Study Guide

MSS025008
Monitor and Evaluate Noise
December 2016.

Acoustar™ and Noise Measurement Services Pty Ltd is a registered training organization (RTO Registration Identifier Code 41013)

Noise Measurement Services Pty Ltd is the Copyright holder for this Study Guide, with the exception of identified authored material. The copyright of acknowledged material remains with the identified author. Acoustar students are permitted to retain printed and electronic copies of this Study Guide for reference purposes.

Acoustar is a Registered Trade Mark (No. 1608228). The trademark is registered in Class 41 ‘Vocational education’ and Class 42 ‘Scientific and technological services’. Noise Measurement Services Pty Ltd is the owner of the trade mark. Acoustar Pty Ltd uses the name and trade mark under license.

Disclaimer:
This Acoustar Study Guide is prepared to meet the requirements of MSS025008 Monitor and Evaluate Noise and is based on the learning objectives, outcomes and limitations as may be stated in the Unit Descriptor. The Study Guide presents only the information that Noise Measurement Services Pty Ltd believes, in its professional opinion, is relevant and necessary to describe the issues involved. The Study Guide is subject to regular review. It is not a textbook and does not represent to address all issues relating to any particular topic. Students may freely use the material presented, including spreadsheets, but the intellectual property of the material remains with Noise Measurement Services Pty Ltd.

ABN 70 084 643 023
Ed. MSS025008 Study Guide July 2016 (AQF Level 5 and 8)
Reviewed to MSS025008 June 2016
Reviewed: Skills assessment form; additional spreadsheets R1, December 2016
### Contents

**WELCOME!** .................................................................................................................................................. 4  
Study Program .................................................................................................................................................. 4  
Who is this course designed for? ............................................................................................................. 5  
What are the training program entry requirements? ............................................................................... 6  
Recognition of Prior Learning .................................................................................................................... 6  
What is ‘competency’? .................................................................................................................................. 6  
AIMS and OBJECTIVES of the TRAINING PROGRAM ........................................................................... 7  
LEARNING OUTCOMES for the TRAINING PROGRAM .......................................................................... 8  
ELEMENTS AND PERFORMANCE CRITERIA ..................................................................................... 11  
Range of Conditions .................................................................................................................................... 13  
STUDY GUIDES ............................................................................................................................................ 15  
Study Times .................................................................................................................................................. 16  
RESOURCES .................................................................................................................................................. 17  
TUTORIAL SPREADSHEETS AND DOCUMENTS .................................................................................. 19  
STUDY MODULES ....................................................................................................................................... 21  
Module 1 Noise evaluation in practice ....................................................................................................... 21  
Module 2 Legislation, standards and guidelines ....................................................................................... 21  
Module 3 Basic acoustics principles ........................................................................................................... 22  
Module 4 Sound and noise measurements ................................................................................................ 23  
Module 5 Noise monitoring instruments ................................................................................................... 24  
Module 6 Sound propagation and noise mapping ..................................................................................... 25  
Module 7 Practical noise surveys ............................................................................................................... 25  
Module 8 Environmental noise monitoring and evaluation (Option ENV) ............................................. 25  
Module 9 Workplace noise monitoring and evaluation (Option WP) ..................................................... 27  
Module 10 Building acoustics monitoring and evaluation (Option BLDG) ............................................ 28  
Module 11 Hand, Arm, Body vibration monitoring and evaluation (Option HABV) .............................. 29  
Module 12 Ground and structure borne vibration monitoring and evaluation (VIB) ............................. 29  
ASSESSMENTS .............................................................................................................................................. 30  
How will I be assessed? ............................................................................................................................ 30  
Principles of assessment ............................................................................................................................. 30  
Assessment Conditions – Trainer / Assessor ............................................................................................ 32  
Student Skills and Knowledge Assessment ............................................................................................... 33  
ASSIGNMENTS ............................................................................................................................................. 36
WELCOME!

WELCOME to the Acoustar Course for MSS025008 Monitor and Evaluate Noise.

This unit of competency covers the ability to monitor noise using handheld sound level meters and fixed sound monitoring stations with either data logging or telemetry. It includes the ability to perform noise surveys, process data and report results in accordance with legislative requirements, standards, codes and workplace standards. The unit is the first part of a Noise Management skillset. It is the pre-requisite to the second unit in the skillset, MSS027008 Coordinate noise management activities.

Study Program

The study program consists of a combination of online self-paced learning, a formal 2-day classroom tutorial with your trainer, practical field work, completion of assignments and a formal presentation of an agreed topic. The program is designed to be completed in 75 hours’ within 12-months from enrolment for AQF Level 5, and 100 hours at AQF Level 8.

- Students studying at AQF Level 5 (Diploma level) are required to satisfactorily complete Modules 1 to 7.
- Students studying at AQF Level 8 (Graduate Certificate level) are required to satisfactorily complete Modules 1 to 7 and one of the Optional Modules 8 to 12.
- Mentored training is provided either in person or via Skype or similar.
- Assignments are set in each module and must be satisfactorily completed.
- Some students may be able to complete in less time, some may take longer.

Modules 1 to 6 are the ‘theory’ modules and have assignments for you to complete. The theory modules are completed before you attend the classroom tutorials.

- Module 1  Noise evaluation in practice
- Module 2  Legislation, standards and guidelines
- Module 3  Basic acoustics principles
- Module 4  Sound and noise measurements
- Module 5  Noise monitoring instruments
- Module 6  Sound propagation and noise mapping

Module 7 Practical noise surveys, contains practical applications to illustrate the basics of monitoring and evaluating noise. The practical training, by way of surveys, is provided as part of your classroom tutorials. It includes questions to verify that the essential "Underpinning Knowledge" has been achieved.
You are also required to complete three (3) practical assignments (monitoring and evaluation reports) to be undertaken at your home or workplace.

**Modules for AQF Level 8 Students**

**Modules 8 to 12**: One module **must be chosen** from Modules 8 to 12 for persons taking MSS025008 at Level 8 Professional Level.

The Module you choose from the following 5 options is completed at home or at work:
- Module 8 Environmental noise monitoring and evaluation (Option ENV)
- Module 9 Workplace noise monitoring and evaluation (Option WP)
- Module 10 Building acoustics monitoring and evaluation (Option BLDG)
- Module 11 Hand, Arm, Body vibration monitoring and evaluation (Option HABV)
- Module 12 Ground and structure borne vibration monitoring/evaluation (Option VIB)

The ‘Optional’ Module has three (3) practical assignments (monitoring and evaluation reports) to be undertaken at your home or workplace.

To complete the training program you must also satisfactorily complete:
- A short (15 to 30 minute) presentation on an agreed topic. This is normally with your trainer but an independent assessor may be your reviewer.
- The presentation may be in person or by remote access via Skype (or similar) or email with powerpoint (or similar).

**Who is this course designed for?**

The course covers the skills and knowledge required to competently apply a range of methods and technologies to conduct noise monitoring and evaluation. Our course is designed for:
- field staff, site coordinators, Health & Safety Representatives;
- managers and senior personnel employed by workplaces and unions in a wide range of industry sectors, e.g. manufacturing, building and construction, certification and audit;
- regulatory authorities involved with noise assessment, evaluation and compliance;
- professionals requiring skill and knowledge validation in the field of practical noise monitoring and evaluation.
What are the training program entry requirements?

