ZIMBABWE

MINISTRY OF PRIMARY AND SECONDARY EDUCATION

DESIGN AND TECHNOLOGY SYLLABUS

FORMS 5 - 6

2015 - 2022

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- Captains of Industry
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- United Nations Educational, Scientific and Cultural Organization (UNESCO)

CONTENTS

1.0 PREAMBLE

1.1 Introduction

The Design and Technology syllabus is designed for Forms 5-6 learners who have done Design and Technology, Wood Technology and Design, Metal Technology and Design, Building Technology and Design, Technical Graphics and Design and Art and Design from Forms 1-4. It uses scientific, technological, engineering, mathematical (STEM) principles and design processes in solving problems through creativity, innovation and invention for cultural and economic well-being of society. This approach encourages the acquisition of competency-based technological skills, knowledge and attitudes which are relevant to the requirements of trade and industry, further studies and self-reliance. The syllabus embraces inclusivity in the learning and teaching of Design and Technology.

1.2 Rationale

The educational philosophy of the syllabus is concerned with the development of competency based skills and ethical attributes (Unhu/Ubuntu/Vumunhu) which emphasize the learners' role in making and shaping the environment whilst adding value to it. This encourages the learner to employ design and technological skills through problem solving processes to produce value added products using appropriate equipment and materials for the community, nation and global markets. It enables learners to design products which can be patented. The syllabus enables learners to explore numerous Design and Technology career opportunities. This also encourages learners to value the use of multi- materials, Science, Mathematics and other related learning areas.

The Design and Technology syllabus enables learners to develop skills in:

- Creativity
- Invention
- Innovation
- Design thinking
- Enterprising
- Value addition and beneficiation
- Problem solving
- Leadership
- Communication

1.3 Summary of Content

This syllabus covers theory and practical activities in Design and Technology.

It focuses on:

- Health and Safety
- Product Design
- Graphic Design
- Materials
- Systems and Control
- Value Addition and Beneficiation
- Intellectual Property Rights

1.4 Assumptions

The syllabus assumes that learners have knowledge in the following:

- Drawing standards and conventions
- Material Science
- Product Design
- Enterprise Education
- Information and Communication Technology (ICT)

1.5 Cross - cutting themes

In order to foster competency development for further studies, life and work, the following cross-cutting issues have been taken into consideration:

- Inclusivity
- Environmental issues
- Information Communication Technology (ICT)
- Disaster Risk Management
- Life Skills
- Respect for life
- Heritage studies

2.0 PRESENTATION OF SYLLABUS

The Design and Technology syllabus is a single document covering Forms 5-6. It contains the Preamble, Aims, Objectives, Syllabus Topics, Methodology, Scope and Sequence, Competency Matrix and Assessment

3.0 AIMS

The aims are to help learners to:

3.1 design value-added products that solve local problems and engage in inventions for the community, nation and the ever changing technological world
3.2 apply indigenous knowledge systems to design in the areas of social, economic, culture and the environment
3.3 apply enterprise skills through problem solving
3.4 exercise judgment of aesthetic, ergonomic, anthropometric and technological nature
3.5 foster a range of transferable skills and attributes
3.6 apply communication and critical thinking skills central to design, making and evaluation
3.7 patent their products

4.0 SYLLABUS OBJECTIVES

Learners should be able to:

4.1 observe health and safety procedures in the design and manufacture of products
4.2 experiment with design ideas to solve community based problems
4.3 use appropriate materials and equipment to attain quality products
4.4 plan production processes
4.5 undertake market research
4.6 identify situations for which design solutions are required in communities
4.7 exhibit enterprise skills by recognizing opportunities and constraints in design
4.8 apply ICT knowledge to monitor and control product development
4.9 make aesthetic, economic, moral (ethical) and technological value judgment
4.10 develop a maintenance culture
4.11 apply scientific and technological knowledge and skills in solving problems in the environment
4.12 apply appropriate communication techniques to inform and justify design ideas through exhibitions
4.13 follow the correct patenting procedures for intellectual property rights

5.0 METHODOLOGY AND TIME ALLOCATION

Methodology

This syllabus is based on learner-centred and multi-sensory approaches in the learning and teaching of Design and Technology. Material Science, Technology, Engineering, Mathematics and Drawing should be integral.

