

Curriculum Sequencing Grid: *Design & Technology*

Year 11	Term 1	Term 2	Term 3
Unit (Tablet in 39 week plan)	Unit 4 – Properties of Materials Unit 5 – Understanding Tools, Equipment and Processes.	Synoptic Project – Context Released December	Synoptic Project – Students make improvements to synoptic project following external moderation as required.
Key Retainable Knowledge (Required for Y11/13) What... How.... Why....	4.1 Properties and Characteristics of Materials Learners will understand how materials exhibit properties and characteristics in engineering products and projects. 5.1 Tools, Equipment and Machines Learners will know and understand the health and safety, control measures, safe and correct use of common tools, equipment and machines used in the engineering industry for manufacturing including those used for marking-out, cutting, modifying, joining and finishing. 5.2 Safe and Correct Use The learner will understand the safe and correct use of common tools, equipment and machines used in the engineering industry. These units will be tested through review in each lesson, and end of unit tests. This knowledge is required for the end of course exam and in industry.	Synoptic Project The learner will produce hand drafted and Computer-Aided Design (CAD) engineering drawings, a production plan for the manufacture of an engineered product which will demonstrate the application of skills and techniques to prepare, mark-out, modify, join and finish materials. The learner will use CAD software to produce engineering drawings and apply specific drawing conventions and use layouts recognised within the engineering industry following British Standard BS 8888. The learner will plan the manufacturing process of an engineered product, for a manufacturing task, giving consideration to the individual stages of manufacture, to include health and safety factors. The learner will demonstrate a variety of processing skills and manufacturing techniques: preparing, modifying, joining and finishing techniques applied to materials for a manufacturing task, whilst maintaining safe and correct use of tools, equipment and machines.	Synoptic Project The learner will produce hand drafted and Computer-Aided Design (CAD) engineering drawings, a production plan for the manufacture of an engineered product which will demonstrate the application of skills and techniques to prepare, mark-out, modify, join and finish materials. The learner will use CAD software to produce engineering drawings and apply specific drawing conventions and use layouts recognised within the engineering industry following British Standard BS 8888. The learner will plan the manufacturing process of an engineered product, for a manufacturing task, giving consideration to the individual stages of manufacture, to include health and safety factors. The learner will demonstrate a variety of processing skills and manufacturing techniques: preparing, modifying, joining and finishing techniques applied to materials for a manufacturing task, whilst maintaining safe

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			and correct use of tools, equipment and machines.
Key Technical Vocabulary (To be modelled and deliberately practiced in context.)	Chemical, electrical, mechanical, optical and thermal properties. Characteristics. Composites. Marking out, modification, joining, finishing, control measures, PPE.	CAD, 3 rd Angle Orthographic Projection, isometric, rendering. Risk assessment. Preparing, modifying, joining and finishing techniques.	CAD, 3 rd Angle Orthographic Projection, isometric, rendering. Risk assessment. Preparing, modifying, joining and finishing techniques.
Opportunities for Reading		To be explored following publication of context.	To be explored following publication of context.
Developing Cultural Capital (exposure to very best- essential knowledge and skills of educated citizens – appreciation of human creativity and achievement.)	Engineering disciplines taught in the context of real world engineering projects. Bloodhound SSC, Golden Gate Bridge, iPhone etc.	Real world context set by NCFE. Synoptic project requires knowledge of industrial processes, and requires use of industrial planning and risk assessment process.	Real world context set by NCFE. Synoptic project requires knowledge of industrial processes, and requires use of industrial planning and risk assessment process.
Cross Curricular Links (Authentic Connections)	Science and Maths – Use of formulas		
Key Assessment	Mock exam – July and October Full Exam – November	Synoptic Project deadline – May Exam Resit – March	Synoptic Project resubmission – May