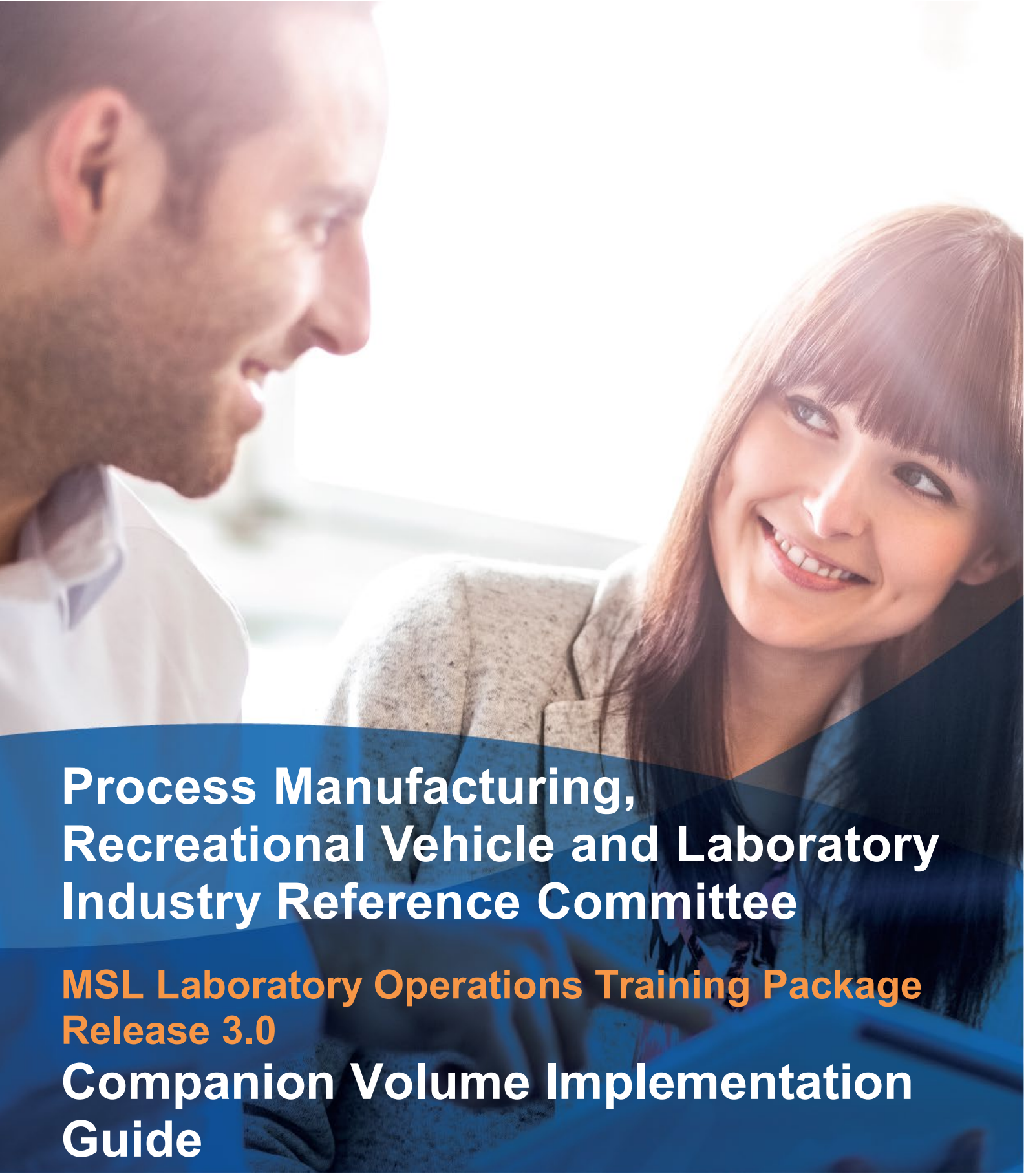

Process Manufacturing, Recreational Vehicle and Laboratory Industry Reference Committee

MSL Laboratory Operations Training Package Release 3.0

Companion Volume Implementation Guide

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Innovation & Business Skills Australia

Prepared on behalf of the Process Manufacturing, Recreational Vehicle and Laboratory Industry Reference Committee

for the Australian Industry Skills Committee

Process Manufacturing, Recreational Vehicle and Laboratory Industry Reference Committee

MSL Laboratory Operations Training Package (Release 3.0)

Companion Volume Implementation Guide

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Contents

1. Overview

The MSL Laboratory Operations Companion Volume Implementation Guide is designed to assist State and Territory Training Authorities, regulators, assessors, trainers, Registered Training Organisations (RTOs) and enterprises in implementing training and assessment based on the laboratory operations units of competency, skill set, and qualifications in the MSL Laboratory Operations Training Package.

MSL Laboratory Operations Training Package, Release 3.0, comprises:

- five (5) qualifications
- two (2) skill sets
- one hundred and six (107) units of competency
- five (5) imported units of competency.

Version control and modification history

Release	Release date	Comments	Section

3	XX	Addition of content for point of care testing (PoCT):
		• one new unit of competency:
		  ○ MSL974030 Process body fluid specimens using a point of care testing device
		• one new skill set:
		  ○ MSLSS00002 Point of care testing using capillary blood specimens.
			Overview plus appendices, including unit listing and mappings.

2	July 2018	Changes to Certificate IV in Laboratory Techniques and Diploma of Laboratory Technology, changes to units of competency and the addition of a skill set. Unit codes updated in Certificate II in Sampling and Measurement, Certificate III in Laboratory Skills and Advanced Diploma of Laboratory Operations.	Changes throughout document. Some information moved to MSL Companion Volume User Guide.
1	March 2016	Released with MSL Laboratory Operations Training Package to meet 2012 Standards for Training Packages	

Structure of this guide

This guide has two main parts:

1. Overview, which includes summary information about Release 3.0 of the MSL Laboratory Operations Training Package
2. Implementation information, including information to assist RTOs in implementing the qualifications, skill set and units of competency for training and assessment purposes.

A complete list of components included in Release 3.0 is available in Appendix I, including:

- MSL qualifications
- MSL units of competency (listed with prerequisite units)
- MSL skill sets
- imported units of competency.

Summary of changes from Release 2.0 to Release 3.0

The work to develop MSL Laboratory Operations Training Package Release 3.0 has included the development of new content to reflect skills and knowledge requirements in the rapidly expanding area of point of care testing. This content is relevant to workers in both the laboratory and healthcare sectors:

- one new unit of competency:
    - MSL974030 Process body fluid specimens using a point of care testing device
- one new skill set:
    - MSLSS00002 Point of care testing using capillary blood specimens.

Summary of changes from Release 1.0 to Release 2.0

The work to develop MSL Laboratory Operations Training Package *Release 2.0* has included:

- revision of the Certificate IV in Laboratory Techniques
- revision of the Diploma of Laboratory Technology (to include entry requirements and optional specialisations)
- development of the MSLSS00001 Histotechnology skill set
- revision of 101 units of competency to remove superfluous information and refine the outcome of the work tasks
- development of two new units:
    - MSL954003 Relate anatomical and physiological features to laboratory samples
    - MSL975028 Apply advanced embedding and microtomy skills
- combining two units into one so that MSL974016 Perform physical and mechanical tests replaces:
    - MSL974005 Perform physical tests
    - MSL974010 Perform mechanical tests
- renaming of three units, to better describe the unit outcome, including:
    - MSL925003 Determine measurements of uncertainty
    - MSL934004 Maintain and calibrate instruments and equipment
    - MSL977005 Validate test methods
- deleting five Scientific glassblowing units (as no longer used by industry).

All units requiring endorsement have had new codes allocated. As a result, the qualifications listed below have also been recoded as core units within these qualifications have been updated.

- MSL20118 Certificate II in Sampling and Measurement
- MSL30118 Certificate III in Laboratory Skills
- MSL60118 Advanced Diploma of Laboratory Operations.

RTOs will need to update training and assessment strategies as the content of units has changed, however they remain equivalent. RTOs will also need to review the training and assessment materials used to deliver and assess the revised units and qualifications. Detail of the changes is outlined in the mapping information.

Mapping information

Detailed mapping of MSL qualifications and units of competency, Release 2.0 to Release 3.0 and Release 1.0 to Release 2.0 is available at:

- Appendix II: Qualification mapping
- Appendix III: Unit mapping.

Mapping to previous versions of a training package is useful for delivery and assessment purposes. It:

- outlines the changes between current and previous versions of qualifications and units of competency
- states whether the vocational outcomes of the current and previous versions of units and qualifications are equivalent
- notes changes for each component, and identifies components that are new, or have been deleted
- RTOs can use this mapping as information to assist in designing training and assessment strategies, including recognition of prior learning (RPL) pathways.

Refer to the MSL Companion Volume Implementation Guide Release 1.0 for a mapping of qualifications and units from MSL09 to MSL Release 1.0.

Unit coding

Table 1 indicates the industry field codes for MSL units of competency. These codes follow MSL for each unit of competency.

Table 1: Sector/competency field

Code	Sector/competency field
90	Calibration
91	Communication/organisation
92	Data
93	Quality
94	Work health and safety
95	Sampling
97	Testing

The sector number is then followed by an AQF identifier noting where the unit was first packaged (2 for AQF2, 3 for AQF 3) and indicates the complexity of the skills and knowledge covered, which is followed by a unique unit code of two numbers. For example, the code MSL973010 is a unit code for the Testing sector, first packaged at AQF3, number 10 in the sequence for similar units.

Key work and training requirements

The MSL Laboratory Operations Training Package covers a diverse group of technical and scientific occupations located across the whole of industry. People covered include scientific and technical employees involved in a variety of science-based occupations across many industries.

The MSL Laboratory Operations Training Package addresses the training and recognition needs of samplers, testers and laboratory personnel working in a wide range of enterprises and industry sectors, including:

- biotechnology
- biomedical research
- pathology testing
- calibration
- chemical analysis
- forensic analysis
- environmental analysis
- construction materials
- soil testing
- education
- environmental monitoring and technology
- food and beverage processing and testing
- mining, mineral assay
- process manufacturing
- wine making.

The occupations covered are those in which non-professional employees use scientific techniques and equipment to carry out tests, and to operate and manage scientific processes. The core of these jobs is the use of scientific techniques, equipment and related knowledge.

A range of factors has driven the need for qualifications in these occupations.

First amongst them is the increasing regulation of standards relating to use of materials and equipment. Testing and monitoring of environmental and health hazards in the food processing and rural sectors are typical areas where this is observed. Similarly, testing of product safety is particularly important in the manufacturing industry.

A second factor is increasing attention to quality within manufacturing and construction. Testing of materials and products is now an inherent part of design and product quality systems.

This is a scientific and technology based industry. It is a key role of laboratory personnel to recognise and report non-conformance and maintain security and confidentiality of all client/enterprise data and information. Personnel generally work under strict operating procedures and must be able to access, record and present information accurately. Initiative and planning is required at all levels.

Regulation and licensing requirements

No licensing or certification requirements exist for any of the job roles covered by the qualifications at the time of publication.

