



# Vocational Faculty: Engineering Curriculum Long Term Plan (Y10-11)

	Autumn Term A	Spring Term A	Summer Term A
Y10	<p><b>Enquiry Question:</b> What are Engineering sectors, products and organisations and how do they interact?</p> <p><b>End Point:</b> Students will understand the significance of Engineering sectors, products and organisations.</p> <p><b>Area of knowledge:</b></p> <ul style="list-style-type: none"> <li>• Engineering Sectors, engineered products and interconnections.</li> <li>• Interconnection between engineering sectors and engineered products                             <ul style="list-style-type: none"> <li>○ Safe application of technical and practical knowledge to transform ideas into products</li> <li>○ Need for people who are qualified in an engineering discipline and experts in more than one discipline.</li> <li>○ Different engineering sectors</li> <li>○ Engineered products from different sectors and combination of sectors.</li> </ul> </li> <li>• Students will examine organisations, functions and job roles, developing their understanding of how they contribute to career progression                             <ul style="list-style-type: none"> <li>○ Engineering organisation in terms of size and range of examples covering the sectors.</li> <li>○ Specialist organisations in sectors</li> </ul> </li> </ul> <p><b>Builds on:</b> This is new learning</p> <p><b>New Skills:</b></p> <ul style="list-style-type: none"> <li>• Transforming ideas into reality</li> <li>• Research</li> </ul>	<p><b>Enquiry:</b> Explore engineering skills through the design process</p> <p><b>End Point:</b> Students will be aware and able to apply the principles of design. Completion of Component 1B</p> <p><b>Area of knowledge:</b></p> <ul style="list-style-type: none"> <li>• Interpreting an engineering brief</li> <li>• Producing initial design proposals</li> <li>• Computer Aided Design (CAD) drawings using drawing, editing, modification, and manipulation commands.</li> <li>• Generating final design solutions in 2D drawings and 3D modelling techniques</li> <li>• Making final design solution decisions</li> <li>• How employees work in a team to peer review</li> </ul> <p><b>Builds on:</b></p> <ul style="list-style-type: none"> <li>• Design &amp; Technology KS3 CAD work utilising 2D design</li> <li>• Knowledge developed in Art &amp; Design on sketching and drawing</li> <li>• Component 1A – employees working in a team</li> <li>• Science – Circuit diagrams</li> </ul> <p><b>New Skills:</b></p> <ul style="list-style-type: none"> <li>• Utilising different functions in CAD</li> <li>• Drawing techniques</li> <li>• Analysis and comparison</li> <li>• Evaluation</li> <li>• Different drawing styles for different audiences</li> </ul> <p><b>Recalled Skills:</b></p> <ul style="list-style-type: none"> <li>• Transforming ideas into a reality (Yr10 Autumn A)</li> <li>• Drawing blocks and flow diagrams (Yr. 10 Autumn A)</li> <li>• Comparison (Yr. 10 Autumn A)</li> <li>• Drawing styles and techniques (KS3 Design Technology and Art &amp; Design)</li> </ul>	<p><b>Enquiry Question:</b> <b>Investigate a given engineered product using disassembly techniques</b></p> <p><b>End Point:</b> <b>Completion of Component 2B</b></p> <p><b>Area of knowledge:</b></p> <ul style="list-style-type: none"> <li>• Practical engineering skills                             <ul style="list-style-type: none"> <li>○ Develop understanding of observation through                                     <ul style="list-style-type: none"> <li>▪ Visual features, surface finishes, mass, colour, degradation, identification marks.</li> </ul> </li> <li>○ Measurement skills                                     <ul style="list-style-type: none"> <li>▪ Measuring diameter, measuring linear dimensions, use of comparative techniques, knowledge of component values,</li> </ul> </li> <li>○ Appraisal / interpretation techniques.</li> </ul> </li> <li>• Disassembly techniques                             <ul style="list-style-type: none"> <li>○ Safe use of disassembly techniques</li> <li>○ Removal of semi-permanent fixings</li> <li>○ Parts removal and layout</li> <li>○ Replacement of non-reusable consumables or fixings</li> <li>○ Safe use of tools and equipment</li> </ul> </li> <li>• Product Design Specification (PDS)                             <ul style="list-style-type: none"> <li>○ Requirements in terms of:                                     <ul style="list-style-type: none"> <li>▪ Size and mass</li> <li>▪ Product life and reliability</li> <li>▪ Performance/ function / service requirements</li> <li>▪ Economic and making considerations</li> </ul> </li> </ul> </li> </ul>

