Programme Regulations for:

New Zealand Diploma in Engineering

(Level 6) (Version 7.0)

with strands in:	Civil Engineering Electrical Engineering Electronic Engineering Mechanical Engineering Fire Engineering

Wintec code:	EN1603	**MoE:**	NZ2612
Level:	6	**Credits:**	240
Owner:	Centre for Engineering and Industrial Design	**Effective Date:**	January 2024

These regulations should be read in conjunction with the Institute's Academic Regulations and the additional regulations for the New Zealand Diploma in Engineering (appended).

1. Transition Arrangements

1.1 The New Zealand Diploma in Engineering programme has been reviewed by Vocational Engineering Education NZ (VEE.NZ)and Wintec will be offering the revised version 5.0 of the programme from July 2023;

1.2 For full transition arrangements refer to the 'Additional Regulations for the New Zealand Diploma in Engineering' appended to these regulations, Clause C: Transition Arrangements, sub-clauses C1 to C4.

2. Admission and Entry

2.1 **General Academic Admission**

a) Candidates are required to have gained:

i) NCEA Level 2*, and

ii) a minimum total of 48 NCEA credits at Level 2 in four subjects, including at least 12 credits in Mathematics (preferably from achievement standards in algebra, calculus or trigonometry); **or**

iii) equivalent qualifications (e.g. International Baccalaureate or Cambridge); **or**

iv) equivalent credits from trades training and/or demonstrated skills and experience, **and**

*a minimum of 10 literacy credits at Level 1 or higher (for those who achieved NCEA Level 2 before 2013).

2.2 **Special Admission**

Domestic applicants aged 20 years or above who have not met the General Admission or entry requirements for a programme but whose skills, education or work experience indicate that they have a reasonable chance of success[1] may be eligible for Special Admission. Special admission will be granted at the discretion of the Centre Director or designated nominee. Such applicants may be required to successfully complete a foundation, bridging or tertiary introductory programme as a condition of entry into higher level programmes.

[1] Education Act 1989 Section 224 (3)

2.3 **Provisional Entry**
Domestic applicants aged under 20 years who have not met the general academic admission and entry criteria for a programme, but who can demonstrate a reasonable chance of success through other educational attainment and/or work or life experience, may be eligible for provisional entry at the discretion of the Centre Director or designated nominee. Provisional entry places restrictions on re-enrolment to be lifted if the applicant's performance is deemed satisfactory by the Centre Director or designated nominee.

2.4 **English Language Requirements**
Candidates who have English as a second language are required to have an International English Language Test System (IELTS) score of 6.0, with no individual band score lower than 5.5; or equivalent.

3. Transfer of Credit

3.1 Transfer of credit is regulated by the New Zealand Board for Engineering Diplomas (NZBED) as follows:

a) Recognition of Prior Learning includes credit transfer, cross credits, recognition of prior experiential learning, recognition of current competency, and assessment of prior learning. Each of these terms relates to previous qualifications and relevant experience.

b) Assessment of prior learning is available for modules in this qualification. This will be used for new enrolments and for candidates who wish to transition from related qualifications. Up to 50% of the qualification may be awarded through RPL process. Credits gained from transfer from existing qualifications listed in the transition tables in Appendix 1 of the National Curriculum Document and applied for before 31 December 2015 are excluded from the 50% limit.

c) All assessment of prior learning must comply with Wintec's Academic Regulations and the associated Academic Manual.

d) Wintec may apply to NZBED for approval to award RPL for more than 50% of the qualification, noting 3.1 b) as it applies to candidates transitioning from existing qualifications.

Recognition of Prior Learning: For the capstone courses, DE6101 Engineering Management and DE6102 Engineering Project, RPL can only be granted by the VEE.NZ Quality Assurance Committee (QAC) after considering a recommendation by a provider. In making its decision, the QAC will have regard to the type of evidence considered and the processes adopted by the provider in making the recommendation.

4. Programme Requirements

4.1 Every candidate for the New Zealand Diploma in Engineering shall to the satisfaction of the Academic Board follow a programme of study for a period of normally not less than two years.

4.2 Each candidate's programme of study shall comprise compulsory and elective modules totalling 240 credits from the schedule of modules in Section 7 of these regulations.

4.3 There are five compulsory modules listed in Section 7 which all NZDE graduates will have achieved.

4.4 The elective modules within each strand are to be selected from modules within the qualification with a coherent relationship to that strand. In exceptional circumstances, an elective from outside the programme may be selected with approval from the Centre Director.