However, regulations and/or external accreditation requirements for laboratory operations exist, so users should always check local requirements. Relevant legislation, industry standards and codes of practice within Australia must also be applied.

Contacts in the following table may be useful.

Requirement	**Organisation**	**Link**
Assessment, accreditation and training services to laboratories and technical facilities	National Association of Testing Authorities, Australia	www.nata.com.au
Clinical practice guidelines/Ethics	National Health and Medical Research Council (Australian Government)	www.nhmrc.gov.au
State Health Services/Regulations	State/Territory Departments of Health	All listed at: www.health.gov.au/internet/main/publishing.nsf/Content/state-health-services.htm
AS ISO Standards	Standards Australia	www.standards.org.au

2. Implementation information

RTOs will need to implement a comprehensive training and assessment strategy for each MSL Laboratory Operations Training Package qualification they deliver.

MSL Laboratory Operations Training Package is a cross-industry Training Package relevant to the broad spectrum of Australian industries, and users must select and customise programs to meet industry and candidate needs.

This implementation information is provided to assist RTOs to develop their learning and assessment strategies to meet industry and candidate needs. It includes information on:

- choosing the appropriate qualification
- choosing electives
- supporting candidates
- delivering the training
- assessing candidates.

Choosing the appropriate qualification

Where do you start? What qualification and units of competency in this Training Package are suitable for this industry sector or this candidate?

This section will assist Training Package users to develop their training and assessment strategies, customise the program to meet industry sector and candidate needs, identify the most suitable qualification for a candidate and apply the volume of learning and amount of training required to comply with the Australian Qualifications Framework (AQF).

This section provides information about:

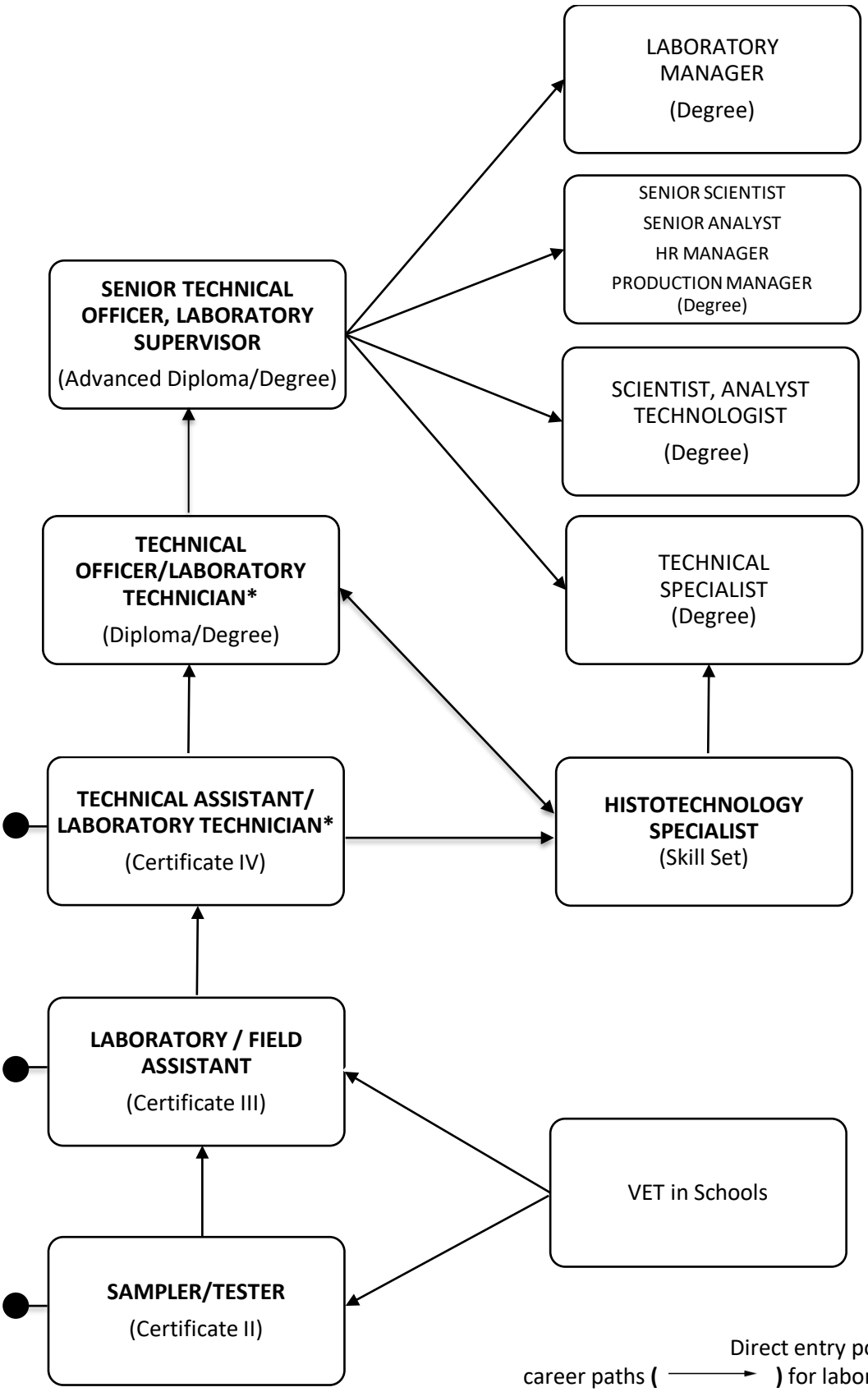
- career pathways
- entry requirements and pathways into and out of qualifications
- qualifications, occupational outcomes and the AQF
- qualifications with specialisations.

Career pathways

The MSL Laboratory Operations Training Package qualifications have been developed to simultaneously support career pathways for laboratory personnel, and articulation up the AQF levels.

The following career pathways chart shows the alignment between the occupational roles and the qualifications, and how these articulate into Degree programs. It provides an indication of the qualification pathways, direct entry points, links between qualifications in the VET and higher education sectors, and the occupational roles within laboratory operations.

Note that the titles of job roles vary between the sectors within laboratory operations work.



Direct entry points (●) and career paths (→) for laboratory personnel.

The MSL Laboratory Operations Training Package covers the occupations shown in **bold**.

* Titles of job roles vary between sectors.

Entry requirements and pathways into and out of qualifications

The qualifications in MSL Laboratory Operations Training Package have been designed to support direct entry into qualifications, except for the Diploma and Advanced Diploma which have entry requirements. The qualifications support articulation into the next qualification and into higher education Degree programs.

MSL20118 Certificate II in Sampling and Measurement
Pathways into the qualification
There are no entry requirements into this qualification.
Pathways from the qualification
Training pathways from this qualification include the MSL30118 Certificate III in Laboratory Skills.

MSL30118 Certificate III in Laboratory Skills
Pathways into the qualification
There are no entry requirements into this qualification.
Credit may be granted towards this qualification by those who have completed MSL20116 Certificate II in Sampling and Measurement.
Pathways from the qualification
Training pathways from this qualification include MSL40118 Certificate IV in Laboratory Techniques.

MSL40118 Certificate IV in Laboratory Techniques
Pathways into the qualification
There are no entry requirements into this qualification.
Credit may be granted towards this qualification by those who have completed MSL30116 Certificate III in Laboratory Skills or relevant skill set.
Pathways from the qualification
Further training pathways from this qualification include MSL50118 Diploma of Laboratory Technology.

MSL50118 Diploma of Laboratory Technology
Pathways into the qualification

Entry into this qualification is open to individuals who:

- hold a Certificate IV in Laboratory Techniques

or

- hold a relevant Certificate IV or higher level qualification in a relevant science discipline

or

- can demonstrate equivalent skills and knowledge in a relevant science discipline to any of the above qualifications.

Entry requirements have been added to the Diploma of Laboratory Technology to ensure that learners have the base level of scientific skills and knowledge required to undergo learning at this level. The field of science required for entry should be relevant to the area of specialisation, for example:

- For the *Pathology specialisation* the qualification should have a basic chemistry and biology and/or microbiology focus
- For the *Chemistry specialisation* the qualification should have a chemistry focus
- For the *Construction specialisation* the qualification should have construction or geotechnical, or environmental science focus
- For the *Food specialisation* the qualification should have basic chemistry and biology and/or microbiology focus
- For the *Biotechnology specialisation* the qualification should have basic chemistry and biology and/or microbiology focus.

RTOs need to determine the suitability and appropriateness of the entry qualification, and/or experience, to ensure that applicants who wish to commence the qualification have the required skills and knowledge in science to successfully complete the qualification at Diploma level.

RTOs must conduct a preliminary assessment of individuals to determine knowledge and skill to the equivalent level of the qualifications listed in the entry requirements. Due to the variability of programs at different schools, entry based purely on completion of Year 12 programs is not sufficient.

The entry qualification, and/or experience, should provide evidence that infers a strong likelihood of successful completion of studies at an AQF level 5. Applicants that do not have the requisites for successful completion may be disadvantaged in undertaking study of the Diploma of Laboratory Technology.

The entry qualification, and/or experience, may provide further evidence toward assessment of skills and knowledge in a range of units.

Pathways from the qualification
Further training pathways from this qualification include MSL60118 Advanced Diploma of Laboratory Operations and entry into a Degree program (credit may be given for both these pathways).

MSL60118 Advanced Diploma of Laboratory Operations
Pathways into the qualification
To enter the Advanced Diploma of Laboratory Operations, entrants must have completed a Diploma of Laboratory Technology or be able to demonstrate equivalent competency, and have had experience working in a laboratory at an occupational level commensurate with the Diploma of Laboratory Technology. This is to ensure that they have the background required to be able to achieve the competencies in the Advanced Diploma, which provides training for laboratory supervisors who coordinate the day to day operations of a laboratory or section.
Pathways from the qualification
Further training pathways from this qualification include entry into a Degree program (credit may be given).

MSLSS00001 Histotechnology skill set
Pathways into the skill set
There are no entry requirements to this sill set – it is open to individuals who wish to develop skills in histotechnology.
Pathways from the skill set
Credit may be given toward a number of MSL qualifications, including MSL40118 Certificate IV in Laboratory Techniques, MSL50118 Diploma of Laboratory Technology
and MSL60118 Advanced Diploma of Laboratory Operations.

Qualifications, occupational outcomes and the AQF

The Australian Qualifications Framework (AQF) is the national policy for regulated qualifications in Australian education and training. The AQF levels define the relative complexity and depth of achievement and the autonomy required of graduates to demonstrate that achievement. RTOs must meet the requirements of the AQF (https://www.aqf.edu.au/). They must also ensure that candidates are enrolled in appropriate qualifications. This section provides information for each qualification about the occupational outcomes, gives examples of the work at that AQF level and gives the AQF qualification type learning outcomes descriptor.

The AQF qualification type learning outcomes descriptor includes the volume of learning. The difference between the volume of learning and amount of training is given below.

The AQF provides the **volume of learning** allocated to a qualification. This includes all teaching, learning and assessment activities that are required to be undertaken by the typical student to achieve the learning outcomes. These activities may include guided learning (classes, lectures, tutorials, online or self-paced study), individual study, research, learning activities in the workplace, and assessment activities.