<ul style="list-style-type: none"> <li>Drawing block &amp; flow diagrams</li> <li>Comparison</li> </ul> <p><b>Recalled Skills:</b> Block and flow diagrams from KS3 ICT.</p> <p><b>Links to:</b> Marketing &amp; Enterprise (organisation type &amp; size) Risk assessment Health &amp; Safety CEIAG – Engineering organisations and job roles within different structures. SMSC – Understanding of different people’s role within an organisation and the relationships required. C1 A2.P1 Describe engineering sectors and an engineered product they produce C1 A2.M1 Explain how engineers from different sectors generate an engineered product, with reference to sizes of organisations and the job roles involved.</p> <p><b>Assessed by:</b> Formative assessment of A.2P1, A.2.M1 (Part). Ongoing formative questioning and feedback, retrieval strategies etc.</p> <p><b>Tier 3 Vocabulary:</b> Sector, application, transform, qualified, discipline, electrical, electronics, engineer, solve, real-world, aerospace, automotive, communications, mechanical, environmental, transport, network, combination, engine management,</p>	<ul style="list-style-type: none"> <li>2D design – CAD package</li> </ul> <p><b>Links to:</b> CEIAG – Designing for a client. Iterative design process used in engineering. Engineering drawings SMSC – Designing for the needs of another person. Design for good v good design. Enterprise and marketing (Functions of an organisation) Art &amp; design (Drawing techniques and styles) Year 9 DT – Drawing techniques, CAD, Iterative design process. Science – Physics Circuit Diagrams C1 B2.P3 Produce design proposals, compare in relation to the engineering brief and use CAD to produce a final solution. C1 B2. P4 Describe successful features of the design process, with reference to the engineering brief and some reference to peer review C1 B2.M2 Produce design proposals, compare in relation to the engineering brief and develop an improved final solution using CAD and modelling C1 B2.M3 Explain successful features of the design process, with reference to the engineering brief and peer review. C1 B2.D2 Justify the development of an improved final solution and evaluate use of the design process, with reference to the engineering brief and peer review.</p> <p><b>Assessed by:</b> Summative assessment - BTEC Assignment Component 1B. Throughout, formative questioning, self-assessment via retrieval strategies and whole class feedback.</p> <p><b>Tier 3 Vocabulary:</b> Design brief, specification, investigate, solution, computer-aided, quality standards, requirements</p>	<ul style="list-style-type: none"> <li>Implications of standards and legislation</li> </ul> <p><b>Builds on:</b></p> <ul style="list-style-type: none"> <li>Maths skills in terms of measuring diameter and lengths of lines</li> <li>Science – physics – values of components e.g. resistors</li> </ul> <p><b>New Skills:</b></p> <ul style="list-style-type: none"> <li>Observation and recording skills of visual features, surface finishes, mass, identifications.</li> <li>Using sector specific drawing conventions</li> <li>Safe disassembly of a product</li> </ul> <p><b>Recalled Skills:</b></p> <ul style="list-style-type: none"> <li>Working safely</li> <li>Using equipment for measurement</li> <li>Calculating component values</li> <li>Recording skills used in science experiments</li> </ul> <p><b>Links to:</b> CEIAG – Mechanical engineering Maths – diameter and measurement Enterprise and Marketing – Product Design Specification Science – Physics Components values Links with DT KS3 in design and manufacture of products. Design brief. Product Design Specification. C2 B2.P3 Systematically disassemble an engineered product, describe the main components and produce a design specification. C2 B2.M3 Systematically disassemble an engineered product, describe the purpose of each of its main components and produce a realistic product design specification. C2. B2.D2 Systematically disassemble an engineered product, describe how each of its main components links together and justify a detailed product design specification.</p> <p><b>Assessed by:</b> Summative assessment - BTEC Assignment Component 2B. Throughout, formative questioning, self-assessment via retrieval strategies and whole class feedback.</p> <p><b>Tier 3 Vocabulary:</b> Degradation, linear, dimensions, comparative, reasoning, semi-permanent, consumables, fixings, disassembly, reassembly, specification, reliability, performance,</p>
