

<b>Subject:</b> Engineering Design		<b>Year 10 and Year 11</b>	
<b>Examination Board:</b> OCR	<b>Specification Code:</b> J822	<b>Qualification:</b> Cambridge National Level 1/2 Award	
<b>Director of Faculty:</b> Miss K Garner		<b>KS4 Subject Lead:</b> Miss K Garner	
<b>Teaching Staff:</b> Miss K Garner			
<p><b>Curriculum Rationale:</b> Students are encouraged to:</p> <ul style="list-style-type: none"> <li>Understand and apply the fundamental principles and concepts of Engineering Design, including the design process, types of drawings, influences on design, and the use of Computer Aided Design (CAD)</li> <li>Develop learning and practical skills that can be applied to real-life contexts and work situations</li> <li>Think creatively, innovatively, analytically, logically and critically</li> <li>Develop independence and confidence in using skills that would be relevant to the Engineering Design and Development sector and more widely</li> <li>Analyse problems in design terms through practical experience of solving such problems, including designing, and modelling designs to meet a design brief</li> <li>Understand the different stages of the iterative design process, recognising the cyclical nature of this approach</li> <li>Evaluate designs through product disassembly and the process of using product analysis.</li> </ul>			
<p><b>Yr 10 Term 1 - Course Content:</b> <b>Unit R038;</b> Topic Area 1: Designing Processes; Topic area 2: Design Requirements. <b>Unit R040;</b> Topic Area 1: Product Evaluation.</p>	<p><b>Yr 10 Term 2 - Course Content:</b> <b>Unit R038;</b> Topic Area 3: Communicating Design Outcomes; Topic Area 4: Evaluating Design Ideas <b>Unit R040</b> Design, Evaluation and Modelling; Topic Area 2: Methods of Modelling.</p>	<p><b>Yr 10 Term 3 - Course Content:</b> <b>Unit R038 –</b> Revision of topic areas 1-4; Formal examination June window. <b>Unit R039</b> Communicating Designs; Topic Area 1: Manual Production of Freehand Sketches.</p>	
<p><b>Yr 11 Term 1 - Course Content:</b> <b>Unit R039;</b> Topic Area 2: Manual Production of Engineering Drawings. <b>Unit R038:</b> Topic area 1 and 2 revision</p>	<p><b>Yr 11 Term 2 - Course Content:</b> <b>Unit R039:</b> Topic Area 3: Use of Computer Aided Design. <b>Unit R038</b> Topic area 3 and 4 revision</p>	<p><b>Yr 11 Term 3 - Course Content:</b> <b>Unit R039</b> Completion of unit for submission in June window. <b>Unit R038 –</b>Formal Examination 2<sup>nd</sup> submission.</p>	
<p><b>Assessment Overview:</b> <b>Unit R038: Principles of Engineering Design;</b> 1 hour 15-minute written examination; 70 marks; OCR-set and marked; Part A – includes 10 multiple choice questions; Part B – includes short answer questions and extended response questions. <b>Unit R039: Communicating Designs;</b> OCR-set coursework assignment; 60 marks; Teacher-assessed and OCR moderated; Contains 4 practical tasks; It should take approximately 10-12 guided learning hours to complete. <b>Unit R040: Design Evaluation and Modelling;</b> OCR-set coursework assignment; 60 marks; Teacher-assessed and OCR moderated; Contains 6 practical tasks; It should take approximately 10-12 guided learning hours to complete.</p>			
<p><b>Homework and Revision Guidance:</b></p> <ul style="list-style-type: none"> <li>One homework task is assigned per week, each task taking 30 minutes to complete, homework can be completed via the virtual platform (Google Classroom or SMHW)</li> <li>Remote learning is completed via Google Classroom and administered through SMHW all teaching resources are integrated into classroom for reference and all tasks are worked on live in google classroom</li> <li>Revision utilises OCR exam builder and exam revision booklets developed in house</li> </ul>			
<p><b>Learning and Career Pathways:</b> <b>What could it lead to in Sixth Form?</b> Studying this course will help you progress onto further study in the Engineering Design and Development sector. This may be Level 3 vocational qualifications, such as the Cambridge Technical in Engineering, BTEC Level 3 National Diploma in Engineering, Electronic/Electrical Engineering, Mechanical Engineering alongside A Levels, such as A Level Design and Technology, or one of a number of Design and Development Technician Apprenticeships. It is anticipated that these qualifications will also enable you to progress onto a T Level such as Design and Development for Engineering and Manufacturing, when they are available. A number of pupil's progress onto level 3 National Diploma in Construction and the Built Environment here at Ashton on Mersey.</p> <p><b>What careers/University courses would this subject help me to enter?</b> A large range of degree courses spanning mechanical, computer and scientific disciplines including (but not limited to); General Engineering / Civil Engineering / Mechanical Engineering / Aerospace / Naval Architecture / Electronic and Electrical Engineering / Production and Manufacturing / Chemical, Process and Energy / Metallurgy / Ceramics and Glass / Polymers and Textiles / Maritime Technology / Biotechnology</p> <p><b>Possible Careers:</b> Chemical Engineer / Electrical Engineer / Mechanical Engineer / Civil Engineer / Software Engineer / Environmental Engineer in a broad spectrum of industries such as Aerospace / Automotive / Defence/ Food &amp; Drink / Oil &amp; Gas / Manufacturing.</p>			

