










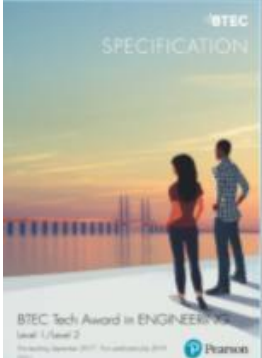


# Vocational Faculty: DT

## KS3 Curriculum Overview

Due to COVID we are developing our curriculum to engage our students after two years without any workshop experience. Over this year we are developing the KS3 curriculum to have more of a focus on materials; their properties; and engineering processes. This will enable the students' KS3 experience to dovetail neatly into our KS4 curriculum of BTEC Engineering. The timeline for the changes we are endeavouring to make quicker.

	7	8	9
<p><b>STABILITY</b> 2021/2022 (Term 01)</p>	<p><u>Projects</u> Drawing. Block Bot.</p>  <p><u>Skills</u> Oblique drawing. One-point perspective drawing. Design cycle. Basic hand workshop practical skills.</p>	<p><u>Projects</u> Drawing. Block Bot.</p>  <p><u>Skills</u> Oblique drawing. One-point perspective drawing. Design cycle. Basic hand workshop practical skills.</p>	<p><u>Projects</u> Typography. Finger jointed box CAD/CAM.</p>  <p><u>Skills</u> Rendering techniques. Iterative design. Workshop practical skills. Isometric drawing. Laser etching personal logo.</p>
<p><b>RECOVERY</b> 2021/2022 (Term 02/03)</p>	<p><u>Projects</u> Drawing. Block Bot.</p>  <p><u>Skills</u> Oblique drawing. One-point perspective drawing. Design cycle. Basic hand workshop practical skills.</p>	<p><u>Projects</u> Design Movements. Pewter casting.</p>  <p><u>Skills</u> Iterative design. Design cycle. Metal processes. Evaluation of casting against injection die casting. Knowledge of metals.</p>	<p><u>Projects</u> Typography. Finger jointed box CAD/CAM.</p>  <p><u>Skills</u> Rendering techniques. Iterative design. Workshop practical skills. Isometric drawing. Laser etching personal logo.</p>

<p><b>FUTURE (2022/2023)</b></p>	<p><u>Projects</u> Drawing. Mini light.</p>  <p><u>Skills</u> Oblique drawing. One-point perspective. Design cycle. CAD/CAM. Electronics. Basic hand workshop practical skills.</p>	<p><u>Projects</u> Design movements. Pewter casting.</p>  <p><u>Skills</u> Iterative design. Design cycle. Metal processes. Evaluation of casting against injection die casting. Knowledge of metals.</p>	<p><u>Projects</u> Folded metal bot.</p>  <p><u>Skills</u> Rendering techniques. Iterative design. Metal forming techniques. Metal joining techniques.</p>
<p><b>KS4 DT OUTCOMES</b></p>			<p><b>Qualification Summary:</b></p> <p><b>Title:</b> Pearson BTEC Level 1/Level 2 Tech Award in Engineering</p> <p><b>Qualification number:</b> 603/0829/1</p> <p><b>Guided learning hours:</b> 120</p> 

**STABILITY CURRICLUM 2021/2022 (Term 01)**

	Year 7 /8	Year 9
	<p><b>Enquiry Question:</b> Understanding of basic drawing techniques Understanding of different types of timber. Development of safe working practices and skills with hand tools and power tools.</p> <p><b>End Point:</b> Students will be competent in sketching in 3D and applying an appropriate render. Students will design and make a Blockbot product from different types of timber. They will have an understanding of different types of timber and be able to assemble and test</p>	<p><b>Enquiry Question:</b> Development of iterative design techniques. Development of safe working practices and skills with hand tools and power tools. Understand the commands required to use CAD software and to develop their personal 2D logo utilising a range of CAD software.</p> <p><b>End Point:</b> Students will manufacture a box. Students will produce a range of 2D shapes utilising a large range of commands.</p>