<b>Autumn Term B</b>	<b>Spring Term B</b>	<b>Summer Term B</b>
<p><b>Enquiry Question:</b> What are Engineering sectors, products and organisations and how do they interact?</p> <p><b>End Point:</b> Students will understand the significance of Engineering sectors, products and organisations. Completion of Component 1B</p>	<p><b>Enquiry:</b> Understand materials, components and processes for a given engineered product.</p> <p><b>End Point:</b> Students will understand categories properties and characteristics of materials. They will be able to determine</p>	<p><b>Enquiry Question:</b> Plan the manufacture of and safely reproduce/ inspect/ test a given engineered component</p> <p><b>End Point:</b> Completion of an engineered product that is testing within standards and corrected. Completion of Component 2C</p> <p><b>Area of knowledge:</b></p>

<p><b>Area of knowledge:</b></p> <ul style="list-style-type: none"> <li>• Engineering organisations, functions, job roles and career progression.</li> <li>• Students will examine organisations, functions and job roles, developing their understanding of how they contribute to career progression <ul style="list-style-type: none"> <li>○ Functions in organisations, e.g. research, design, planning, making, quality, marketing, selling, customer service, installation</li> <li>○ Engineering job roles</li> <li>○ Career progression opportunities.</li> <li>○ Role definitions</li> </ul> </li> </ul> <p><b>Builds on:</b></p> <ul style="list-style-type: none"> <li>• Engineering organisation in terms of size and range of examples covering the sectors.</li> <li>• Specialist organisations in sectors</li> </ul> <p><b>New Skills:</b></p> <p><b>Recalled Skills:</b></p> <ul style="list-style-type: none"> <li>• Transforming ideas into reality</li> <li>• Research</li> <li>• Drawing block &amp; flow diagrams</li> <li>• Comparison</li> </ul> <p><b>Links to:</b> Enterprise &amp; Marketing (size and type of organisations) CEIAG (job roles and career progression opportunities) C1 A2.P1 Describe engineering sectors and an engineered product they produce C1 A2.M1 Explain how engineers from different sectors generate an engineered product, with reference to sizes of organisations and the job roles involved. C1 A2.D1 Evaluate how engineers from different sectors cooperate to generate an engineered product with reference to sizes of organisation and the job roles involved. C1 A2.P2 Describe different sized engineering organisations and typical job roles.</p> <p><b>Assessed by:</b> Summative assessment - BTEC Assignment Component 1A (Assessment of A.2P1, A.2P2, A.2M1, A.2D2. Throughout, formative questioning, self-assessment via retrieval strategies and whole class feedback.</p> <p><b>Tier 3 Vocabulary:</b> Global, enterprise, jobbing, maintenance, technician, operator, fitter, installation, process, professional, management, unskilled, managerial</p>	<p>types of components and types of engineering processes. Completion of Component 2B</p> <p><b>Area of knowledge:</b></p> <ul style="list-style-type: none"> <li>• Materials <ul style="list-style-type: none"> <li>○ Engineering material categories <ul style="list-style-type: none"> <li>▪ Ferrous</li> <li>▪ Non-ferrous</li> <li>▪ Thermosetting polymers</li> <li>▪ Thermoforming polymers</li> </ul> </li> <li>○ Properties of engineering materials <ul style="list-style-type: none"> <li>▪ Strength, hardness and toughness</li> </ul> </li> <li>○ Characteristics of materials <ul style="list-style-type: none"> <li>▪ Machinability, workability, durability</li> </ul> </li> </ul> </li> <li>• Components <ul style="list-style-type: none"> <li>○ Types of components <ul style="list-style-type: none"> <li>▪ Proprietary</li> <li>▪ Product specific</li> </ul> </li> <li>○ Characteristics of components</li> </ul> </li> <li>• Processes <ul style="list-style-type: none"> <li>○ Types of engineering processes <ul style="list-style-type: none"> <li>▪ Cutting, shaping, forming and joining.