



SAMPLE COURSE OUTLINE

BUILDING AND CONSTRUCTION GENERAL YEAR 12

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Sample course outline

Building and Construction – General Year 12

Unit 3 and Unit 4

Semester 1

Week	Key teaching points
1–3	<p>Introduction to the unit and workshop Student orientation to the course and facilities</p> <p>Planning and management</p> <ul style="list-style-type: none"> • the structure of the building and construction industries • stages within a simple project management plan <p>Design processes</p> <ul style="list-style-type: none"> • research and investigate different <ul style="list-style-type: none"> ▪ design ideas ▪ structural configurations ▪ assembly of components • prepare a design brief using rapid concept development, brainstorming, and critical thinking • use ICT and manual presentation skills • devise similar design ideas using annotated graphics and sketches • review a 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 sequence of manufacture • evaluate the result of the project against design criteria using simple statements <p>Task 1: Structural design for a residential backyard project</p>
4–5	<p>Drafting</p> <ul style="list-style-type: none"> • read and draw plans utilising fundamentals of practical geometry with orthogonal projection and industry conventions • apply appropriate scaling of drawings • estimate quantities <ul style="list-style-type: none"> ▪ perimeter of drawn shapes ▪ area of drawn shapes ▪ volume of materials • operate levelling equipment • operate surveying equipment • recognise and use industry specific conventions and building and construction terminology • set out construction tasks using string lines and formwork <p>Task 2: Drafting proposed structure</p>
6	<p>Introduction to workshop and skills assessment tasks</p> <p>Working with materials</p> <ul style="list-style-type: none"> • occupational safety and health (OSH) rules and regulations relating to the use of materials and processes <p>Task 3: Safety in the workshop, rules and regulations; WorkSafe website; SmartMove certificates</p>
6–9	<p>Properties and selection</p> <ul style="list-style-type: none"> • mechanical properties <ul style="list-style-type: none"> ▪ hardness, elasticity, conductivity, flexibility, and strength • natural and pre-made construction materials appropriate for different applications <ul style="list-style-type: none"> ▪ timber, metals, soil types, masonry, plastics and glass <p>Planning and management</p> <ul style="list-style-type: none"> • stages within a simple project management plan <p>Task 4: Construct a model of a residential backyard project or complete construction of a personal project</p> <p>Select appropriate materials, model project</p>

Week	Key teaching points
10	<p>Design, planning and management</p> <ul style="list-style-type: none"> • evaluate the result of the project against design criteria using simple statements <p>Task 5: Evaluation of model of residential backyard project</p>
9–10	<p>Systems – Environment and sustainability</p> <ul style="list-style-type: none"> • building insulation and its purpose • the types of energy (electrical, heat, mechanical) used during construction • recycling of building materials <p>Task 6 Part A: Respond to environment and sustainable practices in building and construction</p>
10–11	<p>Systems – Structures and services</p> <ul style="list-style-type: none"> • two-dimensional forces on trusses, frames and structural components • the provisions for the supply of: <ul style="list-style-type: none"> ▪ on-site gas, electric power, water, drainage and sewerage <p>Task 6 Part B: Respond to structures and services in building and construction</p>
13	<p>Externally set task</p> <p>All students enrolled in the Building and Construction General Year 12 course will complete the externally set task developed by the Authority.</p> <p>Schools are required to administer this task in Term 2 at a time prescribed by the Authority.</p>
10–15	<p>Working with materials</p> <ul style="list-style-type: none"> • wood or metal frames and structures, including supportive trusses in construction • different types of materials and construction methods: <ul style="list-style-type: none"> ▪ timber <ul style="list-style-type: none"> ○ joinery/cabinet work ▪ masonry <ul style="list-style-type: none"> ○ brick ○ concrete ▪ roof coverings <ul style="list-style-type: none"> ○ sheet ○ tiles ▪ plasterboard <ul style="list-style-type: none"> ○ gyprock ○ jointing/flushing ▪ insulation <ul style="list-style-type: none"> ○ thermal ○ acoustic ▪ floor systems <ul style="list-style-type: none"> ○ sub-floors ○ floor sheeting/boards • techniques to lay and finish paving with complex angular patterns, including: <ul style="list-style-type: none"> ▪ running bond and stack bond patterns ▪ basket weave • straight line brick/block laying and pointing • lime, mortar and cement • materials and processes to produce a range of surface finishes • welding procedures and materials <ul style="list-style-type: none"> ▪ oxy/acetylene ▪ electric arc ▪ MIG welding • the removal of burrs, sharp edges, welding slag and spatter • a range of common fasteners associated with building and construction • various portable power tools, equipment and hand tools employed in the building and construction industry • occupational safety and health (OSH) rules and regulations relating to the use of materials and processes <p>Task 7: Building exercises – brick paving and brick laying Materials – properties and selection, working with building materials</p> <p>Task 8: Construction exercises Materials – properties and selection, working with construction materials</p> <p>Task 9: Fabrication exercises – welding Materials – properties and selection, working with fabrication materials</p>

