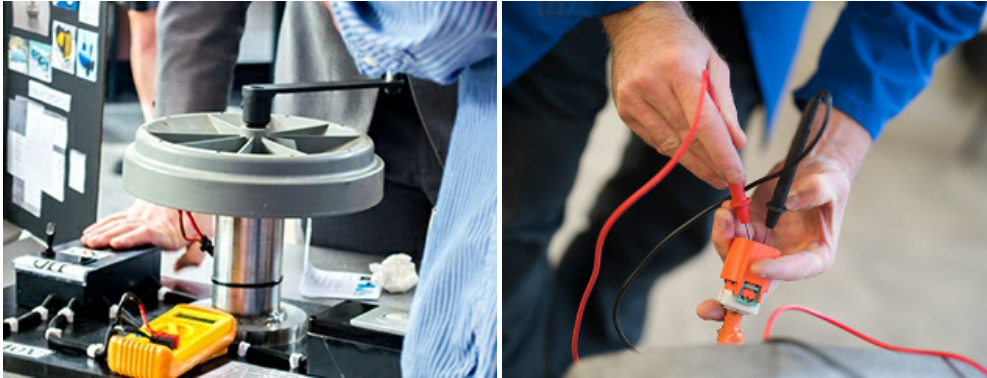




# Bachelor of Engineering Technology



**Domestic fee:** \$26,496

**International fee:** \$70,200

\*Fees are approximate, subject to change and exchange rates

Location	> Dunedin Campus > 10 month full-time / 18-20 month part-time distance learning option available through Capable NZ for those with existing knowledge and skills due to practical experience in engineering.
Duration	Three years full-time; part-time options
Delivery	On campus with a significant industry-based project to help you gain workplace experience



Credits	360
Level	7
Start	Dunedin: February or July (part-time only) Capable NZ: Monthly
Apply	Now

Mechanical Engineering. Civil Engineering. Electrical Engineering.

Are you a hands-on kind of person who enjoys planning and problem-solving?

Use those strengths to help shape your future within the Engineering industry.

Engineering Technologists are in high demand around the world for their skills and experience in combining engineering theory with the applied and practical components required in a range of industries. With hard work and a responsible attitude, you could set your sights on project management or consultancy roles in your particular fields.

Gain skills in management, economics, communications, problem-solving and critical thinking, while developing a deep understanding of the principles and practical application of modern technology in your area of specialisation. During the third year, you will have the opportunity to participate in a significant industry-based project in order to gain experience within the workplace.

This programme is a collaboration between the New Zealand Metro Polytechnics. The Civil and Mechanical specialisations are fully accredited under the Sydney Accord of the International Engineering Alliance, and the Electrical specialisation has provisional accreditation. This means they are recognised internationally by other accord signatory countries.

Engineering career opportunities

- > Research and development
- > Technical support and application
- > Education and communication

- > Quality and general management
- > Technocratic roles in local authorities and government.

#### Skills you'll gain

These graduate attributes are developed by the International Engineering Alliance and adopted under the Sydney Accord.

Upon successful completion of this degree, all graduates will be able to:

1. Apply knowledge of mathematics, natural science, engineering fundamentals and an engineering specialization as specified in SK1 to SK4 respectively to defined and applied engineering procedures, processes, systems or methodologies.
2. Identify, formulate, research literature and **analyse broadly defined engineering problems** reaching substantiated conclusions using analytical tools appropriate to the discipline or areas of specialization (SK1-SK4).
3. Design solutions for broadly-defined engineering technology problems and contribute to the design of systems, components or processes to meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations (SK5).
4. Conduct **investigations of broadly-defined problems**; locate, search and select relevant data from codes, databases and literature (SK8), design and conduct experiments to provide valid conclusions.
5. Select and **apply appropriate techniques**, resources, and modern engineering and IT tools, including prediction and modelling, to broadly-defined engineering problems, with an understanding of the limitations (SK6).
6. Demonstrate **understanding of the societal, health, safety, legal and cultural issues** and the consequent responsibilities relevant to engineering technology practice and solutions to broadly defined engineering problems (SK7).
7. Understand and **evaluate the sustainability and impact of engineering technology** work in the solution of broadly defined engineering problems in societal and engineering contexts (SK7).
8. Understand and commit to **professional ethics** and responsibilities and norms of engineering technology practice (SK7).
9. Function effectively **as an individual, and as a member or leader** in diverse teams.
10. Communicate **effectively** on broadly-defined engineering activities with the engineering community and with society at large, by being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11. Demonstrate **knowledge and understanding of engineering management principles** and apply these to one's own work, as a member or leader in a team and to manage projects in multidisciplinary environments.
12. Recognise the need for, and have the ability to **engage in independent and life-long learning** in specialist technologies.