**AQF Level 5 Entry Requirements**
A student can apply for the MSS025008 *Monitor and evaluate noise* unit at the Australian Qualifications Framework (AQF) Level 5 without any previous knowledge or qualifications. A good standard of English is required, as well as literacy and numeracy skills. MSS025008 is a unit from MSS50216 *Diploma of Environmental Monitoring*.

**AQF Level 8 Entry Requirements**
MSS025008 and MSS027008 are available at post-graduate level. MSS025008 and MSS027008 are units from MSS80216 *Graduate Certificate in Environmental Management*. Entrants to study for this Unit are required (see MSS80216, training.gov.au) to have one of the following:

- relevant extensive vocational practice without formal qualifications
- a relevant Diploma, such as MSS50216 Diploma of Environmental Monitoring and Technology, together with significant relevant vocational practice
- a Bachelor Degree in Environmental Management, Environmental Science or Science in a relevant discipline, such as chemistry, ecology or geology
- a relevant higher education qualification, with relevant vocational practice.

**Recognition of Prior Learning**

Recognition of Prior Learning is permitted at both AQF Level 5 and AQF Level 8. Please contact Acoustar if you would like more details.

**What is ‘competency’?**

**Competency** means the consistent application of knowledge and skill to the standard of performance required in the workplace. It embodies the ability to transfer and apply skills and knowledge to new situations and environments. Every job requires a specific set of knowledge and skills and this varies depending on the type and complexity of the job. Competency assessment is about providing a way of building the skills and knowledge people need to perform a job. It is a combination of work practice and knowledge learned through training programs or own study.

**A Statement of Attainment of competency is issued to the student on the satisfactory completion of the Unit (MSS025008 training program).**
AIMS and OBJECTIVES of the TRAINING PROGRAM

AIMS: The purposes of the training program are to provide a student with:
- the practical knowledge and skills to measure and evaluate sound;
- the practical knowledge and skills to observe, monitor and assess noise;
- the knowledge and skills for the correct use of sound level meters and sound analysers in order to collect reliable data;
- the knowledge and skills to analyse data into meaningful information for reliable reports referenced to relevant legislation, standards codes, guidelines or workplace protocols.

OBJECTIVES: The objectives of the training program are that, after successfully completing the course, a student will be competent to:
- maintain, transport and store sound measurement instrumentation in a safe manner;
- make reliable measurements of background sound and noise from a variety of sources, according to the requirements of the relevant legislation, standards codes, guidelines or workplace protocols;
- present and interpret measurement data in a form suitable for inclusion into a report;
- present a reasoned noise assessment and evaluation, based on measured data and observations, for inclusion into a report.

The aims and objectives are expanded in the Learning Outcomes for each Module.
LEARNING OUTCOMES for the TRAINING PROGRAM

The Study guides are designed to assist students to achieve the unit learning outcomes. Each study guide has a set of learning objectives and outcomes relevant to the module.

Improved skills & knowledge – improved performance capability
The key to competency assessment is that it is based on actual skills and knowledge that a person can demonstrate in the workplace or other contexts. In this unit the competencies are benchmarked against a pre-set of performance criteria.

These are described the section “Elements and Performance Criteria” This is different to other approaches where there is no requirement to demonstrate knowledge and skills – like approaches where people just answer questions as a test of their general or specific knowledge and skills.

The problem with testing is that it doesn’t guarantee that a person will be able to do something – it just verifies that they know something. To assist you our approach is:
- Assess yourself against a set of competencies.
- Compile a list of evidence that shows your level of competency.
- Identify your development needs.
- Study the assessment questions (“Learning”) and work through the Project (“Understanding, Skill and Application of Knowledge”)
- Send your completed Project to your Trainer / Assessor for Assessment. You are awarded competence in this Unit if you can demonstrate the required level of skills and knowledge.

Performance evidence
Evidence of competence in this unit must satisfy all of the requirements of the elements and performance criteria, and include demonstration of:
- conducting at least two (2) noise surveys and evaluating the data
- planning and preparing for field activities, including researching and summarising site history, existing data and/or reports
- identifying and interpreting survey and data quality requirements, test methods, workplace procedures and statutory requirements accurately
- undertaking site reconnaissance and identifying safe and reliable noise monitoring locations according to defined criteria
- safely packaging and transporting supplies, equipment and instruments to and from the field
- setting up and calibrating handheld sound level meters to obtain verifiable results
assembling, testing, operating and closing down a field-based, noise monitoring station
performing automatic and manual noise measurements to obtain valid and reliable data
identifying atypical results as out-of-normal range or an artefact
identifying and rectifying basic instrument faults
manipulating raw data to obtain corrected and adjusted data in the required format and calculating required noise parameters
applying noise standards and/or statutory noise limits to evaluate noise data, if relevant
providing accurate, complete records of noise measurements, field observations, data and results
seeking advice when issues/problems are beyond scope of competence/responsibility
working safely.

Knowledge evidence:
The student must provide evidence that demonstrates knowledge of:

- scientific terminology, concepts and principles, such as:
  - sound and noise
  - frequency, pitch and wavelength
  - sound power and acoustic energy
  - sound levels, pressure and intensity
  - sound attenuation with distance
  - measurement units (dBA and others)
  - adding and subtracting sound levels
  - physiology of hearing, perception of noise
  - sources of noise, point sources and line sources
  - types of noise, such as continuous, intermittent and impulsive
  - typical noise levels
  - frequency weighting curves
- function of key components and operating principles of sound level meters/noise measuring instruments, including response, sensitivity and range, hold circuits, integrating and averaging meters
- calibration of handheld sound level meters/noise measuring instruments
- effects on test results of modifying meter/instrument variables
- measurement methods, including techniques for:
  - measuring different noise types, including steady noise, discretely varying noise and impulsive noise
  - methods for measuring noise exposure, including equivalent continuous sound level (Leq)
• common sources of uncertainty in sound level measurement, including mishandling of equipment, meteorological conditions, effects of topography and built structures, reflected and absorbed sound, and background noise effects
• data processing techniques, such as:
  ➢ frequency analysis and weighting networks (including at least A and Lin)
  ➢ calculation of combined sound levels using graphical and mathematical equation techniques
  ➢ statistical analysis, including LAeq, LA10, LA50 and LA90
  ➢ time weighted exposure measurement (LAeqT)
  ➢ characterisation of noise by octave band analysis
  ➢ background noise calculations, background noise level (LA90)
  ➢ day and night sound levels (LDN)
  ➢ calculation of individual noise exposure
  ➢ noise mapping
  ➢ noise rating curves
• specific legislation, policies and codes of practice related to environmental noise measurement, noise standards and statutory noise limits
• procedures for maintaining, storing and transporting noise measurement equipment and instrumentation
• relevant hazards, health, safety and environment requirements, including field safety principles.
ELEMENTS AND PERFORMANCE CRITERIA

*Elements* describe the essential outcomes of a unit of competency.  
*Performance criteria* describe the performance needed to demonstrate achievement of the element. (Also called the *Foundation Skills* for this Unit).

