SAMPLE COURSE OUTLINE

MATERIALS DESIGN AND TECHNOLOGY
ATAR YEAR 12
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Sample course outline
Materials Design and Technology – ATAR Year 12
Unit 3 and Unit 4
Semester 1

<table>
<thead>
<tr>
<th>Week</th>
<th>Key teaching points</th>
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| 1    | Overview of unit and assessment requirements  
Re-introduction to design process; statement of intent, investigation and devise through development of a design portfolio |
| 2–3  | **Design fundamentals and skills**  
**Investigate**  
- target audience/market, demand, niche market design needs, values and trends  
- performance criteria related to needs, values and beliefs of the developer and end user  
- historical, social, cultural and political sources of design inspiration  
- design fundamentals and factors affecting design  
**Task 1:** Develop a statement of intent or design proposal  
**Task 2:** Investigate design proposal, client needs, market survey, design fundamentals and factors affecting design |
| 4–5  | **Nature and properties of materials**  
Investigate materials; research and identify the nature and properties of materials suitable for the development of a solution in context, as per syllabus  
**Task 3:** Response task: investigate and report on the nature and properties of materials |
| 6–9  | **Design fundamentals and skills**  
**Devis**e  
- using communication and documentation techniques  
- applying elements and principles of design, where applicable, in context  
- applying rapid concept development techniques to generate a variety of design ideas  
- design development  
- production plan  
**Evaluate**  
- product against design brief, initial design and performance criteria related to needs, values and beliefs of the developer and end user  
- design and production processes, making recommendations for improvement  
**Use of technology**  
**Skills and techniques**  
- ICT, portfolio development and communication skills  
- context appropriate drawing and relevant technical information to produce the final product  
**Task 4:** Devis and develop concepts; through concept drawings, patterns or templates  
**Task 5:** Devis a solution through working drawings, patterns or templates  
**Task 6:** Presentation drawing of proposed solution – colour-rendered pictorial 3D drawing, either CAD or hand drawn  
**Task 7:** Production management plan; prepare materials list, estimated and actual costing for all materials/components, production plan and time line |
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| 10–13 | **Use of technology**  
Safety  
- correct use of personal protective equipment (PPE), where applicable  
- conduct risk assessment for using specific tools and equipment  
- demonstrate occupational safety and health (OSH) practices appropriate to tasks being undertaken in workshops  
- apply proactive measures for risk management in the workshop/studio  
- recognise need and purpose of materials safety data (MSD) with regard to storage and handling of hazardous substances appropriate to situation  
**Production management**  
- manage production processes independently  
- manage, journal and folio note entries  
**Task 8:** Pre-production skills; task/s to demonstrate safe working practices and develop practical hand and machine skills through modelling, prototype or toile making  
**Materials in context**  
- factors that have affected manufacturing processes  
- impact production, processing and use of materials has had on society and the environment  
**Task 9:** Research materials in context, as per syllabus context |
| 14 15 Examination week | Preparation for production and/or examination  
**Task 10:** Semester 1 Written examination – a representative sample of the syllabus content from Semester 1 – using a modified examination design brief from the syllabus – two and a half hours |
### Sample course outline | Materials Design and Technology | ATAR Year 12

#### Semester 2

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| 1–2  | **Materials in context**  
- influence of globalisation on the local, national and international industries  
- research and analyse relationships between product innovation, lifestyle choices, and consumer demand  
- explore green design principles and the life cycle of a product  
**Task 11**: Research materials in context, as per syllabus |
| 1–9  | **Use of technology**  
**Safety**  
- correct use of personal protective equipment (PPE), where applicable  
- occupational safety and health (OSH) practices appropriate to tasks being undertaken in workshops  
- apply proactive measures for risk management in the workshop/studio  
- recognise the need and purpose of materials safety data (MSD) with regards to storage and handling of hazardous substances  
- discuss the consequences of hazardous operations and identify and manage risks in and around the workshop/studio  
- examine OSH issues and legal implications associated with designing and producing materials products for the consumer market  
**Production management**  
- manage production processes independently  
- diary, journal and portfolio note entries  
**Task 12**: Production management  
Manufacture of proposed product; using prepared production plan, materials and available equipment; record progress in design portfolio |
| 10–11| **Design fundamentals and skills**  
- justify selection of materials against comprehensive design needs, as well as the functional and aesthetic properties of materials  
**Evaluate**  
- product against design brief, initial design and performance criteria related to needs, values and beliefs of the developer and end user  
- design and production processes, making recommendations for improvement  
**Task 13 Part A**: Practical: final product evaluation  
Evaluation of completed product; written report on, and photographs of, the completed product |
| 12   | **Task 13 Part B**: Portfolio presentation and final product presentation  
Preparation for completed portfolio – submission; last week of September  
Preparation for examinations |
| Examination week | **Task 14**: Semester 2 Written examination – a representative sample of selected syllabus content – using the examination design brief from the syllabus – two and a half hours |