



Australian Government

RIIWHS208 Operate within an autonomous workplace functional safety system

Release: 1

RIIWS208 Operate within an autonomous workplace functional safety system

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 operate within an autonomous workplace functional safety system, including applying safety procedures and reporting incidents to ensure work is undertaken safely.

The unit applies to those who work within a functional safety framework used to protect people, the environment and workplace assets.

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 work within a functional safety system	1.1 Review work instructions for own role 1.2 Identify own safety requirements within a functional safety system 1.3 Apply access control procedures
2. Apply personal safety procedures	2.1 Identify hazards and risks that impact own personal safety and apply mitigants as per organisational procedures and in accordance with level of own responsibility 2.2 Identify correct positions and paths for autonomous equipment and clarify or confirm as required 2.3 Maintain a position of safety in the autonomous environment

ELEMENT	PERFORMANCE CRITERIA
	according to organisational safety practices and training 2.4 Identify mode of operation of the autonomous equipment according to manufacturer instructions and organisational safety practices 2.5 Identify indicators relevant to operational state of autonomous equipment according to organisational procedures 2.6 Complete isolation of energy sources and immobilisation of potential energy sources according to organisational procedures and within limits of own role
3. Apply asset safety procedures	3.1 Undertake necessary system safety tests to confirm asset conditions are fit for use according to organisational procedures 3.2 Identify abnormal operation of assets in the autonomous system within limits of own role 3.3 React to abnormal behaviour when interfacing with high integrity safety systems, within limits of own role and according to organisational procedures 3.4 Report/communicate abnormal equipment performance and faults according to organisational procedures
4. Apply environment protection procedures	4.1 Identify environmental conditions that may impact safety of people or workplace assets, as outlined by the safety framework and within limits of own role 4.2 Apply required safety measures to protect own self, people, surrounding environment, and community according to organisational procedures
5. Report incidents	5.1 Report breaches in personal and site safety according to organisational procedures and practices 5.2 Report unexpected behaviour impacting on safety of people or assets 5.3 Contribute to and participate in incident investigations within own area of responsibility

Foundation Skills

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

SKILL	DESCRIPTION
Reading	Identifies and interprets information in simple workplace instructions and procedures

SKILL	DESCRIPTION
Oral communication	Discusses safety issues with colleagues in familiar and predictable contexts

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 RIIWHS208 Operate within an autonomous workplace functional safety system

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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:

- undertake pre-start inspections of autonomous equipment on at least 2 different occasions and report asset condition according to organisational requirements
- undertake at least 3 different work tasks that require the application of personal, asset and environmental safety procedures.

During the above, the candidate must:

- use at least 3 elements of a functional safety system according to organisational procedures
- use at least 2 different personal safety systems that protect people operating in an autonomous workplace
- identify at least 5 operational states of equipment (failure, active, stand-by, emergency, suspend, maintenance)
- observe and identify at least 5 indicators of abnormal operation of equipment in the autonomous workplace
- identify and report indicators of abnormal operation of autonomous equipment.

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:

- procedures for accessing, and techniques for interpreting, workplace procedures that reflect the requirements of the latest published versions of Functional Safety industry standards that apply to own role, including or equivalent to:
 - IEC 61508 / AS 61508 Functional safety of electrical/electronic/programmable electronic safety-related systems
 - IEC 62061 Safety of Machinery – Functional Safety of Safety Related Control Systems

- ISO 13849 Safety of Machinery – Safety Related Parts of Control Systems
- ISO 17757 Earth-moving machinery and mining – Autonomous and semi-autonomous machine system safety
- purpose and key elements of functional safety system
- processes and procedures for applying functional safety in the workplace
- competencies and authorisation processes and procedures required to carry out autonomous operations in specific tasks
- organisational procedures for mitigating hazards and risks to one's personal safety
- benefits that a functional safety system have on:
 - people
 - assets
 - environment
 - community
- organisational authorisation processes/procedures required to operate within a functional safety system
- operational requirements of technical system safety elements to ensure the protection of people and assets, with elements, including:
 - layers of protection
 - exclusion zones
 - personal systems - emergency stop button/pull wires
 - access controls include swipe cards, location devices, locking systems, codes
 - indicators, mode lights, alarms
- modes of operation of autonomous equipment
- hierarchy of safety controls applied during the use of autonomous equipment
- possible data sources for abnormal behaviour, including at least 1 of the following:
 - noises
 - leaks on road or spillage
 - tyre damage
 - smoke
 - dirty sensors
 - rough ground
- organisational procedures for conducting various system tests, including:
 - pre-starts
 - inspections
 - two-way radio check
- organisational requirements relating to the schedule of maintenance, testing, and reporting within own role
- emergency procedures:
 - evacuation and muster points
 - radio protocols for an emergency situation

- impact of environmental conditions on the safety of autonomous systems and equipment operation, people, and community according to organisational functional safety frameworks.

Assessment Conditions

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

- include access to:
 - personal protective equipment
 - equipment required to work safely in autonomous environments
 - documentation relevant to working in the functional safety system
- 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, 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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