



## SAMPLE COURSE OUTLINE

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**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

Week	Key teaching points
<b>Term 1</b> 1–2	<p>Overview of unit and assessment requirements</p> <p>Introduction to design process</p> <ul style="list-style-type: none"> <li>designs in practice – statement of intent, investigation and devise</li> <li>development of a design portfolio</li> </ul>
2–3	<p><b>Design fundamentals and skills</b></p> <p><b>investigate</b></p> <ul style="list-style-type: none"> <li>application of design fundamentals and factors affecting design               <ul style="list-style-type: none"> <li>aesthetics</li> <li>function</li> <li>safety</li> <li>environmental impact and considerations</li> <li>cost</li> <li>ergonomics</li> <li>anthropometric data</li> </ul> </li> </ul> <p><b>Task 1</b></p> <p>Investigate and develop ideas from:</p> <ul style="list-style-type: none"> <li>needs, values and beliefs of the designer/developer</li> <li>sources of design inspiration</li> <li>performance criteria for products</li> <li>application of design fundamentals and factors affecting design.</li> </ul>
4–5	<p><b>Nature and properties of materials</b></p> <p>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.</p> <p><b>Task 2</b></p> <p>Investigate materials. Research materials suitable for the development of a solution, and report on:</p> <ul style="list-style-type: none"> <li>nature and properties of materials</li> <li>materials in context.</li> </ul>
6–9	<p><b>Design fundamentals and skills</b></p> <p><b>devise</b></p> <p>Apply skills and techniques listed in Unit 1 of the Year 11 ATAR syllabus to devise and present a design solution.</p> <p><b>Task 3</b></p> <p>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.</p>
<b>Term 2</b> 1–2	<p><b>Safety</b></p> <ul style="list-style-type: none"> <li>use correctly personal protective equipment (PPE) where applicable</li> <li>demonstrate occupational safety and health (OSH) practices appropriate to tasks being undertaken in workshops</li> <li>apply risk management strategies in the workshop/studio</li> <li>assess the condition of tools and machinery manage a production plan</li> </ul>

Week	Key teaching points
	<p><b>Production management</b></p> <ul style="list-style-type: none"> <li>• maintain a production plan <ul style="list-style-type: none"> <li>▪ maintain time management while using tools, equipment and machinery to complete production <ul style="list-style-type: none"> <li>○ follow instructions from plans</li> <li>○ maintain safety requirements</li> </ul> </li> <li>▪ record changes to materials lists or costing</li> <li>▪ record regular journal/diary entries</li> </ul> </li> <li>• use ongoing evaluation techniques: diary, journal or portfolio notes and use of photography to record ongoing progress/decision changes made to the project</li> </ul> <p><b>Task 4</b> Production skills; apply and practice safety during task/s to develop practical hand and machine skills. Modelling, prototype or toile.</p>
3–6	<p><b>Task 5</b> Manufacture of proposed product; using prepared production plan, materials and available equipment; record progress in design portfolio.</p>
Examination week 7–8	<p><b>Task 7:</b> 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</p>
9–10	<p><b>Task 5</b> Manufacture of proposed product; using prepared production plan, materials and available equipment; record progress in design portfolio.</p>
10	<p><b>Design fundamentals and skills</b></p> <p><b>Evaluate</b> Final product against design brief, initial design and performance criteria related to needs, values and beliefs of the end user.</p> <p><b>Task 6</b> Presentation of completed product Evaluation of completed product; written report on and photographs of completed product.</p>

