

Engineering education in New Zealand:

Analysis of university enrolment and graduation trends

June 2026

Executive summary

This report, compiled by Engineering New Zealand Te Ao Rangahau, presents an analysis of enrolment and graduation trends in accredited Bachelor of Engineering with Honours (BE(Hons)) programmes across New Zealand universities from 2013 to 2023. This data is presented for use by a range of stakeholders to support their education and workforce objectives, including to guide future strategies to address the long-term shortage of engineers in New Zealand.

Overall, the report highlights positive trends in participation and completion. It also underscores the need for ongoing improvements in inclusivity to address long-term skills shortages and support underrepresented groups in engineering. We look forward to ongoing discussions with stakeholders about ways in which this data can support the current and future profession and industry.

Key findings

This report has five key findings:

1. There has been strong growth in the number of enrolments and graduations.

The total number of students enrolled in the BE(Hons) degree across all BE(Hons) enrolments increased from 5,700 in 2013 to 9,000 in 2023 (a 58% increase), and graduations increased from 1,000 in 2013 to 1,800 per year in 2023 (an 80% increase).

2. Completion rates for engineering degrees have improved.

More students are successfully completing their degrees – the number of first year engineering students per graduate fell from about 2.3 in 2015 to 1.8 in 2023. When tracking cohorts from first year to graduation three years later, the number of starters per graduate has stayed between 1.5 to 1.7, which equates to roughly two thirds of students completing the degree.¹

3. Over the past decade, the diversity of students graduating with a BE(Hons) has increased – including Māori, Pasifika, and women graduates.

The number of Māori students graduating with a BE(Hons) degree has increased by 157% – from about 35 per year in 2013 to around 90 per year in 2023. Māori now make up 5% of all engineering graduates. Similarly, Pasifika graduate numbers have increased by 200% – from about 20 per year in 2013 to over 60 per year in 2023, doubling their share from 2% to about 4% of all graduates.

The number of women graduates² has more than doubled, from fewer than 200 in 2015 to over 400 annually since 2020. Despite this growth, their percentage of all graduates has increased only modestly during the reporting period, ranging from a low of 17% in 2015 to a high of 24% in 2023.

4. The number of international students has remained consistent.

International students have consistently comprised 7% to 10% of all BE(Hons) engineering graduates in New Zealand between 2013 and 2023. This proportion is based on fee-paying status and does not capture post-graduation destinations.

5. Civil and mechanical engineering are the most popular specialisations.

Over the past decade Civil Engineering (which includes structural, geotechnical and fire) has remained the largest specialisation, with Mechanical Engineering the second most popular specialisation (500 and 300 graduates respectively in 2023). Graduate numbers in Electrical/Electronic Engineering and Chemical/Materials/Process Engineering specialisations have remained steady throughout the reporting period.

Data limitations

The completeness of data in this report varies, as some providers supplied only graduation figures while others included enrolment and demographic details. Privacy measures have sometimes resulted in estimated breakdowns.

Differences in reporting methods and definitions between university and government sources mean direct comparisons are not always possible. Additionally, some enrolments – potentially 500–1,000 students per year – may not be captured in the dataset. These factors should be considered when interpreting the findings. See Appendix 1 for more detail on data limitations.

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Introduction

This report shares data collected directly from New Zealand universities and analysed by Engineering New Zealand for use by interested stakeholders in their education and workforce development goals.

Data for this study was provided to Engineering New Zealand by the five current providers of Washington Accord Bachelor of Engineering with Honours (BE(Hons)) degree qualifications and covers the period 2013 to 2023. The universities are:

- Auckland University of Technology
- University of Auckland
- University of Canterbury
- Waikato University
- Victoria University of Wellington.

Complementary data is available from the Ministry of Education, which includes a wider data set including Honours and postgraduate certificates and has different specialisation groupings and various other analytical variances.³ Noting the data set used in this Engineering New Zealand report is for BE(Hons) programmes.

Overall, our analysis shows some positive trends in participation and completion. It also underscores the need for ongoing improvements in data quality and inclusivity to address long-term skills shortages and support underrepresented groups in engineering.

This report sets out the data, findings and limitations in four sections:

1. Enrolment and graduation trends
2. Demographic trends
3. Specialisation trends
4. Data limitations.

1. Enrolment and graduation trends

There has been strong growth in the number of enrolments and graduations.

