustainable development for both the individual and country at large
 - 3.2 apply occupational health and safety in the woodworking industry
 - 3.3 make, care and maintain tools and equipment used in Wood Technology and Design
 - 3.4 acquire acceptable attitudes, knowledge and skills that will make them useful members of the society
 - 3.5 encourage self-confidence, enthusiasm and a sense of achievement, through the design process and execution involved in practical project work
 - 3.6 acquire and apply the main concepts in production and construction using indigenous and exotic technologies
- 4.2 identify appropriate tools, equipment and materials for specific tasks
 - 4.3 demonstrate processes and technical skills involved in the making of artefacts
 - 4.4 calculate quantities and cost of materials required for projects
 - 4.5 design useful projects as solutions to problems using technologies
 - 4.6 use resources in a sustainable manner in the design and realisation of artefacts working within the constraints of cost and time
 - 4.7 describe conservation of trees in relation to the ecosystem, environment and climate
 - 4.8 demonstrate graphical communication skills relating to artefacts or systems using ICT tools
 - 4.9 practise wood technology and design as an enterprise
 - 4.10 demonstrate patriotism through community development projects
 - 4.11 demonstrate an understanding of properties of materials used in Wood Technology and Design
 - 4.12 apply scientific principles and technology in solving real life problems
 - 4.13 demonstrate desirable interpersonal dimensions, attitudes and moral values underlying attributes of Unhu/Ubuntu/Vumunhu philosophy

4.0 SYLLABUS OBJECTIVES

By the end of this learning phase learners should be able to:

- 4.1 explain principles of occupational health and safety precautions in using hand and machine tools, materials and equipment

5.0 METHODOLOGY AND TIME ALLOCATION

Methodology

This syllabus is based upon a learner-centred and

multi-sensory approach. Workshop science and calculations should be an integral part of every practical exercise. Linkage between theory and practice is strongly encouraged in the learning and teaching of Wood Technology and Design. This approach should also create awareness of environmental issues. The use of Information Communication Technology (ICT) tools is mandatory.

Suggested Methods

- Discussions
- Project work
- Group work
- Experimentation/Discovery
- Problem Solving
- Demonstration
- Question and Answer
- Educational tours

Time Allocation

8x 40 minutes' periods per week. 6 practical block lessons and 2 theory block lessons are required. One educational tour per Form per year. Learners should exhibit their projects once per year.

6.0 TOPICS

- 6.1 Safety and Health
- 6.2 Material Technology
- 6.3 Enterprise Skills
- 6.4 Tools and tool technology
- 6.5 Machines

6.6 Construction, Processes and Hardware

6.7 Joinery

6.8 Carpentry

6.9 Upholstery

6.10 Wood finishes

6.11 Graphics

6.12 Design

6.13 Management of resources

6.14 Wood Bending, Carving, Sculpting, Turning and Ornamentation

7.0 SCOPE AND SEQUENCE

TOPIC	FORM 1	FORM 2	FORM 3	FORM 4
7.1 Safety and Health	<ul style="list-style-type: none"> Workshop safety Tool safety Emergency safety 	<ul style="list-style-type: none"> Tool safety Portable power machines 	<ul style="list-style-type: none"> Regulations and Acts governing health and safety at work Code of practice for safe use of machinery 	<ul style="list-style-type: none"> Careers in health and safety Hazardous substances
7.2 Materials Technology	<ul style="list-style-type: none"> Wood (growth and structure of trees, classification, characteristics) Metal properties Plastic properties Ceramics (properties) Rubber (types and properties) 	<ul style="list-style-type: none"> Wood (felling, Conversion, seasoning) Metal (ferrous and non-ferrous) Plastic (thermoplastics, thermosetting) Ceramics, glass, tiles, cement Finishes Adhesives 	<ul style="list-style-type: none"> Wood (Defects, Diseases Timber preservation, Veneers Built up material) Method of integrating <ul style="list-style-type: none"> - Metal - Plastic - Ceramics - Rubber Finishes Adhesives 	<ul style="list-style-type: none"> Wood scientific testing of metals <ul style="list-style-type: none"> - Wood - Metal - Plastic - Ceramics - Rubber Finishes adhesives
7.3 Enterprise Skills	<ul style="list-style-type: none"> Concept Materials and artefacts cost Business ethics (unhu/Ubuntu) Marketing 	<ul style="list-style-type: none"> Materials and artefact costs Business ethics (unhu/ubuntu) (leadership, team building, Innovation) Marketing Material orders 	<ul style="list-style-type: none"> Business ethics (unhu/ubuntu), (Planning and organization, self-management, self-initiative, cooperation) Marketing Project proposal Business growth 	<ul style="list-style-type: none"> Business ethics (unhu/ubuntu), (code of conduct, making ethical decisions) Marketing Project proposal Company formation

TOPIC	FORM 1	FORM 2	FORM 3	FORM 4
7.4 Tools and Tool Technology	<ul style="list-style-type: none"> • Holding and supporting tools (the workbench) • Measuring and marking out tools (rule, try square, marking gauge) • Bench planes • Saws(handsaws) • Chisels (paring, firmer) • Percussion and impelling tools (Warrington hammer, nail punch) 	<ul style="list-style-type: none"> • Holding and supporting tools (G- cramp, sash, cramp, miter box) • Measuring and marking out tools (Mortise gauge, sliding bevel, Templates, Measuring tape) • Spoke- shaves – flat and round) • Saws. (Back Saws) • Chisels (Mortise, Registered mortise) • Percussion and impelling tools (mallet, Phillips, Ratchet screwdrivers) 	<ul style="list-style-type: none"> • Intellectual Property Rights • Tool maintenance • Special purpose planes • Gouges • Saws (curve cutting saws) • Special purpose planes • Grinding and honing tools • Gears • Levers • Pulleys 	<ul style="list-style-type: none"> • Business growth • Boring tools • Tool maintenance • Multi-purpose planes • Appropriate technology • Simple structures • Cams • Linkages • Glue strength
7.5 Machines	<ul style="list-style-type: none"> • Portable power tools(electric drill, jig saw) 	<ul style="list-style-type: none"> • Portable power tools (electric hand plane, router) 	<ul style="list-style-type: none"> • Machine tools (circular saw, grinder, pillar drill, surface planer) 	<ul style="list-style-type: none"> • Machine tools (morticer, band saw, spindle moulder, sanders, saw sharpener)

TOPIC	FORM 1	FORM 2	FORM 3	FORM 4
7.6 Construction, Processes and Hardware	<ul style="list-style-type: none"> Preparation of materials Marking out and cutting joints (Nailed butt, Tee halving, Corner halving) Assembly (trial, closed) Forms of construction (Flat frames, parts and joints) Fixing tops and seats (Nailing) Fasteners (Nails) 	<ul style="list-style-type: none"> Marking out and cutting joints (correct sequence, dovetail halving and through mortise and tenon joints) Assembly (trial, closed and cleaning process) Forms of construction (Flat frame, stool construction, parts and joints) Fixing tops and seats (Direct screwing, counter boring, pocket screwing) 	<ul style="list-style-type: none"> Marking out and cutting joints (correct cutting, haunched mortise and tenon, stopped housing, widening joints, common dovetails) Machine operations Assembly Forms of construction, (Carcase construction, simple framed and paneled, solid and carcase solid all round) Fixing tops and seats (wooden button method, shrinkage plates) Fittings (Hinge, Locks) 	<ul style="list-style-type: none"> Marking out and cutting joints (Loose tongue and groove, slot screwing, lap dovetail, twin mortise, double mortise and tenon , strengthening of joints.) Machine operations Assembly (trial and closed, test for squareness, cleaning) Forms of construction (drawer design, drawer construction) Fixing tops and seats (slot screwing, modern methods) Fittings (catches, other fittings)
7.7 Joinery	<ul style="list-style-type: none"> Doors (Uses and terms related to doors) Windows(Uses and terms related to windows) Wall fittings (Methods of fixing 	<ul style="list-style-type: none"> Doors (Types, Class, Function, Parts) Windows (Types, parts) Wall fittings - Wall plugs 	<ul style="list-style-type: none"> Doors (Design of doors, iron mongery) Windows (Design of windows, iron mongery) Wall fittings -methods of fixing artifacts to the walls 	<ul style="list-style-type: none"> Doors (construction of doors, door fitting) Windows (construction of windows, fixing windows)

TOPIC	FORM 1	FORM 2	FORM 3	FORM 4
7.8 Carpentry	<ul style="list-style-type: none"> - Nails • Roofs (Uses of roofs, roof terminology) • Formwork (Terms, material) • Ceiling(Uses of ceiling) 	<ul style="list-style-type: none"> • Roofs (types and classification) • Formwork • Ceiling 	<ul style="list-style-type: none"> • Roofs (Roof design, covering materials, roof trusses) • Formwork (Release agents, dismantling) • Ceiling (fitting ceilings) 	<ul style="list-style-type: none"> • Wall fittings (rawl bolts) • Roofs (construction of roofs, roof setting, roof determination) • Formwork (construction of framework, methods of dismantling) • Ceiling (fitting ceilings)
7.9 Upholstery	<ul style="list-style-type: none"> • Upholstery (Tools used in upholstery) 	<ul style="list-style-type: none"> • Upholstery (terms, materials used) 	<ul style="list-style-type: none"> • Upholstery (Application of simple upholstery techniques) 	<ul style="list-style-type: none"> • Upholstery (application of techniques of upholstery)
7.10 Wood Finishing	<ul style="list-style-type: none"> • Abrasives (Coated abrasives - Glass Paper -Garnet • Finishes (Terms relating to finishes, Reasons for applying finished Application and clearing) 	<ul style="list-style-type: none"> • Abrasives(coated abrasives - emery cloth - aluminum oxide - silicon carbide • Finishes 	<ul style="list-style-type: none"> • Sanding machines (portable) • Finishes (Preparation of surfaces, Application of clear finish, Uses of solvents) 	<ul style="list-style-type: none"> • Sanding machines (belt sander, drum sander) • Finishes (preparation of surfaces, applying of opaque finishes, use of solvents)
7.11 Graphics	<ul style="list-style-type: none"> • Free hand sketches 	<ul style="list-style-type: none"> • Free hand sketches 	<ul style="list-style-type: none"> • Drawing with instruments (2 point perspective, 	<ul style="list-style-type: none"> • Drawing with instruments (orthographic

TOPIC	FORM 1	FORM 2	FORM 3	FORM 4
	<ul style="list-style-type: none"> Drawing Instruments (types of lines) Drawing with instruments(lines) 	<ul style="list-style-type: none"> Drawing with instruments 	orthographic drawing, sectional and exploded) <ul style="list-style-type: none"> Computer aided Drawing 	drawing illustrating doors, drawers, shelving) <ul style="list-style-type: none"> Computer aided Drawing
7.12 Design	<ul style="list-style-type: none"> Design process (design stages, Projects- pot stand, broom rack , coat hook, pencil stand, candle stand, money box) 	<ul style="list-style-type: none"> Design process (design stages, Projects - stools, tea tray, shoe rack, fruit tray, magazine rack, jewellery box) 	<ul style="list-style-type: none"> Design process (design stages Projects - that include carcass and flat frame construction) 	<ul style="list-style-type: none"> Design process (design stages Projects that include flat frame, carcass and stool construction using wood and other materials)
7.13 Management of Resources	<ul style="list-style-type: none"> Sustainability Afforestation Recycling 	<ul style="list-style-type: none"> Material Economics Waste management Afforestation 	<ul style="list-style-type: none"> Waste management Material cost Calculations Afforestation 	<ul style="list-style-type: none"> Artefact costing Calculations Afforestation
7.14 Wood Bending, Carving, Sculpting, Turning and Ornamentation	<ul style="list-style-type: none"> Wood carving (History, Traditional projects produced using wood) Wood sculpture 	<ul style="list-style-type: none"> Wood carving (Decorating, artifacts) Wood sculpture 	<ul style="list-style-type: none"> Wood turning lathe Ornamentation <ul style="list-style-type: none"> - inlaying - moulding - spindle turning 	<ul style="list-style-type: none"> Wood turning (face plate turning, centre boring) Ornamentation (parquetry, marquetry) Wood bending

