Curriculum Overview – Year 11

GCSE Design and Technology

Year 11 Term 1 will be spent largely on fully completing Sections A – D of the NEA (students chosen challenges).

As the NEA component of the course is delivered through an iterative design process, some learning and making activities (will be directed by the pace of the particular cohort) however it will be in keeping with the designed programme of delivery for the AQA DT course specification.

Revision will resume alongside NEA work from Week 7 (Single lessons) onwards of Term 1 towards the preparation of the cohort for their Year 11 Mock exams.

Full Revision for Mocks to commence from Week 9 -12 with exams underway in Weeks 13 & 14 **– Term 1**

Sequencing of topics ***Key idea***	**What knowledge will students develop? (Including key terminology)** ***Specification content***	**What skills will students develop? (Including literacy & numeracy)** ***Learning activity and resources***	**Homework opportunities**	**Personal development (Ursuline Values, Catholic Social Teaching, Cultural Capital, Cross curricular, Careers)**	**Curriculum links**
Ethics	New and emerging technologies	Evaluation of the ethical considerations surrounding a design/product. Investigation into production methods, use of labour, sourcing materials to provide us with the products we need. Students investigate ethical issues surrounding large companies such as Dyson, Coca Cola and Primark in relation to the responsibility of the designer/maker. Product study used to focus on these areas (Dyson, Coca cola, Primark).	Worksheets Research and consideration in NEA and practice task write-up Lesson quiz lets and poster making	Cross-curricular learning in Science, DT, Psychology and Career insights into ethics education enriches personal development. It nurtures ethical principles, cultural sensitivity, interdisciplinary thinking, and career readiness, fostering a well-rounded understanding of ethical dilemmas across various contexts of design, manufacturing and industry.	Ethical Considerations in Design: Sustainable Design: Consumer Ethics Analyze the ethics of eco design Ethical Problem solving, designing assistive technology, Industry Insights: Regenerate
Renewable and non-renewable resources	Energy generation and storage	• Highlight the difference between renewable and non-renewable fuels. Give advantages and assess prior knowledge. • Discuss key terminology including renewable and non-renewable fuels, fossil fuels, wind, solar, tidal, hydro-electrical, biomass, coal, gas, oil. • Moja island activity Students consider the variety of different options available to communities living on Moja Island and select the most appropriate technology. Renewable energy fact cards, a map of the island and information on the different communities and their needs are all resources designed to help them. • Further reading and ideas are also available: STEM learning, energy	Worksheets, online searches and research.	Cross-curricular learning, and Career insights into resource education fosters a holistic understanding. It promotes values-driven resource management, cultural awareness, interdisciplinary skills, and career readiness in both renewable and non-renewable sectors. Roles like solar technicians, environmental analysts, petroleum engineers, and geologists, offering diverse career paths in resource management and extraction.	

Nuclear energy Energy storage Kinetic pumped storage systems Alkaline and rechargeable batteries	Energy generation and storage	• Discuss the arguments for and against nuclear power (possible debate). Explain how it has an effect on local communities. • Give information about nuclear power plant disasters such as Fukoshima and how they are avoided. • Images of different energy storage – discuss how they work and the types of energy stored. Students write up a mind map of all their learning in this topic in order to revise understanding.			Design and safety systems. Efficient energy storage solutions. Incorporating engineering concepts for optimization. Iinnovation in battery design safety, engineering, and innovation.
Sustainability and the environment Critical evaluation of new and emerging technologies – planned obsolescence Design for maintenance Ethics, The environment	New and emerging technologies	Annotation of designs including specific materials and processes where known. Learning of key terms and meanings: • finite and non-finite resources, the disposal of waste, pollution and global warming • continuous improvement and efficient working • planned obsolescence, design for maintenance. Annotation of designs in terms of sustainability.	Application of learning to NEA task . Critical evaluation tasksof NEA coursework	Career exploration into the study of sustainability and the environment, design for maintenance, and ethical considerations, fosters a comprehensive educational experience. It promotes values-driven sustainable practices, cultural awareness, and career readiness in the context of environmental stewardshipand jobs in the Green energy and sustainility sector.	
Sustainability and the environment Critical evaluation of new and emerging technologies – planned obsolescence Design for maintenance Ethics The environment	New and emerging technologies	Group analysis of designs in terms of impact on the environment. Discussion of finite and non-finite resources, the disposal of waste, pollution and global warming. How have the following designs been made with the environment in mind? • bamboo bike • reusable cloth shopping bag. • Use of life cycle assessment to understand the impact on the environment. Challenge – how could a product be developed/re-designed to lessen the environmental and ethical impact?	Application of learning to NEA task . Critical evaluation tasksof NEA coursework		
How materials can be altered to change their properties	Using and working with materials 3.2.5	• Students look at the products considered in previous sessions. They consider how this product could be improved. Consideration of ways that materials can be modified to make them more suitable for purpose eg additives, stabilisers etc. Students then redesign this product using different materials, form and by modifying materials to change their properties.		Incorporate Ursuline Values and Catholic Social Teaching to promote ethical material use. Highlight cultural influences, collaborate across disciplines, and offer career insights to enrich personal development in the study of altering material properties.	

Scales of production	Scales of production 3.2.7	• Discussion of different scales of production including examples. • Students consider what volume different products are made in and how this changes their design, materials and manufacture. Students look at how the products they have been looking at could be developed in order to make them suitable for different scales of production.	Application of learning to NEA task . Critical evaluation tasksof NEA coursework		
Commercial processes	Specialist techniques and processes 3.2.8	• Consideration of commercial processes using video clips etc. • Students consider what processes could be used in the production of their modified designs. Students discuss the benefits of these commercial processes in terms of mass of batch production. Students look at a range of products and discuss features of the designs that make them suitable for mass production.	Application of learning to NEA task . Critical evaluation tasksof NEA coursework	Ursuline Values and Catholic Social Teaching to instill ethical principles. Emphasize cultural capital's role in business, foster cross-curricular learning, Business and management and offer career insights, enhancing personal development in Commercial Processes education.	Impact core business knowledge covering marketing, finance, procurement, legal aspects, ethics, global commerce, and modern trends, emphasis on practical skills for real-world processes.

Year 11 Term 2 Full focus on completing NEA task – set at 50% towards total GCSE grade. Attached is Appendix 1, KS4 – AQA DT Specification (Student friendly version)
Internal marking and moderation of coursework for student evaluation, feedback and completion of making.
Additional Mini Mock exam-style and exam prep tasks. Full completion of NEA task including final moderation of folders
Week 9 – 12, 13
Year 11 term 3
Revision and Exam