Total enrolments in BE(Hons) programmes grew strongly over the reporting period (2013–2023). From 2013 to 2018, the number of students enrolled across all years of study (Parts 1–4) rose 45.6%, from about 5,700 to 8,300. From 2019 to 2023, total enrolments remained relatively steady at around 8,500–9,000 students each year (Figure 1).⁴

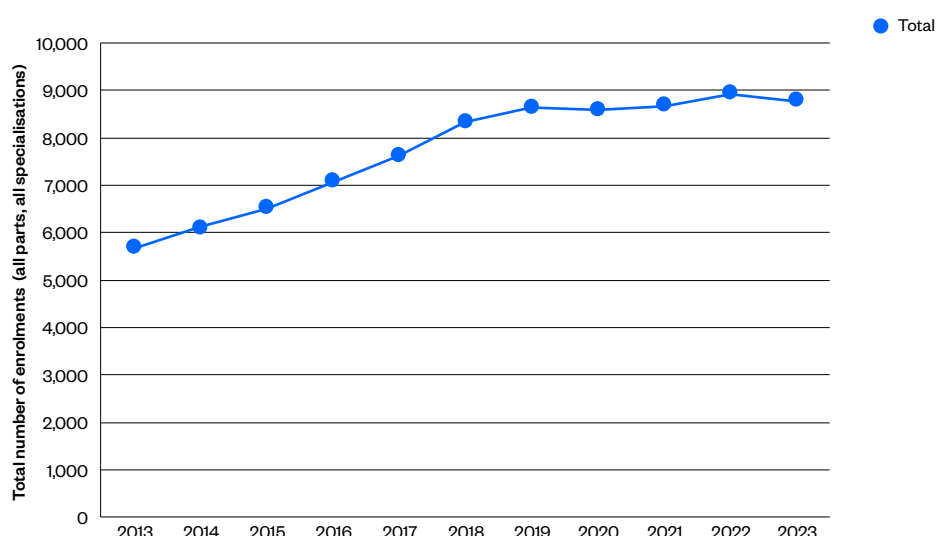


Figure 1: Total number of enrolments in BE (Hons) degrees at New Zealand Universities 2013-2023

Overall, both enrolments and graduations have grown from 2013 to 2019 and then remained steady.⁵ The number of BE(Hons) graduates increased by 80% from 2015 to 2020 (from around 1,000 in 2015 to 1,800 in 2020). Graduation numbers then remained constant at approximately 1,800 graduates per year through to 2023 (Figure 2). Covid-19 lockdowns and challenges could have contributed to the flattening of graduation trends.

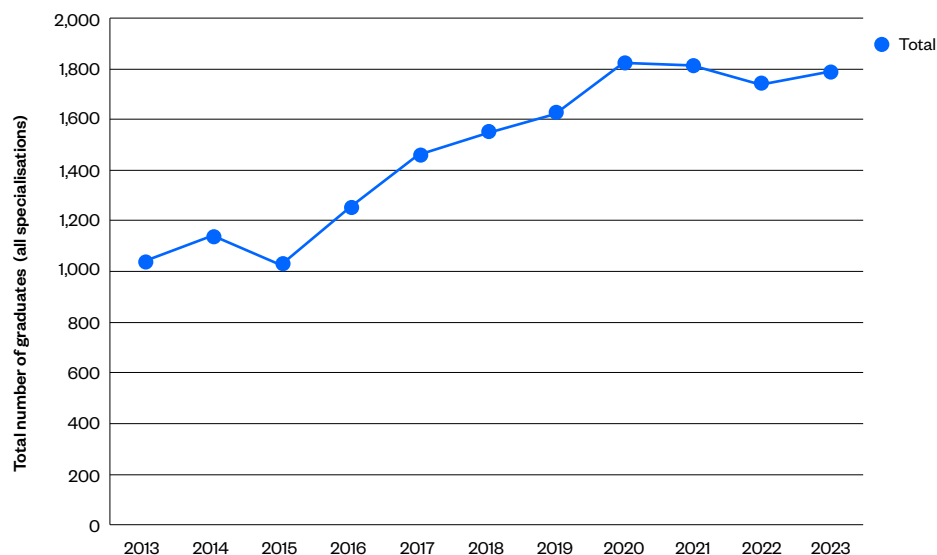


Figure 2: Total number of graduates in BE (Hons) degrees at New Zealand Universities 2013-2023

Completion rates for engineering degrees have improved.