4.5 A candidate may enrol in modules at any institution with approval and accreditation to deliver the qualification.

4.6 Providers will be required to demonstrate that all graduates have met the graduate outcomes and attributes to be eligible to graduate.

5. Completion of the Programme

5.1 The maximum completion time will be ten (10) years from date of first enrolment. The QA Committee can grant extensions under exceptional circumstances.

6. Award of the Qualification

6.1 The candidate shall be awarded the diploma by the accredited institution at which they have been awarded the majority of the Level 5 and Level 6 credits.

6.2 The award certificate will display the logos of the NZBED and the accredited Tertiary Education Organisation (TEO) and be annotated as the New Zealand Diploma in Engineering [Strand].

6.3 Each accredited provider will report annually to the NZBED the names of all graduates awarded the NZDE (Strand).

7. Schedule of Modules

Note: no value in the pre/co-requisite columns means there are no pre/co-requisites for that module. Candidates should note that some Specialisations and/or Electives may not be offered or be available within any given year.

7.1 New Zealand Diploma in Engineering (Civil Engineering)

To be awarded the New Zealand Diploma in Engineering (Civil Engineering), a candidate must successfully complete the required 240 credits and meet the following requirements:

- All common compulsory modules must be passed;
- All Civil Engineering strand compulsory modules must be passed;
- The remainder credits are taken from civil elective modules but must include 45 credits at level 6.
- Graduate outcomes and attributes have been met and evidenced
- ~~Graduate profiles and graduate attributes have been met~~

Module Code	Module Title	Credit	Level	Pre-requisites	Co-requisites
Common Compulsory					
DE4101	Engineering Fundamentals	15	4		
DE4102	Engineering Mathematics 1	15	4		
DE4103	Technical Literacy	15	4		
DE6101	Engineering Management	15	6	Min of 105 credits from NZDE	
DE6102	Engineering Project	15	6	DE4103 Min of 45 credits at	DE6101

Module Code	Module Title	Credit	Level	Pre-requisites	Co-requisites
				Level 5: DE5208 & DE5207	
Civil Engineering Strand Compulsory					
DE5208	Civil Materials	15	5		
DE5209	Land Surveying 1	15	5		
DE5201	Structures 1	15	5	DE4101	
DE5202	Civil and Structural Drawing	15	5	DE4103	
DE5203	Fluid Mechanics (Civil)	15	5	DE4101 DE4102	
DE5204	Highway Engineering 1	15	5	DE5207 DE4102	
DE5207	Geotechnical Engineering 1	15	5		
Electives – four to be selected of which at least three must be at Level 6					
DE5205	Engineering Surveying	15	5	DE5209	
DE6209	Structures 2	15	6	DE5201	
DE6201	Geotechnical Engineering 2	15	6	DE5207	
DE6202	Highway Engineering 2	15	6	DE5204	
DE6203	Traffic Engineering	15	6	DE5204	
DE6204	Structures 3	15	6	DE6209	
DE6205	Water and Wastewater Systems	15	6	DE5203	
DE6206	Water and Waste Management	15	6		DE5203
DE6207	Land Surveying 2	15	6	DE5209	
DE6208	Civil Engineering and Construction Practices	15	6		

7.2 New Zealand Diploma in Engineering (Electrical Engineering)

To be awarded the New Zealand Diploma in Engineering (Electrical Engineering), a candidate must successfully complete the required 240 credits and meet the following requirements:

- All common compulsory modules must be passed;
- All electrical strand compulsory modules must be passed;
- Compulsory modules and electives (where relevant) for **one** specialisation must be passed;
- The remainder credits are taken from the elective modules that align with the chosen specialisation.
- Graduate outcomes and attributes have been met and evidenced

Module code	Module Title	Credit	Level	Pre-requisites	Co-requisites
Common Compulsory					
DE4101	Engineering Fundamentals	15	4		
DE4102	Engineering Mathematics 1	15	4		
DE4103	Technical Literacy	15	4		
DE6101	Engineering Management	15	6	Min of 105 credits from NZDE	
DE6102	Engineering Project	15	6	DE4103 Min of 45 credits at Level 5	DE6101

Module code	Module Title	Credit	Level	Pre-requisites	Co-requisites
Electrical Strand					
DE4401	Electrical Principles	15	4		
DE5403	Electronic Principles	15	5		
DE4402	Electrical and Electronic Applications	15	4	DE4401	DE5403
DE5408 *orDE5423*	Introduction to Networks OR Computer Aided Drawing - Electrical	15 15	5 5		
DE5401	Power Engineering	15	5	DE4401	DE5403
DE5402	PLC Programming 1	15	5		
DE5404	Electrical Machines	15	5	DE4401 DE5403 DE4102	

Electives are chosen from either the Power specialisation electives table, or the Building Services specialisation electives table or the Instrumentation and Control specialisation electives table.

