**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

| **Week** | **Key teaching points** |
| --- | --- |
| **Term 1** 1–2  | Overview of unit and assessment requirements Introduction to design process * designs in practice – statement of intent, investigation and devise
* development of a design portfolio
 |
| 2–3 | **Design fundamentals and skills****investigate*** application of design fundamentals and factors affecting design

|  |  |
| --- | --- |
| * aesthetics
 | * cost
 |
| * function
 | * ergonomics
 |
| * safety
 | * anthropometric data
 |
| * environmental impact and considerations
 |

**Task 1**Investigate and develop ideas from:* needs, values and beliefs of the designer/developer
* sources of design inspiration
* performance criteria for products
* application of design fundamentals and factors affecting design.
 |
| 4–5 | **Nature and properties of materials**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.**Task 2**Investigate materials. Research materials suitable for the development of a solution, and report on:* nature and properties of materials
* materials in context.
 |
| 6–9 | **Design fundamentals and skills****devise**Apply skills and techniques listed in Unit 1 of the Year 11 ATAR syllabus to devise and present a design solution.**Task 3**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.  |
| **Term 2** 1–2 | **Safety*** use correctly personal protective equipment (PPE) where applicable
* demonstrate 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 manage a production plan
 |
|  | **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 week7–8 | **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 |
| 9–10 | **Task 5** Manufacture of proposed product; using prepared production plan, materials and available equipment; record progress in design portfolio. |
| 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

| **Week** | **Key teaching points** |
| --- | --- |
| **Term 3**12–3 | Overview of unit and assessment requirements Re-introduction to design process, and development of a design portfolio* design for others – statement of intent
 |
| **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
* products
* designers
* industries
* application of design fundamentals and factors affecting design

|  |  |
| --- | --- |
| * aesthetics
 | * ergonomics
 |
| * function
 | * anthropometric data
 |
| * safety
 | * cost
 |
| * 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.
 |
| 5–7 | **Design fundamentals and skills****Devise**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****Devise****Task 12** Prepare production plan, materials lists and costing/ordering; record progress in design portfolio. |
| **Term 4**12–4 | **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. |
| Examinationweek 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.  |