DELLA INTERNATIONAL COLLEGE
RTO: 21738 | CRICOS: 02716C
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Certificate IV in Engineering (Release 2)

Della International College Pty Ltd.

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MEM40119 - Certificate IV in Engineering (Release 2)

Student Course Guide

Course Code:	**MEM40119**
Course Name:	**Certificate IV in Engineering (Release 2)**
Course Type:	Accredited
Course Level:	4
Course Location:	Level 1, 150 - 154 A'Beckett Street, Melbourne, VIC 3000 Unit 4, 149 Anderson Road, Sunshine – 3020
Course Duration:	Fulltime: 100 weeks @ 20 hours per week 89 weeks class delivery 11 weeks Holiday
Enquiries	Phone: +61 3 93299430 Email: info@dellainternational.edu.au
Course Overview	This qualification defines the skills and knowledge required for a higher engineering tradesperson within metal, engineering, manufacturing and associated industries. The skills associated with this qualification are intended to apply to a wide range of engineering work undertaken in the fields of refrigeration and air conditioning, casting and moulding, computer numerically controlled (CNC) programming, fluid power, heavy fabrication, instrumentation, maintenance, plant mechanics, marine electronics, mechatronics, patternmaking, robotics, toolmaking, welding and watch and clock services and repair, including post-trade work. It provides the skills and knowledge for a person to understand and implement quality control techniques, exercise good interpersonal and communications skills, work from complex instructions and procedures, exercise discretion within the scope of responsibility, perform work under limited supervision either individually or in a team environment, be responsible for assuring the quality of their own work, provide trade guidance and assistance as part of a work team, perform non-trade tasks which are incidental or peripheral to the primary tasks and facilitate the completion of the whole task, inspect products and/or materials for conformity with established operational standards, operate lifting equipment incidental to their work and assists in the provision of training in conjunction with supervisors and trainers. This qualification may be accessed by direct entry. While there is no qualification entry requirement, it is assumed that the learner is either already a tradesperson with access to structured on and off-the-job training or is an apprentice under an Australian Apprenticeship arrangement. It should not be used as a pre-employment or pre-apprenticeship program. It is specifically designed to cover the skills and knowledge required of workers employed as Engineering/Manufacturing Tradesperson – Special Class Level II as defined in the Manufacturing and Associated Industries and Occupations Award. No licensing, legislative or certification requirements apply to this qualification at the time of publication. However, in some jurisdictions units in this qualification may require a license. Licensing information is included in the relevant units of competency. The following additional descriptors are approved for use with this qualification: ▪ Casting and Moulding ▪ CNC Programming ▪ Fluid Power ▪ Boiler making ▪ Instrumentation ▪ Maintenance ▪ Fixed and Mobile Plant Mechanic ▪ Mechatronics

MEM40119 - Certificate IV in Engineering (Release 2)

Student Course Guide

	▪ Patternmaking ▪ Refrigeration and Air Conditioning ▪ Marine Craft Construction ▪ Robotics ▪ Sheet Metal ▪ Toolmaking ▪ Watch and Clock Service and Repair ▪ Welding No other descriptor can be used.
Credit Transfer and Recognition of Prior learning	Della International College offers Recognition of Prior Learning (RPL) and Course Credit to students through the enrolment process. Della International College recognises qualifications issued by other RTOs. Please consult with the Compliance Manager for further information if you are unsure if either of these apply to you.
Sequence of Delivery and Assessment/ Course Structure	This program will be delivered over 100 weeks. Learners are provided with learning resources, training manuals, assessment requirements. 1. **Classroom based training** sessions to develop the knowledge and theoretical understandings required to undertake activities within a potentially highly regulated industry. Classroom settings will ensure full access to computers, internet, whiteboards, workbooks and textbooks. 2. **Practical training and experience** in a simulated environment allowing for training, practice and assessment to occur in an appropriate environment (subject to units). A Simulated environment is an environment that closely resembles the real workplace in its function and operation and provides access to a broad range of related experiences, tools and materials This environment will allow students to develop and demonstrate their skills in relation to painting and decorating within appropriate simulated situations. During the practical sessions enough, time is allocated to students to perform the required tasks, practice their skills, reinforce their knowledge and prepare themselves for the practical assessments. 3. **Private / Out of Class Study** - Students need to allocate a few hours of self-study time per unit of competence to complete workbook activities and the associated review questions to enhance their understanding. This time is in addition to the structured supervised hours of training. **Delivery Weekly Hours** The face-to-face delivery of this qualification will combine theory in classrooms and practical training in a simulated environment. Each week, students will attend 20 hours of face-to-face/online training and assessment.