The approaches should involve application of principles of sustainability. The use of ICT, Computer Aided Design/Manufacturing (CAD/CAM) is a requirement.

Suggested Methods

- Discussion
- Project work
- Group work
- Experimentation
- Problem solving
- Demonstration
- Educational tours
- Resource persons
- Observation
- Team teaching
- Exhibition

Time Allocation

Fourteen periods of 40 minutes each per week should be allocated to adequately cover the syllabus. Two double periods for theory and two blocks of 5 periods for practicals/experiments should be allocated. Learners should be engaged in at least two educational tours per year, one exhibition per year, one seminar per term and attachment of two weeks during vacation in related industries at Form 5.

6.0 TOPICS

The syllabus consists of eight topics listed below:

6.1 Health and Safety
6.2 Product Design
6.3 Materials
6.4 Systems and Control
6.5 Graphic Design
6.6 Value Addition and Beneficiation
6.7. Intellectual Property Rights
6.8 Enterprise Education

7.0 SCOPE AND SEQUENCE

TOPIC	FORM 5	FORM 6
7.1 HEALTH AND SAFETY	• Disaster management • Workshop management	• Industrial waste management
7.2 PRODUCT DESIGN	• Cultural and technological influence on design • Practical design application	• Practical design application • Environment and sustainability
7.3 MATERIALS	• Engineering materials and their applications	
7.4 SYSTEMS AND CONTROL	• Structures • Mechanisms • Electronics	• Structures • Mechanisms • Electronics
7.5 GRAPHIC DESIGN	• Applied geometry • Computer Aided Design (CAD)	• Application of graphic products
7.6 VALUE ADDITION AND BENEFICIATION	• Management of local resources	• Management of local resources
7.7 INTELLECTUAL PROPERTY RIGHTS	• Patenting	• Patenting
7.8 ENTERPR ISE EDUCATION	• Business management	• Career opportunities

FORM 5

8.0 COMPETENCY MATRIX

8.1 TOPIC 1: HEALTH AND SAFETY

SUB TOPIC	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED LEARNING ACTIVITIES AND NOTES	SUGGESTED RESOURCES
8.1.1 WASTE MANAGEMENT	• identify methods of waste management • practice waste management methods • observe relevant By-laws	• Waste management methods • By-laws	• Identifying methods of waste management • Applying methods of waste management • Observing relevant By-laws • Visiting waste management sites	• ICT tools • Print Media • Resource persons • Sites
8.1.2 DISASTER MANAGEMENT	• demonstrate fire drill procedures • identify safety outlets • identify disaster management equipment • support the affected	• Fire drill procedures • Disaster management equipment • International Organization for Standards (ISO) Certification	• Demonstrating fire drill procedures • Rehearsing positive and safe response to a disaster • Reacting to disasters • Selecting the right equipment and procedures • Identifying escape routes	• Procedure manual • Escape routes and assembly points • Resource persons • Fire- fighting equipment • ICT tools • Regulatory Acts • Standards Association of Zimbabwe (SAZ)Board and materials
8.1.3 WORKSHOP MANAGEMENT	• plan the layout design • maintain equipment • demonstrate a maintenance culture	• Layout • Organization • Equipment maintenance and storage	• Planning workshop layout • Organizing storage of equipment and materials • Maintaining and repairing equipment within and outside the school	• Workshop plans • ICT tools • Print Media • Factories and Safety Act 1996 • Educational tours • Resource persons