Electrical Specialisation Electives

Module Code	Module Title	Credit	Level	Pre-requisites	Co-requisites
Electrical Specialisation () Electives - four to be selected, minimum of three must be at Level 6					
DE5415	Illumination Engineering	15	5	DE4401 DE5403	
DE5417	Instrumentation and Controls 1	15	5	DE4101 DE4401 DE5403 DE4102	
DE5418	Engineering Mathematics Level 5	15	5	DE4102	
DE6401	Power Systems 1	15	6	DE4401 DE4102	
DE6409	Electrical Building Services	15	6	DE5401 DE5404	
DE6410	High Power Electrical Motors for Transport	15	6	DE5403 DE5404	
DE6411	PLC Programming 2	15	6	DE5402	
DE6414	Instrumentation & Controls 2	15	6	DE4101 DE4401 DE5403 DE5418	DE6411 DE5417
DE6419	Maintenance Engineering Management	15	6		
DE6420	Protection	15	6	DE4401 DE4102	
DE6421	Sustainable Energy and Power Electronics	15	6	DE4401 DE5403 DE4102	

Other electives are available within the electrical strand. For a full range see list of Course Descriptors see Section 5 of Curriculum Document. Relevant courses start with DE54XX or DE64XX. An elective from outside the strand may be selected with approval from the Centre Director or designated nominee.

7.3 New Zealand Diploma in Engineering (Electronic Engineering)

To be awarded the **New Zealand Diploma in Engineering (Electronic Engineering)**, a candidate must successfully complete the required 240 credits and meet the following requirements:

- All common compulsory modules must be passed;
- All electronic engineering strand compulsory modules must be passed;
- Compulsory modules and electives (where relevant) for **one** specialisation must be passed;
- The remainder credits are taken from the elective modules that align with the chosen specialisation.
- Graduate outcomes and attributes have been met and evidenced

Module Code	Module Title	Credit	Level	Pre-requisites	Co-requisites
Common Compulsory					
DE4101	Engineering Fundamentals	15	4		
DE4102	Engineering Mathematics 1	15	4		
DE4103	Technical Literacy	15	4		
DE6101	Engineering Management	15	6	Min of 105 credits from NZDE	
DE6102	Engineering Project	15	6	DE4103 and Minimum of 45 credits L5	DE6101
Electronic SpecialisationCompulsory					
DE4401	Electrical Principles	15	4		
DE5403	Electronic Principles	15	5		
DE4402	Electrical and Electronic Applications	15	4	DE4401	DE5403
DE5408 DE5423	Introduction to Networks OR CAD Electrical	15 15	5 5		
Electronics Specialisation Compulsory					
DE5405	Computer Programming 1	15	5		
DE5414	Electronic Manufacturing 1	15	5	DE5403	DE5407
DE6412	Computer Programming 2	15	6	DE5405	

Electives are chosen from either the Electronics specialisation elective table, or the Computer Networking specialisation electives table or the Data Communications Specialisation electives table.

Electronics Specialisation Electives

Module Code	Module Title	Credit	Level	Pre-requisites	Co-requisites
Electronics Electives – 4 required at least two must be at Level 6					
DE5407	Electronics 1	15	5	DE5403	
DE6402	Electronics 2	15	6	DE5407	
DE5406	Microcontrollers 1	15	5	DE4103	
DE6417	Microcontrollers 2	15	6	DE5406	
DE6408	Electronic Manufacturing 2	15	6	DE5414	
DE5418	Engineering Mathematics Level 5	15	5	DE4102	

Computer Networking Specialisation

Module Code	Module Title	Credit	Level	Pre-requisites	Co-requisites
Computer Networking Electives – 4 required at least two must be at Level 6					
DE5409	PC Engineering *	15	5		
DE5410	Routing and Switching Essentials *	15	5	DE5408	
DE6415	Scaling Networks *	15	6	DE5410	
DE6416	Connecting Networks *	15	6	DE6415	
DE6403	Network Operating Systems	15	6	DE5409	
DE6408	Electronic Manufacturing 2	15	6	DE5414	
DE5418	Engineering Mathematics Level 5	15	5	DE4102	

