LEARNING TOGETHER, ACHIEVING EXCELLENCE:
CURRICULUM OVERVIEW - Long term plan

Design Technology Overview (KS4)

Year	Year 11					
Foci	**Completing the Non Exam Assessment (NEA). Practical application of:** • *Core technical principles* • *Specialist technical principles* • *Designing and making principles* In parallel, students will be securing their knowledge of the theoretical frameworks associated with designing and making. Where theory supports the stage of NEA making, theory sessions will be synchronised in order to inform their own practical work, putting the theory into practice and enhancing their understanding of the context for their own making. Contextual challenges: 1. Multifunctional living 2. Teenage lifestyle 3. Nature and the environment					
	30–35 hours (recommended)					
Time	**HT1**	**HT2**	**HT3**	**HT4**	**HT5**	**HT6**
Project	NEA	NEA	NEA	NEA	Paper 1 Revision	
Subject	Designing and Making Principles	Core Technical Principles Specialist Technical Principles	Designing and Making Principles	Core Technical Principles		
Key Idea	Identify, investigate & outline design possibilities	Design & make prototypes that are fit for purpose	Design & make prototypes that are fit for purpose	Analyse & evaluate against a design specification.	Derived from GAP Analysis	
Spec. Ref	AO1 (A) Identifying & investigating design possibilities (B) Producing a design brief &	AO2 (D) Developing design ideas	A02 (E) Realising design ideas	A03 (F) Analysing & evaluating		

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CURRICULUM OVERVIEW - Long term plan

	specification (C) Generating design ideas					
Driving Question	How do I design and make a product to meet the contextual challenge of [---]?	How do I design and make a product to meet the contextual challenge of [---]?	How do I design and make a product to meet the contextual challenge of [---]?	How do I practice and identify gaps in my theoretical knowledge?	How do I practice and identify gaps in my theoretical knowledge?	
Associated Theory	**Designing Principles:** Investigation, primary and secondary data Work of others - Designers Work of others - Companies Communication of design ideas	**Specialist Tech Principles:** Timber sources and origins Working with timbers Commercial manufacturing	**Making Principles:** Tools, equipment, techniques and finishes Surface treatments and finishes	Revise: GAP analysis via Seneca Materials New & Emerging Technologies	Revise: GAP analysis via Seneca	
Assessment	NEA The Non-Exam Assessment account for 50% of the final GCSE grade. Students will undertake a single 'design and make' activity, which will arise from investigating one of three Contextual Challenges set by AQA. This is to be carried out independently using course resources previously shared, as well as general guidance. Written or electronic design portfolio with photographic evidence of final prototype(s). Approximately 20 pages of A3, digital or A4 equivalent. Work will be marked by teachers and moderated by AQA NEA Tracker to be completed by lead teaching staff throughout in order to monitor progress General introductions and plenaries based on whole-class teacher observations (non-specific feedback) IMPORTANT: no direct feedback can be provided, under conditions of the NEA delivery as set out by AQA. --- Paper 1 • Written exam: 2 hours • 100 marks • 50% of GCSE					