8.2 TOPIC 2: PRODUCT DESIGN

SUB TOPIC	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED LEARNING ACTIVITIES AND NOTES	SUGGESTED RESOURCES
8.2.1 CULTURE AND TECHNOLOGICAL INFLUENCE ON DESIGN	• generate new ideas based on indigenous designs to solve community based problems • create new ideas based on available technologies to solve real life problems in communities	• Indigenous designs • Impact of technology on design	• Generating new ideas based on indigenous designs to solve community based problems • Creating new ideas based on available technologies to solve real life problems in communities • Undertaking studies of indigenous designs • Exhibiting prototypes • Visiting cultural and heritage centres	• ICT tools • Indigenous artefacts and designs • Educational tours
8.2.2 PRACTICAL DESIGN APPLICATIONS	• calculate bill of quantities required for particular projects • determine machine speeds and feeds based on types of materials • show awareness of standard risk assessment in product design and manufacture • apply quality control measures in design and manufacturing • design jigs and fixtures to facilitate production • use CAD/CAM in design and manufacturing	• Engineering calculations • Health and safety • Quality control • Jigs and fixtures • Computer Aided Design and Manufacturing (CAD/CAM)	• Computing bills of quantities • Calculating machine speeds and feeds • Demonstrating awareness of standard risk assessment in product design and manufacture • Conducting educational tours • Applying quality control measures in design and manufacturing • Making jigs and fixtures to facilitate production • Using CAD/CAM in design and manufacturing	• ICT tools • Print Media • Factories and Safety Act 1996 • Samples of jigs and fixtures
8.2.3 ENVIRONMENT AND SUSTAINABILITY	• show awareness and appreciation of resource conservation	• Conservation of resources • Sustenance strategies - Reuse	• Demonstrating resource conservation awareness and appreciation	• ICT tools • Resource persons • Print Media

SUB TOPIC	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED LEARNING ACTIVITIES AND NOTES	SUGGESTED RESOURCES
	• apply sustenance strategies	- Recycle - Reduce	• Applying sustenance strategies • Conducting educational tours	• Educational tours

8.3 TOPIC 3: MATERIALS

SUB TOPIC	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED LEARNING ACTIVITIES AND NOTES	SUGGESTED RESOURCES
8.3.1 ENGINEERING MATERIALS AND APPLICATIONS	• select appropriate modern materials for designs • establish factors that influence material selection for design and manufacturing purposes • determine properties of various materials through testing • calculate: - Stress - Strain - Factor of safety	• Smart and modern materials - Shape – memory, alloys and plastics - Piezoelectric materials - Fibre-optic sensors • Testing of materials • Factors influencing material selection of design and manufacturing purposes • Properties of materials • Price and availability • Aesthetic properties	• Applying smart and modern materials in product design and manufacture • Visiting manufacturing industries • Establishing factors influencing material selection for design and manufacturing purposes • Determining working properties of various materials through laboratory tests • Calculating stress, strain and factor of safety	• ICT tools • Resource persons • Educational tours • Testing equipment

8.4 TOPIC 4: SYSTEMS AND CONTROL

SUB TOPIC	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED LEARNING ACTIVITIES AND NOTES	SUGGESTED RESOURCES
8.4.1 STRUCTURES	• identify different structures as they occur in everyday life • classify natural and man-made structures • determine the resultant of concurrent and non-concurrent coplanar forces • analyse forces in members of plane frames • apply the concept of equilibrium as a result of applied loads and reactions	• Types of structures - Beams - Frames - Natural • Forces - Moments - Stress and strain - Point, wind loads - Reactions - Concurrent and non-concurrent forces	• Identifying different structures • Classifying natural and man-made structures • Determining the resultant of concurrent and non-concurrent coplanar forces • Analysing forces in members of a plane frame • Modelling structures • Embarking on educational tours	• Print Media • ICT tools • Models of structures • Educational tours
8.4.2 MECHANISMS	• select appropriate method of transmitting motion in designs • apply levers and associated linkages to design	• Transmission of motion - Gears - Belts - Pulleys - Chain and sprockets • Levers - First - Second - Third order - Associated linkages	• Selecting appropriate methods of transmitting motion • Applying principles of mechanisms to design • Embarking on educational tours	• Print Media • ICT tools • Educational tours
8.4.3 ELECTRONICS	• use formulae in power calculations • design and make circuit boards	• Current - Voltage - Resistance - Conductivity - Capacitance • Circuits - Building techniques	• Performing power calculations • Designing and making circuit boards • Using circuits in designing	• ICT tools • Print Media • Educational tours • Resource persons • Exhibitions

SUB TOPIC	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED LEARNING ACTIVITIES AND NOTES	SUGGESTED RESOURCES
	• apply health and safety regulations	• Safety	products • Observing health and safety regulations	