Order	Duration (in weeks)	Unit details	Total Delivery			
				Assessment	Self-Study	Total Hours
1	3	MEM13015 Work safely and effectively in manufacturing and engineering	40	20	6	66
2	3	MSMENV272 Participate in environmentally sustainable work practices	40	20	6	66

MEM40119 - Certificate IV in Engineering (Release 2)

Student Course Guide

3	1	MEM16006 Organise and communicate information	10	10	2	22
4	2	MEM12023 Perform engineering measurements	20	20	4	44
5	2	MEM12024 Perform computations	20	20	4	44
6	1	MEM11011 Undertake manual handling	10	10	2	22
7	2	MEM14006 Plan work activities	20	20	4	44
8	1	MEM16008 Interact with computing technology	10	10	2	22
9	1	MEM17003 Assist in the provision of on-the-job training	10	10	2	22
10	1	MEM18001 Use hand tools	10	10	2	22
11	1	MEM18002 Use power tools/hand held operations	10	10	2	22
12	2	MEM09002 Interpret technical drawing	20	20	4	44
13	2	MEM13019 Undertake work health and safety activities in workplace	20	20	4	44
14	2	MEM05052 Apply safe welding practices	20	20	4	44
15	2	MEM24001 Perform basic penetrant testing	20	20	4	44
16	1	MEM07032 Use workshop machines for basic operations	10	10	2	22
17	2	MEM05005 Carry out mechanical cutting	20	20	4	44
18	2	MEM05085 Select welding processes	20	20	4	44
19	1	MEM05004 Perform routine oxy fuel gas welding	10	10	2	22
20	1	MEM05006 Perform brazing and/or silver soldering	10	10	2	22
21	1	MEM05007 Perform manual heating and thermal cutting	10	10	2	22
22	2	MEM05071 Perform advanced manual thermal cutting, gouging and shaping	20	20	4	44
23	1	MEM05014 Monitor quality of production welding/fabrication	10	10	2	22
24	1	MEM05012 Perform routine manual metal arc welding	10	10	2	22

MEM40119 - Certificate IV in Engineering (Release 2)

Student Course Guide

25	3	MEM05090 Weld using manual metal arc welding process	40	20	6	66
26	3	MEM05072 Perform advanced welding using manual	40	20	6	66
27	2	MEM05050 Perform routine gas metal arc welding	20	20	4	44
28	3	MEM05091 Weld using gas metal arc welding process	40	20	6	66
29	3	MEM05073 Perform advanced welding using gas metal arc welding process	40	20	6	66
30	1	MEM05056 Perform routine flux core arc welding	10	10	2	22
31	3	MEM05096 Perform advanced welding using flux core arc welding process	40	20	6	66
32	3	MEM05084 Perform advanced welding using flux core arc welding process	40	20	6	66
33	3	MEM12007 Mark off/out structural fabrication and shapes	40	20	6	66
34	1	MEM11016 Order Material	10	10	2	22
35	1	MEM05049 Perform routine gas tungsten arc welding	10	10	2	22
36	3	MEM05092 Weld using gas tungsten arc welding process	40	20	6	66
37	3	MEM05037 Perform geometric development	40	20	6	66
38	3	MEM05074 Perform advanced welding using gas tungsten arc welding process	40	20	6	66
39	3	MEM16012 Interpret technical specifications and manual	40	20	6	66
40	5	MEM09009 Create 2-D drawing using computer aided system	60	40	10	110
41	3	MEM09010 Create 3-D models using computer aided system	40	20	6	66
42	3	MEM05097 Weld using oxy fuel gas welding process	40	20	6	66
43	2	MEM05013 Perform manual production welding	20	20	4	44
		Total	**1050**	**730**	**178**	**1958**
Total	**89 Weeks**	**Total face to face and Self-study hours**	**1958**			