You will study

This programme is made up of core and elective courses. Each will focus on the design and implementation of engineering technology and will concentrate on the development of advanced critical thinking and problem solving activities for effective troubleshooting.

#### YEAR ONE

Develop skills in communication, management, mathematics, engineering science, basic electrical/electronic principles and basic engineering practices. Elective courses may be selected according to your area of specialty.

#### YEAR TWO

Continue to build on your selected major.

#### YEAR THREE

Undertake an industry-based project in order to gain experience within the engineering profession.

Upon successful completion of this qualification, enter industry practice and then develop, demonstrate and maintain practical skills and professional competence. Your graduate career has the potential to develop as follows:

Development stage - Enter initial employment and develop competence for independent practice under supervision.

Independent practice - Practice independently as a competent engineering technologist benchmarked

against the competence standard for registration as an Engineering Technology Practitioner (ETPract). You are now able to progress to Technical Membership of Engineering New Zealand (ENZ).

Team leadership - Take overall responsibility for the work of a team in which you are the most expert.

Technical management - Supervise the work of others who may have greater or wider competence.

General management - Become involved in management at an organisational level. You may no longer be directly involved with technical engineering technology activities.

### Qualification structure

#### Common compulsory courses

Year	Course Name	Credits	Level
1	Engineering Computing	15	5
1	Engineering Mechanics	15	5
1	Engineering Communication	15	5
1	Engineering Mathematics	15	5
1	Engineering Design and Drawing	15	5
1	Engineering Management Principles	15	6
3	Professional Engineering Practice	15	7
3	Engineering Development Project	30	7

#### Civil Engineering compulsory courses

Year	Course Name	Credits	Level
1	Civil Materials	15	5
1	Engineering Site Investigation	15	5
2	Land Surveying	15	5
2	Basic Structures	15	5
2	Fluid Mechanics (Mech)	15	5
2	Highway Engineering	15	6
2	Civil Engineering Detailing & Modelling	15	6
2	Civil Engineering Construction Practices	15	6

Specialisations: Structural, Water and Water Waste, Transportation and Geotechnical.

Electives available: Geotechnical Engineering A, Highway Design & Maintenance, Traffic Engineering, Structural Principles, Special Topic, Water & Waste Engineering, Water Waste Treatment, Urban Transport Planning, Resource and Environmental Management, Project Management and Risk Management.

#### Mechanical Engineering compulsory courses

Year	Course Name	Credits	Level
1	Electrical Fundamentals	15	5
1	Materials Science	15	5

2	Strength of Materials 1	15	5
2	Thermodynamics and Heat Transfer	15	5
2	Fluid Mechanics (Civil )	15	6
2	Mechanics of Machines	15	6
2	Design	15	6
2	Advanced Thermodynamics	15	6
2	Strength of Materials 2	15	6

The Mechanical major is not constructed with specialisations but can be tailored to meet particular needs through the choice of suitable electives.

Electives available: Engineering Management Principles, Project Management, Manufacturing Processes and Production, Engineering Mathematics 2, Energy Engineering, Mechanical Design 2, Fluids Power and Advanced Fluid Mechanics, Risk Management and Special Topic.