FORM 1 8.0COMPETENCY MATRIX

8.1 TOPIC 1: SAFETY AND HEALTH

KEY CONCEPTS	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
8.1.1 Workshop Safety	<ul style="list-style-type: none"> demonstrate an understanding of safety rules in the workshop explain methods of accident prevention in the workshop 	<ul style="list-style-type: none"> Workshop rules <ul style="list-style-type: none"> - learners - visitors Accident prevention 	<ul style="list-style-type: none"> Identifying causes of accidents in the workshop Explaining methods of preventing accidents in the workshop 	<ul style="list-style-type: none"> Print media ICT tools
8.1.2 Tool Safety	<ul style="list-style-type: none"> demonstrate safe use and carrying of tools 	<ul style="list-style-type: none"> use of tools <ul style="list-style-type: none"> - carrying and storage of tools 	<ul style="list-style-type: none"> Discussing accidents which may occur during use and carrying of tools 	<ul style="list-style-type: none"> Print media ICT tools Realia such as the tools

8.1.3 Emergency Safety	<ul style="list-style-type: none"> • identify First Aid and fire- fighting equipment in the workshop • outline procedures to be taken for treatment of an accident victim 	<ul style="list-style-type: none"> • First Aid and Fire- fighting equipment • First Aid procedures 	<ul style="list-style-type: none"> • Identifying First Aid and fire- fighting equipment in the workshop • Conducting fire drills • Role play of accident scene 	<ul style="list-style-type: none"> • First Aid kit • Fire extinguishers • ICT tools • Print media

8.2 TOPIC 2: MATERIAL TECHNOLOGY

KEY CONCEPT	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
8.2.1 Wood	<ul style="list-style-type: none"> • classify trees into hardwoods and softwoods • differentiate the growth and structure of hardwoods and softwoods • identify different parts of a tree • identify the characteristics and properties of woods 	<ul style="list-style-type: none"> • Classification of hardwoods and softwoods • Growth and structure of trees • Characteristics and properties of woods 	<ul style="list-style-type: none"> • Classifying wood into hardwoods and softwoods • Discussing the growth of trees • Identifying the different parts of a tree • Identifying characteristics and properties of: <ul style="list-style-type: none"> - Hardwoods - Softwoods 	<ul style="list-style-type: none"> • ICT tools • Print media • Softwoods • Hardwoods

<p>8.2.2 Metal</p>	<ul style="list-style-type: none"> • identify classes of metals • state uses of metals 	<ul style="list-style-type: none"> • Classification • Uses 	<ul style="list-style-type: none"> • identifying classes of metals • Listing uses of metals 	<ul style="list-style-type: none"> • Print media • Metals • ICT tools • Resource person
<p>8.2.3 Plastic</p>	<ul style="list-style-type: none"> • identify classes of plastics • state uses of plastics 	<ul style="list-style-type: none"> • Classification • Uses 	<ul style="list-style-type: none"> • identifying classes of plastics • Listing uses of plastics 	<ul style="list-style-type: none"> • Print media • Plastics • ICT tools • Resource persons
<p>8.2.4 Ceramics</p>	<ul style="list-style-type: none"> • identify classes of ceramics • state the uses of ceramics 	<ul style="list-style-type: none"> • Classification • Uses 	<ul style="list-style-type: none"> • identifying classes of ceramics • Listing the uses of ceramics 	<ul style="list-style-type: none"> • Print media • Ceramics • ICT tools • Resource person

8.2.5 Rubber	<ul style="list-style-type: none"> • identify types of rubber • state uses of rubber • identify types of rubber 	<ul style="list-style-type: none"> • Types • Uses • Properties of rubber 	<ul style="list-style-type: none"> • identifying types of rubber • listing uses of rubber • identifying properties of rubber 	<ul style="list-style-type: none"> • Print media • Rubber • ICT tools
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8.3 TOPIC 3: ENTERPRISE SKILLS

KEY CONCEPT	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
8.3.1 Concept	<ul style="list-style-type: none"> • explain the meaning of entrepreneurship • describe the qualities of an entrepreneur 	<ul style="list-style-type: none"> • Concept of Entrepreneurship • Qualities of an Entrepreneur 	<ul style="list-style-type: none"> • Explaining the meaning of entrepreneurship • Describing the qualities of an entrepreneur 	<ul style="list-style-type: none"> • Print media • ICT tools • Resource persons
8.3.2 Materials and Artefact Cost	<ul style="list-style-type: none"> • draw up an order for materials • calculate the cost of materials • calculate the cost of an artefact 	<ul style="list-style-type: none"> • material orders • Cost of materials • Artefact costs 	<ul style="list-style-type: none"> • Drawing up orders for materials • Calculating the cost of materials • Calculating the cost of a simple artefact 	<ul style="list-style-type: none"> • Catalogues • Quotations • Electronic media
8.3.3 Business Ethics	<ul style="list-style-type: none"> • explain the ethics that a business person must practice 	<ul style="list-style-type: none"> • Soft skills - fairness - firmness - honesty - self-motivation - integrity 	<ul style="list-style-type: none"> • Explaining the ethics 	<ul style="list-style-type: none"> • Resource persons • ICT tools • Print media

<p>8.4.2 Measuring and marking out tools</p>	<ul style="list-style-type: none"> • Identify measuring and marking out tools. • Identify the parts • explain the uses 	<ul style="list-style-type: none"> •Types •Parts <ul style="list-style-type: none"> - Rule - Try square - Marking gauge - Pencil gauge - Squaring rod - Thumb gauge •Uses 	<ul style="list-style-type: none"> • Identifying measuring and marking out tools • Illustrating the structure of measuring and marking out tools • Demonstrating the correct use of measuring and marking out tools 	<ul style="list-style-type: none"> • Print media • Measuring and marking out tools
<p>8.4.3 Bench planes</p>	<ul style="list-style-type: none"> • identify bench planes • demonstrate the correct use of bench planes • identify the parts of a bench plane 	<ul style="list-style-type: none"> • bench planes <ul style="list-style-type: none"> - trying plane/jointer - jack plane - -smoothing plane • demonstration of correct use of bench planes • Parts of bench planes 	<ul style="list-style-type: none"> • Identifying the bench planes • Demonstrating the correct use of bench planes • Identifying the parts of a bench plane 	<ul style="list-style-type: none"> • Print media • ICT Tools • Realia such as Bench planes

<p>8.4.4 Saws- Hand saws</p>	<ul style="list-style-type: none"> • identify differences among handsaws • sketch the handsaws • identify uses of handsaws • use handsaws 	<ul style="list-style-type: none"> • Handsaws • Structure and construction of handsaws • Sketch the handsaws • Uses 	<ul style="list-style-type: none"> • Identifying differences among handsaws • Showing the differences of teeth type and points by sketches • Identifying uses of handsaws • Using handsaws 	<ul style="list-style-type: none"> • Print media • Hand saws • ICT Tools
<p>8.4.5 Chisels-Firmer and Paring</p>	<ul style="list-style-type: none"> • identify different types of firmer and paring chisels • sketch different types of firmer and paring chisels • demonstrate use of the firmer and paring chisels 	<ul style="list-style-type: none"> • Firmer and Paring chisels • sketches of firmer and paring chisels • uses of firmer and paring chisels 	<ul style="list-style-type: none"> • Identifying paring and firmer chisels • Sketching the chisels • Demonstrating uses of the firmer and paring chisels 	<ul style="list-style-type: none"> • Print media • Realia such as Firmer and Paring chisels • ICT Tools

<p>8.4.6 Percussion and Impelling tools</p>	<ul style="list-style-type: none"> • identify percussion and impelling tools • sketch the percussion and impelling tools • demonstrate the uses of percussion and impelling tools 	<ul style="list-style-type: none"> • Percussion and impelling tools <ul style="list-style-type: none"> - Warrington hammer - Ball-pein - Claw hammer - Nail punch - Bradawl • Sketches of percussion and impelling tools • uses of percussion and impelling tools 	<ul style="list-style-type: none"> • Identifying percussion and impelling tools • sketching percussion and impelling tools • demonstrating the use of percussion and impelling tools 	<ul style="list-style-type: none"> • Print media • Percussion and impelling tools • ICT Tools
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8.5 TOPIC 5: MACHINES

KEY CONCEPTS	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
8.5.1 Portable power tools	<ul style="list-style-type: none"> • Explain safety precautions observed when using the power tools • Identify the parts of the power tools • State the use of the power tools • Operate the power tools 	<ul style="list-style-type: none"> • Safety • Electric drill • Jig saw - Operation of machines 	<ul style="list-style-type: none"> • Explaining safety precautions • Identifying power tools parts • Stating the uses of the power tools • Operating the power tools 	<ul style="list-style-type: none"> • Print media • Electronic media • Realia such as electric drill and jig saw

8.5 TOPIC 5: MACHINE

KEY CONCEPTS	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
8.6.1 Preparation of Materials	<ul style="list-style-type: none"> • list planning steps in their correct order • Prepare a piece of timber to size correctly 	<ul style="list-style-type: none"> • Correct planning steps using hand tools • Materials preparation 	<ul style="list-style-type: none"> • Stating all the planning steps • Preparing a piece of timber to correct sizes 	<ul style="list-style-type: none"> • Print media • Realia such as pieces of timber and tools • ICT tools
8.6.2 Marking out and cutting joints	<ul style="list-style-type: none"> • identify appropriate tools for marking out and cutting joints 	<ul style="list-style-type: none"> • Correct sequence of marking out and cutting of the joints - Nailed butt - Tee –halving joint 	<ul style="list-style-type: none"> • Identifying and selecting the correct tools • Marking out and cutting the joints 	<ul style="list-style-type: none"> • Realia such as marking out tools, cutting tools, holding and supporting tools • ICT tools

	<ul style="list-style-type: none"> select appropriate tools for marking out and cutting joints mark out and cut the joints correctly 	<ul style="list-style-type: none"> Corner-halving Cross-halving joint 	<ul style="list-style-type: none"> Print media
8.6.3 Assembly	<ul style="list-style-type: none"> identify the correct tools for assembling and testing artefacts test the artefacts for squareness and flatness wipe off excess glue 	<ul style="list-style-type: none"> Trial assembly Closed assembly Cleaning of excess glue 	<ul style="list-style-type: none"> Realia such as assembling tools, testing tools and wet cloth Print media Resource person
8.6.4 Forms of Construction	<ul style="list-style-type: none"> identify parts of a flat frame identify the joints used in flat frame construction identify artefacts that can be made using flat frame construction 	<ul style="list-style-type: none"> Flat frames Parts Joints – butt and halving Artefacts that can be made 	<ul style="list-style-type: none"> Samples of artefacts Print media ICT tools
8.6.5 Fixing Tops and Seats	<ul style="list-style-type: none"> Identify the nailing method describe the nailing method apply the nailing method 	<ul style="list-style-type: none"> Method Nailing 	<ul style="list-style-type: none"> Tools for nailing Print media Sample artefacts
8.6.6 Fasteners	<ul style="list-style-type: none"> identify common types of nails state the uses of nails sketch the nails 	<ul style="list-style-type: none"> Nails Types Uses Parts 	<ul style="list-style-type: none"> Sample types of nails Print media ICT tools Print media

	<ul style="list-style-type: none"> • identify the parts of a nail • use the correct method of nailing • list the requirements of ordering nails • draw up an order for nails. 	<ul style="list-style-type: none"> • Methods of nailing • Ordering 	<ul style="list-style-type: none"> • sketching the nails • identifying and naming the parts • identifying and using the correct methods • listing the requirements for ordering nails 	
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8.5 TOPIC 5: MACHINES

KEY CONCEPTS	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
8.7.1 Doors	<ul style="list-style-type: none"> • state uses of doors • explain terms related to doors 	<ul style="list-style-type: none"> • Uses of doors • Terms related to doors 	<ul style="list-style-type: none"> • Stating uses of doors • Explaining terms related to doors • Observing doors on buildings 	<ul style="list-style-type: none"> • Realia such as doors • Print media • ICT tools
8.7.2 Windows	<ul style="list-style-type: none"> • state uses of windows • define terms related to windows 	<ul style="list-style-type: none"> • Uses of windows • Terms related to windows 	<ul style="list-style-type: none"> • Stating uses of windows • Defining terms related to windows 	<ul style="list-style-type: none"> • Realia such as windows • Print media • ICT tools
8.7.3 Wall Fittings	<ul style="list-style-type: none"> • Identify the nailing method of fixing artefacts to the wall • Sketch the method • fix an artefact on the wall using the nailing method 	<ul style="list-style-type: none"> • Method of fixing to the wall - Nailing 	<ul style="list-style-type: none"> • Identifying the nailing method • Observing already fitted artefacts • Sketching the method • Fixing artefacts on the wall using the method of nailing 	<ul style="list-style-type: none"> • Wall fixing tools • Steel nails • Print media • Samples of already fixed artefacts • ICT tools