Across the reporting period, the proportion of first-year engineering students (“Part 1”) compared to the total number of enrolled students gradually decreased, suggesting that more students are entering directly into later years or that the overall student body is growing (Figure 3).

Total enrolments grew from just under 6,000 in 2013 to nearly 9,000 in 2023, while first-year enrolments increased modestly from around 2,000 to just under 3,000, reducing their share from 36% to 31%.⁶

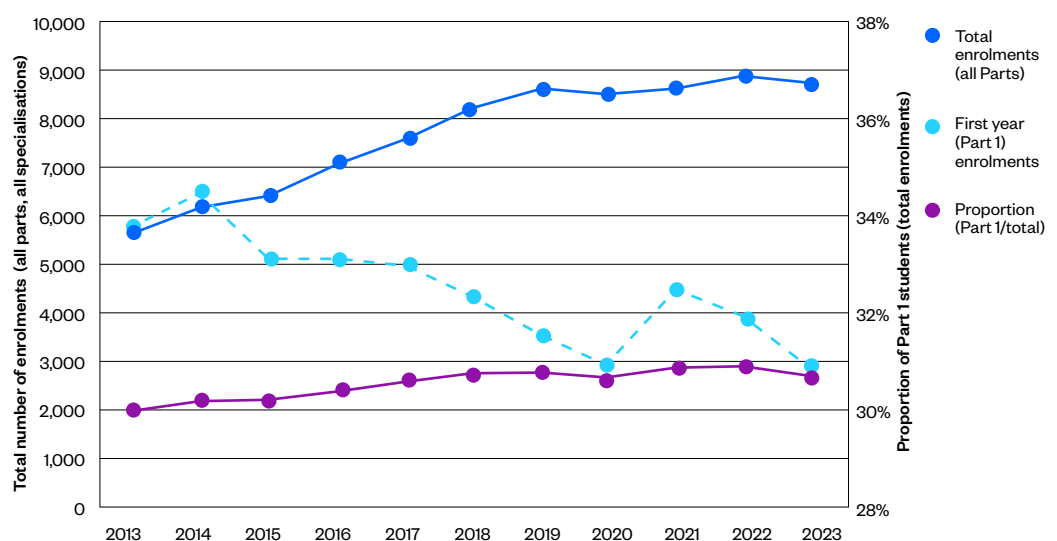


Figure 3: BE (Hons) enrolments, part 1 enrolments and total number of enrolments

At the same time, both the number of new first-year students and the number of graduates increased. The gap between starters and graduates has narrowed over time – from about 2.3 new students for every graduate in 2015 to between 1.6 and 1.8 in the 2020 to 2023 period, indicating improved completion rates (Figure 4).

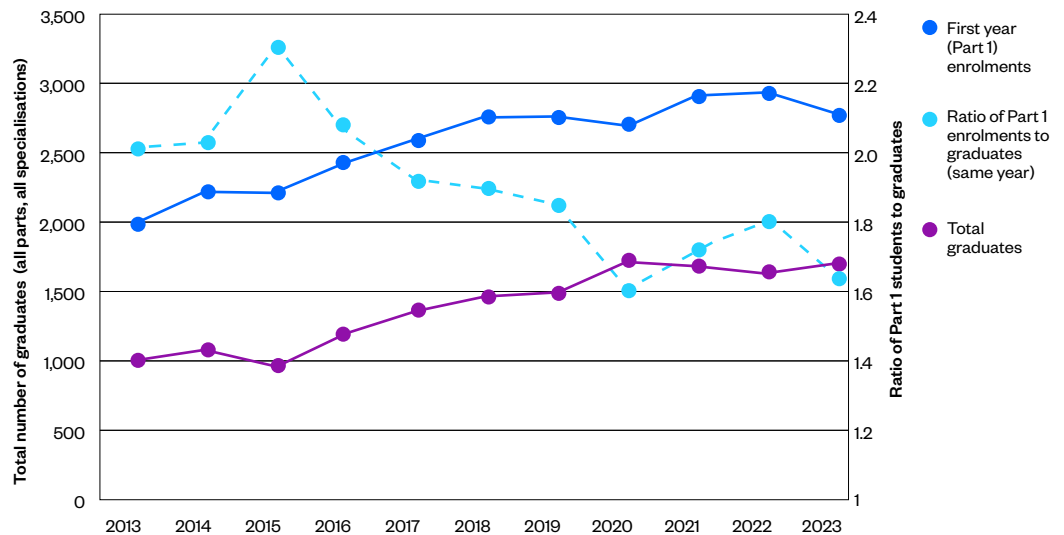


Figure 4: BE (Hons) enrolments and graduates by year

When tracking cohorts by comparing the number of students who started each year with those who graduated three years later, the ratio of starters to graduates has remained steady at about 1.5 to 1.7 for the period 2016 to 2023. This means roughly two-thirds of students complete the degree and this completion rate has remained stable over time (Figure 5).⁷