## Sample course outline

### Materials Design and Technology – ATAR Year 11

#### Unit 2

##### Semester 2

Week	Key teaching points
<p><b>Term 3</b> 1</p> <p>2–3</p>	<p>Overview of unit and assessment requirements Re-introduction to design process, and development of a design portfolio</p> <ul style="list-style-type: none"> <li>• design for others – statement of intent</li> </ul> <p><b>Design fundamentals and skills</b></p> <ul style="list-style-type: none"> <li>• investigate           <ul style="list-style-type: none"> <li>▪ design for others</li> <li>▪ needs, values and beliefs of the designer/developer</li> <li>▪ needs, values and beliefs of the client/target audience/market</li> <li>▪ performance criteria related to needs, values and beliefs of the end user</li> <li>▪ historical, social and cultural sources of design inspiration</li> <li>▪ specific design characteristics/features of               <ul style="list-style-type: none"> <li>○ products</li> <li>○ designers</li> <li>○ industries</li> </ul> </li> <li>▪ application of design fundamentals and factors affecting design               <ul style="list-style-type: none"> <li>○ aesthetics           ○ ergonomics</li> <li>○ function             ○ anthropometric data</li> <li>○ safety               ○ cost</li> <li>○ environmental impact and considerations</li> </ul> </li> </ul> </li> </ul> <p><b>Task 8</b> Investigate and develop ideas from:</p> <ul style="list-style-type: none"> <li>• needs, values and beliefs</li> <li>• performance criteria</li> <li>• historical, social and cultural sources of design inspiration</li> <li>• specific design characteristics/features of; products, designers and industries</li> <li>• application of design fundamentals and factors affecting design.</li> </ul>
3	<p><b>Nature and properties of materials</b></p> <ul style="list-style-type: none"> <li>• identify the properties and structures of materials</li> <li>• investigate the properties and structures of materials</li> </ul> <p><b>Task 9</b> Investigate materials. Research materials suitable for the development of a solution, and report on nature and properties of materials.</p>
4	<p><b>Materials in context</b></p> <ul style="list-style-type: none"> <li>• research examples of sustainability with regards to:           <ul style="list-style-type: none"> <li>▪ sustainable metal materials</li> <li>▪ sustainable production processes</li> </ul> </li> </ul> <p><b>Task 10</b> Investigate materials in context. Research examples of sustainability with regard to:</p> <ul style="list-style-type: none"> <li>• sustainable materials</li> <li>• sustainable production processes.</li> </ul>

Week	Key teaching points
5–7	<p><b>Design fundamentals and skills</b></p> <p><b>Devise</b> Developing a solution; through concept drawings, working drawings, patterns or templates. Final drawn proposal.</p> <p>Presentation drawing of proposed solution – colour rendered pictorial 3D drawing either CAD or hand drawn.</p> <p><b>Task 11</b> Apply skills and techniques listed in Unit 2 of the Year 11 ATAR syllabus to devise and present a design solution.</p>
8–9	<p><b>Design fundamentals and skills</b></p> <p><b>Devise</b></p> <p><b>Task 12</b> Prepare production plan, materials lists and costing/ordering; record progress in design portfolio.</p>
<p><b>Term 4</b></p> <p>1</p> <p>2–4</p>	<p><b>Safety</b></p> <ul style="list-style-type: none"> <li>• correctly use personal protective equipment (PPE) where applicable</li> <li>• conduct risk assessment for using specific tools/machinery</li> <li>• demonstrate occupational safety and health practices appropriate to tasks being undertaken in workshops</li> <li>• apply risk management strategies in the workshop/studio</li> <li>• recognise need and purpose of materials safety data (MSD) with regard to storage and handling of hazardous substances and hazardous operations appropriate to situation</li> </ul> <p><b>Production management</b></p> <ul style="list-style-type: none"> <li>• manage a production plan <ul style="list-style-type: none"> <li>▪ maintain a detailed production plan</li> <li>▪ maintain time management while using tools, equipment and machinery to complete production <ul style="list-style-type: none"> <li>○ adhere to sequential instructions</li> <li>○ apply safety and risk management</li> </ul> </li> <li>▪ record changes to materials lists or costing</li> <li>▪ record regular journal/diary entries</li> </ul> </li> <li>• use ongoing evaluation techniques: diary, journal or portfolio notes and use of photography to record ongoing progress/decision changes made to the project</li> </ul> <p><b>Task 13</b> Manufacture of proposed product; using prepared production plan, materials and available equipment; record progress in design portfolio.</p>
Examination week 5–6	<p><b>Task 15:</b> Semester 2 written examination – a representative sample of selected syllabus content – using the examination design brief from the Year 12 syllabus – 2 hours</p>
7–9	<p><b>Task 13</b> Manufacture of proposed product; using prepared production plan, materials and available equipment; record progress in design portfolio.</p>
9	<p><b>Design fundamentals and skills</b></p> <p><b>Evaluate</b></p> <ul style="list-style-type: none"> <li>• design and production processes</li> <li>• using a production plan/journal/diary and accompanying photographic evidence to record ongoing evaluation</li> <li>• product against design brief, initial design and performance criteria related to needs, values and beliefs of the end user</li> </ul> <p><b>Task 14</b> Evaluation of completed product; written report on and photographs of completed product.</p>