



Australian Government

RIIARO410 Control safety risks in autonomous operations

Release: 1

RIIARO410 Control safety risks in autonomous operations

Modification History

Release 1	This version first released with RII Resources and Infrastructure Industry Training Package Version 9.0. Newly created unit.
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Application

This unit describes the skills and knowledge required to control safety risks in autonomous operations in dynamic, high pressure, high consequence environments. It includes interpreting safety requirements, controlling environmental safety risks and risks to autonomous equipment and systems, and responding to emergencies related to automation.

The unit applies to those responsible for controlling and mitigating safety risks in mixed human-automation workplaces under normal circumstances and in case of emergency, with the aim of achieving a culture of zero harm.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Coal mining

Metalliferous mining

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element
1. Prepare to control automation safety risks	1.1 Access and review work instructions and related documents 1.2 Identify organisational requirements for work health and safety specified in documents 1.3 Identify hazards and address within scope of own role or escalate to required personnel according to organisational procedures 1.4 Plan work according to work health and safety (WHS) requirements and organisational policies and procedures
2. Control environmental	2.1 Systematically monitor environmental conditions to identify

ELEMENT	PERFORMANCE CRITERIA
safety risks	actual and potential hazards that may pose a risk to personnel and equipment 2.2 Respond to high-risk circumstances or behaviour in line with organisational procedures and protocols 2.3 Record and report risk control outcomes in accordance with organisational requirements
3. Control safety risks to autonomous equipment and systems	3.1 Identify hazards, risks, containment controls and limitations of machine learning, system dependencies and autonomous equipment 3.2 Respond to functional safety concerns raised by on-site personnel, handle concerns safely and escalate issues beyond designated scope of own responsibility 3.3 Implement risk control measures and response plans associated with autonomous equipment and systems 3.4 Monitor and adjust daily performance to meet goals and key performance indicators 3.5 Notify site of changes made in response to safety risks according to site protocols
4. Respond to emergencies	4.1 Identify and prioritise emergencies and gather essential information to inform choice of response in relation to scope and severity of each emergency 4.2 Take initial action in accordance with emergency response planning and emergency procedures in line with priority and criticality of each incident 4.3 Relay critical information to designated personnel, reassessing and providing regular status updates as circumstances change 4.4 Record and report emergency situations, actions and outcomes in accordance with standard operating procedures 4.5 Participate in post-incident activities and contribute to review of procedures as a result of emergency response outcomes

Foundation Skills

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

SKILL	DESCRIPTION
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SKILL	DESCRIPTION
Reading	Identifies and interprets information in a range of complex workplace documents
Oral communication	Listens to information on emergency situations, actions and outcomes during post-incident activities and expresses an opinion
Initiative and enterprise	Applies suitable options when responding to high-risk circumstances and safety concerns

Unit Mapping Information

No equivalent unit. Newly created unit.

Links

Companion Volume Implementation Guide is found on VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

Assessment Requirements for RIIARO410 Control safety risks in autonomous operations

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Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:

- monitor and respond to safety risks on at least 2 occasions, at least 1 of which must relate to an emergency situation involving:
 - equipment, or
 - personnel, or
 - environmental conditions, or
 - a combination of the above.

Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including knowledge of:

- organisational health and safety requirements relating to own role, including those detailed in:
 - policies and procedures
 - industry standards
 - guidelines
 - public statements
 - emergency response plans
- industry standards and guidelines relating to safety in own role in autonomous workplaces, including or equivalent to:
 - IEC 61508 / AS 61508 Functional Safety of electrical/electronic/programmable electronic safety- related systems
 - ISO 17757 Earth moving machinery and mining – Autonomous and semi-autonomous machine system safety
- legislative, regulatory and compliance requirements, including or equivalent to:
 - national Work Health and Safety Act 2011

- licence to operate
- partnership to operate
- required legislation in operational jurisdiction
- hazards relating to:
 - product
 - equipment
 - human factors
 - environmental conditions
- safety risk controls, including:
 - hazard identification and risk assessment process
 - isolation processes
 - exclusion zones
 - risk response plan
 - risk control reporting
- emergency response requirements, including:
 - assessing and prioritising emergencies
 - emergency roles, including own role in emergency response
 - emergency response or Mayday procedures
 - escalation procedures
 - broadcasts that need to be made
 - when and how to activate emergency tones
 - location and completion procedures for emergency logs and other required information/documentation
- key policies and procedures relating to various post-incident activities, including:
 - debriefing
 - determining impacts
 - self-evaluation or reflection on safe work processes followed
 - counselling
 - contributing to incident investigations.

Assessment Conditions

Mandatory conditions for assessment of this unit are stipulated below. The assessment must:

- include access to:
 - personal protective equipment
 - control system/s
 - policies, procedures, and protocols relating to health, safety, environment and emergency response
 - communications technology
- be conducted in a safe environment; and,

- be assessed in the context of this sector's work environment; and,
- be assessed in compliance with legislative and regulatory requirements and using policies, procedures and processes directly related to the industry sector for which the unit is being assessed; and,
- confirm consistent performance can be applied in a range of relevant workplace circumstances.

Where personal safety or environmental damage are limiting factors, assessment may occur in a simulated work environment* provided it is realistic and sufficiently rigorous to cover all aspects of this sector's workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills.

Assessor requirements

Assessors must be able to clearly demonstrate current and relevant industry knowledge and experience to satisfy the mandatory regulatory standards as set out in the Standards for Registered Training Organisations 2015/Australian Quality Training Framework mandatory requirements for assessors current at the time of assessment and any relevant licensing and certification requirements.

This includes:

- the minimum years of current** work experience after competency has been obtained as specified below in an industry sector relevant to the outcomes of the unit.

It is also acceptable for the appropriately qualified assessor to work with an industry expert to conduct assessment together and for the industry expert to be involved in the assessment judgement. The industry expert must have current industry skills directly relevant to the training and assessment being provided. This means the industry subject matter expert must demonstrate skills and knowledge from the minimum years of current work experience after competency has been obtained as specified below, including time spent in roles related to the unit being assessed:

Industry sector/Unit sector	AQF indicator level	Required assessor or industry subject matter expert experience
Drilling, Metalliferous Mining, Coal Mining, Extractive (Quarrying) and Civil Infrastructure***	1	1 year
	2	2 years
Drilling, Coal Mining, Extractive (Quarrying), Metalliferous Mining and Civil Infrastructure***	3-6	3 years
Units coded 'RIIARO' (Autonomous and Remote Operations)	Given that this is an emerging industry area, assessors are required to demonstrate vocational competencies at least to the level being assessed,	

Industry sector/Unit sector	AQF indicator level	Required assessor or industry subject matter expert experience
		and current industry skills directly relevant to the assessment being provided.
Other sectors		Where this unit is being assessed outside of the resources and infrastructure sectors assessor and/or industry subject matter expert experience should be in line with industry standards for the sector in which it is being assessed and where no industry standard is specified should comply with any relevant regulation.

*Guidance on simulated environments has been stipulated in the Companion Volume Implementation Guide located on VETNet.

**Assessors can demonstrate current work experience through employment within industry in a role relevant to the outcomes of the unit; or, for external assessors this can be demonstrated through exposure to industry by conducting a minimum number of site assessments as determined by the relevant industry sector, across various locations.

***Excluding units coded 'RIIARO' (Autonomous and Remote Operations)

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