

KS5 Y12 A LEVEL CURRICULUM OVERVIEW

SUBJECT: PRODUCT DESIGN

AUTUMN
Mini project 1 –
Something to Hold
(Practice NEA)

Topics covered

Research and investigation techniques
Target market/client needs and wants
Ergonomics/Anthropometrics
Iterative Design process
Presentation techniques – 2D & 3D
Prototyping - model making
CAD Skills – Techsoft/Sketchup/solid works
Skills builder - Machines/Tools/Equipment use of workshop processes
Use of CAM equipment. E.g. Laser cutter, 3D printer

Assessed on

Research and analysis of information gathered.
The proficient use and application of iterative design process
Practical outcomes and application of processes

AUTUMN
Theoretical Principles
of Product Design

Topics covered

Materials and their applications
Performance characteristics of materials –
Mechanical and Physical properties
Mechanical testing of materials
Performance characteristics of materials/Forming, redistribution and addition processes
POLYMERS - Performance characteristics of materials/ Forming, redistribution and addition processes
COMPOSITES – introduction – how properties are enhanced GFRP, CFRP, Concrete TP style questions
TIMBERS - Wood based processes /composites–redistribution - bag pressing
METALS – Ferrous / Non-Ferrous intro - METALS - Casting, Spinning, Fabrication, Die casting, Extrusion, Forming, Drawing, Forging

Assessed on

Examination styles questions
Quizizz/Socrative/
Home learning tasks



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SUBJECT: PRODUCT DESIGN

SPRING
Mini project 2 –
Illumination

Topics covered

Investigation techniques – primary and secondary data
Produce a detailed and well-reasoned Specification and Design Brief
Communication techniques – drawing, rendering, analysis of design ideas
Iterative design and development approaches – model making
Planning for manufacture
Produce a high-quality working prototype/one off product.
Evaluation of process and product.

Assessed on

Research and analysis of information gathered.
Design Brief and Specification
Application of the iterative design process.
Practical outcomes and application of processes
Final product/prototype
Evaluation processes

SPRING
Theoretical Principles
of Product Design

Topics covered

Performance characteristics of materials
WOODS – properties and testing.
Performance characteristics of Hardwoods/Softwoods/Manufactured woods
WOODS identification of fixings and joining techniques
Enhancement of woods – manufacture woods
SMART materials, MODERN materials.
PAPER/CARD and BOARD/ Forming and Finishing – printing, cutting and folding. Product labelling.
METALS – Finishes
Modern and industrial commercial practice - Scales of production/modern manufacturing systems
Modern and industrial commercial practice - modern manufacturing systems
Digital Design (CAD/CAM, EPOS, RFID, FEA, KANBAN, RPT)

Assessed on

Examination styles questions
Quizizz/Socrative/
Home learning tasks
Mock / CAT



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SUBJECT: PRODUCT DESIGN

SUMMER Major Project - NEA

Topics covered

Start of NEA portfolio
Section A – Identifying and investigating design possibilities
Project context clearly identified. Investigation including a variety of primary and secondary research. Initial concepts ideated.
Section B – Producing a design brief and specification
Produce a design brief and design specification reflecting the investigations undertaken.

Assessed on

AO1 Section A – Identifying and investigating design possibilities (20 marks)
AO1 Section B – Producing a design brief and specification (10 marks)

SUMMER Theoretical Principles of Product Design

Topics covered

Design for manufacture,
Ergonomics Anthropometrics, User Centred, Empathic & inclusive Design
Design for manufacturing, maintenance, repair and disposal 6R's
Responsible design (sustainable Design)
Life cycle analysis

Assessed on

Examination styles questions
Quizizz/Socrative/
Home learning tasks