Assessment of performance is to be consistent with the *performance and knowledge evidence guides*.

<table>
<thead>
<tr>
<th>Element</th>
<th>Performance Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Confirm noise monitoring requirements</td>
<td>1.1 Confirm the purpose for noise monitoring with supervisor</td>
</tr>
<tr>
<td></td>
<td>1.2 Confirm locations, timing and frequency of monitoring from workplace or client’s monitoring plan or other instructions</td>
</tr>
<tr>
<td></td>
<td>1.3 Check that all noise measurement procedures are in accordance with client or workplace requirements, relevant standards and codes</td>
</tr>
<tr>
<td>2. Prepare for noise measurement</td>
<td>2.1 Identify site hazards and review workplace safety procedures</td>
</tr>
<tr>
<td></td>
<td>2.2 Liaise with relevant personnel to arrange site access and obtain all clearances and/or permits, as necessary</td>
</tr>
<tr>
<td></td>
<td>2.3 Select noise monitoring instruments and any ancillary equipment that are required for the particular task</td>
</tr>
<tr>
<td></td>
<td>2.4 Assemble all field test equipment and complete all pre-use and calibration checks in accordance with workplace procedures and manufacturer instructions</td>
</tr>
<tr>
<td></td>
<td>2.5 Stow all equipment for safe and secure transport</td>
</tr>
<tr>
<td></td>
<td>2.6 Arrange suitable transport to, from and around site, as required</td>
</tr>
<tr>
<td>3. Perform noise measurement</td>
<td>3.1 Record significant site features, such as noise sources, their direction and approximate distance, relevant barriers, structures, noise sensitive areas and adjacent land uses</td>
</tr>
<tr>
<td></td>
<td>3.2 Select and record sampling sites and ensure that site conditions are conducive for valid and reliable noise measurement</td>
</tr>
<tr>
<td></td>
<td>3.3 Measure and record relevant site condition parameters and make any modifications to procedures as appropriate</td>
</tr>
<tr>
<td></td>
<td>3.4 Check calibration of sound level meter and make any required adjustments and record results</td>
</tr>
<tr>
<td>3.5</td>
<td>Conduct noise measurements in accordance with workplace, regulatory and manufacturer procedures</td>
</tr>
<tr>
<td>3.6</td>
<td>Ensure that background measurements are obtained at an appropriate time, under appropriate conditions and in accordance with workplace/regulatory procedures</td>
</tr>
<tr>
<td>3.7</td>
<td>Repeat and record calibration measurements at the conclusion of the measurement sequence in accordance with workplace/regulatory procedures</td>
</tr>
<tr>
<td>3.8</td>
<td>Collect and/or record all results and ensure that they are accurately transferred to workplace information database</td>
</tr>
</tbody>
</table>

| 4.1 | Review test data noting atypical observations |
| 4.2 | Manipulate raw data to obtain corrected and adjusted data and ensure that calculated values are consistent with expectations |
| 4.3 | Estimate and document uncertainty of measurement in accordance with workplace procedures, if required |
| 4.4 | Interpret trends in data and/or results and report out-of-specification or atypical results promptly to appropriate personnel |
| 4.5 | Determine if obvious procedure or equipment problems have led to atypical data or results |
| 4.6 | Compare results with established noise standards, statutory noise limits or similar, if relevant |
| 4.7 | Record and report data and results in accordance with workplace requirement |

| 5.1 | Use established safe work practices and personal protective equipment (PPE) to ensure personal safety and that of other personnel |
| 5.2 | Minimise the generation of wastes and environmental impacts |
| 5.3 | Care for and store equipment and materials as required |
**Range of Conditions**

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

### Legislation, regulations, standards, codes, workplace procedures and requirements include the latest version of one or more of:

- federal legislation such as the Environment Protection and Biodiversity Conservation Act, National Environmental Protection Measures
- state/territory government legislation and local government by-laws, policies, regulations and plans dealing with land use, acquisition, planning and protection, and environmental protection
- legislation, standards and codes of practice for work health and safety (WHS)
- Australian and international standards covering environmental noise (e.g. AS 1055 Acoustics - Description and measurement of environmental noise series); and sound level meters and sound calibrators (e.g. AS IEC 61672 Electroacoustics series, AS IEC 60942-2004 Electroacoustics - Sound calibrators)
- registration/licensing and/or accreditation requirements
- industry guidelines and manuals, such as Noise Measurement Manual (QLD EPA), A Guide to Measurement and Analysis of Noise (VIC EPA), Noise Guide for Local Government (NSW), established noise standards and statutory noise limits
- site plans, maps and specifications; methods and procedures for noise measurement to meet workplace, client and/or regulatory/certifying body requirements
- workplace documents, such as standard operating procedures (SOPs), work schedules, recording and reporting procedures, equipment manuals and warranties, supplier catalogue and handbooks, field notebooks or log books, and emergency and safety procedures.

### Purpose of noise measurement includes one or more of:

- assessing compliance with a statutory condition, such as a licence
- investigation of a noise complaint
- environmental impact assessment studies
- long-term monitoring programs
- occupational hygiene
- noise surveys.

### Noise monitoring instruments and ancillary equipment include one or more of:

- type 1 and type 2 portable sound level meters
- integrating and non-integrating sound level meters
- noise dose meters
- sound level calibrators
- octave analysers
Monitor and evaluate noise

- statistical analysers, data loggers and recorders
- telemetry equipment
- sound monitoring stations
- microphones
- wind shields.

Ancillary equipment includes one or more of:
- meteorological instruments, such as thermometers, hygrometers, barometers and anemometers
- digital camera
- global positioning system (GPS) equipment
- maps and aerial photographs
- noise measurement and survey forms
- PPE

Meteorological measurements include one or more of:
- temperature
- relative humidity
- barometric pressure
- wind speed and direction

WHS and environmental management requirements include:
- compliance with relevant federal/state/territory WHS legislation at all times
- assuming that samples are potentially hazardous and applying standard precautions
- accessing and applying current industry understanding of infection control issued by the National Health and Medical Research Council (NHMRC) and state/territory Departments of Health, where relevant.
STUDY GUIDES

Our Study Guides are designed to assist students with responding to Module assignment questions, case scenarios, and practical field work. The MSS025008 unit of competency covers the ability to monitor noise using handheld sound level meters and fixed sound monitoring stations with either data logging or telemetry. It includes the ability to perform noise surveys, process data and report results in accordance with workplace standards.

The study guides are to help achieve the skills, knowledge and expected for competency in this Unit including:

- practical knowledge and skills to be involved in the monitoring and evaluation of noise;
- audit and verification tools to meet relevant compliance requirements.

Keypoints are shown in the study guides as:

- Assignment Question
- Read the supporting material to this topic.
- There is an audiofile, youtube clip or webinar to help you with this topic
- There is a spreadsheet available to help you with this topic
Study Times

The MSS025008 training program of Modules 1 to 7 is designed to be completed in 75 hours. The Optional Module is completed in the student’s own time, with study time at 25 hours’ per Module.

