Year	Autumn	Spring	Summer
7	• Construction lines • Grid method • Colour, tone and texture • Oblique – products • rendering	• CAD/CAM • Timbers • Papers and Boards	• Packaging • Product Analysis • Design Specification
8	• Isometric Sketching • Render and shading	• Timbers • Polymers • Papers and boards • CAD/CAM	• Health & Safety • Tools & Machinery • Smart Materials
9	• Design brief • Research & exploration • Manufacturing equipment • Design ideas	• Initial design ideas • Prototyping • Final designs • Engineering/orthographic drawings.	• CAD • Production plan • Manufacturing • Testing & feedback.

10/11	**Engineering Design Level 1/2 – J822 (OCR)** The course is aimed to develop knowledge, understanding and practical skills that would be used in engineering design and development. **Exam – 40% of total mark** **R038 Principles of engineering design (exam)** The exam will focus on the design process. This will include a detailed understanding of design strategies, user requirements, research methodology, product analysis, engineering standards, legislation, communicating ideas (freehand/CAD 2D and 3D), scales of manufacture, manufacturing methods (costing implications) and evaluating/testing ideas. **NEA (coursework) units – 60 % of total mark** **R039 Communicating designs (NEA)** You will learn how to use freehand sketching and engineering drawings to communicate your ideas. You will create a range of ideas in response to a set brief and specification. Ideas will be sketched in 3D to a high standard and then rendered to bring them to life. Drawings will be scanned and annotated in a digital portfolio. Ideas will be developed with the addition of exploded drawings. Annotations will focus on user requirements, material choices, manufacturing methods and scales of production. Ideas will then be developed and communicated by using 2D and 3D CAD packages using appropriate engineering standards. **R040 Design evaluation and modelling (NEA)** You will learn how to create and test models (prototypes). You will create a detailed CAD model in response to a set brief and specification and then manufacture it in the workshop. You will learn about key manufacturing skills (CAD/CAM focus), production planning, workshop health and safety, risk assessments, product testing and evaluation.

Curriculum Overview – Design and Technology- Rye Hills