



Australian Government

Department of Education, Employment and Workplace Relations

RIIPRO502A Develop, implement and maintain process control systems

Release: 1

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Modification History

Not applicable.

Unit Descriptor

This unit covers the implementation and maintenance of process control systems in extractive industries and metalliferous mining. It includes the designing of the system, maintaining the quality of materials, providing advice to customers and maintaining the system.

Application of the Unit

This unit is appropriate for those working in a management role or as a technical specialist, managing or advising on process control systems in an open cut mine or extractive operation within:

- Extractive industries
- Metalliferous mining

Licensing/Regulatory Information

Refer to Unit Descriptor.

Pre-Requisites

Not applicable.

Employability Skills Information

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.
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Design process control systems	1.1. Access, interpret and apply compliance documentation relevant to the implementation and maintenance of process control systems 1.2. Analyse and select equipment to meet the production needs of the extractive operation 1.3. Optimise mechanical and technological advances in the bulk extraction, transport, handling and processing of extractive materials 1.4. Initiate, encourage and monitor safe practices, policies and training for entire extractive operation 1.5. Survey, modify and record field conditions 1.6. Design, evaluate, measure and cost parameters, and identify down stream effects 1.7. Consult suppliers/manufacturers for developing solutions to particular problems, projects and needs 1.8. Compare computing systems and recommend solutions based on cost, support, material, quality produced, flexibility, servicing, environmental impact, profitability 1.9. Plan monitoring and control systems for effective management of the processing of materials and reliability of equipment 1.10. Plan and maintain accurate records for budgeting and future decision making 1.11. Negotiate with electrical suppliers for power requirements, cabling, size of supply equipment, over-use penalties, tariffs, means of improving efficiency and back-up supplies
2. Maintain quality of extractive materials	2.1. Implement and monitor accepted testing procedures used for assessing material quality in site laboratories 2.2. Access appropriate expertise to perform tests that achieve consistent results, in line with site specific quality systems that

	conform to independent testing authority standards 2.3. Apply appropriate work practices covering all potential environmental problems 2.4. Ensure that materials are blended to improve the product quality and to produce the best balance of properties for the customer's satisfaction 2.5. Recommend adjustments to production process to meet production quality parameters in accordance with site quality plan
3. Provide advice to customers	3.1. Consult with customers/clients and offer a range of materials and their properties available to suit identified needs of customer 3.2. Identify material properties for various uses
4. Resource and utilise environmental knowledge	4.1. Collect and use data on existing climate, air quality, water resources, flora and fauna and socio-economic items in pre-production, operational and post-production control phases
5. Carry out fault diagnosis and repairs	5.1. Perform routine monitoring and maintenance procedures for testing equipment in line with manufacturers specification 5.2. Ensure that laboratory personnel are trained to maintain effectiveness of site quality system

Required Skills and Knowledge

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

Required skills

Specific skills are required to achieve the performance criteria in this unit, particularly for the application in the various circumstances in which this unit may be applied. This includes the ability to carry out the following as required to implement and maintain process control systems:

- apply legislative, organisation and site requirements and procedures
- apply procedures for monitoring and maintaining operations
- apply people and processes management techniques
- apply production operations analysis and review procedures
- apply projects and tasks management techniques
- apply human and physical resource coordinating procedures
- apply procedures to ensure delivery and maintenance of services to required specifications
- apply traffic, equipment and maintenance systems procedures
- apply techniques to evaluate new and used equipment
- apply performance audit procedures (finance, energy, safety, environment, quality assurance, legislative compliance and products)
- access and use appropriate technologies
- apply management report preparation and presentation requirements and procedures
- apply negotiating techniques (with internal/external customers, community and statutory/legal authorities)
- apply conflict resolution techniques

Required knowledge

Specific knowledge is required to achieve the Performance Criteria of this unit, particularly its application in a variety of circumstances in which the unit may be used. This includes knowledge of the following, as required to implement and maintain process control systems:

- programmable logic controllers
- metalliferous mining operations
- metalliferous mining products and services
- metalliferous mining plant and equipment
- team management
- quality system
- statutory control
- organisational objectives
- resource monitoring