Each Study Guide has an estimated study time to read the text and complete the assignments. Some students may take less time to complete the assignments and some may take longer.

EXAMPLE:

The total study time to complete this Module is 10 hours proportioned as:

**Review with trainer**
- Face-to-face tutorial: 60 minutes

**At home or work**
- Review of this Study Guide: 6 hours
- Practical work: 60 minutes
- Assignments: 2 hours
RESOURCES

It is important that you do not limit your study to only the resources provided in the Study guides. Other resources that are available include:

**Mandatory reading (included as ‘set texts’)**

- US EPA *Information on levels of environmental noise requisite to protect public health and welfare with an adequate margin of safety*, 1974.
- Bunn, P. *Noise and Hearing*, 2015

The Training Centre library has available a wide range of support material that you may access. AUDIO-FILES and APPLICATION WORKSHEETS are provided in some of the Study guides. WEBINARS and You-Tube clips are available for various topics.

**Websites:**

Recommended websites include planning and environmental departments of state and local government, e.g.:

- [http://www.masenv.co.uk/tools](http://www.masenv.co.uk/tools)

**Recommended reading – publications by Brüel & Kjær (available online)**

http://www.bksv.com/

- ‘Basic Concepts of Sound’
- ‘Measuring Sound’
- ‘Condenser Microphones’
- ‘Environmental Noise’
- ‘Frequency Analysis’
- ‘Measurement Microphones’
- ‘Microphone Handbook’
- ‘Microphone Properties, Calibration, Uncertainty’
- ‘Piezoelectric Accelerometers and Vibration Preamplifiers’
Monitor and evaluate noise

- ‘Sound Intensity’
- ‘Sound Levels Chart’

Western Australia Worksafe ‘Safetyline Institute’
Western Australia Worksafe ‘Safetyline Institute’ BSBWHS409 ‘Assist with workplace monitoring processes’ preliminary background reading materials (provided under licence)
- Basic acoustics
- Analysis of sound waves
- Human vibration: basic characteristics
- Identification of whole body vibration
- Assessment and Control of Whole body vibration
- The hearing mechanism
- Causes of hearing damage
- Noise control management
- Duty of Care (Parts 1 & 2)

New South Wales Guidelines
The New South Wales EPA has a series of useful guidelines:
- Noise legislation
- NSW Industrial Noise Policy and Appendices
- Road traffic noise
- Rail noise
- Construction noise
- Assessing vibration
- Guide for Local Government

Queensland Guidelines
Noise Policy
Guidelines
WorkSafe
Liquor Licensed Premises
Brisbane City Council Noise Impact Assessment Planning Scheme Policy

FOR OTHER STATES PLEASE REFER TO RELEVANT WEBSITES
## TUTORIAL SPREADSHEETS AND DOCUMENTS

In the following spreadsheets and documents
- **D** means there is a document specific to the topic available for the student to use
- **E** means an executable (app or program) that illustrates the particular topic is available for the student to use
- **G** means there is code, guideline, workplace document or supporting paper available to assist the student with the particular topic.
- **S** means there is a spreadsheet to illustrate the topic available for the student to use

<table>
<thead>
<tr>
<th>TOPIC</th>
<th>SPREADSHEET</th>
<th>FILE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Acoustical conversions</strong></td>
<td>Addition and subtraction of SPLs</td>
<td>S01</td>
</tr>
<tr>
<td></td>
<td>Background noise quality calculator</td>
<td>S02</td>
</tr>
<tr>
<td></td>
<td>Lin-A-C conversion</td>
<td>S03</td>
</tr>
<tr>
<td></td>
<td>Third octave to octave levels</td>
<td>S04</td>
</tr>
<tr>
<td><strong>Airblast Overpressure</strong></td>
<td>Airblast calculation</td>
<td>S05</td>
</tr>
<tr>
<td></td>
<td>Blasting equations</td>
<td>D-S05</td>
</tr>
<tr>
<td></td>
<td>Calibration equation v3</td>
<td>S06</td>
</tr>
<tr>
<td><strong>Audibility and Sound Quality</strong></td>
<td>Acoustar AES Demo</td>
<td>E01</td>
</tr>
<tr>
<td></td>
<td>ISO1996 Tonality</td>
<td>S07</td>
</tr>
<tr>
<td></td>
<td>iTunes graphic equaliser</td>
<td>S08</td>
</tr>
<tr>
<td></td>
<td>Bullen, SDI document</td>
<td>D-S09</td>
</tr>
<tr>
<td></td>
<td>Sleep disturbance index (SDI)</td>
<td>S09</td>
</tr>
<tr>
<td></td>
<td>BBN Audibility Report</td>
<td>D-S10</td>
</tr>
<tr>
<td></td>
<td>Audibility Chart</td>
<td>S10</td>
</tr>
<tr>
<td><strong>Audiometry</strong></td>
<td>Audiometric test environment AS1269-4</td>
<td>D01</td>
</tr>
<tr>
<td><strong>Building Acoustics</strong></td>
<td>Building spreadsheets explained</td>
<td>D02</td>
</tr>
<tr>
<td></td>
<td>Dntw calculator</td>
<td>S11</td>
</tr>
<tr>
<td></td>
<td>Insulation rating calculator</td>
<td>S12</td>
</tr>
<tr>
<td></td>
<td>Lntw calculator</td>
<td>S13</td>
</tr>
<tr>
<td></td>
<td>NCB curves and history</td>
<td>D03</td>
</tr>
<tr>
<td></td>
<td>NR and RC Curves</td>
<td>S14</td>
</tr>
<tr>
<td></td>
<td>Room inside to out (Woods)</td>
<td>S15</td>
</tr>
<tr>
<td></td>
<td>Room inside to out (SNC)</td>
<td>S16</td>
</tr>
<tr>
<td></td>
<td>Room intrusion</td>
<td>S17</td>
</tr>
<tr>
<td></td>
<td>Rw calculator</td>
<td>S18</td>
</tr>
<tr>
<td></td>
<td>Building Acoustics Noise Quality Calculator</td>
<td>S19</td>
</tr>
<tr>
<td></td>
<td>Speech privacy</td>
<td>S20</td>
</tr>
<tr>
<td></td>
<td>STC Canadian – AS3671</td>
<td>S21</td>
</tr>
<tr>
<td></td>
<td>STC Canada (Quirt)</td>
<td>D-S21</td>
</tr>
<tr>
<td>Study Guide: MSS025008 Monitor and evaluate noise</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Environmental Assessment and Prediction</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assessment Background Creep, 1 hour</td>
<td>S22</td>
<td></td>
</tr>
<tr>
<td>Assessment criteria 15 min</td>
<td>S23</td>
<td></td>
</tr>
<tr>
<td>Barrier attenuation – Maekawa</td>
<td>S24</td>
<td></td>
</tr>
<tr>
<td>BS5228</td>
<td>S25</td>
<td></td>
</tr>
<tr>
<td>Introduction to BS5228P</td>
<td>G-S25</td>
<td></td>
</tr>
<tr>
<td>CONCAWE</td>
<td>S26</td>
<td></td>
</tr>
<tr>
<td>Concawe guide</td>
<td>D-S26</td>
<td></td>
</tr>
<tr>
<td>ISO1996 Tonality</td>
<td>S07</td>
<td></td>
</tr>
<tr>
<td>LDEN Impact</td>
<td>S27</td>
<td></td>
</tr>
<tr>
<td>Outdoor noise propagation multisource</td>
<td>S28</td>
<td></td>
</tr>
<tr>
<td>Source to receiver predictions</td>
<td>S29</td>
<td></td>
</tr>
<tr>
<td>Road traffic noise calculator (CRTN)</td>
<td>S30</td>
<td></td>
</tr>
<tr>
<td>Sleep disturbance index (SDI)</td>
<td>S09</td>
<td></td>
</tr>
<tr>
<td>Danish Lpa LF (low frequency) analysis</td>
<td>S31</td>
<td></td>
</tr>
<tr>
<td><strong>Noise Exposure WHS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AS1269-1-hour calculator</td>
<td>S32</td>
<td></td>
</tr>
<tr>
<td>ISO 1996 tonality</td>
<td>S07</td>
<td></td>
</tr>
<tr>
<td>Noise dose calculations (8-10hr)</td>
<td>S33</td>
<td></td>
</tr>
<tr>
<td><strong>Sound Level Survey and Forms &amp; Assessments</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BCC Noise Impact Assessment</td>
<td>G-01</td>
<td></td>
</tr>
<tr>
<td>Ln, Leq at 15 minute intervals</td>
<td>S34</td>
<td></td>
</tr>
<tr>
<td>Ln, Leq at 1 hour intervals (7-day)</td>
<td>S35</td>
<td></td>
</tr>
<tr>
<td>DERM (2013) Measurement manual</td>
<td>D03</td>
<td></td>
</tr>
<tr>
<td>Ecoaccess Low Frequency guide</td>
<td>D05</td>
<td></td>
</tr>
<tr>
<td>Ecoaccess Planning for noise control 2004</td>
<td>D-S22</td>
<td></td>
</tr>
<tr>
<td>Manual method for sound level surveys</td>
<td>D06</td>
<td></td>
</tr>
<tr>
<td>Regression and Standard Error</td>
<td>S36</td>
<td></td>
</tr>
<tr>
<td>Linear regression (study example)</td>
<td>S37</td>
<td></td>
</tr>
<tr>
<td>Standard Deviation Ln &amp; Leq</td>
<td>S38</td>
<td></td>
</tr>
<tr>
<td><strong>Sound Power Database</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sound power database</td>
<td>S39</td>
<td></td>
</tr>
<tr>
<td>SWL and SPL converter</td>
<td>S40</td>
<td></td>
</tr>
<tr>
<td>SWL and SPL converter (Rail)</td>
<td>S41</td>
<td></td>
</tr>
</tbody>
</table>
STUDY MODULES

