

National Course Code: MEM50211

Course qualification and name: Diploma of Engineering - Technical (Mechanical)

Course Number: 10387 **Version:** 2

Course Outcomes:

This course is designed for people who are employed or seeking employment in the Metal and Engineering industry, as engineering technicians who are able to carry out technical engineering functions.

Students will gain mandatory units of competency in:

- * organising and communicating information
- * interacting with computing technology
- * selection of common engineering materials
- * basic mathematics

In addition, they will gain knowledge and skills in elective units drawn from a wide bank in such areas as:

- * computer aided drafting (CAD)
- * drafting
- * mechanical engineering principles and design

If students complete this course with the support of their employer it would be expected that they would be employed in positions at level C5 in the Metal, Engineering and Associated Industries Award.

The Diploma of Engineering - Technical (Mechanical) is a qualification in the Metal and Engineering Training Package MEM05.

Students who complete this course could expect to be employed as design drafters, engineering support and related jobs at a technician level where they support associate and professional Engineers. They should be able to work unsupervised, solve problems and make decisions for themselves.

Regulatory requirements

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There are no specific licenses that relate to this qualification. However, for employment at para-professional levels in the aeronautical and avionic fields in the Australian aviation industry, the Australian Defence Force (ADF) and the Civil Aviation Safety Authority (CASA) have requirements that must be met. Units designed to meet these requirements are included as electives in this qualification. Advice on the selection of electives to meet ADF and CASA requirements is given at the end of the qualification.

What you must do to complete the course:

The course structure below shows what you must do to complete this course. The units/modules are arranged in groups and sometimes also in subgroups.

You must complete each group as specified as well as following the course completion instructions. If a course contains optional groups there will be a statement at the top of the course indicating how many you must do. At the top of any group containing optional subgroups there will be a statement saying how many you must do.

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Please note: This course specialises in Mechanical.
Please speak to your teacher if you wish to specialise in Aeronautical or Avionics, or if you prefer a general qualification with no specialisation.

This course reflects the packaging requirements for MEM50211 Diploma of Engineering - Technical (specialising in Mechanical), within the Metal and Engineering Training Package (MEM05 V8.1). The rules from MEM05 (V8.1) are as follows:

The minimum requirements for achievement of the Diploma of Engineering - Technical are:

- completion of the five (5) core units of competency listed, and
- fifteen (15) elective units, to bring the total number of units to twenty (20).

Elective units must be selected as follows:

- up to eight (8) general elective units from the list in Group A,
- at least seven (7) specialist elective units from Group B, to bring the total number of elective units to fifteen (15).

Three (3) appropriate Group B electives may be chosen from other endorsed Training Packages and accredited courses where those units are available for inclusion at Diploma level.

NOTE that the elective units listed below include all of the units that are approved for selection from the MEM Training Package for use in this qualification. This meets the NQC requirement that one sixth of the total units must be able to be selected from other qualifications in the same Training Package.

Note that when selecting elective units any prerequisite units must also be completed. Note that prerequisites can only count towards the number of electives required if they are listed in the groups below (refer to units and prerequisites listing in Appendix 2).

To satisfy the Training Package requirements, this TAFE NSW course has been structured as follows:

20 units must be completed - 5 core plus 15 electives

Group 1 - Core Units

All 5 units must be completed

Group 2 - Group A General Elective Units Listed in MEM50211

Up to 8 units may be completed

Group 3 - Group B Specialist Elective Units Listed in MEM50211

At least 7 units must be completed. All 15 electives may be completed from this group.

Group 4 - Diploma units from other Training Packages and accredited courses

Up to 3 units may be completed.

Group 997 Enrichment and Pre-Requisite Units

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This group contains enrichment and/or pre-requisite units that can not be counted in the number of units required for course completion. They provide additional skills and knowledge related to your learning area AND/OR are pre-requisites for electives in this qualification but do not contribute to course completion.

NOTES FOR STUDENTS

1. LEARNER SUPPORT

Students who require support to meet their learning goals may co-enrol in the Learner Support course (TAFE Course Number 9999). Talk to your teacher if you think you may require learner support.