Millbay Academy

LEARNING TOGETHER, ACHIEVING EXCELLENCE:
CURRICULUM OVERVIEW - Long term plan

Year	**Year 10**					
Foci	WJEC Level 1/2 Vocational Award in Engineering offers a learning experience that focuses learning for 14-16 year olds through applied learning, i.e. acquiring and applying knowledge, skills and understanding through purposeful tasks set in sector or subject contexts that have many of the characteristics of real work. The qualification is built from discrete units, but allows for both synoptic learning and assessment. Each unit has an applied purpose which acts as a focus for the learning in the unit. The applied purpose is the vehicle through which the learning contained in the unit is made relevant and purposeful. It is also the means by which learners are enthused, engaged and motivated to study engineering. The applied purpose provides the opportunity for authentic work related learning, but more than this, it will require learners to consider how the use and application of their learning impacts on individuals, employers, society and the environment. Year 10 will work in two parts, throughout the year there will be theory sessions, the first of these will an introduction to the subject and the materials that we will use. The remainder of the year we will spend two hours a fortnight preparing for, and carrying out the work for NEA Unit 1. Much of this will be preparation, 7 hours of it will be exam conditions final assessment work. The remainder of the time (3 hours a fortnight) will be spent working on the various projects listed here, addressing theory alongside and through practical projects. This way of working is so that the students are well practised with the machinery and processes that they will require for their long practical assessment piece in year 11.					
Time	4 Weeks	6 weeks	7 weeks	6 weeks	8 weeks	8 weeks
Project	Soft Jaws	Dice	Metal Bugs	Bottle Opener	Mechanical Clock	Screwdriver
Subject	Engineering	Engineering	Engineering	Engineering	Engineering	Engineering
Key Idea	Intro project to deliver the basic data and details of the UNIT 2 section of the course	This project allows students to further develop their ability to work to orthographic drawings, use hand tools effectively and work to high tolerances.	This project is design led and leads students through an iterative design cycle where they will model ideas, build on there sheet metal skills from project 1 and will introduce them to simple electronics.	This project allows students to further develop their ability to work to orthographic drawings, use hand tools effectively and work to high tolerances.	This project gives students the opportunity to work to orthographic drawings, tight tolerances and with different materials and mechanisms in preparation for NEA Unit 2 in September.	This project will allow the students to model ideas using different methods and materials, allowing them to make design decisions and consider material choices.
Spec. Ref	**AC1.1** interpret engineering drawings **AC1.2** interpret engineering information **AC2.2** sequence required activities **AC3.1** use tools in production of engineering products	**AC1.1** interpret engineering drawings **AC1.2** interpret engineering information **AC2.2** sequence required activities **AC3.1** use tools in production of engineering products **AC3.1** use tools in production of engineering products **AC3.2** use equipment in production of engineering products	**AC3.1** use tools in production of engineering products **AC3.2** use equipment in production of engineering products **AC4.2** evaluate quality of engineered products **AC2.2** sequence required activities	**AC1.1** interpret engineering drawings **AC1.2** interpret engineering information **AC2.2** sequence required activities **AC3.1** use tools in production of engineering products **AC3.1** use tools in production of engineering products **AC3.2** use equipment in production of engineering products	**AC3.1** use tools in production of engineering products **AC3.2** use equipment in production of engineering products **AC4.1** use engineering processes in production of engineered products **AC4.2** evaluate quality of engineered products **AC2.1** identify resources required **AC1.2** interpret engineering information	**AC3.1** use tools in production of engineering products **AC3.2** use equipment in production of engineering products **AC4.2** evaluate quality of engineered products **AC2.2** sequence required activities
Driving Question	How can I manipulate metals to produce objects designed by others?	How can I work accurately to design drawings using hand tools?	How can I introduce my own design ideas to my work as an engineer?	How can I work accurately to design drawings using hand tools?	How can using the lathe halp me to work accurately and join various components in my work?	How can I alter an everyday object and make a new design of my own?
Topics	Marking out Interpretation of drawings Tolerance Beating materials	Marking out Interpretation of drawings Tolerance Acrylic work Finishing metals	Card modelling Sheet metal working Folding metals Ideas generation Beating materials	Marking out Interpretation of drawings Tolerance Acrylic work Finishing metals	Principles of machining Data sheets CAD CAM Tolerances Use of JIGS + Templates	Card modelling Designing CAD CAM Finishing plastics 3D CAD drawings

LEARNING TOGETHER, ACHIEVING EXCELLENCE:
CURRICULUM OVERVIEW - Long term plan

	Shaping	Joining metals (non heat) Cold rivets Drilling 3D CAD	Intro to electronics Material manipulation	Joining metals (non heat) Cold rivets Drilling 3D CAD	Bending/shaping Lathe – turning/facing off	Tolerances Use of JIGS + Templates
Assessment	Questioning and low stakes quizzes to check students knowledge and understanding of the content which has been delivered. End of unit assessment using a selection of questions taken from the exam board's past papers. Results from this will inform future planning and delivery by the teacher. Each practical project comes with an activity to sequence and log the practical work using an Engineers **LOG BOOK** Questioning and Low-stakes quizzes to check student's knowledge and understanding of the content which has been delivered. Students will sit a mock examination at the end of the academic year in preparation for the second year of the course.					