The coursework consists of the following twelve (12) modules of which you study seven (7) at ‘Supervisor’ Level 5 and eight (8) at Professional Level 8. **All students study Modules 1 to 7.**

**Modules 8 to 12** One module must be chosen from Modules 8 to 12 for persons taking MSS025008 at Level 8 Professional Level.

**Module 1 Noise evaluation in practice**

The aims of this Module are to provide a student with a broad understanding of:

- How people hear and perceive noise
  - Evaluation of sound and sound character
  - The difference between sound and noise
    - sound can be measured (objective)
    - noise as objective and subjective ‘unwanted sound’ – a human perception
    - interchangeability of terms
  - Assessing intrusive noise
  - Noise impact assessment
    - community noise exposure guidelines
    - individual noise exposure guidelines

**Module 2 Legislation, standards and guidelines**

The aims of this Module are to provide a student with a broad understanding of:

- federal legislation such as the Environment Protection and Biodiversity Conservation Act, National Environmental Protection Measures
- state/territory government legislation and local government by-laws, policies, regulations and plans dealing with land use, acquisition, planning and protection, and environmental protection
- legislation, standards and codes of practice for work health and safety (WHS)
- Australian and international standards covering environmental noise (e.g. AS 1055 Acoustics - Description and measurement of environmental noise series); and sound level meters and sound calibrators (e.g. AS IEC 61672 Electroacoustics series, AS IEC 60942-2004 Electroacoustics - Sound calibrators)
- registration/licensing and/or accreditation requirements
- industry guidelines and manuals, such as Noise Measurement Manual (QLD EPA), A Guide to Measurement and Analysis of Noise (VIC EPA), Noise Guide for Local Government (NSW), established noise standards and statutory noise limits
• site plans, maps and specifications; methods and procedures for noise measurement to meet workplace, client and/or regulatory/certifying body requirements
• workplace documents, such as standard operating procedures (SOPs), work schedules, recording and reporting procedures, equipment manuals and warranties, supplier catalogue and handbooks, field notebooks or log books, and emergency and safety procedures.

Purpose of measurements
• assessing compliance with a statutory condition, such as a licence
• investigation of a noise complaint
• environmental impact assessment studies

Module 3 Basic acoustics principles

The aims of this Module are to provide a student with a broad understanding of:
• sound and noise terminology
• frequency, pitch and wavelength
• sound power and acoustic energy
• sound pressure and sound pressure level; Pascals and decibels
• difference between sound power and sound pressure
• sound exposure
• sound intensity
• frequency analysis and weighting networks
• measurement units (fractional and narrow band analysis, FFT)
• peak sound level
• adding and subtracting sound levels
• sources of noise and typical sound levels
• types of sound, e.g.
  ➢ continuous, intermittent
  ➢ pulsating
  ➢ impact or impulsive
• point sources and line sources
• characteristics of sound and noise, e.g.
  ➢ loudness, tonality, impulsiveness
  ➢ psychoacoustic measures
Module 4 Sound and noise measurements

The aims of this Module are to provide a student with a broad understanding of:

Purpose of measurements
- assessing compliance with a statutory condition, such as a licence
- investigation of a noise complaint
- environmental impact assessment studies (short and long-term monitoring)
- industrial noise monitoring; e.g. manufacturing, construction, mining industries
- occupational health & safety surveys; e.g. pubs & clubs, entertainment venues

Measurements and surveys
- Techniques for conducting measurements to achieve valid and reliable results
  - selecting instrumentation needed for the measurements
  - techniques for measuring different noise types, including steady noise, discretely varying noise and impulsive noise
  - selection of survey locations
  - influences from other factors (e.g. insects, animals, people)
  - determining “atypical” or “out-of-specification” data
- selection of appropriate measurement time intervals
- methods for measuring sound, including statistical and equivalent continuous (time-average) sound levels \( (L_{A_{eq}}, L_{C_{eq}}) \)
- common errors in sound level measurement, including mishandling of equipment, wind, humidity, temperature, reflected and absorbed sound, and background noise
- collection of “raw” verses “processed” data
- handling raw and processed data “errors” and the validity of excluding some data due to weather conditions, unintended sources (e.g. insects), atypical data or results
- statistical analysis, including \( L_{A01}, L_{A10}, L_{A50} \) and \( L_{A90} \) and sources of error
- time weighted exposure measurement \( (L_{AeqT}) \)
- characterisation of sound by fractional band analysis, time histories and sonograms
- background sound level \( (L_{A90}) \)
- day and night sound levels \( (L_{D\text{IN}}) \)
- calculation of individual noise exposure
- noise rating methods, e.g. noise rating curves (NR)
- calculation of combined sound levels using mathematical equation techniques
- perceptions of noise
  - annoyance
  - amenity and wellbeing
- general guidelines for taking sound measurements, making observations, reporting data and results to present accurate, reliable and complete records
- interpretation of trends in the data and reporting ‘out-of-specification’ results
- comparison of results to established noise standards, statutory noise limits, or similar
Module 5 Noise monitoring instruments