***Note:** for CCNA Certification candidates are required to have all modules marked with * from Computer Networking.*

Data Communications Specialisation

Module Code	Module Title	Credit	Level	Pre-requisites	Co-requisites
Data Communications Electives – 4 required at least two of which must be at Level 6					
DE5410	Routing and Switching Essentials	15	5	DE5408	
DE5420	Data telecommunications Intermediate	15	5	DE5403 DE5408	
DE6408	Electronic Manufacturing 2	15	6	DE5414	
DE6415	Scaling Networks	15	6	DE5410	
DE6416	Connecting Networks	15	6	DE6415	
DE5418	Engineering Mathematics Level 5	15	5	DE4102	

7.4 New Zealand Diploma in Engineering (Mechanical Engineering)

To be awarded the **New Zealand Diploma in Engineering (Mechanical Engineering),** a candidate must successfully complete the required 240 credits and meet the following requirements:

- All common compulsory modules must be passed;
- All mechanical strand compulsory modules must be passed;
- Compulsory modules for one specialisation must be passed;
- The remainder credits are taken from the elective modules that align with the chosen specialisation.
- Graduate outcomes and attributes have been met and evidenced

Module Code	Module Title	Credit	Level	Pre-requisites	Co-requisites
Common Compulsory					
DE4101	Engineering Fundamentals	15	4		
DE4102	Engineering Mathematics 1	15	4		
DE4103	Technical Literacy	15	4		
DE6101	Engineering Management	15	6	Min of 105 credits from NZDE	
DE6102	Engineering Project	15	6	DE4103 and Minimum of 45 credits L5 DE4301	DE6101
Mechanical Engineering Strand Compulsory					
DE3301	Engineering Practice	15	3		
DE4301	Engineering CAD	15	4	DE4103	
DE5305	Mechanics	15	5	DE4101 DE4102 DE4103	
DE5306	Mechanical Materials	15	5		
DE5301	Thermodynamics and Heat Transfer	15	5	DE4101 DE4102 DE4103	
DE6301	Fluid Mechanics	15	6	DE4101 DE4102 DE5305	

Mechanical Specialisation

Module Code	Module Title	Credit	Level	Pre-requisites	Co-requisites
Mechanical Specialisation Compulsory					
DE5302	Strength of Materials 1	15	5	DE5305	
DE6310	Manufacturing Processes and Production	15	6	DE5306	
DE5304	Electrical Fundamentals	15	5	DE4101 DE4102 DE4103	
Mechanical Specialisation Electives: two to be selected					
DE6302	Mechanics of Machines	15	6	DE5302	
DE6308	Strength of Materials 2	15	6	DE5302	

Module Code	Module Title	Credit	Level	Pre-requisites	Co-requisites
DE6309	Advanced Thermodynamics	15	6	DE5301	
DE6315	Fluid Power	15	6		
DE6419	Maintenance Engineering Management	15	6		

Services Specialisation

Module Code	Module Title	Credit	Level	Pre-requisites	Co-requisites
Services Specialisation Compulsory					
DE5304	Electrical Fundamentals	15	5	DE4101 DE4102 DE4103	
DE6303	Water-based Heat Transfer Systems	15	6	DE5301	
DE6311	Air Handling Systems	15	6	DE5301	
Services Specialisation Electives: two to be selected					
DE5402	PLC Programming 1	15	5		
DE6304	Piped Services Systems	15	6	DE5301	
DE6312	Building Management and Control Systems	15	6	DE5301	
DE6313	Industrial Refrigeration Systems	15	6	DE5301	
DE6314	Commercial and Light Industrial RAC Systems	15	6	DE5301	
DE6419	Maintenance Engineering Management	15	6		

Production Specialisation

Module Code	Module Title	Credit	Level	Pre-requisites	Co-requisites
Production Specialisation Compulsory					
DE6310	Manufacturing Processes and Production	15	6	DE5306	
DE5304	Electrical Fundamentals	15	5	DE4101 DE4102 DE4103	
DE6305	Quality and Reliability	15	6	DE4102	
DE6306	Operations Management	15	6	DE6305	
DE6307	Planning and Control	15	6	DE4102	

Metallurgy Specialisation

Module Code	Module Title	Credit	Level	Pre-requisites	Co-requisites
Metallurgy Specialisation Compulsory					
DE6310	Manufacturing Processes and Production	15	6	DE5306	
DE5302	Strength of Materials 1	15	5	DE5305	
DE6308	Strength of Materials 2	15	6	DE5302	

Module Code	Module Title	Credit	Level	Pre-requisites	Co-requisites
DE6316	Advanced Materials Metallurgy	15	6	DE5306 DE6310	DE6308
DE6317	Particulate Material Dynamics	15	6	DE6301	

7.5 New Zealand Diploma in Engineering (Fire Engineering)

To be awarded the **New Zealand Diploma in Engineering (Fire Engineering)**, a candidate must successfully complete the required 240 credits and meet the following requirements:

