SAMPLE COURSE OUTLINE

MATERIALS DESIGN AND TECHNOLOGY
PRELIMINARY UNIT 1 AND UNIT 2
Sample course outline
Materials Design and Technology – Preliminary
Unit 1 and Unit 2

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

<table>
<thead>
<tr>
<th>Week</th>
<th>Key teaching points</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction to design, materials and workshop/studio</td>
<td><strong>Materials – nature and properties of materials</strong>&lt;br&gt;Identify, by appearance and name, materials within the chosen context&lt;br&gt;Identify basic aesthetic properties or characteristics&lt;br&gt;<strong>Materials in context</strong>&lt;br&gt;Identify basic uses for materials within the chosen context&lt;br&gt;<strong>Design fundamentals and skills</strong>&lt;br&gt;Seek and discuss links between design processes and final products, such as design concept sketches compared to the finished product&lt;br&gt;Identify a product from its design and determine that the product and design are the same object&lt;br&gt;Use pre-prepared designs to make design choices&lt;br&gt;Decision making: make design choices based on colour and shape</td>
</tr>
<tr>
<td>2–4</td>
<td>Design fundamentals and skills&lt;br&gt;&lt;br&gt;<strong>Task 1:</strong> Introduction to simple design through products and materials&lt;br&gt;The nature and properties of materials of different products&lt;br&gt;Introduction to a design process. Look at products and materials using design fundamentals, such as colour, appearance, texture and weight&lt;br&gt;<strong>Task 1 due Week 2</strong>&lt;br&gt;<strong>Task 2:</strong> Material differences and uses&lt;br&gt;Explore differences in products and materials&lt;br&gt;Likes and preferences based on design choices and design fundamentals&lt;br&gt;<strong>Task 2 due Week 4</strong></td>
<td><strong>Skills and techniques</strong>&lt;br&gt;Use pre-prepared design in developing a solution&lt;br&gt;Use simple graphic communication technologies&lt;br&gt;Name and use basic equipment as appropriate to context&lt;br&gt;<strong>Safety</strong>&lt;br&gt;Correct use of personal protective equipment (PPE) where applicable&lt;br&gt;<strong>Production management</strong>&lt;br&gt;Use teacher-directed design, production plans and processes&lt;br&gt;With supervision, use simple tools and/or machines safely&lt;br&gt;Communicate and describe, in simple terms, the production process&lt;br&gt;Demonstrate workshop clean-up procedures</td>
</tr>
<tr>
<td>5–7</td>
<td>Use of technology – practical skills and techniques within the design process&lt;br&gt;<strong>Task 3:</strong> Methods of communicating design ideas&lt;br&gt;Students use simple drawing and annotation techniques to develop a product, or use pre-prepared drawings of designs to make changes by design choices&lt;br&gt;<strong>Task 3 due Week 7</strong></td>
<td><strong>Skills and techniques</strong>&lt;br&gt;Use pre-prepared design in developing a solution&lt;br&gt;Use simple graphic communication technologies&lt;br&gt;Name and use basic equipment as appropriate to context&lt;br&gt;<strong>Safety</strong>&lt;br&gt;Correct use of personal protective equipment (PPE) where applicable&lt;br&gt;<strong>Production management</strong>&lt;br&gt;Use teacher-directed design, production plans and processes&lt;br&gt;With supervision, use simple tools and/or machines safely&lt;br&gt;Communicate and describe, in simple terms, the production process&lt;br&gt;Demonstrate workshop clean-up procedures</td>
</tr>
<tr>
<td>8–15</td>
<td>Use of technology – safety, production skills and techniques&lt;br&gt;<strong>Task 4:</strong> Manufacture the product&lt;br&gt;Practical skills and techniques are used in the manipulation of materials to produce the product, as applicable to context.&lt;br&gt;Safety; students’ correct use of personal protective equipment (PPE) where applicable&lt;br&gt;Production management as directed by the teacher&lt;br&gt;<strong>Task 4 due Week 15</strong></td>
<td>Name and use basic equipment as appropriate to context&lt;br&gt;Manipulate materials&lt;br&gt;<strong>Safety</strong>&lt;br&gt;Correct use of personal protective equipment (PPE) where applicable&lt;br&gt;<strong>Production management</strong>&lt;br&gt;Use teacher-directed design, production plans and processes&lt;br&gt;With supervision, use simple tools and/or machines safely&lt;br&gt;Communicate and describe, in simple terms, the production process&lt;br&gt;Demonstrate workshop clean-up procedures</td>
</tr>
<tr>
<td>Week</td>
<td>Key teaching points</td>
<td>Content</td>
</tr>
<tr>
<td>------</td>
<td>---------------------</td>
<td>---------</td>
</tr>
</tbody>
</table>
| 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)

<table>
<thead>
<tr>
<th>Week</th>
<th>Key teaching points</th>
<th>Content</th>
</tr>
</thead>
</table>
| 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  
<pre><code> | Task 7 due Week 4 |
</code></pre>
<table>
<thead>
<tr>
<th>Week</th>
<th>Key teaching points</th>
<th>Content</th>
</tr>
</thead>
</table>
| 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 |