8.8 TOPIC 8: CARPENTRY

KEY CONCEPTS	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
8.8.1 Roofs	<ul style="list-style-type: none"> state uses of roofs define terms related to roofs 	<ul style="list-style-type: none"> Uses of roofs Roof terminology 	<ul style="list-style-type: none"> Stating uses of roofs Defining the terms Observing roofs on local buildings 	<ul style="list-style-type: none"> Realia such as roofs Miniature roofs Print Media
8.8.2 Formwork	<ul style="list-style-type: none"> define terms related to formwork state materials used in formwork 	<ul style="list-style-type: none"> Terms Materials 	<ul style="list-style-type: none"> Defining terms Stating the material Observing formwork on construction sites 	<ul style="list-style-type: none"> Realia such as formwork Samples of formwork materials ICT tools
8.8.3 Ceiling	<ul style="list-style-type: none"> state uses of ceiling 	<ul style="list-style-type: none"> uses of ceiling 	<ul style="list-style-type: none"> stating uses of ceiling observing ceiling on local buildings 	

8.9 TOPIC 9: UPHOLSTERY

KEY CONCEPTS	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
8.9.1 Upholstery	<ul style="list-style-type: none"> identify tools used in upholstery 	<ul style="list-style-type: none"> Tools used in upholstery 	<ul style="list-style-type: none"> Identifying tools Sketching tools Observing upholstered furniture 	<ul style="list-style-type: none"> Tools used in upholstery Print media ICT tools

8.10 TOPIC 10: WOOD FINISHING

KEY CONCEPTS	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
8.10.1 Abrasives	<ul style="list-style-type: none"> distinguish glass paper from garnet paper state the grades of glass paper and garnet paper describe how they are manufactured use glass paper and garnet paper correctly 	<ul style="list-style-type: none"> Coated abrasives <ul style="list-style-type: none"> - Glass paper - Garnet paper Coated abrasives grades 	<ul style="list-style-type: none"> Distinguishing glass paper from garnet paper Stating the grades of glass paper and garnet paper Describing how they are manufactured Using glass paper and garnet paper 	<ul style="list-style-type: none"> Samples of glass paper and garnet paper Print media ICT tools
8.10.2 Finishes	<ul style="list-style-type: none"> define terms relating to finishes state reason for applying finishes apply finishes correctly clean brushes correctly 	<ul style="list-style-type: none"> Terms relating to finishes Reasons for applying finishes Application of finishes Cleaning brushes 	<ul style="list-style-type: none"> Defining terms Stating reasons Applying finishes Cleaning brushes 	<ul style="list-style-type: none"> Samples of finishes Tools used for finishing Solvents Recommended textbooks ICT tools Print Media

8.11 TOPIC 11: GRAPHICS

KEY CONCEPTS	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
8.11.1 Freehand Sketches	<ul style="list-style-type: none"> state types of grid paper use grid paper to draw sketches in isometric and oblique projections use plain paper to draw sketches 	<ul style="list-style-type: none"> Types of grid paper Plain paper Pictorial drawing 	<ul style="list-style-type: none"> Stating types of grid paper Freehand drawing of isometric and oblique drawings using grid paper and plain paper 	<ul style="list-style-type: none"> Print media Drawing instruments and papers Electronic media Blocks of shaped pieces of wood/bricks
8.11.2 Drawing with Instruments	<ul style="list-style-type: none"> name equipment used in drawing draw different types of lines differentiate isometric angles from oblique angles insert dimensions correctly draw blocks of wood in isometric and oblique projection print names legibly 	<ul style="list-style-type: none"> Drawing Equipment Different types of lines Oblique drawing Isometric drawing Dimensioning Lettering 	<ul style="list-style-type: none"> Naming of drawing instruments Drawing lines Differentiating isometric from oblique angles Inserting dimensions correctly Demonstrating isometric and oblique drawing Drawing of isometric and oblique projection of wood blocks Printing of names in the title block 	<ul style="list-style-type: none"> Print media Drawing instruments and papers Blocks of shaped pieces of wood/bricks Set squares, ruler, square and drawing board, drawing clips ICT tools

8.12 TOPIC 12: DESIGN

KEY CONCEPTS	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
8.12.1 Design process	<ul style="list-style-type: none"> • define the term design • describe the design process • compile a design folio • make an artefact following the design process • discuss intellectual property rights 	<ul style="list-style-type: none"> • Definition of design • Stages <ul style="list-style-type: none"> - Situation - Design brief - Investigation - Possible solutions - Chosen solution - Justification of choice - Development of chosen solution - Model production - Evaluation of model - Realization - Evaluation • Design folio • Projects – Pot stand Broom Rack, Coat Hook, Pencil stand 	<ul style="list-style-type: none"> • Defining the term design • Describing stages of the design process • Compiling design folios • Making artefacts • Discussing intellectual property rights 	<ul style="list-style-type: none"> • Print media • Samples of design folios • Electronic media • Samples of artefacts • Patents Act

		Candle Stand, Money Box, Pencil Box <ul style="list-style-type: none"> • Intellectual property rights 	
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8.13 TOPIC 13: MANAGEMENT OF RESOURCES

KEY CONCEPTS	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
8.13.2 Sustainability	<ul style="list-style-type: none"> • explain sustainability • identify primary resources • identify secondary resources • discuss value addition and beneficiation 	<ul style="list-style-type: none"> • Definition of sustainability • Primary resources • Secondary resources • Value addition and beneficiation 	<ul style="list-style-type: none"> • Explaining sustainability • Identifying primary resources • Identifying secondary resources • Discussing value addition and beneficiation • Conducting educational tours 	<ul style="list-style-type: none"> • Resource person such as: <ul style="list-style-type: none"> - EMA personnel - Wildlife and parks personnel • School yard • Community • Print media • ICT tools
8.13.2 Afforestation	<ul style="list-style-type: none"> • define afforestation • state methods of conserving the natural resources and man-made resources • plant trees 	<ul style="list-style-type: none"> • Definition of afforestation • Methods of conservation • Tree planting • Fire guards 	<ul style="list-style-type: none"> • Defining afforestation • Stating methods of conservation • Planting trees • Explaining the importance of fire guards • Preparing fire guards 	<ul style="list-style-type: none"> • Resource persons such as: <ul style="list-style-type: none"> - EMA personnel - Wildlife and parks personnel • School yard • Community • Print media

	<ul style="list-style-type: none"> explain the importance of fire guards prepare fire guards 			<ul style="list-style-type: none"> Defining the term recycling Stating the methods of recycling Identifying materials that can be recycled 	<ul style="list-style-type: none"> Natural resources Man-made resources Resource person such as: <ul style="list-style-type: none"> EMA personnel Wildlife and parks personnel School yard Community Print media ICT tools 	ICT tools Tree seeds
8.13.3 Recycling	<ul style="list-style-type: none"> Define recycling State methods of recycling Identify materials that can be recycled 	<ul style="list-style-type: none"> Definition of recycling Methods of recycling Materials that can be recycled 				



8.14 TOPIC 14: WOOD BENDING, CARVING, SCULPTING, TURNING AND ORNAMENTATION

KEY CONCEPTS	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
8.14.2 Wood Carving	<ul style="list-style-type: none"> Define the term wood carving state wood carving tools and their uses 	<ul style="list-style-type: none"> definition of wood carving Wood carving tools 	<ul style="list-style-type: none"> Defining wood carving Stating wood carving tools and their uses 	<ul style="list-style-type: none"> Realia – tools for carving Print media ICT tools Resource persons
8.14.2 Wood Sculpture	<ul style="list-style-type: none"> Define the term wood sculpture state wood sculpting tools and their uses 	<ul style="list-style-type: none"> definition of wood sculpture Wood sculpting tools 	<ul style="list-style-type: none"> Defining wood sculpture Stating wood sculpting tools and their uses 	<ul style="list-style-type: none"> Realia – tools for carving Print media Suitable wood for sculpting ICT tools

FORM 2

8.0 COMPETENCY MATRIX 8.1 TOPIC 1: HEALTH AND SAFETY

KEY CONCEPTS	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
8.1.1 Tool Safety-storage	<ul style="list-style-type: none"> demonstrate safe storage of tools 	<ul style="list-style-type: none"> Safe storage of tools 	<ul style="list-style-type: none"> Demonstrating safe storage of tools Watching videos on proper tool storage 	<ul style="list-style-type: none"> Tool kit Storerooms Racks Print Media
8.1.2 Portable power tools	<ul style="list-style-type: none"> demonstrate safe methods of operating and caring for portable power tools 	<ul style="list-style-type: none"> Portable power tools <ul style="list-style-type: none"> - power drill - portable power jig-saw - portable power sander - portable power planer 	<ul style="list-style-type: none"> Demonstrating safe methods of operating and caring for portable power tools 	<ul style="list-style-type: none"> Print media ICT Tools Portable power tools

8.2 TOPIC 2: MATERIAL TECHNOLOGY

KEY CONCEPTS	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
8.2.1Wood-processing-felling, conversion and seasoning	<ul style="list-style-type: none"> Describe the processing of timber from felling, conversion to seasoning illustrate conversion and seasoning methods 	<ul style="list-style-type: none"> Felling Conversion of timber Seasoning of timber Illustration of conversion and seasoning methods 	<ul style="list-style-type: none"> describing felling, conversion and seasoning Watching videos of felling Illustrating the conversion and seasoning methods Identifying the advantages and disadvantages of 	<ul style="list-style-type: none"> Print media Plantations Sawmills ICT tools

	<ul style="list-style-type: none"> • identify advantages and disadvantages of conversion and seasoning methods 		<ul style="list-style-type: none"> • conversion and seasoning methods • Conducting educational tours 	
8.2.2 Metal- properties	<ul style="list-style-type: none"> • identify properties of metals 	<ul style="list-style-type: none"> • Properties of Metals 	<ul style="list-style-type: none"> • discussing properties of metals 	<ul style="list-style-type: none"> • Print media • ICT tools
8.2.3 Plastic- properties	<ul style="list-style-type: none"> • identify properties of plastic 	<ul style="list-style-type: none"> • Properties of plastic 	<ul style="list-style-type: none"> • discussing properties of plastics 	<ul style="list-style-type: none"> • Print media • ICT tools
8.2.4 Ceramics- properties	<ul style="list-style-type: none"> • identify properties of ceramics 	<ul style="list-style-type: none"> • Properties of ceramics 	<ul style="list-style-type: none"> • discussing properties of ceramics 	<ul style="list-style-type: none"> • Print media • ICT tools

KEY CONCEPTS	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
8.2.5 Finishes- Purposes	<ul style="list-style-type: none"> Describe wood finishing Explain the purposes of finishing artefacts Identify different types of finishes 	<ul style="list-style-type: none"> Wood Finishes purposes of finishes Types of finishes such as: <ul style="list-style-type: none"> -Paint, stains -Varnishes and polishes 	<ul style="list-style-type: none"> Describing the term wood finishing Explaining the purposes of finishing artefacts identifying different types of finishes 	<ul style="list-style-type: none"> Finishes Print Media
8.2.6 Adhesives	<ul style="list-style-type: none"> Describe wood adhesives list examples of wood adhesives 	<ul style="list-style-type: none"> Wood adhesives - Synthetic resin - Impact/contact Examples of wood adhesives 	<ul style="list-style-type: none"> Describing the different types of wood adhesives Listing down examples of wood adhesives 	<ul style="list-style-type: none"> Print Media Adhesives

8.3 TOPIC 3: ENTERPRISE SKILLS

KEY CONCEPTS	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
8.3.1 Materials and Artefacts	<ul style="list-style-type: none"> • Draw up a materials cost • Calculate labour hours • Calculate profit 	<ul style="list-style-type: none"> • Materials cost • Labour hours • Profit 	<ul style="list-style-type: none"> • Drawing up a material cost • Calculating the labour hours • Calculating profit 	<ul style="list-style-type: none"> • Realia – such as Bill of Quantities • Quotations • Print media • ICT tools
8.3.2 Business Ethics	<ul style="list-style-type: none"> • Explain the soft skills involved in business 	<ul style="list-style-type: none"> • Soft skills <ul style="list-style-type: none"> - Leadership - Team building - Innovation 	<ul style="list-style-type: none"> • Explaining the soft skills 	<ul style="list-style-type: none"> • Print media • Resource persons
8.3.3 Marketing	<ul style="list-style-type: none"> • Explain the strategies necessary for marketing 	<ul style="list-style-type: none"> • Marketing strategies <ul style="list-style-type: none"> - Promotions - Sales persons 	<ul style="list-style-type: none"> • Explaining the strategies • Creating product awareness • Conducting road shows at school level 	<ul style="list-style-type: none"> • Product pamphlets • Print media • Realia
8.3.4 Material Orders	<ul style="list-style-type: none"> • Draw up material orders 	<ul style="list-style-type: none"> • Ordering materials • Costing materials 	<ul style="list-style-type: none"> • Drawing up material orders 	<ul style="list-style-type: none"> • Quotations • Realia such as: <ul style="list-style-type: none"> - Orders of materials • Print media • ICT Tools

