



Engineering



Archdiocese of Liverpool

Curriculum intent:

In Year 11 pupils work through their chosen NEA project. Pupils continue to use creativity and imagination to design and manufacture a working prototype that solves a real and relevant problem that considers social, moral and cultural values. Pupils will continue to develop a deep knowledge and understanding of all aspects of Engineering in preparation for their end of year examination.

Year 11

	Content	Concepts and Skills
TERM 1	<p>NEA Unit 1</p> <p>3.2 Specialist technical principles</p> <ul style="list-style-type: none"> • Selection of materials or components • Forces and stresses • Ecological and social footprint • Sources and origins • Using and working with materials • Specialist techniques and processes • Surface treatments and finishes 	<p>Design Development & Modelling</p> <p>Rapid prototyping</p> <p>Bespoke production</p> <p>Literacy: Product Analysis</p> <p>Client Profiling: Trends & Fashions</p> <p>Maths: Scaled Engineers drawings</p>
TERM 2	<p>NEA Unit 2</p> <p>3.2 Specialist technical principles</p> <ul style="list-style-type: none"> • Stock forms, types and sizes • Scales of production <p>3.3 Designing and making principles</p> <ul style="list-style-type: none"> • Prototype development • Selection of materials and components • Tolerances • Specialist tools and equipment • Specialist techniques and processes 	<p>Manufacturing and Engineered Product</p> <p>Scales of production</p> <p>CAD/CAM</p> <p>Stock sizes & Standardised parts</p> <p>Literacy: Manufacturing specification</p> <p>Health & Safety</p> <p>Practical skills: Lathe & Milling machine</p> <p>Materials: Metals, Polymers. electronics</p>
TERM 3	<p>GCSE-Exam prep</p> <p>3.1 Core technical principles</p> <ul style="list-style-type: none"> • New and emerging technologies • Energy generation and storage • Developments in new materials • Systems approach to designing • Mechanical devices • Materials and their working properties • Material categories • Material properties 	<p>Smart, new and traditional materials.</p> <p>CAD/CAM.</p> <p>Industrial process and scales of production.</p> <p>Environmental issues and carbon footprint.</p> <p>Structures and forces.</p> <p>Client, user and target market.</p> <p>Product analysis</p>

