

## Hartford Church of England High School – Year 11 – Engineering Design

Year 11	HT1	HT2	HT3	HT4	HT5	HT6
<b>Topic(s)</b>	R040 Design, Evaluation Modelling – Research / Product Disassembly	R040 Design, Evaluation Modelling – CAD Drawing	R040 Design, Evaluation Modelling – Production Planning / Physical Modelling	R040 Design, Evaluation Modelling – Physical Modelling / Evaluation	R038 – Bespoke theory linked to the examination unit.	
<b>Focus</b>	Responding to a given engineering brief students carry out a range of research including mood boards, questionnaire, product analysis and product disassembly.	Students are required to generate CAD model (3D isometric and 2D Orthographic drawing) of a given product using a technical drawing as a reference.	Students need to consider how they plan to manufacture their given product and produce a production plan- referencing materials, tools, techniques, health and safety and quality control.	Students need to reflect on how their final product meets a given specification – they need to summarise successes and areas of future improvement creating a sketch to support this area.	Students complete a range of topics and focus practical tasks linked to the R038 examination unit worth 40% of their final GCSE grade.	
<b>Vocabulary</b>	Primary/ Secondary, Research, Mood Board, Product Disassembly, Product Analysis, ACCESS FM, Comparison Matrix	CAD, Google Sketch Up, Autodesk Fusion 360, Axis, Components/ Bodies, Rendering, Technical Drawing	Risk Assessment, Quality Assurance, Material Properties, Tolerance, Manufacturing Processes, Manufacturing Scales	Specification, SWOT Analysis, Future Improvements, Product Requirements, Manufacturing Requirements, Customer Requirements	Materials/ Properties, Product Life Cycle, Life Cycle Analysis, Legislation & Standards, Use Testing, +/-'s of CAD/ CAM, SMART Materials, Modern Materials	
<b>Assessment</b>	R040 Design, Evaluation Modelling – - Research / Product Disassembly	R040 Design, Evaluation Modelling – -Production of CAD Drawing	R040 Design, Evaluation Modelling – - Production Planning - Physical Modelling	R040 Design, Evaluation Modelling – - Physical Modelling – Evaluation COURSEWORK SUBMISSION prior to Easter Holiday.  Teacher Assessment verified by external moderation (OCR)	Mock examination paper will be sat.  Externally set written exam paper (OCR)	

<b>Curriculum Thread</b>	Research	Communicating Ideas	Manufacture, Review	Evaluation	Preparation for written exam	
<b>Wider Reading</b>	Level 1/Level 2 Cambridge National in Engineering Design (J822): Second Edition by Alex Reynolds	Manual of Engineering Drawing: Technical Product Specification and Documentation to British and International Standards by Colin H. Simmons	Value Proposition Design: How to Create Products and Services Customers Want (The Strategyzer Series) by Alexander Osterwalder, Yves Pigneur	Level 1/Level 2 Cambridge National in Engineering Design (J822): Second Edition by Alex Reynolds	Mind Mapping Notebook: Visual Thinking Workbook   Blank Mind Map Templates for Organizing Thoughts and Ideas   Brainstorming Notebook   Mind Map book Paperback – 26 Mar. 2021	