

Design & Technology Curriculum: KS4



St. Margaret's Design & Technology department strives to empower all students to the problem-solvers of the future – the designers, the engineers, the makers. We establish relevant, coherent links with the world in which we live, making connections across other subject areas. We support, engage and challenge all students to be ambitious and creative, equipping them with a knowledge-rich understanding and the skills to experiment, invent and create their own products.

Qualification(s)	GCSE Design & Technology (Product Design)
Exam Board	AQA
Link to Specification	https://www.aqa.org.uk/subjects/design-and-technology/gcse/design-and-technology-8552

	Term 1a	Term 1b	Term 2a	Term 2b	Term 3a	Term 3b
Year 10	Graphical techniques. Understanding technical drawings. Using Isometric, rendering techniques and orthographics. 3.2 Specialist technical principles (Metals and alloys)	3.2 Specialist technical principles (Metals and alloys) continued 3.2 Specialist technical principles (Timber and wood)	3.2 Specialist technical principles (Timber and wood) Continued 3.2 Specialist technical principles (Polymers)	3.2 Specialist technical principles (Polymers) continued 3.1 Core Technical Principles	3.1 Core Technical Principles continued. Mini NEA. Used to expose the students to the demands of completing the NEA.	NEA Analyse the Contexts released by AQA Section 1 – Investigation of Contexts
Year 11	NEOA Section 2 - Brief and Specification Section 3 – Design ideas and Development	NEA Section 4 – Manufacture products Section 5 - Evaluation	3.3 Designing and Making Principles	3.3 Designing and Making Principles continued	Revision 3.1 Core Principle 3.2 Specialist Technical Principles 3.3 Design and Making Principles	Exams

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Qualification(s)	GCSE Electronics
Exam Board	WJEC
Link to Specification	GCSE Electronics (wjec.co.uk)

	Term 1a	Term 1b	Term 2a	Term 2b	Term 3a	Term 3b
Year 10	Component 1 Chapter 4 Transistors, Mosfets, Graphs CAD SYSTEMS	Component 2 Chapter 1 RC networks 555 Timers Calculations , (Component 1 ch4 741.) Calculations, Graphs. CAD SYSTEMS	Component 1 Chapter 5 Diodes, Zeners. CAD SYSTEMS	Component 1 Chapter 6 Logic gates Combinations Boolean notation. CAD SYSTEMS	Component1 Chapter 3 Resistors Potential Dividers Calcs. CAD SYSTEMS	Component 2 Chapter 2 Binary, D Type, 7 Seg, 4017 Graphs. CAD SYSTEMS
Year 11	Component 2 Chapter 5 Amplifiers, Band width, Inverter types, Calculations, Graphs.	Component 1 Chapter 2 Ohm's, Power, Energy Laws CAD SYSTEMS CAD SYSTEMS	Component 2 Chapter 3 Schmitt, Mosfet Interfacing, Graphs. CAD SYSTEMS	Component 2 Chapter 4 Microcontroller, Flow charts. CAD SYSTEMS	Component 1 Chapter 1 Inputs Control Outputs. CAD SYSTEMS	EXTERNAL EXAMS

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Qualification(s)	Level 1/2 Vocational Award in Engineering
Exam Board	WJEC
Link to Specification	Level 1/2 Vocational Award in Engineering (wjec.co.uk)

	Term 1a	Term 1b	Term 2a	Term 2b	Term 3a	Term 3b
Year 10	<p>Unit 1 Preparation</p> <p>Introduction to Engineering Manufacture – Skills building for engineering workshop processes and interpretation of engineering information.</p> <p>Understanding how Engineering Drawings are used in manufacturing. Presenting Key information tasks. Planning manufacturing stages.</p>	<p>Unit 1 Preparation</p> <p>Series of mini practical tasks that cover the tools materials and equipment used to make metal, polymer and timber based products</p> <p>Engineering drawings to BS8888.</p>	<p>Unit 1 Preparation</p> <p>Series of mini practical tasks that cover the tools materials and equipment used to make metal, polymer and timber based products</p> <p>Risk Assessment of practical activities.</p> <p>Evaluation of process, product and practice</p>	<p>Unit 1 NEA</p> <p>1.1 Understanding engineering drawings. Analysing the WJEC brief and information pack. Identifying tools, equipment and materials required</p> <p>1.2 Planning manufacturing. Sequencing the manufacture of the item.</p>	<p>Unit 1 NEA</p> <p>1.3 Using engineering tools and equipment. Presenting the evidence and manufacturing the item.</p> <p>1.4 Implementing engineering processes. Manufacturing and evaluation</p>	<p>Unit 2 Preparation</p> <p>Isometric and orthographic projection. Engineering drawings to BS8888.</p> <p>Hidden detail, Section views.</p> <p>Use of CAD</p>
Year 11	<p>Unit 2 NEA</p> <p>Modell making.</p> <p>2.1 Analysing the given WJEC brief.</p> <p>Identify key features of the product.</p> <p>2.2 Produce design ideas. Development of ideas</p>	<p>Unit 2 NEA</p> <p>2.3 Produce a Manufacturing specification</p> <p>2.4 Produce engineering drawings for the prototype.. Mathematical calculations and production plans</p>	<p>Unit 3 Preparation</p> <p>Materials and their applications. Porcesses, Tools and Equipment.</p> <p>Mechanical Design, Electronic Design, Structural design.</p>	<p>Unit 3 Preparation</p> <p>Engineering development. Testing.</p>	<p>Revision</p> <p>The structure, design and materials used in bicycles.</p> <p>Calculations and mathematical tech niques. Formulae</p>	<p>Exams</p>