



Curriculum Map Year 13 **Btec National L3 Extended Certificate in Engineering**

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit of work	Unit 1- Engineering principles Unit 3- Engineering Product Design and Manufacture	Unit 1- Engineering principles Unit 3- Engineering Product Design and Manufacture	Unit 1- Engineering principles Unit 3- Engineering Product Design and Manufacture )	Unit 1- Engineering principles Unit 3- Engineering Product Design and Manufacture	Revision and Trial Exams	Unit 1- Engineering principles:Final exam
Core Skills	<ul style="list-style-type: none"> <li>Graphical communication using engineering standards.</li> <li>Use of CAD and CAM in advanced engineering operations.</li> <li>Engineering tooling and workshop processes.</li> <li>Meeting the expectations of health and safety legislation when working in an engineering environment.</li> <li>Processing engineering materials.</li> <li>Analysis of engineering products</li> <li>Evaluation of engineering products and processes.</li> </ul>					
Core Knowledge	<ul style="list-style-type: none"> <li>Understand the triggers that stimulate engineering design activity.</li> <li>Understand commercial-, regulatory- or public policy-based trends that challenge current technology or design.</li> <li>Understand factors that place limitations and offer opportunities at equipment level on the design of engineering products</li> <li>Understand properties, modes of failure, protection and lubrication of engineering materials and components that impact upon their selection when designing an engineering product.</li> <li>Understand the characteristics of an engineering system that makes use of forces and movement that impacts on mechanical power transmission component selection when designing an engineering product.</li> <li>Understand the characteristics and effects of manufacturing processes that impact on the selection of engineering materials and components when designing an engineering product</li> </ul>	<ul style="list-style-type: none"> <li>Meeting customer needs during engineering design activity</li> <li>Meeting customer needs during engineering design activity</li> <li>Engineering goals in terms of marketing when designing an engineering product</li> <li>Engineering goals in terms of performance when designing an engineering product</li> <li>Engineering goals in terms of manufacturing when designing an engineering product</li> </ul>	<ul style="list-style-type: none"> <li>Initial and developed propositions to improve an engineering product</li> <li>Communication of an initial and a developed proposition to improve an engineering product</li> <li>Using an iterative process to improve an engineering product</li> <li>Statistical techniques as applied to engineering problems</li> <li>Rationalise choices made when generating a developed proposition to improve an engineering product</li> </ul>			
Assessment & Feedback	<p>Each lesson begins with ROPE tasks in which knowledge is recalled from past topics and answers are discussed and recorded. ROPE questions utilize the command verbs found within the specification in order to build students use and understanding of these words and develop a deeper understanding of how they relate to grading within assignments and examinations. Mock assignments and past papers are delivered following learning phases and individual and whole group feedback provided against the specification. Learners are given time to respond to their feedback in dedicated feedback sessions.</p>					
Link to prior learning	<ul style="list-style-type: none"> <li>Unit 2/ 10- Computer aided design and manufacturing processes.</li> <li>Unit 2- Interpretation of engineering drawings</li> <li>Unit 2- Engineering processes</li> </ul>	<ul style="list-style-type: none"> <li>Unit 2/ 10- Computer aided design and manufacturing processes.</li> <li>Unit 2- Interpretation of engineering drawings</li> <li>Unit 2- Engineering processes</li> </ul>	<ul style="list-style-type: none"> <li>Unit 2/ 10- Computer aided design and manufacturing processes.</li> <li>Unit 2- Interpretation of engineering drawings</li> <li>Unit 2- Engineering processes</li> </ul>			