8.4 TOPIC 4: TOOLS AND TOOL TECHNOLOGY

KEY CONCEPTS	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
8.4.1 Holding and Supporting tools	<ul style="list-style-type: none"> • Identify holding and supporting tools • construct some of the holding and supporting tools • identify the uses of the holding and supporting tools • use holding and supporting tools 	<ul style="list-style-type: none"> • The Holding and supporting tools <ul style="list-style-type: none"> - G cramp - Sash cramp - Mitre box - Shooting board - Trestle/sawing horse • Tool construction • Uses 	<ul style="list-style-type: none"> • Identifying the holding and supporting tools • Illustrating structure of the holding and supporting tools • Constructing some of the holding and supporting tools • identifying the uses • Using holding and supporting tools 	<ul style="list-style-type: none"> • Print media • Holding and supporting tools

<p>8.4.2 Measuring and marking out tools</p>	<ul style="list-style-type: none"> Identify measuring and marking tools Name the parts explain the uses of the measuring and marking out tools use the tools 	<ul style="list-style-type: none"> Measuring and marking out tools <ul style="list-style-type: none"> Mortise gauge Sliding bevel Templates Measuring tape Cutting gauge Panel gauge Parts and uses of the tools 	<ul style="list-style-type: none"> Identifying measuring and marking out tools Naming parts of the tools Explaining the use of the tools Using the tools 	<ul style="list-style-type: none"> Print media Realia such as measuring and marking out tools ICT tools
<p>8.4.3 Spokeshaves</p>	<ul style="list-style-type: none"> Identify the two types of spokeshaves Explain the use of spokeshaves Identify the parts of a spoke shaves use the spokeshave 	<ul style="list-style-type: none"> Spokeshaves <ul style="list-style-type: none"> Flat bottomed Round bottomed correct use of spokeshave parts of spokeshaves 	<ul style="list-style-type: none"> Identifying the two types of spokeshaves Explaining the uses of the spokeshaves Identifying the parts of a spokeshave Using the spokeshave 	<ul style="list-style-type: none"> Print media Spokeshave

<p>8.4.4 Saws-Back saws</p>	<ul style="list-style-type: none"> • Identify back saws • Sketch the back saws • state the uses of back saws • use the backsaws 	<ul style="list-style-type: none"> • Back saws - Tenon saw - Dovetail saw - sketches of the back saws - Demonstration of uses of back saw 	<ul style="list-style-type: none"> • Identifying back saws • sketching the backsaws • stating uses of the back saws • Using the back saws 	<ul style="list-style-type: none"> • Print media • Back saws • ICT tools
<p>8.4.5 Mortise chisels</p>	<ul style="list-style-type: none"> • Identify different types of mortise chisels • Sketch the different types of mortise chisels • identify the uses of the mortise chisels • use mortise chisels 	<ul style="list-style-type: none"> • Identification of chisels - Mortise - Registered mortise - Sketches of mortise chisels - Uses 	<ul style="list-style-type: none"> • Identifying different types of mortise chisels • Sketching the chisels • Identifying uses of the chisels • Uses of the mortise chisels 	<ul style="list-style-type: none"> • Print media • Mortise chisels • ICT tools

<p>8.4.6 Percussion and impelling tools</p>	<ul style="list-style-type: none"> • Identify percussion and impelling tools • state the uses of percussion and impelling tools • Sketch the percussion and impelling tools • use the percussion and impelling tools 	<ul style="list-style-type: none"> • Percussion and impelling tools <ul style="list-style-type: none"> - mallet - phillips - ratchet screwdriver - flat screw driver (engineers screwdrivers) - tack hammer - sketches of the percussion and impelling tools • Uses 	<ul style="list-style-type: none"> • Identifying and stating uses of the percussion and impelling tools • Sketching percussion and impelling tools • Using percussion and impelling tools 	<ul style="list-style-type: none"> • Print media • Percussion and impelling tools • ICT Tools
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8.5 TOPIC 5: MACHINES

KEY CONCEPTS	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
8.5 Portable power tools	<ul style="list-style-type: none"> • Explain safety precautions observed when using the power tools • Identify parts of the power tools • State uses of the power tools • Operate the power tools 	<ul style="list-style-type: none"> • Safety • Electric plane • Router • Operation of the power tools 	<ul style="list-style-type: none"> • Explaining safety precautions • Identifying power tool parts • Stating uses of the power tools • Operating the power tools 	<ul style="list-style-type: none"> • Print media • Electronic media • Realia such as the power tools

8.6 TOPIC 6: CONSTRUCTION PROCESSES AND HARDWARE

KEY CONCEPTS	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
8.6.1 Marking out and cutting joints	<ul style="list-style-type: none"> • Identify appropriate tools for marking out and cutting the joints • Select appropriate tools for marking out and cutting joints • mark out and cut the joints 	<ul style="list-style-type: none"> • Correct sequence of marking out and cutting of: <ul style="list-style-type: none"> - Dovetail halving - Through mortice and tenon - Bridle joints - Single dovetail joint - Through housing joints 	<ul style="list-style-type: none"> • Identifying and selecting the correct tools • Marking out and cutting the joints 	<ul style="list-style-type: none"> • Print media • Realia such as marking out tools, cutting tools, holding and supporting tools • ICT tools

8.6.2 Assembly	<ul style="list-style-type: none"> • identify the correct tools for assembling and testing artefacts • test artefacts for squareness and flatness • clean excess glue 	<ul style="list-style-type: none"> • Trial assembly • Closed assembly • Cleaning excess glue 	<ul style="list-style-type: none"> • Identifying the correct tools. • Testing artefacts for squareness and flatness • Cleaning excess glue 	<ul style="list-style-type: none"> • Assembling tools • Testing tools • Cloth • Print media
8.6.3 Forms of Construction	<ul style="list-style-type: none"> • identify joints used in flat frame and stool construction • identify parts of a stool construction • sketch the joints • construct the joints in their correct proportions • identify artefacts that can be made using stool construction 	<ul style="list-style-type: none"> • Flat frame construction • Stool construction <ul style="list-style-type: none"> - Parts - Mortice and tenon joints and bridle joints • Artefacts that can be made from stool construction 	<ul style="list-style-type: none"> • Identifying the joints • identifying the parts • Identifying the artefacts • Sketching the joints • Observing the joints on finished products • Constructing the joints • identifying the artefacts 	<ul style="list-style-type: none"> • Print media • Samples of artefacts • ICT tools
8.6.4 Fixing Tops and Seats	<ul style="list-style-type: none"> • identify each method • describe each method • sketch the methods • use the methods for fixing tops and seats 	<ul style="list-style-type: none"> • Direct screwing • Counter boring • Pocket screwing • Glued blocks 	<ul style="list-style-type: none"> • Identifying and describing the methods • Sketching the methods • Applying the methods • Repairing school furniture 	<ul style="list-style-type: none"> • Tools for screwing • Boring tools • Print media • Samples of artefacts • ICT tools
8.6.5 Fasteners	<ul style="list-style-type: none"> • identify common types of screws • describe common types of screws 	<ul style="list-style-type: none"> • Screws - Types - Uses - Ordering 	<ul style="list-style-type: none"> • Identifying and describing types of screws 	<ul style="list-style-type: none"> • Samples of screws • Print media • ICT tools

	<ul style="list-style-type: none">• state uses of the screws• identify the parts of screws• identify holes when drilling for screws• sketch the types of screws• draw up an order for screws	<ul style="list-style-type: none">• Holes for screws	<ul style="list-style-type: none">• Stating uses of screws• Identifying the parts of the screws• Identifying holes when drilling for screws• Sketching the screws• Drawing an order for screws	
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8.7 TOPIC 7: JOINERY

KEY CONCEPTS	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
8.7.1 Doors	<ul style="list-style-type: none"> • identify types of doors • describe types of doors • identify the parts of doors • sketch the doors 	<ul style="list-style-type: none"> • Types • Parts 	<ul style="list-style-type: none"> • Identifying and describing types of doors • Identifying parts of doors • Sketching doors • Visiting industries or local communities 	<ul style="list-style-type: none"> • Realia such as doors • Print media • ICT tools

8.7.2 Windows	<ul style="list-style-type: none"> • identify types of windows • describe types of windows • identify the parts of windows • sketch the windows 	<ul style="list-style-type: none"> • Types • Parts 	<ul style="list-style-type: none"> • Identifying and describing types of windows • Identifying parts of windows • Sketching the windows • Visiting local communities 	<ul style="list-style-type: none"> • Realia such as windows • Print media • Resource person • ICT tools
8.7.3 Wall Fittings	<ul style="list-style-type: none"> • fix artefacts to the wall using the wall plug method 	<ul style="list-style-type: none"> • Wall plugs 	<ul style="list-style-type: none"> • Fixing artefacts to the wall using the method • Observing ready fixed artefacts 	<ul style="list-style-type: none"> • Wall plugs • Print media • Resource persons • ICT tools

8.8 TOPIC 8: CARPENTRY

KEY CONCEPTS	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
8.8.1 Roofs	<ul style="list-style-type: none"> • identify types of roofs • describe types of roofs • identify parts of roofs • sketch the roofs • make miniature roofs 	<ul style="list-style-type: none"> • Types • Parts • Model roofs 	<ul style="list-style-type: none"> • Identifying and describing roof types • Identifying parts of roofs • Sketching the roofs • Making miniature roofs • Visiting local communities 	<ul style="list-style-type: none"> • Realia such as roofs • Resource persons • ICT tools • Print media
8.8.2 Formwork	<ul style="list-style-type: none"> • identify materials used in formwork • describe the formwork methods 	<ul style="list-style-type: none"> • Formwork materials • Cast in-situ • Pre-cast 	<ul style="list-style-type: none"> • Identifying materials used in formwork • Describing the formwork methods • Visiting construction sites 	<ul style="list-style-type: none"> • Resource persons • Print media • ICT tools
8.8.3 Ceilings	<ul style="list-style-type: none"> • state the materials used for ceilings • describe the properties of the materials used on ceilings 	<ul style="list-style-type: none"> • Materials used • Properties of the materials 	<ul style="list-style-type: none"> • Stating and describing the materials • Visiting local industries/construction sites 	<ul style="list-style-type: none"> • Realia such as ceilings • Resource persons • ICT tools

8.9 TOPIC 9: UPHOLSTERY

KEY CONCEPTS	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
8.9.1 Upholstery	<ul style="list-style-type: none"> • explain the terms related to upholstery • identify the materials used in upholstery 	<ul style="list-style-type: none"> • Terms related to upholstery • Materials used 	<ul style="list-style-type: none"> • Explaining upholstery terms • Identifying materials used in upholstery • Visiting local industries 	<ul style="list-style-type: none"> • Realia such as upholstered furniture and materials • Resource persons • ICT tools • Print Media

8.10 TOPIC 10: WOOD FINISHING

KEY CONCEPTS	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
8.10.1 Abrasives	<ul style="list-style-type: none"> • identify the abrasives • describe how the abrasives are manufactured • use the abrasives 	<ul style="list-style-type: none"> • Coated abrasives <ul style="list-style-type: none"> - Emery cloth - Aluminum oxide - Silicon carbide - Tungsten carbide 	<ul style="list-style-type: none"> • Identifying and describing the abrasives • Describing how the abrasives are manufactured • Using the abrasives 	<ul style="list-style-type: none"> • Samples of the abrasives • Print media • ICT tools
8.10.2 Finishes	<ul style="list-style-type: none"> • identify the types of finishes • describe types of finishes • state the uses of each finish • thin finishes using correct solvents • apply the finishes • clean the brushes 	<ul style="list-style-type: none"> • Types • Uses • Thinning finishes • Application • Cleaning brushes 	<ul style="list-style-type: none"> • Identifying and describing types of finishes • Stating the uses of the finishes • Thinning finishes • Applying the finishes • Cleaning the brushes 	<ul style="list-style-type: none"> • Samples of finishes • Tools/equipment for finishing • Solvents • ICT tools • Print Media

