

UNIT 2 Design and Technology – Textiles – Written paper

Mark on how confident you are with each topic and what you need to do, use this as a checklist for your revision notes and then to keep track of the topics you have revised. Tick and date once you have completed the tasks.

Topic 1 Textiles materials	How confident am I?			What do I need to do to improve my understanding – create a mind map, write revision note cards, use online tests, attempt some practice question papers, read and highlight my notes.... OR Who do I need to seek support from to help me progress	I have made my revision notes on this topic	I have revised this topic	I am confident on this topic	Evidence
								
	I could teach	I would need to look at my notes	I can not remember					
Overview from syllabus								
Content from syllabus				Specific skills or knowledge to be assess				
Natural fibres - Animal – wool,silk Vegetable- cotton, linen. Regenerated cellulosic- viscose, acetate, Tencel®. Synthetic polymers – polyester, acrylic polyamide (nylon), elastane (Lycra®).				Aesthetic, functional and structural composition, working characteristics and advantages/disadvantages of the following fibres in the design and production of textile yarns, fabrics and products:				
Yarns spun-staple, filament, ply fibre blends and mixtures in yarns textured and bulked yarns.								
Fabrics - Woven warp, weft, selvedge, bias plain — calico, muslin, taffeta, voile twill — denim twill, herringbone, tweed, gabardine satin and sateen, jacquard pile (velvet, corduroy, terry towelling). Non-woven felted fabrics — wool, needle bonded webs/fibre fabrics- fusilbles, ie				Aesthetic, functional and structural properties, hand/machine processes, working characteristics and advantages/disadvantages of the following fabrics in the design and production of textile products, including disposable items, garments, accessories, household items, toys, industrial and medical textiles:				

<p>interfacings — vilene/stitch and tear</p> <p>Knitted</p> <p><i>Weft knitted</i> — hand stitches using needles ie plain and purl stitches</p> <p>Weft knitted — machine knitted using flatbed or circular machines.</p> <p>Single/double jersey/rib</p> <p><i>Warp knitted</i> — machine knitted using straight or circular machines.</p> <p>For example polyester fleece fabrics, lock knit (terry), warp knit (velour), lace and net.</p>									
<p>Modern and smart materials –</p> <p>Modern synthetic fibres</p> <p>Microfibers, aramid (Kevlar®) , polartec fleece (recycled bottles), nanomaterials integrated electronics, for example integrated conductive polymers wearable electronics.</p>				<p>Structural composition, definitions, application and advantages/disadvantages of the following modern and smart materials used in the production of textile products.</p>					
<p>Components, materials, equipment and processes</p> <p>Processes, application and advantages/disadvantages of the following methods:</p> <p>Fastening: zips, buttons, velcro, press fasteners, poppers, ribbons</p> <p>Insulating, stabilising - fusibles, wadding or linings.</p> <p>Reducing fullness -elastic, darts, pleats, gathers.</p> <p>Their suitability to the end use of the product:</p>				<p>Identify and understand the practical use of common workshop equipment and components used in making textile products.</p>					
<p>Topic 2</p>									
<p>Industrial and commercial processes</p>									

<p>Scale of production Characteristics, application and advantages/disadvantages of the following scales of production in the manufacture of textile products:</p> <ul style="list-style-type: none"> • one-off • batch • mass. 								
<p>Modelling and prototyping Processes, application and advantages/disadvantages of the following 3D models and prototypes to aid the development of textile products:</p> <ul style="list-style-type: none"> • toiles • CAD software to create and modify designs • 2D/3D modelling. 								
<p>Lay planning and cutting Preparation, processes, application and advantages/disadvantages of lay planning and cutting textile fabrics for products, taking into account the following:</p> <ul style="list-style-type: none"> • scale of production • use of CAD/CAM • grain • nap • pile • accurate matching of checks, stripes patterns, motifs • costs. 				<p>Recognition of commercial pattern markings and symbols and their value in product construction</p>				
<p>Joining and finishing techniques</p> <ul style="list-style-type: none"> • seams — plain (lockstitch), lap, French, double stitching, topstitching, • overlocked • hem finishes — turned under (neated), overlocked, zig-zagged, slip • stitch and bound • finishing raw edges for example, overlocked, zigzag • fusing, moulding, bonding and 				<p>Preparation, application and advantages/disadvantages of using the following techniques for finishing and joining materials:</p>				

pressing.								
Finishing processes <ul style="list-style-type: none"> • physical — calendering, raising (brushing) • chemical — bleaching, easy-care, mercerising, laminating, coating, flame resistant and water repellent • biological — biostoning, biopolishing. 				Suitability of processes, application and advantages/disadvantages of applying the following finishing processes to improve the performance and quality of, and provide enhanced aesthetic and/or functional properties to, natural, regenerated and synthetic fabrics:				
Printing processes <ul style="list-style-type: none"> • resist dyeing tie-dye, silk painting, batik • screen printing and block • transfer and digital printing 				Processes, application and advantages/disadvantages of using the following hand and commercial printing methods to create textile products				
Decorative and stitch techniques <ul style="list-style-type: none"> • appliqué • patchwork • quilting • embroidery 				Processes, application and advantages/disadvantages of applying the following decorative and stitch techniques to improve the performance and quality of, and provide enhanced aesthetic and/or functional properties to, textile products				
Health and safety <ul style="list-style-type: none"> • How to understand/describe safe working practices. • How to identify workshop hazards and precautions 								
Topic 3 Analysing products								
Specification criteria When analysing a product, students should take into account the following specification criteria: <ul style="list-style-type: none"> • form — Why is the product shaped/styled as it is? • function — What is the purpose of the product? • user requirements — What qualities make the product attractive to potential users? • performance requirements — What are the technical considerations that must be achieved within the 								

