September 2021- July 2022	**Yr10**							
	Half term 1	**Half term 2**	**Half term 3**	**Half term 4**	**Half term 5**	**Half term 6**		
Learning	Robotics, automation and production in industry Production techniques and systems – automation Enterprise Market pull and technology push Sustainability and the environment Critical evaluation of new and emerging technologies – planned obsolescence Design for maintenance Ethics The environment	Renewable and non-renewable resources Modern materials Smart materials Composite materials Technical Textiles Material properties Functionality Aesthetics Environmental factors Availability Cost Social factors Ethical factors	Designing: • sketching • modelling • testing Ecological issues in design and manufacture Properties of materials Modifying properties for a purpose Commercially available types and sizes of materials Manufacturing specification/working drawings	Tools, equipment and processes Quality control How materials are cut shaped and formed to a tolerance The preparation and application of surface treatments and finishes Types of forces and reinforcing materials	Investigate, analyse and evaluate the work of past and present designers/ companies Investigate, analyse and evaluate the work of past and present designers/ companies Generating imaginative and creative designs Using primary and secondary data to understand client and/or user needs.	Market research, interviews, human factors Constraints that are presented to designers Isometric and perspective designs Exploded diagrams Working drawings Computer-based tools Audio and visual recordings Modelling		
Concepts	**New and Emerging Technologies** How new and emerging technologies have changed the way we live and how they continue to shape the modern world.	**Energy, materials, systems and devices** How power is generated from various sources, new materials, the use of systems and various devices to manipulate power and movement	**Materials and their working properties** How primary sources of materials are developed into working materials.Recognise the characteristics of different materials .Understand the physical and working properties of a range of materials	**Specialist technical principles.** How forcess and stresses affect materials and objects. Functionality, ecological and social footprint. Scales of production	**Designing and making principles** How to investigate data and the work of others.	**Designing and making principles** Design strategies and communication of design ideas		
Common Misconceptions	Failing to understand the importance of wider social and environmantal issues in modern design. Not understanding the large implications of automation on product quality, availability and price	Confusing the properties of modern and smart materials compared to traditional design materials Failing to understand the importance of product carbon footprint and the future implications for available products and materials	Not understand that material properties can be changed and manipulated to accommodate desired design outcomes Failing to understand the link between primary sources and finished materials	Not appreciating the scientific link between DT and Science when exploring forces and stresses in materials Failing to appreciate the link between scales of production and product cost to the consumer	Not fully appreciating the iterative nature of the design process when developing products	Failing to understand that the design process is a series of stages to be fully completed rather than an exercise in producing an object with no design history		
AO	AO4: Demonstrate and apply knowledge and understanding of: technical principles designing and making principles. AO3: Analyse and evaluate: wider issues in design and technology.	AO4: Demonstrate and apply knowledge and understanding of: technical principles designing and making principles. AO3: Analyse and evaluate: wider issues in design and technology.	AO4: Demonstrate and apply knowledge and understanding of: technical principles designing and making principles. AO3: Analyse and evaluate: wider issues in design and technology.	AO4: Demonstrate and apply knowledge and understanding of: technical principles designing and making principles. AO3: Analyse and evaluate: design decisions and outcomes, including for prototypes made by themselves and others wider issues in design and technology.	AO1: Identify, investigate and outline design possibilities to address needs and wants. AO2: Design and make prototypes that are fit for purpose. AO3: Analyse and evaluate: design decisions and outcomes, including for prototypes made by themselves and other	AO1: Identify, investigate and outline design possibilities to address needs and wants. AO2: Design and make prototypes that are fit for purpose AO3: Analyse and evaluate: design decisions and outcomes, including for prototypes made by themselves and other		

	Yr11 Half term 1	Half term 2	Half term 3	Half term 4	Half term 5	Half term 6
Learning	**NonExamAssessment part 1** **Identify, investigate and outline design possibilities** Identifying & investigating design possibilities Producing a design brief & specification	**NonExamAssessment part 2** **Design and make prototypes that are fit for purpose** Generating design ideas Developing design ideas Realising design ideas	**NonExamAssessment part 3** **Analyse and evaluate** Analysing & evaluating	Robotics, automation and production in industry Production techniques and systems – automation Enterprise Market pull and technology push Sustainability and the environment Critical evaluation of new and emerging technologies – planned obsolescence Design for maintenance Renewable and non-renewable resources Modern materials Smart materials Composite materials Technical Textiles Material properties Functionality Aesthetics Environmental factors	Tools, equipment and processes Quality control How materials are cut shaped and formed to a tolerance The preparation and application of surface treatments and finishes Types of forces and reinforcing materials	Investigate, analyse and evaluate the work of past and present designers/ companies Investigate, analyse and evaluate the work of past and present designers/ companies Generating imaginative and creative designs Using primary and secondary data to understand client and/or user needs. Market research, interviews, human factors Constraints that are presented to designers Isometric and perspective designs Exploded diagrams Working drawings Computer-based tools Audio and visual recordings Modelling
Concepts	Practical application of Core technical principles, Specialist technical principles and Designing and Making principles	Practical application of Core technical principles, Specialist technical principles and Designing and Making principles	Practical application of Core technical principles, Specialist technical principles and Designing and Making principles	Revision of New and Emerging Technologies and Energy, materials, systems and devices	Revision of Specialist technical principles	Revision of Designing and making pricnciples
Common Misconceptions	Not allocating adequate importance to the role of the client when developing design briefs and design ideas	Failing to understand that the design process is a series of stages to be fully completed rather than an exercise in producing an object with no design history	Not fully appreciating the important role of anaysis and evaluation when developing a product and when a product has been in use by the target market	Failing to plan revision so that it is a series of regular and repeated sessions covering different themes and concepts related to the subject	Not fully appreciating the importance and mark allocations of the three exam sections.	Not fully utilising correct exam technique Failing to taper the revision as the exam approaches
AO	AO1: Identify, investigate and outline design possibilities to address needs and wants. AO2: Design and make prototypes that are fit for purpose. AO3: Analyse and evaluate: design decisions and outcomes, including for prototypes made by themselves and others wider issues in design and technology.	AO1: Identify, investigate and outline design possibilities to address needs and wants. AO2: Design and make prototypes that are fit for purpose. AO3: Analyse and evaluate: design decisions and outcomes, including for prototypes made by themselves and others wider issues in design and technology.	AO1: Identify, investigate and outline design possibilities to address needs and wants. AO2: Design and make prototypes that are fit for purpose. AO3: Analyse and evaluate: design decisions and outcomes, including for prototypes made by themselves and others wider issues in design and technology.	AO4: Demonstrate and apply knowledge and understanding of: technical principles designing and making principles.	AO4: Demonstrate and apply knowledge and understanding of: technical principles designing and making principles.	AO4: Demonstrate and apply knowledge and understanding of: technical principles designing and making principles.