

# Design & Technology Department

## – Design Technology



Written Exam 50%

NEA (Coursework) 50%

Theoretical Content

Practical Skill Development

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### Manufacturing

Scales of production  
Quality control  
Commercial processes and surface finishes  
Analysis and evaluation of prototypes

### Further Understanding

Sources of materials  
Forces and stresses  
CAD – Computer Aided Design  
CAM – Computer Aided Manufacture

### Design Process

Primary and secondary data  
Design brief and manufacturing specification  
Environmental, social and economic challenge  
The work of others  
Generating and Developing design ideas  
Plan for making  
Modelling & Concept testing  
3D CAD Modelling (final)

### Materials and their working properties

Papers & Boards  
Natural & Manufactured Timbers  
Metals & Alloys  
Polymers & Composites  
Textiles & Technical textiles  
Smart & Modern Materials

### New & Emerging Technologies

Industry & Enterprise  
People, culture and society  
Sustainability and the environment  
Production techniques  
Critical Evaluation

### Energy Generation

Nuclear Power  
Renewable Energy  
Energy Storage Systems

### Systems Approach to Designing

Inputs & Outputs  
Processes & Microcontrollers  
Types of movement, levers and linkages  
Rotary systems

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### Materials

Smart, Modern & Composites

### Energy Generation

Fossil fuels & Nuclear Power  
Renewable energy  
Mechanical & Electrical

### Technical Principles

Forces & Stresses  
Improving Functionality  
Ecological & Social Footprint  
6R's of Sustainability  
Scales of Production

### Puzzle Box Project

Design & Development  
2D CAD designing (Lid)  
Modifying (cutting, shaping)  
Joining (wood joints),  
Finishing techniques  
Safe and correct use of tools,  
equipment and machines  
Analysis & Evaluation

### Materials

Timber & Manufactured Boards –  
Categories, Types, Properties &  
Uses  
Polymers – Categories, Types,  
Properties & Uses  
Sources & Origins  
(Timber & Polymers)  
Working with Timber  
Working with Polymers  
Commercial Manufacturing &  
Finishing

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### Designing Principles

2D Sketching & Rendering  
Grid & Wire frame drawings  
Isometric Drawing (Grid &  
Freehand)  
One Point Perspective  
Two Point Perspective

### Egg holder/ Light Project

Polymers – Categories,  
Types, Properties & Uses  
Manufacturing with Polymers  
2D CAD designing  
CAM – Laser cutter  
Tools & Equipment  
Analysis & Evaluation

### Maze Project

Design Development  
2D CAD designing  
CAM – Laser cutter  
Analysis & Evaluation