

# A quick guide to engineering qualifications

There are four main kinds of engineering diplomas and degrees available in New Zealand. Here are broad definitions of the kind of work you would expect a person with these qualifications to do.

## NEW ZEALAND DIPLOMA IN ENGINEERING (NZDE)



“I’M A HANDS-ON ENGINEER. I build the things others have designed – and sometimes suggest design improvements by applying my knowledge of what works on the ground. The NZDE is an internationally recognised qualification and to earn one, I studied full-time for two years – though you can also do it part-time while working.”

New Zealand Diploma of Engineering (NZDE) graduates work in a wide variety of jobs at a technical level applying engineering practices and designs. They are the engineers you will usually find building things (or managing the building process) and using current technology to solve the practical problems that arise when implementing a design. They often use their practical knowledge to suggest design improvements. Other roles that are often filled by NZDE engineers include computer aided design (CAD) drafting and management of construction sites. Very experienced NZDE graduates can also be found in more specialised and senior roles such as designing improvements to machinery used in manufacturing or developing high-tech electronics equipment.

The NZDE is a Level 6 diploma qualification that is internationally recognised and takes two years full-time study through an Institute of Technology or Polytechnic (ITP), though it can also be studied part-time while working.

## NEW ZEALAND DIPLOMA IN ENGINEERING PRACTICE (NZDEP)



“I’M A SENIOR PRACTICAL ENGINEER. It takes a minimum of four years of study and work experience to become an NZDEP engineer, but most of us have advanced technical skills built up over years of work, study and work-based assessment. You’ll find us in every field of engineering, using our knowledge to implement engineering designs – and solve the practical issues that always crop up along the way. NZDEP is an internationally recognised qualification.”

NZDEP-qualified engineers are senior technical practitioners. It takes a minimum of four years of study and work experience to become an NZDEP (starting with an NZ Diploma of Engineering), but most have advanced technical skills built up over many more years of working, study and work-based assessment. NZDEP graduates use their practical knowledge to implement designs. They are also very skilled at identifying and solving practical problems that arise in the implementation process and making design improvements.

Experienced NZDEP engineers often specialise and may design machinery, structures or processes using current technology. Practice areas are varied and include maintenance and management of buildings or machinery, engineering design and manufacturing, installation of machinery, technical sales and customer service, draughting services, and a wide range of construction jobs.

The NZDEP is equivalent to the old New Zealand Certificate in Engineering and is a Level 6 diploma qualification.

## BACHELOR OF ENGINEERING TECHNOLOGY (BEngTech)



“WE’RE THE ENGINEERING ‘ALL-ROUNDERS’, because we combine strong practical skills with specialist engineering knowledge. This combination means we can be found in almost every part of engineering practice, from design to detailed build. We work at the level of broadly defined engineering

problems in the widest range of engineering jobs of any type of engineer. Our ability to bridge the practical and the theoretical also makes us great project managers. The BEngTech is an internationally recognised qualification and to become one I studied full-time for three years at an Institute of Technology or Polytechnic.”

Bachelor of Engineering Technology (BEngTech) graduates are often considered the ‘all-rounders’ of the engineering world because the degree combines strong practical skills with specialist engineering knowledge. The qualification’s emphasis on bridging the practical and the theoretical means BEngTech graduates are found in the widest range of engineering jobs of any type of engineer – everything from draughting and project management to specialised design of equipment, buildings and processes. They also work in a wide range in industries from construction to high tech electronics and telecommunications. Some very experienced BEngTech engineers run their own consultancies, but most can be found working in teams that include New Zealand Diploma of Engineering (NZDE) and Bachelor of Engineering (BE [Hons]) graduates.

The BEngTech is an internationally recognised Level 7 degree so you will find graduates employed around the world. It requires three years full-time study through an Institute of Technology and Polytechnic (ITP) or technical university, though it can also be studied part-time.

## BACHELOR OF ENGINEERING WITH HONOURS (BE [Hons])



“I’M A SPECIALIST ENGINEER. I do the complex calculations, design and problem-solving in engineering projects. Like other engineers we work in a particular area – such as civil, mechanical, electrical or IT engineering – and we tend to stay in the specialty we trained in, becoming more expert over time. Generally the buck stops with us, so you will often find an experienced BE (Hons) graduate heading an engineering team and taking overall responsibility for the quality of the design and implementation. It takes four years full-time study to become a BE (Hons) in New Zealand and the qualification is internationally recognised.”

BE (Hons) graduates are specialist engineers who do the complex calculations, design and problem solving in their area of expertise. The main categories of specialisation include: Civil Engineering, including Roading & Transportation, Structural, Water & Waste strands; Mechanical Engineering, including Product Design, Manufacturing & Production, and Mechatronics strands; Electrical and/or Electronic Engineering; Network & Communications or Computer & Mobile Systems Engineering; and Chemical and Process Engineering, including food manufacture and the oil and gas industry.

Specialisation begins at university and generally continues throughout a BE (Hons) graduate’s career – building experience and expertise in a very specific area of practice. They are able to work from first principles and may use new or emerging technology.

Because they are technical experts, BE (Hons) graduates often have ‘sign-off’ on a project, taking overall responsibility for the quality of engineering design and implementation. Some become sole practitioners or consultants, but many BE (Hons) graduates work in teams with other engineers whose qualifications have a more of an implementation focus – such as NZDE, NZDEP or BEngTech engineers. The BE (Hons) is a Level 8 degree and takes four years’ full-time study at university.

The qualification is recognised internationally, so you will find New Zealand BE (Hons) engineering graduates employed around the world.