Semester 2

Week	Key teaching points
1	Introduction to Unit 4 course, workshop and tasks <ul style="list-style-type: none"> revisit and reinforce Safety in the workshop, rules and regulations
2–3	Drafting <ul style="list-style-type: none"> read and draw plans utilising fundamentals of practical geometry with orthogonal projection and industry conventions apply appropriate scaling of drawings recognise and use industry-specific conventions and building and construction terminology Task 10: drafting exercises Drafting
4–5	Design processes <ul style="list-style-type: none"> research and investigate different <ul style="list-style-type: none"> design ideas materials structural configurations assembly of components prepare a design brief using rapid concept development, brainstorming and critical thinking analyse collected information for suitability against design needs use ICT and manual presentation skills develop a single design solution from a variety of designs, including selection of materials and structural systems review of 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 sequence of manufacture evaluate the result of the project against design criteria using simple statements Task 11: Integrated materials fabrication design project Planning and management; Design process
6–9	Working with materials <ul style="list-style-type: none"> selection of materials based on properties appropriate for a chosen application apply occupational safety and health (OSH) rules and regulations relating to the use of materials and processes Task 12: Construction of integrated materials fabrication design project Materials – properties and selection; working with construction materials
10–15	Working with materials Use and work with: <ul style="list-style-type: none"> wood or metal frames and structures, including supportive trusses in construction different types of materials and construction methods <ul style="list-style-type: none"> timber: joinery/cabinet work masonry: brick, concrete plasterboard: gyprock, jointing/flushing insulation: thermal, acoustic roof coverings: sheet, tiles floor systems: sub-floors, floor sheeting/boards techniques to lay and finish paving with complex angular patterns, including traditional herringbone hand and machine techniques to mix and use lime, mortar and cement straight line, multi-course corner brick/block laying and pointing decorative pointed feature brick/block laying and pointing tools and processes to pour concrete slabs and pathways; trowel and level to a simple finish materials and processes to produce a range of surface finishes

Week	Key teaching points
	<ul style="list-style-type: none"> • welding procedures and materials <ul style="list-style-type: none"> ▪ oxy/acetylene ▪ electric arc ▪ MIG welding • various portable power tools, equipment and hand tools employed in the building and construction industry • occupational safety and health (OSH) rules and regulations relating to the use of materials and processes <p>Task 13: Building exercises – brick paving and brick laying Materials – properties and selection; working with building materials</p> <p>Task 14: Construction exercises Materials – properties and selection, working with construction materials</p> <p>Task 15: Fabrication exercises – MIG welding Materials – properties and selection; working with fabrication materials</p>
15	<p>Design, planning and management</p> <ul style="list-style-type: none"> • evaluate the result of the project against design criteria using simple statements <p>Task 16: Evaluation of construction of integrated materials fabrication design project</p>
14–15	<p>Systems – Structures and services</p> <ul style="list-style-type: none"> • demonstrate installation of bracing for structural components in building • the stability (and buckling) of struts and columns • the installation of services, including: <ul style="list-style-type: none"> ▪ electric power ▪ gas ▪ water supply ▪ drainage ▪ sewerage <p>Environment and sustainability</p> <ul style="list-style-type: none"> • demonstrate correct building waste disposal • water and sewerage treatment • environmental impact of the disposal of waste, water and sewerage • different structures, structural components, joints and trusses • basic on-site water supply, drainage and sewerage provision <p>Task 17: Assignment: Structures and services</p>