

KS4 Overview

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		Autumn Term		Spring Term		Summer Term	
		Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Yr 10	Practical Activity	<p>Topic: basic metal cutting, shaping and joining</p> <p>Learning Aims: Learning outcome 1:5</p> <p>Students learn to mark, cut, shape and join a pair of pliers from mild steel</p> <p>Outcomes: Pliers and engineering drawing.</p> <p>Assessment: Pliers log book, drawing , planning practical.</p>	<p>Topic: Use of engineering workshop machine tools - G Cramp</p> <p>Learning Aims: Learning outcome 1:5.</p> <p>Students use hand tools and machine tools manufacture a G Cramp. Health and safety, risk assessments etc.</p> <p>Outcomes: G cramp and associated drawings</p> <p>Assessment: Log books, End of Term Test</p>	<p>Topic: Use of engineering workshop machine tools - G Cramp</p> <p>Learning Aims: Learning outcome 1:5.</p> <p>Students use hand tools and machine tools manufacture a G Cramp. Health and safety, risk assessments etc.</p> <p>Outcomes: G cramp and associated drawings</p> <p>Assessment: Log books, End of Project Review Test</p>	<p>Topic: Introduction to Engineering drawing by hand</p> <p>Learning Aims: Learning outcome 1.3 - 5</p> <p>Engineering drawing by hand, using instruments. ~Drawing conventions, BS8888, dimensioning, views etc. Rendering and shading 3D drawings</p> <ul style="list-style-type: none"> <li>• Two-dimensional projection first angle projection and symbol third angle projection and symbol</li> <li>Three-dimensional projection axonometric, isometric two-point perspective.</li> </ul> <p>Outcomes: A variety of 2D drawings drawn to BS8888 and 3D drawings with realistic rendering where appropriate.</p> <p>Assessment: Timed drawing activities with exam style questions</p>	<p>Topic: Computer Aided Design and Manufacture</p> <p>Learning Aims: Learning outcome 1:3/1.5</p> <p>Creating A3 isometric and orthographic drawings using 2D Design. Using the correct conventions to communicate engineering drawings and design ideas. Understanding the variety of CNC machines used widely in engineering and using some of them to manufacture components to a given specification. Manufacture of various components using CNC router &amp; laser cutter.</p> <p>Production planning, tools and equipment, Health and Safety, Flow maps.</p> <p>Outcomes: A variety of 2D and 3D engineering drawings.</p> <p>Assessment: Timed drawing activities with exam style questions</p>	<p>Topic: PPE Synoptic Project</p> <p>Learning Aims: Unit 2 - Skills and techniques in Engineering.</p> <p>Mock Synoptic projects - students respond to given brief to select materials and manufacturing processes, plan production and manufacture a given product.</p> <p>Outcomes: Manufactured component, Portfolio of evidence meeting condensed criteria for synoptic project.</p> <p>Assessment: Portfolio and practical assessed against Unit 02 criteria</p>
	Theory Content	<p>Topic: Engineering Tools and equipment.</p> <p>Learning Aims: Learning Outcome 1.5</p> <p>Knowledge and understanding of engineering tools and equipment and their correct applications, including hazards and risks.</p> <p>Outcomes: manufacture of a multi-tool, completing log book and tasks relating to the various manufacturing processes used.</p> <p>Assessment: exam style questions and short tests</p>	<p>Topic: Engineering Disciplines</p> <p>Learning Aims: Learning outcome 1: 1.</p> <p>In this learning outcome, the learner will know and understand how different engineering disciplines are applied to projects and products. The learner will know and understand the health and safety legislation that influences engineering.</p> <p>Outcomes: Case study report and exam responses through the study of different engineering disciplines with references to the development of products and projects which have affected the way in which we interact with the modern world.</p> <p>Assessment: Written report / Case study plus exam style questions and short tests</p>	<p>Topic: Properties of materials</p> <p>Learning Aims: Learning outcome 1: 3.</p> <p>Identification of a range of engineering materials, their properties and applications</p> <p>Outcomes 1: Investigation into materials, production of materials database, disassembly of engineered product &amp; poster.</p> <p>Outcomes 2: manufacture of a multi-tool, completing log book and tasks relating to the various manufacturing processes used.</p> <p>Assessment: exam style questions and short tests</p>	<p>Topic: Engineering Drawing.</p> <p>Learning Aims: Scale, ratio, • Systems of measurement imperial and metric, conversion.</p> <p>British Standards</p> <ul style="list-style-type: none"> <li>• British Standard BS 8888 purpose of the standard how it fits with the ISO standards how the standard is applied to engineering</li> </ul>	<p>Topic: The application of science and maths</p> <p>Learning Aims: Learning Outcome 1.2</p> <p>Understanding of SI units of measurement in applied products and projects. The use of equations and formulae to solve engineering problems</p> <p>Outcomes: Working through real world examples and hands on tasks to calculate the properties of energy, forces and motion, electrical and geometry in the development of products and projects.</p> <p>Assessment: exam style questions and short tests</p>	<p>Topic: Revision and Exam Preparation for Nov examination.</p> <p>Learning Aims: Learning Outcomes 1.1, 1.3, 1.4, 1.5</p> <p>Disciplines, Materials, Drawing, Tools and equipment,</p> <p>Outcomes: Revision in preparation for year 10 exam, review of performance and initial preparation for Yr 11 exam.</p> <p>Assessment: Year 10 end of year exam</p>
		Autumn Term		Spring Term		Summer Term	