8.11 TOPIC 11: GRAPHICS

KEEP CONCEPTS	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
8.11.1 Freehand Sketches	<ul style="list-style-type: none"> • sketch joints in isometric and oblique projection 	<ul style="list-style-type: none"> • Isometric and oblique - joints 	<ul style="list-style-type: none"> • Sketching joints 	<ul style="list-style-type: none"> • Print media • Realia-samples of joints • Electronic media
8.11.2 Drawing with Instruments	<ul style="list-style-type: none"> • draw objects in pictorial view • draw objects in orthographic projection • insert dimensions 	<ul style="list-style-type: none"> • Pictorial drawing • Orthographic drawing • Dimensioning 	<ul style="list-style-type: none"> • Drawing objects in pictorial view • Drawing objects in orthographic projection • Inserting dimensions 	<ul style="list-style-type: none"> • Print media • Realia such as wood blocks • drawing instruments • Electronic media

8.12 TOPIC 12: DESIGN

KEY CONCEPTS	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
8.12.1 Design process	<ul style="list-style-type: none"> • compile a design folio • make an artefact following the design process 	<ul style="list-style-type: none"> • Design folio • Stages <ul style="list-style-type: none"> - Situation - Design brief - Investigation - Possible solutions - Chosen solution - justification of choice - Development of chosen solution - Model production - Evaluation of model - Realization - Evaluation • Projects such as: stools, tea tray, shoe rack, fruit tray, magazine rack, jewellery boxes 	<ul style="list-style-type: none"> • Compiling design folios • Making artefacts 	<ul style="list-style-type: none"> • Print media • Samples of design folios • ICT tools • Samples of artefacts

8.13 TOPIC 13: MANAGEMENT OF RESOURCES

KEY CONCEPTS	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
8.13.1 Material Economics	<ul style="list-style-type: none"> draw up a cutting list with rough and final measurements 	<ul style="list-style-type: none"> Cutting list: <ul style="list-style-type: none"> Rough and final sizes 	<ul style="list-style-type: none"> Drawing up a cutting list 	<ul style="list-style-type: none"> Electronic media Print media
8.13.2 Waste Management	<ul style="list-style-type: none"> state different types of waste materials discuss how the waste materials can be reused 	<ul style="list-style-type: none"> Waste material: <ul style="list-style-type: none"> Plastic Paper wood chips Shavings Saw dust 	<ul style="list-style-type: none"> Stating different types of waste materials Discussing briefly, how waste materials can be reused 	<ul style="list-style-type: none"> EMA personnel School yard Community Print media ICT tools
8.13.3 Afforestation	<ul style="list-style-type: none"> explain the term afforestation name indigenous trees facing extinction in the community suggest ways of preventing the extinction of indigenous trees 	<ul style="list-style-type: none"> Afforestation Indigenous trees facing extinction Ways of preventing extinction of trees 	<ul style="list-style-type: none"> explaining the term afforestation Naming indigenous trees that face extinction in the community Suggesting ways of preventing the extinction of indigenous trees 	<ul style="list-style-type: none"> EMA personnel School yard Community Electronic media Print media

8.14 TOPIC 14: WOOD BENDING, CARVING, SCULPTING, TURNING AND ORNAMENTATION

KEY CONCEPTS	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
8.14.1 Wood Carving	<ul style="list-style-type: none"> • decorate an artefact using carving tools • apply a finish to the artefact 	<ul style="list-style-type: none"> • Decorate artefacts • Finish 	<ul style="list-style-type: none"> • Decorating an artefact • Applying a finish 	<ul style="list-style-type: none"> • Projects • Print media • ICT tools • Resource person such as the Wood Carver
8.14.2 Wood Sculpture	<ul style="list-style-type: none"> • Sculpt an artefact using carving tools 	<ul style="list-style-type: none"> • Sculpt artefacts • Appropriate finish 	<ul style="list-style-type: none"> • Sculpting artefacts • Finishing artefacts 	<ul style="list-style-type: none"> • Print media • ICT tools
				<ul style="list-style-type: none"> • Resource persons

FORM 3 8.0COMPETENCY MATRIX

8.1TOPIC 1: HEALTH AND SAFETY

KEY CONCEPTS	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
8.1.1 Regulations and acts governing Safety and health at workplaces	<ul style="list-style-type: none"> Outline the rules, Regulations and Acts governing health and safety at work 	<ul style="list-style-type: none"> Rules, regulations and Acts governing health and safety at work 	<ul style="list-style-type: none"> Outlining rules, regulations and acts governing health and safety at work 	<ul style="list-style-type: none"> Factories Act Resource persons Print media Recommended textbooks ICT tools
8.1.2 Code of practice for safe use of machinery	<ul style="list-style-type: none"> Demonstrate safe use and care of woodworking machinery 	<ul style="list-style-type: none"> Woodworking machinery <ul style="list-style-type: none"> - planer, - thickness - band saw - wood turning lathe 	<ul style="list-style-type: none"> Demonstrating the safe operations and care of the woodworking machines Videos on safe operation and care of woodworking machinery 	<ul style="list-style-type: none"> Recommended textbooks Print media Woodworking machinery Videos Electronic media

8.2 TOPIC 2: MATERIAL TECHNOLOGY

KEY CONCEPTS	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
8.2.1 Wood	<ul style="list-style-type: none"> define veneer explain the stages involved in veneer manufacture 	<ul style="list-style-type: none"> Veneer - Definition - Methods of manufacture 	<ul style="list-style-type: none"> Defining veneer Explaining stages involved in veneer manufacture 	<ul style="list-style-type: none"> ICT tools Print media Samples of veneers
8.2.2 Methods of integrating	<ul style="list-style-type: none"> Describe methods of integrating other materials to wood 	<ul style="list-style-type: none"> Methods of integrating - Metal - Plastic - Ceramics - Rubber 	<ul style="list-style-type: none"> Conducting educational tours Describing methods of integrating other materials to wood Demonstrating the methods of integrating metal, plastic and ceramics to wood. 	<ul style="list-style-type: none"> Samples of finishes Compressor Spray cans Brushes Adhesives Samples of materials Print media
8.2.3 Finishes	<ul style="list-style-type: none"> Demonstrate surface preparation for finishing Apply finishes 	<ul style="list-style-type: none"> Finishes - Preparation for finishing - Stages of applying finishes 	<ul style="list-style-type: none"> Demonstrating surface preparation for finishing applying finishes 	<ul style="list-style-type: none"> Samples of finishes Compressor Spray cans Brushes Print media

<p>8.2.4 Adhesives</p>	<ul style="list-style-type: none"> • Explain adhesive terms • Outline the precautions in the use of adhesive • Applying adhesives 	<ul style="list-style-type: none"> • Adhesive terms <ul style="list-style-type: none"> - shelf life - cramping time - pot life • Precautions <ul style="list-style-type: none"> - Care of skin and eyes - Protection from inhalation • Application of adhesives 	<ul style="list-style-type: none"> • Explaining adhesive terms • Outlining adhesive precautions • Applying adhesives 	<ul style="list-style-type: none"> • Adhesives • Print media • ICT Tools
<p>8.2.5 Defects</p>	<ul style="list-style-type: none"> • Define the term defects in timber • Identify defects • Illustrate the defects in timber 	<ul style="list-style-type: none"> • Defects in timber <ul style="list-style-type: none"> - Definition - Growth/natural - Artificial - Other defects 	<ul style="list-style-type: none"> • Identifying defects in timber • Describing defects in timber • Illustrating defects in timber 	<ul style="list-style-type: none"> • ICT tools • Print media
<p>8.2.6 Timber diseases</p> <p>8.2.7 Timber preservation</p>	<ul style="list-style-type: none"> • identify wood boring insects • discuss the diseases in wood • Outline the methods of preservation 	<ul style="list-style-type: none"> • Insects and diseases that attack wood • Timber preservation 	<ul style="list-style-type: none"> • Identifying wood boring insects and diseases in wood • Outlining the methods 	<ul style="list-style-type: none"> • Disease causing insects

<p>8.2.8 Built-up materials</p>	<ul style="list-style-type: none"> Identify different types of built up materials Explain the manufacture of built up materials Illustrate the structure of different built up materials State the uses of the built materials 	<ul style="list-style-type: none"> Built up materials <ul style="list-style-type: none"> - ply wood - hardboard - laminboard - chipboard Manufacture of built-up materials Structure Uses 	<ul style="list-style-type: none"> Identifying different types of built-up materials Explaining the stages in the manufacture of built-up materials Illustrating the different built-up material Stating the uses of the different built up materials 	<ul style="list-style-type: none"> Realia such as built-up material Print Media
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8.3 TOPIC 3: ENTERPRISE SKILLS

<p>8.2.8 Built-up materials</p>	<ul style="list-style-type: none"> Identify different types of built up materials Explain the manufacture of built up materials Illustrate the structure of different built up materials State the uses of the built materials 	<ul style="list-style-type: none"> Built up materials <ul style="list-style-type: none"> - ply wood - hardboard - laminboard - chipboard Manufacture of built-up materials Structure Uses 	<ul style="list-style-type: none"> Identifying different types of built-up materials Explaining the stages in the manufacture of built-up materials Illustrating the different built-up material Stating the uses of the different built up materials 	<ul style="list-style-type: none"> Realia such as built-up material Print Media
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<p>8.3.2 Marketing - Strategies</p>	<ul style="list-style-type: none"> • Describe marketing strategies 	<ul style="list-style-type: none"> • Marketing <ul style="list-style-type: none"> - Marketing mix - Product, promotion and place - Packaging - Packing - Advertisements 	<ul style="list-style-type: none"> • Describing and explaining marketing strategies 	<ul style="list-style-type: none"> • ICT tools • Print media
<p>8.3.3 Business Proposal- Purposes of</p>	<ul style="list-style-type: none"> • Explain the purpose of a business proposal 	<ul style="list-style-type: none"> • Project proposal <ul style="list-style-type: none"> - Definition - Purpose of a business proposal 	<ul style="list-style-type: none"> • Explaining the purposes of a business proposal 	<ul style="list-style-type: none"> • Resource persons • Business proposals • Print media • ICT Tools
<p>8.3.4 Business Growth -Needs and ways</p>	<ul style="list-style-type: none"> • Identify the requirements for business growth • Explain the ways in which a business can grow • explain the importance of Intellectual Property Rights 	<ul style="list-style-type: none"> • Business growth <ul style="list-style-type: none"> - Internal growth - External growth • Intellectual Property Rights 	<ul style="list-style-type: none"> • Identifying the requirements for business growth • Explaining the ways in which a business grows • Explaining the importance of the rights 	<ul style="list-style-type: none"> • Print Media • ICT tools

8.4 TOPIC 4: TOOLS AND TOOL TECHNOLOGY

KEY CONCEPTS	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
8.4.1 Tool Maintenance- Grinding and honing	<ul style="list-style-type: none"> identify grinding and honing tools describe materials for grind stone and oil stone Outline the stages followed in tool maintenance discuss precautions observed when using grind stone and oil stone 	<ul style="list-style-type: none"> Grinding and honing tools <ul style="list-style-type: none"> Grind stone Oil stone Material for grind stone and oil stone Tool maintenance -Flat blades Precautions on using grinding stone and oilstone 	<ul style="list-style-type: none"> Identifying grinding and honing tools Describing materials for grind stone and oil stone Outlining the stages in tool maintenance Discussing precautions observed when using grind and oilstone 	<ul style="list-style-type: none"> Print media Grind stone and oil stone ICT Tools
8.4.2 Special purpose planes	<ul style="list-style-type: none"> name special purpose planes identify the uses of special purpose planes use the special purpose planes 	<ul style="list-style-type: none"> Types of special purpose planes Uses 	<ul style="list-style-type: none"> Naming special purpose planes Identifying the uses of special purpose planes Using the special purpose planes 	<ul style="list-style-type: none"> Print media Realia such as Special purpose planes ICT tools

8.4.3 Gouges	<ul style="list-style-type: none"> Classify gouges according to their uses Outline gouge maintenance 	<ul style="list-style-type: none"> Types of gouges Gouge maintenance 	<ul style="list-style-type: none"> Classifying gouges according to their uses Outlining gouge maintenance 	<ul style="list-style-type: none"> Print media Gouges Electronic media
8.4.4 Saws - Curve cutting	<ul style="list-style-type: none"> Identify curve cutting saws explain the uses of curve cutting saws use the curve cutting saws 	<ul style="list-style-type: none"> Curve cutting saws Uses 	<ul style="list-style-type: none"> Identifying curve cutting saws Explaining the uses of the curve cutting saws Using the curve cutting 	<ul style="list-style-type: none"> Print media Curve cutting saws
8.4.5 Gears	<ul style="list-style-type: none"> Outline how a machine uses gears 	<ul style="list-style-type: none"> Gears 	<ul style="list-style-type: none"> Demonstrating use of gears, 	<ul style="list-style-type: none"> Print media Gears
8.4.6 Levers	<ul style="list-style-type: none"> Outline how a machine uses gears 	<ul style="list-style-type: none"> Levers 	<ul style="list-style-type: none"> Demonstrating use of levers 	<ul style="list-style-type: none"> Print media Levers