The **amount of training** provided by an RTO is part of the overall volume of learning and relates primarily to formal activities (including classes and other activities, as well as workplace learning). RTOs are required to comply with the AQF in applying the volume of learning to training programs and must therefore develop and implement strategies for training and assessment that are consistent with the AQF.

When developing a training and assessment strategy RTOs must take into account the need to allow candidates to reflect on and absorb the knowledge, to practise the skills in different contexts, and to learn to apply the skills and knowledge in the varied environments that the 'real world' offers before being assessed.

MSL20118 Certificate II in Sampling and Measurement
The Certificate II in Sampling and Measurement offers entry-level training for sampling and measurement skills applied across a range of industries.

Occupational outcomes targeted by this qualification include samplers and testers, production personnel, plant operators, production operators, field assistants, drivers, sample couriers, and many others.

This qualification covers the skills and knowledge required to perform a range of sampling and measurement as part of laboratory, production or field operations in the construction, manufacturing, resources and environmental industry sectors.

Samplers and testers conduct limited and routine sampling and testing as part of their duties in their particular industry. In some industry sectors (for example, mineral assay) this work forms a whole occupational outcome. They apply a restricted range of skills and operational knowledge to perform these tasks and do not generally work inside a laboratory. They:

- follow set procedures to sample raw materials and products
- may package, label, store and transport samples
- use simple equipment (hydrometers, thermometers and pH meters) to make measurements and perform basic tests that take a short time and involve a narrow range of variables and easily recognised control limits
- may make visual inspection of products and packaging.

Examples of the work of sampler/testers:

- A milk tanker driver conducts aseptic sampling of milk before loading and then conveys the samples to the laboratory.
- An operator in a quarry may take samples from stockpiles and conveyors and conduct simple tests on different grades of aggregates.
- A field officer working in environmental monitoring may visit a catchment area to collect water samples
- Sampler/testers take air samples for testing for microbial monitoring of air conditioning or cooling towers.
- Field assistants in the sample preparation facility of a mining company collect, log and prepare samples to be forwarded for analysis in regional centres.

AQF qualification type learning outcomes descriptor

Purpose

The Certificate II qualifies individuals to undertake mainly routine work and as a pathway to further learning.

Knowledge

Graduates of a Certificate II will have basic factual, technical and procedural knowledge in a defined area of work and learning

Skills

Graduates of a Certificate II will have:

- cognitive skills to access, record and act on a defined range of information from a range of sources
- cognitive and communication skills to apply and communicate known solutions to a limited range of predictable problems
- technical skills to use a limited range of equipment to complete tasks involving known routines and procedures with a limited range of options.

Application

Graduates of a Certificate II will demonstrate the application of knowledge and skills with some accountability for the quality of own outcomes and some responsibility for own outputs in and skills work and learning. Work involves limited autonomy and judgement in the completion of own defined and routine tasks in known and stable contexts and in collaboration with others in a team environment.

Volume of learning

The volume of learning of a Certificate II is typically 0.5-1 year. This equates to 600-1200 hours.

MSL30118 Certificate III in Laboratory Skills

The Certificate III in Laboratory Skills offers entry-level technical training in laboratory skills across a range of industries.

Occupational outcomes targeted by this qualification include laboratory assistants, field assistants, instrument operators and similar personnel.

Laboratory assistants perform straightforward sampling and testing. They follow set procedures and recipes, and apply well developed technical skills and basic scientific knowledge. The majority of their work involves a predictable flow of parallel or similar tasks within one scientific discipline. They generally work inside the laboratory, but may also perform technical tasks outside of the laboratory. They may also perform a range of laboratory maintenance and office tasks. The majority of their work involves a predictable flow of parallel or similar tasks within one scientific discipline. They:

- perform straightforward technical tasks to prepare and test samples using relevant procedures, Australian Standards and readily available advice. These tasks generally require close attention to detail and to the accuracy and precision of measurements. They may require the use of manual or semi-automated techniques
- operate test equipment and instruments and make limited adjustments to their controls
- process and record data and recognise trends and out of control conditions
- solve predictable problems using clear information or known solutions, where alternatives exist, they are limited and apparent
- work under close and regular supervision, although they may have autonomy for specific tasks and responsibility for their own outputs
- take decisions within defined limits of responsibility
- work as part of a team.

Examples of the work of laboratory assistants are given below.

- A laboratory assistant working at a dairy factory gathers samples from the milk tankers, vats and the processing line, and performs routine chemical and bacteriological tests on the samples.

- A laboratory assistant in a pathology laboratory receives and prepares tissue samples.
- A school laboratory assistant may set up for classes, preparing chemicals and instruments for students to undertake practical work.
- A laboratory assistant working in construction materials testing receives and prepares soil samples for classification testing.

AQF qualification type learning outcomes descriptor

Purpose

The Certificate III qualifies individuals who apply a broad range of knowledge and skills in varied contexts to undertake skilled work and as a pathway for further learning

Knowledge

Graduates of a Certificate III will have factual, technical, procedural and theoretical knowledge in an area of work and learning

Skills

Graduates of a Certificate III will have:

- cognitive, technical and communication skills to interpret and act on available information
- cognitive and communication skills to apply and communicate known solutions to a variety of predictable problems and to deal with unforseen contingencies using known solutions
- technical and communication skills to provide technical information to a variety of specialist and non-specialist audiences
- technical skills to undertake routine and some non-routine tasks in a range of skilled operations.

Application

Graduates of a Certificate III will demonstrate the application of knowledge and skills with discretion and judgement in the selection of equipment, services or contingency measures and skills to adapt and transfer skills and knowledge within known routines, methods, procedures and time constraints.

Work is in the context of taking responsibility for own outputs in work and learning, including participation in teams and taking limited responsibility for the output of others within established parameters.

Volume of learning

The volume of learning of a Certificate III is typically 1-2 years which equates to 1200- 2400 hours.

MSL40118 Certificate IV in Laboratory Techniques

The Certificate IV in Laboratory Techniques offers technical training in laboratory techniques across a wide range of industries. Occupational outcomes targeted by this qualification include technical assistants, technicians, instrument operators and similar personnel.

Technical assistants undertake a wide range of sampling and testing that require the application of a broad range of technical skills and some scientific knowledge. Although technical assistants generally work in a laboratory, they often work closely with other personnel throughout the workplace, and with suppliers. The work of technical assistants involves similar tasks within one scientific discipline with occasional peak periods and some interruptions. They may assist other personnel to solve technical problems and to adjust formulations and production mixes. They may also train them to collect samples and conduct basic tests reliably. They:

- work according to established procedures in a structured environment
- collect and prepare samples
- conduct a wide range of basic tests and a limited range of specialised tests and measurements using manual, semi-automated and fully automated techniques
- define and solve problems of limited complexity where the information available is less obvious, but not contradictory, and can be determined by direct reasoning

- work under the direction and regular supervision of senior technical staff, laboratory or quality managers, or scientific/medical personnel. The work of technical assistants is normally subject to frequent progress and quality checks
- generally work in a team and may have responsibility for their own work outputs.

Examples of the work of laboratory technicians:
- A technical assistant who works in a mineral preparation plant receives and logs incoming ore samples and operates handling equipment to move samples to treatment points. In the laboratory, the assistant conducts routine chemical and physical tests and redirects other sub-samples for specialised analyses.
- A technician who works for an environmental consulting company conducts field sampling and testing and operates/maintains several remote sensing sites.

AQF qualification type learning outcomes descriptor
Purpose
The Certificate IV qualifies individuals who apply a broad range of specialised knowledge and skills in varied contexts to undertake skilled work and as a pathway for further learning.

Knowledge
Graduates of a Certificate IV will have broad factual, technical and theoretical knowledge in a specialised field of work and learning.
Skills
Graduates of a Certificate IV will have:
- cognitive skills to identify, analyse, compare and act on information from a range of sources
- cognitive, technical and communication skills to apply and communicate technical solutions of a non-routine or contingency nature to a defined range of predictable and unpredictable problems
- specialist technical skills to complete routine and non-routine tasks and functions
- communication skills to guide activities and provide technical advice in the area of work and learning.

Application
Graduates of a Certificate IV will demonstrate the application of knowledge and skills to specialised tasks or functions in known or changing contexts with responsibility for own functions and outputs, and may have limited responsibility for organisation and quantity and quality of the output of others within limited parameters.
Volume of learning
The volume of learning of a Certificate IV is typically 0.5-2 years. This equates to 600-2400 hours. In MSL the qualification is designed for entry-level to work which is a longer duration qualification.

MSL50118 Diploma of Laboratory Technology
The Diploma of Laboratory Technology offers broad or specialised technical training in a range of laboratory technologies. Employment outcomes targeted by this qualification include technical officers, laboratory technicians, analysts and similar personnel.

Technical officers conduct a wide range of sampling and testing that requires the application of broad scientific-technical knowledge and skills, with substantial depth in some areas. Although technical officers generally work in a laboratory, they can work closely with personnel in other teams within a section of the workplace.

They may liaise with suppliers to troubleshoot product non-conformance at the direction of laboratory supervisors or managers. They gather information on non-conformance and events that may lead to the modification of workplace procedures. They may also demonstrate methods to others and train them to collect samples and conduct basic tests reliably.

The work of technical officers involves frequent peak periods and interruptions. They:

- conduct a wide range of routine and specialised tests where atypical samples may be involved and where the instrumentation used has a wide range of operating variables
- contribute to the modification of standard operating procedures (SOPs) and enterprise methods when necessary
- define and solve problems where alternatives are not obvious and where investigations and trials may be required and the implications of various solutions considered
- work under the direction and supervision of laboratory or quality managers, or scientific/medical professionals
- often work as part of a team and may have a role in the planning of schedules and monitoring of resources in their work area
- organise the work of others and plan and coordinate and evaluate the work of teams, within broad but generally well-defined parameters.

Examples of the work of technical officers:

- A technical officer working in a biotechnology laboratory prepares, maintains and preserves cells and cell lines for the large scale production of monoclonal antibodies.
- A calibration officer working in a calibration laboratory performs standard and non-standard calibrations of equipment provided by clients.
- A technical officer who works in a pathology laboratory performs a range of tests on body tissues, prepares cultures, stains tissue sections and thin films and counts and classifies cells, bacteria and parasites. They also perform routine calibration and maintenance of instruments.
- An analyst working in an analytical laboratory analyses samples using a range of techniques and instruments, establishes client needs for routine and non-routine samples, optimises enterprise procedures and instruments for specific samples, recognises atypical data and results and troubleshoots common analytical procedure and equipment problems.
- A technical officer who works in a major food processing plant conducts a range of tests on the company products to measure:
    - the concentration of nutrients and food additives, such as dyes and flavourings
    - the concentration of contaminants, such as heavy metals and microbial toxins
    - pH, salt, moisture and fat content.

  The officer also conducts a range of tests on the packaging material used for the company's products.