Electrical Engineering compulsory courses

Year	Course Name	Credits	Level
1	Electrical and Electronic Principles 1	15	5
1	Electrical and Electronic Principles 2	15	5

Electrical Engineering compulsory courses for Mechatronics specialisation

Year	Course Name	Credits	Level
2	PLC Programming 1	15	5
2	Instrumentation & Control 1	15	5
2	Instrumentation & Control 2	15	6
2	Fluid Mechanics	15	6
2	Mechanics of Machines	15	6
2	PLC Programming 2	15	6
3	Automation	15	6
3	Robotics	15	7

Electrical Engineering compulsory courses for Power specialisation

Year	Course Name	Credits	Level
2	Elements of Power Engineering	15	5
2	Electrical Machines	15	5
2	PLC Programming 1	15	5
2	PLC Programming 2	15	6
2	Power Distribution	15	6

2	Sustainable Energy & Power Electronics	15	6
2	Design	15	6
3	Automation	15	6
3	Electrical Machine Dynamics	15	7
3	Power Systems	15	7

Specialisations: Power or Mechatronics

Electives available: Project Management Principles, Special Topic, Engineering Mathematics 2, Project Management, Risk Management, Energy Engineering and Fluid Power & Advanced Fluid Mechanics.

Note: Otago Polytechnic Engineering uses RoboDK (<https://robodk.com>) for simulation and offline programming of industrial robots

Your workload

During this practical and theoretical programme, you should expect to contribute time towards both directed and self-directed study. The number of hours will vary according to the chosen specialisation and route through the qualification.

Entry requirements

> NCEA Level 3

> Three subjects at Level 3 including:

> Physics with a minimum of 14 credits

> Calculus with a minimum of 14 credits, **and**

> one other subject with a minimum of 14 credits from the list of NZQA-approved subjects, **and**

> 10 Literacy credits at Level 2 or above, made up of:

> 5 credits in reading and 5 credits in writing, and

> 10 Numeracy credits at Level 1 or above, made up of:

> specified achievement standards available through a range of subjects OR

> package of three numeracy unit standards (26623, 26626, 26627 - all three required)

COVID-19 adjustments to NCEA requirements

> If you completed your NCEA Level 3 during 2020, you only need 12 credits per Level 3 subject (i.e. a total of 36 credits).

> If you completed your NCEA Level 3 during 2021, please visit this page on the NZQA website. There are different adjustments depending upon which part of New Zealand you studied in.

> OR equivalent qualifications (may include University Bursary with 45% or more in both Physics and Calculus or Algebra, equivalent Cambridge score or equivalent International Baccalaureate).

> If you are a school leaver or adult applicant with equivalent experience who does not meet all of the entry criteria, you may be given provisional entry at the discretion of the Head of College where it is considered that you have a reasonable chance of succeeding in this qualification.

> If English is not your first language, you must provide:

> New Zealand University Entrance OR

> Overall Academic IELTS 6.0 (achieved in one test completed in the last two years)

> Writing band 6.0

> Speaking band 6.0

> Reading band 5.5

> Listening band 5.5, OR

> Acceptable alternative evidence of the required IELTS (see here for NZQA proficiency table and here for list of recognised proficiency tests).

If you need to improve your English Language skills, we offer a wide range of English programmes.

### Selection procedure

Eligible applicants will be selected using the entry criteria. If the number of applications exceeds the number of places, applicants will be placed on to a waiting list in the order that they applied.

## Want to study while working?

Our Infrastructure Asset Management apprenticeship pathway offers you the opportunity to learn while you earn! A first in New Zealand, this apprenticeship degree has been developed with industry to combat the looming skills shortage in this area. Offered in partnership with Weltec, you'll gain experience in industry projects within your chosen specialty – Civil, Mechanical or Electrical Engineering. Aimed at all levels of experience, the beauty of this pathway is that you will learn by doing and will develop problem-solving and critical thinking skills related to a real-world environment.

## Student loans/allowances

Student loans and allowances are for domestic students only. For information about student loans and allowances please visit the Studylink website. It is important to apply for your student loan/allowance at the same time as you apply for this programme, due to the length of time Studylink take to process.

Loan/allowance applications can be cancelled at any time if you decide to withdraw your programme application or if it is unsuccessful.

## Disclaimer

While every effort is made to ensure that this sheet is accurate, Otago Polytechnic reserves the right to amend, alter or withdraw any of the contained information. The fees shown in this document are indicative ONLY. Both domestic and international fees are subject to change and are dependent on the development and implementation of Government policies. Please note that additional fees may from time to time be required for external examination, NZQA fees and/or additional material fees.



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