8.4.7 Pulleys	<ul style="list-style-type: none">• Demonstrate usefulness of pulleys	<ul style="list-style-type: none">• Pulley	<ul style="list-style-type: none">• Demonstrating usefulness of pulleys	<ul style="list-style-type: none">• Print media• Pulleys
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8.5 TOPIC 5: MACHINES

KEY CONCEPTS	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
8.5.1 Machines tools	<ul style="list-style-type: none"> explain safety precautions observed when using the machines explain the use of the machine parts state the uses of the machines operate the machines 	<ul style="list-style-type: none"> Safety -Circular saw -Surface planer -Pillar drill -Thickener -Grinder -Spindle moulder Machine operation 	<ul style="list-style-type: none"> Explaining safety precautions Explaining uses of machine parts Stating uses of the machines Operating machines 	<ul style="list-style-type: none"> Print media Electronic media Realia such as the machines

8.6 TOPIC 6: CONSTRUCTION PROCESSES AND HARDWARE

KEY CONCEPTS	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
8.6.1 Marking Out and Cutting Joints	<ul style="list-style-type: none"> select the correct tools for marking out and cutting the joints use correct tools for marking out and cutting the joints 	<ul style="list-style-type: none"> Correct sequence of marking out and cutting - Haunched mortice and tenon joints - Stopped housing joints - Common dovetail joints - Widening joints (Simple butt joint, 	<ul style="list-style-type: none"> Selecting and using the tools 	<ul style="list-style-type: none"> Print media Tools Work pieces ICT tools

	<p>8.6.2 Assembly</p> <ul style="list-style-type: none"> • identify the correct tools for assembly • assemble the artefacts and test for squareness and flatness • wipe off excess glue 	<p>Rebated butt joint, Dowelled joint)</p> <ul style="list-style-type: none"> • Trial assembly • Closed assembly • Test for squareness and flatness • Clean excess glue 	<ul style="list-style-type: none"> • Identifying the correct tools for assembly • Testing artefacts for squareness and flatness • Assembling artefacts and testing for squareness and flatness • Wiping off excess glue 	<ul style="list-style-type: none"> • Assembling tools • Testing tools • Cloth • Print media • Realia - the artefacts • ICT tools
<p>8.6.3 Forms of Construction</p>	<ul style="list-style-type: none"> • Identify the forms of carcass construction • name the members that make up the carcass construction • sketch the forms of carcass construction • identify the joints used in carcass construction • identify the artefacts that can be made using carcass construction • make artefacts using carcass construction 	<ul style="list-style-type: none"> • Carcass construction - Simple framed carcass - Framed and paneled - Solid end carcass - Solid carcass 	<ul style="list-style-type: none"> • Identifying the forms of carcass construction • Naming the members that make up a carcass • Sketching the forms of construction • Identifying the joints used in carcass construction • Identifying the artefacts made using carcass construction • Making artefacts using carcass construction 	<ul style="list-style-type: none"> • Samples of different forms of carcass construction • Print media • Electronic media

<p>8.6.4 Fixing Tops and Seats</p>	<ul style="list-style-type: none"> • identify the methods of fixing the tops • sketch the methods of fixing the tops • apply the methods of fixing the tops 	<ul style="list-style-type: none"> • Wooden button method • Shrinkage plates 	<ul style="list-style-type: none"> • Identifying the methods of fixing tops • Sketching the methods of fixing tops • Applying the methods of fixing tops 	<ul style="list-style-type: none"> • Realia – buttons, shrinkage plates • Print media • Electronic media
<p>8.6.5 Machine Operations</p>	<ul style="list-style-type: none"> • use machine tools to plane and saw pieces of wood 	<ul style="list-style-type: none"> • Machine planing • Machine sawing 	<ul style="list-style-type: none"> • Planing using a surfacer/jointer • Using the sawing machines 	<ul style="list-style-type: none"> • Planing machines • Sawing machines • Print media • ICT tools
<p>8.6.6 Fittings</p>	<ul style="list-style-type: none"> • identify the hinges and locks • illustrate the hinges and locks • use the hinges and locks on artefacts 	<ul style="list-style-type: none"> • Hinges - Types - Uses - Parts • Locks - Types - Uses - Parts 	<ul style="list-style-type: none"> • Identifying the hinges and locks • Illustrating the hinges and locks • Labelling the hinges and locks • Using the hinges and the locks 	<ul style="list-style-type: none"> • Realia – hinges, locks • Print media • Electronic media

8.7 TOPIC 7: JOINERY

KEY CONCEPTS	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
8.7.1 Doors	<ul style="list-style-type: none"> produce different designs of doors 	<ul style="list-style-type: none"> Design of doors Door joints Ironmongery 	<ul style="list-style-type: none"> Producing different designs of doors 	<ul style="list-style-type: none"> Realia – doors and ironmongery Print media

	<ul style="list-style-type: none"> • select appropriate joints to be used in door construction • apply the joints in the construction of doors • use the appropriate ironmongery on doors 		<ul style="list-style-type: none"> • Selecting appropriate joints to be used in door construction • Applying the joints in the construction of doors • Using the appropriate ironmongery on doors 	<ul style="list-style-type: none"> • Electronic media tools
8.7.2 Windows	<ul style="list-style-type: none"> • Produce different designs of windows • select appropriate joints to be used in window construction • apply the joints in the construction of windows • use the appropriate ironmongery on windows 	<ul style="list-style-type: none"> • Design of windows • Window joints • Ironmongery 	<ul style="list-style-type: none"> • Producing different designs of windows • Selecting appropriate joints to be used in window construction • Applying the joints in the construction of windows • Using the appropriate ironmongery on windows 	<ul style="list-style-type: none"> • Realia – windows and ironmongery • Print media • Electronic media
8.7.3 Wall Fittings	<ul style="list-style-type: none"> • fix an artefact on the wall using the bracket method 	<ul style="list-style-type: none"> • Method of fixing artefacts to the walls - Brackets 	<ul style="list-style-type: none"> • Fixing of an artefact to the wall using brackets 	<ul style="list-style-type: none"> • Realia – brackets, artefacts, hammers • Print media • ICT tools

8.8 TOPIC 8: CARPENTRY

KEY CONCEPTS	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
8.8.1 Roofs	<ul style="list-style-type: none"> produce different designs of roofs state different covering materials used on roofs identify the different roof trusses state the parts of different roof trusses sketch different roof trusses 	<ul style="list-style-type: none"> Roof designs Covering materials Roof trusses - Parts 	<ul style="list-style-type: none"> Producing different designs of roofs Stating different types of covering materials used on roofs Identifying different types of roof trusses Sketching and labelling different roof trusses 	<ul style="list-style-type: none"> Print media Resource person – carpenter Realia – roofs on buildings, miniature roof trusses ICT tools
8.8.2 Formwork	<ul style="list-style-type: none"> identify types of release agents used in formwork explain the purpose of release agents identify the methods used to dismantle formwork 	<ul style="list-style-type: none"> Release agents Dismantling 	<ul style="list-style-type: none"> Identifying types of release agents Explaining the purpose of release agents Identifying the methods used to dismantle formwork 	<ul style="list-style-type: none"> Print media Resource person – builder ICT tools
8.8.3 Ceilings	<ul style="list-style-type: none"> follow the correct procedures when fitting a ceiling 	<ul style="list-style-type: none"> Fitting ceilings 	<ul style="list-style-type: none"> Fitting ceilings 	<ul style="list-style-type: none"> Tools used in fixing ceilings Resource person – joiner/carpenter ICT tools

8.9 TOPIC 9: UPHOLSTERY

KEY CONCEPTS	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
8.9.1 Upholstery	<ul style="list-style-type: none"> • select appropriate tools for upholstering • use simple methods to upholster artefacts 	<ul style="list-style-type: none"> • Application of upholstery techniques 	<ul style="list-style-type: none"> • Selecting the appropriate tools used to upholster artefacts • Using methods that are used to upholster artefacts 	<ul style="list-style-type: none"> • Realia such as upholstery tools, artefacts and materials • Print media • ICT tools

8.10 TOPIC 10: WOOD FINISHING

KEY CONCEPTS	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
8.10.1 Sanding Machines	<ul style="list-style-type: none"> prepare wood surfaces for finishing using the orbital sander 	<ul style="list-style-type: none"> Use of sanding machines <ul style="list-style-type: none"> Orbital sander 	<ul style="list-style-type: none"> Preparing wood surfaces for finishing using the orbital sander 	<ul style="list-style-type: none"> Realia –orbital sander, abrasive materials, artefacts Print media ICT tools
8.10.2 Finishes	<ul style="list-style-type: none"> apply finishes on the artefacts clean brushes using solvents 	<ul style="list-style-type: none"> Application of clear finishes Use of solvents to clean brushes 	<ul style="list-style-type: none"> applying the clear finishes on to the wood surfaces cleaning brushes using solvents 	<ul style="list-style-type: none"> Realia – brushes, correct solvents artefacts clear finishes Print media ICT tools

8.11 TOPIC 11: GRAPHICS

KEY CONCEPTS	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
8.11.1 Drawing with instruments	<ul style="list-style-type: none"> draw orthographic elevations of artefacts to scale draw sectional views of artefacts draw diagrams in perspective 	<ul style="list-style-type: none"> Orthographic drawing of frames, cabinets and tables or stools Sectional drawing Perspective drawing <ul style="list-style-type: none"> shapes artefacts 	<ul style="list-style-type: none"> Drawing orthographic elevations of artefacts Drawing sectional views of artefacts Drawing diagrams in perspective 	<ul style="list-style-type: none"> Print media Electronic media
8.11.2 Computer aided Drawing	<ul style="list-style-type: none"> produce pictorial drawings, exploded views and orthographic views using CAD 	<ul style="list-style-type: none"> CAD Pictorial drawing Exploded views Orthographic views 	<ul style="list-style-type: none"> Producing pictorial drawings, exploded views and orthographic views using CAD 	<ul style="list-style-type: none"> Print media Electronic media Resource person

8.12 TOPIC 12: DESIGN

KEY CONCEPTS	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
8.12.1 Design process	<ul style="list-style-type: none"> • compile a design folio • make an artefact following the design process 	<ul style="list-style-type: none"> • Design folio • Stages <ul style="list-style-type: none"> - Situation - Design brief - Investigation - Possible solutions - Chosen solution - justification of choice - development of chosen solution - Model production - Evaluation of model - Realization - Evaluation • Projects that include flat, stool and carcass construction 	<ul style="list-style-type: none"> • Compiling design folios • Making artefacts 	<ul style="list-style-type: none"> • Print media • Samples of design folios • Electronic media • Samples of artefacts

8.13 TOPIC 13: MANAGEMENT OF RESOURCES

KEY CONCEPTS	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
8.13.1 Waste Management	<ul style="list-style-type: none"> Explain waste management state by- products manufactured from waste materials describe how the by-products are processed 	<ul style="list-style-type: none"> Waste management By- products from waste material Padding materials 	<ul style="list-style-type: none"> Explaining the term waste management Stating by products of waste materials Describing how the by- products are processed 	<ul style="list-style-type: none"> Print media Electronic media
8.13.2 Material Cost	<ul style="list-style-type: none"> cost materials required to make an artefact 	<ul style="list-style-type: none"> Material cost (metre run, square metre, cubic metre) 	<ul style="list-style-type: none"> Costing of materials used to make an artefact 	<ul style="list-style-type: none"> ICT tools Print media
8.13.3 Calculations	<ul style="list-style-type: none"> calculate the cost of a finished product 	<ul style="list-style-type: none"> Finished product - Cost of materials - Labour - Time 	<ul style="list-style-type: none"> Calculating the cost of a finished product 	<ul style="list-style-type: none"> Print media Electronic media
8.13.4 Afforestation	<ul style="list-style-type: none"> maintain planted trees plant more trees yearly 	<ul style="list-style-type: none"> Maintenance of planted trees Plant more trees 	<ul style="list-style-type: none"> Maintaining planted trees Planting more trees Forming conservation clubs 	<ul style="list-style-type: none"> EMA personnel Print media Electronic media Tree seedlings