AQF qualification type learning outcomes descriptor

Purpose

The Diploma qualifies individuals who apply integrated technical and theoretical concepts in a broad range of contexts to undertake advanced skilled or paraprofessional work and as a pathway for further learning. They apply knowledge and skills:

- with depth in some areas of specialisation, in known changing environments
- to transfer and apply theoretical concepts and technical skills in a range of situations
- with personal responsibility and autonomy in performing complex technical operations with responsibility for known outputs in relation to broad parameters for quantity and quality
- with initiative and judgement to organise work of self and others and plan, coordinate and evaluate the work of teams within broad but generally well-defined parameters.

Application

Graduates of a Diploma will demonstrate the application of knowledge with depth in some areas of specialisation, in known or changing contexts and skills to transfer and apply theoretical concepts and/or technical and/or creative skills in a range of situations with personal responsibility and autonomy in performing complex technical operations and for quantity and quality. Work involves initiative and

judgement to organise the work of self and others and plan, coordinate and evaluate the work of teams within broad but generally well-defined parameters.

Volume of learning

The volume of learning for a Diploma is typically 1-2 years which equates to 1200-2400 hours.

MSL60118 Advanced Diploma of Laboratory Operations

The Advanced Diploma of Laboratory Operations offers training in the coordination of day-to-day laboratory operations. Occupational outcomes targeted by this qualification include laboratory supervisors, senior technical officers and similar personnel.

Senior technicians or laboratory supervisors are generally responsible for the planning, allocation of tasks, coordination, quality assurance, recording and reporting of laboratory outputs within their section. This requires significant judgement about work sequences, choice of appropriate technology and procedures to ensure that products and services meet customer expectations and are provided safely and efficiently in keeping with enterprise business plan. Under broad direction from scientists/medical staff/engineers they accept responsibility for the day-to-day operation of the work area.

They are often responsible for the effective implementation of operational policies and the technical training of personnel in their work area. They also contribute significantly to the development of these policies through the application of specialised technical knowledge.

The work of laboratory supervisors involves frequent peak periods, multiple and competing demands and frequent interruptions. Immediate decisions are often required. They must be adaptable to deal with the demands brought about by any of a number of causes. For example:

- a range of demanding clients, suppliers or contractors
- changes in technology
- regularly changing priorities.

They may also undertake a range of complex technical tasks. For example:

- conducting a wide range of complex and specialised tests
- exercising considerable analytical and judgement skills to determine appropriate methods and procedures from a range of alternatives
- modifying methods to cope with non-routine tests and analyses where unusual samples could be involved and/or where the instrumental controls require optimisation
- developing or adapting methods and procedures.

In the course of their normal work, they:

- plan, allocate and monitor resources for their work area and are responsible for their work group's outputs
- apply in-depth technical knowledge and skills to deliver the variety of products and services associated with the work area
- explain complex instructions and procedures to others
- define and solve complex problems by investigating, developing and testing alternatives in response to vague or ill-defined information which is not readily accessible and requires selective analysis
- make significant contributions to the development of technical and operational policy and procedures within a function or work area
- liaise with outside organisations, customers, suppliers and contractors on technical matters
- provide technical information to internal and external customers
- often provide workplace training and assessment
- implement, maintain and promote work health and safety (WHS), quality and other compliance requirements and conduct audits

- work under the general direction of laboratory or quality managers, or scientific/medical personnel.

An example of the work of a laboratory supervisor:

- A laboratory supervisor in a large water and sewerage utility company has been a senior technical officer for more than five years. The officer supervises technical personnel in the environmental testing section, monitors the quality of their work, oversees their training and ensures that regulatory and NATA requirements are met. The officer assists with the planning of the section's work program and advises management and customers about test schedules, results and methodology.

AQF qualification type learning outcomes descriptor

Purpose

The Advanced Diploma qualifies individuals who apply specialised knowledge in a range of contexts to undertake advanced skilled or paraprofessional work and as a pathway for further learning.

Knowledge

Graduates of an Advanced Diploma will have specialised and integrated technical and theoretical knowledge with depth within one or more fields of work and learning.

Skills

Graduates of an Advanced Diploma will have:

- cognitive and communication skills to identify, analyse, synthesise and act on information from a range of sources
- cognitive and communication skills to transfer knowledge and skills to others and to demonstrate understanding of specialised knowledge with depth in some areas
- cognitive and communication skills to formulate responses to complex problems
- wide-ranging specialised technical, creative or conceptual skills to express ideas and perspectives.

Application

Graduates of an Advanced Diploma will demonstrate the application of knowledge and skills with depth in areas of specialisation, in contexts subject to change using initiative and judgment in planning, design, technical or management functions with some direction. Work requires adapting a range of fundamental principles and complex techniques to known and unknown situations across a broad range of technical or management functions with accountability for personal outputs and personal and team outcomes within broad parameters.

Volume of learning

The volume of learning of an Advanced Diploma is typically 1.5-2 years which equates to 1800 to 2400 hours.

Choosing electives

The elective units of competency listed within the MSL Laboratory Operations Training Package provide for skill development in all the industry sectors identified by industry representatives during consultations. All qualifications are able to be customised since particular combinations of elective units can be selected to suit individual candidate needs and the industry sector.

This section provides information about:

- selecting appropriate elective units of competency
- importing elective units
- contextualising units of competency
- this competency in practice
- learning pathways for industry sectors.

Qualifications with specialisations

All MSL qualifications offer elective choices, but the only qualification with optional, bracketed specialisations is the Diploma of Laboratory Technology, which notes packaging rules within the qualification for five optional specialisations in Pathology, Chemistry, Construction, Food and Biotechnology. Following the 2012 Standards for Training Package, bracketed specialisations are not an option for any other qualification.

The electives in any qualification will be chosen, based on industry engagement, to meet the needs of that industry sector and relevant to the work outcome. The following sections give examples.

Selecting appropriate elective units of competency

Nine common occupational roles that the MSL Laboratory Operations Training Package qualifications and units support have been selected as examples:

- sampler/tester working in manufacturing or in a field environment
- laboratory/technical assistant working in construction materials testing
- laboratory assistant working in a food company
- technician working in a mineral assay laboratory
- technical assistant working in environmental monitoring
- technical officer working in biotechnology
- calibration technician
- pathology technician
- chemical technician/analyst.

These occupational roles and the elective units of competency that would be suitable for them are outlined below.

Sampler/tester working in manufacturing or a field environment

Samplers and testers conduct limited sampling and measurement as part of their duties. In areas such as mineral assay, for example, this work forms a whole occupational outcome. They apply a restricted range of skills and operational knowledge to perform these tasks and do not generally work inside a laboratory. Examples of the work of samplers and testers are given below.

An operator in a quarry may take samples from stockpiles and conveyors and conduct simple tests on different grades of aggregates.

In the sample preparation facility of a mining company, field assistants collect, log and prepare samples to be forwarded for analysis in regional centres.
Some relevant units of competency required for this work include:

MSL952001	Collect routine site samples
MSL952002	Handle and transport samples or equipment
MSL972001	Conduct routine site measurements.

Laboratory/technical assistant working in construction materials testing

Laboratory assistants perform straightforward sampling and testing. They follow set procedures and recipes, and apply well developed technical skills and basic scientific knowledge. The majority of their work involves a predictable flow of parallel or similar tasks within one scientific discipline.

For example, a laboratory assistant working in construction materials testing receives and prepares soil samples for classification testing. Some relevant units of competency required for this work include:

MSL952001	Collect routine site samples
MSL952002	Handle and transport samples or equipment

MSL953003 Receive and prepare samples for testing
MSL973022 Conduct laboratory-based acceptance tests for construction materials
MSL974016 Perform physical and mechanical tests

Laboratory assistant working in a food company
As noted above, laboratory assistants perform straightforward sampling and testing. They follow set procedures and recipes, and apply well-developed technical skills and basic scientific knowledge. They generally work inside the laboratory, but may also perform technical tasks within the production plant.

For example, a laboratory assistant working at a dairy factory gathers samples from the milk tankers, vats and the processing line, and performs routine chemical and bacteriological tests on the samples. Some relevant units of competency required for this work include:

MSL933007 Apply critical control point requirements
MSL953003 Receive and prepare samples for testing
MSL973013 Perform basic tests
MSL973016 Perform aseptic techniques
MSL973019 Perform microscopic examination
MSL974020 Perform food tests.

Technician working in a mineral assay laboratory
Technical assistants undertake a wide range of sampling and testing that requires the application of a broad range of technical skills and some scientific knowledge. Although technical assistants generally work in a laboratory, they often work closely with other personnel throughout the workplace. The work of technical assistants involves similar tasks within one scientific discipline with occasional peak periods and some interruptions.

For example, a technician who works in a mineral preparation plant receives and logs incoming ore samples and operates handling equipment to move samples to treatment points. In the laboratory, the technician conducts routine chemical and physical tests and redirects other subsamples for specialised analyses. Some relevant units of competency required for this work include:

MSL953003 Receive and prepare samples for testing
MSL954005 Prepare mineral samples for analysis
MSL974019 Perform chemical tests and procedures
MSL974016 Perform physical and mechanical tests
MSL975041 Perform fire assay techniques
MSL973023 Perform fire pouring techniques.

Technical assistant working in environmental monitoring
As above, technical assistants undertake a wide range of sampling and testing that requires the application of a broad range of technical skills and some scientific knowledge. The work of technical assistants involves similar tasks within one scientific discipline with occasional peak periods and some interruptions. They may also assist other personnel to solve technical problems.

For example, a technician who works for an environmental consulting company conducts field sampling and testing and operates/maintains several remote sensing sites. Some relevant units of competency required for this work include:

MSL973013 Perform basic tests
MSL954004 Obtain representative samples in accordance with sampling plan
MSL974022 Undertake environmental field-based monitoring
MSL974024 Undertake field-based, remote-sensing monitoring.

Technical officers working in biotechnology, calibration, pathology or chemical analysis laboratories
Technical officers conduct a wide range of sampling and testing that requires the application of broad scientific-technical knowledge and skills, with substantial depth in some areas. Although technical officers generally work in a laboratory, they often work closely with personnel in other teams within a section of the workplace.

They may liaise with suppliers to troubleshoot product non-conformance at the direction of laboratory supervisors or managers. They gather information on non-conformance and events that may lead to the modification of workplace procedures. They may also demonstrate methods to others and train them to collect samples and conduct basic tests reliably.

The work of technical officers involves frequent peak periods and interruptions.

Technical officers working in biotechnology
A technical officer working in a biotechnology laboratory prepares, maintains and preserves cells and cell lines for the large-scale production of monoclonal antibodies. Some relevant units of competency required for this work include:

MSL974025	Prepare tissue and cell cultures
MSL974021	Perform biological procedures
MSL975033	Perform tissue and cell culture techniques
MSL975034	Perform molecular biology tests and procedures.

Calibration technician
A technical officer working in a calibration laboratory performs standard and non-standard calibrations of equipment provided by clients. Some relevant units of competency required for this work include:

MSL904002	Perform standard calibrations
MSL905004	Perform non-standard calibrations
MSL905005	Create or modify calibration procedures
MSL905006	Create or modify automated calibration procedures
MSL935007	Monitor the quality of test results and data.

