



Australian Government

CPPSIS6031 Design basic mines

Release: 1

CPPSIS6031 Design basic mines

Modification History

Release 1.

Replaces superseded equivalent CPPSIS6031A Carry out basic mine design.

This version first released with CPP Property Services Training Package Version 3.

Application

This unit of competency specifies the outcomes required to design basic mines to meet client specifications. The unit covers designing a mine development that incorporates identified mine design parameters, as well as accounting for levels of rock stability and ground support and methods for obtaining ore and mineral samples. The unit includes assessing the environment to recognise the geological aspects of possible ore deposits. The unit also covers planning the design project, including objectives, deliverables and constraints to comply with standards and legal and statutory requirements relating to the organisation and the mining industry. The unit requires the ability to implement project management activities relating to scheduling, measuring, recording, monitoring and reporting work progress. It also requires the ability to use computers and a range of software to produce mine designs. It requires knowledge of underground mining operations.

The unit supports those who work in a technical management role in a mining environment.

Licensing, legislative, regulatory or certification requirements apply to this unit in some States where mining surveying must be undertaken under the supervision of a registered surveyor. Relevant state and territory regulatory authorities should be consulted to confirm those requirements.

Pre-requisite Unit

Nil

Unit Sector

Surveying and spatial information services

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions.

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|----------------|--|
| 1. Plan design | 1.1. Client requirements and project specifications are determined and documented in consultation with |
|----------------|--|

- project.
- appropriate persons.***
- 1.2. Project management mechanisms are implemented to schedule, record and report progress of activities in relation to agreed timeframes and plans.
 - 1.3. Agreed communication processes between client and other appropriate persons are implemented and maintained.
 - 1.4. Geological aspects of possible ore deposits are identified by assessing the environment, and information is verified.
 - 1.5. Pertinent legal and statutory requirements and standards are identified and analysed to ensure compliance.
2. Design mine development.
- 2.1. Data required for mine design is identified and analysed according to project specifications.
 - 2.2. Mine design parameters are identified and analysed according to project specifications.
 - 2.3. Levels of rock stability and ground support requirements are incorporated into mine design according to project specifications.
 - 2.4. Methods for obtaining ore and mineral samples are incorporated into mine design ensuring compliance with relevant legislation and mining regulations.
 - 2.5. Mine design is developed using suitable software according to project specifications.
 - 2.6. Problems are identified and resolved, and contingencies and constraints are managed according to organisational requirements.
3. Finalise project.
- 3.1. Project is finalised and checked for compliance with specifications and organisational requirements.
 - 3.2. Appropriate persons are notified of project results according to organisational requirements.
 - 3.3. Documentation is completed and spatial data archived according to project and organisational requirements.

Foundation Skills

This section describes the language, literacy, numeracy and employment skills essential to performance in this unit but not explicit in the performance criteria.

Skill	Performance feature
Planning and organising skills to:	• plan and prioritise work to meet contracts and resource constraints.
Numeracy skills to:	• conduct precise measurements and calculations relating to height, depth, dimension, direction and position in actual operational activity and virtual representation.
Oral communication skills to:	• negotiate to achieve client requirements.
Reading skills to:	• analyse graphical and technical information in mining and engineering plans.
Writing skills to:	• record technical information in organisational documentation.
Technology skills to:	• use a range of geological information systems software to design mine.
Problem-solving skills to:	• identify and resolve areas of potential non-compliance with legislation, regulations and standards.

Range of Conditions

This section specifies 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. Bold italicised wording, if used in the performance criteria, is detailed below.

- Appropriate persons*** must include at least two of the following:
- client
 - colleague
 - engineer
 - manager
 - registered or qualified surveyor
 - supplier.

Unit Mapping Information

CPPSIS6031A Carry out basic mine design

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=6f3f9672-30e8-4835-b348-205dfcf13d9b>

Assessment Requirements for CPPSIS6031 Design basic mines

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Performance Evidence

A person demonstrating competency in this unit must satisfy the requirements of the elements, performance criteria, foundation skills and range of conditions of this unit. The person must also produce two different basic mine designs using a computer and relevant software.

While designing the above basic mines, the person must:

- plan and implement project management mechanisms to ensure the project is completed within required timeframes and complies with specifications and standards
- assess the environment to recognise geological aspects of possible ore deposits
- communicate clearly with clients and others to clarify and report project information
- comply with organisational policies and procedures, legislation, regulations and Australian standards for mine safety when planning mine design
- create basic mine drawings that detail:
 - levels of rock stability and ground support
 - mine design parameters
 - methods for obtaining ore and mineral samples
- perform calculations to measure, reduce and validate spatial data captured from mine surveying.

Knowledge Evidence

A person demonstrating competency in this unit must demonstrate knowledge of:

- accuracy and precision requirements for mine design
- basic characteristics of common ore deposits
- classification of economic mineral deposits and the process involved in presenting a schematic model
- data capture and set-out techniques
- data reduction and manipulation techniques
- legislation, regulations and Australian standards relating to mine safety
- methods for assessing the environment to recognise ore deposits
- methods for obtaining ore and mineral samples
- mineral exploration methods, including geophysical, geochemical and geological techniques

- organisational policies and procedures relating to:
 - client and stakeholder communication
 - using a computer and relevant software
 - mine design, including:
 - mine access
 - layout
 - service provision, such as water, air, power, lighting and dewatering
 - records and reporting
 - risk and contingency management
- project management techniques for scheduling, measuring and monitoring work progress and planning for risks and contingencies
- techniques for providing rock stability and ground support
- key features of underground mining operations.

Assessment Conditions

The following must be present and available to learners during assessment activities:

- equipment:
 - as specified in the performance evidence
- specifications:
 - mining and surveying specifications, including relevant plans and drawings
 - organisational policies, procedures and documentation relating to mine design
 - relevant legislation, regulations and Australian standards for mine safety
- physical conditions:
 - access to equipped work station
- relationships with team members and supervisor:
 - lead role in a team.

Timeframe:

- as specified by project requirements.

Assessor requirements

As a minimum, assessors must satisfy the assessor requirements in the Standards for Registered Training Organisations (RTOs) current at the time of assessment.

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