- All common compulsory modules must be passed;
- All fire engineering strand compulsory modules must be passed;
- Compulsory modules and electives (where relevant) for **one** specialisation must be passed;
- The remainder credits are taken from the elective modules that align with the chosen specialisation.
- Graduate outcomes and attributes have been met and evidenced

Module Code	Module Title	Credit	Level	Pre-requisites	Co-requisites
Common Compulsory					
DE4101	Engineering Fundamentals	15	4		
DE4102	Engineering Mathematics 1	15	4		
DE4103	Technical Literacy	15	4		
DE6101	Engineering Management	15	6	Min of 105 credits from NZDE	
DE6102	Engineering Project (Mechanical)	15	6	DE4103 and Minimum of 45 credits L5 DE4301	DE6101
Fire Strand Compulsory					
DE5306	Mechanical Materials	15	5		
DE5301	Thermodynamics and Heat Transfer	15	5	DE4101, DE4102, DE4103	
DE6301	Fluid Mechanics	15	6	DE4101, DE4102, DE305	
DE5201	Structures 1	15	5	DE4101	
DE6506	Engineering Design Practice	15	6		
DE6501	Means of Escape*	15	6		
DE6502	Fire Dynamics*	15	6	DE4101, DE4102, DE5301	
DE6503	Fire Risk Assessment and Hazard Analysis*	15	6	DE6502, ,	DE6504

Module Code	Module Title	Credit	Level	Pre-requisites	Co-requisites
				DE6501 DE6506	DE6505
DE6504	Fire Protection Systems – Active*	15	6		
DE6505	Fire Protection Systems – Passive*	15	6		
DE3505	Mechanics				

**Not all of these electives are available every year*

Additional Regulations for the New Zealand Diploma in Engineering

A. Assessment

A.1 All assessment is achievement based using an 11 point grading system.

A.2 Module Grades:

a) Module grades are calculated by the mathematical aggregation of weighted assessments using the following conversion:

Grade	Percentage	Result
A+	90-100	Pass
A	85-89	Pass
A-	80-84	Pass
B+	75-79	Pass
B	70-74	Pass
B-	65-69	Pass
C+	60-64	Pass
C	55-59	Pass
C-	50-54	Pass
D	40-49	Fail
E	0-39	Fail

b) Candidates must achieve a minimum of 40% in both aggregated coursework marks and in any final examination, with an overall grade of C- (50%) or better, to pass each module.

c) Candidates who do not meet the threshold criteria of 40% in their coursework will receive an E grade unless they choose to sit the final examination and then may achieve the maximum of a D grade.

A.3 Other Results:

a) Candidates may be awarded one of the following grades for a module if they meet the criteria described:

Grade	Definition
AEG	Awarded pass following consideration of impaired performance/aegrotat application. **Note:** the compulsory Level 6 modules DE6101 Engineering Management and DE6102 Engineering Project modules cannot be passed by Aegrotat.
CR/RPL	Credit Recognition – the candidate has applied for and been awarded a credit Recognition.
W/WD/WDN	Formal withdrawal application processed prior to completion of module.
DNC/INC	Did Not Complete – candidate failed to complete more than 50% of the prescribed assessments for that module.
FCW	Failed course work
FFE	Failed final exam

R	Restricted (conceded) pass. Can be granted at the discretion of the provider providing the candidate has achieved a minimum of 45% overall and the module is not a compulsory module. A candidate can graduate with one R pass only.

B. Resits and Resubmissions

B.1 A resubmission is a request for a learner to provide further evidence for assessment and applies only to uncontrolled coursework assessments (i.e. assignments, projects, etc).

B.2 Resubmissions will be carried out in a time or time period agreed with the Team Manager and in alignment with Wintec's Academic Regulations and associated Academic Manual.

B.3 A candidate may undertake only one resubmission within any module.

B.4 Where a student fails a module and is required to re-enrol, the Centre Director may authorise the coursework mark to be carried through to the re-enrolment. The coursework mark may only be carried through once. All coursework marks carried through must be reported to the relevant Programme Committee annually.

C. Transition Arrangements

C.1 Transition arrangements and cross credit schedules are listed in Appendix 1 of the NZDE National Curriculum Document.

C.2 Current Year One full-time candidates enrolled in the existing diploma programme will complete the existing Year Two programme in 2016.

C.3 New candidates will be enrolled in the new programme (version 2.0).

C.4 Current part-time candidates and those in exceptional circumstances will be assessed on a case by case basis (in line with the NZDE transition arrangements).