KS4 Year 10: 2025-26

Overall Curriculum Intent for Engineering

The curriculum intent of Design & Technology is for pupils gain experience of a wide range of practical skills and processes through a multi-disciplinary approach, which develops resilience, reasoning and problem-solving skills. Creativity, imagination and technical understanding are combined to equip our pupils with essential life skills and a love of product design and manufacture. By the end of their five-year journey pupils will have a deep understanding of how a range of factors and stimuli effect how products are design, used, manufactured and disposed of. More important the short-, medium- and long-term impacts products have not just the user but the environment and world they live in. They will also develop their investigation, design, development manufacture and evaluation skills through a range of design, practical projects through the use of workshop equipment and CAD/CAM.

	Half Term 1	**Half Term 2**	**Half Term 3**	**Half Term 4**	**Half Term 5**	**Half Term 6**
Knowledge Introduced	UNIT 1: Preparation Manufacturing Engineering Products **Tool Makers Clamp** - Understanding and implementing Engineering drawings - How to use different tools and equipment - Plan the manufacturing - Manufacture product - Evaluate **Task 1a** - Product Analysis **Task 1b** - Technical information **Task 2a** - Material, Tools and Equipment List **Task 2b** - Production Plan and engineering drawings **Task 2c** - Risk Assessments Theory Unit 3.1 Understanding the importance of engineering achievements.	UNIT 1: Preparation Manufacturing Engineering Products **Tool Makers Clamp** - Understanding and implementing Engineering drawings - How to use different tools and equipment - Plan the manufacturing - Manufacture product - Evaluate **Task 3** - Manufacture a product. Candidates must: Use tools safely and effectively. Work safely and effectively. **Task 4a** – In the production of their engineering outcome, candidates must: Carry out a range of engineering processes. Use a range of materials. Theory Unit 3.1 Understanding the importance of engineering achievements.	UNIT 1: Preparation Manufacturing Engineering Products **Tool makers Clamp Holder – CAD Design** - Understanding and implementing Engineering drawings - How to use different tools and equipment - Plan the manufacturing - Manufacture product - Evaluate **Task 4b** - Candidates must write a report that: Evaluates the final prototype against the engineering drawings and specification criteria. Evaluates own performance Suggests appropriate improvements Theory Unit 3.2 Understanding Properties of Engineering Materials	Unit 2: Preparation Designing Engineering Products **Product Design & Development** **Task 1a(i)** - Component Product Analysis. **Task 1a(ii)/b** - Similar Products that meet the requirements of the brief. **Task 2a** – Design Ideas **Task 2b** - Evaluate Designs **Task 2c** - Present Design Ideas Theory Unit 3.2 Understanding Properties of Engineering Materials	Unit 2: Preparation Designing Engineering Products **Product Design & Development** **Task 3a** - Final Design Solution. **Task 3b** - Engineering and Manufacturing Specification. **Task 4a** - Mathematical techniques to determine specific problems identified in the given brief. **Task 4b`** - Third party prototype Theory Unit 3.2 Understanding Properties of Engineering Materials	UNIT 1: NEA Assessment Manufacturing Engineering Products **Task 1a** - Examine engineering information evaluate an engineered product. **Task 1b** - Collate the technical information needed to produce the engineered product in the workshop. **Task 2a** - Select suitable materials and the necessary tools and equipment to produce the components required. **Task 2b** - Create a production plan and engineering drawings for a third party to follow. Plan including times and potential manufacturing issues with contingency plans. **Task 2c** - Carry out detailed and relevant risk assessments that can be followed by a third party for the processes and environment of manufacture. Theory Unit 3.2 Understanding Properties of Engineering Materials
Key vocabulary/ concepts/ideas students must master	Production Planning Risk Assessments Making Out Wasting Secondary Machining	Production Planning Risk Assessments Making Out Wasting Secondary Machining	Production Planning Risk Assessments Making Out Wasting Secondary Machining	Production Planning Risk Assessments Making Out Wasting Secondary Machining	Production Planning Risk Assessments Making Out Wasting Secondary Machining	Production Planning Risk Assessments Making Out Wasting Secondary Machining
Knowledge revisited	KS3 Workshop Practical	KS3 Workshop Practical	KS3 Workshop Practical	KS3 Workshop Practical	KS3 Workshop Practical	KS3 Workshop Practical
CEIAG Links/ Opportunities	Graphic Designer Product Designer CAD Designer Construction & Engineering Gatsby BM: 2/3/4	Graphic Designer Product Designer CAD Designer Construction & Engineering Gatsby BM: 2/3/4	Graphic Designer Product Designer CAD Designer Construction & Engineering Gatsby BM: 2/3/4	Graphic Designer Product Designer CAD Designer Construction & Engineering Gatsby BM: 2/3/4	Graphic Designer Product Designer CAD Designer Construction & Engineering Gatsby BM: 2/3/4	Graphic Designer Product Designer CAD Designer Construction & Engineering Gatsby BM: 2/3/4

KS4 Year 11: 2026-27

Overall Curriculum Intent for Engineering

The curriculum intent of Design & Technology is for pupils gain experience of a wide range of practical skills and processes through a multi-disciplinary approach, which develops resilience, reasoning and problem-solving skills. Creativity, imagination and technical understanding are combined to equip our pupils with essential life skills and a love of product design and manufacture. By the end of their five-year journey pupils will have a deep understanding of how a range of factors and stimuli effect how products are design, used, manufactured and disposed of. More important the short-, medium- and long-term impacts products have not just the user but the environment and world they live in. They will also develop their investigation, design, development manufacture and evaluation skills through a range of design, practical projects through the use of workshop equipment and CAD/CAM.

