

Engineering	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 10	<p>Aluminium Lamp Manufacture (unit 1 skills)</p> <ul style="list-style-type: none"> <li>-Understanding engineering drawings</li> <li>-sketching parts</li> <li>-engineering tools &amp; equipment</li> <li>-planning and evaluation processes</li> <li>- Materials and properties</li> </ul>	<p>Aluminium Lamp Redesign (unit 2 skills)</p> <ul style="list-style-type: none"> <li>-Existing product research</li> <li>-Designing products to meet a brief</li> <li>-Modelling designs</li> <li>-Creating engineering drawings</li> <li>-Creating a manufacturing plan</li> <li>-Using mathematics to solve problems.</li> </ul>	<p>Unit 1 Mock project (Unit 1 Skills)</p> <ul style="list-style-type: none"> <li>-Understanding engineering drawings</li> <li>-sketching parts</li> <li>-engineering tools &amp; equipment</li> <li>-planning and evaluation processes</li> <li>- Materials and properties</li> </ul>	<p>Unit 2 Mock Project (Unit 2 Skills)</p> <ul style="list-style-type: none"> <li>-Existing product research</li> <li>-Designing products to meet a brief</li> <li>-Modelling designs</li> <li>-Creating engineering drawings</li> <li>-Creating a manufacturing plan</li> <li>-Using mathematics to solve problems.</li> </ul>	<p>Unit 3 exam preparation.</p> <ul style="list-style-type: none"> <li>-engineering contexts of developments</li> <li>-Material developments</li> <li>-Environmental issues</li> <li>-Materials properties and justification</li> <li>-Processes tools and equipment</li> <li>-Industrial Processes</li> <li>-Risk assessment and safety</li> </ul>	<p>Engineering knowledge and principles (mock exam paper)</p> <ul style="list-style-type: none"> <li>-engineering contexts of developments</li> <li>-Material developments</li> <li>-Environmental issues</li> <li>-Materials properties and justification</li> <li>-Processes tools and equipment</li> <li>-Industrial Processes</li> <li>-Risk assessment and safety</li> </ul>
Year 11	<p>Unit 1 Controlled Assessment (Manufacturing - 20 hours)</p> <ul style="list-style-type: none"> <li>-Understanding engineering drawings</li> <li>-sketching parts</li> <li>-engineering tools &amp; equipment</li> <li>-planning and evaluation processes</li> <li>- Materials and properties</li> </ul>	<p>Solving Engineering problems, mock exam feedback and revision (mock paper 3)</p> <ul style="list-style-type: none"> <li>-engineering contexts of developments</li> <li>-Material developments</li> <li>-Environmental issues</li> <li>-Materials properties and justification</li> <li>-Processes tools and equipment</li> <li>-Industrial Processes</li> <li>-Risk assessment and safety</li> </ul>	<p>Unit 2 Controlled Assessment (Designing - 10 hours)</p> <ul style="list-style-type: none"> <li>-Existing product research</li> <li>-Designing products to meet a brief</li> <li>-Modelling designs</li> <li>-Creating engineering drawings</li> <li>-Creating a manufacturing plan</li> <li>-Using mathematics to solve problems.</li> </ul>	<p>Unit 3 preparation - exam question practice.</p> <ul style="list-style-type: none"> <li>-engineering contexts of developments</li> <li>-Material developments</li> <li>-Environmental issues</li> <li>-Materials properties and justification</li> <li>-Processes tools and equipment</li> <li>-Industrial Processes</li> <li>-Risk assessment and safety</li> </ul>	<p>Unit 3 External Exam - Solving Engineering Problems (1 hour 30 mins) (exam date in May 2025)</p> <ul style="list-style-type: none"> <li>-engineering contexts of developments</li> <li>-Material developments</li> <li>-Environmental issues</li> <li>-Materials properties and justification</li> <li>-Processes tools and equipment</li> <li>-Industrial Processes</li> <li>-Risk assessment and safety</li> </ul>	

