Australian Government

MEM19030 Research and recommend sustainable design improvements

Release: 1

MEM19030 Research and recommend sustainable design improvements

Modification History

Release 1. Supersedes and is equivalent to MEM19030A Research and design sustainable objects.

Application

This unit of competency defines the skills and knowledge required to research and recommend sustainable design of products taking into consideration environmental conservation, resources utilisation and sustainable development.

This unit applies to individuals involved in product design and manufacture.

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

Pre-requisite Unit

MEM13015 Work safely and effectively in manufacturing and engineering

MEM16006 Organise and communicate information

Competency Field

Jewellery

Elements and Performance Criteria

Elements	**Performance Criteria**
Elements describe the essential *outcomes.*	*Performance criteria describe the performance needed to demonstrate achievement of the element.*
1. Research environmental sustainability	1.1 Identify and access credible sources of information on sustainable design 1.2 Review information for applicability to the design brief and context 1.3 Identify and analyse examples of products that support sustainability 1.4 Review and compare existing manufacturing processes and materials used in production 1.5 Accurately document research sources

Elements	Performance Criteria
Elements describe the essential *outcomes.*	*Performance criteria describe the performance needed to demonstrate achievement of the element.*
2. Select materials and processes for enhanced sustainability	2.1 Develop criteria to select materials and processes that promote sustainability based on research 2.2 Identify all those involved in the design and production process and seek input on key considerations for selecting materials and processes 2.3 Identify materials and processes that would improve sustainability outcomes based on production context 2.4 Recommend materials and processes, providing a clear rationale for selection

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

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

Range of Conditions

This field allows for 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.	
Principles of environmental conservation include one or more of the following:	• sustainable materials sourcing practices • reducing energy consumption • re-using materials or components • recycling components • compliance with local, national and international legislation • promoting safety in production, use, maintenance and disposal • minimising pollution • carbon neutral production and off-sets • protection of ecosystems.
Principles of sustainable design include one or more of the following:	• life cycle assessment • life cycle energy analysis • recycling products • re-using products or components

	• utilising renewable resources • minimising damage to ecosystems • reducing loss of biodiversity • substitution of new more efficient technologies • reducing pollution.
Developing criteria includes one or more of the following:	• research data • ethical design practices • team discussions • negotiation of priorities • weighting of criteria • flow chart.
Efficient use of resources includes one or more of the following:	• minimising waste • using renewable resources • minimising use of non-renewable resources • reduction in total cost of production • re-use • recycle • redesign • margin of safety • factor of safety.
Recommending materials and processes includes one or more of the following:	• material specifications • manufacturing processes • production costs • quality control • design specifications • written notes with rationale or descriptions • health and safety considerations.
Defining the main benefits includes one or more of the following:	• diagrams • ranking benefits • documenting empirical evidence • drawings or sketches (manual or computer-aided design (CAD) and drafting) • electronic presentations • illustrations • layouts • mock-ups • models • plans • verbal presentations • written notes with rationale or description.

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM19030A Research and design sustainable objects.

Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2