<ul style="list-style-type: none"> product? material and component requirements — How should materials and components perform within the product? scale of production and cost — How does the design allow for scale of production and what are the considerations in determining cost? sustainability — How does the design allow for environmental considerations? 								
<p>Materials and components</p> <p>Students should identify the materials and/or components used in the manufacture of a product, including:</p> <ul style="list-style-type: none"> the properties and qualities of the materials and/or components the advantages/disadvantages of the materials and/or components justification of the choice of materials and/or components 								
<p>Manufacturing processes</p> <p>Students should identify the processes involved in the manufacture of products, including:</p> <ul style="list-style-type: none"> the stages of the manufacturing process the advantages/disadvantages of the manufacturing process justification of the choice of manufacturing process 								
<p>Topic 4</p> <p>Designing products</p>								
<p>Specification criteria</p> <p>When designing a product, students should take into account the following specification criteria:</p> <ul style="list-style-type: none"> form — How should the product be shaped/styled? 								

<ul style="list-style-type: none"> • function — What is the purpose of the product? • user requirements — What qualities would make the product attractive to potential users? • performance requirements — What are the technical considerations that must be achieved within the product? • material and component requirements — How should materials and components perform within the product? • scale of production and cost — How will the design allow for scale of production and what are the considerations in determining cost? • sustainability — How will the design allow for environmental considerations? 								
<p>Designing skills</p> <ul style="list-style-type: none"> • clear communication of design intentions using notes and/or sketches • annotation which relates to the original specification criteria. 				<p>When designing a product, students should be able to respond creatively to design briefs and specification criteria, including:</p>				
<p>Application of knowledge and understanding</p> <ul style="list-style-type: none"> • the properties of materials and/or components • the advantages/disadvantages of materials and/or components and manufacturing processes • justification of the choice of materials and/or components and manufacturing processes 				<p>When designing a product, students should be able to apply their knowledge and understanding of a wide range of materials and/or components and manufacturing processes to each design idea, including</p>				
<p>Topic 5 Technology</p>								

<p>Information and communication technology (ICT)</p> <ul style="list-style-type: none"> • electronic communications between designers, manufacturers, retailers • and consumers using email • electronic point of sale (EPOS) in the retail and manufacture of products • internet marketing and sales • clipart libraries, CD ROMs, databases, scanners. 				<p>Characteristics, processes, application and advantages/disadvantages of ICT in the design, development, marketing and sales of textile products including:</p>				
<p>Digital media and new technology</p> <p>Characteristics, processes, application and advantages/disadvantages of the following digital media and new technology in relation to:</p> <ul style="list-style-type: none"> • digital cameras • commercial digital printing for short print runs and large format prints • body scanners (mass customisation) • chromatic textiles • micro-encapsulation. 								
<p>Computer-aided design/computer-aided manufacturing (CAD/CAM) Technology</p> <ul style="list-style-type: none"> • efficient lay planning • flat pattern making and grading • 2D/3D virtual modelling and testing • computer-integrated manufacture (CIM) • computer numerically controlled (CNC) equipment, computerised sewing/knitting processes • managing product design data, stock control • quality control 				<p>Characteristics, processes, application and advantages/disadvantages of CAD/CAM in the design, development and manufacture of textile products</p>				

Topic 6 Sustainability								
Minimising waste production <ul style="list-style-type: none"> • reduce materials and energy • reuse materials and products where applicable • recover energy from waste • recycle materials and products or use recycled materials. 				Principles, application, advantages/disadvantages to society and the environment of minimising waste production throughout the product life cycle using the following 4 Rs				
Renewable sources of energy <ul style="list-style-type: none"> • wind energy using turbines and wind farms • solar energy using solar cells and photovoltaic cells • biomass converted into biofuels for transportation 				The characteristics, applications and advantages/disadvantages of using the following renewable sources of energy				
Climate change The responsibilities of 'developed' countries in minimising the impact of industrialisation on global warming and climate change including: <ul style="list-style-type: none"> • reducing greenhouse gas emissions through the Kyoto Protocol 								
Topic 7 Ethical design and manufacture								
Moral, social and cultural issues <ul style="list-style-type: none"> • built-in obsolescence in new products for a 'throwaway' culture • offshore manufacture of mass-produced products in developing countries by multinational companies • tolerance of different cultures to avoid offence 				The strategy, characteristics, applications and advantages/disadvantages of the following 'value' issues when designing and manufacturing products				

Review of previous examinations: