**Sample Course Outline**

Materials Design and Technology

General Year 11

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Sample course outline

Materials Design and Technology – General Year 11

Unit 1 and Unit 2

Semester 1

| **Week** | **Key teaching points** |
| --- | --- |
| 1–3 | Overview of unit and assessment requirements **Design fundamentals and skills*** investigate
* needs, values and beliefs of the client or other end user
* sources of design inspiration
* existing ideas and products
* design fundamentals – aesthetics, function, safety, cost
 |
| 2–3 | **Task 1 Part A** Students use a design process to design a product for their own use, using all or some recyclable materials Design fundamentals and skills **Nature and properties of materials*** as per context content in Unit 1 of the syllabus

**Task 3 Part A** Investigate materials**Materials in context*** as per context content in Unit 1 of the syllabus

**Task 3 Part B** Materials use and environmental considerationsResearch and identify:* broad areas of the use of materials
* environmental considerations of the three ‘Rs’—reduce, re-use and recycle
 |
| 4–6 | **Design fundamentals and skills*** devise
* using communication and documentation techniques: sketching and annotation
* elements of design: line, shape, form, texture, colour, tone
* rapid concept development techniques
* reviewing design ideas against design brief
* annotated graphics and sketches with appropriate measurements or dimensions applicable to context
* production planning
* full materials list
* full materials costing
* production plan, including time line

**Skills and techniques*** ICT, portfolio development and communication skills
* photography – ongoing record of progress and process used and final product
* documenting presentations and evaluations
* context appropriate drawings and relevant technical information to produce the final product
* workroom/studio terminology appropriate to context
* select appropriate materials and calculate the quantities of materials required to complete the project

**Task 1 Part B** Devise a solutionDevise a solution through: concept drawings, working drawings, patterns or templates, materials list/s, costing and production planning |
| 7–8 | **Skills and techniques*** workroom/studio terminology appropriate to context
* select appropriate materials and calculate the quantities of materials required 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

**Production management*** production plan
* 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
* ongoing evaluation techniques: diary, journal or portfolio notes and use of photography to record ongoing progress/decision changes made to the project

**Task 2 Part A** Use of technology – skills and techniquesDevelop production skills through task/s to improve practical hand and machine skills |
| 9–16 | **Task 2 Part B** Use of technology – skills and techniques, production management Manufacture of proposed product: using prepared production plan, materials and available equipment; record progress in design portfolio |
| 17 | **Design fundamentals and skills*** evaluate
* design ideas when investigating and devising
* finished product against the initial design and student generated criteria

**Task 1 Part C** Evaluation of completed product |

Semester 2

| **Week** | **Key teaching points** |
| --- | --- |
| 1–4 | Overview of Unit 2 and assessment requirements **Design fundamentals and skills*** investigate
* needs, values and beliefs of the designer/developer
* design fundamentals
* aesthetics – appearance, form
* function – purpose, use
* safety – safe design concepts
* cost – comparison with commercial products
* similar and alternate existing ideas and products using a variety of sources:
* sources of design inspiration – aesthetic and functional features
* performance criteria related to aesthetics and function

**Task 4 Part A** Revise design process; investigation and development design brief and portfolio |
| 2–3 | **Nature and properties of materials**Investigate materials; research and identify physical differences between materials within selected context**Materials in context*** context specific content in Unit 2: Materials in context

**Task 5** Report on the nature and properties of the materials in context |
| 5–7 | **Design fundamentals and skills*** devise
* communication and documentation techniques: sketching and annotating
* ICT or manual presentation skills to create solutions incorporating:
* elements of design: line, shape, form, texture, colour, tone
* rapid concept development techniques
* review of design ideas against design brief and performance criteria
* design solution, using annotated hand drawings or computer generated drawings with measurements or dimensions applicable to context
* production planning:
* full materials list
* full materials costing
* production plan, including time line

**Skills and techniques*** ICT, portfolio development and communication skills
* photography – ongoing record of progress and process used and final product
* documenting presentations and evaluations
* develop context appropriate drawings and relevant technical information to produce the final product
* 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
* operate machinery and tools appropriate to context

**Task 4 Part B** Devise a solution* develop concept drawings, working drawings, patterns or templates
* prepare materials list/s, costing and production planning
 |
| 8–16 | **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
* operate machinery and tools appropriate to context

**Safety*** correct use of 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 MSD (materials safety data) with regard to storage and handling of hazardous substances and hazardous operations appropriate to situation

**Production management*** production plan
* use ongoing evaluation techniques: diary, journal or portfolio notes and use of photography to record ongoing progress/decision changes made to the project

**Task 6** Manufacture of proposed product* using prepared production plan, materials and available equipment
* record progress in design portfolio
 |
| 17 | **Design fundamentals and skills*** evaluate
* production plan, journal or diary with supporting images
* finished product against the design brief, initial design and student-generated performance criteria

**Task 4 Part C** Evaluation of completed product  |