<p>Year 12</p>	<p>Unit 2 LAB - 2D CAD drawing of lamp components. -2D CAD skills on 2D design V2. -Understanding engineering drawings -Creating professional drawings of components Unit 1 - Engineering Principles - Recall basic engineering principles and mathematical methods and formulae - Perform mathematical procedures to solve engineering problems - Demonstrate an understanding of electrical, electronic and mechanical principles to solve engineering problems - Analyse information and systems to solve engineering problems - Integrate and apply electrical, electronic and mechanical principles to develop an engineering solution</p>	<p>Unit 2 LAC - Lamp manufacture, manufacturing safely as a team -Planning and manufacturing components based on engineering drawings -Choosing materials and manufacturing processes that are suitable for the project. -Accurately document progress of manufacturing and reflect on potential improvements. Unit 1 - Engineering Principles - Recall basic engineering principles and mathematical methods and formulae - Perform mathematical procedures to solve engineering problems - Demonstrate an understanding of electrical, electronic and mechanical principles to solve engineering problems - Analyse information and systems to solve engineering problems - Integrate and apply electrical, electronic and mechanical principles to develop an engineering solution</p>	<p>Unit 2 LAA - Bike Brake Analysis -Material and component analysis -detailed understanding of manufacturing processes and material properties -identifying alternatives for manufacturing components. -How human factors affect the manufacture of components on an industrial scale. Unit 1 Engineering Principles - First attempt. (1 hour 30 mins) - Recall basic engineering principles and mathematical methods and formulae - Perform mathematical procedures to solve engineering problems - Demonstrate an understanding of electrical, electronic and mechanical principles to solve engineering problems - Analyse information and systems to solve engineering problems - Integrate and apply electrical, electronic and mechanical principles to develop an engineering solution</p>	<p>Unit 10 LAA - 3D CAD drawings of lamp components. -Create 3D CAD models of lamp components accurately using fusion 360 -Translate 3D models to 2D orthographic models to professional standards using fusion 360. -Propose 3 alternative designs to 3 components which should be 3D modelled and justified.  Unit 1 - Engineering Principles - Recall basic engineering principles and mathematical methods and formulae - Perform mathematical procedures to solve engineering problems - Demonstrate an understanding of electrical, electronic and mechanical principles to solve engineering problems - Analyse information and systems to solve engineering problems - Integrate and apply electrical, electronic and mechanical</p>	<p>Unit 10 LAB - 2D CAD drawings of lamp components generated from 3D models. -Create 2D CAD drawings of all lamp components using 2D Design -Propose 3 alternative designs to 3 components which should be drawn in 2D design and justified. Unit 1 - Engineering Principles - Recall basic engineering principles and mathematical methods and formulae - Perform mathematical procedures to solve engineering problems - Demonstrate an understanding of electrical, electronic and mechanical principles to solve engineering problems - Analyse information and systems to solve engineering problems - Integrate and apply electrical, electronic and mechanical principles to develop an engineering solution</p>	<p>Unit 10 LAC - 3D and 2D CAD drawings of thin-walled and fabricated components. Create 3 3D components which show thin-walled components from a hairdryer and folded thermoplastic stand. Unit 3 - Engineering Product Design and Manufacture preparation.  Unit 1 - Engineering Principles - Recall basic engineering principles and mathematical methods and formulae - Perform mathematical procedures to solve engineering problems - Demonstrate an understanding of electrical, electronic and mechanical principles to solve engineering problems - Analyse information and systems to solve engineering problems - Integrate and apply electrical, electronic and mechanical principles to develop an engineering solution</p>
----------------	---	---	--	--	--	--

				principles to develop an engineering solution		
Year 13	<p>Unit 3 - Exam preparation</p> <ul style="list-style-type: none"> <li>-Demonstrate knowledge and understanding of engineering products and design</li> <li>- Apply knowledge and understanding of engineering methodologies, processes, features and procedures to iterative design</li> <li>- Analyse data and information and make connections between engineering concepts, processes, features, procedures, materials, standards and regulatory requirements</li> <li>- Evaluate engineering product design ideas, manufacturing processes and other design choices</li> <li>- Be able to develop and communicate reasoned design solutions with appropriate justification</li> </ul> <p>Unit 1 - Engineering Principles</p>	<p>Unit 3 - Exam preparation</p> <ul style="list-style-type: none"> <li>-Demonstrate knowledge and understanding of engineering products and design</li> <li>- Apply knowledge and understanding of engineering methodologies, processes, features and procedures to iterative design</li> <li>- Analyse data and information and make connections between engineering concepts, processes, features, procedures, materials, standards and regulatory requirements</li> <li>- Evaluate engineering product design ideas, manufacturing processes and other design choices</li> <li>- Be able to develop and communicate reasoned design solutions with appropriate justification</li> </ul> <p>Unit 1 - Engineering Principles</p>	<p>Unit 3 - Engineering product design and manufacture - First Attempt (8 Hours)</p> <ul style="list-style-type: none"> <li>-Demonstrate knowledge and understanding of engineering products and design</li> <li>- Apply knowledge and understanding of engineering methodologies, processes, features and procedures to iterative design</li> <li>- Analyse data and information and make connections between engineering concepts, processes, features, procedures, materials, standards and regulatory requirements</li> <li>- Evaluate engineering product design ideas, manufacturing processes and other design choices</li> <li>- Be able to develop and communicate reasoned design solutions with appropriate justification</li> </ul>	Coursework Recap if required.	Unit 1 & 3 exam preparation (if required for resit)	Unit 1 & 3 exam preparation (if required for resit)

	<ul style="list-style-type: none"> <li>- Recall basic engineering principles and mathematical methods and formulae</li> <li>- Perform mathematical procedures to solve engineering problems</li> <li>- Demonstrate an understanding of electrical, electronic and mechanical principles to solve engineering problems</li> <li>- Analyse information and systems to solve engineering problems</li> <li>- Integrate and apply electrical, electronic and mechanical principles to develop an engineering solution</li> </ul>	<ul style="list-style-type: none"> <li>- Recall basic engineering principles and mathematical methods and formulae</li> <li>- Perform mathematical procedures to solve engineering problems</li> <li>- Demonstrate an understanding of electrical, electronic and mechanical principles to solve engineering problems</li> <li>- Analyse information and systems to solve engineering problems</li> <li>- Integrate and apply electrical, electronic and mechanical principles to develop an engineering solution</li> </ul>	<p>Unit 1 - Engineering Principles - Second Attempt (1 Hour 30 mins)</p> <ul style="list-style-type: none"> <li>- Recall basic engineering principles and mathematical methods and formulae</li> <li>- Perform mathematical procedures to solve engineering problems</li> <li>- Demonstrate an understanding of electrical, electronic and mechanical principles to solve engineering problems</li> <li>- Analyse information and systems to solve engineering problems</li> <li>- Integrate and apply electrical, electronic and mechanical principles to develop an engineering solution</li> </ul>			
--	--	--	---	--	--	--