Pathology technician
Technical officers who work in pathology laboratories perform a range of tests on body tissues and fluids to measure quantities such as the amount of biological substances. They also prepare cultures, stained tissue sections and thin films to count and classify cells, bacteria and parasites. Some relevant units of competency required for this work include:

MSL975035	Perform microbiological tests
MSL975036	Perform haematological tests
MSL975029	Perform histological tests
MSL975037	Perform chemical pathology tests.

Chemical technician/analyst
Technical officers working in analytical laboratories analyse samples using a range of techniques and instruments. They establish client needs for routine and non-routine samples, optimise enterprise procedures and instruments for specific samples, recognise atypical data and results and troubleshoot common analytical procedure and equipment problems. Some relevant units of competency required for this work include:

MSL975040	Apply routine chromatographic techniques
MSL975046	Perform complex tests to measure chemical properties of materials
MSL975047	Apply complex instrumental techniques

MSL975048 Apply routine spectrometric techniques
MSL975049 Apply routine electrometric techniques.

Competency in practice

Industry representatives have provided case studies to illustrate practical application of a range of MSL units of competency units in different industry sectors. These are provided in the MSL Companion Volume User Guide. They can be used to assist in selecting units of competency, and to help develop training and assessment strategies.

Importing elective units

To achieve maximum cross-industry application, the packaging rules of all qualifications enable units of competency to be imported from any Training Package that is directly relevant to the candidate's current or intended laboratory work environment. In providing this flexibility it is incumbent on RTOs to ensure that the integrity of qualifications in the Training Package is maintained. It is a requirement that RTOs can provide evidence of engaging with industry to select imported electives. The following guidelines for importing units apply.

Imported units must relate to core functions or roles in the candidate's current or intended laboratory work environment (for example, food production processes, process manufacturing operations, information technology, front line management, workplace training and assessment).

Imported units must come from endorsed Training Packages or accredited courses.

Contextualising units of competency

It is vital that cross-industry competencies are able to be used in a wide range of industry sectors and enterprises. To enable this, contextualising the units of competency is actively encouraged.

Sequence of skill development for industry sectors

Several units of competency include prerequisites that define knowledge and skills required to commence learning within that unit. Units with prerequisites are listed at Appendix I.

The following learning sequences for skills development in different industry sectors are suggested for institutionally-based candidates. They support maximising the time candidates have to practice and consolidate the required skills and knowledge.

Microbiological testing sequence

MSL973016 Perform aseptic techniques and MSL973019 Perform microscopic examination

MSL974021 Perform biological procedures and MSL954003 Relate anatomical and physiological features to laboratory samples and MSL953003 Receive and prepare samples for testing

MSL975034 Perform molecular biology tests and procedures

MSL975035 Perform microbiological tests

Haematological testing sequence

MSL973016 Perform aseptic techniques and MSL973019 Perform microscopic examination

MSL974021 Perform biological procedures and MSL954003 Relate anatomical and physiological features to laboratory samples and MSL953003 Receive and prepare samples for testing

MSL975034 Perform molecular biology tests and procedures and MSL975037 Perform chemical pathology tests

MSL975036 Perform haematological tests

MSL975030 Perform immunohaematological tests

Histotechnology testing sequence

MSL973019 Perform microscopic examination and MSL973020 Perform histological procedures

MSL953003 Receive and prepare samples for testing and MSL954003 Relate anatomical and physiological features to laboratory samples

MSL975029 Perform histological tests

MSL975028 Apply advanced embedding and microtomy skills

Chemical testing sequence

MSL973014 Prepare working solutions

MSL974017 Prepare, standardise and use solutions and MSL974019 Perform chemical tests and procedures

MSL975039 Apply electrophoretic techniques or MSL975040 Apply routine chromatographic techniques or MSL975048 Apply routine spectrometric techniques

MSL975046 Perform complex tests to measure chemical properties of materials or MSL975047 Apply complex instrumental techniques

Construction materials testing sequence
MSL973013 Perform basic tests

MSL973022 Conduct laboratory-based acceptance tests for construction materials and MSL973021 Conduct field-based acceptance tests for construction materials

MSL974026 Perform tests to determine the properties of construction materials

MSL975044 Perform complex tests to measure engineering properties of materials

Environmental field monitoring sequence
MSL974022 Undertake environmental field-based monitoring

MSL975042 Design and supervise complex environmental field surveys

MSL976004 Prepare plans and quality assurance procedures for environmental field activities

Fire assay sequence
MSL973023 Perform fire pouring techniques

MSL954005 Prepare mineral samples for analysis

MSL975041 Perform fire assay techniques

Food testing sequence
MSL973016 Perform aseptic techniques and MSL973019 Perform microscopic examination

MSL974020 Perform food tests

MSL975050 Perform food analyses or
MSL975048 Apply routine spectrometric techniques

Soil testing sequence

MSL973021 Conduct field-based acceptance tests for construction materials and MSL973022 Conduct laboratory-based acceptance tests for construction materials

MSL954004 Obtain representative samples in accordance with sampling plan

MSL974028 Classify soils or
MSL974018 Conduct geotechnical site investigations

MSL975055 Classify building sites or
MSL975031 Supervise sampling, inspections and testing at construction sites

Supporting candidates

Work health and safety (WHS)

The MSL Laboratory Operations Training Package components reference WHS. This term may differ across jurisdictions and the term occupational health and safety (OHS) may be used in some states. All operations must comply with local requirements for WHS (or OHS) and with environmental management requirements – these requirements must not be compromised at any time.

All operations assume the potentially hazardous nature of samples and require standard precautions to be applied.

Where relevant, users should access and apply current industry understanding of infection control issued by the National Health and Medical Research Council (NHMRC) and State and Territory Departments of Health.

Individual units of competency give details on the relevant WHS requirements.

Legal considerations for candidates in the workplace / work placements

Laboratory operations are governed by relevant legislation, regulations and/or external accreditation requirements. Local requirements should be checked.

You must comply with Commonwealth, state and territory legislation and regulatory requirements relevant to laboratory operations, including NATA requirements where relevant.

Access and equity

A candidate's access to the training and assessment process should not be adversely affected by restrictions placed on the location or context of assessment beyond the requirements specified in this Training Package: training and assessment must be bias-free.

Reasonable adjustments

Under the Disability Standards for Education 2005, you must make reasonable adjustments for people with disability to the maximum extent that those adjustments do not cause that provider unjustifiable hardship. While 'reasonable adjustment' and 'unjustifiable hardship' are different concepts and involve different considerations, they both seek to strike a balance between the interests of education providers and the interests of candidates with and without disability. The Disability Standards and guidelines for their implementation can be downloaded at http://www.comlaw.gov.au/Details/F2005L00767.

An adjustment is any measure or action that a candidate requires because of a disability, and which has the effect of assisting them to access and participate in education and training on the same basis as those without a disability. An adjustment may also be required for learners with issues relating to language, literacy or numeracy (LLN). An adjustment is reasonable if it achieves this purpose while taking into account factors such as the nature of the candidate's disability, their views, LLN issues, the potential effect of the adjustment on the candidate and others who might be affected, and the costs and benefits of making the adjustment.

A training provider is also entitled to maintain the academic requirements of a course or program and to consider the requirements or components that are inherent or essential to its nature when assessing whether an adjustment is reasonable. There may be more than one adjustment that is reasonable in a given set of circumstances; education providers are required to make adjustments that are reasonable and that do not cause them unjustifiable hardship. However, all requirements, as specified in the training package, must be met.

Foundation skills

Foundation skills are those core or essential skills we need to engage successfully in work and life. The term 'Foundation skills' is currently used to include the core skills defined in the Australian Core Skills Framework (ACSF) as well as the Employability Skills identified as critical for effective performance in the workplace. The core skills identified in the ACSF are: Learning, Reading, Writing, Oral communication, and Numeracy.

Foundation skills are essential to successful learning and continuing employment. In the MSL Laboratory Operations Training Package, many units of competency include information about Foundation skills in the field below the elements and performance criteria. The information included highlights the Foundation skills that are not explicit in the performance criteria, and must be addressed as part of the vocational training.

The MSL Companion Volume User Guide provides further information about Foundation skills and includes a mapping of each unit of competency against the ACSF and employability skills statements for each of the qualifications.

Delivering the training

Skilled trainers and assessors

Trainers and assessors must satisfy the assessor competency requirements that are in place at the time of the assessment, as required by the Standards for RTOs and the VET regulator/s.

The Assessment Conditions of every unit state that 'Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors'.

Mode of delivery

Training and assessment in MSL Laboratory Operations Training Package may be delivered face to face, online, through workplace training or a mixture of different modes/blended delivery.

Candidates can be assessed by recognition of prior learning (RPL), on the job, off the job or a combination as long as the Principles of Assessment and Rules of Evidence are met.

In MSL Laboratory Operations Training Package candidates may either enter directly into some qualification, or work up from lower level qualifications to higher level qualifications as shown in the careers pathways chart.

Candidates for the Diploma of Laboratory Technology must have a Certificate IV in Laboratory Techniques or be able to demonstrate equivalent competency, and candidates for the Advanced Diploma must have completed a Diploma of Laboratory Technology or be able to demonstrate equivalent competency, and have had experience in a laboratory working at an occupational level commensurate with the Diploma of Laboratory Technology.

The Certificate III is suitable for delivery in VET in Schools programs.

Resource and equipment requirements

Details of resources and equipment requirements are clearly identified in the Assessment Conditions for each unit of competency.

Assessing candidates

General

Assessment methods must ensure that only properly skilled candidates are determined as competent.

Judgement of competence must be based on holistic assessment of all of the evidence. Each unit gives information about holistic assessment methods and evidence. Assessment must meet the Principles of Assessment and the Rules of Evidence.

Assessment methods must confirm consistency of performance over time, rather than a single assessment event.

Industry has identified that it would be ideal if all learners had access to a real workplace environment to practise skill development and for assessment. But to mandate this requirement would be to place an unreasonable strain on commercial laboratories, so assessment conditions state that units of competency can be assessed in the workplace or a simulated workplace environment. A simulated workplace environment must reflect realistic operational workplace conditions that cover all aspects of workplace performance, this includes relevant equipment and conditions of that working environment, such as interactions with clients and/or co-workers, as well as contingency management skills.

Foundation skills are integral to competent performance of the unit and should not be assessed separately.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed. Reasonable adjustments can be made to suit individual needs, but the standard for assessment outlined in the assessment requirements must not be altered.

Evidence of performance knowledge may be collected concurrently with performance evidence or through an independent process, such as workbooks, written assessments or interviews (provided a record is kept in each case).

Access must be provided to instruments, equipment, materials, workplace documentation, procedures and specifications associated with the unit of competency. Details are specified in the Assessment Conditions for each unit.

Designing assessment for the laboratory and testing industries

The design of assessment needs to ensure that the dimensions of competency are covered:

- task skills (performance of individual tasks)
- task management skills (managing a number of different tasks within the job)

- contingency management skills (responding to problems, breakdowns and changes in routine)
- job/role environment skills (dealing with the responsibilities and expectations of the workplace).

