SAMPLE COURSE OUTLINE

MATERIALS DESIGN AND TECHNOLOGY
GENERAL YEAR 12
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Sample course outline
Materials Design and Technology – General Year 12
Unit 3 and Unit 4

Semester 1

<table>
<thead>
<tr>
<th>Week</th>
<th>Key teaching points</th>
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| 1–2  | Overview of unit and assessment requirements  
Introduction to design process  
**Design fundamentals and skills**  
• investigate:  
  ▪ designs in practice  
  ▪ needs, values and beliefs of the designer/developer  
  ▪ sources of design inspiration  
  ▪ performance criteria for products  
  ▪ application of design fundamentals and factors affecting design  
  **Task 1:** Design project one  
  • development of a design portfolio  
  • statement of intent, and investigation |
| 3–4  | **Materials in context**  
• the uses and classification of the types of materials within context  
• the environmental impacts as per context:  
  ▪ raw material extraction and processing  
  ▪ end-of-life of a product – recycling and safe disposal  
  **Task 2:** Investigate materials and production methods  
  • research materials and processes suitable for the development of a solution |
| 5–7  | Apply skills and techniques listed in Unit 3 of the General Syllabus to devise and present a design solution.  
**Task 3:** Devise a solution for project one to include:  
• annotated pictorial drawings of ideas to a final drawn proposal  
• annotated, orthographic concept drawings, either CAD or hand-drawn  
• working drawings – detailed orthogonal drawings  
• lists of materials, parts and components  
• production plan on a timeline |
| 7–8  | **Skills and techniques**  
• use workroom/studio terminology appropriate to context  
• select appropriate materials and calculate the correct amount required to order and purchase materials to complete the project  
• with supervision, operate machinery and tools appropriate to context  
**Safety**  
• correct use of personal protective equipment (PPE), where applicable  
• occupational safety and health (OSH) practices appropriate to tasks being undertaken in workshops  
• apply risk-management strategies in the workshop/studio  
• assess the condition of tools and machinery  
**Task 4:** Pre-production skills  
• develop production skills; apply safety and practical task/s to develop hand and machine skills; modelling, prototype or toile |
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| 9–14 | **Production management**  
| | • production planning:  
| | ▪ maintain a production plan  
| | ▪ maintain time management while using tools, equipment and machinery to complete production:  
| | o follow instructions from plans  
| | o maintain safety requirements  
| | ▪ record changes to materials lists or costing  
| | ▪ record regular journal/diary entries  
| | • ongoing evaluation techniques: diary, journal or portfolio notes and use of photography  
| | to record ongoing progress/decision changes made to the project  
| | **Task 5:** Production of proposed project one; using prepared production plan, materials and available equipment; record progress in design portfolio |
| 13   | **Externally set task**  
| | All students enrolled in the Materials Design and Technology General Year 12 course will complete the externally set task developed by the Authority.  
| | Schools are required to administer this task in Term 2 at a time prescribed by the Authority. |
| 14   | **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:** Evaluation of completed project one; written report on, and photographs of, completed product |
| 15–16| **Overview of Unit 4 and assessment requirements**  
| | Re-introduction to design process, and development of a design portfolio  
| | **Design fundamentals and skills**  
| | • investigate:  
| | ▪ 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  
| | ▪ application of design fundamentals and factors affecting design  
| | **Skills and techniques**  
| | • ICT, portfolio development and communication skills:  
| | ▪ client and market research techniques  
| | ▪ client presentation techniques  
| | ▪ photography – ongoing record of progress and processes used and final product  
| | ▪ documenting presentations and evaluations  
| | • develop context-appropriate drawings and relevant technical information to produce the final product  
| | **Task 7:** Design project two  
| | Apply a design process:  
| | • determine design brief  
| | • investigate and develop ideas |
### Semester 2

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| 1–2  | **Materials in context**  
• identification of examples of recycling methods for different materials in context  
**Task 8:** Investigate materials  
Research and report on materials and recycling methods suitable for the development of a solution.  

**Design fundamentals and skills**  
• devise:  
  ▪ communication and documentation techniques  
  ▪ applying of elements and principles of design where applicable in context  
  ▪ rapid concept development techniques, images and annotation  
  ▪ design development  
  ▪ production plan  
  ▪ materials list  
  ▪ estimated and actual costing for all materials and components  
  ▪ production plan and time line  
**Task 9:** Devise a solution for project two to include:  
• annotated pictorial drawings of ideas to a final drawn proposal  
• lists of materials, parts and components  
• working drawings – detailed orthogonal drawings  
• production plan on a timeline |
| 3–5  | **Safety**  
• correct use of personal protective equipment (PPE) where applicable  
• conduct risk assessment for using specific tools/machinery  
• demonstrate occupational safety and health (OSH) 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**  
• production planning:  
  ▪ 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  
  ▪ ongoing evaluation techniques: diary, journal or portfolio notes and use of photography to record ongoing progress/decision changes made to the project  
**Task 10:** Production of proposed project two; using prepared production plan, materials and available equipment; record progress in design portfolio |
| 6–11 | **Design fundamentals and skills**  
• evaluate:  
  ▪ design and production processes  
  ▪ 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 11:** Evaluation of completed project two; written report on, and photographs of, completed product |
| 11–12|