

This information is the recent update from our exam board for **Design Technology GCSE (Textiles and Product Design).**

It details which parts of the specification that you need to revise. We have tried where possible to link the topics to your **revision guidebook** to help you. When we complete your NEA, we will be revisiting and teaching these topics as well as practising past papers.

Technical Principles	Page	Revised/Revision Aid Created?
Core Knowledge and Understanding:		
The impact of new and emerging technologies:		
 Industry 		
Enterprise		
 Sustainability 		
People		
Culture		
Society		
The Environment		
Production Techniques		
Systems		
Amplification:		
Ine focus of this content is the impact of new and		
emerging rechnologies on the dreas identified below.		
• The impact of new and emerging rechnologies on industry and enterprise:	וח	
• market pull responding to demands from the market		
 technology push – development in materials and 	PI	
components manufacturing methods		
• consumer choice – consumers wishing to own the latest	P2	
technologies/products	P2	
The Product Life Cycle		
. • Global production and its effects on culture and	P2	
people.	P3	
 Legislation to which products are subject. 	P3	
 Consumer rights and protection for consumers when 	10	
purchasing and using products.	50	
 Moral and ethical factors related to manufacturing 	P3	
products and the sale and use of products.	P3/4	
 Sustainability; meeting today's needs without 		
compromising the needs of future generations.	P4/5	
 Advantages and disadvantages of using computer 		
aided design (CAD).	P4/5	
Aavantages and alsoavantages of the use of computer	, c	
aldea manufacture (CAM).	DA/5	
• now CAM equipment can be used in a variety of	14/0	
applications. Circ emploidery, vinyi cutting, Circ routing, laser		
ן כטווווק מומ גם מווווווק.		



Technical Principles	Page	Revised/Revision Aid Created?
Smart materials, composites, and technical textiles: the design and manufacture of products depends upon material technology and the development and implementation of materials in products. Learners need to be aware of developments in materials technology and how these impact on the design and use of products. Amplification: • Electrolyminescent film or wire i.e., ICD.	Р10	
 Decirotominescent nim of whe i.e., ECD. Quantum Tunnelling Composite (QTC) - when used in circuits the resistance changes under compression. SMA – shape memory alloys. Polymorph. Smart fibres and fabrics that respond to the environment or stimuli: photo chromic. thermo-chromic. micro-encapsulation. 	P10 P11 P11 P12 P11 P11 P11 P11 P11	
 biometrics. Carbon Fibre, Kevlar, and GRP. Interactive textiles that function as electronic devices and sensors: circuits integrated into fabrics, such as heart rate monitors; wearable electronics such as mobile phones or music player, GPS, tracking systems and electronics integrated into the fabric itself. 	P11 P12 P12 P12 P12	
 Micro-fibres in clothing manufacture. Phase changing materials: breathable materials; proactive heat and moisture management Sun protective clothing. Nomex. Geotextiles for landscaping. Rhovyl as an antibacterial fibre 	P12 P12 P13 P13 P13 P13 P13 P14	

Technical Principles	Pages	Revised/Revision Aid Created?
 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. Amplification: Graphical conventions for communicating concepts: circuit diagrams, block diagrams and flowcharts. The 'systems' approach – input; process; output. Principles of a control system: input data from a sensor: light dependent resistor (LDR), thermistor. output where a signal is received that will perform a desired function: buzzer, light emitting diode (LED). The importance of feedback within the system. The methods of providing feedback in different systems. Familiar products in terms of their control system. Control devices that include counting, switching, and timing. 	P14,15 16,17 and 18.	



Technical Principles	Pages	Revised/Revision Aid Created?
 The functions of mechanical devices, to produce different sorts of movement, changing the magnitude and direction of forces. Amplification: Principle of a mechanical device to transform input motion and force into a desired output motion and force. Analyse everyday mechanical devices and how they function. Consider mechanical systems in terms of input; process; output. Mechanical systems which: increase or decrease speed of movement/rotation. change magnitude/direction of force/movement/rotation. Simple calculations involving mechanical systems. Analyse the function of mechanical products that have: pulley systems, e.g., curtain rails, sewing machine. gear systems, e.g., whisk, hand drill. levers and linkages, e.g., scissors. rack and pinion, e.g., chair lift. cams, e.g., automata toys 	P18,19 P20,21	



Technical Principles In Depth Knowledge and Understanding:	Pages	Revised/R evision Aid Created?
 Thermoforming and thermosetting polymers. Amplification Categorisation and physical properties of polymers. Polymers can be made from both natural and synthetic resources. Polymers are sold as sheet, film, bar, rod, and tube. The differences between a thermoforming (thermoplastic) and thermosetting material. Properties of polymers: weight, hardness, elasticity, conductivity/insulation, toughness, and strength. The properties of thermoplastics: polythene, polystyrene, polypropylene, and PVC. The properties of the thermosetting plastics: UF (urea formaldehyde), MF (melamine formaldehyde), PR (polyester resin) and ER (epoxy resin). The sources, origins, physical and working properties of the material categories or the components and systems, and their ecological and social footprint. Amplification Natural and synthetic plastic. Polymers and the polymerisation process. Common thermoplastics, their strengths, weaknesses and working properties: acrylic, polythene, PVC, polypropylene, polycarbonate, Styrofoam, expanded polystyrene and nylon. Common thermosetting plastics: thermal conductivity and electrical conductivity/insulation. Mechanical properties of plastics: thermal conductivity and electrical conductivity/insulation. Mechanical properties of plastics: thermal conduction of polymers, splasticity, malleability, and hardness. Ecological and social footprint: The impact on our environment of oil exploration and extraction. Greenhouse gases during the extraction and production of polymer plastics. Changing society's view on waste, encourage recycling of all plastics. Living in a greener world. 	P28-29	Created?



Technical Principles	Pages	Revised/R
In Depth Knowledge and Understanding:	-	evision Aid Created?
Specialist techniques and processes that can be used to shape, fabricate, construct, and assemble a high-quality prototype, including techniques such as wastage, addition, deforming and reforming, as appropriate to the materials and/or components being used.		
Απριπεαποη:		
 Wastage/Addition Cutting thermosetting and thermoforming plastics to the required shape or contour. Tools and equipment to mark out, hold, cut, shape, drill, and form plastics The pillar drill to drill holes to various diameters. Jigs and formers to ensure accuracy as part of the process of drilling. Pilot, clearance, tapping, countersunk and counterbored holes. Deforming/Reforming Plastics joining can be permanent or temporary, by plastic welding and the use of nuts, bolts, washers, screws, rivets, hinges, catches. Lathe to turn materials. Milling machine to create a slot or face edge. Lasers. CAM machines. Blow moulding. Vacuum forming. Press moulding 	P99-102	



Designing and Making Principles:	Pages	Revised/R
Develop and Apply Core Knowledge and Skills		evision Ala Created?
 Explore and develop their ideas, testing, critically analysing and evaluating their work to inform and refine their design decisions thus achieving improved outcomes. Amplification: The importance of testing and evaluating ideas. Continuously reviewing and critically analysing work as it develops to improve the final design outcome. Refine and modify design ideas based upon learners' own decisions and those of others. 	P128	
 Make informed and reasoned decisions, respond to feedback about their own prototypes (and existing products and systems) to identify the potential for further development and suggest how modifications could be made. Amplification: Respond thoughtfully and make informed judgements when evaluating their own prototype. Act on the views of others. Make suggestions for improvements of their own prototype and how these modifications could be made. Respond to feedback from others or clients and suggest improvements/modifications of their prototype. 	P129	