8.5 TOPIC 5: GRAPHIC DESIGN

SUB TOPIC	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED LEARNING ACTIVITIES AND NOTES	SUGGESTED RESOURCES
8.5.1 APPLIED GEOMETRY	• apply principles of applied geometry in design and manufacturing • apply graphic illustrations in design and manufacturing	• Plane geometry - Locus - Application of construction of plane shapes - Determination of area • Solid Geometry - Pictorial projections such as planometric isometric, perspective and oblique • Graphic illustrations - Data graphics such as line, pie, bar and flow charts	• Applying principles of applied geometry in design and manufacturing • Applying graphic illustrations in design and manufacturing	• Print Media • ICT tools
8.5.2 COMPUTER AIDED DESIGN (CAD)	• Apply computer based software to design	• Computer based software such as: - Microsoft - Corel draw - Auto CAD - Arch-CAD	• producing designs using computer based software	• ICT tools • Print Media • Resource person

8.6 TOPIC 6: VALUE ADDITION AND BENEFICIATION

SUB TOPIC	OBJECTIVES Learners should be able to	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED LEARNING ACTIVITIES AND NOTES	SUGGESTED RESOURCES
8.6.1 MANAGEMENT OF LOCAL RESOURCES	• identify locally available raw materials upon which value addition can be applied • perform value addition processes on locally available raw materials • apply alternative technologies to add value to waste • recycle waste material into value added products	• Processing of raw materials into marketable products • Waste management for second use (Recycling) • Alternative technologies (AD-HOCISM)	• Identifying locally available raw materials upon which value addition can be applied • Performing value addition processes on locally available raw materials • Applying alternative technologies to add value to waste • Recycling waste material into value added products	• ICT tools • Resource persons • Educational tours • Print Media • Waste material and obsolete gadgets

8.7 TOPIC 7: INTELLECTUAL PROPERTY RIGHTS

SUB TOPIC	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED LEARNING ACTIVITIES AND NOTES	SUGGESTED RESOURCES
8.7.1 PATENTING	• explain By-laws governing the process of patenting in Zimbabwe • describe the patenting process • carry out patenting procedures to protect their innovations and inventions	• By-laws • Patenting procedures	• Explaining By-laws governing the process of patenting in Zimbabwe • Describing the patenting process • Carrying out patenting procedures to protect their innovations and inventions	• ICT tools • Resource persons • Copyrights and Neighbouring Act

8.8 TOPIC 8: ENTERPRISE EDUCATION

SUB TOPIC	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED LEARNING ACTIVITIES AND NOTES	SUGGESTED RESOURCES
8.8.1 BUSINESS MANAGEMENT	• use project development techniques to complete projects in a given time frame • use appropriate numeracy skills in business • produce project proposals	• Planning • Documentation • Communication • Numeracy related skills in: - Ordering - Sizing - Quantifying - Costing - Estimating • Project proposals	• Using the project development techniques to complete projects • Using appropriate numeracy skills to selected business enterprises • Producing project proposals • Using project proposals to start businesses	• ICT tools • Print Media • Resource persons • Educational tours

FORM 6

8.0 COMPETENCY MATRIX

8.1 TOPIC 1: HEALTH AND SAFETY

SUB TOPIC	OBJECTIVES Learners should be able to	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED LEARNING ACTIVITIES AND NOTES	SUGGESTED RESOURCES
8.1.1 INDUSTRIAL WASTE MANAGEMENT	• identify methods of waste management • observe relevant By-laws • carry out research to determine strategies of separating and using types of waste	• Methods of industrial waste management • By-laws • Degradable and non- degradable materials • Hazardous substances	• Identifying methods of waste management • Observing relevant By-laws • Determining strategies of separating and using types of waste materials • Disposing of hazardous substances appropriately	• Environmental Management Agency (EMA) personnel and leaflets • Print Media • Waste management sites • ICT tools • Resource persons

8.2 TOPIC 2: PRODUCT DESIGN

SUB TOPIC	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED LEARNING ACTIVITIES AND NOTES	SUGGESTED RESOURCES
8.2.1 PRACTICAL DESIGN APPLICATION	• generate a work plan to be followed in the design and realization of a project • design products that are economically viable • construct models to test the feasibility of an idea • apply quality control measures in design and manufacturing • design jigs and fixtures to facilitate production • use CAD/CAM in design and manufacturing	• Design planning methods and organization • Design for economic manufacture • The use of models in the design process - Types of models (sales, layout, aesthetic/ergonomic design and test models) • Quality control • Jigs and fixtures • Computer Aided Design and Computer Aided Manufacturing (CAD/CAM)	• Generating work plans to be followed in the design and realization of products • Designing economically viable products • Constructing models to test the feasibility of ideas • Applying quality control measures in design and manufacturing • Making jigs and fixtures to facilitate production • Using CAD/CAM in design and manufacturing • Conducting educational tours • Exhibiting prototypes	• ICT tools • Resource persons • Exhibitions • Educational tours • Samples of jigs and fixtures