The aims of this Module are to provide a student with a broad understanding of:

- Class 1 and Class 2 portable sound level meters
- components of integrating and non-integrating sound level meters
- design of sound meters (Leq, fast, slow, impulse and peak hold circuits)
- choice and use of microphones
  - freefield
  - diffuse field
  - ANSI vs IEC
- choice and use of preamplifiers and cables
- wind shields
- computer and Smartphone technology for sound measurement
  - Windows e.g. NoiseLab
  - Apple iOS e.g. Studio Six Digital
  - Android e.g. Audiotool
- noise dose meters (dosimeters)
- calibration of sound level meters, including both electrical and acoustic
- sound level calibrators (field use)
- octave and narrow band analysers
- statistical analysers, data loggers and recorders
- sound monitoring stations and ‘remote access’; e.g. B&K, Larson Davis, Norsonic
- floor tapping machines
- hand-arm and whole-of-body vibration meters
- sound recording for information, analysis
- cost of instrumentation vs effectiveness, i.e. choosing for legal requirements or for information
- measurement uncertainty and ‘out-of-specification’ results
- meteorological instruments to measure:
  - temperature, relative humidity, barometric pressure
  - wind speed and direction
- global positioning system (GPS) equipment
- maps, site photographs and aerial photographs
- noise measurement and survey forms
- protection of instrumentation
  - in storage
  - when being prepared for, in-transit to or from a survey
  - while on survey
Module 6  Sound propagation and noise mapping

The aims of this Module are to provide a student with a broad understanding of:

- meteorological conditions to be accounted for in the monitoring and evaluation of noise
- effects of meteorological conditions on noise propagation (impact assessment)
- effects of topography and built structures on noise
- sound attenuation with distance
- sound prediction calculations from different noise sources *(includes practical demonstration)* for environmental, quarry blasting, road traffic, wind farm and noise mapping to assist evaluation
  
  - ISO9613-2, Concawe, PEN3D (Environmental), SoundPlan
  - SoundSoup Pro (Building)
  - Noise exposure analysis (Workplace)
  - Prediction uncertainty

Module 7  Practical noise surveys

Three practical surveys are undertaken.

The monitoring, measurement and analysis surveys are mandatory field work investigations for ALL students. The field work includes:

- a manual method for the observation and analysis of sound levels. It incorporates observation techniques and allows identification of individual noise sources for environmental and occupational noise surveys.
- Applying an automated data collection system using a sound level meter and analysis software.
- Safety handling of instrumentation: storage, transport, setting-up onsite or in the workplace.

The home/work surveys to be completed are:

- a manual environmental noise assessment of road traffic noise.
- a noise assessment and evaluation of a non-moving noise source, such as a TV or workplace noise source over a 30 minute interval of time.
- a survey that is agreed between the trainer and student.

Module 7 requires the student to satisfactorily complete a set of noise monitoring and evaluation Underpinning Knowledge questions.
Module 8 Environmental noise monitoring and evaluation (Option ENV)

The aims of this Module are to provide a student with a defined understanding of:

- monitor and evaluate environmental noise *(includes practical)*
  - Review “raw” data and process into meaningful datasets
  - Adjustments for impulsiveness, tonality or low frequency
  - Outliers and atypical results
  - Measurement uncertainty
  - Interpretation of trends
  - Assessment of results to expected levels (e.g. comparison of survey data to compliance requirements)
  - Follow-up assessments
- nuisance investigation: attitudinal – perception guidelines for “sound” to “noise”
- amenity evaluation and wellbeing assessment
- background and ambient monitoring: influence of meteorological conditions
- applying computer and smartphone technology for sound measurement, recording and evaluation *(includes practical demonstration)*
- calculations
  - Statistical
  - LAeq, LDN, LDEN, SEL
  - Ratings
- survey protocols
  - field notebooks or log books
  - standard operating procedures covering fieldwork, sampling and testing
  - equipment operating manuals, calibration procedures, instrument fault-finding procedures and general maintenance and repair procedures
  - recording of results into a report or database
- report measured data, assessments and observations against legislative or other compliance guidelines
Module 9  Workplace noise monitoring and evaluation (Option WP)

The aims of this Module are to provide a student with a defined understanding of:

- monitor and evaluate workplace noise *(includes practical demonstration)*
  - Review “raw” data and process into meaningful datasets
  - Adjustments for impulsiveness, tonality or low frequency
  - Outliers and atypical results
  - Interpretation of trends
  - Assessment of results to expected levels (e.g. comparison of survey data to compliance requirements)
- noise exposure calculations
- measurement of exposure: pascals (Pa), pascal-squared-seconds or “pasques” (Pa²s) and pascal-squared-hours (Pa²h)
  - Measurement of % dose, time weighted average, allowable exposure
  - Calculating noise exposure using different metrics, e.g. LAeq,t
  - Summing and normalising *(use of spreadsheet for analysis)*
- applying computer and smartphone technology for sound measurement, recording, and evaluation *(includes practical demonstration)*
- sound prediction – evaluation calculations from workplace noise sources *(includes practical)*
- occupational noise induced hearing loss
- audiometry
- hand-arm and whole-of-body vibration instrumentation
- survey protocols
  - field notebooks or log books
  - standard operating procedures covering fieldwork, sampling and testing
  - equipment operating manuals, calibration procedures, instrument fault-finding procedures and general maintenance and repair procedures
  - recording of results into a report or database
- report measured data, assessments and observations against legislative or other compliance guidelines

---

*acoustar*

Work Health & Safety Training Centre

PO Box 2127, Brookside Centre QLD 4053  admin@acoustar.qld.edu.au
Module 10  Building acoustics monitoring and evaluation (Option BLDG)

The aims of this Module are to provide a student with a defined understanding of:

