Government of **Western Australia**
School Curriculum and Standards Authority

SAMPLE COURSE OUTLINE

BUILDING AND CONSTRUCTION
GENERAL YEAR 11

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

Week	Key teaching points
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

Week	Key teaching points
	▪ 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

Week	Key teaching points
	▪ 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