8.3 TOPIC 3: SYSTEMS AND CONTROL

SUB TOPIC	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED LEARNING ACTIVITIES AND NOTES	SUGGESTED RESOURCES
8.3.1 STRUCTURES	• determine forces in loaded beams, cables, frames, tripods and shear legs • analyse forces in members of structures • determine shear force and bending moments in beams • apply principles of forces in design	• Forces in - Beams - Frames - Cables - Shear legs and tripods	• Determining forces in loaded beams, tripods and framed structures for application in design	• Print Media • ICT tools • Models of structures
8.3.2 MECHANISMS	• apply principles of conversion of motion to design • design methods of reducing friction in moving parts	• Conversion of motion - Rotary - Linear - Reciprocating - Oscillating • Bearings and lubrication - Types of bearings - Methods of application	• Applying principles of conversion of motion to design • Designing methods of reducing friction	• Print Media • ICT tools • Models
8.3.3 ELECTRONICS	• construct time delay circuits • Use logic gates and truth tables for logic control systems in design • Use logic control systems in everyday life	• Time delay circuits • Logic gates and operational amplifiers	• Making time delay circuits • Using logic control systems in everyday life such as: - Traffic lights - Heating control - Environmental control in a greenhouse	• ICT tools • Print Media • Models

8.4 TOPIC 4: GRAPHIC DESIGN

SUB TOPIC	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED LEARNING ACTIVITIES AND NOTES	SUGGESTED RESOURCES
8.4.1 APPLICATION OF GRAPHIC PRODUCTS	• apply a range of appropriate software in creating, editing and publishing of multi-print media projects	• Software relevant to - Text creation - 2 and 3D design	• Producing multi-print media projects such as logograms, packaging, presentation drawings and interior design	• ICT tools • Print Media • Resource persons

8.5 TOPIC 5: VALUE ADDITION AND BENEFICIATION

SUB TOPIC	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED LEARNING ACTIVITIES AND NOTES	SUGGESTED RESOURCES
8.5.1 MANAGEMENT OF LOCAL RESOURCES	• apply alternative technologies to add value to obsolete equipment or gadgets	• Principle of AD-HOCISM - Alternative technologies	• Applying alternative technologies to add value to obsolete equipment or gadgets • Visiting recycling industries	• ICT tools • Resource persons • Educational tours • Print Media

8.6 TOPIC 6: INTELLECTUAL PROPERTY RIGHTS

SUB TOPIC	OBJECTIVES Learners should be able to:	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED LEARNING ACTIVITIES AND NOTES	SUGGESTED RESOURCES
8.6.1 PATENTING	• carry out patenting procedures to protect their innovations and inventions	• Patenting procedures	• Carrying out patenting procedures to protect innovations and inventions	• Resource persons • ICT tools • Copyright and Neighboring Act

8.7 TOPIC 7: ENTERPRISE EDUCATION

SUB TOPIC	OBJECTIVES Learners should be able to	CONTENT (ATTITUDES, SKILLS AND KNOWLEDGE)	SUGGESTED LEARNING ACTIVITIES AND NOTES	SUGGESTED RESOURCES
8.7.1 CAREER OPPORTUNITIES	• distinguish different types of career opportunities in their localities • explain meaning and different types of work • analyse how myths and beliefs affect work • exhibit characteristics for personal success	• Career opportunities as job creators or employees • Dignity and value of work • Myths and beliefs about work	• Discussing the meaning of "dignity of work" • Discussing various beliefs and myths about work • Making presentations on career choices and justifying them • Participating in career guidance workshops	• Resource persons • ICT tools • Print Media • Career Expos

9.0 ASSESSMENT

Forms 5-6 Design and Technology is assessed through continuous and summative assessment methods. The syllabus scheme of assessment is based on the principle of inclusivity. Arrangements, modifications and provisions for the assessment of candidates with special needs should be made to allow equal opportunities in accurate performance and measurement of abilities.

