Government of **Western Australia**
School Curriculum and Standards Authority

SAMPLE COURSE OUTLINE

MATERIALS DESIGN AND TECHNOLOGY
PRELIMINARY UNIT 3 AND UNIT 4

Sample course outline

Materials Design and Technology – Preliminary

Unit 3 and Unit 4

Unit 3 (notional timeframe only – may take up to whole year)

Week	Key teaching points	Content

1	Introduction to design fundamentals, materials and workshop/studio	**Materials – Nature and properties of materials**
		Identify by appearance and name materials within the chosen context:
		• metals – types of steel, aluminium, brass, copper, tin, stainless steel
		• textiles – cotton, denim, linen, wool, silk, synthetics
		• wood – softwoods, hardwoods, different types of manufactured boards
		Identify basic aesthetic properties or characteristics, such as:
		• colour – bright, dull
		• appearance – patterned, plain
		• texture – soft, hard, smooth, rough
		• density – heavy, light
		Materials in context
		Identify basic uses for materials within the chosen context:
		• metals – kitchen utensils, workshop tools
		• textiles – clothing, household items
		• wood – furniture
		Design fundamentals and skills
		Discuss:
		• needs and wants
		• existing products
		• design fundamentals
		  ▪ aesthetics, function, safety, cost
		• factors affecting design
		  ▪ aesthetics, function
		  ▪ social requirements, environmental requirements

2–3	**Task 1: Introduction to design fundamentals** Introduction and application of design fundamentals and factors affecting design through selected products and materials Comparing products, their uses, and understanding the nature and properties of materials of different products **Task 1 due Week 2** **Task 2: Material properties for different product uses** Identifying the different properties or characteristics of materials, and explore why these materials are chosen for each product's function **Task 2 due Week 3**	
4–7	Use of technology: practical skills and techniques within the design process **Task 3: Developing and communicating design ideas** Using simple drawing and annotation techniques, develop a product, while making changes through design choices **Task 3 due Week 7**	**Design fundamentals and skills** Devise: • using communication techniques ▪ sketching , annotating • sketches of personal product ideas, with development of images to a final solution • presentation of design choices and final design Use guided and/or highly scaffolded design plans as the idea/plan for an eventual product Evaluate when discussing and devising design ideas

Week	Key teaching points	Content
		Skills and techniques Develop basic graphic skills with simple annotation chosen from, but not limited to, the following: • coloured images cut and pasted • 2D pencil sketches • pictorial drawings • colour or rendered drawings • desktop publishing or ICT drawing Use appropriate terminology and conventions Name and use basic equipment, as appropriate to context
8–15	Use of technology: safety, production skills and techniques **Task 4: Manufacture the product** Practical skills and techniques are used in the manipulation of materials to produce the product, as applicable to context Safety: students' correct use of personal protective equipment (PPE) where applicable Production management as directed by the teacher **Task 4 due Week 15**	Use appropriate terminology and conventions Name and use basic equipment, as appropriate to context Manipulate materials • mark out parts/shapes • cut out and/or shape parts/shapes • join or assemble • finish product **Safety** Correct use of personal protective equipment (PPE) where applicable **Production management** Use teacher-directed design, production plans and processes With supervision, use tools and machines safely Communicate and describe the production process in simple terms Manage processes to finish a product Demonstrate workshop clean-up procedures
16	Design fundamentals and skills Evaluation of products **Task 5: Presentation of completed product** **Task 5 due Week 16**	**Design fundamentals and skills** Evaluate finished product against initial design

Unit 4 (notional timeframe only – may take up to whole year)

Week	Key teaching points	Content
1	Re-introduction to design fundamentals, materials and workshop/studio	**Nature and properties of materials** Identify, by appearance and name, within the chosen context: • metals – ferrous, non-ferrous • textiles – natural fibres, manufactured fibres • wood – softwoods, hardwoods, and different manufactured boards Identify basic aesthetic properties or characteristics, such as: • colour • appearance – patterned, plain • texture – soft, hard, smooth, rough • density – heavy, light **Materials in context** Identify, within a chosen context, common materials and describe their uses Name some products or objects made from common materials **Design fundamentals and skills** Discuss: • design needs and wants • existing products • design fundamentals • factors affecting design
2–3	**Task 6: Nature and properties of materials** Identify and name the materials by their appearance Look at a range of different common materials and identify some of the differences of the materials' properties **Task 6 due Week 2** **Task 7: Design fundamentals and skills** Explore existing products, within context based on needs and wants Personal likes and preferences based on design fundamentals and factors affecting design **Task 7 due Week 3**	
4–7	Use of technology – Practical skills and techniques **Task 8: Methods of communicating design ideas** Students use a variety of drawing methods and annotation techniques to develop a product, making changes by design choices within the design process, to develop an individual design solution **Task 8 due Week 7**	**Design fundamentals and skills** Devise: • using communication techniques • sketches of personal product ideas with development of images to a final solution • design choices based on design fundamentals • presentation of final design Use guided and/or highly scaffolded design plans as the idea/choice/plan for an eventual product Evaluate when discussing and devising design ideas **Use of technology – skills and techniques** Use a guided design method to develop own solution Develop graphic skills, such as desktop publishing and/or hand sketching with simple annotation
8–15	Use of technology: safety, production skills and techniques **Task 9: Manufacture a product** Manipulation of materials to produce the product, as applicable to context Safety: correct use of personal protective equipment (PPE) where applicable Production management as directed by teacher	**Use of technology – skills and techniques** Use tools and basic machinery Manipulate materials by cutting, shaping, joining and finishing Use appropriate correct basic terminology and conventions **Safety** Correct use of personal protective equipment (PPE) where applicable

Week	Key teaching points	Content
	Task 9 due Week 15	**Production management** Use simple tools and machines Use teacher-directed design, production plans and processes Communicate and describe the production process
16	**Task 10: Presentation of completed product** Design fundamentals and skills Evaluation of products **Task 10 due Week 16**	**Design fundamentals and skills** Evaluate finished product against initial design