Assessors may consider:

- incorporating a range of assessment techniques
- integrating the assessment of units related to the performance of 'whole of work' tasks, roles or functions
- using a holistic approach which combines knowledge, understanding, problem-solving, technical skills and applications to new situations into the assessment process
- assessing in the workplace (wherever possible), using familiar skills and materials
- eliminating any unnecessary reading or written assessment (if these skills are not required to do the job, they should not be part of the assessment)
- ensuring understanding of questions by rephrasing to clarify and using the language and terms of the job and the workplace
- encouraging the candidate to ask questions to clarify instructions
- providing clarification of purpose and process of assessment
- considering cultural and gender issues when setting up the assessment.

Useful information about designing assessment tools can be accessed in the, *Guide to developing assessment tools*, developed by Australian Skills Quality Authority (ASQA), 2015. It is available for download at: https://www.asqa.gov.au/sites/g/files/net2166/f/Guide_to_developing_assessment_tools.pdf. This guide was developed with consideration to previous work developed by the National Quality Council (NQC) and the well-used resource *Designing assessment tools for quality outcomes in VET*, 4th Edition Western Australia, Department of Training and Workforce Development, 2013.

Conducting assessments

Where assessment is occurring in the workplace:

- Take into account that the person being assessed may have had little experience of structured training and assessment. Carefully explain the process of making judgements against the standards and make the candidate feel as relaxed as possible.
- Consult on the assessment process with the parties involved.
- The assessment should take place over a reasonable length of time so that the candidate has the opportunity to demonstrate work responsibility and contingency management. (Third-party reports of workplace performance, if available, are helpful for this.)
- Consider the other staff in the workplace likely to be affected by the process. All staff directly or indirectly involved in the process should be briefed on the factors which will impact on them, such as duration or changes in work routine.
- Ensure that assessment is as compatible as possible with the normal pattern of work and causes minimal disruption. If the process involves candidates being away from their work area for a period of time, then arrangements should be made with their immediate supervisor to cover their duties for that period of time.

Where assessment is occurring out of the workplace, it is important to ensure that:

- the assessment takes place in a situation as close as possible to workplace reality
- all aspects of competency are assessed
- the assessment takes place over a reasonable length of time so that the candidate has the opportunity to demonstrate work responsibility and contingency management. (Third -party reports of workplace performance, if available, are helpful for this)
- documents used in assessment closely reflect workplace reality.

Consistent performance should be demonstrated. In particular, the assessor could:

- review test data/results obtained by the candidate over time, particularly to check accuracy, consistency and timeliness of results
- review test records and workplace documentation prepared by the candidate
- observe the candidate conducting sample preparation and a range of test procedures
- obtain feedback from clients, peers and supervisors
- question the candidate about relevant scientific/technical terms, test methods and enterprise procedures, common problems and corrective action
- conduct simulations and role plays to assess the candidate's ability to handle unforeseen problems, respond to simulated emergencies and to simulated working conductions where access to the workplace is not possible.

Appendices

Appendix I: List of endorsed components

Endorsed components of the MSL Laboratory Operations Release 3.0 include the following.

MSL qualifications

Code	Title
MSL20118	Certificate II in Sampling and Measurement
MSL30118	Certificate III in Laboratory Skills
MSL40118	Certificate IV in Laboratory Techniques
MSL50118	Diploma of Laboratory Technology
MSL60118	Advanced Diploma of Laboratory Operations

MSL skill sets

Code	Title
MSLSS00001	Histotechnology skill set
MSLSS00002	Point of care Testing using capillary blood specimens

MSL units of competency (including prerequisites)

Unit code	Unit title	Prerequisites
MSL904002	Perform standard calibrations	
MSL905004	Perform non-standard calibrations	MSL904002 Perform standard calibrations
MSL905005	Create or modify calibration procedures	MSL905004 Perform non-standard calibrations
MSL905006	Create or modify automated calibration procedures	MSL905005 Create or modify calibration procedures
MSL912001	Work within a laboratory or field workplace (induction)	
MSL913003	Communicate with other people	
MSL913004	Plan and conduct laboratory/field work	
MSL914002	Prepare practical science classes and demonstrations	
MSL915003	Provide information to customers	
MSL915004	Schedule laboratory work for a small team	
MSL916006	Develop and maintain laboratory documentation	
MSL916007	Manage and develop teams	
MSL916008	Supervise laboratory operations in work or functional area	
MSL916009	Maintain registration and statutory or legal compliance in work or functional area	
MSL916010	Manage complex projects	
MSL922001	Record and present data	
MSL924003	Process and interpret data	
MSL924004	Use laboratory application software	
MSL925003	Determine measurements of uncertainty	

Unit code	Unit title	Prerequisites
MSL925004	Analyse data and report results	MSL924003 Process and interpret data
MSL933005	Maintain the laboratory/field workplace fit for purpose	
MSL933006	Contribute to the achievement of quality objectives	
MSL933007	Apply critical control point requirements	
MSL933008	Perform calibration checks on equipment and assist with its maintenance	
MSL934004	Maintain and calibrate instruments and equipment	
MSL934005	Contribute to the ongoing development of HACCP plans	
MSL934006	Apply quality system and continuous improvement processes	
MSL934007	Maintain and control stocks	
MSL935005	Authorise the issue of test results	MSL925004 Analyse data and report results
MSL935006	Assist in the maintenance of reference materials	
MSL935007	Monitor the quality of test results and data	MSL924003 Process and interpret data
MSL936003	Maintain quality system and continuous improvement processes within work or functional area	
MSL936004	Conduct an internal audit of the quality system	
MSL943003	Work safely with instruments that emit ionising radiation	
MSL943004	Participate in laboratory or field workplace safety	
MSL944002	Maintain laboratory or field workplace safety	
MSL946002	Implement and monitor WHS and environmental management systems	
MSL952001	Collect routine site samples	
MSL952002	Handle and transport samples or equipment	
MSL953003	Receive and prepare samples for testing	
MSL953004	Operate a robotic sample preparation system	
MSL954003	Relate anatomical and physiological features to laboratory samples	
MSL954004	Obtain representative samples in accordance with sampling plan	
MSL954005	Prepare mineral samples for analysis	
MSL955002	Supervise a robotic sample preparation system	MSL953004 Operate a robotic sample preparation system
MSL972001	Conduct routine site measurements	

Unit code	Unit title	Prerequisites
MSL973013	Perform basic tests	
MSL973014	Prepare working solutions	
MSL973015	Prepare culture media	
MSL973016	Perform aseptic techniques	
MSL973017	Assist with fieldwork	
MSL973018	Prepare trial batches for evaluation	
MSL973019	Perform microscopic examination	
MSL973020	Perform histological procedures	
MSL973021	Conduct field-based acceptance tests for construction materials	
MSL973022	Conduct laboratory-based acceptance tests for construction materials	
MSL973023	Perform fire pouring techniques	
MSL973024	Perform site investigation activities	
MSL974016	Perform physical and mechanical tests	
MSL974017	Prepare, standardise and use solutions	
MSL974018	Conduct geotechnical site investigations	
MSL974019	Perform chemical tests and procedures	
MSL974020	Perform food tests	
MSL974021	Perform biological procedures	
MSL974022	Undertake environmental field-based monitoring	
MSL974023	Capture and manage scientific images	
MSL974024	Undertake field-based, remote-sensing monitoring	
MSL974025	Prepare tissue and cell cultures	MSL973016 Perform aseptic techniques
MSL974026	Perform tests to determine the properties of construction materials	MSL973022 Conduct laboratory-based acceptance tests for construction materials
MSL974027	Monitor performance of structures	MSL973021 Conduct field-based acceptance tests for construction materials
MSL974030	Process body fluid specimens using a point of care testing device	
MSL974028	Classify soils	MSL973021 Conduct field-based acceptance tests for construction materials MSL973022 Conduct laboratory-based acceptance tests for construction materials
MSL974029	Operate an automated mineral analysis system	
MSL975028	Apply advanced embedding and microtomy skills	MSL975029 Perform histological tests
MSL975029	Perform histological tests	MSL973019 Perform microscopic examination

Unit code	Unit title	Prerequisites
		MSL954003 Relate anatomical and physiological features to laboratory samples
MSL975030	Perform immunohaematological tests	
MSL975031	Supervise sampling, inspections and testing at construction sites	MSL954004 Obtain representative samples in accordance with sampling plan MSL973021 Conduct field-based acceptance tests for construction materials
MSL975032	Provide input to production trials	
MSL975033	Perform tissue and cell culture techniques	MSL973016 Perform aseptic techniques
MSL975034	Perform molecular biology tests and procedures	MSL973016 Perform aseptic techniques MSL974021 Perform biological procedures
MSL975035	Perform microbiological tests	MSL973016 Perform aseptic techniques MSL973019 Perform microscopic examination
MSL975036	Perform haematological tests	MSL973019 Perform microscopic examination
MSL975037	Perform chemical pathology tests	MSL974021 Perform biological procedures
MSL975038	Conduct sensory analysis	
MSL975039	Apply electrophoretic techniques	MSL974019 Perform chemical tests and procedures
MSL975040	Apply routine chromatographic techniques	MSL974019 Perform chemical tests and procedures
MSL975041	Perform fire assay techniques	MSL973023 Perform fire pouring techniques
MSL975042	Design and supervise complex environmental field surveys	MSL974022 Undertake environmental field-based monitoring
MSL975043	Prepare animal and plant material for display	
MSL975044	Perform complex tests to measure engineering properties of materials	MSL973022 Conduct laboratory-based acceptance tests for construction materials MSL974026 Perform tests to determine the properties of construction materials
MSL975045	Perform laboratory-based ecological techniques	MSL974021 Perform biological procedures
MSL975046	Perform complex tests to measure chemical properties of materials	MSL974019 Perform chemical tests and procedures
MSL975047	Apply complex instrumental techniques	MSL974019 Perform chemical tests and procedures

Unit code	Unit title	Prerequisites
MSL975048	Apply routine spectrometric techniques	MSL974019 Perform chemical tests and procedures
MSL975049	Apply routine electrometric techniques	MSL974019 Perform chemical tests and procedures
MSL975050	Perform food analyses	MSL974020 Perform food tests
MSL975051	Supervise geotechnical site investigations	MSL974018 Conduct geotechnical site investigations
MSL975052	Locate, record and collect forensic samples	
MSL975053	Perform complex laboratory testing of forensic samples	
MSL975054	Perform physical examination of forensic samples	
MSL975055	Classify building sites	MSL974028 Classify soils
MSL976004	Prepare plans and quality assurance procedures for environmental field activities	MSL975042 Design and supervise complex environmental field surveys
MSL976005	Evaluate and select appropriate test methods and/or procedures	
MSL977005	Validate test methods	MSL976005 Evaluate and select appropriate test methods and/or procedures
MSL977006	Contribute to the development of products and applications	MSL976005 Evaluate and select appropriate test methods and/or procedures
MSL977007	Troubleshoot equipment and/or production processes	
MSL977008	Develop or adapt analyses and procedures	MSL976005 Evaluate and select appropriate test methods and/or procedures

Imported units of competency

Unit code	Unit title	Notes
FDFFST4004A	Perform microbiological procedures in the food industry	From FDF10 Food Processing Training Package
MSMENV272	Participate in environmentally sustainable work practices	From MSM Manufacturing Training Package
MSMENV472	Implement and monitor environmentally sustainable work practices	From MSM Manufacturing Training Package
MSMENV672	Develop workplace policy and procedures for environmental sustainability	From MSM Manufacturing Training Package
TAEDEL301	Provide work skill instruction	From TAE Training and Education Training Package

Appendix II: Qualification mapping

Qualification mapping MSL Release 2.0 to Release 3.0

MSL Laboratory Operations Training Package Release 2.0		MSL Laboratory Operations Training Package Release 3.0		Equivalence status	Notes
Qualification Code	**Qualification title**	**Qualification Code**	**Qualification title**		
MSL40118	Certificate IV in Laboratory Techniques	MSL40118	Certificate IV in Laboratory Techniques	E	New unit MSL974030 Process body fluid specimens using a point of care testing device added to electives.
MSL50118	Diploma of Laboratory Technology	MSL50118	Diploma of Laboratory Technology	E	New unit MSL974030 Process body fluid specimens using a point of care testing device added to electives.
No other qualifications were added, removed or changed in the update from Release 2.0 to Release 3.0.					

