

Subject	Year	Term						
WJEC Vocational Engineering Level 2	10	3						
Topic								
CAD and Design Engineering								
Content (Intent)								
<p>Prior Learning – Manufacturing processes</p> <p>Continuing to build their knowledge and skills base on manufacturing engineered products, students need to develop the skills to create their own solutions to engineering problems. Students will learn to utilise Onshape, our chosen 3D CAD package, to create virtual designs that can be assembled into full solutions and exported to CAM devices such as our laser cutter or 3D printers. Student will also understand how to create engineering drawings such as orthographic, section views and exploded diagrams with the software.</p> <p>Students learn about analysing existing products to inform their own designs and develop an understanding of electronic components used in engineered products. This will enable them to design and develop their own LED torch created using the 3D printer.</p>								
<p>Future Learning (Topic) – NEA 1</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #002060; color: white; width: 50%;">What Knowledge and Skills will be taught (Implementation)</th> <th style="background-color: #002060; color: white; width: 50%;">How will your understanding be assessed & recorded (Impact)</th> </tr> </thead> <tbody> <tr> <td style="vertical-align: top;"> <p>Students will learn about : -</p> <ul style="list-style-type: none"> CAD drawing Electronic components Ergonomics and anthropometrics Recap on rmal drawing skills What a manufacturing specification is </td> <td style="vertical-align: top;"> <p>Assessment</p> <p>Students will be assessed using a range of low stakes formative assessments. These assessments include: -</p> <ul style="list-style-type: none"> Quick recall starters Topic quiz Vocabulary tests An end of topic formative assessments. </td> </tr> <tr> <td style="vertical-align: top;"> <p>Mock NEA 2 - Torch</p> <p>Students will complete sections 1-4 of a mock NEA 2 including: -</p> <ul style="list-style-type: none"> Product analysis Sketching ideas CAD Materials selection Manufacturing specification CAM production Soldering and assembly </td> <td style="vertical-align: top;"> <p>Assessment</p> <p>Students will be assessed formally against the assessment criteria and feedback given for students to act upon in dedicated lessons time.</p> <p>This is a composite assessment and will contribute to the Summative assessment report sent home.</p> <ul style="list-style-type: none"> - A Design Task - A formative assessment </td> </tr> </tbody> </table>			What Knowledge and Skills will be taught (Implementation)	How will your understanding be assessed & recorded (Impact)	<p>Students will learn about : -</p> <ul style="list-style-type: none"> CAD drawing Electronic components Ergonomics and anthropometrics Recap on rmal drawing skills What a manufacturing specification is 	<p>Assessment</p> <p>Students will be assessed using a range of low stakes formative assessments. These assessments include: -</p> <ul style="list-style-type: none"> Quick recall starters Topic quiz Vocabulary tests An end of topic formative assessments. 	<p>Mock NEA 2 - Torch</p> <p>Students will complete sections 1-4 of a mock NEA 2 including: -</p> <ul style="list-style-type: none"> Product analysis Sketching ideas CAD Materials selection Manufacturing specification CAM production Soldering and assembly 	<p>Assessment</p> <p>Students will be assessed formally against the assessment criteria and feedback given for students to act upon in dedicated lessons time.</p> <p>This is a composite assessment and will contribute to the Summative assessment report sent home.</p> <ul style="list-style-type: none"> - A Design Task - A formative assessment
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How can parents help at home?								
<p>You can support your child by discussing the mock NEA with them, allowing them to develop their portfolios at home and encouraging the students to have an aspirational attitude to their work.</p>								
Helpful further reading/discussion (including Reading and Vocabulary Lists)								
<p>Reading</p> <p>Level 1/2 Vocational Award in Engineering WJEC – ISBN 1860857515</p> <p>Model Engineer Magazine</p> <p>Technologystudent.com /materials and processes</p>	<p>Vocabulary Lists</p> <p>Engineering Drawings and Presentation of Designs: Analysis, work of others, Product Design Specification, Research, Conceptual Ideas, Development, Modelling, CAD, Exploded Diagram, Sectional Views, Orthographic Projection, Materials Selection, Manufacturing Specification, Final Design.</p>							