MSS50211 Diploma of Environmental Monitoring and Technology

This qualification covers the skills and knowledge required to apply a range of methods and technologies to conduct environmental sampling, testing and monitoring in most industry sectors and to assist environmental scientists, engineers and planners with site assessment, minimising environmental impacts of processes and remediation/rehabilitation of sites.

Job roles/employment outcomes

The MSS50211 Diploma of Environmental Monitoring and Technology provides technical training across a range of industry sectors, such as:

- environmental monitoring, sampling and field testing (e.g. air, odour, water, soil and noise)
- geotechnical services
- natural resource management
- occupational hygiene monitoring (e.g. air, noise and radiation)
- water supply and treatment, storm and wastewater management
- solid and hazardous waste management
- site remediation and rehabilitation
- resource efficiency (e.g. energy, water and waste auditing).

Job roles targeted by this qualification include environmental officers, environmental protection officers, environmental compliance officers, environmental technicians and similar personnel employed by enterprises and Commonwealth, state/territory/local governments in the sectors listed above. These personnel often work with environmental scientists, engineers, planners and community groups to manage and conserve natural systems and resources, minimise pollution, remediate/rehabilitate sites and trial practical strategies to protect and improve ecosystems. Their work often involves environmental monitoring and technology, internal auditing and continuous improvements to enhance compliance and minimise the environmental impacts of processes. Government employees may be more involved with external inspection and auditing of enterprises and negotiating appropriate responses to instances of non-compliance.

In broad terms, they may:

- plan and schedule work and project activities (e.g. inspections and field surveys) and determine equipment, materials and consumable requirements
- develop site or field plans/instructions for specific environmental management activities
- assist with the design of environmental monitoring programs for sites/areas
- contribute to the assessment of environmental impacts of development and human activities
- undertake part or total ecological studies for a site
- conduct site inspections and full or part environmental audits of processes
- conduct field surveys of flora, fauna, water and soils
- collect samples/specimens, such as air, odour, water, groundwater, waste, soil residues, noise, biological, microbiological and geological
- set up, test, conduct calibration checks and operate a wide range of environmental monitoring equipment, field test instruments, data loggers, and/or remote sensing stations
- troubleshoot, repair, maintain and/or adapt instrumentation
- conduct tests/measurements involving air, odour, water, groundwater, waste, soil residues, noise, microbiological, geological and meteorological samples
- collect, process and present spatial/attribute data using global positioning systems (GPS) and geographical information systems (GIS)

- analyse data to identify trends, unexpected results and report conclusions
- provide environmental management information to site personnel, enterprises, industry organisations and communities
- provide environmental management information to site personnel and community members
- conduct technical training and work skill instruction
- suggest strategies to minimise environmental impacts and for the remediation or rehabilitation of sites/areas
- explain inspection/audit findings, negotiate outcomes with enterprise representatives, and issue notices, as necessary
- prepare costings and proposals, manage the finances for small projects, and report and present project progress and outcomes.

Application

This qualification is typically used to prepare new employees or develop the skills of existing workers performing an environmental officer role in most industry sectors.

Training programs for this qualification are suitable to be undertaken as part of a formal training contract with an employer under an Australian Traineeship or Apprenticeship arrangement.

Pathways into the qualification

This qualification may be accessed by direct entry. Credit may be granted towards this qualification by those who have completed the MSL20109 Certificate II in Sampling and Measurement or the MSS40211 Certificate IV in Environmental Monitoring and Technology. Credit for this qualification may include units contained within relevant Skill Sets.

Pathways from the qualification

Further training pathways from this qualification include qualifications in the higher education sector and the MSS70211 Vocational Graduate Certificate in Environmental Management.

Career paths for environmental technicians are becoming increasingly constrained unless they undertake university study. With this in mind, particular attention has been given to stating the critical aspects of competency and essential knowledge required for each unit of competency in sufficient detail to maximise articulation and credit transfer arrangements between the vocational education and training (VET) and higher education sectors.

