SAMPLE COURSE OUTLINE

MATERIALS DESIGN AND TECHNOLOGY
ATAR YEAR 11
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Sample course outline
Materials Design and Technology – ATAR Year 11
Unit 1

Semester 1

<table>
<thead>
<tr>
<th>Week</th>
<th>Key teaching points</th>
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<tbody>
<tr>
<td><strong>Term 1</strong>&lt;br&gt;1–2</td>
<td>Overview of unit and assessment requirements &lt;br&gt;Introduction to design process &lt;br&gt;• designs in practice – statement of intent, investigation and devise &lt;br&gt;• development of a design portfolio</td>
</tr>
<tr>
<td>2–3</td>
<td><strong>Design fundamentals and skills</strong>&lt;br&gt;<strong>investigate</strong>&lt;br&gt;• application of design fundamentals and factors affecting design &lt;br&gt;  o aesthetics &lt;br&gt;  o function &lt;br&gt;  o safety &lt;br&gt;  o cost &lt;br&gt;  o ergonomics &lt;br&gt;  o anthropometric data &lt;br&gt;  o environmental impact and considerations&lt;br&gt;<strong>Task 1</strong>&lt;br&gt;Investigate and develop ideas from:&lt;br&gt;• needs, values and beliefs of the designer/developer &lt;br&gt;• sources of design inspiration &lt;br&gt;• performance criteria for products &lt;br&gt;• application of design fundamentals and factors affecting design.</td>
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<tr>
<td><strong>Term 2</strong>&lt;br&gt;1–2</td>
<td><strong>Safety</strong>&lt;br&gt;• use correctly personal protective equipment (PPE) where applicable &lt;br&gt;• demonstrate occupational safety and health (OSH) practices appropriate to tasks being undertaken in workshops &lt;br&gt;• apply risk management strategies in the workshop/studio &lt;br&gt;• assess the condition of tools and machinery manage a production plan</td>
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<tr>
<td><strong>Term 2</strong>&lt;br&gt;4–5</td>
<td><strong>Nature and properties of materials</strong>&lt;br&gt;Investigate the nature and properties, and materials in context listed in Unit 1 of the Year 11 ATAR syllabus to prepare and present a written report. &lt;br&gt;<strong>Task 2</strong>&lt;br&gt;Investigate materials. Research materials suitable for the development of a solution, and report on:&lt;br&gt;• nature and properties of materials &lt;br&gt;• materials in context.</td>
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<tr>
<td><strong>Term 2</strong>&lt;br&gt;6–9</td>
<td><strong>Design fundamentals and skills</strong>&lt;br&gt;<strong>devise</strong>&lt;br&gt;Apply skills and techniques listed in Unit 1 of the Year 11 ATAR syllabus to devise and present a design solution. &lt;br&gt;<strong>Task 3</strong>&lt;br&gt;Developing a solution; through concept drawings, working drawings, patterns or templates. Final drawn proposal. Presentation drawing of proposed solution – colour rendered pictorial 3D drawing either CAD or hand drawn. Prepare production plan, materials lists and costing/ordering; record progress in design portfolio.</td>
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#### ATAR Year 11

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|      | **Production management**  
|      | • maintain a production plan  
|      |   ▪ maintain time management while using tools, equipment and machinery to complete production  
|      |     ◦ follow instructions from plans  
|      |     ◦ maintain safety requirements  
|      |   ▪ record changes to materials lists or costing  
|      |   ▪ record regular journal/diary entries  
|      | • use ongoing evaluation techniques: diary, journal or portfolio notes and use of photography to record ongoing progress/decision changes made to the project  |

#### Task 4  
Production skills; apply and practice safety during task/s to develop practical hand and machine skills. Modelling, prototype or toile.

| 3–6 | Task 5  
|     | Manufacture of proposed product; using prepared production plan, materials and available equipment; record progress in design portfolio.  |
| Examination week | **Task 7:** Semester 1 written examination – a representative sample of the syllabus content from Semester 1 – using a modified examination design brief from the Year 12 syllabus – 2 hours  |
| 7–8 | **Task 5:** Manufacture of proposed product; using prepared production plan, materials and available equipment; record progress in design portfolio.  |
| 9–10 | **Design fundamentals and skills**  
|      | **Evaluate**  
|      | Final product against design brief, initial design and performance criteria related to needs, values and beliefs of the end user.  
|      | **Task 6**  
|      | Presentation of completed product  
|      | Evaluation of completed product; written report on and photographs of completed product.  |
Sample course outline
Materials Design and Technology – ATAR Year 11
Unit 2