2. SELECTION OF ELECTIVES

Talk to your teacher and/or workplace trainer to ensure that your combination of electives provides you with a suitable vocational outcome.

3. RECOGNITION

If you have completed other relevant training you may be eligible to have units of competency from previous training counted towards completion for this course. Talk to your teacher or workplace trainer if you think you may be eligible for recognition for units previously completed.

4. PREREQUISITE UNITS

Some units in this course may have prerequisites that must be completed in a lower level qualification or selected as part of this course. Refer to the Training Package or consult your teacher for information about prerequisites to elective units.

Course Elective Completion:

At least 15 elective modules/units must be completed. These may be chosen from groups 2, 3, 4

Group 1 CORE UNITS

All module/units must be completed

NSW Module/Unit	Module/Unit Name	Nominal Hours
MEM16006A	Organise and communicate information	18
MEM16008A	Interact with computing technology	18
MEM30007A	Select common engineering materials	36
MEM30012A	Apply mathematical techniques in a manufacturing engineering or related environment	36
MSAENV272B	Participate in environmentally sustainable work practices	20

Group 2 GROUP A - GENERAL ELECTIVES LISTED IN MEM50211

No more than 8 module/units may be completed

NSW Module/Unit	Module/Unit Name	Nominal Hours
MEM09002B	Interpret technical drawing	36
MEM09202A	Produce freehand sketches	20
MEM09203A	Measure and sketch site information	36
MEM09204A	Produce basic engineering detail drawings	72
MEM09205A	Produce electrical schematic drawings	72
MEM09206A	Produce drawings for mechanical services	72
MEM09207A	Produce drawings for reticulated services	72

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NSW Module/Unit	Module/Unit Name	Nominal Hours
MEM09208A	Detail fasteners and locking devices in mechanical	36
MEM09209A	Detail bearings, seals and other componentry in mechanical drawings	36
MEM09211A	Produce drawings or models for industrial piping	36
MEM09212A	Produce detailed drawings of steel to non-steel	36
MEM09213A	Produce schematic drawings for hydraulic and pneumatic fluid power systems	72
MEM09216A	Interpret and produce curved 3-D shapes and patterns	54
MEM09217A	Prepare plans for pipe and duct fabrication	72
MEM09218A	Participate in drafting projects for building services	36
MEM09219A	Prepare drawings for fabricated sheet metal products	72
MEM12024A	Perform computations	27
MEM15001B	Perform basic statistical quality control	18
MEM18001C	Use hand tools	18
MEM30005A	Calculate force systems within simple beam structures	72
MEM30006A	Calculate stresses in simple structures	36
MEM30008A	Apply basic economic and ergonomic concepts to evaluate engineering applications	36
MEM30009A	Contribute to the design of basic mechanical systems	36
MEM30010A	Set up basic hydraulic circuits	36
MEM30011A	Set up basic pneumatic circuits	36
MEM30021A	Prepare a simple production schedule	36
MEM30023A	Prepare a simple cost estimate for a manufactured	36
MEM30025A	Analyse a simple electrical system circuit	36
MEM30026A	Select and test components for simple electronic switching and timing circuits	36
MEM30027A	Prepare basic programs for programmable logic	36
MEM30031A	Operate computer-aided design (CAD) system to produce basic drawing elements	54
MEM30032A	Produce basic engineering drawings	72
MEM30033A	Use computer-aided design (CAD) to create and display 3-D models	36
MSATCS301A	Interpret architectural and engineering design specifications for structural steel detailing	40
MSATCS302A	Detail bolts and welds for structural steelwork connections	20

Group 3 GROUP B - SPECIALSIT ELECTIVES LISTED IN MEM50211
 At least 7 module/units must be completed

