

## Key Stage 5 Curriculum Overview 2024-5

**Curriculum Area:  
Btec Engineering**

Year group	Key Ideas/learning	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 12	Topic/ Key ideas	Introduction to Designing Basic Practical skills (Making a Sheet Metal Treasure Chest)	Engineering Theory: Static Forces Principles of CAD Drawing (BS8888) Intro to CAD Effectively using 3D CAD tools (Unit 10 Ass A)	Engineering Theory: Statics and Dynamic Forces Effectively using 3D CAD tools (Unit 10 Ass A) Industry Visits	Engineering Theory: Dynamics 3 D Cad Assessment A Using 2D Drafting Tools CAD Unit 10 Ass B Industry Visits	Engineering Theory: Hydrostatics and Fluid Flow Engineering Core Maths Skills Manufacturing Processes Intro to surface modelling	Engineering Theory revision 3D CAD surface modelling assessment Unit 10 Ass C (Pt 1) Exam prep
	Learning objectives	Understanding how to convey design ideas Working safely in a workshop	Understanding Principles of static force systems and how to calculate loading, stresses and strains Core information for Unit 10 (CAD in Engineering), All supporting information is on the shared area	Understanding Principles of static force systems and how to calculate loading, stresses and strains Core information for Unit 10 (CAD in Engineering), All supporting information is on the shared area Completing Unit 10 Ass A (Formal task) Understanding Manufacturing Processes Unit 2 Ass A	Understanding Principles of Dynamic systems. SUVAT calculations, Dynamic Forces, Conservation n energy, Conservation of Momentum. MA, ramps and other lifting mechanisms. Completing Unit 10 ass A 2D CAD techniques Completing Unit Ass B (Formal Task)	Understanding Maths for Engineers (inc. Trig, resolving, Simultaneous equations Indices, Logs) Learning Manufacturing Processes Using surface modelling technics in CAD	Revision Unit 10 ass C (Pt 1) – Formal task

	Key Assessment and when?	Formative and summative in lessons	Mock Exams Formal task – Unit 10 Ass A starts Testing of Engineering Principles in Lessons	Formal task – Unit 10 Ass A finishes Testing of Engineering Principles in Lessons	Formal task – Unit 10 Ass B Testing of Engineering Principles in Lessons	Testing of Engineering Principles in Lessons	Mock Exams Formal task – Unit 10 ass C (Pt1)
	Key homework and resources to support learning	Sketching tasks Researching sheet metal techniques PDF support booklet (Mathematics for Engineers) Exam Board Resources Resources in Common data Online support for Solidworks	Consolidating CAD (Solidworks) Techniques Completing formal Assessment Theory worksheets (Static Problems) PDF support booklet (Mathematics for Engineers) Exam Board Resources Resources in Common data Online support for Solidworks	Consolidating CAD (Solidworks) Techniques Completing formal Assessment Theory worksheets (Dynamic Problems) PDF support booklet (Mathematics for Engineers) Exam Board Resources Resources in Common data Online support for Solidworks	Consolidating CAD (Solidworks and 2D Design) Techniques Completing formal Assessment Theory worksheets (Dynamic Problems) PDF support booklet (Mathematics for Engineers) Exam Board Resources Resources in Common data Online support for Solidworks	Consolidating CAD (Solidworks) Techniques Exam practice questions PDF support booklet (Mathematics for Engineers) Exam Board Resources Resources in Common data Online support for Solidworks	Mock Exam Preparation Completing formal Assessment PDF support booklet (Mathematics for Engineers) Exam Board Resources Resources in Common data Online support for Solidworks
Year 13	Topic/ Key ideas	Engineering Theory: Engineering Core Maths Skills Working in a Team (Formal assessment Unit 2 Ass C) Unit 10 Ass C (Pt2); Modelling Thin Walled Products	Engineering Theory: Electronic Principles Working in a Team (Formal assessment Unit 2 Ass C) Preparing for Unit 3 (Design and Development task)	<b>Unit 1 formal Exam</b> <b>Unit 3 Design and Development Controlled Task</b> Working in a Team (Formal assessment Unit 2 Ass C)	Working in a Team (Formal assessment) Completion. Understanding Manufacturing Processes Unit 2 Ass A	Drafting techniques in Engineering Unit 2 Ass B Starts	Drafting techniques in Engineering Unit 2 Ass B Completion Unit 1 and Unit 3 retakes if required
	Learning objectives	Understanding Principles of Hydrostatics and Fluid flow to solve	Understanding Principles of Electronics to solve problems	Unit 1 Exam Unit 3 Formal Controlled Task	Completion of Unit2 (working in Teams) Ass A.	Interfacing between 2d and 3D software Unit 2 Ass B	Unit 2 Ass B Completes

		pressure and force problems, density, uplift, fluid flow through constrictions Core information for Unit 2 (Working as a team), All supporting information is on the shared area	including Power, resistor, capacitor, amplification, Field and magnetism, transformers and charge theory. Use of Phase diagrams Core information for Unit 3 (Design and Development task), All supporting information is on the shared area	Completion of Unit2 (working in Teams) Ass C.	To Understand a range of manufacturing processes including forming, joining and surface treatments		
Key Assessment and when?	Practice questions during lessons and homework	Mock Exams Practice questions during lessons and homework	<b>Formal External Exams (Unit 1 and 3)</b> Unit 2 Ass C completed	Unit 2 Ass A completed			Unit 2 Ass B Completed
Key homework and resources to support learning	Consolidating CAD (Solidworks) Techniques Completing formal Assessment Theory worksheets (Hydrostatics and Fluid Flow Problems) PDF support booklet (Mathematics for Engineers) Exam Board Resources Resources in Common data Online support for Solidworks	Completing formal Assessment Theory worksheets (Electronic Theory) PDF support booklet (Mathematics for Engineers) Exam Board Resources Resources in Common data	PDF support booklet (Mathematics for Engineers) Exam Board Resources Resources in Common data	PDF support booklet (Unit 2) Exam Board exemplar material Resources in Common data	PDF support booklet (Unit 2) Exam Board exemplar material Resources in Common data		