Qualification mapping MSL Release 1.0 to Release 2.0

Key: E = Equivalent, N = Non-equivalent

MSL Laboratory Operations Training Package Release 1.0		MSL Laboratory Operations Training Package Release 2.0		Equivalence status	Notes
Qualification Code	**Qualification title**	**Qualification Code**	**Qualification title**		
MSL20116	Certificate II in Sampling and Measurement	MSL20118	Certificate II in Sampling and Measurement	E	Updated unit codes. Changes to core unit codes required new release.
MSL30116	Certificate III in Laboratory Skills	MSL30118	Certificate III in Laboratory Skills	E	Updated unit codes. Changes to core unit codes required new release.
MSL40116	Certificate IV in Laboratory Techniques	MSL40118	Certificate IV in Laboratory Techniques	E	Core units changed. Elective choices restricted. Total number of units required for qualification changed.

MSL Laboratory Operations Training Package Release 1.0		MSL Laboratory Operations Training Package Release 2.0		Equivalence status	Notes
Qualification Code	**Qualification title**	**Qualification Code**	**Qualification title**		
MSL50116	Diploma of Laboratory Technology	MSL50118	Diploma of Laboratory Technology	E	Core units changed. Elective choices restricted. Specialisations added. Total number of units required for qualification changed.
MSL60116	Advanced Diploma of Laboratory Operations	MSL60118	Advanced Diploma of Laboratory Operations	E	Updated unit codes. Changes to core unit codes required new release.

Appendix III: Unit mapping

Unit mapping MSL Release 2.0 to Release 3.0

MSL Laboratory Operations Training Package Release 2.0		MSL Laboratory Operations Training Package Release 3.0		Equivalence status	Notes
Unit Code	**Unit Title**	**Unit Code**	**Unit Title**		
		MSL974030	Process body fluid specimens using a point of care testing device	NA	New unit.
No other units were added, removed or changed in the update from Release 2.0 to Release 3.0.					

Unit mapping MSL Release 1.0 to Release 2.0

Key: E = Equivalent, N = Non-equivalent, N/A = equivalence statement not applicable

MSL Laboratory Operations Training Package Release 1.0		MSL Laboratory Operations Training Package Release 2.0		Equivalence status	Notes
Unit Code	**Unit Title**	**Unit Code**	**Unit Title**		
MSL904001	Perform standard calibrations	MSL904002	Perform standard calibrations	E	Foundation skills information added. Range of conditions removed. Assessment requirements amended.
MSL905001	Perform non-standard calibrations	MSL905004	Perform non-standard calibrations	E	Foundation skills information added. Range of conditions removed. Assessment requirements amended
MSL905002	Create or modify calibration procedures	MSL905005	Create or modify calibration procedures	E	Foundation skills information added. Range of conditions removed. Assessment requirements amended.
MSL905003	Create or modify automated calibration procedures	MSL905006	Create or modify automated calibration procedures	E	Range of conditions removed. Assessment requirements amended.

MSL912001	Work within a laboratory or field workplace (induction)				Release 1.0 remains current.
MSL913001	Communicate with other people	MSL913003	Communicate with other people	E	Range of conditions removed. Assessment requirements amended.
MSL913002	Plan and conduct laboratory/field work	MSL913004	Plan and conduct laboratory/field work	E	Range of conditions removed. Assessment requirements amended.
MSL914001	Prepare practical science classes and demonstrations	MSL914002	Prepare practical science classes and demonstrations	E	Range of conditions removed. Assessment requirements amended.
MSL915001	Provide information to customers	MSL915003	Provide information to customers	E	Range of conditions removed. Assessment requirements amended.
MSL915002	Schedule laboratory work for a small team	MSL915004	Schedule laboratory work for a small team	E	Changes to performance criteria. Range of conditions removed. Assessment requirements amended.
MSL916001	Develop and maintain laboratory documentation	MSL916006	Develop and maintain laboratory documentation	E	Range of conditions removed. Assessment requirements amended.
MSL916002	Manage and develop teams	MSL916007	Manage and develop teams	E	Foundation skills information added. Range of conditions removed. Assessment requirements amended.
MSL916003	Supervise laboratory operations in work or functional area	MSL916008	Supervise laboratory operations in work or functional area	E	Range of conditions removed. Assessment requirements amended.
MSL916004	Maintain registration and statutory or legal compliance in work or functional area	MSL916009	Maintain registration and statutory or legal compliance in work or functional area	E	Range of conditions removed. Assessment requirements amended.
MSL916005	Manage complex projects	MSL916010	Manage complex projects	E	Range of conditions removed. Assessment requirements amended.
MSL922001	Record and present data				Release 1.0 remains current.
MSL924001	Process and interpret data	MSL924003	Process and interpret data	E	Changes to performance criteria. Range of conditions removed. Assessment requirements amended.
MSL924002	Use laboratory application software	MSL924004	Use laboratory application software	E	Changes to performance criteria. Range of conditions removed. Assessment requirements amended.

MSL925001	Analyse data and report results	MSL925004	Analyse data and report results	E	Foundation skills information added. Range of conditions removed. Assessment requirements amended.
MSL925002	Analyse measurements and estimate uncertainties	MSL925003	Determine measurements of uncertainty	E	Title updated. Prerequisite removed. Range of conditions removed. Assessment requirements amended.
MSL933001	Maintain the laboratory/field workplace fit for purpose	MSL933005	Maintain the laboratory/field workplace fit for purpose	E	Range of conditions removed. Assessment requirements amended.
MSL933002	Contribute to the achievement of quality objectives	MSL933006	Contribute to the achievement of quality objectives	E	Changes to performance criteria. Foundation skills information added. Range of conditions removed. Assessment requirements amended.
MSL933003	Apply critical control point requirements	MSL933007	Apply critical control point requirements	E	Range of conditions removed. Assessment requirements amended.
MSL933004	Perform calibration checks on equipment and assist with its maintenance	MSL933008	Perform calibration checks on equipment and assist with its maintenance	E	Range of conditions removed. Assessment requirements amended.
MSL934001	Contribute to the ongoing development of HACCP plans	MSL934005	Contribute to the ongoing development of HACCP plans	E	Foundation skills information added. Range of conditions removed. Assessment requirements amended.
MSL934002	Apply quality system and continuous improvement processes	MSL934006	Apply quality system and continuous improvement processes	E	Foundation skills information added. Range of conditions removed. Assessment requirements amended.
MSL934003	Maintain and control stocks	MSL934007	Maintain and control stocks	E	Range of conditions removed. Assessment requirements amended.
MSL935001	Monitor the quality of test results and data	MSL935007	Monitor the quality of test results and data	E	Foundation skills information added. Range of conditions removed. Assessment requirements amended.
MSL935002	Assist in the maintenance of reference materials	MSL935006	Assist in the maintenance of reference materials	E	Foundation skills information added. Range of conditions removed. Assessment requirements amended.
MSL935003	Authorise the issue of test results	MSL935005	Authorise the issue of test results	E	Conditional/optional prerequisite removed. Foundation skills information

					added. Range of conditions removed. Assessment requirements amended.
MSL935004	Maintain instruments and equipment	MSL934004	Maintain and calibrate instruments and equipment	E	Title updated. Change to elements and performance criteria. Range of conditions removed. Assessment requirements amended.
MSL936001	Maintain quality system and continuous improvement processes within work or functional area	MSL936003	Maintain quality system and continuous improvement processes within work or functional area	E	Foundation skills information added. Range of conditions removed. Assessment requirements amended.
MSL936002	Conduct an internal audit of the quality system	MSL936004	Conduct an internal audit of the quality system	E	Foundation skills information added. Range of conditions removed. Assessment requirements amended.
MSL943001	Work safely with instruments that emit ionising radiation	MSL943003	Work safely with instruments that emit ionising radiation	E	Range of conditions removed. Assessment requirements amended.
MSL943002	Participate in laboratory or field workplace safety	MSL943004	Participate in laboratory or field workplace safety	E	Foundation skills information added. Range of conditions removed. Assessment requirements amended.
MSL944001	Maintain laboratory or field workplace safety	MSL944002	Maintain laboratory or field workplace safety	E	Foundation skills information added. Range of conditions removed. Assessment requirements amended.
MSL946001	Implement and monitor WHS and environmental management systems	MSL946002	Implement and monitor WHS and environmental management systems	E	Foundation skills information added. Range of conditions removed. Assessment requirements amended.
MSL952001	Collect routine site samples				Release 1.0 remains current.
MSL952002	Handle and transport samples or equipment				Release 1.0 remains current.
MSL953001	Receive and prepare samples for testing	MSL953003	Receive and prepare samples for testing	E	Foundation skill information added. Range of conditions removed. Assessment requirements amended.
MSL953002	Operate a robotic sample preparation system	MSL953004	Operate a robotic sample preparation system	E	Range of conditions removed. Assessment requirements amended.

MSL954001	Obtain representative samples in accordance with sampling plan	MSL954004	Obtain representative samples in accordance with sampling plan	E	Range of conditions removed. Assessment requirements amended.
MSL954002	Prepare mineral samples for analysis	MSL954005	Prepare mineral samples for analysis	E	Range of conditions removed. Assessment requirements amended.
		MSL954003	Relate anatomical and physiological features to laboratory samples	N/A	New unit
MSL955001	Supervise a robotic sample preparation system	MSL955002	Supervise a robotic sample preparation system	E	Range of conditions removed. Assessment requirements amended.
MSL963001	Operate basic handblowing equipment			N/A	Deleted
MSL963002	Repair glass apparatus using simple glassblowing equipment			N/A	Deleted
MSL965001	Design and manufacture glass apparatus and glass systems			N/A	Deleted
MSL965002	Perform glass coating, grinding and finishing operations			N/A	Deleted
MSL965003	Construct, modify and maintain high vacuum systems			N/A	Deleted
MSL972001	Conduct routine site measurements				Release 1.0 remains current.
MSL973001	Perform basic tests	MSL973013	Perform basic tests	E	Foundation skills information added. Range of conditions removed. Assessment requirements amended.
MSL973002	Prepare working solutions	MSL973014	Prepare working solutions	E	Changes to elements and performance criteria. Range of conditions removed. Assessment requirements amended.