MEM40119 - Certificate IV in Engineering (Release 2)

Student Course Guide

Pre-requisites

Core units

Seq.	Unit Code	Unit Title	P	Pre-Requisite
1.	MEM13015	Work safely and effectively in manufacturing and engineering	2	Nil
2.	MSMENV272	Participate in environmentally sustainable work practices	3	Nil
3.	MEM16006	Organise and communicate information	2	MEM13015
4.	MEM12023	Perform engineering measurements	5	MEM13015, MEM16006
5.	MEM12024	Perform computations	3	MEM13015, MEM16006
6.	MEM11011	Undertake manual handling	2	MEM13015, MEM16006
7.	MEM14006	Plan work activities	4	MEM13015, MEM16006
8.	MEM16008	Interact with computing technology	2	MEM13015, MEM16006
9.	MEM17003	Assist in the provision of on-the-job training	2	MEM13015, MEM16006
10.	MEM18001	Use hand tools	2	MEM13015, MEM16006, MEM11011
11.	MEM18002	Use power tools/hand held operations	2	MEM13015, MEM16006, MEM11011
12.	MEM09002	Interpret technical drawing	4	MEM13015, MEM16006, MEM12023, MEM12024

MEM40119 - Certificate IV in Engineering (Release 2)

Student Course Guide

Pre-requisites

Elective units

Seq.	Unit Code	Unit Title	P	Group	Pre-Requisite	
1.	MEM13019	Undertake work health and safety activities in workplace	3	B	Nil	
2.	MEM05052	Apply safe welding practices	4	B	MEM13015, MEM16006	
3.	MEM24001	Perform basic penetrant testing	2	B	MEM13015, MEM16006, MEM11011, MEM18001	
4.	MEM07032	Use workshop machines for basic operations	2	B	MEM13015, MEM16006, MEM11011, MEM18001	
5.	MEM05005	Carry out mechanical cutting	2	B	MEM13015, MEM16006, MEM12023, MEM11011, MEM18001	
6.	MEM05085	Select welding processes	2	B	MEM13015, MEM16006	
7.	MEM05004	Perform routine oxy fuel gas welding	2	B	MEM13015, MEM16006, MEM11011	
8.	MEM05006	Perform brazing and/or silver soldering	2	B	MEM13015, MEM16006, MEM11011	
9.	MEM05007	Perform manual heating and thermal cutting	2	B	MEM13015, MEM16006, MEM12023, MEM11011, MEM09002	
10.	MEM05071	Perform advanced manual thermal cutting, gouging and shaping	2	B	MEM13015, MEM16006, MEM12023, MEM11011, MEM18001, MEM05007	

	11.	MEM05014	Monitor quality of production welding/fabrication	2	B	MEM13015, MEM16006, MEM12023, MEM12024, MEM11011, MEM14006, MEM18001, MEM18002, MEM09002, MEM05004	
	12.	MEM05012	Perform routine manual metal arc welding	2	B	MEM13015, MEM16006, MEM11011	
	13.	MEM05090	Weld using manual metal arc welding process	4	B	MEM13015, MEM16006, MEM12023, MEM12024, MEM11011, MEM14006, MEM18001, MEM18002, MEM09002, MEM05012, MEM05052, MEM05085	
	14.	MEM05072	Perform advanced welding using manual	4	B	MEM13015, MEM16006, MEM12023, MEM12024, MEM11011, MEM14006, MEM18001, MEM18002, MEM09002, MEM05007, MEM05012, MEM05052, MEM05085, MEM05090	
	15.	MEM05050	Perform routine gas metal arc welding	2	B	MEM13015, MEM16006, MEM11011	