</li> </ul> </li> </ul> </li> </ul> <p><b>Builds on:</b></p> <ul style="list-style-type: none"> <li>• Science – Chemistry Materials categories, properties and characteristics</li> <li>• DT KS3 Learning – Properties of materials.</li> </ul> <p><b>New Skills:</b></p> <ul style="list-style-type: none"> <li>• Investigation</li> </ul> <p><b>Recalled Skills:</b></p> <ul style="list-style-type: none"> <li>• Cutting of materials in year 7, 8 and 9.</li> </ul> <p><b>Links to:</b> CEIAG: Links to chemical engineering. Engineering metallurgy. Science – Chemistry Materials categories, properties and characteristics Understanding Engineering sectors, products and organisations and how they interact (Yr. 10 Autumn B) C2 A2.P1 Describe engineering materials and proprietary components used in given engineered products. C2 A2.P2 Describe engineering processes used to make given engineered products C2 A2.M1 Explain why engineering materials and proprietary components are used in given engineered products. C2 A2, M2 Explain why engineering processes are used to make given engineered products. C2 A2.D1 Evaluate engineering materials, proprietary components and processes used when making given engineered products.</p>	<ul style="list-style-type: none"> <li>• Engineering make process <ul style="list-style-type: none"> <li>○ Defining the problem</li> <li>○ Developing a possible solution</li> <li>○ Choosing a solution</li> <li>○ Making using engineering processes</li> <li>○ Inspecting and testing chosen solution</li> <li>○ Evaluating outcome of project</li> </ul> </li> <li>• Develop a production plan to include: <ul style="list-style-type: none"> <li>○ Health and safety</li> <li>○ Operations .processes</li> <li>○ Inspection, testing and quality standards</li> <li>○ Equipment. tools</li> <li>○ Quantity – e.g. one off, batch, mass</li> </ul> </li> <li>• Awareness of risks and hazards</li> <li>• Safe preparation, good housekeeping and close down of work area</li> </ul> <p><b>Builds on:</b></p> <ul style="list-style-type: none"> <li>• Component 2A and 2B</li> </ul> <p><b>New Skills:</b></p> <ul style="list-style-type: none"> <li>• Making skills associated with the product to be produced <ul style="list-style-type: none"> <li>○ Choosing suitable tools</li> <li>○ Appropriate set up of work area</li> <li>○ Adaption according to inspected outcomes</li> </ul> </li> <li>• Skills in observing and recording techniques</li> </ul> <p><b>Recalled Skills:</b></p> <ul style="list-style-type: none"> <li>• Working safely</li> <li>• Choosing suitable tools (not independently)</li> </ul> <p><b>Links to:</b> English – communication / seeking views Enterprise &amp; Marketing – Specifications / Processes CEIAG – Engineering processes / careers. Design Engineer SMSC – Designing for the needs of others. C2 B2.P3 Systematically disassemble an engineered product, describe the main components and produce a design specification. C2 B2.M3 Systematically disassemble an engineered product, describe the purpose of each of its main components and produce a realistic product design specification. C2. B2.D2 Systematically disassemble an engineered product, describe how each of its main components links together and justify a detailed product design specification.</p> <p>C2 C2.P4 Create a plan to produce an engineered component in a suitable sequence that covers processes, equipment and materials. C2 C2.P5 Produce an engineered component using a range of processes and inspect against given quality standards.</p>
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	Autumn Term A	Spring Term A	Summer Term A
Y11	<p><b>Enquiry:</b> Carry out a process to meet the needs of an engineering brief</p> <p><b>End Point:</b> Students will have an understanding of practical procedures and explore how to record, collect and interpret data in an engineering context.</p> <p><b>Area of knowledge:</b></p> <ul style="list-style-type: none"> <li>• Carry out a process <ul style="list-style-type: none"> <li>○ Following planned procedures</li> <li>○ Using and testing a prototype / model</li> <li>○ Assembling, handling and using materials, equipment and machinery.</li> </ul> </li> <li>• Recording the process <ul style="list-style-type: none"> <li>○ Measuring and recording data with accuracy and precision.