COURSE OUTLINE
MATERIAL, DESIGN & TECH WOOD: YEAR 11 2021
UNIT 1 AND UNIT 2

This course will run the two units, 1 and 2, concurrently. The student Semester 1 grade will therefore be an estimate. Blue = Unit 1 Content / Red = Unit 2 Content

Term	Week	Topic and key teaching points	Syllabus content	Assessment
1	1-2	**Design** **Skills and Techniques** **Safety** **Production** **Management**	**Design** **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 o aesthetics o function o safety o cost • devise ▪ using communication and documentation techniques o sketching o annotation ▪ elements of design o line o shape o form o texture o colour o 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 o full materials list o full materials costing o production plan, including time line	OSH Induction Booklet (not assessed) **Task1:** Cutting Board Folio

			• evaluate ▪ design ideas when investigating and devising ▪ finished product against the initial design and student generated criteria **Use of Technology** **Skills and Techniques** • ICT, portfolio development and communication skills ▪ photography – ongoing record of progress and processes used and final product ▪ documenting presentations and evaluations • context appropriate drawings and relevant technical information to produce the final product to demonstrate ▪ sketching rapid concept developments ▪ 3D presentation drawings ▪ rendering techniques ▪ 2D working drawings or using templates ▪ inspiration/concept or storyboard development and presentation ▪ design and making specification sheets • 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 o follow instructions from plans o 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	

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1	3-5	**Safety** **Skills and Techniques** **Design Fundamentals and Skills**	**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 **Skills and Techniques** ▪ identification of the main reasons for blades becoming blunt or breaking **Skills and Techniques** ▪ read and correctly interpret and/or modify plans/patterns/templates ▪ use appropriate workroom terminology ▪ select and safely apply technical skills using a range of tools and machinery that could include, but not limited to: radial arm saw or drop saw or compound mitre saw / sanding machines / portable or fixed routers / various grinders / carving tools / wood lathe / biscuit cutter / portable saws / drill press ▪ apply multiple coats of a finish by brush, cloth and/or spray gun followed by correct clean up procedures ▪ demonstrate workshop clean up procedures ▪ operate machinery and tools appropriate to context ▪ select and use appropriate finishes ▪ apply multiple coats of a finish by spray gun, including appropriate clean-up of equipment **Design Fundamentals and Skills** • evaluate ▪ design ideas when investigating and devising finished product against the initial design and student generated criteria	**Task9:** OSH Worksheet **Task3:** Cutting Board **Task1:** Cutting Board Folio

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1	6-9	**Nature and Properties of Materials** **Materials in Context** **Skills and Techniques**	**Nature and Properties of Materials** ▪ origins of common softwoods and hardwoods ▪ classification of hardwoods, softwoods and manufactured boards using the characteristics of hardness, colour and workability ▪ difference between rough sawn and DAR timbers ▪ identification of common timber sizes, lengths, widths and thicknesses, sheet sizes ▪ identification of the structure and basic parts of a tree- cambium layer / sapwood / heartwood / growth rings / medullary rays / pith / bark **Materials in Context** ▪ broad areas of use for hard and soft woods **Skills and Techniques** use hand tools and/or machines to fabricate at least one of the following joints- widening joint / finger joint / cross-halving joint / dovetail joint / housing joint / mortise and tenon / bridle joint / biscuit joint	**Task4:** Table **Task14:** Tree Structure Worksheet
2	1-2	**Materials in Context** **Materials in Context**	**Materials in Context** • identification of environmental considerations ▪ 3 Rs – reduce, re-use, recycle ▪ ways to reduce waste ▪ ways to re-use and recycle **Materials in Context** • condition of materials recovered through different methods of recycling impact of materials production processes on the workshop and the local environment, waste management, dust, fumes, noise	**Task4:** Table **Task8:** Environmental Impact Worksheet
2	3-4	**Nature and Properties of Materials**	**Nature and Properties of Materials** • origins of manufactured boards • production process for manufactured boards • uses of plywood and different fibreboards • identification of characteristics of plywood and fibreboards • the association between hardness, workability and structure	**Task4:** Table **Task7:** Manufactured Boards Worksheet
2	5-6	**Skills and Techniques** **Nature and properties of materials**	**Skills and Techniques** ▪ identify and differentiate between PVA, two pack epoxy, contact cement adhesives ▪ select and use appropriate adhesives **Nature and properties of materials** identification of common associated materials used with wood- adhesives	**Task4:** Table **Task13:** Adhesives Worksheet

