MSACMT650A Determine and improve process capability

Revision Number: 1

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Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit covers the knowledge and skills needed to determine the actual (as distinct from design) capability of a process and then to analyse that process to remove assignable causes and reduce random causes. This would typically be done by a manager or technical expert support person either working in a team, or in close liaison with key stakeholders. Process capability is typically calculated using standard deviations.

Application of the Unit

Application of the unit	In a typical scenario a person (who may be a production manager, plant/process engineer, technical specialist or similar) will be responsible for developing plans to improve process capability and following agreement the implementation of the plans to improve process capability. The organisation may use either a *6 sigma* or *3 sigma* process.
	This unit primarily requires the application of skills associated with communication in gathering and analysing data and consulting with relevant personnel. Teamwork, problem solving, initiative and enterprise, and planning and organising are required to determine causes to variations and implement solutions. This is done in an environment using computer technology and also requires aspects of self management and learning to ensure feedback and new learning is integrated into process improvements.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units	MSACMT452A	*Apply statistics to processes in manufacturing*

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. Obtain data for process capability study	1.1. Identify the process requiring capability analysis 1.2. Obtain process capability data
2. Analyse data	2.1. Identify assignable causes of variation in liaison with relevant personnel 2.2. Develop solutions to eliminate variation due to assignable causes in liaison with relevant people 2.3. Analyse random variations for possible causes in liaison with relevant people 2.4. Confirm cause/s of random variation 2.5. Develop solutions to reduce random variations in liaison with relevant people
3. Take action to improve process capability	3.1. Develop plans to implement solutions 3.2. Liaise with relevant people to implement solutions 3.3. Gain necessary approvals as required 3.4. Monitor implementation and make adjustments as required 3.5. Determine new/revised process capability 3.6. Implement revised process capability regime

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- mathematical
- statistical methods
- communication
- negotiation
- planning
- analysis
- problem solving
- teamwork
- computer operation

Required knowledge

- data collection methods
- data processing techniques required
- variability and normal distribution
- three sigma or six sigma processes as relevant
- random and non-random results - recognition of assignable causes
- causes of different types of non-random results
- causes of random variation
- process understanding sufficient to translate the data into variations in the process and determine methods of controlling them

Evidence Guide

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 should be able to implement and review a process capability system and make improvements to the process using process capability as a tool.
What are the specific resource requirements for this unit?	Access to an organisation using process capability.
In what context should assessment occur?	Assessment needs to occur in an organisation using process capability as a tool for process monitoring and improvement. It may also be assessed using 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 is related to: • *MSACMT250A Monitor process capability*, and • *MSACMT450A Undertake process capability improvements* which cover the lowest and intermediate skill levels in CM respectively.
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	One complex project, or several simpler projects will be

EVIDENCE GUIDE	
for demonstration of consistent performance?	needed to gain 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.	
Six sigma	Six sigma is a statistical tool for recording defects and determining capability which equates to only 3.4 defects per million opportunities for each product or service transaction. Six sigma is also used as a general term covering a competitive manufacturing approach. Six sigma training typically covers several units of competency in this Training Package.
Three sigma	Traditional statistical process control uses three sigma limits which equates to 3 defects per thousand opportunities for each product or service transaction.
Procedures	Procedures includes 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 (eg Good Manufacturing Practice (GMP), Responsible Care) and government regulations.

Unit Sector(s)

Unit Sector	CM Tools

Co-requisite units

Co-requisite units	

Functional area

Functional Area	