Figure 5: Number of students starting and finishing the BE(Hons) degree each year, with graduate numbers shown three years after enrolment to reflect the typical time it takes students to complete the degree

2. Demographic trends

Over the past decade, the diversity of students graduating with a BE(Hons) has increased – including Māori, Pasifika, and women graduates.

a) Māori graduates

The number of Māori students graduating with a BE(Hons) degree in engineering has grown steadily over the last decade. The number of Māori graduates has increased by 157% – from about 35 per year in 2013 to around 90 per year in 2023 (Figure 6).

Since 2019, more than 80 Māori engineering students have graduated per year, and the percentage of engineering graduates who are Māori has increased from 3% in 2013 to over 5% in 2023.⁸

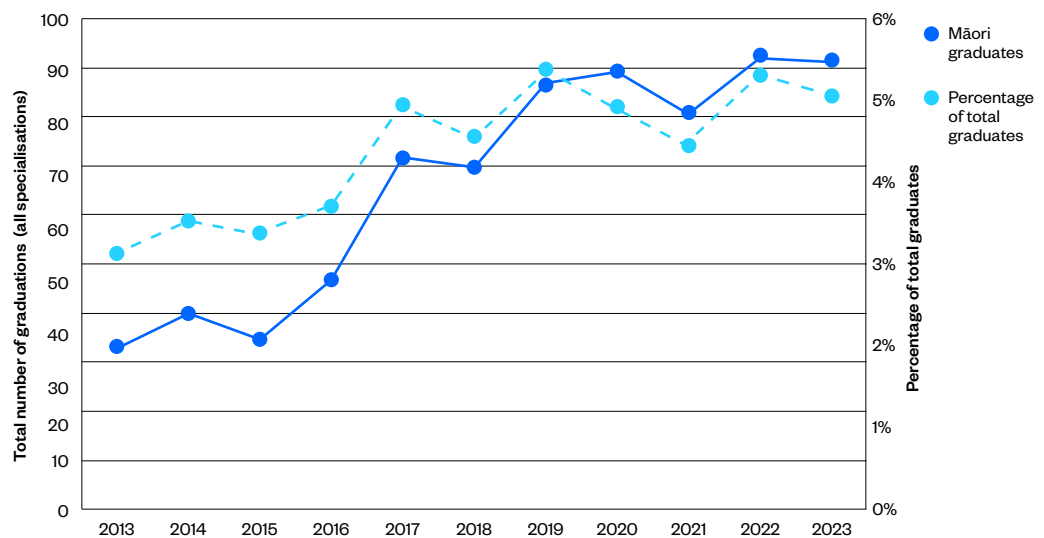


Figure 6: Total Māori BE(Hons) degree graduates across all engineering specialisations

b) Pasifika graduates

For Pasifika graduates, a similar upward trend has been observed. The number of Pasifika graduates increased by about 200% over the reporting period – from around 20 per year in 2013 to more than 60 per year in 2023 (Figure 7). The percentage of total Pasifika graduates doubled from 2% in 2013 to more than 4% in 2022. Since 2020, Pasifika graduates have made up about 4% of all BE(Hons) graduates.⁹

