**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 considerations  Research 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 solution  Devise 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 techniques  Develop 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 |