Additional qualification advice

Because specialisation is a requirement in some industry sectors for the Diploma, Registered Training Organisations (RTOs) may choose to issue a generic:

- Diploma of Environmental Monitoring and Technology

or, where elective units of competency are packaged to suit a particular industry sector or specialisation, RTOs may choose to issue a:

- Diploma of Environmental Monitoring and Technology (specialising in xxxxxxx)

Industry sector/specialisations could include, but are not limited to:

- water
- air
- odour
- soil
- noise.

Licensing considerations

There are no specific licences that relate to this qualification.

Packaging Rules

To be awarded the MSS50211 Diploma of Environmental Monitoring and Technology, competency must be achieved in a total of **twenty (20)** units of competency.

- **eleven (11)** core units of competency
- **nine (9)** elective units of competency, as specified below.

Units listed under **core** are considered essential for all environmental officers. The units listed as **electives** may only apply to some personnel according to the size and scope of the particular enterprise and industry sector.

Note : Units with prerequisites are marked with an asterisk. Refer to the unit for details.

Core units of competency

- Complete the following **eleven (11)** units of competency.

Unit code	Unit title	P
MSS024002A	Implement environmental management plans and procedures	
MSS024003A	Apply an understanding of environmental principles to a site	
MSS024004A	Process and present environmental data	
MSS025001A	Assist with assessing site environmental indicators	*
MSS025002A	Assess the environmental risk or impact of a project activity or process	*
MSS025003A	Report environmental data	*
MSS025004A	Provide environmental information to customers	
MSAENV472B	Implement and monitor environmentally sustainable work practices	
MSL943002A	Participate in laboratory/field workplace safety	
MSL952001A	Collect routine site samples	
MSL974007A	Undertake environmental field-based monitoring	

Elective units of competency

- Complete **nine (9)** elective units of competency, made up of:
  - a minimum of **five (5)** units from Group A
  - the balance of units, to a maximum of **four (4)** , may be selected from:
    - Group A units, not previously selected
    - Group B and C units, listed below, with a maximum of **three (3)** units from Group C.

A maximum of **four (4)** Group B and C electives may be selected from this Training Package, other endorsed Training Packages and accredited courses, where those units are relevant

and available at Diploma level and above. This could include relevant units available in AHC10 Agriculture, Horticulture and Conservation and Land Management Training Package.

Group A: Specialist elective units

Unit code	Unit title	P
MSS015001A	Measure and report carbon footprint	
MSS015010A	Conduct a sustainability water use audit	
MSS015011A	Conduct a sustainability energy audit	
MSS015012A	Conduct an emissions audit	
MSS015018A	Inform and advise organisation and community representatives on sustainability issues	
MSS025005A	Produce site maps	*
MSS025006A	Collect and evaluate groundwater data	
MSS025007A	Perform sampling and testing of soils	*
MSS025008A	Monitor and evaluate noise	
MSS025009A	Perform sampling and testing of air	
MSS025010A	Assist with odour source assessment	
MSS025011A	Assist with odour field assessment	
MSS025012A	Perform environmental microbiological tests	*
MSS025013A	Assist with assessing and monitoring wetlands	
MSS025014A	Perform sampling and testing of contaminated sites	*
MSS025015A	Plan and conduct environmental project work	
MSS025016A	Perform sampling and testing of stationary emissions	
MSL975011A	Design and supervise complex environmental field surveys	*
MSL975017A	Perform laboratory-based ecological techniques	*
MSL975023A	Supervise geotechnical site investigations	*
PRMWM01B	Plan waste audit	
PRMWM02B	Carry out waste audit	
PSPRAD707A	Monitor radiation	

Group B: Elective units

Unit code	Unit title	P

MSS014006A	Contribute to sustainability related audits	
MSS024001A	Work and communicate effectively as an environmental technician	
MSS024005A	Collect spatial and discrete environmental data	
MSS024006A	Perform sampling and testing of water	
MSS024007A	Collect and evaluate meteorological data	
MSS024008A	Recognise common geological landforms and samples	
MSS024009A	Assist with assessing and monitoring stormwater systems	
MSS024010A	Perform environmental biological techniques	
MSS024011A	Navigate in urban, regional and remote areas	
MSS024012A	Undertake simple environmental project activities	
BSBOHS406C	Use equipment to conduct workplace monitoring	
MSL904001A	Perform standard calibrations	
MSL924002A	Use laboratory application software	
MSL954001A	Obtain representative samples in accordance with sampling plan	
MSL974002A	Conduct geotechnical site investigations	*
MSL974003A	Perform chemical tests and procedures	
MSL974006A	Perform biological procedures	*
MSL974009A	Undertake field-based, remote sensing monitoring	
PSPRAD703A	Perform basic radiation measurements	