8.14 TOPIC 14: WOOD BENDING, CARVING, SCULPTING, TURNING AND ORNAMENTATION

TOPIC	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
8.14.1 Wood Turning	<ul style="list-style-type: none"> • identify the parts of a wood turning lathe • state the safety precautions to be observed when using the lathe • describe the methods of turning • state the wood turning tools and their uses • decorate pieces of wood using a lathe • describe the finishing process of a turned piece 	<ul style="list-style-type: none"> • Wood turning lathe - Parts - Methods of turning - Safety - Wood turning tools and their uses - Finishing turned work 	<ul style="list-style-type: none"> • Identifying the parts of a wood turning lathe • Stating the safety precautions observed when turning • Describing the methods of turning • Stating the wood turning tools and their uses • Decorating pieces of wood using a lathe • Describing finishing of turned pieces 	<ul style="list-style-type: none"> • Print media • Lathe machines • Wood turning tools • ICT tools
8.14.2 Ornamentation	<ul style="list-style-type: none"> • Explain ornamentation • Illustrate methods of ornamentation • Mould pieces of wood using a spindle moulder 	<ul style="list-style-type: none"> • Definition of ornamentation • Methods - Inlaying - Spindle moulding 	<ul style="list-style-type: none"> • Explaining the term ornamentation • Illustrating methods of ornamentation • Moulding pieces of timber 	<ul style="list-style-type: none"> • Realia – spindle moulder machine and tools • Models of spindle moulded pieces of wood • Print media • Electronic media

FORM 4**8.0 COMPETENCY MATRIX****8.1 TOPIC 1: HEALTH AND SAFETY**

TOPIC	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
8.1.1 Careers in health and Safety	<ul style="list-style-type: none"> Identify careers in health and safety 	<ul style="list-style-type: none"> Careers in health and safety - Safety Health Environment officer - Health Safety Inspector - Factory Inspector, First Aid Personnel - Fire Technicians 	<ul style="list-style-type: none"> Identifying careers in health and safety Conducting educational tours 	<ul style="list-style-type: none"> Resource person Print media ICT tools
8.1.2 Hazardous substances	<ul style="list-style-type: none"> List hazardous substances explain the safe storage of hazardous substances use the hazardous substances safely 	<ul style="list-style-type: none"> Thinners, turpentine, glues, paint, methylated spirits, vanishes and lacquer finishes Storage of hazardous substances Safe use of hazardous substances 	<ul style="list-style-type: none"> Listing hazardous substances Explaining safe storage of hazardous substances using hazardous substances safely 	<ul style="list-style-type: none"> Resource person Print media ICT tools Hazardous substances

8.2 TOPIC 2: MATERIAL TECHNOLOGY

TOPIC	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
8.2.1 Wood	<ul style="list-style-type: none"> Conduct scientific tests on wood 	<ul style="list-style-type: none"> Scientific tests on wood <ul style="list-style-type: none"> -strength of wood -moisture content -effectiveness of joints -suitability of stains, dyes, finishes 	<ul style="list-style-type: none"> Conducting tests on wood 	<ul style="list-style-type: none"> ICT tools Print media Realia: such as pieces of wood, testing equipment
8.2.2 Metal	<ul style="list-style-type: none"> Conduct scientific tests on metals 	<ul style="list-style-type: none"> metal properties 	<ul style="list-style-type: none"> Conducting tests on metals 	<ul style="list-style-type: none"> ICT tools Print media Realia such as metals and testing equipment Resource persons

8.2.3 Plastic	<ul style="list-style-type: none"> • Conduct scientific tests on plastics 	<ul style="list-style-type: none"> • Plastics properties 	<ul style="list-style-type: none"> • Conducting tests on plastics 	<ul style="list-style-type: none"> • ICT tools • Print media • Realia such as plastics and testing equipment • Resource person
8.2.4 Ceramics	<ul style="list-style-type: none"> • Conduct scientific tests on Ceramics 	<ul style="list-style-type: none"> • Ceramics properties 	<ul style="list-style-type: none"> • Conducting tests on ceramics 	
8.2.5 Rubber	<ul style="list-style-type: none"> • Conduct scientific tests on rubber 	<ul style="list-style-type: none"> • Rubber properties 	<ul style="list-style-type: none"> • experimenting on strength of rubber 	<ul style="list-style-type: none"> • ICT tools • Print media • Realia such as finishes and testing equipment • Resource person
8.2.6 Finishes	<ul style="list-style-type: none"> • Conduct tests on properties of finishes 	<ul style="list-style-type: none"> • Properties of finishes 	<ul style="list-style-type: none"> • conducting tests on finishes 	<ul style="list-style-type: none"> • ICT tools • Print media • Realia such as finishes and

<p>testing equipment</p> <ul style="list-style-type: none"> Resource person 				
<ul style="list-style-type: none"> ICT tools Print media Realia such as adhesives and testing equipment 	<ul style="list-style-type: none"> Conducting tests on adhesives 	<ul style="list-style-type: none"> Properties of adhesives 	<ul style="list-style-type: none"> conduct tests on properties of adhesives 	<p>8.2.7 Adhesives</p>

8.3 TOPIC 3: ENTERPRISE SKILLS

KEY CONCEPT	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
8.3.1 Business Ethics (unhu/ubuntu)	<ul style="list-style-type: none"> discuss business ethics 	<ul style="list-style-type: none"> Code of conduct Making ethical decisions 	<ul style="list-style-type: none"> Discussing business ethics 	<ul style="list-style-type: none"> Resource person ICT Print Media
8.3.2 Marketing	<ul style="list-style-type: none"> Identify challenges in marketing 	<ul style="list-style-type: none"> Challenges 	<ul style="list-style-type: none"> Identifying challenges faced in marketing products 	<ul style="list-style-type: none"> Resource person ICT tools Print media
8.3.3 Project Proposal	<ul style="list-style-type: none"> write a business proposal 	<ul style="list-style-type: none"> Business proposal 	<ul style="list-style-type: none"> Writing a business proposal 	<ul style="list-style-type: none"> Resource persons Business proposals ICT tools
8.3.4 Company Formation	<ul style="list-style-type: none"> Explain legal requirements in company formation Describe the different types of businesses 	<ul style="list-style-type: none"> Legal requirements Types of businesses 	<ul style="list-style-type: none"> Explaining legal requirements Describing the different types of businesses 	<ul style="list-style-type: none"> Resource person Print media ICT tools

<p>8.3.5 Business Growth</p>	<ul style="list-style-type: none"> • Explain ways of sourcing finances • Identify challenges associated with business growth • discuss the importance of patenting 	<ul style="list-style-type: none"> • Finance sources <ul style="list-style-type: none"> - Internal and external sources of capital • Challenges of a growing business • Patenting 	<ul style="list-style-type: none"> • Explaining the ways of sourcing finance • Identifying challenges of business growth • Discussing the importance of patenting 	<ul style="list-style-type: none"> • Print media • ICT tools • Resource person
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8.4 TOPIC 4: TOOLS AND TOOL TECHNOLOGY

TOPIC	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
8.4.1 Boring Tools	<ul style="list-style-type: none"> • identify boring tools and bits • sketch the boring tools and bits • explain uses of boring tools and bits • use boring tools and bits 	<ul style="list-style-type: none"> • Boring tools and bits • Sketches • Use 	<ul style="list-style-type: none"> • Identifying boring tools and bits • Sketching boring tools and bits • Explaining uses of boring tools and bits • Using boring tools and bits 	<ul style="list-style-type: none"> • Print media • Boring bits • Boring tools • ICT Tools
8.4.2 Multi-purpose planes	<ul style="list-style-type: none"> • Describe functions of multi-purpose planes 	<ul style="list-style-type: none"> • Multi purpose planes 	<ul style="list-style-type: none"> • Describing functions of multi-purpose plane 	<ul style="list-style-type: none"> • Print media • Multi-purpose planes
8.4.4 Appropriate Technology	<ul style="list-style-type: none"> • Construct wood working tools 	<ul style="list-style-type: none"> • Appropriate technology <ul style="list-style-type: none"> - making mallets - making gauge - try squares - rules 	<ul style="list-style-type: none"> • Constructing woodworking tools 	<ul style="list-style-type: none"> • Print media • Gauges • Try squares rules

8.5 TOPIC 5: MACHINES

TOPIC	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
8.4.1 Machine Tools	<ul style="list-style-type: none"> Explain safety precautions observed when using the machines Identify the parts of the machines State the use of the machine parts Operate the machines 	<ul style="list-style-type: none"> Safety <ul style="list-style-type: none"> -Morticer -Band saw Operations of the machines 	<ul style="list-style-type: none"> Explaining the safety precautions Identifying the machine parts Stating the uses of the machines Operating the machines 	<ul style="list-style-type: none"> Print media Electronic media Realia such as morticer and band saw

8.6 TOPIC 6: CONSTRUCTION PROCESSES AND HARDWARE

KEY CONCEPTS	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
7.6.1 Marking out and cutting Joints	<ul style="list-style-type: none"> select the correct tools for marking out the joints mark out joints cut the joints following the correct sequence Identify the methods of strengthening mortise and tenon joints 	<ul style="list-style-type: none"> Correct sequence of marking out and cutting of <ul style="list-style-type: none"> - Widening joints (Loose tongue and groove, Tongue and grooved Slot screwing) - Lap dovetail joint - Twin mortise and tenon joint 	<ul style="list-style-type: none"> Selecting and using appropriate tools for marking out and cutting Identifying the methods of strengthening the joints Describing the methods Applying the methods 	<ul style="list-style-type: none"> Print media Realia such as: <ul style="list-style-type: none"> - actual joints - Work pieces ICT tools

	<ul style="list-style-type: none"> describe the methods of strengthening mortise and tenon joints Illustrate the methods of strengthening mortise and tenon joints Use the methods on artefacts 	<ul style="list-style-type: none"> Double mortise and tenon joints Strengthening of joints 		
8.6.2 Machine Operations	<ul style="list-style-type: none"> operate the machines 	<ul style="list-style-type: none"> Machines Band saw Lathe 	<ul style="list-style-type: none"> Operating the machines 	<ul style="list-style-type: none"> Realia such as machines, work pieces Print media Resource person ICT tools
8.6.3 Assembly	<ul style="list-style-type: none"> identify the correct tools for assembly assemble the artefacts and test for squareness and flatness wipe off excess glue 	<ul style="list-style-type: none"> Trial assembly Closed assembly Test for squareness and flatness Clean excess glue 	<ul style="list-style-type: none"> Identifying the correct tools for assembly Testing the artefacts for squareness and flatness Assembling the artefacts and testing for squareness and flatness Wiping off excess glue 	<ul style="list-style-type: none"> Assembling tools Testing tools Wet Cloth Print media Realia such as the artefact ICT tools
8.6.4 Forms of Construction	<ul style="list-style-type: none"> identify drawer parts identify drawer support members explain the purpose of drawer support members 	<ul style="list-style-type: none"> Drawer construction Drawer parts Drawer support members Drawer joints Drawer design 	<ul style="list-style-type: none"> Identifying drawer parts Identifying drawer support members 	<ul style="list-style-type: none"> Realia such as : drawers and support members Print media Recommended textbooks

	<ul style="list-style-type: none"> • identify drawer joints • sketch drawer joints • produce drawer designs • construct a drawer 	<ul style="list-style-type: none"> • Construction of a drawer 	<ul style="list-style-type: none"> • Explaining the purpose of drawer support members • Identifying drawer joints • Sketching drawer joints • Designing drawers • Constructing drawers 	<ul style="list-style-type: none"> • ICT tools
8.6.5 Fixing Tops and Seats	<ul style="list-style-type: none"> • identify the methods of fixing tops and seats • sketch the methods • Apply the methods on an artefact 	<ul style="list-style-type: none"> • Slot screwing • Modern methods 	<ul style="list-style-type: none"> • Identifying the methods • Sketching the methods • Applying the methods on an artefact 	<ul style="list-style-type: none"> • Realia – tools, artefacts • Electronic media • Recommended textbooks
8.6.6 Fittings	<ul style="list-style-type: none"> • identify the fittings • sketch the fittings • apply the fittings on artefacts 	<ul style="list-style-type: none"> • Catches • Other fittings 	<ul style="list-style-type: none"> • Identifying the fittings • Sketching the fittings • Applying the fittings on artefacts 	<ul style="list-style-type: none"> • Print media • Realia such as: <ul style="list-style-type: none"> - Catches - Hasp and staple - Barrel bolts - Cabin hook and eye • ICT tools