	Half Term 1	**Half Term 2**	**Half Term 3**	**Half Term 4**	**Half Term 5**	**Half Term 6**
Knowledge Introduced	UNIT 1: NEA Assessment Manufacturing Engineering Products **Task 3** - Produce an engineering outcome based on the details and data provided. Candidates must: • use a range of engineering equipment safely and effectively to produce the main parts and components of the engineered design prototype. • implement safe working practices and apply appropriate use of PPE during the entire production process. Theory Unit 3.3 Understanding methods of preparation, forming, joining and finishing of engineering materials	UNIT 1: NEA Assessment Manufacturing Engineering Products **Task 4a** – In the production of their engineering outcome, candidates must: • Apply skills in a range of engineering processes. • Use a range of suitable materials. **Task 4b** - Candidates must write a report that: • Evaluates the quality of the final prototype against the criteria given in the engineering drawings and specification. • Evaluates candidate's own practices and processes. • Suggests improvements where appropriate. Theory Unit 3.3 Understanding methods of preparation, forming, joining and finishing of engineering materials	Unit 2: NEA Assessment Designing Engineering Products **Task 1a(i)** - Explain the individual functions of the primary features of a products varying components. **Task 1a(ii)** - Suggest at least two other engineered products that have similar functional properties to those required by the given brief. **Task 1b** - Justify how the functional properties of the found engineered products meet the requirements of the brief. **Task 2a** - Produce range of solutions that meet the brief and design specification. **Task 2b** - Candidates should evaluate how their designs meet the criteria set in the brief and design specification. **Task 2c** - Present design ideas clearly using suitable media appropriate to the information being displayed. Theory Unit 3.4 Solving engineering problems	Unit 2: NEA Assessment Designing Engineering Products **Task 3a** - Candidate should draw, using conventions, engineering drawings of their final design solution. **Task 3b** - Outline an engineering specification that addresses key points required to manufacture the design solution. **Task 4a** - Apply mathematical techniques to determine specific problems identified in the given brief. **Task 4b** - The prototype is to be produced by a third party. Theory Unit 3.4 Solving engineering problems	Unit 3: External Examination Solving Engineering Problems **Topic 3.1** Understanding the effects of engineering achievements. **Topic 3.2** Understanding properties of engineering materials. **Topic 3.3** Understanding methods of preparation, forming, joining and finishing of engineering materials. **Topic 3.4** Solving engineering problems. Theory Unit 3.4 Solving engineering problems	Unit 3: External Examination Solving Engineering Problems **Topic 3.1** Understanding the effects of engineering achievements. **Topic 3.2** Understanding properties of engineering materials. **Topic 3.3** Understanding methods of preparation, forming, joining and finishing of engineering materials. **Topic 3.4** Solving engineering problems.
Key vocabulary/ concepts/ideas students must master	BSI – Standards Dimensions Quality Assurance Production Planning Risk Assessments	Quality Control Making Out Wasting Sec.Machining Assembly Evaluate Describe Explain Justify Summarise	Analysis Client Product Specification Rendering Annotations	Production Pan Risk Assessment Hazard Risk Prevention	Sustainability Raw Materials Material sources Material Processes Properties Describe Explain Testing QA / QC	Secondary machining BSI Standards Machinery Tools Equipment Risk Assessments
Knowledge revisited	KS3 Workshop Practical Y10 half term 1	KS3 Workshop Practical Y10 half term 3	Y9 Design Challenges KS3 Design projects	Y9 Design Challenges KS3 Design projects	KS3 Theory Work inc. DNA's	KS3 Theory Work inc. DNA's
CEIAG Links/ Opportunities	Graphic Designer Product Designer CAD Designer Construction & Engineering Gatsby BM: 2/3/4	Graphic Designer Product Designer CAD Designer Construction & Engineering Gatsby BM: 2/3/4	Graphic Designer Product Designer CAD Designer Construction & Engineering Gatsby BM: 2/3/4	Graphic Designer Product Designer CAD Designer Construction & Engineering Gatsby BM: 2/3/4	Graphic Designer Product Designer CAD Designer Construction & Engineering Gatsby BM: 2/3/4	Graphic Designer Product Designer CAD Designer Construction & Engineering Gatsby BM: 2/3/4