

Year 11

Theory lessons run once a week in the Autumn term. Then twice a week in summer term till study leave.

NEA lesson run once a week in the Autumn term and twice a week in the Spring term.

Timing	Unit Title	Overview	Knowledge	Assessing Understanding
Autumn 1 (Theory)	Section A - 1.5 Mechanical Devices	Students develop an understanding of mechanical devices and their implication on the design and manufacture of products.	Section 1.5: <ul style="list-style-type: none"> - Levers - Linkages - Cams - Followers - Gears - Pulleys and Belts 	End of unit test in Autumn 1
Autumn 2 (Theory)	Section C: 3.4 - Design Strategies 3.5 - Communication of design ideas 3.6- Prototype Development	Students develop a deeper understanding of the design strategies that they have/may/will use in their NEA. Students develop their skills in product analysis. Students develop their skills in presenting their designs using a range of communication techniques.	3.3.6 Prototype development 3.3.4 Design strategies How different strategies can be applied, including: <ul style="list-style-type: none"> • collaboration • user centred design • a systems approach • iterative design • avoiding design fixation. How this can be done using an iterative process including: <ul style="list-style-type: none"> • sketching • modelling • testing • evaluation of their work to improve outcomes. Section C - Product analysis questions 3.3.5 <ul style="list-style-type: none"> • freehand sketching, isometric and perspective • 2D and 3D drawings including isometric • exploded diagrams to show constructional detail or assembly 	Practise Section C questions, in preparation for the Mock exam

			<ul style="list-style-type: none"> • working drawings: 3rd angle orthographic, using conventions, dimensions and drawn to scale • computer based tools 	
Spring 1 1 (Theory)		FOCUS ON NEA		
Spring 2 (Theory)	Section A: 1.4 Systems approach to design	Students develop an understanding of the systems approach of design	1.4: <ul style="list-style-type: none"> - Inputs - Processes - Outputs 	Practise questions from this section
Summer 1	Section A: 1.3 - Developments in new materials Revision on GCSE content	Students to develop an understanding of materials created in the last 100 years and their impact on design. Focus on areas of weakness identified in assessments throughout the year. Some Recap on Designers and their work.	1.3: <ul style="list-style-type: none"> - Modern materials - Smart materials - Technical textiles - Composite materials 	Practise questions from this section Past papers
NEA lesson Autumn & Spring term	4.4.4.3 Section C: Generating design ideas	(continuing from Year 10 summer term) The Non-exam assessment will contribute towards 50% of the students overall mark. The NEA project in its entirety should take between 30-35 hours to complete and consist of a working prototype and a concise portfolio of approximately 20 pages of A3 paper, equivalent A4 paper or the digital equivalent.	Students will generate a range of design ideas which meet with their design brief and specification. These ideas should be presented using annotated 2D and 3D sketches. These ideas should be informed by further research and evaluated against the specification to identify their strengths and weaknesses.	Formative and summative feedback using AQA marking criteria

	4.4.4.4 Section D: Developing design ideas		Students will develop and refine design ideas. This may include, formal and informal 2D/3D drawing including CAD, systems and schematic diagrams, models and schedules. Students will develop at least one model, however marks will be awarded for the suitability of the model(s) and not the quantity produced. Students will also select suitable materials and components communicating their decisions throughout the development process. Students are encouraged to reflect on their developed ideas by looking at their requirements; including how their designs meet the design specification. Part of this work will then feed into the development of a manufacturing specification providing sufficient accurate information for third party manufacture, using a range of appropriate methods, such as measured drawings, control programs, circuit diagrams, patterns, cutting or parts lists.	Formative and summative feedback using AQA marking criteria
	4.4.4.5 Section E: Realising design ideas		Students will work with a range of appropriate materials/components to produce prototypes that are accurate and within close tolerances. This will involve using specialist tools and equipment, which may include hand tools, machines or CAM/CNC. The prototypes will be constructed through a range of techniques, which may involve shaping, fabrication, construction and assembly. The prototypes will have suitable finish with functional and aesthetic qualities, where appropriate. Students will be awarded marks for the quality of their prototype(s) and how it addresses the design brief and design specification based on a contextual challenge.	Formative and summative feedback using AQA marking criteria

	4.4.4.6 Section F: Analysing & evaluating		Within this iterative design process students are expected to continuously analyse and evaluate their work, using their decisions to improve outcomes. This should include defining requirements, analysing the design brief and specifications along with the testing and evaluating of ideas produced during the generation and development stages. Their final prototype(s) will also undergo a range of tests on which the final evaluation will be formulated. This should include market testing and a detailed analysis of the prototype(s).	Formative and summative feedback using AQA marking criteria
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