	16.	MEM05091	Weld using gas metal arc welding process	4	B	MEM13015, MEM16006, MEM12023, MEM12024, MEM11011, MEM14006, MEM18001, MEM18002, MEM09002, MEM05050, MEM05052, MEM05085	
	17.	MEM05073	Perform advanced welding using gas metal arc welding process	4	B	MEM13015, MEM16006, MEM12023, MEM12024, MEM11011, MEM14006, MEM18001, MEM18002, MEM09002, MEM05007, MEM05050, MEM05052, MEM05085, MEM05091	
	18.	MEM05056	Perform routine flux core arc welding	2	B	MEM13015, MEM16006, MEM11011	
	19.	MEM05096	Weld using flux core arc welding process	4	B	MEM13015, MEM16006, MEM12023, MEM12024, MEM11011, MEM14006, MEM18001, MEM18002, MEM05052, MEM05056, MEM05085	
	20.	MEM05084	Perform advanced welding using flux	4	B	MEM13015, MEM16006, MEM12023,	

			core arc welding process			MEM12024, MEM11011, MEM14006, MEM18001, MEM18002, MEM09002, MEM05007, MEM05052, MEM05056, MEM05085, MEM05096	
	21.	MEM12007	Mark off/out structural fabrication and shapes	4	B	MEM13015, MEM16006, MEM12023, MEM12024, MEM11011, MEM14006, MEM09002	
	22.	MEM11016	Order Material	2	B	MEM13015, MEM16006	
	23.	MEM05049	Perform routine gas tungsten arc welding	2	B	MEM13015, MEM16006, MEM11011	
	24.	MEM05092	Weld using gas tungsten arc welding process	4	B	MEM13015, MEM16006, MEM12023, MEM12024, MEM11011, MEM14006, MEM18001, MEM18002, MEM09002, MEM05049, MEM05052, MEM05085	
	25.	MEM05037	Perform geometric development	6	B	MEM13015, MEM16006, MEM12023, MEM12024, MEM14006, MEM09002	
	26.	MEM05074	Perform advanced welding using gas	4	B	MEM13015, MEM16006, MEM12023,	

			tungsten arc welding process			MEM12024, MEM11011, MEM14006, MEM18001, MEM18002, MEM09002, MEM05007, MEM05049, MEM05052, MEM05085, MEM05092	
	27.	MEM16012	Interpret technical specifications and manual	4	A	MEM13015, MEM16006	
	28.	MEM09009	Create 2-D drawing using computer aided system	8	A	MEM13015, MEM16006, MEM12023, MEM12024, MEM16008, MEM09002	
	29.	MEM09010	Create 3-D models using computer aided system	4	A	MEM13015, MEM16006, MEM12023, MEM12024, MEM16008, MEM09002, MEM09009	
	30.	MEM05097	Weld using oxy fuel gas welding process	4	B	MEM05004, MEM05052, MEM05085, MEM09002, MEM11011, MEM12023, MEM12024, MEM13015, MEM14006, MEM16006, MEM18001, MEM18002	

MEM40119 - Certificate IV in Engineering (Release 2)

Student Course Guide

	31.	MEM05013	Perform manual production welding	2	B	MEM13015, MEM16006, MEM11011

Qualifications and Recognition Outcome

Certificate IV

Characteristics of Learning Outcomes

- Performance of a broad range of skilled applications including requirements to evaluate and analyse current practices, develop new criteria and procedures for performing current practices, and provision of some leadership and guidance to others in the application and planning of the skills
- Breadth, depth and complexity of knowledge and competencies would cover a broad range of varied activities or applications in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance are involved when organising activities of self and others as well as contributing to technical solutions of a nonroutine or contingency nature
- Applications involve responsibility for, and limited organisation of, others.

Distinguishing Features of Learning Outcomes

An individual with this qualification would need to demonstrate the following competencies:

- demonstrate some relevant theoretical knowledge
- apply a range of well-developed skills
- apply known solutions to a variety of predictable problems
- perform processes that require a range of well-developed skills where some discretion and judgement is required
- interpret available information, using discretion and judgement
- take responsibility for own outputs in work and learning
- take limited responsibility for the output of others

Language skills in regards to;

- Understand the course material and content
- Communicate with assessor, members of the class and colleagues
- Communicate using technology

Literacy skills in regards to;

- prepare plan
- read and understand a variety of workplace information,
- read and understand the organisational procedures,
- interpret information

Numeracy skills in regard to:

- calculations
- collate and present data,
- estimation

Assessment

Participants will be advised of the assessment requirements at the beginning of each unit.

Assessment is the process of collecting evidence and making judgements about whether competency has been achieved to confirm whether an individual can perform to the standards expected in the workplace, as expressed in the relevant endorsed unit of competency.