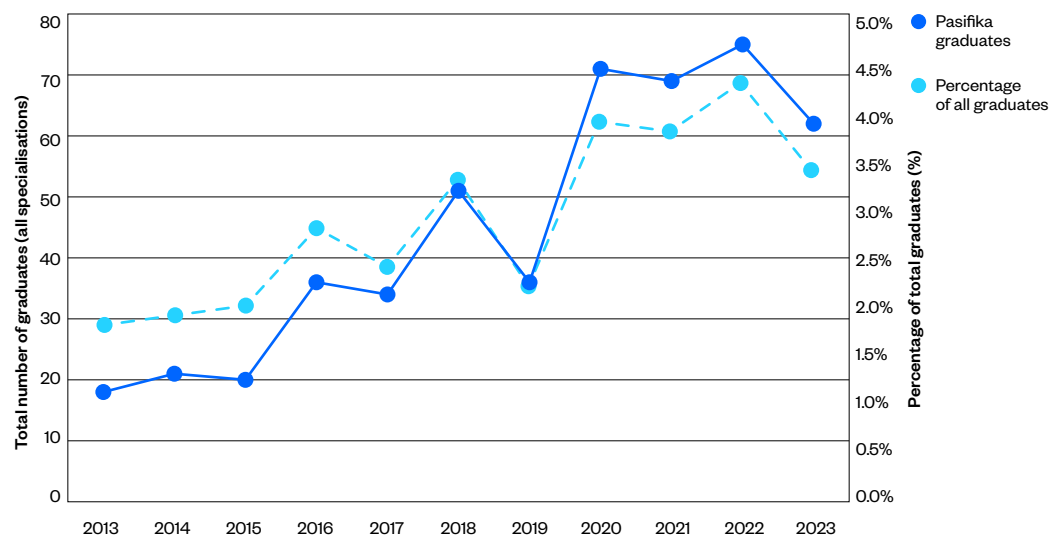


Figure 7: Total Pasifika BE(Hons) degree graduates across all engineering specialisations

c) Women graduates¹⁰

The number of women graduates has increased significantly over the reporting period. Graduate numbers increased from fewer than 200 in 2015 to more than 400 in 2020. Since 2020, the number of women graduates has remained steady, ranging between 385 and 440 graduates (Figure 8).

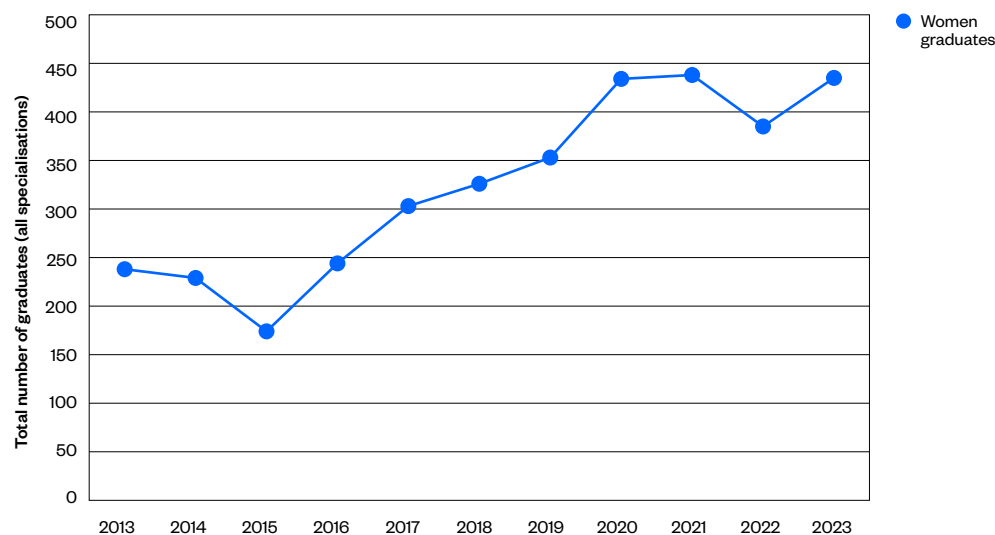


Figure 8: Number of women BE (Hons) degree graduates across all engineering specialisations

Although the total number of engineering graduates has grown, the proportion of women graduates has changed only slightly over the reporting period. Representation remained between 17% and 24% of all BE(Hons) graduates from 2013 to 2023 (Figure 9). Over the reporting period the percentage of female engineering graduates increased only marginally, from around 23% to 24%¹¹.