Group C: Elective units

Unit code	Unit title	P
CUVPHI05B	Use a 35mm SLR camera or digital equivalent	
HLTFA301B	Apply first aid	
MSAENV272B	Participate in environmentally sustainable work practices	
MSL935004A	Maintain instruments and equipment	
MSL973001A	Perform basic tests	
MSL973002A	Prepare working solutions	
MSL973004A	Perform asceptic techniques	
MSL973007A	Perform microscopic examination	

MSL973012A	Assist with geotechnical site investigations	
PRMWM01B	Plan waste audit	
PRMWM02B	Carry out waste audit	
PSPRAD707A	Monitor radiation	
PUAWER009B	Participate as a member of a workplace emergency initial response team	
TAEDEL301A	Provide work skill instruction	

Employability Skills for MSS50211 Diploma of Environmental Monitoring and Technology

The following table contains a summary of the employability skills for this qualification. This table should be interpreted in conjunction with the detailed requirements of each unit of competency packaged in this qualification. The outcomes described here are broad industry requirements that may vary depending on the packaging options.

Employability Skill	Industry/enterprise requirements for this qualification include:
Communication	• Communicate appropriately with site personnel and community members in order to respond effectively to requests for environmental information • Write procedures using an unambiguous, logical sequence of instructions that meet statutory and regulatory requirements • Record and store data, perform calculations of scientific quantities and present information in maps, diagrams, tables and graphs • Report using verbal responses, data entry into the enterprise information management system and brief written reports • Contribute information to reports for clients • Liaise with contractors, consultants, community representatives, regulator representatives and members of the public
Teamwork	• Work effectively with team members who may have diverse work styles, cultures and perspectives when reporting problems, hazards and environmental incidents and results or contributing to system improvements • Promote cooperation and good relations in the team
Problem solving	• Adjust sampling/monitoring procedures or substitute alternative instruments and measurement standards to suit local site conditions (but within scope of responsibility/technical competence) • Recognise potential or actual environmental management non-conformances, assess their significance and recommend preventative or corrective actions • Apply specialised technical knowledge to critically analyse and resolve complex problems and non-conformances where solutions are not obvious or readily available • Troubleshoot sampling/monitoring equipment and instruments in the field and make basic repairs
Initiative and enterprise	• Recommend appropriate preventative/corrective actions to improve sampling, field testing and/or monitoring activities • Identify hazards associated with samples, sample collection methods, reagents and equipment and implement enterprise control measures • Research current, alternative sampling/monitoring methods and equipment • Research environmental monitoring and management case

	studies and models of good practice • Suggest improvements in productivity and quality
Planning and organising	• Plan surveys and field studies • Identify, assemble, check and stow all required field equipment and materials for safe transport • Modify work plans to suit changing conditions and priorities • Assemble, organise, check and optimise monitoring equipment for specific sites or use • Plan work sequences to optimise efficiency without sacrificing quality
Self management	• Communicate in an efficient and polite manner, taking into account cultural diversity and disabilities and the wide range of views that stakeholders may have about environmental issues • Follow enterprise procedures which reflect equal opportunity, anti-discrimination and non-harassment legislative requirements • Conduct work based on ethical values and principles and ensure quality and integrity of own work • Review own strengths, weaknesses and work practices for opportunities to continuously improve performance • Maintain security and confidentiality of all client/enterprise data and information • Regularly (re)assess risks; step back and consider options; and use controls, safe work procedures and appropriate personal protective equipment to ensure personal safety
Learning	• Seek and respond to feedback from supervisor and other site personnel about performance • Update knowledge and skills and take advantage of skill development opportunities • Provide information to other site personnel about their environmental management obligations
Technology	• Select and use computers and software to collect, process, present, report and/or store information • Select, use and optimise sampling and monitoring equipment, field-test instruments, data loggers and/or remote sensing equipment