



Engineering

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<u>Week</u>	<u>Topic</u>	<u>Rationale</u>	<u>Homework</u>	<u>FBV, Employability</u>
1st-	What is engineering and the need for engineers	Engineering is a broad range and understanding of this range can give students a clear idea of where they may work in the future		Employability-Insight into the world of different engineering careers such as aerospace, automotive, electrical, electronic, manufacturing, marine, mechanical or telecommunications.
2nd - 5th	Engineering organisations large and small including specialists	How engineering sectors work together to create multiple components needs to be understood early on. This will create the engineering picture before then looking at specifics, it is key the students must be clear on a range of engineering sectors and how they work on certain products. All students must know this for the pass criteria of their coursework	Health and safety revision resources created for Component 3	
6th - 8th	Engineering Job roles and Career progression	Within these functions and roles there are many different jobs that require a whole spectrum of skills. This understanding with give relevance and importance to the companies set up and how that impacts production. Jobs roles must be included when describing the different sized organisations. The difference in job roles within the sizes of companies is something the students must look to explain within the merit criteria.	Engineering specialist roles and processes revision resources created for Component 3	FBV- A look at the working world and how people of different skill base work together in an organisation where everyone has equal rights but various responsibilities. This looks at respecting colleagues, trust within quality assurance and control. Tolerance of different beliefs within and organisation.
9th - 14th	Assessment period			



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<p>15th - 16th</p>	<p>Engineering design/make process and interpreting and engineering brief</p>	<p>The students now embark on a design and make project which will offer them an insight into this developmental area of engineering. They will look at the importance of various designs and complete up to 3 designs which will need to be annotated and meet a brief.</p>	<p>Design and make stages revision resources created for Component 3</p>	<p>Employability- An insight into the design and make process that is followed in every sector of engineering. Key skills in CAD that are transferrable in modern roles within industry which is heavily driven by CAD and 3D design.</p>
<p>17th - 18th</p>	<p>Research, designs, 2D and 3d design including CAD</p>	<p>Ideas and design need to be developed into Cad models. CAD is used in engineering on a daily basis so it's important they understand the journey from idea and paper stage to CAD modelling. A CAD model is required for them to visualise their ideas and this allows them to reflect and make improvements in line with the merit criteria.</p>	<p>Design and make stages revision resources created for Component 3</p>	
<p>19th -20th</p>	<p>Final ideas, modelling and evaluation</p>	<p>The proposals must be of quality and for them to achieve a distinction level, they must be able to justify and evaluate their designs fully. Evaluating and reflecting is a process to be always carried out at the very end is it brings to a close a process that is a direct replica of what happens throughout engineering.</p>		
<p>21st -25th</p>	<p>Assessment period</p>			



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26th -27th	Engineering materials, properties and characteristics	An understanding of engineering materials is paramount to be a successful employee. The application of material knowledge is used both through the coursework but also the exam. They must be able to describe, explain the choices and evaluate the uses of materials throughout the coursework.	Engineering material revision resources created for Component 3	Employability- It is essential in all areas of engineering to have a wide range of material, component and process knowledge to make important decisions and choices within manufacturing and production.
28th	Engineering components	Engineering components have both product specific and proprietary components. It is essential that the students can understand this and even further can explain the importance of proprietary components used in a whole range of products.		
29th - 31st	Engineering processes	Engineering process choice is also a key skill required for engineers to improve costing, sustainability and product life-cycle. The description of the process, explanation of its use and evaluation of its choice, is a skill all the students must achieve.	Engineering processes revision resources created for Component 3	FBV- The use of certain materials and processes have large impacts on the environment and therefore impact on the future of certain products currently being produced.
32nd 34th	Assessment period			
35th- 36th	Practical engineering skills	Practical engineering skills are essential in producing, making, testing, disassembling and engineered parts. The must use these skills systematically to take apart products and report on the condition and features of these parts.	Engineering tools revision resources created for Component 3	Employability- The use of practical equipment to disassemble products is a vital skill in the world of engineering from aerospace to automotive had the steps taken to install parts is something all engineers need to fluent in for successful products and automation. FBV - Working as a team are key skills used throughout life and employment and within this topic this is covered thoroughly. This ensures good communication, tolerance and apathetic quality is shown by students when working in this process.
37th - 38th	Assessment period			