Australian Government

Department of Education, Employment and Workplace Relations

LMFFDT5011A Research and recommend machine technology

Revision Number: 1

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Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit specifies the outcomes required to research and recommend machine technology for various design solutions in accordance with the integral elements and principles of design.

Application of the Unit

Application of the unit	This unit supports the attainment of skills and knowledge required for competent workplace performance in furnishing operations of all sizes. The research and recommendation of machine technology applies to an industry workplace or design studio environment and involves application of skills and knowledge at a para-professional level. These skills and knowledge are to be used within the scope of the individual's job and authority.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency	Performance Criteria describe the required performance needed to demonstrate achievement of the Element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Plan for machine technology research	1.1. Applicable ***OHS***, ***legislative*** and ***organisational requirements*** relevant to researching and recommending machine technology are verified and complied with 1.2. ***Design brief*** is reviewed, confirmed and clarified with ***appropriate personnel*** 1.3. ***Communication*** with others is established and maintained in accordance with OHS requirements 1.4. ***Client*** requirements and desires are reviewed, confirmed and clarified
2. Research machine technology	2.1. ***Aesthetic*** requirements of the ***machine technology*** are assessed 2.2. New machine technologies are researched and reported 2.3. ***Manufacturing processes*** and available expertise for the desired material are assessed 2.4. Capabilities and scope of machine technology is compared and evaluated 2.5. Cost of machine technology is assessed and compared 2.6. ***Environmental impact*** of machine technology are assessed 2.7. ***Longevity and restorability*** of machine technology are researched 2.8. ***Hazards*** associated with the use and application of machine technology are researched 2.9. Quality of machine technology are assessed and reported
3. Recommend machine technology	3.1. Research information is ***critically analysed*** in the context of the design brief requirements 3.2. Machine technology and the relationship to ***elements of design*** are promoted, research explained and evaluated for the client 3.3. Machine technology and the relationship to ***principles of design*** are promoted, research explained and evaluated for the client 3.4. Presentation of research information is made, highlighting the findings and rationale for the machine technology chosen

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills

- collect, organise and understand information related to work orders, basic plans and safety procedures
- communicate ideas and information to enable confirmation of work requirements and specifications, coordination of work with site supervisor, other workers and customers, and the reporting of work outcomes and problems
- accurately record and maintain information relating to the furniture making and design functions
- work with others and in a team by recognising dependencies and using cooperative approaches to optimise work flow and productivity
- use pre-checking and inspection techniques to ensure the tools are serviceable and ready to use
- recognise and respond to circumstances outside instructions or personal competence
- efficiently and safely contribute to innovative design process
- plan and organise activities, including the preparation and layout of own worksite and the obtaining and use of tools and materials to avoid any backtracking, work flow interruptions or wastage
- use mathematical ideas and techniques to correctly complete measurements, calculate area and volume, and estimate other material requirements
- clarify and confirm work instructions
- plan own work within the given task parameters
- accept responsibility for given tasks
- set, monitor and satisfy personal work goals
- satisfy the competency requirements for the job
- learning of thinking, problem solving and conceptual techniques
- maintain current knowledge of tools and materials
- maintain current knowledge of furniture making and designing techniques
- seek learning opportunities
- use the workplace technology related to the use of tools including calculators, measuring and recording devices.

Required knowledge

- State or Territory OHS legislation, regulations, standards and codes of practice relevant to researching and recommending machine technology
- organisational and site standards, requirements, policies and procedures for researching and recommending machine technology
- environmental protection requirements
- established communication channels and protocols

REQUIRED SKILLS AND KNOWLEDGE

- problem identification and resolution
- elements and principles of design
- aesthetic values
- types of tools and equipment and procedures for their safe use, operation and maintenance
- characteristics of materials, products and defects
- computer programs
- research techniques
- machine technology types and manufacturing processes
- computer numerically controlled equipment
- storage systems and labelling
- procedures for the recording, reporting and maintenance of workplace records and information
- appropriate mathematical procedures for estimation and measurement.

