

## KS5 – Year 12 – Product Design

Term	Topic Titles	Brief Overview
<b>1</b>	ISA	Initial skills assessment at the start of the year to understand skills and levels of understanding around the subject.
	Section 2: Materials and components theory.	Understanding of a range of material areas including, working properties and characteristics along with stock forms. A creation of a material database covering: Timbers, Metals, Polymers, Composite, New and Smart materials.
	Random Object Project	Product analysis: Application of materials, understanding the key characteristics along with physical and mechanical properties and how they need to be considered when designing a project. Back to basic drawing and presentation skills covering key areas needed for designing. Development of creativity, drawing, presentation, modelling and 3D CAD skills through a project led task of taking inspiration from a 'random object' to create a range of products.
	Section 3: Manufacturing processes	Completion of online portfolio covering a range of manufacturing processes to then apply knowledge to real life scenarios.
	Section 2 and 3 assessment	Internal assessment covering section 2 and 3
	Design for Disability Project	Design and Prototype project using a user centred design approach teaching skills required for future NEA projects.
<b>2</b>	Practical Skills Stick	Ongoing practical focused around key manufacturing methods needed to create a workshop product.
	Section 1: Problem Solving Strategies & Quantitative and Qualitative testing	Theory based lessons, Textbook and examination questions building to an understanding and use in future NEA also
	Section 4: Industrial and commercial practices	Completion of online portfolio covering a range of industrial and commercial processes applying knowledge to real life scenarios.
	Section 6: Human Responsibility Design and make 'Scrap Challenge'	Design and make project setting out client and target market needs with a focus on sustainability and upcycling scrap material from around the school.  Flipped learning on energy consumption and impact of product design on the environment - looking at the life cycle of various products.

<b>3</b>	Section 5: Product analysis and systems	Completion of online portfolio and homework project around a fully detailed Product Analysis
	Section 7: Public interaction marketing and research	Completion of online portfolio and homework project around real life product examples and a marketing strategy for your own product
	Mock exam preparation Advanced CAD skills NEA	Overview of theory lessons and exam style question practice CAD project to improve skills ready for the NEA Start NEA - Find a design problem and Client- complete sections A and B