

DESIGN & TECHNOLOGY: PRODUCT DESIGN

TERM BY TERM CURRICULUM

[Specification link - AQA Level Design & Technology: Product Design](#)



TERM	Project & Skills	Theory
YEAR 12	Introduction to the course Card Modelling • Modelling skills • Cards and boards • Product evolution • Reverse engineered card outcome CAD • Development of 2D CAD skills • Fundamentals of 3D CAD	Material Properties • Physical and working properties and characteristics of materials Polymers • Classification, properties and characteristics of polymers • Polymer processes Timbers • Classification, properties and characteristics of timbers
2	Presentation Techniques • Marker rendering • Sketch and ideation techniques CAD & CAM • Laser cut project • 3D printing project Focussed Metal Project • Wasting metals • Centre lathe • Joining metals	Timbers • Timber processes incl. commercial • Joining and finishing Metals • Classification, properties and characteristics of metals • Metal processes • Joining and heat work Finishing Materials • Selecting finishes • Applying finishes
3	Design & Make Project Identify & Investigate • Research plan • Investigation incl. context, problem analysis, target market, product analysis, design influences. • Design brief and specification Design	Other Materials • Smart materials classification, properties and use • Modern materials classification, properties and use • Composite materials classification, properties and use • Papers and boards classification, properties and use

	• Generate design ideas, modelling and evaluation	Design Influences • Design movements and notable designers • Influences on design incl. technological and socio-economic and political factors
4	Design & Make Project Practical Outcome • Modelling • Independent practical outcome using appropriate materials and processes • Testing and evaluation of outcome	Inclusive Design • Human factors incl. ergonomics and anthropometrics • Focussed design and model task Sustainability • 6Rs, use of materials, material choices incl. bio polymers • Lifecycle analysis, design for repair and disassembly
5	NEA Identify & Investigate • Research plan • Investigation incl. context, problem analysis, target market, product analysis, design influences. • Design brief and specification Internal Examination: Revision	Materials Testing • Testing in industry • Testing in workshop Safety • Consumer safety • Safe working practice incl. HASAWA, COSHH, Risk assessment Internal Examination: Revision
6	Internal Examination: Revision & Paper NEA Design • Generate design ideas, modelling, testing and evaluation • Ongoing research to support design	Internal Examination: Revision & Paper Product Development • Why products change over time • Technological developments Commercial Manufacture • Scales of production • JIT, ICT, sub-assembly • CAD & CAM, EDI, PPC Protecting designs & IP

YEAR 13

TERM	Project & Skills	Theory
1	NEA Design • Complete design • Develop final proposal incl. materials, components, processes and techniques • Planning for production	Accuracy in Manufacture • Manufacture methods incl. manufacturing aids, datums, templates etc. Feasibility Studies Enterprise & Marketing • Customer identification • Labelling and packaging • Corporate identity and global marketing • Product costing and profit • Entrepreneurs
2	NEA Final Prototype • Manufacture final prototype • Record manufacturing process • Ongoing research, design, testing and evaluating as required	Quality Control & Quality Assurance • Manufacture to tolerances • QA systems incl. Total Quality Management (TQM), scrum, Six Sigma and application to industry • Critical path analysis • QC techniques incl. material checks, testing in industry, workshop tests Designing for ease of manufacture National & International Standards • Summary of BSI and ISO standards • Standards applied to material labelling, environmental directives incl. WEEE etc,
3	NEA Final Prototype • Manufacture final prototype • Record manufacturing process Evaluating Design & Prototype • Analyse and evaluate final prototype Internal Examination: Revision & Paper	Product Development & Improvement Detailed product study Detailed product comparison Detailed product analysis Internal Examination: Revision & Paper
4	NEA Evaluating Design & Prototype • Analyse and evaluate final prototype • Complete submission of portfolio	Revision for final exams

5	Revision for final exams Final Exams
6	Final Exams Paper 1: Technical Principles – 2 hours 30 minutes Paper 2: Designing and Making Principles – 1 hour 30 minutes