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2	7-11	**Nature and Properties of Materials** **Skills and Techniques** **Nature and Properties of Materials** **Design Fundamentals and Skills** **Use of Technology Skills and Techniques** **Production Management**	**Nature and Properties of Materials** • identification of common timber finishes • select and use appropriate finishes **Skills and Techniques** • differentiate between water-based, turpentine (oil) based, solvent-based and two pack epoxy finishes, including stains and waxes **Nature and Properties of Materials** • identification of common associated materials used with wood- fillers and finishes **Design Fundamentals and Skills** • investigate ▪ needs, values and beliefs of the designer/developer ▪ design fundamentals o aesthetics – appearance, form o function – purpose, use o safety – safe design concepts o cost – comparison with commercial products ▪ similar and alternate existing ideas and products using a variety of sources: o sources of design inspiration – aesthetic and functional features o performance criteria related to aesthetics and function • devise ▪ communication and documentation techniques o sketching o annotating ▪ ICT or manual presentation skills to create solutions incorporating: o elements of design – line, shape, form, texture, colour, tone o 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: o full materials list o full materials costing o production plan, including time line • evaluate ▪ production plan, journal or diary with supporting images	**Task4:** Table **Task12:** Finishing Materials Worksheet **Task2:** Cabinet Folio

			▪ finished product against the design brief, initial design and student-generated performance criteria **Use of Technology** **Skills and Techniques** • ICT, portfolio development and communication skills ▪ photography – ongoing record of progress and processes used and final product ▪ documenting presentations and evaluations • develop context appropriate drawings and relevant technical information to produce the final product: ▪ sketching rapid concept developments ▪ 2D working drawings or using templates ▪ inspiration/concept or storyboard development and presentation • 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 **Production Management** • production plan ▪ maintain a production plan ▪ maintain time management while using tools, equipment and machinery to complete production o adhere to sequential instructions o apply safety and risk management ▪ record changes to materials lists or costing ▪ record regular journal/diary entries use ongoing evaluation techniques: diary, journal or portfolio notes and use of photography to record ongoing progress/decision changes made to the project	
3	1-3	**Design Fundamentals and Skills** **Use of Technology** **Skills and Techniques** **Production Management**	**Design Fundamentals and Skills** • investigate ▪ needs, values and beliefs of the designer/developer ▪ design fundamentals o aesthetics – appearance, form o function – purpose, use o safety – safe design concepts o cost – comparison with commercial products ▪ similar and alternate existing ideas and products using a variety of sources:	**Task2:** Cabinet Folio **Task5:** Cabinet

			○ sources of design inspiration – aesthetic and functional features ○ performance criteria related to aesthetics and function • devise ▪ communication and documentation techniques ○ sketching ○ 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 • evaluate ▪ production plan, journal or diary with supporting images ▪ finished product against the design brief, initial design and student-generated performance criteria **Use of Technology** **Skills and Techniques** • ICT, portfolio development and communication skills ▪ photography – ongoing record of progress and processes used and final product ▪ documenting presentations and evaluations • develop context appropriate drawings and relevant technical information to produce the final product: ▪ sketching rapid concept developments ▪ 2D working drawings or using templates ▪ inspiration/concept or storyboard development and presentation • 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 **Production Management** • production plan	

			▪ maintain a production plan ▪ maintain time management while using tools, equipment and machinery to complete production o adhere to sequential instructions o apply safety and risk management ▪ record changes to materials lists or costing ▪ record regular journal/diary entries use ongoing evaluation techniques: diary, journal or portfolio notes and use of photography to record ongoing progress/decision changes made to the project	
3	4-5	**Nature and Properties of Materials**	**Nature and Properties of Materials** ▪ identification of common associated materials used with wood- abrasives	**Task11:** Abrasives Worksheet **Task5:** Cabinet
3	6-10	**Nature and Properties of Materials** **Use of Technology** **Skills and Techniques**	**Nature and Properties of Materials** • identification of common associated materials used with wood- permanent and non-permanent fixings **Use of Technology** **Skills and Techniques** • correctly interpret and/or modify plans/patterns/templates • use appropriate conventions and workshop terminology • select appropriate materials and calculate the correct amount required for completion of project • calculate orders and costing for solid timbers and/or sheet materials • apply appropriate and accurate marking out techniques demonstrate correct and safe procedures for setting up and/or operating selected power tools and machinery that could include: radial arm saw or drop saw or compound mitre saw / sanding machines / portable or fixed routers and table / various grinders / carving tools / wood lathe / biscuit cutter / bandsaw / pneumatic tools / portable saws / drill press / mortise machine	**Task10:** Fasteners Worksheet **Task5:** Cabinet

4	1-6	**Use of Technology** **Skills and Techniques** **Design Fundamentals and Skills**	**Use of Technology** **Skills and Techniques** • correctly interpret and/or modify plans/patterns/templates • use appropriate conventions and workshop terminology • select appropriate materials and calculate the correct amount required for completion of project • calculate orders and costing for solid timbers and/or sheet materials • apply appropriate and accurate marking out techniques ▪ demonstrate correct and safe procedures for setting up and/or operating selected power tools and machinery that could include: radial arm saw or drop saw or compound mitre saw / sanding machines / portable or fixed routers and table / various grinders / carving tools / wood lathe / biscuit cutter / bandsaw / pneumatic tools / portable saws / drill press / mortise machine **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	**Task6:** Docking Station