ENGINEERING DESIGN AND TECHNOLOGY

	Y7	Y8	Y9	Y10	Y11
Cycle 1	Rotation 1 Developing Skills working with Timber	Rotation 1 Developing skills working with Metal	Introductory Project 1 Learning to use 3D CAD Developing practical skills in timber - working within a tolerance. - producing components from a manufacturing drawing Learning to communicate design ideas - Isometric Drawing - Enhancement techniques	Cambridge National Engineering Design L2 R039 – Communicating Designs Topic Area 1A: Manual production of freehand sketches Topic Area 1B: Manual production of freehand sketches-design development Topic Area 2: Manual production of engineering drawings Topic Area 3: Use of Computer Aided Design (CAD)	Topic Area 2: Physical Modelling – Prototype Production Topic Area 2: Physical Modelling – Evaluation of a prototype
Cycle 2			Project 2 Developing practical skills in metal - Wasting and joining metal - Using hot metal processes - Threading bar - Turning on a centre lathe Developing 3D CAD Skills What is ergonomics? How do we use anthropometrics when designing? Drafting 2D 3rd angle orthographic projection drawings		R039 Principles of Engineering Design Topic Area 1: Designing processes
	Rotation 2 Developing Skills working with Timber	Rotation 2 Developing skills working with Metal	Project 3 Developing an iterative approach to designing and problem solving. Developing a solution to meet a brief and specification.		Topic Area 2: Design requirements

Cycle 3			Developing model making skills to test and evaluate ideas. Recording freehand sketching, annotation and labelling of ideas. Using 2D Design CAD software to present design ideas in isometric and 3rd angle orthographic Testing, improving and iteratively developing solutions to problems.	R040 – Topic Area 1.1: Product Evaluation – Product Analysis Topic Area 1.2: Product Evaluation – Product Disassembly	Topic Area 3: Communicating design outcomes Topic Area 4: Evaluating design ideas
			Developing professional skill in Communicating Designs -2D sketching and crating - 3D sketching and crating - Using templates, light boxes and crating sheets - sketch enhancement, tone, texture, colour rendering, material indication - arrows for movement and function - shadows, backdrops, thich and thin line technique.	Topic Area 2: Virtual CAD 3D Topic Area 2: Physical Modelling – Production Planning	