



Australian Government

MSFFDM5004 Design product suitable for high-volume technology services in production

Release: 1

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Modification History

Release 1. Unit code and title changed. Application changed. Elements and Performance Criteria changed and updated to active voice. Range of Conditions removed and relevant content moved to Assessment Requirements. Assessment Requirements changed. Supersedes and is not equivalent to MSFFDT5006 Design a furniture using high volume technology services (HVTs) in production.

Application

This unit describes the skills and knowledge required to design products suitable for, or with components requiring, production using high-volume technology services in a furniture-making or similar operation. It includes the considerations required to enable the application of these services to produce details and components for the design.

This unit applies to individuals working in a manufacturing or design studio environment who design products with production methods as a consideration, working either alone or as part of an internal or external team.

No licensing or certification requirements apply to this unit at the time of publication. Relevant legislation, industry standards and codes of practice within Australia must be applied.

Competency Field

Design practice

Elements and Performance Criteria

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Research product needs	1.1 Identify parameters affecting design of product from client or end recipient and other information sources 1.2 Identify and record product functional needs from client or end recipient following industry best-practice methods 1.3 Investigate similar products in market and design elements from relevant sources 1.4 Assess materials for suitability or requirement for high-volume technology services from materials specifications and client requirements

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
	1.5 Identify and record visual or aesthetic needs of product from client or end recipient following industry best-practice methods 1.6 Identify and record ethical considerations from client or end recipient and other potential collaborators 1.7 Prioritise product needs following industry best-practice methods 1.8 Identify and document relevant high-volume technology services that could be applied or used, based on identified parameters and needs
2. Prepare information for the design brief	2.1 Review and clarify product needs, parameters and other factors with client or end recipient 2.2 Report on product needs, including design and high-volume technology service opportunities, using suitable reporting methods and incorporating client or end recipient feedback 2.3 Identify and record needs that cannot be met and negotiate changes with client or end recipient following industry best-practice methods 2.4 Clarify and agree on outcomes of design process with client or end recipient following industry best-practice methods 2.5 Prepare initial brief following industry best practice methods
3. Generate ideas in response to design brief	3.1 Analyse product and client needs and integrate into generation of ideas using suitable ideation methods 3.2 Visually present initial ideas based on design brief and in suitable format 3.3 Refine ideas through review and reworking, both individually and collaboratively, using industry best-practice methods 3.4 Visually present final ideas in a manner suitable for audience
4. Evaluate and develop design proposals	4.1 Evaluate each design idea in context of design brief and suitability for using high-volume technology services, and record results 4.2 Select design proposal/s for further development that best meet requirements 4.3 Seek feedback on design proposals using suitable methods 4.4 Assess availability and cost of, and access to, proposed high-volume technology services
5. Present product proposals to client	5.1 Prepare product proposals for presentation to client or end recipient in accordance with industry best-practice methods 5.2 Ensure presentation arrangements are made, checked and confirmed

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	in accordance with industry best-practice methods 5.3 Present design proposals to client or end recipient in accordance with industry best-practice methods 5.4 Gather, analyse and confirm client feedback in accordance with industry best-practice methods 5.5 Complete design proposals with client feedback and high-volume technology services and limitations incorporated
6. Produce final product proposal information	6.1 Finalise and document product details including production methods, in accordance with industry best-practice methods 6.2 Document visual aspects of product proposal in accordance with industry best-practice methods 6.3 Document parts details relevant to high-volume technology services production in manner suited to place of manufacture and materials specifications 6.4 Ensure all other relevant details are recorded in accordance with industry best-practice methods 6.5 Ensure product proposal addresses work health and safety and other related requirements 6.6 Review proposal process to improve design quality and outcomes

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

- Numeracy skills to interpret technical and production information.
- Writing and oral communication skills to produce design briefs and document and present manufacturing information.

Other foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Unit Mapping Information

Release 1. Supersedes and is not equivalent to MSFFDT5006 Design a furniture using high volume technology services (HVTS) in production.

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 MSFFDM5004 Design product suitable for high-volume technology services in production

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Performance Evidence

There must be evidence the candidate has completed the tasks outlined in the elements and performance criteria of this unit, and demonstrated the ability to:

- successfully produce design proposals using three different materials requiring different high-volume machinery for production, and in doing so:
 - collect, organise, read and interpret information including workplace procedures, manufacturer and materials specifications and client requirements
 - identify potentially suitable materials to use in the work process and ensure these are acceptable for both client needs and high-volume technology services that may be on- or offsite
 - follow industry best-practice in design briefing coverage, including budget, timelines, product measurements and other specifications, production needs and methods and potential external collaborators/partners
 - follow workplace best-practice in communicating with both internal and external clients and collaborators to ensure transparency of process and that clients' needs are met
 - develop and present final product proposals that balance the limitations and opportunities of batched and limited production for products with client functional and aesthetic needs, including cost-effective use of materials and tools or equipment
 - apply mathematical ideas and techniques to correctly complete measurements, calculate area and estimate material requirements and product/production costs as part of design proposal
 - evaluate the variations in costs and other benefits associated with different production methods and production runs of different sizes
 - lead others and work effectively in a team to improve design quality and outcomes
 - recognise dependencies in the workplace and across the wider production team (which may include external collaborators) and use cooperative approaches to optimise workflow and productivity.

Knowledge Evidence

There must be evidence the candidate has knowledge of:

- historical and contemporary art and design styles and movements
- design methodologies
- ergonomic and anthropometric standards
- visual aesthetics of products being designed
- ideas generation and conceptual development techniques, including:
 - suspending belief
 - looking for gaps of need alternatives
 - daydreaming
 - creative leaping
 - filaments
 - brainstorming
 - six thinking hats
 - asking questions of norms and beliefs
- current market segment products, and suitable online and offline sources of inspiration and possible design elements that will meet client needs:
 - brochures
 - magazines
 - websites such as online galleries and retail sites
 - design forums
 - reference books
 - other existing workplace design information
 - transferable technological ideas or concepts
 - natural or man-made structures and objects
- current ethical issues in society affecting makers and designers, including but not limited to:
 - social justice
 - environmental sustainability
 - ethical sourcing of material
 - biodiversity
 - cultural heritage and sensitivities
 - social responsibilities of makers and designers
- all aspects of the product design, including but not limited to:
 - shape and dimension
 - materials
 - colour
 - texture, patterns and relief
 - the site and positioning of the end product
 - ability to produce in batches or limited production runs
 - ability to adapt the design to different production methods or volumes

- production methodologies of furniture (or similar) manufacturers, including suitability of different high-volume technology methods for a range of materials and output volumes
- production methods, processes and input requirements for high-volume technology services including:
 - laser cutting
 - machine point to point cutting
 - water jet cutting
 - plasma cutting
 - stereolithography (SLA) and computer numerically controlled (CNC) machining
- making techniques for products based on materials selection
- materials and finishes used to produce products, including their specifications, behaviours and limitations
- costing techniques including components overheads and wastage
- design-based softwares and other tools suitable for presenting design briefs, design ideas and product proposals for a range of clients, both internal and external, and both local and international
- established workplace communication channels and protocols including document control methods
- relevant work health and safety legislation, regulations, standards and codes of practice relevant to the design and manufacture of products
- 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.

Assessment Conditions

Skills must have been demonstrated in the workplace or in a simulated environment that reflects workplace conditions and contingencies. The following conditions must be met for this unit:

- use of suitable facilities, equipment and resources, including:
 - design software that reflects current industry standards
 - access to workplaces that provide high-volume technology services

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

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