

Curriculum Sequencing Grid: **Design & Technology**

Year 10	Term 1	Term 2	Term 3
<p><b>Unit</b> (Tablet in 39 week plan)</p>	<p>Unit 1 – Understanding the Engineering World.</p> <p>Unit 2 – Science and Maths in Engineering</p> <p>Synoptic Project Practice – Hydraulic Arm</p>	<p>Unit 3 – Engineering Drawings</p> <p>Unit 4 – Properties of Materials</p> <p>Synoptic Project Practice – Hydraulic Arm/ Crane</p>	<p>Unit 5 – Understanding Tools, Equipment and Processes.</p> <p>Synoptic Project Practice – Crane</p>
<p><b>Key Retainable Knowledge</b> (Required for Y11/13)</p> <ul style="list-style-type: none"> <li>What... How.... Why....</li> </ul>	<p><b>1.1.1 Engineering disciplines</b> The learner will understand how specific engineering projects and products have shaped the modern world.</p> <p><b>1.2.1 Health and safety legislation</b> The learner will know and understand the personal safety measures for each engineering discipline. This will include personal protective equipment and an understanding of the relevant health and safety requirements to ensure they comply with legislation.</p> <p><b>2.1 Application of SI Units</b> Understand how SI units of measurement are used in engineering products and projects.</p> <p><b>2.2 Equations used to Describe and Calculate Energy, Forces and Motion, Electrical, Geometry</b></p>	<p><b>3.1.1 Drawing conventions</b> The learner must be able to read and understand all the elements which are included in an engineering drawing.</p> <p><b>4.1 Properties and Characteristics of Materials</b> Learners will understand how materials exhibit properties and characteristics in engineering products and projects.</p> <p>These units will be tested through review in each lesson, and end of unit tests.</p> <p>This knowledge is required for the end of course exam and in industry.</p>	<p><b>5.1 Tools, Equipment and Machines</b> 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.</p> <p><b>5.2 Safe and Correct Use</b> The learner will understand the safe and correct use of common tools, equipment and machines used in the engineering industry.</p> <p>These units will be tested through review in each lesson, and end of unit tests.</p> <p>This knowledge is required for the end of course exam and in industry.</p>

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	Understand how mathematical and scientific equations are used in engineering disciplines.		
<b>Key Technical Vocabulary</b> (To be modelled and deliberately practiced in context.)	Engineering Disciplines, Mechanical, electrical, aerospace, communications, civil, automotive, biomedical, software, COSHH, RIDDOR, HASAWA, Ampere, candela, Kelvin, Kilogram, mole, hydraulics	Tolerance, scale, orthographic projection, isometric projection, British Standards 8888. Chemical, electrical, mechanical, optical and thermal properties. Characteristics. Composites.	Marking out, modification, joining, finishing, control measures, PPE.
<b>Opportunities for Reading</b>		Focus Educational Software – Focus on Materials - CD ROM	Focus Educational Software – Focus on Systems - CD ROM
<b>Developing Cultural Capital</b> (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.	STEM Visit to AESSEAL  In School project to be run in co-ordination with AESSEAL	Factory Visit to AESSEAL  Observation of real world engineering processes.
<b>Cross Curricular Links</b> (Authentic Connections)	Science and Maths – Use of formulas	Science – Material properties and testing	
<b>Key Assessment</b>	Unit 1 test  Unit 1 and 2 test  Isometric CAD Drawing  Orthographic hand Drawing	Unit 123 test  Unit 1234 Test  Material Testing – Property analysis  Practical Outcome – Hydraulic Arm	Unit 1234 and 5 test.  Y10 Trial Exam  Orthographic CAD Drawing  Practical Outcome - Crane