NSW Module/Unit	Module/Unit Name	Nominal Hours
MEM09141A	Represent mechanical engineering designs	54
MEM09210A	Create 3-D solid models using computer-aided design (CAD) system	72
MEM09214A	Perform advanced engineering detail drafting	72
MEM09215A	Supervise detail drafting projects	54
MEM09220A	Apply surface modelling techniques to 3-D drawings	36
MEM09221A	Create 3-D model assemblies using computer-aided design (CAD) system	36
MEM09222A	Interpret and maintain or restore original drawings	18
MEM12025A	Use graphical techniques and perform simple statistical computations	18
MEM13010A	Supervise occupational health and safety in an industrial work environment.	36
MEM14002B	Undertake basic process planning	72
MEM14081A	Apply mechanical engineering fundamentals to support design and development of projects	36
MEM14082A	Apply mechatronics fundamentals to support design and	36

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NSW Module/Unit	Module/Unit Name	Nominal Hours
MEM14082A	development of engineering projects	36
MEM15012B	Maintain/supervise the application of quality procedures	36
MEM18016B	Analyse plant and equipment condition monitoring results	36
MEM22002A	Manage self in the engineering environment	36
MEM22006A	Source and estimate materials	36
MEM22009A	Manage technical sales and promotion	36
MEM23001A	Apply advanced mathematical techniques in a manufacturing engineering or related environment	36
MEM23002A	Apply calculus in engineering situations	36
MEM23003A	Operate and program computers and/or controllers in engineering situations	54
MEM23041A	Apply basic scientific principles and techniques in mechanical engineering situations	108
MEM23051A	Apply basic electro and control scientific principles and techniques in mechanical and manufacturing	36
MEM23061A	Select and test mechanical engineering materials	18
MEM23062A	Select and test mechatronic engineering materials	18
MEM23071A	Select and apply mechanical engineering methods, processes and construction techniques	72
MEM23072A	Select and apply mechatronic engineering methods, processes and construction techniques	72
MSACMC410A	Lead change in a manufacturing environment	50
MSACMC611A	Manage people relationships	50
MSACMC612A	Manage workplace learning	60
MSACMS600A	Develop a competitive manufacturing system	50
MSACMT260A	Use planning software systems in manufacturing	50
MSACMT280A	Undertake root cause analysis	50
MSACMT621A	Develop a Just in Time (JIT) system	50
MSATCS502A	Detail structural steel members	80
MSATCS504A	Detail ancillary steelwork	40

Group 4 DIPLOMA UNITS FROM OTHER TRAINING PKG/ACCREDITED COURSES
 No more than 3 module/units may be completed

NSW Module/Unit	Module/Unit Name	Nominal Hours
BSBOHS501B	Participate in the coordination and maintenance of a systematic approach to managing OHS	40

Group 997 ENRICHMENT
 You may choose modules/units from this group but they do not count towards course completion

NSW Module/Unit	Module/Unit Name	Nominal Hours
MEM05051A	Select welding processes	18
MEM12003B	Perform precision mechanical measurement	18
MEM12023A	Perform engineering measurements	45
MEM13002B	Undertake occupational health and safety activities in the workplace	27
MEM18002B	Use power tools/hand held operations	18
MEM18003C	Use tools for precision work	36
MEM18006C	Repair and fit engineering components	54
MEM18010C	Perform equipment condition monitoring and recording	36
MEM18055B	Dismantle, replace and assemble engineering	27

Requirements to receive the qualification:

To achieve MEM50211 Diploma of Engineering - Technical (specialising in Mechanical) (TAFE NSW course 10387), learners are required to complete 20 units of competency, comprising:

- All 5 core units from Group 1
- 15 elective units from Groups 2, 3 and/or 4
- NB: at least 7 elective units must come from Group 3

Recognition:

TAFE recognises the skills and knowledge you have gained through previous studies, work and life experiences. We call this RECOGNITION.

If you are given recognition for a unit/module you do not need to do it. In some cases recognition may allow you to complete your course faster.

If you want to apply for recognition for any unit/module in your course you should obtain a copy of the Recognition Guide for that unit/module and discuss it with your teacher.

More about Assessment

For information about assessment in TAFE NSW please see "Every Student's Guide to Assessment in TAFE NSW" which is available on the TAFE NSW website at:
http://www.tafensw.edu.au/courses/about/assessment_guide.htm.