**Sample Course Outline**

Materials Design and Technology

Preliminary Unit 1 and Unit 2

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# Sample course outline

# Materials Design and Technology – Preliminary

## Unit 1 and Unit 2

#### Unit 1 (notional timeframe only – may take up to whole year)

| **Week** | **Key teaching points** | **Content** |
| --- | --- | --- |
| 1 | Introduction to design, materials and workshop/studio | **Materials – nature and properties of materials**  Identify, by appearance and name, materials within the chosen context  Identify basic aesthetic properties or characteristics  **Materials in context**  Identify basic uses for materials within the chosen context  **Design fundamentals and skills**  Seek and discuss links between design processes and final products, such as design concept sketches compared to the finished product  Identify a product from its design and determine that the product and design are the same object  Use pre-prepared designs to make design choices  Decision making: make design choices based on colour and shape |
| 2–4 | Design fundamentals and skills  **Task 1:** Introduction to simple design through products and materials  The nature and properties of materials of different products  Introduction to a design process. Look at products and materials using design fundamentals, such as colour, appearance, texture and weight  **Task 1 due Week 2**  **Task 2:** Material differences and uses  Explore differences in products and materials  Likes and preferences based on design choices and design fundamentals  **Task 2 due Week 4** |
| 5–7 | Use of technology – practical skills and techniques within the design process  **Task 3:** Methods of communicating design ideas  Students use simple drawing and annotation techniques to develop a product, or use pre-prepared drawings of designs to make changes by design choices  **Task 3 due Week 7** | **Skills and techniques**  Use pre-prepared design in developing a solution  Use simple graphic communication technologies  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** | Name and use basic equipment as appropriate to context  Manipulate materials  **Safety**  Correct use of personal protective equipment (PPE) where applicable  **Production management**  Use teacher-directed design, production plans and processes  With supervision, use simple tools and/or machines safely  Communicate and describe, in simple terms, the production process  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**  Seek and discuss links between design processes and final products, such as design concept sketches compared to the finished product |

#### Unit 2 (notional timeframe only – may take up to whole year)

| **Week** | **Key teaching points** | **Content** |
| --- | --- | --- |
| 1 | Re-introduction to design, materials and workshop/studio | **Nature and properties of materials**  Identify, by appearance and name, within the chosen context   * metals – steel, aluminium, copper, brass, tin, stainless steel * textiles – cotton, denim, linen, wool, silk * wood – softwoods, hardwoods, manufactured boards   Identify basic aesthetic properties or characteristics, such as:   * colour – bright, dull * appearance – patterned, plain * texture – soft, hard, smooth, rough * weight – heavy, light   **Materials in context**  Within a chosen context, identify common materials and describe their uses  Name some products or objects made from common materials  **Design fundamentals and skills**  Identify product/s and discuss:   * factors affecting design, chosen from: * personal likes/dislikes * aesthetics – appearance, form * function – purpose, use * safety – design requirements * cost – compare similar products   Seek and discuss links between designs and final products  Use a guided design method or  pre-prepared designed components to develop own solution  Decision making: make design choices based on factors affecting design |
| 2–4 | Design fundamentals and skills  **Task 6:** Explore the nature and properties of different materials in different products  Continue with a design process  Look at a range of different materials using design fundamentals: colour, appearance, texture and weight  **Task 6 due Week 2**  **Task 7:** Explore differences in products and materials  Personal likes and preferences based on design fundamentals and factors affecting design  **Task 7 due Week 4** |
| 5–7 | Use of technology – practical skills and techniques  **Task 8:** Students use simple drawing 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** | **Use of technology – skills and techniques**  Use a guided design method or  pre-prepared designed components to develop own solution  Use basic graphic skills, such as desktop publishing and/or hand sketching with simple annotation   * 2D pencil sketches * colour drawings * ICT drawing   Use appropriate terminology and conventions |
| 8–15 | Use of technology – safety, production skills and techniques  **Task 9:** 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  **Task 9 due Week 15** | **Use of technology – skills and techniques**  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 and finishing   **Safety**  Correct use of personal protective equipment (PPE) where applicable  **Production management**  Use teacher-directed design, production plans and processes  With supervision, use simple tools and machines safely  Communicate and describe the production process in simple terms  Maintain progress to complete a finished product |
| 16 | Design fundamentals and skills  Evaluation of products  **Task 10**: Presentation of completed product/s  **Task 10 due Week 16** | **Design fundamentals and skills**  Identify product/s and discuss factors affecting design  Seek and discuss links between designs and final products |