

EDEXCEL GCSE (9-1) DESIGN TECHNOLOGY CORE

Name	D&T group	The impact of new and emerging technologies	1.1 To apply a breadth of technical knowledge and understanding of the characteristics, advantages and disadvantages of the following in relation to new and emerging technologies	1.2 To recognise the importance of the evaluation and respective criteria when considering new and emerging technologies to a range of scenarios
			1.1.1 Industry: unemployment, workforce skill set, demographic movement, science and technology parks	
			1.1.2 Enterprise: privately owned business, cloud funding, government funding for new business start-ups not-for-profit organisations	
			1.1.3 Sustainability: transportation costs, pollution, demand on natural resources, waste generation	
			1.1.4 People: workforce, consumers, children, people with disabilities, wage levels, highly skilled workforce, apprenticeships	
			1.1.5 Culture: population movement in the EU, social segregation/clustering within ethnic minorities	
			1.1.6 Society: changes in working hours and shift patterns, Internet of Things (IoT), remote working, use of video conference meetings	
			1.1.7 Environment: Pollution, waste disposal, material separation, transportation of goods around the world, packaging of goods	
			1.1.8 Production techniques and systems: standardised design and components, just-in-time (JIT), lean manufacturing, batch, continuous, one off, mass	
				How the critical evaluation of new and emerging technologies informs design decisions; considering contemporary and potential future scenarios from different perspectives, such as ethics and the environment
				1.2.1 How to critically evaluate new and emerging technologies that inform design decisions: budget constraints, timescale, who the product is for, the materials used, manufacturing capabilities
				1.2.2 How critical evaluations can be used to inform design decisions, including the consideration of contemporary and potential future scenarios: natural disasters, medical advances, travel, global warming, communication.
				1.2.3 Ethical perspectives when evaluating new and emerging technologies: where it was made, who it was made by, who will it benefit, fair trade products

ative process the impact of ge of	1.3	The processes, applications, characteristics, advantages and disadvantages of the following, in order to be	1.4	To apply technical knowledge and understanding of the characteristics, applications, advantages and disadvantages of the following:	1.5	The performance, principles, applications and the influence on the design of products of the following:	1.6	Recognis knowledg understan working c applicati
1.2.4 Environmental perspectives when evaluating new and emerging technologies; use of materials, carbon footprint, energy usage and consumption during manufacturing and transportation, life cycle analysis (LCA)		How energy is generated and stored in order to choose and use appropriate sources to make products and power systems						
		1.3.1 Sources, generation and storage of energy; fossil fuels, oil, gas and coal, biofuels - biodiesel and biomass, tidal, wind, solar and hydroelectric						
		1.3.2 Powering systems; batteries and cells, solar cells, mains electricity, wind power						
		1.3.3 Factors to consider when choosing appropriate energy sources to make products and power systems.						
			Developments in modern and smart materials, composite materials and technical textiles					
	Sep-17	1.4.1 Modern and smart materials; shape memory alloys (SMA's), nanomaterials, reactive glass, piezoelectric materials, temperature responsive polymers, conductive inks.						
		1.4.2 Composites; concrete, plywood, fibre/carbon/glass, reinforced polymers, robotic materials.						
		1.4.3 Technocat textiles; agro-textiles, construction textiles, geo textiles, domestic textiles, environmentally friendly textiles, protective textiles, sport textiles						
			The functions of mechanical devices used to produce different sorts of movements, including the changing of the magnitude and the direction of force.					
	Feb-18	1.5.1 Types of movement: linear, reciprocating, rotary, oscillating						
	Feb-18	1.5.2 Classification of levers; class 1, 2 and 3, calculations related to mechanical advantage (MA), velocity ratio (VR), load, effort and efficiency.						
	Mar-18	1.5.3 Linkages; Bell crank, reverse motion linkage						
	Mar-18	1.5.4 Cams; pear shaped, eccentric (circular) and drop snail						
	Mar-18	1.5.5 Followers; roller, knife, flat followers						
	May-18	1.5.6 Pulleys and belts; v-belt; velocity ration (VR), input and output speeds.						
	Jun-18	1.5.7 Cranks and Sliders						
	Jul-18	1.5.8 Gear types; simple and compound gear train, idler gear, revolutions per minute (RPM) calculations, bevel gears, rack and pinion.						
			How electronic systems provide functionality to products and processes, including sensors and control devices to respond to a variety of inputs, and devices to produce a range of outputs					
		1.6.1 Sensors, including; the role of sensors in electronic systems, light dependent resistors (LDR's), thermistor						

