

Year	Autumn	Spring	Summer
7	• 2D sketching, grids and coordinates • Rendering skills – Cabinet oblique	• CAD/CAM • Timbers • Papers and Boards • D&M: Pencil Pot	• Packaging Design and manufacture • Product analysis • Design specifications • D&M: Packaging
8	• Isometric projection • Crating • Tonal rendering and shading	• Timbers • Polymers • Smart Materials • Product Analysis and ACCESSFM	• Tools and Machinery • Health and Safety • D&M: Phone holder • Evaluating Designs
9	• Design skills • Drawing conventions- perspective drawing in 1, 2 and 3 points of perspective • Visual communication and enhancement	• Tools and equipment • Timber • Sustainability • The business of design (IKEA case study) • The 6R's of sustainability	• Electronics • Workshop machine safety • Upcycling • Woodwork • D&M: Task light
10	In R038 TA1 (Designing Process) students will learn about: • Design strategies and design thinking • Analysing design briefs and user needs • Research and product analysis	In R038 TA3 (Communicating Design Outcomes) students will learn about: • Engineering drawing techniques • Sketching and graphical communication • Working drawings and dimensioning • Orthographic and isometric drawing	R039 NEA: Communicating Designs • Topic Area 1: Freehand Sketching students will learn about: • Sketching design ideas clearly and creatively • 2D and 3D drawing techniques • Annotation and labelling

	• Developing and refining design ideas • Virtual and physical modelling • Testing and evaluating designs and prototypes In R038 TA2 (Design Requirements) students will learn about: • Writing engineering design specifications • User needs and design criteria • Manufacturing processes and production methods • Materials and production costs • Standards, safety and legislation • Sustainability and environmental considerations • Market influences on product design	• CAD (Computer-Aided Design) • Communicating design ideas professionally In R038 TA4 (evaluating Design Ideas) students will learn about: • Methods of evaluating design ideas • Comparing and selecting design solutions • Virtual and physical modelling techniques • Testing and improving prototypes • Measuring product performance • Evaluating products against a specification	• Design development and refinement • Presenting ideas visually to clients and manufacturers Topic Area 2: Engineering Drawings students will learn about: • Isometric drawings • Orthographic drawings • Dimensioning and technical annotation • Engineering drawing standards and conventions • Producing accurate manufacturing information Topic Area 3: Computer-Aided Design (CAD) students will learn about: • Creating 3D CAD models • Modelling individual parts and assemblies • Editing and refining designs digitally • Presenting design solutions using CAD • Using industry-standard design techniques
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11	R039 NEA: Communicating Designs Topic Area 3: Computer-Aided Design (CAD) students will learn about: • Creating 3D CAD models • Modelling individual parts and assemblies • Editing and refining designs digitally • Presenting design solutions using CAD • Using industry-standard design techniques R040 NEA: Design, Evaluation and Modelling Topic Area 1: Product Evaluation Students will learn about: • Product analysis techniques • Identifying strengths and weaknesses of products • Product disassembly and investigation • Testing against specifications • Risk assessment and product improvement	R040 NEA: Design, Evaluation and Modelling Topic Area 2: Modelling Design Ideas Students will learn about: • Virtual modelling (CAD) • Physical modelling • Prototyping • Testing and refining designs • Selecting appropriate modelling methods • Evaluating model performance R038: Principles of Engineering Design Students REVISE:: • Design strategies and design processes • Analysing design briefs and user needs • Research and product analysis techniques • Design specifications and design criteria • Manufacturing methods and production considerations • Materials, costs and sustainability	•

		• Standards, legislation and product safety • Engineering drawing and communication • Computer-Aided Design (CAD) • Modelling techniques and prototype development • Evaluation of design ideas and products	
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Curriculum Overview – Design and Technology- Hermitage.