Semester 2

<table>
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<tr>
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| **Term 3** 1 | Overview of unit and assessment requirements  
Re-introduction to design process, and development of a design portfolio  
• design for others – statement of intent |
| 2–3 | Design fundamentals and skills  
• investigate  
  ▪ design for others  
  ▪ needs, values and beliefs of the designer/developer  
  ▪ needs, values and beliefs of the client/target audience/market  
  ▪ performance criteria related to needs, values and beliefs of the end user  
  ▪ historical, social and cultural sources of design inspiration  
  ▪ specific design characteristics/features of  
    o products  
    o designers  
    o industries  
  ▪ application of design fundamentals and factors affecting design  
    o aesthetics  
    o ergonomics  
    o function  
    o anthropometric data  
    o safety  
    o cost  
    o environmental impact and considerations  
Task 8  
Investigate and develop ideas from:  
• needs, values and beliefs  
• performance criteria  
• historical, social and cultural sources of design inspiration  
• specific design characteristics/features of; products, designers and industries  
• application of design fundamentals and factors affecting design. |
| 3 | Nature and properties of materials  
• identify the properties and structures of materials  
• investigate the properties and structures of materials  
Task 9  
Investigate materials. Research materials suitable for the development of a solution, and report on nature and properties of materials. |
| 4 | Materials in context  
• research examples of sustainability with regards to:  
  ▪ sustainable metal materials  
  ▪ sustainable production processes  
Task 10  
Investigate materials in context.  
Research examples of sustainability with regard to:  
• sustainable materials  
• sustainable production processes. |
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| 5–7  | **Design fundamentals and skills**  
**Devis**  
Developing a solution; through concept drawings, working drawings, patterns or templates.  
Final drawn proposal.  
Presentation drawing of proposed solution – colour rendered pictorial 3D drawing either CAD or hand drawn.  
**Task 11**  
Apply skills and techniques listed in Unit 2 of the Year 11 ATAR syllabus to devise and present a design solution. |
| 8–9  | **Design fundamentals and skills**  
**Devis**  
**Task 12**  
Prepare production plan, materials lists and costing/ordering; record progress in design portfolio. |
| Term 4 | **Safety**  
- correctly use personal protective equipment (PPE) where applicable  
- conduct risk assessment for using specific tools/machinery  
- demonstrate occupational safety and health practices appropriate to tasks being undertaken in workshops  
- apply risk management strategies in the workshop/studio  
- recognise need and purpose of materials safety data (MSD) with regard to storage and handling of hazardous substances and hazardous operations appropriate to situation  
**Production management**  
- manage a production plan  
  - maintain a detailed production plan  
  - maintain time management while using tools, equipment and machinery to complete production  
  - adhere to sequential instructions  
  - apply safety and risk management  
  - record changes to materials lists or costing  
  - record regular journal/diary entries  
- use ongoing evaluation techniques: diary, journal or portfolio notes and use of photography to record ongoing progress/decision changes made to the project  
**Task 13**  
Manufacture of proposed product; using prepared production plan, materials and available equipment; record progress in design portfolio. |
| 1  |  |
| 2–4 |  |
| Examination week 5–6 | **Task 15:** Semester 2 written examination – a representative sample of selected syllabus content – using the examination design brief from the Year 12 syllabus – 2 hours |
| 7–9  | **Task 13**  
Manufacture of proposed product; using prepared production plan, materials and available equipment; record progress in design portfolio. |
| 9    | **Design fundamentals and skills**  
**Evaluate**  
- design and production processes  
- using a production plan/journal/diary and accompanying photographic evidence to record ongoing evaluation  
- product against design brief, initial design and performance criteria related to needs, values and beliefs of the end user  
**Task 14**  
Evaluation of completed product; written report on and photographs of completed product. |