</li> <li>○ Tabulating appropriate data in the correct format</li> <li>○ Displaying appropriate data graphically with accuracy</li> </ul> </li> <li>• Interpretation of data <ul style="list-style-type: none"> <li>○ Identifying anomalous results or sources of error</li> <li>○ Comparison of trends/patterns in data, to include tables, charts and graphs</li> <li>○ Evaluating the process to include testing process used.</li> <li>○ Drawing valid conclusions</li> <li>○ Making recommendations</li> </ul> </li> </ul>	<p><b>Enquiry:</b> Provide solutions to meet the needs of an engineered brief.</p> <p><b>End Point:</b> Students will have developed an understanding of how to analyse information in an engineering context and explored how to select a suitable solution and implementation to meet the brief.</p> <p><b>Area of knowledge:</b></p> <ul style="list-style-type: none"> <li>• Analysing engineering information associated with the problem <ul style="list-style-type: none"> <li>○ Types of engineering information – production data, engineering drawings, job cards.</li> <li>○ Interpreting patterns and trends relating to the engineering information.</li> <li>○ Identifying issues and causes associated with the problem</li> </ul> </li> <li>• Selecting a solution <ul style="list-style-type: none"> <li>○ Possible solutions for current and / or potential issues.</li> <li>○ Extent to which these solutions have fulfilled their primary purpose</li> <li>○ Wider factors that need to be considered e.g. resources, etc.</li> <li>○ Ways in which the solution might be improved on against primary purpose</li> </ul> </li> </ul>	<p><b>Enquiry Question:</b> Where the gaps in your learning/knowledge are and what do you need to add to Component 2. Continuation of revision for Component 3.</p> <p><b>End Point:</b> Self-reflection on how Component 2 could be improved. Exam for Component 3.</p> <p><b>Area of knowledge:</b> Personalised to students as the cohort will have gaps in their learning/knowledge in various locations throughout the Component 2 specification.</p> <p><b>Builds on:</b> All knowledge from Y10 and Y11</p> <p><b>New Skills:</b> Individual to students depending on the extent of their gaps and previous experience/attendance etc.</p> <p><b>Recalled Skills:</b> All knowledge from Y10 and Y11</p> <p><b>Links to:</b> All of Component 2</p> <p><b>Assessed by:</b> Summative assessment Component 2</p> <p><b>Tier 3 Vocabulary:</b> See all tier 3 vocabulary for Y10 where the Component 2 content is delivered.</p>

<p><b>Builds on:</b> Knowledge and skills developed in components 1 &amp; 2</p> <p><b>New Skills:</b></p> <ul style="list-style-type: none"> <li>• Observation skills <ul style="list-style-type: none"> <li>◦ Noting problems with practical activities.</li> </ul> </li> <li>• Testing and analysing information</li> </ul> <p><b>Recalled Skills:</b></p> <ul style="list-style-type: none"> <li>• Utilising different functions in CAD</li> <li>• Drawing techniques</li> <li>• Analysis and comparison</li> <li>• Evaluation</li> <li>• Different drawing styles for different audiences</li> <li>• Transforming ideas into a reality (Yr10 Autumn A)</li> <li>• Drawing blocks and flow diagrams (Yr. 10 Autumn A)</li> <li>• Comparison (Yr. 10 Autumn A)</li> <li>• Drawing styles and techniques (KS3 Design Technology and Art &amp; Design)</li> <li>• 2D design – CAD package</li> </ul> <p><b>Links to:</b> DT – Links with KS3 DT in terms of drawing styles, evaluation and testing Maths / Science – Use of graphs and analysis of data using set parameters. CEIAG – Design Engineer / Quality Control – Quality Assurance C1 B2.P3 Produce design proposals, compare in relation to the engineering brief and use CAD to produce a final solution. C1 B2. P4 Describe successful features of the design process, with reference to the engineering brief and some reference to peer review C1 B2.M2 Produce design proposals, compare in relation to the engineering brief and develop an improved final solution using CAD and modelling C1 B2.M3 Explain successful features of the design process, with reference to the engineering brief and peer review. C1 B2.D2 Justify the development of an improved final solution and evaluate use of the design process, with reference to the engineering brief and peer review.</p> <p><b>Assessed by:</b> <b>Past exams..</b> Throughout, formative questioning, self-assessment via retrieval strategies and whole class feedback.