Years 12 & 13 Curriculum
A Level: Product Design

Year 12	Term 1 (Autumn)		Term 2 (Spring)		Term 3 (Summer)	
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Topic	**Subject Knowledge: Technical Principles (Paper 1)** Practical & Design projects	**Subject Knowledge: Design & making principles (Paper 1)** Practical & Design projects	**Subject Knowledge: Technical Principles / Designing & Making Principles** Practical & Design projects	**Subject Knowledge: Technical Principles (Paper 1)** NEA coursework project	**Subject Knowledge: Design & Make Principles (Paper 2)** NEA coursework project	
Key Concepts	• Materials and their applications • PC – polymers-based sheet and film; Biodegradable polymers; Biodegradable polymers; woods; metals; metals, alloys • Performance characteristics composite, smart and modern materials • Project: materials, processes, fixings, treatments, properties	• Testing materials • Performance characteristics (PC) – paper & boards • Anthropometrics and ergonomics • Project – Designing presentation techniques, modelling, prototyping, CAD	• Responsible design (DMP) • Design for manufacture (DMP) • Enhancement of materials (TP) • Maths • Developments in tech • Project – Designing presentation techniques, modelling, prototyping, CAD	• Modern and commercial practice • Digital design and manufacture • Product design and development. • Health & Safety • Design for manufacturing, maintenance, repair & disposal • Enterprise and marketing in the development of products • Anthropometrics • Find a problem to solve • Design brief and aims • Context section • What is the problem • Who is affected by the problem/ client • When does the problem occur/ scenario • How does it affect people? • Situation/ scenario • Client info • Researching around the problem • 24hr in the life of • Existing products • Product disassembly • Independent project driven research • Sources of inspiration	• Design communication. • Technology and cultural changes • Design processes – prototype development • User needs/wants • Social, moral, cultural, economic, and environmental considerations • Constraints • Experimentation - materials • Possible solutions • Independent research • On-going research • Initial designs	• Design processes – iterative design in commercial contexts • Design theory • Selecting appropriate tools, equipment, and processes • Responsible design • Design for manufacture and project management • Brief • Design specification • Gantt chart of time management • Client feedback • Annotations – working properties and justifications • Developments • Modelling • Developments • Final design • Testing, research

NEA = Non-Examined Assessment

Exam Board: AQA

Updated: September 2024

Years 12 & 13 Curriculum *(continued)*
A Level: Product Design

Year 13	Term 1 (Autumn)		Term 2 (Spring)		Term 3 (Summer)	
	Autumn 1	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
Topic	**Subject Knowledge – Technical Principles (Paper 1)** **NEA coursework project**	**Subject Knowledge: Design & Making Principles (Paper 2)** **NEA coursework project**	**Subject Knowledge: Technical Principles (Paper 1)** **NEA coursework project**	**Subject Knowledge** **Revision**	**Revision**	
Key Concepts	• National and international standards in product design (A-Level specific) • Performance characteristics of materials • Forming, redistribution and addition processes • Final design • CAD • Orthographic view • Exploded view • Parts/cutting list • Manufacturing specification • Manufacturing specification • Make	• Forming, redistribution and addition processes *(A Level specific)* • The use of finishes *(A Level specific)* • Modern and industrial commercial practice *(A Level specific)* • Digital design and manufacture • Modelling • Prototyping	• The requirements for product design and development • Protecting designs and intellectual property • Design for manufacturing, maintenance, repair, and disposal • Feasibility studies • Enterprise and marketing in the development of products • Prototyping Make • Evaluation against spec • Evaluation • Modifications	• Modern manufacturing systems • Detailed product study • Detailed product comparison • Detailed product analysis • Maths	• Paper 1 • Paper 2	

NEA = Non-Examined Assessment

Years 12 & 13 Assessment
A Level: Product Design

Students will sit a mock examination and an assessment in Year 12 and two mock examinations in Year 13.

	Year 12		Year 13		
	Assessment	**Mock Exam**	**Mock Exam**	**Mock Exam**	**Revision Resources**
	Autumn Term	**Summer Term**	**Autumn Term**	**Spring Term**	
Style of Assessment	• **Technical Principles:** Exam paper consisting of short answers, analysis, maths and extended response questions • **Designing & Making Principles:** Exam paper consisting of short answers, analysis, maths and extended response questions		• **Technical Principles:** Exam paper consisting of short answers, analysis, maths and extended response questions • **Designing & Making Principles:** Exam paper consisting of analysis, maths and extended response questions		*Kennet Resources* • Core Questions • Knowledge Organisers • Learning Habits *External Resources* • https://studywise.co.uk/a-level-revision/ • www.tutor2u.net/economics You can also find additional revision material on Frog
Topics Assessed	• **Technical Principles:** Material properties, materials, maths, fabrication processes, evaluation skills, vacuum forming, metal bending, packaging, printing processes, CAD, rapid prototyping, anthropometrics & ergonomics, composites, lay-up methods, social/moral/ethical issues and smart materials. • **Designing & Making Principles:** Packaging, regulations, surface finishes, sustainability, orthographic drawings, compliant materials, CAD, maths, H&S, ergonomics, composites, testing, welding, lay-up, CNC, fittings, scales of production, materials, materials properties		• **Technical Principles:** Material properties, materials, maths, fabrication processes, evaluation skills, vacuum forming, metal bending, packaging, printing processes, CAD, rapid prototyping, anthropometrics & ergonomics, composites, lay-up methods, social/moral/ethical issues and smart materials. • **Designing & Making Principles:** Material properties, materials, maths, comparison skills, polymer processes, QA and QC, form follows function, technological developments, designers, drill bits, social/moral/ethical issues, legislation, 6Rs, eco labelling and packaging.		

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