



Australian Government

MSFFDT5009 Research and recommend machine technology

Release: 1

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Modification History

Release 1 - New unit of competency

Application

This unit of competency covers researching and recommending machine technology for various design solutions in accordance with the integral elements and principles of design. It applies to an industry workplace or design studio environment and involves application of skills and knowledge at a paraprofessional level.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Competency Field

Unit Sector

Furniture design and technology

Elements and Performance Criteria

Elements describe the essential outcomes.		Performance criteria describe the performance needed to demonstrate achievement of the element.	
1	Plan for machine technology research	1.1	Applicable work health and safety (WHS), 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 WHS 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

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency. Detail on appropriate performance levels for each furnishing unit of competency in reading, writing, oral communication and numeracy utilising the Australian Core Skills Framework (ACSF) are provided in the Furnishing Training Package Implementation Guide.

Range of Conditions

Specifies different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included. Range is restricted to essential operating conditions and any other variables essential to the work environment.

Unit context includes:	• WHS requirements, including legislation, building codes, material safety management systems, hazardous and dangerous goods codes and local safe operating procedures or equivalent • work is carried out in accordance with legislative obligations, environmental legislation, relevant health regulations, manual handling procedures and organisation insurance requirements • work requires individuals to demonstrate conceptual and analytical ability, discretion, judgement and problem solving • customers or suppliers may be internal or external
Design brief includes:	• the aims, objectives, milestones for the design project • organisational or personal profiles • target audience • budget • timeline • consultation requirements • colour requirements • image requirements • function
Appropriate personnel include:	• trainers • supervisors • suppliers • clients • colleagues • managers
Clients include:	• suppliers • manufacturers • private clients • colleagues • retailers • the public
Aesthetics include:	• the consideration of appeal to a large number of people; products are pleasing to the eye of many who view it
Machine technology	• traditional or contemporary finishing equipment

includes:	• assembly equipment • static machinery • portable power tools • computer numerically controlled (CNC) equipment • and also includes procedures for lock out protecting operators and co-workers from accidental injury by isolating the machine from the power source
Manufacturing processes include:	• the methods by which the product will be produced, these steps entail working from working drawings and specifications, producing components utilising machine operations, assembly of the components and finishing techniques
Environmental impacts include:	• how the use of alternative manufacturing processes effects the environment and how continued use will affect the surrounding environment • energy consumption • greenhouse gases created • waste levels and resource utilisation • what impact will be felt by reducing or stopping use of the alternative manufacturing processes
Longevity and restorability include:	• an analysis of how long the machinery will remain operational with minimum downtime • how readily the machine can be repaired or replaced
Hazards include:	• saw and cutter blades • heavy equipment • moving parts • burns • electric shock
Critical analysis includes:	• comparing • contrasting • reflecting • critiquing • considering merit • discussion • debate
Elements of design include:	• line • shape • form (geometric or organic) • texture • colour • function
Principles of design	• balance

include:

- proportion (symmetry and asymmetry)
- harmony
- contrast
- pattern
- movement
- rhythm
- unity
- style
- focus
- scale
- dominant
- sub-dominant
- subordinate relationship
- emphasis
- proximity
- alignment
- space
- anthropometry
- ergonomics
- arrangement
- workload materials handling capacity
- skills available
- equipment capabilities
- aesthetic relations
- tension
- development methods

Personal protective equipment includes:

- that prescribed under legislation, regulations and enterprise policies and practices

Information and procedures include:

- work procedures/instructions
- manufacturer specifications and instructions
- standard forms of workplace process and procedures
- organisation work specifications and requirements
- legislation, regulations and codes of practice
- quality and Australian Standards and procedures

Unit Mapping Information

Supersedes and is equivalent to LMFFDT5011A Research and recommend machine technology

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=0601ab95-583a-4e93-b2d4-cfb27b03ed73>

Assessment Requirements for MSFFDT5009 Research and recommend machine technology

Modification History

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Performance Evidence

- Collect, organise and understand information related to furnishing work instructions and work orders and safety procedures
- Apply safe handling requirements for equipment, products and materials, including use of personal protective equipment
- Identify materials used in the work process
- Follow work instructions, operating procedures and inspection processes to:
 - minimise the risk of injury to self or others
 - prevent damage to goods, equipment and products
 - maintain required production output and product quality
- Research and recommend machine technology to assist with informing the design process and arrive at a solution which meets client requirements
- Apply design elements and principles to the research and recommendation of machine technology in accordance with the concepts and design brief
- Use mathematical ideas and techniques to correctly complete measurements, calculate area and estimate material requirements
- Lead others and work effectively to improve production quality and outcomes
- Communicate ideas and information to enable confirmation of work requirements and specifications and the reporting of work outcomes and problems, interpret basic plans and follow safety procedures
- Use workplace technology related to the coordination, including communication equipment, time and management aids and other measuring devices
- Minimise wastage of resources, including materials, time and money
- Work with others and in a team by recognising dependencies and using cooperative approaches to optimise work flow and productivity and encourage participation of employees in the planning of work activities and changes

Knowledge Evidence

- State or territory WHS 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
- Relevant machine 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
- Relevant computer programs
- Research techniques
- Machine technology types and manufacturing processes
- CNC equipment
- Storage systems and labelling
- Procedures for the recording, reporting and maintenance of workplace records and information
- Appropriate mathematical procedures for estimation and measurement

Assessment Conditions

- Assessors must:
 - hold training and assessment competencies as determined by the National Skills Standards Council (NSSC) or its successors
 - have vocational competency in the furnishing industry at least to the level being assessed with broad industry knowledge and experience, usually combined with a relevant industry qualification
 - be familiar with the current skills and knowledge used and have relevant, current experience in the furnishing industry.
- Assessment methods must confirm consistency of performance over time rather than a single assessment event and in a range of workplace relevant contexts.
- Assessment must be by observation of relevant tasks with questioning on underpinning knowledge and, where applicable, multimedia evidence, supervisor's reports, projects and work samples.
- Assessment is to be conducted on single units of competency or in conjunction with other related units of competency. Foundation skills are integral to competent performance in the unit and should not be assessed separately.
- Assessment must occur on the job or in a workplace simulated facility with relevant process, equipment, materials, work instructions and deadlines.
- Access is required to materials, equipment, specifications and work instructions relevant to researching and recommending machine technology.

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