Evidence Guide

EVIDENCE GUIDE The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the relevant Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	• Effectively research and recommend machine technology to assist with informing the design process and arrive at a solution which meets client requirements • Effectively apply design elements and principles to the research and recommendation of machine technology • Effectively research and recommend machine technology in accordance with the concepts and design brief • Comply with legislation, regulations, standards, codes of practice and established safe practices and procedures for researching and recommending machine technology • Communicate effectively and work safely with others in the work area

Context of, and specific resources for assessment	• The application of competency is to be assessed in the workplace or simulated workplace
	• Assessment is to occur under standard and authorised work practices, safety requirements and environmental constraints
	• Assessment of essential underpinning knowledge, other than confirmatory questions, will usually be conducted in an off-site context
	• Assessment is to comply with relevant regulatory or Australian Standards requirements
	• The following resources should be made available:
	  • workplace location or simulated workplace
	  • materials and equipment relevant to researching and recommending machine technology
	  • specifications and work instructions

Method of assessment	• Assessment must satisfy the endorsed assessment guidelines of the Furnishing Industry Training Package • Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with application of underpinning knowledge • Assessment methods must be by direct observation of tasks and include questioning on underpinning knowledge to ensure its correct interpretation and application • Assessment may be applied under project related conditions

EVIDENCE GUIDE	
	(real or simulated) and require evidence of process • Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances • Assessment may be in conjunction with assessment of other units of competency
Guidance information for assessment	

Range Statement

RANGE STATEMENT The Range Statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording in the Performance Criteria is detailed below. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts.	
OHS requirements	• are to be in accordance with Commonwealth, State or Territory legislation and regulations, organisational safety policies and procedures • requirements may include but not be limited to the use of personal protective equipment and clothing, fire fighting equipment, first aid equipment, hazard and risk control and elimination of hazardous materials and substances, manual handling, including lifting and carrying
Legislative requirements	• are to be in accordance with applicable legislation from all levels of government that affect organisational operation • requirements may include but not be limited to award and enterprise agreements, industrial relations, Australian Standards, confidentiality and privacy, OHS, the environment, equal opportunity, anti-discrimination, relevant industry codes of practice, duty of care and heritage
Organisational requirements	• may include but not be limited to legal, organisational and site guidelines, policies and procedures relating to own role and responsibility, quality assurance, procedural manuals, quality and continuous improvement processes and standards, OHS, emergency and evacuation, ethical standards, recording and reporting, access and equity principles and practices, equipment use, maintenance and storage, environmental management (waste disposal, recycling and re-use guidelines)
Design brief	• may include but not be limited to the aims, objectives, milestones for the design project, the point of reference for everyone, elements and principles of design and may include organisational or personal profiles, aims, target audience, budget, timeline, consultation requirements, colour requirements, image requirements and function

RANGE STATEMENT	
Appropriate personnel	• may include but not be limited to trainers, supervisors, suppliers, clients, colleagues and managers
Communication	• may include verbal and non-verbal language, constructive feedback, active listening, questioning to clarify and confirm understanding, use of positive, confident and cooperative language, use of language and concepts appropriate to individual social and cultural differences, control of tone of voice and body language
Clients	• may include but not be limited to suppliers, manufacturers, private clients, colleagues, retailers or the public
Aesthetics	• are to include the consideration of appeal to a large number of people; products are pleasing to the eye of many who view it
Machine technology	• may include but not be limited to traditional or contemporary finishing equipment, assembly equipment, static machinery, portable power tools and computer numerically controlled equipment • may also include procedures for lock out protecting operators and co-workers from accidental injury by isolating the machine from the power source
Manufacturing process	• may include but not be limited to the methods by which the product will be produced, these steps usually entail working from working drawings and specifications, producing components utilising machine operations, assembly of the components and finishing techniques
Environmental impact	• may include but not be limited to how the use of machine technology effects the environment and how continued use will affect the surrounding environment, energy consumption, greenhouse gases created, waste levels and resource utilisation. Similarly what impact will be felt by reducing or stopping use of machine technology
Longevity and restorability	• is to include an analysis of how long the machinery will remain operational with minimum downtime and how readily the machine can be repaired or replaced
Hazards	• may include but not be limited to saw and cutter blades, heavy equipment, moving parts, burns, electric shock or electric shock

RANGE STATEMENT	
Critical analysis	• may include but not be limited to comparing, contrasting, reflecting, critiquing, considering merit, discussion and debate
Elements of design	• may include but not be limited to line, shape, form (geometric or organic), texture, colour, and function
Principles of design	• may include but not be limited to balance, proportion (symmetry, asymmetry), harmony, contrast, pattern, movement, rhythm, unity, style, focus, scale, dominant, sub dominant or subordinate relationship, emphasis, proximity, alignment, space, anthropometry, ergonomics, arrangement, workload, materials handling capacity, skills, control, equipment capabilities, aesthetic relations, tension and development methods

Unit Sector(s)

Unit sector	Furniture design and technology.

Competency field

Competency field	

Co-requisite units

Co-requisite units		