</p> <p><b>Tier 3 Vocabulary:</b></p>	<ul style="list-style-type: none"> <li>◦ Best fit approach</li> <li>◦ Identifying advantages and disadvantages, limitations / constraints.</li> <li>◦ Justifying the best solution</li> <li>◦ Reflecting on processes and making recommendations for approval</li> </ul> <ul style="list-style-type: none"> <li>• Problem solving <ul style="list-style-type: none"> <li>◦ Resources required and their use</li> <li>◦ Designs of solutions</li> <li>◦ Make processes – such as rapid prototyping.</li> <li>◦ Processes to follow</li> <li>◦ Manufacturing processes to use.</li> <li>◦ Data collection requirements. - Quantitative and qualitative data.</li> <li>◦ Data analysis and quality</li> <li>◦ Considering timescale</li> </ul> </li> </ul> <p><b>Builds on:</b> Knowledge and skills developed in components 1 &amp; 2</p> <p><b>New Skills:</b></p> <p><b>Recalled Skills:</b></p> <ul style="list-style-type: none"> <li>• Observation and recording skills of visual features, surface finishes, mass, identifications.</li> <li>• Using sector specific drawing conventions</li> <li>• Safe disassembly of a product</li> <li>• Working safely</li> <li>• Using equipment for measurement</li> <li>• Calculating component values</li> <li>• Recording skills used in science experiments</li> </ul> <p><b>Links to:</b> CEIAG – Design Engineer Science / Maths – Interpretation of data. Recording of information C2 B2.P3 Systematically disassemble an engineered product, describe the main components and produce a design specification. C2 B2.M3 Systematically disassemble an engineered product, describe the purpose of each of its main components and produce a realistic product design specification. C2. B2.D2 Systematically disassemble an engineered product, describe how each of its main components links together and justify a detailed product design specification.</p>	
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	<p>Prototype, assembling, equipment, precision, axis, scaling, anomalous, trends, conclusion,</p>	<p>C2 C2.P4 Create a plan to produce an engineered component in a suitable sequence that covers processes, equipment and materials.  C2 C2.P5 Produce an engineered component using a range of processes and inspect against given quality standards.  C2 C2.M4 Create a detailed plan to produce an engineered component in the correct sequence that covers the correct processes, equipment, materials and inspection techniques.  C2 C2.M5 Effectively produce an engineered component using a range of processes and inspect against given quality standards to confirm compliance.  C2 C2.D3 Evaluate the success of the planning and production of an engineered component and make recommendations for improvements to the process.  <b>Assessed by:</b>  Throughout, formative questioning, self-assessment via retrieval strategies and whole class feedback.  Attempt 1 of summative assessment of Component 3  <b>Tier 3 Vocabulary:</b>  Interpreting, design, tooling, environmental impact, limitation, constraint, best-fit, instrument, annotation, jig, quantitative, qualitative, recorded, specification, substance.</p>	
	<b>Autumn Term B</b>	<b>Spring Term B</b>	<b>Summer Term B</b>
	<p><b>Enquiry:</b>  Provide a design solution for an engineered product against the needs of an engineering brief  <b>End Point:</b>  Students will have developed an understanding of how to interpret a brief and explore ideas including their viability as a final solution  <b>Area of knowledge:</b></p> <ul style="list-style-type: none"> <li>• Interpretation of a given brief for an engineered product <ul style="list-style-type: none"> <li>○ Analysing the existing product with reference to the brief</li> <li>○ Dimensions and tolerances to include linear, radial, surface finish.</li> <li>○ Physical – 2D, 3D, flat, curved</li> <li>○ Attributes to include low resistance, sharp corners, moisture traps</li> <li>○ Materials</li> <li>○ Processes</li> </ul> </li> <li>• Redesign <ul style="list-style-type: none"> <li>○ Identifying relevant issues with existing design</li> </ul> </li> </ul>	<p><b>Enquiry Question:</b>  Where the gaps in your learning/knowledge are and what do you need to revise?  <b>End Point:</b>  Students will have identified areas of the spec of which to focus their revision. This will be achieved by a 'Speed Revision' lesson and tracking their progress across topics in order to highlight weak areas. This then informs the foci of their personalised revision plan. From this, it will allow students to feel confident, prepared and a sense of readiness for Component 3</p> <p>For those students who do not need to re-enter Component 3, there are opportunities to improve Component 2.  <b>Area of knowledge:</b>  Personalised to students as the cohort will have gaps in their learning/knowledge in various locations throughout the unit 1 specification.  <b>Builds on:</b>  All knowledge from Y10 and revision throughout Y11 via homework tasks.</p>	

