



# St John's Curriculum Overview – Year 13



<b>Subject title</b>	<b>A level Product Design - Edexcel</b>	Introduction  Students use their understanding of theory concepts along with designing and making skills from previous projects within a major NEA project. The project involves identifying a problem through working with a client. Students must show independence and project management skills to be successful.
Setting arrangements	Mixed ability	
Time allowance each fortnight	9 periods	

## Topics, Skills and Assessment covered during the course

	Topics covered	Skills developed	Assessment
<b>Term 1</b>	<b>Major NEA Project</b>  <b>Theory</b> - Design in society	<ul style="list-style-type: none"> <li>• Problem identification and exploration</li> <li>• Research and investigation skills</li> <li>• Analysis of research</li> <li>• Specifications developed based on results of feedback</li> <li>• Design ideas</li> <li>• Design through history</li> <li>• Planned Obsolescence</li> <li>• Smart Materials</li> <li>• Form vs. Function</li> <li>• Mass manufacture</li> </ul>	Practice exam questions Student led and researched presentations and handouts assessed.
<b>Term 2</b>	<b>Major NEA Project</b>  <b>Theory</b> - Sustainability	<ul style="list-style-type: none"> <li>• Analysis of ideas</li> <li>• Development of ideas</li> <li>• Physical &amp; CAD modelling, testing and evaluation of ideas in consultation with client</li> <li>• Final Design and review</li> <li>• Planning of manufacture</li> </ul>	Practice exam questions

		<ul style="list-style-type: none"> <li>• Offshore manufacture</li> <li>• Principles of sustainable design</li> <li>• Cleaner Design &amp; Technology in industry</li> <li>• Recovery of materials</li> </ul>	Student led and researched presentations and handouts assessed.
<b>Term 3</b>	<p><b>Major NEA Project</b></p> <ul style="list-style-type: none"> <li>- Planning &amp; manufacture</li> </ul> <p><b>Theory</b></p> <ul style="list-style-type: none"> <li>• Industrial &amp; commercial techniques</li> </ul>	<ul style="list-style-type: none"> <li>• Orthographic Projection</li> <li>• Exploded views &amp; cutting list</li> <li>• Lay plans</li> <li>• Production Plan</li> <li>• Risk Assessments</li> <li>• Material sourcing, preparation and manufacture of product</li> <li>• Manufacturing systems</li> <li>• Just in Time</li> <li>• Quick Response Manufacture</li> <li>• Concurrent Manufacturing</li> <li>• Enterprise Resource Planning</li> <li>• Product Data Management</li> <li>• Flexible Manufacturing Systems</li> <li>• Robotics in manufacture</li> <li>• Automatic Storage &amp; Retrieval Systems (ASRS) / Automatic Guided Vehicles (AGVs)</li> </ul>	<p>Practice exam questions</p> <p>Student led and researched presentations and handouts assessed.</p>
<b>Term 4</b>	<p><b>Major NEA Project</b></p> <ul style="list-style-type: none"> <li>- Manufacture</li> <li>- Evaluation</li> </ul> <p><b>Theory</b></p>	<ul style="list-style-type: none"> <li>• Manufacturing and assembly of product</li> <li>• Making Diary</li> <li>• Finishing</li> <li>• QC</li> <li>• Testing of product against Specification</li> <li>• Final client feedback</li> <li>• Revision of Yr12 topics</li> </ul>	<p>Internal assessment of NEA project</p> <p>Internal moderation</p> <p>External moderation of NEA by Edexcel</p> <p>Mock exam</p> <p>Practice exam questions</p> <p>Student led and researched presentations and handouts assessed.</p>
<b>Term 5</b>	<b>Theory</b>	<ul style="list-style-type: none"> <li>• Exam preparation &amp; technique</li> <li>• Revision of all topics</li> </ul>	Practice exam questions

**Resources Recommended for Revision and where they are available:**

Edexcel A Level Design & Technology – Product Design – Resistant Materials Technology Textbook by Pearson/ Jon Attwood

Students to download **Solidworks** professional CAD software available to students with license (available from Mr England).

**Homework:**

Students expected to continue to make (supervised) practical progress during study periods.

**Additional support and help for the course**

Technician support

Solidworks 3D CAD support from Mr England