MCMT620A Develop quick changeover procedures

Unit descriptor

This unit covers the knowledge and skills needed to develop/improve ***changeovers***.

Competency field

MCM Tools

Application of the competency

In a typical scenario, an organisation has adopted/is adopting a ***quick changeover*** approach to its changeovers to equipment required for production. This unit applies to the structured development and/or improvement of changeover ***procedures***. To do this they will ***critically analyse*** the existing changeovers and by applying quick changeover principles, develop improved changeover procedures.

ELEMENT	PERFORMANCE CRITERIA
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.
1 Analyse changeover	1.1 Critically observe changeover process
	1.2 Identify steps in changeover
	1.3 Identify start situation and required finish situation for changeover
2 Apply ***quick changeover principles***	2.1 Identify changes to the start situation and required finish situation which are possible
	2.2 Identify internal and external changeover activities
	2.3 Identify activities which could be ***improved/eliminated***
	2.4 Eliminate/reduce adjustments required after changeover
	2.5 Develop improved changeover process and recommendations for implementation procedure
	2.6 Liaise with relevant people to validate recommendations
3 Design in good occupational health and safety (OHS)	3.1 Analyse hazards and risks from all steps in changeover
	3.2 Apply ergonomic principles and hierarchy of control to each hazard
	3.3 Minimise hazards during changeover ensuring final risk profile is ***acceptable***

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ELEMENT	PERFORMANCE CRITERIA
4 Implement improved changeover	4.1 Acquire any required resources and approvals
	4.2 Organise trials of improved changeover
	4.3 Monitor trial
	4.4 Make adjustments to changeover process
	4.5 Implement improved changeover process

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.

Changeover

Changeover may refer to an exchange of dies/tools (traditional), or a change between batches, or between campaigns. It may be any quantum equipment/process change to produce a different product. It may sometimes be referred to as ***SMED*** which is an abbreviation for Single Minute Exchange of Die; literally, changing a die on a forming or stamping machine in a minute or less; or broadly the ability to perform any ***setup activity*** in a minute or less of machine or process downtime. The key to doing this is frequently the capability to convert ***internal setup time*** to ***external setup time***; variations on SMED include:

Single-digit setup: performing a setup activity in a single-digit number of minutes, i.e. fewer than ten.

OTED: One touch exchange of die; literally, changing a die with one physical motion such as pushing a button; broadly, an extremely simple procedure for performing a setup activity.

Setup time - work required to change over a machine or process from one item or operation to the next item or operation; can be divided into two types:

- ***internal setup*** work that can be done only when the machine or process is not actively engaged in production, or
- ***external setup*** work that can be done concurrently with the machine or process performing production duties.

While the term die is the traditional term, competitive manufacturers who require changeovers using other equipment are also covered by this unit.

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	This unit may not be applicable to a totally continuous operation producing only the one product, or simultaneous range of products. This is not applicable to a maintenance/PVI shutdown as experienced by the continuous process manufacturers. However, where there is continuous manufacturing on a campaign basis, it may be applied to the development of changeover procedures between campaigns or similar changeovers.
Critically analyse	Critical analysis of the existing changeover involves a detailed examination to observe all actions and delays and the times taken.
Principles	The principles of quick changeover include the principles of efficient movement as well as an understanding of jigs, fixtures, locating devices and mechanical aids which will reduce human effort and time required.
Improved/eliminated	Activities which should be improved/eliminated include not only those which take time or are unreliable in terms of outcome, but also those which are difficult to do or have adverse OHS implications (e.g. repetitive strain injury, back injury, finger injuries).
Acceptable	An acceptable risk profile is one which at the minimum meets regulatory and organisation requirements and does not increase the current risk profile.
Procedures	Procedures include all work instructions, standard operating procedures, formulas/recipes, batch sheets, temporary instructions and similar instructions provided for the smooth running of the plant. They may be written, verbal, computer based or in some other form. For the purposes of this Training Package, 'procedures' also includes good operating practice as may be defined by industry codes of practice (e.g. Good Manufacturing Practice (GMP), Responsible Care) and government regulations.

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 this Training Package.

Overview of assessment requirements

The person will be able to critically examine existing changeover procedures and develop and implement improved procedures which will steadily move the organisation to greater uptime/lower changeover caused downtime.

Specific evidence requirements

What critical aspects of evidence are required to demonstrate competency in this unit?

Evidence of changeover procedures modified and improved in accordance with the above criteria should be available.

In what context should assessment occur?

Assessment will need to occur in an organisation following quick changeover or by a suitable project.

Are there any other units which could or should be assessed with this unit or which relate directly to this unit?

This unit may be assessed concurrently with other improvement units.

This unit is related to:

- *MCMT220A Apply quick changeover procedures* which covers the doing quick changeovers.

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 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?

Where evidence is from a continuous improvement to changeover then a range of improvements will be required to generate sufficient evidence. Where evidence is from the initial introduction of quick changeovers or a complex improvement, then the single project may generate sufficient evidence.

What skills and knowledge are needed to achieve the performance criteria?

Skills

- ability to break changeover down into key steps
- communication
- teamwork
- negotiation.

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Knowledge

- principles of quick changeover
- safe movement and other relevant OHS principles
- relevant procedures
- purposes/requirements of changeover
- sourcing of resources
- trialling procedures
- ability to differentiate between habitual practice and necessary activity.

What are the specific resource requirements for this unit?

Access to an organisation using quick changeover.