8.7 TOPIC 7: JOINERY

KEY CONCEPTS	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
8.7.1 Doors	<ul style="list-style-type: none"> • construct doors • compile cutting lists • prepare working rods • hang doors 	<ul style="list-style-type: none"> • Construction of doors • Cutting list • Working rods • Door fitting 	<ul style="list-style-type: none"> • Constructing doors • Compiling cutting lists • Preparing working rods • Hanging doors at school/community 	<ul style="list-style-type: none"> • Print media • Resource persons • Realia such as: doors • ICT tools
8.7.2 Windows	<ul style="list-style-type: none"> • construct windows • compile cutting lists • prepare working rods • Fix windows 	<ul style="list-style-type: none"> • Construction of windows • Cutting lists • Working rods • Fixing windows 	<ul style="list-style-type: none"> • Constructing windows • Compiling cutting lists • Preparing working rods • Fixing windows at school/community 	<ul style="list-style-type: none"> • Print media • Resource person • ICT tools • Realia such as: windows
8.7.3 Wall Fittings	<ul style="list-style-type: none"> • fix an artefact on the wall using rawl bolts 	<ul style="list-style-type: none"> • Rawl bolts 	<ul style="list-style-type: none"> • Fixing articles on the wall using rawl bolts at school/community 	<ul style="list-style-type: none"> • Print media • Realia such as: <ul style="list-style-type: none"> - Rawl bolts, tools • ICT tools

8.8 TOPIC8:CARPENTRY

KEY CONCEPTS	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
8.8.1 Roofs	<ul style="list-style-type: none"> determine roofs set out roofs construct roofs 	<ul style="list-style-type: none"> Roof determination Roof setting Construction of roofs 	<ul style="list-style-type: none"> Determining roofs Setting out roofs Constructing roofs at school/community 	<ul style="list-style-type: none"> Print media Resource persons Realia such as: roofs, trusses Roof template ICT tools
8.8.2 Formwork	<ul style="list-style-type: none"> construct formwork dismantle formwork 	<ul style="list-style-type: none"> Construction of formwork Methods of dismantling 	<ul style="list-style-type: none"> Constructing formwork Dismantling formwork at school/community 	<ul style="list-style-type: none"> Print media Resource persons Realia such as: formwork ICT tools
8.8.3 Ceiling	<ul style="list-style-type: none"> follow the correct procedure when fitting a ceiling 	<ul style="list-style-type: none"> Fitting ceilings 	<ul style="list-style-type: none"> Fitting ceilings at school and community 	<ul style="list-style-type: none"> Tools used in fixing ceilings Resource person ICT tools Print media

8.9 TOPIC 9: UPHOLSTERY

KEY CONCEPTS	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
8.9.1 Upholstery	<ul style="list-style-type: none"> apply techniques of upholstery 	<ul style="list-style-type: none"> Application of techniques 	<ul style="list-style-type: none"> Upholstering at school/community 	<ul style="list-style-type: none"> Print media Resource persons Realia such as: upholstered artefacts and upholstery material ICT tools

8.10 TOPIC 10: WOOD FINISHING

KEY CONCEPT	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
8.10.1 Sanding Machines	<ul style="list-style-type: none"> prepare wood surfaces for finishing using belt sanders and drum sanders 	<ul style="list-style-type: none"> Sanding machines <ul style="list-style-type: none"> Belt sander Drum sander 	<ul style="list-style-type: none"> Preparing wood surfaces for finishing using a belt sander and drum sander 	<ul style="list-style-type: none"> Realia – drum sander, Belt sander, artefacts
8.10.2 Finishes	<ul style="list-style-type: none"> Apply opaque finishes on wood surfaces Clean brushes using solvents 	<ul style="list-style-type: none"> Application of opaque finishes on wood surfaces Use of solvents to clean brushes 	<ul style="list-style-type: none"> Applying the opaque finishes on wood surfaces Cleaning brushes using solvents 	<ul style="list-style-type: none"> Realia – brushes, solvents, artefacts, opaque finishes Print media ICT tools

8.11 TOPIC 11: GRAPHIC COMMUNICATION

TOPIC	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
8.11.1 Drawing with Instruments	<ul style="list-style-type: none"> draw elevations of artefacts in first angle or third angle 	<ul style="list-style-type: none"> Orthographic drawing 	<ul style="list-style-type: none"> Drawing elevations of artefacts 	<ul style="list-style-type: none"> Print media Electronic media
8.11.2 Computer Aided Drawing	<ul style="list-style-type: none"> use CAD to draw 	<ul style="list-style-type: none"> CAD 	<ul style="list-style-type: none"> using CAD to draw 	<ul style="list-style-type: none"> Print media Electronic media Resource person

8.12 TOPIC 12: DESIGN

KEY CONCEPTS	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
8.12.1 Design process	<ul style="list-style-type: none"> compile a design folio make an artefact following the design process 	<ul style="list-style-type: none"> Design folio Stages Situation Design brief Investigation Possible solutions Chosen solution Justification of choice development of chose solution Model production Evaluation of model Realization Evaluation 	<ul style="list-style-type: none"> Compiling design folios Making artefacts 	<ul style="list-style-type: none"> Print media Samples of design folios ICT tools Samples of artefacts

		<ul style="list-style-type: none">• Projects that include flat frame, carcass and stool construction using wood and other materials		

8.13 TOPIC 13: MANAGEMENT OF RESOURCES

KEY CONCEPTS	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
8.13.1 Artefact Costing	<ul style="list-style-type: none"> • compile a cutting list for the continuous assessment project • cost all the materials on the cutting list • cost the labour, time and overheads • calculate profit and Value Added Tax • calculate the selling price of the artefact 	<ul style="list-style-type: none"> • Materials cost <ul style="list-style-type: none"> -Labour -Time -Overheads -Profit and VAT - Project unit price 	<ul style="list-style-type: none"> • Compiling a cutting list • Costing of the materials • Costing of labour, time and overheads • Calculating the profit and Value Added Tax • Calculation of the selling price of the article 	<ul style="list-style-type: none"> • Print media • Electronic media • Resource person • Realia such as: artefacts

8.13.2 Calculations	<ul style="list-style-type: none"> • Calculate moisture content in wet or dry timber 	<ul style="list-style-type: none"> • Moisture content calculations 	<ul style="list-style-type: none"> • Calculating the moisture content 	<ul style="list-style-type: none"> • Print media • Electronic media • Visits to kiln plants • Resource person
8.13.3 Afforestation	<ul style="list-style-type: none"> • state purpose of fire guards • prepare fireguards • Maintain the tree basins • Plant more trees in the plantation 	<ul style="list-style-type: none"> • fire guards • Maintenance of the tree plantation • Planting of more trees 	<ul style="list-style-type: none"> • Stating the purpose of the fire guards • Preparing fireguards • Maintaining the tree basins • Planting of trees at school/community 	<ul style="list-style-type: none"> • Print media • Electronic media • School tree plantation • Resource person

8.14 TOPIC 14: WOOD BENDING, CARVING, SCULPTING, TURNING AND ORNAMENTATION

KEY CONCEPTS	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
8.14.1 Wood Turning	<ul style="list-style-type: none"> • describe face plate turning and turning between centers • adjust lathe speed • drill centre holes on long pieces of timber 	<ul style="list-style-type: none"> • Wood turning lathe - Face plate turning - Turning between centers - Speed adjustment - Centre boring 	<ul style="list-style-type: none"> • Describing face plate turning and spindle turning • Adjusting lathe speed • Drilling centre holes 	<ul style="list-style-type: none"> • Realia such as lathe and lathe tools • Models of face plate turned and spindle turned artefacts • Print media • Electronic media • Resource person
8.14.2 Ornamentation	<ul style="list-style-type: none"> • explain parquetry and marquetry • Illustrate parquetry and marquetry by 	<ul style="list-style-type: none"> • Parquetry • Marquetry • Wooden floors maintenance 	<ul style="list-style-type: none"> • Explaining parquetry and marquetry • Illustrating parquetry and marquetry 	<ul style="list-style-type: none"> • Realia such as mosaic wood blocks, veneers • Print media

	<p>means of lash ups and drawings</p> <ul style="list-style-type: none"> • Maintain wooden floors 		<ul style="list-style-type: none"> • Maintaining of wooden floors at school/community 	<ul style="list-style-type: none"> • ICT tools • Resource persons
8.14.3 Wood Bending	<ul style="list-style-type: none"> • explain wood bending • describe the methods • bend wood using the different methods 	<ul style="list-style-type: none"> • Definition • Methods <ul style="list-style-type: none"> - Steam box - Kerf - Laminating 	<ul style="list-style-type: none"> • Explaining wood bending • Describing the methods • Bending wood to manufacture artefacts at school/community 	<ul style="list-style-type: none"> • Realia – wood bending tools and equipment • Models of decorated projects • Print media • Electronic media

9.0 ASSESSMENT

Forms 1-3 Wood Technology and Design is assessed through continuous assessment. Form 4 is assessed through continuous and summative assessment. Arrangements, modifications and provisions for the assessment of candidates with special needs will be made to allow equal opportunities in accurate performance and measurement of abilities. The scheme of assessment is based on the principle of inclusivity.

Forms 1-3 learners are required to design and realize one major community based project at each level as continuous assessment. They are also required to write 1 major exercise per term based on theory sections, 1 major exercise per term based on drawing and design and carry out 1 major practical exercise per term at each level that should be submitted as continuous assessment at the end of each year. Form 4 learners are also required to design and realize one major community based project as continuous assessment. They are required to write 1 major exercise per term, in terms 1 and 2 based on theory sections, 1 major exercise per term, in terms 1 and 2 based on drawing and design and carry out 1 major practical exercise per term, in terms 1 and 2 that should be submitted as continuous assessment at the end of the year. The subject teacher will set and mark the exercises, as well as record the marks using ZIMSEC guides.

ZIMSEC will also provide a template for the assessment of soft skills. Subject teachers will be required to provide a file for each learner where each of the practical exercises and marked scripts will be kept. In addition, subject teachers will also be required to create a file where exercises / question papers and marking guides for each exercise administered as well as recorded marks will be kept. ZIMSEC and Ministry of Primary and Secondary Education personnel will monitor the programme.

School heads will submit continuous assessment marks at the end of the year in Forms 1-4 as provided for by ZIMSEC.

(a) Assessment Objectives

Learners will be assessed on their ability to:

- 9.1.1 explain principles of occupational health and safety precautions in using hand and machine tools, materials and equipment
- 9.1.2 identify appropriate tools, equipment and materials for specific tasks
- 9.1.3 demonstrate processes and technical skills involved in the making of artefacts
- 9.1.4 calculate quantities and cost of materials required for projects
- 9.1.5 design useful projects as solutions to problems using technologies
- 9.1.6 use resources in a sustainable manner in the design and realisation of artefacts working within the constraints of cost and time
- 9.1.7 describe conservation of trees in relation to the ecosystem, environment and climate
- 9.1.8 demonstrate graphical communication skills relating to artefacts or systems using ICT tools

- 9.1.9 practise wood technology and design as an enterprise
- 9.1.10 demonstrate patriotism through community development projects
- 9.1.11 demonstrate an understanding of properties of materials used in Wood Technology and Design 9.1.12 apply scientific principles and technology in solving real life problems
- 9.1.13 demonstrate desirable interpersonal dimensions, attitudes and moral values underlying attributes of Unhu/Ubuntu/Vumunhu philosophy

(c) SPECIFICATION GRID

Assessment Objectives	Component 1	Component 2	Component 3	
9.1.1	*		*	
9.1.2	*	*	*	
9.1.3		*	*	
9.1.4	*		*	
9.1.5	*	*	*	
9.1.6	*	*	*	
9.1.7	*		*	
9.1.8	*	*	*	
9.1.9	*	*	*	
9.1.10	*		*	
9.1.11	*		*	
9.1.12	*	*	*	
9.1.13	*	*	*	
Weighting	30%	30%	40%	

Objectives/Components	Paper 1	Paper 2	Paper 3 Continuous Assessment
Knowledge with understanding	50%	20%	20%
Practical Skills and their application	30%	50%	30%
Decision making and judgment	20%	30%	50%
Total	100%	100%	100%

Description of Papers

Three papers will be set.

Paper 1 Theory, Graphics and Design (3 hours)

The Paper has 3 sections:

Section A Ten short questions from all sections of the syllabus (20 marks)

Section B Five questions from which candidates answer three. (30 marks)

Section C Compulsory question on graphics and design based on a piece of furniture or other wooden construction within the experience of the candidates. (30 marks)

Paper 2 Practical (3 hours)

The paper requires the use of common materials and practical skills proficiency using hand tools and machinery. Details of the materials, tools, equipment and machinery required will be provided before the examination (80 marks)

Paper 3 Continuous Assessment (Design Project) Learners will work from tasks provided by ZIMSEC