- monitoring and evaluating noise transmission to Building Code of Australia
  - Floor impact
  - Wall transmission (inter-tenancy)
  - Wall transmission (outside to inside)
  - Reverberation time
  - Measurement uncertainty
  - Review “raw” data and process into meaningful datasets
  - Assessment of results to expected levels (e.g. comparison of survey data to compliance requirements)
- background and ambient monitoring specific to building noise
- internal noise amenity and privacy
- noise rating methods to evaluate noise intrusion
- reverberation time
- outdoor to indoor assessments to Australian standards:
  - AS2107
  - AS3671
- applying computer and smartphone technology for sound measurement, recording and evaluation (includes practical demonstration)
- sound prediction – evaluation calculations for building acoustics (includes practical demonstration)
  - SoundSoup Pro
- calculations
  - AS/ISO 717
  - ISO 140 Parts 4, 5, 7 and 14
  - Queensland QDC MP4.4
- survey protocols
  - field notebooks or log books
  - standard operating procedures covering fieldwork, sampling and testing
  - equipment operating manuals, calibration procedures, instrument fault-finding procedures and general maintenance and repair procedures
  - recording of results into a report or database
- report measured data, assessments and observations against legislative or other compliance guidelines
Module 11  Hand, Arm, Body vibration monitoring and evaluation (Option HABV)

The aims of this Module are to provide a student with a defined understanding of:
- the requirements of current legislation, codes and guidelines relating to hand-arm and whole-body vibration
- situations where HAV or whole-body hazards exist and able to assess the risk
- basic techniques for control of vibration exposure and identify areas where vibration reduction is required
- the effectiveness of vibration control measures
- evaluation of the daily vibration exposures of employees from information about measured vibration magnitudes and work patterns
- uses and limitations of instrumentation

The topics addressed include:
- basics of vibration
- exposure assessment
- measurement of vibration magnitudes
- control of risk
- monitoring the effectiveness of a control programme

Module 12  Ground and structure borne vibration monitoring and evaluation (VIB)

The aims of this Module are to provide a student with a defined understanding of:
- situations where deleterious vibration conditions exist and assess the risk
- basic techniques for control of vibration exposure and identify areas where vibration reduction is required
- the effectiveness of vibration control measures
- a structured technical report of the measurements, observations, calculations, analyses and conclusions comprising a practical investigation.

The topics addressed include:
- introduction to vibration
- continuous vibration and shock
- time averaging, r.m.s., peak and peak-to-peak indices
- acceleration, velocity and displacement
- frequency and frequency weighting
- selecting equipment
- siting, setting up and calibrating equipment prior to use
- analysing and interpreting the data recorded
ASSESSMENTS

How will I be assessed?

The assignment activities are part of each Module and designed to enable you to collect evidence for assessment and to assess your skills and knowledge.

Work through the activities. While the activities are listed separately they are designed to build up into an integrated project which is described at the end of the assessment guide.

You should clearly reference your work with full citations for any quotes or references, and list all materials that provided background information for completion of an activity.

While access to an actual workplace is desirable, part of the assessment may be through simulated project activity, scenarios, case studies, role-plays or actual activities.

The integrated project and presentation activity in each assessment guide provides you with an opportunity to consolidate your learning. Ideally the project will be an application of what you have learnt as applied to a workplace, thus providing evidence of your ability to transfer and apply skills and knowledge to new situations.

A mentor, or an appropriate third party familiar with your work, can help provide an independent evaluation of your ability to work consistently and effectively at the required level.

Confidentiality
When collecting material, please ensure that you protect the confidentiality of colleagues, workers and other persons, and block out any sensitive information.

All evidence and coursework you send to Acoustar will be treated in the strictest confidence by your Trainer / Assessor and not made available to any third party.

Principles of assessment

Assessment is the process of checking your competence to perform to the standard detailed in each element’s performance criteria against a set of pre-determined benchmarks. Each module assignment is assessed as being either ‘satisfactory’ or ‘not satisfactory’. Your trainer or assessor will assess your work based on enrolment:

- At Level 5 your assessor is reviewing the skills and knowledge required at a technical or supervisory level;
- At Level 8 a professional standard of skills and knowledge is expected.

If work is ‘unsatisfactory’ you have the right to resubmit your work after discussing the problem(s) with your trainer.
Work is submitted either online via the student portal or by email. Your trainer or assessor is always available to discuss with you the outcome of each assignment.

**Principles of assessment**

To ensure quality outcomes, assessment should be:

- Fairness
- Flexibility
- Validity
- Reliability
- Sufficiency

**Fairness**

The individual learner’s needs are considered in the assessment process. Where appropriate, reasonable adjustments are applied by the RTO to take into account the individual learner’s needs. The RTO informs the learner about the assessment process, and provides the learner with the opportunity to challenge the result of the assessment and be reassessed if necessary.

**Flexibility**

Assessment is flexible to the individual learner by:

- reflecting the learner’s needs;
- assessing competencies held by the learner no matter how or where they have been acquired; and
- drawing from a range of assessment methods and using those that are appropriate to the context, the unit of competency and associated assessment requirements, and the individual.

**Validity**

Any assessment decision of the RTO is justified, based on the evidence of performance of the individual learner. Validity requires:

- assessment against the unit/s of competency and the associated assessment requirements covers the broad range of skills and knowledge that are essential to competent performance;
- assessment of knowledge and skills is integrated with their practical application;
- assessment to be based on evidence that demonstrates that a learner could demonstrate these skills and knowledge in other similar situations; and
- judgment of competence is based on evidence of learner performance that is aligned to the unit/s of competency and associated assessment requirements.

**Reliability**

Evidence presented for assessment is consistently interpreted and assessment results are comparable irrespective of the assessor conducting the assessment.
Assessment Conditions – Trainer / Assessor

- Judgement of competence must be based on holistic assessment of the evidence. Assessment methods must confirm consistency of performance over time, rather than a single assessment event.
- This unit of competency is to 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, including the environment, task skills, task management skills, contingency management skills and job role environment 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 and the needs of the candidate.
- Knowledge evidence 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).
- Holistic assessment methods include:
  - review of noise measurements, results and calculations, survey records and/or site reports provided by the candidate
  - feedback from supervisors that the candidate consistently follows workplace procedures, works safely and provides reliable results within the agreed timeframe
  - oral and/or written questions to check the candidate’s understanding of the principles of noise measurement, operation of sound level meters/noise measuring instruments and processing of data.
  - Access is required to all instruments, equipment, materials, workplace documentation, procedures, and specifications associated with this unit including, but not limited to:
    - noise measuring equipment, data loggers and telemetry equipment, vehicles, survey equipment, camera, consumables and manuals
    - work program, workplace procedures, codes of practice, site maps, site monitoring plans and test methods and field protocols.
- Assessors must satisfy the assessor competency requirements that are in place at the time of the assessment as set by the VET regulator.
- The assessor must demonstrate both technical competency and currency.
- Technical competence can be demonstrated through:
  - relevant VET or other qualification/Statement of Attainment, and/or
  - relevant workplace experience
- Currency can be demonstrated through:
  - performing the competency being assessed as part of current employment OR
  - having consulted with an organisation providing environmental monitoring, management or technology related services about performing the competency being assessed within the last twelve months.

### Student Skills and Knowledge Assessment

The skills and knowledge for this Unit are described in the following Table. Students should complete the Table before commencing the training course and update during training.