<ul style="list-style-type: none"> <li>○ Design sketching to include 2D, 3D, exploded diagrams, annotation, circuit diagrams.</li> <li>○ Design for manufacture – fabricate, forge, cast, machined</li> <li>○ Design ideas</li> <li>● Evaluation <ul style="list-style-type: none"> <li>○ Reviewing the credibility of the design ideas given the needs of the brief</li> <li>○ Selecting the most appropriate design solution,</li> <li>○ Justification of the design solution</li> <li>○ Justification of the processes to be used.</li> </ul> </li> </ul> <p><b>Builds on:</b> Knowledge and skills developed in components 1 &amp; 2</p> <p><b>New Skills:</b></p> <p><b>Recalled Skills:</b></p> <ul style="list-style-type: none"> <li>● Utilising different functions in CAD</li> <li>● Drawing techniques</li> <li>● Analysis and comparison</li> <li>● Evaluation</li> <li>● Different drawing styles for different audiences</li> <li>● Transforming ideas into a reality (Yr10 Autumn A)</li> <li>● Drawing blocks and flow diagrams (Yr. 10 Autumn A)</li> <li>● Comparison (Yr. 10 Autumn A)</li> <li>● Drawing styles and techniques (KS3 Design Technology and Art &amp; Design)</li> <li>● 2D design – CAD package</li> </ul> <p><b>Links to:</b> DT – Iterative design process, Testing and evaluation Year 9 SMSC – Considering the needs of others. Maths / Science – Consideration of analysis of data. Presentation of data. Manipulation of data. C1 B2.P3 Produce design proposals, compare in relation to the engineering brief and use CAD to produce a final solution. C1 B2. P4 Describe successful features of the design process, with reference to the engineering brief and some reference to peer review C1 B2.M2 Produce design proposals, compare in relation to the engineering brief and develop an improved final solution using CAD and modelling C1 B2.M3 Explain successful features of the design process, with reference to the engineering brief and peer review.</p>	<p><b>New Skills:</b> Individual to students depending on the extent of their gaps and previous experience/attendance etc.</p> <p><b>Recalled Skills:</b> Exam technique and approach, analysis of questions, planning answers and its structure to meet the requirements of the question and the mark allocation.</p> <p><b>Links to:</b> All areas of Components 2 &amp; 3</p> <p>C2 A2.P1 Describe engineering materials and proprietary components used in given engineered products. C2 A2.P2 Describe engineering processes used to make given engineered products C2 A2.M1 Explain why engineering materials and proprietary components are used in given engineered products. C2 A2. M2 Explain why engineering processes are used to make given engineered products. C2 A2.D1 Evaluate engineering materials, proprietary components and processes used when making given engineered products.</p> <p>C1 B2.P3 Produce design proposals, compare in relation to the engineering brief and use CAD to produce a final solution. C1 B2. P4 Describe successful features of the design process, with reference to the engineering brief and some reference to peer review C1 B2.M2 Produce design proposals, compare in relation to the engineering brief and develop an improved final solution using CAD and modelling C1 B2.M3 Explain successful features of the design process, with reference to the engineering brief and peer review. C1 B2.D2 Justify the development of an improved final solution and evaluate use of the design process, with reference to the engineering brief and peer review.</p> <p>C2 B2.P3 Systematically disassemble an engineered product, describe the main components and produce a design specification. C2 B2.M3 Systematically disassemble an engineered product, describe the purpose of each of its main components and produce a realistic product design specification.</p>	
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