MSL973003	Prepare culture media	MSL973015	Prepare culture media	E	Changes to performance criteria. Range of conditions removed. Assessment requirements amended.
MSL973004	Perform aseptic techniques	MSL973016	Perform aseptic techniques	E	Changes to performance criteria. Range of conditions removed. Assessment requirements amended.
MSL973005	Assist with fieldwork	MSL973017	Assist with fieldwork	E	Range of conditions removed. Assessment requirements amended.
MSL973006	Prepare trial batches for evaluation	MSL973018	Prepare trial batches for evaluation	E	Foundation skills information added. Range of conditions removed. Assessment requirements amended.
MSL973007	Perform microscopic examination	MSL973019	Perform microscopic examination	E	Foundation skills information added. Range of conditions removed. Assessment requirements amended.
MSL973008	Perform histological procedures	MSL973020	Perform histological procedures	E	Range of conditions removed. Assessment requirements amended.
MSL973009	Conduct field-based acceptance tests for construction materials	MSL973021	Conduct field-based acceptance tests for construction materials	E	Range of conditions removed. Assessment requirements amended.
MSL973010	Conduct laboratory-based acceptance tests for construction materials	MSL973022	Conduct laboratory-based acceptance tests for construction materials	E	Foundation skills information added. Range of conditions removed. Assessment requirements amended.
MSL973011	Perform fire pouring techniques	MSL973023	Perform fire pouring techniques	E	Foundation skills information added. Range of conditions removed. Assessment requirements amended.
MSL973012	Perform site investigation activities	MSL973024	Perform site investigation activities	E	Foundation skills information added. Range of conditions removed. Assessment requirements amended.
MSL974001	Prepare, standardise and use solutions	MSL974017	Prepare, standardise and use solutions	E	Foundation skills information added. Range of conditions removed. Assessment requirements amended.
MSL974002	Conduct geotechnical site investigations	MSL974018	Conduct geotechnical site investigations	E	Foundation skills information added.

					Range of conditions removed. Assessment requirements amended.
MSL974003	Perform chemical tests and procedures	MSL974019	Perform chemical tests and procedures	E	Changes to performance criteria. Range of conditions removed. Assessment requirements amended.
MSL974004	Perform food tests	MSL974020	Perform food tests	E	Changes to performance criteria. Foundation skills information added. Range of conditions removed. Assessment requirements amended.
MSL974005	Perform physical tests	MSL974016	Perform physical and mechanical tests	E	MSL974005 Perform physical tests to create merged with MSL974010 Perform mechanical tests to create MSL974016 Perform physical and mechanical tests
MSL974006	Perform biological procedures	MSL974021	Perform biological procedures	E	Changes to elements and performance criteria. Range of conditions removed. Assessment requirements amended.
MSL974007	Undertake environmental field-based monitoring	MSL974022	Undertake environmental field-based monitoring	E	Foundation skills information added. Range of conditions removed. Assessment requirements amended.
MSL974008	Capture and manage scientific images	MSL974023	Capture and manage scientific images	E	Range of conditions removed. Assessment requirements amended.
MSL974009	Undertake field-based, remote-sensing monitoring	MSL974024	Undertake field-based, remote-sensing monitoring	E	Foundation skills information added. Range of conditions removed. Assessment requirements amended.
MSL974010	Perform mechanical tests	MSL974016	Perform physical and mechanical tests	E	MSL974010 Perform mechanical tests merged with MSL974005 Perform physical tests to create MSL974016 Perform physical and mechanical tests
MSL974011	Prepare tissue and cell cultures	MSL974025	Prepare tissue and cell cultures	E	Foundation skills information added. Range of conditions removed. Assessment requirements amended.

MSL974012	Perform tests to determine the properties of construction materials	MSL974026	Perform tests to determine the properties of construction materials	E	Foundation skill information added. Range of conditions removed. Assessment requirements amended.
MSL974013	Monitor performance of structures	MSL974027	Monitor performance of structures	E	Foundation skills information added. Range of conditions removed. Assessment requirements amended.
MSL974014	Classify soils	MSL974028	Classify soils	E	Foundation skills information added. Range of conditions removed. Assessment requirements amended.
MSL974015	Operate an automated mineral analysis system	MSL974029	Operate an automated mineral analysis system	E	Foundation skills information added. Range of conditions removed. Assessment requirements amended.
MSL975001	Perform microbiological tests	MSL975035	Perform microbiological tests	E	Changes to elements and performance criteria. Foundation skills information added. Range of conditions removed. Assessment requirements amended.
MSL975002	Perform haematological tests	MSL975036	Perform haematological tests	E	Changes to elements and performance criteria. Foundation skills information added. Range of conditions removed. Assessment requirements amended.
MSL975003	Perform histological tests	MSL975029	Perform histological tests	E	Prerequisite changed. Change to elements and performance criteria. Foundation skills information added. Assessment requirements amended.
MSL975004	Perform chemical pathology tests	MSL975037	Perform chemical pathology tests	E	Conditional/optional prerequisite removed. Changes to elements and performance criteria. Foundation skills information added. Range of conditions removed. Assessment requirements amended.
MSL975005	Conduct sensory analysis	MSL975038	Conduct sensory analysis	E	Foundation skills information added. Range of conditions removed. Assessment requirements amended.

MSL975006	Perform immunohaematological tests	MSL975030	Perform immunohaematological tests	E	Prerequisite removed. Changes to elements and performance criteria. Foundation skills information added. Range of conditions removed. Assessment requirements amended.
MSL975007	Supervise sampling, inspections and testing at construction sites	MSL975031	Supervise sampling, inspections and testing at construction sites	E	Prerequisites changed. Foundation skills information added. Range of conditions removed. Assessment requirements amended.
MSL975008	Apply electrophoretic techniques	MSL975039	Apply electrophoretic techniques	E	Conditional/optional prerequisite removed. Changes to elements and performance criteria. Range of conditions removed. Assessment requirements amended.
MSL975009	Apply routine chromatographic techniques	MSL975040	Apply routine chromatographic techniques	E	Conditional/optional prerequisite removed. Changes to elements and performance criteria. Range of conditions removed. Assessment requirements amended.
MSL975010	Perform fire assay techniques	MSL975041	Perform fire assay techniques	E	Conditional/optional prerequisite removed. Foundation skill information added. Range of conditions removed. Assessment requirements amended.
MSL975011	Design and supervise complex environmental field surveys	MSL975042	Design and supervise complex environmental field surveys	E	Foundation skills information added. Range of conditions removed. Assessment requirements amended.
MSL975012	Provide input to production trials	MSL975032	Provide input to production trials	E	Prerequisites removed. Range of conditions removed. Assessment requirements amended.
MSL975013	Perform tissue and cell culture techniques	MSL975033	Perform tissue and cell culture techniques	E	Changed prerequisites. Changes to performance criteria. Range of conditions removed. Assessment requirements amended.

MSL975014	Perform molecular biology tests and procedures	MSL975034	Perform molecular biology tests and procedures	E	Changed prerequisite. Change to elements and performance criteria. Range of conditions removed. Assessment requirements amended.
MSL975015	Prepare animal and plant material for display	MSL975043	Prepare animal and plant material for display	E	Range of conditions removed. Assessment requirements amended.
MSL975016	Perform complex tests to measure engineering properties of materials	MSL975044	Perform complex tests to measure engineering properties of materials	E	Changes to elements and performance criteria. Foundation skills information added. Range of conditions removed. Assessment requirements amended.
MSL975017	Perform laboratory-based ecological techniques	MSL975045	Perform laboratory-based ecological techniques	E	Changes to elements and performance criteria. Foundation skills information added. Range of conditions removed. Assessment requirements amended.
MSL975018	Perform complex tests to measure chemical properties of materials	MSL975046	Perform complex tests to measure chemical properties of materials	E	Conditional/optional prerequisite removed. Changes to elements and performance criteria. Range of conditions removed. Assessment requirements amended.
MSL975019	Apply complex instrumental techniques	MSL975047	Apply complex instrumental techniques	E	Conditional/optional prerequisite removed. Changes to elements and performance criteria. Range of conditions removed. Assessment requirements amended.
MSL975020	Apply routine spectrometric techniques	MSL975048	Apply routine spectrometric techniques	E	Conditional/optional prerequisite removed. Changes to elements and performance criteria. Range of conditions removed. Assessment requirements amended.
MSL975021	Apply routine electrometric techniques	MSL975049	Apply routine electrometric techniques	E	Conditional/optional prerequisite removed. Changes to elements and performance criteria. Foundation skills information added. Range of conditions

					removed. Assessment requirements amended.
MSL975022	Perform food analyses	MSL975050	Perform food analyses	E	Changes to performance criteria. Foundation skills information added. Range of conditions removed.
MSL975023	Supervise geotechnical site investigations	MSL975051	Supervise geotechnical site investigations	E	Changes to performance criteria. Range of conditions removed. Assessment requirements amended.
MSL975024	Locate, record and collect forensic samples	MSL975052	Locate, record and collect forensic samples	E	Range of conditions removed. Assessment requirements amended.
MSL975025	Perform complex laboratory testing of forensic samples	MSL975053	Perform complex laboratory testing of forensic samples	E	Foundation skills information added. Range of conditions removed. Assessment requirements amended.
MSL975026	Perform physical examination of forensic samples	MSL975054	Perform physical examination of forensic samples	E	Foundation skills information added. Range of conditions removed. Assessment requirements amended.
MSL975027	Classify building sites	MSL975055	Classify building sites	E	Foundation skills information added. Range of conditions removed. Assessment requirements amended.
		MSL975028	Apply advanced embedding and microtomy skills	N/A	New unit
MSL976002	Prepare plans and quality assurance procedures for environmental field activities	MSL976004	Prepare plans and quality assurance procedures for environmental field activities	E	Foundation skills information added. Range of conditions removed. Assessment requirements amended.
MSL976003	Evaluate and select appropriate test methods and/or procedures	MSL976005	Evaluate and select appropriate test methods and/or procedures	E	Range of conditions removed. Assessment requirements amended.
MSL977001	Contribute to the development of products and applications	MSL977006	Contribute to the development of products and applications	E	Range of conditions removed. Assessment requirements amended.
MSL977002	Troubleshoot equipment and/or production processes	MSL977007	Troubleshoot equipment and/or production processes	E	Range of conditions removed. Assessment requirements amended.

MSL977003	Contribute to validation of test methods	MSL977005	Validate test methods	E	Title updated. Range of conditions removed. Assessment requirements amended.
MSL977004	Develop or adapt analyses and procedures	MSL977008	Develop or adapt analyses and procedures	E	Range of conditions removed. Assessment requirements amended.