

Design & Technology - Engineering Design KS4

Year 10	<p>Students follow the OCR Cambridge National in Engineering Design course over the two years. As follows:</p> <p>Unit R108: 3D design realisation This unit requires learners to apply practical skills to produce a prototype product or model using craft-based modelling materials alongside computer controlled or rapid- prototyping processes. Students will produce a prototype product in the form of a model and test design ideas in a practical context to inform further development utilising more complex production processes. Students will evaluate the prototype making a comparison of the outcome against the product specification and evaluate potential improvements in design such as features, function, materials, aesthetics and ergonomics and make suggestions on improvements to the final product.</p> <p>Unit R106: Product analysis and research This unit will enable students to perform effective product analysis. They will research existing solutions and assess the development of engineered products. Students will develop dexterous skills and gain practical experience of product assembly and disassembly to appreciate manufacturing processes, design features and materials used. This unit develops student's creativity and critical analysis through an understanding of the principles behind good design. They will consider what makes a good product sell by analysing existing solutions.</p>
Year 11	<p>In Year 11 students complete their Coursework, cover the remaining theory aspects of the course and prepare for the external exam in May/June.</p> <p>Unit R107: Developing and presenting engineering designs This unit develops techniques in generation, concept development and the communication of design ideas using hand rendering and computer presentation techniques including computer aided design software. Students will generate design ideas using a mixture of detailed hand rendering and computer-based presentation techniques including computer aided design in 2 and 3 dimensions. Students will gain skills in annotation and labelling techniques such as showing key features, functions, dimensions, materials, construction/manufacture methods.</p> <p>Unit R105: Design briefs, design specifications and user requirements This unit provides the opportunity for students to develop their understanding of the requirements of design briefs and design specifications for the development of new products. Through research and practical activities students will understand how consumer requirements and market opportunities inform design briefs. Students will understand the overall design process through study of the design cycle, existing product and life cycle analysis, study of new and improved materials and manufacturing processes and how these and other factors influence a design solution.</p>

Grades	Level 1			Level 2			
Cambridge National	Pass	Merit	Dist.	Pass	Merit	Dist.	Dist.*
New GCSE Grade	1	2/3	4	5	6/7	7/8	9

There is a £20 contribution to cover materials per year at Key Stage 4.