

Engineering Curriculum 2022-2023

<p>Year 7</p>	<p>Year 7's main focus is introduction to tools and equipment and using jigs and templates to support manufacturing Health and safety in workshop, intro to project (T) Analysis of project ideas and intro in understanding specifications (ACCESSFMM) (T) 4 initial design ideas/evaluation Intro tools and risk assessment Marking out/cutting of back design & painting, select appropriate tools, accuracy and recall ACCESSFMM Marking out/cutting of back design & painting, select appropriate tools, accuracy and recall quality Measuring and cutting out mitre joints on box Intro to pillar drill, marking out acrylic and drilling, marking out MDF base and drilling pilot hole Wire bending follower and game puzzle Intro to soldering, application of risk assessment Circuits Building circuits, soldering to link circuit Assembling steady hand game BBB on safe use of tools and equipment</p>
<p>Year 8</p>	<p>Year 8's main focus is measuring and marking out accurately, sources of materials and iterative design process Types of natural wood and their uses core knowledge ACCESSFMM Types of manufactured boards core knowledge How timber is used, alternative materials; plastics, metals and smart materials Joining methods and adhesives Analysis on existing product using ACCESSFMM Creating a design specification (BBB specification) ACCESSFMM 2 Initial design ideas (detailed) Specific Risk assessment, Finger joints demonstration and Practical Measuring and cutting/gluing the initial cube Developed design ideas Cad working drawing Measuring, cutting and final iterative design changes Completing desk tidy Life cycle – cradle to grave Summative Test on project</p>
<p>Year 9</p>	<p>Main focus in year 9 promoting independence, challenge, error proofing and quality control Design cycle, analysis of picture frame Investigating four users groups and their needs and interlinking Create a client profile to discover their needs of the user for the photograph frame Two hand drawn initial ideas for photograph frames, identify waste material if shape is altered Create Isometric drawing of design using template considering the feedback from the client Introduction to online CAD program to create final design solution Manufacturing in Bulk – relevant industrial processes Introduction to making diary requirements, measuring and material preparation. Creating a mitre joint Half lap joint (intro marking gauge) Creating a finger joint Creating a dovetail joint – possible assembly Assembly and attach acrylic front and backboard Create smooth surface finish using wood filler, glass paper Quality checks/ Extension task Final evaluation (BBB)</p>

	Half Term 1	Half Term 2	Half Term 3	Half Term 4	Half Term 5	Half Term 6
Year 10	Theory Unit R038 Linear design Inclusive design User centred design Sustainable design Design briefs	Unit R039 Manual production of freehand sketches One and two point perspective Hue, shade & tone Texture & pressure Annotation & Labels	Unit R039 Tolerance & Scale Manual production of freehand sketches Design development Manual production of engineering drawings	Unit R039 Manual production of engineering drawings R038 Sketching and drawing CAD Use of computer aided design	Unit R038 Cyclic approach to design Ergonomics and Anthropometric data Investigate existing products Design phase Designing processes	Unit R038 Introduction to 3d extrusion Market pull, technology push Legislation British and international standards 6R's Design for circular economy
Year 11	Theory Unit R038 Virtual and physical modelling Design requirements of virtual Cad Modelling methods Prototyping Compare products using ranking matrices Evaluating design ideas	Unit R038 User testing and design modification R040 product evaluation Product disassembly Methods of modelling	Unit R040 Physical modelling Production of risk assessments Evaluation of manufactured prototype Evaluation against specification R038 finishing and assembly Production costs	Unit R040 Submission of controlled assessment R038 Revision	Unit R038 Theory Revision	Theory Revision R038 Examination