<b>DT</b>	<p>a product.</p> <p><b>Area of knowledge:</b></p> <ul style="list-style-type: none"> <li>• Understanding of Health &amp; Safety within the workshop</li> <li>• Understand and be aware of safe working practices in the use of a Tennon Saw, a Coping Saw, Tri Square, steel rule, PVA glue, sanding machine, drilling machine.</li> <li>• Identifying and solving their own design problems.</li> <li>• Develop specifications to inform the design of innovative, functional appealing products.</li> <li>• Develop assembling and testing techniques.</li> </ul> <p><b>Builds on:</b> For the majority of students, this will be their first visit to a school workshop and using industrial equipment.</p> <p><b>New Skills:</b></p> <ul style="list-style-type: none"> <li>• Applying Health &amp; Safety rules</li> <li>• Manufacturing safely using the following tools / equipment             <ul style="list-style-type: none"> <li>○ Tenon Saw</li> <li>○ Tri square</li> <li>○ Vice</li> <li>○ Bench hook</li> <li>○ Steel rule</li> <li>○ Sanding machine</li> <li>○ Drilling machine</li> <li>○ Coping saw</li> </ul> </li> <li>• Applying testing principles</li> <li>• Applying assembly principles.</li> </ul> <p><b>Recalled Skills:</b> For the majority of students, these will generally be new skills as DT equipment is not available in many primary schools.</p> <p><b>Links to:</b> National Curriculum</p> <ul style="list-style-type: none"> <li>• Select from and use specialist tools, techniques, processes, equipment and machinery precisely.</li> <li>• Select from and use a wider, more complex range of materials, components and ingredients, taking into account their properties</li> <li>• Test, evaluate and refine their ideas and products against a specification, taking into account the views of intended users and other interested groups</li> <li>•</li> </ul>	<p><b>Area of knowledge:</b> Iterative design techniques using typography as a theme for ideas to develop their own personal logo.</p> <p>2D Design: Understanding of the following commands and their use:</p> <ul style="list-style-type: none"> <li>• Setup and Layout</li> <li>• User defined</li> <li>• Co-ordinates x and y</li> <li>• Paper sizes eg ISO A4</li> <li>• Circle tool</li> <li>• Delete functions</li> <li>• Rectangle tool</li> <li>• Line tool</li> <li>• Fonts</li> <li>• Grid lock and step lock function</li> <li>• Dimension line tool</li> <li>• Radius and diameter</li> <li>• Transform</li> <li>• Move / Copy</li> <li>• Make path.</li> </ul> <p>Manufacturing using the laser cutter</p> <p><b>Builds on:</b> Consolidation of their previous workshop experience from Yr7. Students have missed nearly two years of workshop experience. This is all new learning in terms of CAD. There is a number of links to maths in terms of co-ordinates, dimensioning, radius and diameter. Learning also builds on some basic skills acquired in year 9 in terms of perspective drawing.</p> <p><b>New Skills:</b></p> <ul style="list-style-type: none"> <li>• Ability to apply the commands that have been taught within the unit to produce full 2D drawings.</li> <li>• Application of isometric drawing</li> <li>• Application of assembly</li> </ul> <p><b>Recalled Skills:</b> For most students, this will be the first time that students have used CAD. However they will recall skills such as:</p>
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<ul style="list-style-type: none"> <li>• Identify and solve their own design problems and understand how to reformulate problems given to them</li> <li>• Develop specifications to inform the design of innovative, functional, appealing products that respond to needs in a variety of situations</li> </ul> <p>Risk assessment Health &amp; Safety Science – properties of material Maths – measurement. Values, Units of measurement. SMSC- The Social and moral implications of design. Know that products have a life cycle and understand why we should use sustainable timbers CEIAG – Carpenter, Designer.</p> <p><b>Assessed by:</b> Formative assessment of:</p> <ul style="list-style-type: none"> <li>• Accuracy of work</li> <li>• Ability to work in a safe manner in the workshop</li> <li>• Correct and safe use of equipment</li> <li>• Ability to produce a quality product</li> <li>• Evaluate a product and identify improvements.</li> </ul> <p><b>Tier 3 Vocabulary:</b> Tenon, , coping, , timber, plywood, pine, softwood, hardwood, man made wood, manufacture, assembly, testing, evaluate, tri -square, rule, properties, health, safety, risk assessment, electronic, components, circuit, specification, user-centred design, parameter, constraint</p>	<ul style="list-style-type: none"> <li>• Dimensioning</li> <li>• Co-ordinates</li> <li>• Isometric</li> <li>• Faces</li> <li>• Proportion</li> <li>• Perspective</li> </ul> <p><b>Links to:</b> National Curriculum</p> <ul style="list-style-type: none"> <li>• Develop and communicate design ideas using annotated sketches, detailed plans, 3-D and mathematical modelling, oral and digital presentations and computer-based tools</li> <li>• Understand developments in design and technology, its impact on individuals, society and the environment, and the responsibilities of designers, engineers and technologists</li> <li>• Identify and solve their own design problems and understand how to reformulate problems given to them</li> <li>• Select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture</li> <li>• Test, evaluate and refine their ideas and products against a specification, taking into account the views of intended users and other interested groups</li> <li>• Understand and use the properties of materials and the performance of structural elements to achieve functioning solutions</li> <li>• Use a variety of approaches to generate creative ideas and avoid stereotypical responses</li> </ul> <p>Maths – dimensioning, shapes, faces, isometric, co-ordinates ICT – Computer Control CEIAG – Current roles within the engineering sector; ability to design and draw standard drawings. SMSC – The use of ICT rather than human beings to produce products. Engineering – Ties up directly with BTEC Tech Award in Engineering Component 1 Learning Aim B.</p> <p><b>Assessed by:</b> Formative assessment of:</p> <ul style="list-style-type: none"> <li>• Accuracy of work</li> <li>• Correct use of commands and programs</li> <li>• Ability to produce a quality product</li> <li>• Understand what some electronic components are.</li> <li>• Evaluate a product and identify improvements.</li> </ul>
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*"Inspiring learning, unlocking potential, achieving success."*

Curiosity | Aspiration | Resilience | Readiness

		<b>Tier 3 Vocabulary:</b> Setup, layout, user defined, co-ordinates, function, hatch, grid lock, step lock, transform, manipulate, path, assembly, perspective, isometric, prototype, model, manufacture, assembly, properties.
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