

## Product Design - 3D Design

Year 12	Year 13
<p align="center"><b>AS Level Units</b></p>	<p align="center"><b>A2 units leading to full Advanced GCE</b></p>
<p>At AS level Students should develop an understanding of a broad range of materials, with emphasis on the life cycle of products, manufacture and final disposal. This specification also considers the broader issues for the designer including the environmental sustainability of products and consumer safety.</p>	<p>At A2, the specification offers Students the opportunity to further develop the knowledge and practical skills from AS. Candidates will continue to develop a body of coursework alongside an understanding of the processes and procedures of commercial production and manufacture.</p>
<p><b>Unit 1</b></p> <p><b>Topic List</b></p> <ul style="list-style-type: none"> <li>• Developing an understanding of the physical and mechanical properties in a broad range of materials and components</li> <li>• The broader issues for the designer including the environmental sustainability of products and their manufacture</li> <li>• Methods in which materials and components can be manipulated to manufacture products</li> <li>• Health and safety issues relevant to working with materials</li> <li>• Computer aided design (CAD) and computer aided manufacture (CAM)</li> <li>• Ergonomics and anthropometrics, inclusive design, and consumer safety</li> <li>• The life cycle of products including manufacture, use and functional aspects and final disposal.</li> </ul> <p><b>Assessment</b> Written Exam – 2 hours Weighting - 50% of total AS / 25% of total A Level marks</p> <p>This paper is based primarily on Materials and Components. Consisting of three sections:</p> <ul style="list-style-type: none"> <li>• Section 1 contains compulsory limited response questions</li> <li>• Section 2 offers a choice of one question from two</li> <li>• Section 3 contains one compulsory question.</li> </ul>	<p><b>Unit 3</b></p> <p><b>Topic List</b></p> <ul style="list-style-type: none"> <li>• Classifying materials and identifying, testing and comparing their application to product manufacture</li> <li>• The implications of Health and Safety as an element of design activity</li> <li>• Examination of alternative designs and redesigning existing products</li> <li>• Use of natural resources, materials utilisation, conservation, waste disposal/management, pollution, recycling</li> <li>• Appreciation and understanding of the use of CAM for industrial production</li> <li>• Moral, economic, social and environmental responsibilities of the designer</li> <li>• Planning production procedures and methods.</li> </ul> <p><b>Assessment</b> Written exam – 2 hours Weighting - 25% of total A Level marks</p> <p>This paper is based primarily on Design and Manufacture. It is the Synoptic paper.</p> <p>Consisting of two sections with a choice of three questions from six. Students are required to answer one question from each section and also a final question from either section.</p> <p>This written paper will include sufficient synoptic assessment to test the Students' understanding of the connections between the different elements of the subject and their holistic understanding of the subject.</p>

<p><b>Unit 2 - Coursework</b></p> <p><b>Assessment</b></p> <p>Coursework – Approx 50 hours  Weighting - 50% of total AS / 25% of total A Level marks</p> <p>Written (or electronic) design portfolio  Revised Candidate Record Form and manufactured outcome(s)  Coursework may take a number of forms; a single design-and-make project, two smaller projects and/or a portfolio of work.</p>	<p><b>Unit 4 - Coursework</b></p> <p>Assessment – Approx 60 hours  Weighting – 25% of total A Level marks</p> <p>Written (or electronic) design folder  Revised Candidate Record Form and manufactured outcome(s)  Students submit evidence of a single, substantial designing and making activity.</p>
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**Further Information:** Mr S. Jordan  
Miss K. Brown