Learners are required to design and realize community based projects as continuous assessment by November of Form 5 and October of Form 6. They are also required to write 2 exercises based on Design and Technology Theory and 2 exercises based on Design and Drawing that should be submitted as continuous assessment at the end of each year. The subject teacher will set and mark the exercises, as well as record the marks using ZIMSEC guidelines.

ZIMSEC will 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 exercises and marked scripts will be kept. In addition, subject teachers are required to create a file where exercises / question papers and marking guides for each exercise administered and recorded marks will be kept. ZIMSEC and Ministry of Primary and Secondary Education personnel will monitor the program.

School heads should submit continuous assessment marks for design projects at the end of the year in Form 5 and Form 6 as provided for by ZIMSEC.

ASSESSMENT OBJECTIVES

By the end of the learning phase, learners will be assessed on the ability to:

9.1 observe health and safety procedures in the design and manufacture of products
9.2 experiment with design ideas to solve community based problems
9.3 use appropriate materials and equipment to attain quality products
9.4 plan production processes
9.5 undertake market research
9.6 identify situations for which design solutions are required in communities
9.7 exhibit enterprise skills by recognizing opportunities and constraints in design
9.8 apply ICT knowledge to monitor and control product development
9.9 make aesthetic, economic and technological value judgment
9.10 develop a maintenance culture
9.11 apply scientific and technological knowledge and skills in solving problems in the environment
9.12. apply appropriate communication techniques to inform and justify design ideas through exhibitions
9.13 follow the correct patenting procedures for intellectual property rights
9.14 demonstrate desirable interpersonal dimensions, attitudes and moral (ethical) values underlying attributes of Unhu/ Ubuntu/ Vumunhu philosophy

CONTINUOUS AND SUMMATIVE ASSESSMENT

Continuous and summative assessment will be carried out in the Design and Technology Theory, Drawing and Design and the Design Project components of the syllabus. The weighting of the components are as follows:

Summative Assessment	60%
Continuous Assessment	40%

Assessment Mode	Paper 1 Design and Technology Theory	Paper 2 Design and Drawing	Paper 3 Design Project	Total
Summative	20%	40%		60%
Continuous	5%	5%	30%	40%

(a) SCHEME OF ASSESSMENT

There are three papers: Paper 1-Design and Technology Theory, 3 hrs; Paper 2-Design and Drawing, 3½ hrs; Paper 3 Design Project (Continuous Assessment)

Paper 1 Design and Technology Theory (3hrs). Three sections will be offered:
Section A Four compulsory questions based on all sections of the syllabus
Section B Three questions based on calculations will be offered from Systems and Control, Graphic Design and Materials. Candidates are to answer only one.
Section C A problem solving question based on product design principles. It tests design thinking.

Paper 2 – Design and Drawing (3½ hrs)

Three questions will be set based on CAD applications from the following areas – Systems and Control, Graphic Design and Product Design. Candidates are to answer one question.

Paper 3 –Design Project (Continuous Assessment)

The project is compulsory and assessment is school based, internally marked and externally moderated. The project will be done during the course of the year beginning January to October of Form 6. Guidelines will be sent to examination centres by November of Form 5.

c) SPECIFICATION GRID

Assessment Objectives	Paper 1 Design and Technology Theory	Paper 2 Design and Drawing	Paper 3 Design Project
1.	**X**	**X**	**X**
2.	**X**	**X**	**X**
3.	**X**	**X**	**X**
4.	**X**	**X**	**X**
5.	**X**	**X**	**X**
6.		**X**	**X**
7.	**X**	**X**	**X**
8.		**X**	**X**
9.		**X**	**X**
10.	**X**		**X**
11	**X**	**X**	**X**
12		**X**	**X**
13	**X**		**X**
14			**X**
Weighting	**20%**	**40%**	**30%**

Objectives	Paper 1	Paper 2	Paper 3
Knowledge with understanding	50%	20%	30%
Practical skills and their application	20%	50%	50%
Decision making and judgment	30%	30%	20%

DESIGN AND TECHNOLOGY ASSESSMENT MODEL