#### Skill Set to Assess

<table>
<thead>
<tr>
<th>Confirm noise monitoring requirements</th>
<th>Current Skill level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confirm the purpose for noise monitoring with supervisor</td>
<td>High ☐ Medium ☐ Low ☐</td>
</tr>
<tr>
<td>Confirm locations timing and frequency of monitoring from workplace or client’s monitoring plan or other instructions</td>
<td>High ☐ Medium ☐ Low ☐</td>
</tr>
<tr>
<td>Check that all noise measurement procedures are in accordance with client or workplace requirements relevant standards and codes</td>
<td>High ☐ Medium ☐ Low ☐</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Prepare for noise measurement</th>
<th>Current Skill level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify site hazards and review workplace safety procedures</td>
<td>High ☐ Medium ☐ Low ☐</td>
</tr>
<tr>
<td>Liaise with relevant personnel to arrange site access and obtain all clearances and/or permits as necessary</td>
<td>High ☐ Medium ☐ Low ☐</td>
</tr>
<tr>
<td>Select noise monitoring instruments and any ancillary equipment that are required for the particular task</td>
<td>High ☐ Medium ☐ Low ☐</td>
</tr>
<tr>
<td>Assemble all field test equipment and complete all pre-use and calibration checks in accordance with workplace procedures and manufacturer instructions</td>
<td>High ☐ Medium ☐ Low ☐</td>
</tr>
<tr>
<td>Stow all equipment for safe and secure transport</td>
<td>High ☐ Medium ☐ Low ☐</td>
</tr>
</tbody>
</table>
**Study Guide: MSS025008 Monitor and evaluate noise**

<table>
<thead>
<tr>
<th>Task</th>
<th>Current Skill level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arrange suitable transport to from and around site as required</td>
<td>High Medium Low</td>
</tr>
<tr>
<td><strong>Perform noise measurement</strong></td>
<td></td>
</tr>
<tr>
<td>Record significant site features such as noise sources their</td>
<td>High Medium Low</td>
</tr>
<tr>
<td>direction and approximate distance relevant barriers structures</td>
<td></td>
</tr>
<tr>
<td>noise sensitive areas and adjacent land uses</td>
<td></td>
</tr>
<tr>
<td>Select and record sampling sites and ensure that site conditions</td>
<td>High Medium Low</td>
</tr>
<tr>
<td>are conducive for valid and reliable noise measurement</td>
<td></td>
</tr>
<tr>
<td>Measure and record relevant site condition parameters and</td>
<td>High Medium Low</td>
</tr>
<tr>
<td>make any modifications to procedures as appropriate</td>
<td></td>
</tr>
<tr>
<td>Check calibration of sound level meter and make any required</td>
<td>High Medium Low</td>
</tr>
<tr>
<td>adjustments and record results</td>
<td></td>
</tr>
<tr>
<td>Conduct noise measurements in accordance with workplace regulatory</td>
<td>High Medium Low</td>
</tr>
<tr>
<td>and manufacturer procedures</td>
<td></td>
</tr>
<tr>
<td>Ensure that background measurements are obtained at an</td>
<td>High Medium Low</td>
</tr>
<tr>
<td>appropriate time under appropriate conditions and in accordance</td>
<td></td>
</tr>
<tr>
<td>with workplace/regulatory procedures</td>
<td></td>
</tr>
<tr>
<td>Repeat and record calibration measurements at the conclusion of the</td>
<td>High Medium Low</td>
</tr>
<tr>
<td>measurement sequence in accordance with workplace/regulatory</td>
<td></td>
</tr>
<tr>
<td>procedures</td>
<td></td>
</tr>
<tr>
<td>Collect and/or record all results and ensure that they are</td>
<td>High Medium Low</td>
</tr>
<tr>
<td>accurately transferred to workplace information database</td>
<td></td>
</tr>
<tr>
<td><strong>Process and interpret noise data</strong></td>
<td></td>
</tr>
<tr>
<td>Review test data noting atypical observations</td>
<td>High Medium Low</td>
</tr>
<tr>
<td>Manipulate raw data to obtain corrected and adjusted data and</td>
<td>High Medium Low</td>
</tr>
<tr>
<td>ensure that calculated values are consistent with expectations</td>
<td></td>
</tr>
<tr>
<td>Estimate and document uncertainty of measurement in</td>
<td>High Medium Low</td>
</tr>
<tr>
<td>accordance with workplace procedures if required</td>
<td></td>
</tr>
<tr>
<td>Interpret trends in data and/or results and report out-of-</td>
<td>High Medium Low</td>
</tr>
<tr>
<td>specification or atypical results promptly to appropriate personnel</td>
<td></td>
</tr>
</tbody>
</table>

PO Box 2127, Brookside Centre QLD 4053    admin@acoustar.qld.edu.au
<table>
<thead>
<tr>
<th>Task</th>
<th>Current Skill level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Determine if obvious procedure or equipment problems have led to atypical data or results</td>
<td>High Medium Low</td>
</tr>
<tr>
<td>Compare results with established noise standards statutory noise limits or similar if relevant</td>
<td>High Medium Low</td>
</tr>
<tr>
<td>Record and report data and results in accordance with workplace requirement</td>
<td>High Medium Low</td>
</tr>
<tr>
<td><strong>Maintain a safe work environment</strong></td>
<td></td>
</tr>
<tr>
<td>Use established safe work practices and personal protective equipment to ensure personal safety and that of other personnel</td>
<td>High Medium Low</td>
</tr>
<tr>
<td>Minimise the generation of wastes and environmental impacts</td>
<td>High Medium Low</td>
</tr>
<tr>
<td>Care for and store equipment and materials as required</td>
<td>High Medium Low</td>
</tr>
</tbody>
</table>
ASSIGNMENTS

Assignments are mandatory parts of each study module. There are three (3) formal assessment procedures during the course of the training program:

1. Completing the Module assignments and the Underpinning Knowledge questions with the help of others and your trainer. The actual answers must be your own work, however.

2. Investigating the Case Scenarios in class and with the help of others and your trainer as needed. The scenarios are chosen to illustrate keypoints within the training program.

3. Completing three Practical Assignments from your chosen specialist topic. The assignments are undertaken in your own time and by yourself. You can ask your trainer for assistance. The practical assignments are designed to test your skills and knowledge.

Completion of the training program requires you to make a short (15 to 30 minutes, for example) presentation to your trainer/assessor. The presentation will be given by arrangement with your assessor taking the role of a work team member.

You are required to present evidence of your skills and knowledge in a practical manner addressing the underpinning knowledge questions and the practical assignment content. You can present one of your reports, for example.

Your communication and presentation skills will be assessed as well as content.
ASSIGNMENTS COVER SHEET

ASSIGNMENTS SUBMITTED FOR ASSESSMENT BY EMAIL

STUDENT DETAILS

Your assignments may be submitted by email. Please state whether the answers submitted are for:

Module assignment questions
Underpinning Knowledge questions
Practical assignments

| Student Name: | ........................................................................ |
| USI: | ........................................................................ |
| Contact details: | Phone: .................................................................. |
| | Email: .................................................................. |
| ASSIGNMENT QUESTIONS Nos. ANSWERED and SUBMITTED |
| Student Declaration | I declare that this work, when submitted, is my own work |
| | ........................................................................ |
| | Date: |
| Assessor Only: Date assessed: |

Email to: admin@acoustar.qld.edu.au

or

Upload to Acoustar Portal using your password