Assessment is carried out in accordance with the:

- benchmarks for assessment

MEM40119 - Certificate IV in Engineering (Release 2)

Student Course Guide

	• specific industry requirements • principles of assessment • rules of evidence Assessment will usually commence in the session following delivery and it may take considerable time to complete both the theory and/or practical requirements. As this is a competency based program, assessment continues throughout the program until the participant either achieves competency in the assessment tasks or a further training need is identified and addressed. Formative assessment is provided throughout the course. This is achieved through a range of activities and assessments throughout the training program. These tasks are separate to the summative assessment process that concludes each unit of competency The assessment process may include theory, projects and practical assessments. Each unit has an individual assessment tool and mapping document which establishes the details assessment methodology including: • Outlining the assessment methods • Providing instructions for the assessor • Providing instructions for the students • Being mapped to the unit of competency through a separate mapping document • Ensuring assessment is summative Assessment is based on realistic workplace scenarios and simulations as students; • May not be in suitable employment or • May be working in workplaces or work situations that do not use or allow the application of the competency required.
Pathways	Participants will be provided with advice on career development and training options throughout the delivery of the program **Pathways into the Qualification** Preferred pathways include • MEM40119 – Certificate IV in Engineering (Release 2) **Pathways from the qualification** • MEM50119- Diploma of Engineering- Advanced Trade (Release 2) **Employment Pathway** Job roles and titles vary across different industry sectors. Possible job titles relevant to this qualification include: • Engineering/Manufacturing Tradesperson- Special Class Level II • Fitter and Turner • Fitter and Machinist • Boilermaker • Welder • Sheet Metal Worker

MEM40119 - Certificate IV in Engineering (Release 2)

Student Course Guide

Determining Suitability Assessment

Pre-Training Review:

The Pre training Review is to be conducted within the Determining Suitability Review. It will consist of a self-assessment and series of questions that are relevant to identify the prospective student's current academic and professional skills and knowledge.

The pre-training review is conducted as a means of determining the appropriateness of the chosen qualification, any prior knowledge in the field and if it is a suitable training option in which the student chooses to study.

Upon completion, the pre-training information is assessed and the outcomes recorded in the Determining Suitability Review. Suggestions are recorded and transferred to the trainer on the training plan.

Language, Literacy and Numeracy Assessment

Included in the Determining Suitability Assessment is the Language, Literacy and Numeracy (LLN) test. Students will be required to complete the LLN test to determine their level to be able to complete the course or be offered additional support prior to entry into a course. Students will be admitted into the respective courses only if their LLN test result is within the range provided.

Della International College will not enrol an eligible individual where the qualification is at an inappropriate level for that student. In the event that minor gaps* are identified, Della International College will provide the student with support services to enable them to undertake the qualification.

**minor gaps refer to forms of reasonable adjustment that will not compromise the qualification requirements.*

Upon completion of the Determining Suitability Assessment the authorised delegate is to provide feedback to the student regarding the suitability of the qualification to the student's needs and indicate if any support services are required prior to application. This information can be placed on the last page of the training plan in the allocated space.

Learning Style Assessment

The learning Style assessment is designed to assess the prospective students learning style and what should be considered in;

- How they learn
- How they study and
- How they should be assessed.

The purpose of this assessment is to ensure that the way in which the prospective course is to be delivered is suitable to the student needs.

Upon completing all areas they assessment is tallied and the outcomes recorded in the Determining Suitability Review, suggestion are recorded and transfer to the trainer on the training plan.

MEM40119 - Certificate IV in Engineering (Release 2)

Student Course Guide

Medical Issues	Upon enrolling into Della International College, we request that you disclose if you have any medical conditions as there may be contraindications to the course you wish to enrol into. Should you have a medical condition, you will be asked to provide Della International College with a certificate of capacity from your Doctor, clearing you and allowing you to participate in classes.
Policy and procedure	Upon enrolment and on your first day of class you will be provided with an orientation of the course and how it is structured. You will also be given a Student Handbook which outlines and covers all of Della International College's policies and procedures; inclusive but not limited to: Privacy policy, Complaints, Appeals, Withdrawals and other processes. For all forms relating to studying at Della International College, please refer to our website. www.dellainternational.edu.au or email info@dellainternational.edu.au.

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