



Australian Government

Department of Education, Employment and Workplace Relations

MSACMT622A Design a process layout

Revision Number: 1

MSACMT622A Design a process layout

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit covers the knowledge and skills required to design a process layout, typically a cellular flow, for either a jobbing shop or a continuous process manufacturer.
------------------------	---

Application of the Unit

Application of the unit	This unit provides the skill for a technical expert to apply the principles of competitive manufacturing to process as distinct from a volume production layout. While the application of the unit may be for an initial layout, in many cases it is likely to be for the redesign of an existing layout. The unit is written on the assumption that there is an existing manufacturing process. Where this is not the case, then additional competency in equipment/process design and selection will also be required through units from an appropriate technical qualification or Training Package. This unit requires the application of skills associated with problem solving, initiative, enterprise, planning and organising in order to design a process for the manufacture of enterprise products that incorporates team operations, product flow, infrastructure and the layout of the physical environment and related technology. This unit has a strong emphasis gathering, analysing and applying information.
--------------------------------	---

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 performance needed to demonstrate achievement of the Element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.
---	--

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Identify the products and processes used in the enterprise	1.1. Obtain or develop a process map of the existing process 1.2. Identify all/main products/classes of products 1.3. Obtain forecast sales and sales pattern of products/classes 1.4. Obtain profiles of products/classes 1.5. Group the products/classes into compatible families .
2. Engineer the process	2.1. Make a preliminary selection of required equipment/ technology/process for each family 2.2. Estimate required resource times for each family 2.3. Calculate total resourcing required for each family 2.4. Estimate appropriate lot size 2.5. Determine viability of proposed families 2.6. Examine draft proposal for possible improvements in process consistent with the competitive manufacturing strategy of the enterprise
3. Design the infrastructure	3.1. Consult on layout needs with all stakeholders 3.2. Identify physical infrastructure required by system 3.3. Identify information and control infrastructure required 3.4. Identify work organisation required 3.5. Identify workforce development and training requirements 3.6. Check the availability of required infrastructure and compatibility with requirements
4. Layout the process	4.1. Draft proposed process flow map 4.2. Draft proposed configuration diagram 4.3. Draft proposed space plan/layout 4.4. Check availability of services/structural suitability as appropriate 4.5. Validate proposed layout with all relevant stakeholders 4.6. Layout the process/work cell 4.7. Develop implementation plan in liaison with

ELEMENT	PERFORMANCE CRITERIA
	relevant stakeholders 4.8. Review layout after implementation

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- analysis
- problem solving
- planning and organising
- verbal and written communication
- calculations

Required knowledge

- processing requirements of products and jobs
- capabilities of equipment
- abilities and skills of workforce
- business requirements from layout

Evidence Guide

EVIDENCE GUIDE

The Evidence Guide describes the underpinning knowledge and skills that must be demonstrated to prove competence. It is essential for assessment and must be read in conjunction with the performance criteria, the range statement and the assessment guidelines of the relevant training package.

Overview of assessment requirements	The assessment should confirm the ability to develop or improve a process layout in a jobbing or process manufacturing enterprise.
What are the specific resource requirements for this unit?	Access to an organisation developing or redesigning its process layout.
What critical aspects of evidence is required to demonstrate competency in this unit?	Evidence of process layout or layouts undertaken should be available.
In what context should assessment occur?	Assessment will need to occur in an organisation developing or improving its process layout. Assessment could also be undertaken by project work or simulation provided adequate opportunity to test the practicality of the developed layouts exist.
Are there any other units which could or should be assessed with this unit or which relate directly to this unit?	
What method of assessment should apply?	Assessors must be satisfied that the person can consistently perform the unit as a whole, as defined by the Elements, Performance Criteria, skills and knowledge. A holistic approach should be taken to the assessment. Assessors should gather sufficient, fair, valid, reliable, authentic and current evidence from a range of sources. Sources of evidence may include direct observation, reports from supervisors, peers and colleagues, project work, samples, organisation records and questioning. Assessment should not require language, literacy or numeracy skills beyond those required for the unit. The assessee will have access to all techniques, procedures, information, resources and aids which would normally be

EVIDENCE GUIDE	
	available in the workplace. The method of assessment should be discussed and agreed with the assessee prior to the commencement of the assessment.
What evidence is required for demonstration of consistent performance?	Generally one significant process layout project should generate sufficient evidence

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, if used in the performance criteria, is detailed below. 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) may also be included.

Profiles	Profiles of products may include: • components/materials needed to manufacture • equipment/technology/processes required to manufacture • volume of activity to manufacture forecast amount
Compatible families	Compatible families are products/classes requiring identical or similar manufacturing equipment, technology or processes.
Required resource times	Required resource times may include: • set up time • equipment time • person time • process time
Lot size	Lot size may include: • external lot size • internal lot size • transfer batch size • kanban size
Viability	Viability includes: • appropriate calculated processing times • adequacy of equipment utilisation • acceptable maintenance implications • ability to meet OHS requirements • ability to meet environmental requirements • compliance with any legislative and regulatory requirements • acceptable to stakeholders
Competitive manufacturing strategy	Competitive manufacturing strategies may include one or more of:

RANGE STATEMENT	
	• Six sigma • Lean Manufacturing • Agile Manufacturing • Just in Time (JIT) • Supply chain management • Value Chain Management • Total Quality • Pro Active maintenance • Elimination of waste • Balanced Scorecard
Stakeholders	Stakeholders include: • employees • customers • equipment suppliers and contractors (especially if new equipment required) Depending on the process and location stakeholders may also include: • regulatory authorities • local community representatives • utilities, eg water, power
Physical infrastructure	Physical infrastructure may include: • containers • material handling equipment • utilities supply (steam, air, gas, electricity, water)
Information and control infrastructure	Information and control infrastructure may include: • quality assurance • SPC/six sigma • planning systems/software • data collection and control systems/software
Work organisation	Work organisation includes: • number of personnel • skills mix of workforce

Unit Sector(s)

Unit Sector	CM Tools
--------------------	----------

Co-requisite units

Co-requisite units	
---------------------------	--

Functional area

Functional Area	
------------------------	--