**Sample Course Outline**

Building and Construction

General Year 11

**Copyright**

© School Curriculum and Standards Authority, 2014

This document – apart from any third party copyright material contained in it – may be freely copied, or communicated on an intranet, for non-commercial purposes in educational institutions, provided that the School Curriculum and Standards Authority is acknowledged as the copyright owner, and that the Authority’s moral rights are not infringed.

Copying or communication for any other purpose can be done only within the terms of the *Copyright Act 1968* or with prior written permission of the School Curriculum and Standards Authority. Copying or communication of any third party copyright material can be done only within the terms of the *Copyright Act 1968* or with permission of the copyright owners.

Any content in this document that has been derived from the Australian Curriculum may be used under the terms of the [Creative Commons Attribution-NonCommercial 3.0 Australia licence](http://creativecommons.org/licenses/by-nc/3.0/au/)

**Disclaimer**

Any resources such as texts, websites and so on that may be referred to in this document are provided as examples of resources that teachers can use to support their learning programs. Their inclusion does not imply that they are mandatory or that they are the only resources relevant to the course.

Sample course outline

Building and Construction – General Year 11

Unit 1

Semester 1

| **Week** | **Key teaching points** |
| --- | --- |
| Term 1  1–2 | Introduction to course, workshop and assessment tasks  **Working with materials**   * identify and apply occupational safety and health (OSH) rules and regulations relating to the use of materials and processes   **Task 1:** Safety in the workshop – Worksafe website; Smartmove certificates |
| 2–4 | **Drafting**   * read and interpret plans * apply fundamentals of practical geometry * right angles, triangulation, 3/4/5 triangles, level, squareness, plumbline * use orthogonal projection and drafting conventions * read and convert scaled drawings to actual size * operate levelling equipment * recognise industry specific conventions and building and construction terminology   **Task 2:** Drafting exercises |
| 4–6 | **Planning and management**   * the various people, trades and their roles in the construction industry * the scope of the industry, such as in building, utilities and resource industries   **Design processes**   * investigate existing and similar designs using design considerations of: * function, ergonomics, cultural and architectural styles * collect examples of site and project information * identify building components * devise design ideas using annotated graphics and sketches reviewing the design’s suitability * develop a design solution using hand generated solution drawings with conventions   **Task 3 Part A:** Apply planning and management, and design processes for a residential backyard design project |
| 6–8 | **Properties and selection**   * mechanical properties in terms of: * hardness, elasticity, conductivity, flexibility, and strength * materials appropriate for a chosen application * surface finishes   **Design processes**   * manage production of a solution, including a simple sequence of manufacture   **Task 3 Part B:** Construct model residential backyard project  Select appropriate materials, model project |
| 8 | **Design processes**   * evaluate the result of the project against design criteria using simple statements   **Task 3 Part C:** Evaluation of model of residential backyard project |
| 8–9 | **Systems – Environment and sustainability**   * ways for sustainable practices in building and construction * types of environmentally friendly alternatives in methods of building and construction   **Task 4 Part A:** Assignment: sustainable practices in building and construction |
| Term 2  1–8 | **Working with materials**   * use a variety of standard building materials, such as: * bricks, pavers, mortar, cement, tiles, steel, timber * develop skills in: * laying and finishing of simple paving * straight line bricklaying * wall and floor tiling setting out, procedure and tool usage * mixing of mortar, grout and cement and their correct usage * cleaning up procedure at completion of the activities * identification and production of a range of surface finishes * oxy welding procedure: purpose, materials and equipment * electric arc welding procedure: purpose, materials and equipment * methods of cutting and fixing timber for frame and carcass construction * correct use of various portable power tools, equipment and hand tools within the building and construction industry: measuring tools, cutting tools, lifting equipment * non-licensed plumbing activities * identify and apply occupational safety and health (OSH) rules and regulations relating to the use of materials and processes   **Task 5 Part A:** Building exercises  Materials – properties and selection, working with building materials |
| **Task 5 Part B:** Construction exercises  Materials – properties and selection, working with construction materials |
| **Task 5 Part C:** Fabrication exercises (welding)  Materials – properties and selection, working with fabrication materials |
| 9–10 | **Systems – Structures and services**   * different structures, structural components, joints and trusses * methods for basic on-site water supply, drainage and sewerage provision   **Task 4 Part B:** Assignment: structure and components, and onsite services |

Unit 2

Semester 2

| **Week** | **Key teaching points** |
| --- | --- |
| Term 3  1 | Introduction to Unit 2 course, workshop and tasks  **Task 6**: Revisit and reinforce safety in the workshop – rules and regulations |
| 2–3 | **Planning and management**   * the structure of the building and construction industries * the integrated relationships between people and regulatory bodies   **Drafting**   * read and draw plans utilising fundamentals of practical geometry with orthogonal projection * estimate quantities * perimeter of drawn shapes * area of drawn shapes * volume of materials * apply appropriate scaling of drawings * operate levelling equipment * recognise industry specific conventions * use building and construction terminology   **Task 7:** Drafting exercises |
| 4–6 | **Design processes**   * investigate different * design ideas * structural configurations * assembly of components * use ICT and manual presentation skills * devise similar design ideas using annotated graphics and sketches * review the design’s suitability against design needs, including investigation of construction methods * generate suitable 2D drawings with conventions for designed solution * manage production of a solution, including a simple sequence of manufacture * evaluate the result of the project against design criteria using simple statements   **Task 8 Part A:** Integrated materials fabrication design project  Planning and management, design process |
| 7–10 | Properties and selection  * mechanical properties of materials under load (tension or compression) * hardness, elasticity, conductivity, flexibility, strength * selection of materials based on properties appropriate for a chosen application * alternative surface finishes   **Working with materials**   * apply occupational safety and health (OSH) rules and regulations relating to the use of materials and processes   **Task 8 Part B:** Construction of integrated materials fabrication design project   * investigate materials and properties for working in construction * select appropriate materials based on properties required chosen application |
| Term 4  1–7 | **Working with materials**   * selection of materials based on properties appropriate for a chosen application * use standard building materials * bricks, pavers, mortar, cement, tiles, steel, timber * demonstrate * timber construction * laying and finishing paving * straight line bricklaying * wall and floor tiling: setting out, procedure and tool usage * mixing of mortar, grout and cement and their correct usage * cleaning procedures at completion of the activities * production of a range of surface finishes * oxy welding procedure: purpose, materials and equipment * electric arc welding procedure: purpose, materials and equipment * MIG welding procedure: purpose, materials and equipment * different types of joining methods used in building and construction * safe use of various portable power tools, equipment and hand tools within the building and construction industry: measuring tools, cutting tools, lifting equipment * non-licensed plumbing activities * sheet metal work, including bracing and strapping * apply occupational safety and health (OSH) rules and regulations relating to the use of materials and processes   **Task 9 Part A:** Building exercises  Materials – properties and selection, working with building materials |
| **Task 9 Part B:** Construction exercises  Materials – properties and selection, working with construction materials |
| **Task 9 Part C:** Fabrication exercises (MIG welding)  Materials – properties and selection, working with fabrication materials |
| 8–10 | **Design processes**   * evaluate the result of the project against design criteria using simple statements   **Task 8 Part C:** Evaluate finished materials fabrication design project  **Systems – Structures and services**   * different structures, structural components, joints and trusses * basic on-site water supply, drainage and sewerage provision   **Environment and sustainability**   * cultural influences on buildings and architecture * sustainable building and construction methods and their effect on environments   **Task 10 Part A:** Structures and services  **Task 10 Part B:** Listing and examples of influences of culture on buildings and architecture |