- surveying
- environmental management
- OHS
- computer applications
- negotiation techniques
- statistics

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	The evidence required to demonstrate competency in this unit must be relevant to worksite operations and satisfy all of the requirements of the performance criteria, required skills and knowledge and the range statement of this unit and include evidence of the following: • knowledge of the requirements, procedures and instructions for the implementation and maintenance of process control systems • implementation of procedures and techniques for the safe, effective and efficient implementation and maintenance of process control systems • the identification of the relevant information and scope of the work required to meet the required outcomes • the identification of viable options and the selection of process control systems that best meet the required outcomes • working with others to undertake and complete the implementation and maintenance of process control systems • consistent successful implementation and maintenance of process control systems
Context of and specific resources for assessment	• This unit must be assessed in the context of the work environment. Where personal safety or environmental damage are limiting factors, assessment may occur in a simulated environment provided it is realistic and sufficiently rigorous to cover all aspects of workplace performance, including task skills, task management skills, contingency management skills and job role environment skills. • The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of assessment should not be greater than those

	required on the job. • Customisation of assessment and delivery environment to sensitively accommodate cultural diversity. • Aboriginal people and other people from a non English speaking background may have second language issues. • Assessment of this competency requires typical resources normally used in a civil works environment. Selection and use of resources for particular worksites may differ due to site circumstances. • Where applicable, physical resources should include equipment modified for people with disabilities. Access must be provided to appropriate learning and/or assessment support when required.
Method of assessment	This unit may be assessed in a holistic way with other units of competency. The assessment strategy for this unit must verify required knowledge and skill and practical application using more than one of the following assessment methods: • written and/or oral assessment of the candidate's required knowledge to apply in undertaking of the implementation and maintenance of process control systems • observed, documented and/or first hand testimonial evidence of the candidate's: • implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes • identification of the relevant information and scope of the work required to meet the required outcomes • identification of viable options and the selection of process control systems that best meet the required outcomes • consistently achieving the required outcomes • first hand testimonial and documentary evidence of the candidate's: • working with others to undertake and complete the implementation and

	maintenance of process control systems • provision of clear and timely required support and advice on the implementation and maintenance of process control systems
Guidance information for assessment	Consult the SkillsDMC User Guide for further information on assessment including access and equity issues.

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.

Relevant compliance documentation may include:	• legislative, organisation and site requirements and procedures • manufacturer's guidelines and specifications • Australian standards • code of practice • Employment and workplace relations legislation • Equal Employment Opportunity and Disability Discrimination legislation
Management operates within:	• an environment ranging from small/medium/large operations • appropriate policies, guidelines and processes • established quality and continuous improvement processes • environmental standards • ethical standards established by the organisation • strategic plans developed by the organisation • productivity and profitability objectives and targets • international best practice and benchmarking principles and practices • technical standards established by industry and/or enterprise • legislation, codes and practices • resource parameters which may be defined or negotiated • a diverse range of plant/equipment, products and services • training and development/business and performance plans • enterprise/industrial agreements/awards • human resource practices and policies • learning organisation principles and practices
Management is responsible for:	• evaluating equipment/plant and power requirements for Metalliferous mining

	- operations • preparing a commercial viable project budget • evaluating, selecting, tendering and purchasing new equipment/plant • sourcing and raising capital development funding • planning and monitoring earth work operations • monitoring project timeframes against budget • commissioning geophysical surveys • quantifying resource and proving deposit • developing detailed site plans and working drawings • establishing a rehabilitation plan in line with regulative requirements • establishing and managing positive relations with others in the internal and external environment • research which could include: • geological, climatic, hydrology/topography and environmental factors • cultural and biological environments • improve customer relations • promote company image • influence operational performance • plan production schedules • records/reports • oral/written/computer based • supervision of maintenance
Negotiation may be with:	• stakeholders • regulatory authorities • tenderers • operating managers • project managers • contractors • employees • community • suppliers • customers
Resources may include:	• people • buildings/facilities • finance • equipment

	• power/energy • technology • information • time
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Unit Sector(s)

Processing (General)

Competency field

Refer to Unit Sector(s).

Co-requisite units

Not applicable.