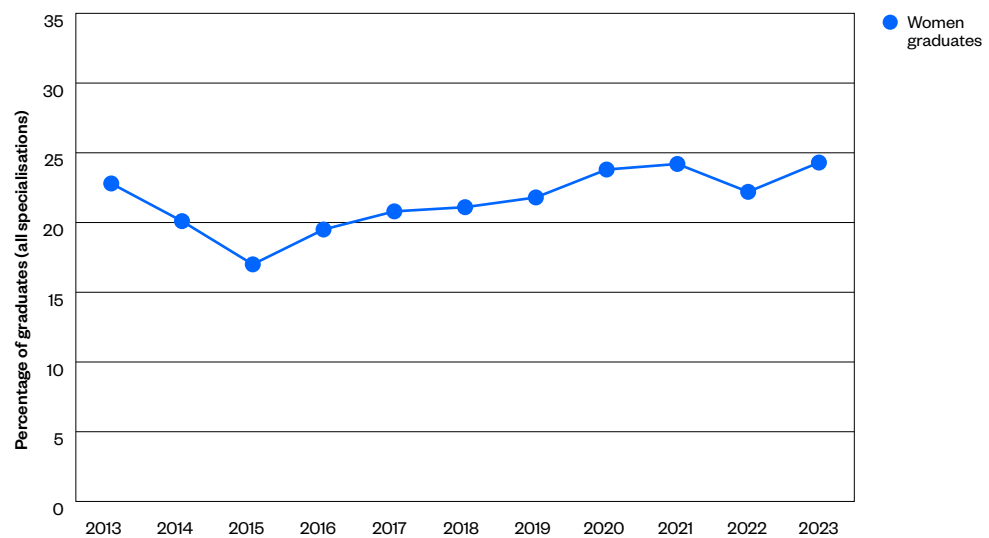


Figure 9: Percentage of women BE(Hons) degree graduates across all engineering specialisations

d) International students

International students consistently made up between 7% and 10% of all BE(Hons) engineering graduates in New Zealand from 2013 to 2023 (Figure 10). The data is based on fee-paying status (domestic compared to international) and does not provide information about where graduates go after completing their studies.

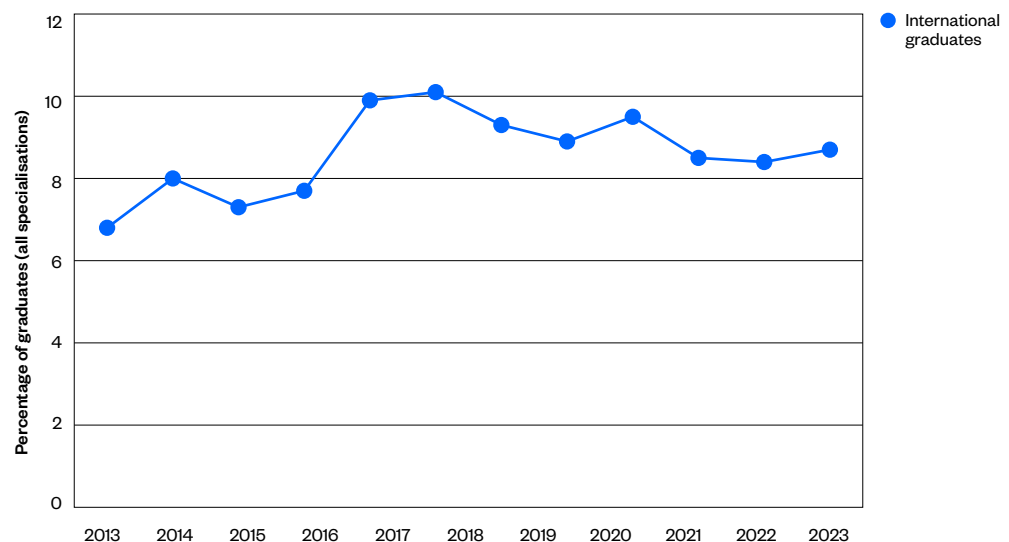


Figure 10: Percentage of international fee-paying BE(Hons) degree graduates across all engineering specialisations

3. Specialisation trends

Civil and mechanical engineering are the most popular specialisations.

In terms of specialisations,¹² Civil Engineering is the largest and has been increasing – with graduate numbers rising from fewer than 300 in 2013 to about 500 in recent years. Mechanical Engineering is the second largest, growing from around 200 graduates in 2013 to just under 300 graduates per year in 2023.

Electrical and Electronic Engineering and Chemical/Materials/Process Engineering graduate numbers have remained steady, averaging at 160 and 129 graduates per year respectively across 2013–2023.

And interestingly, Software and Mechatronics Engineering have seen their graduate numbers double from approximately 60 and 75 respectively in 2013, to over 200 for both specialisations in 2023.

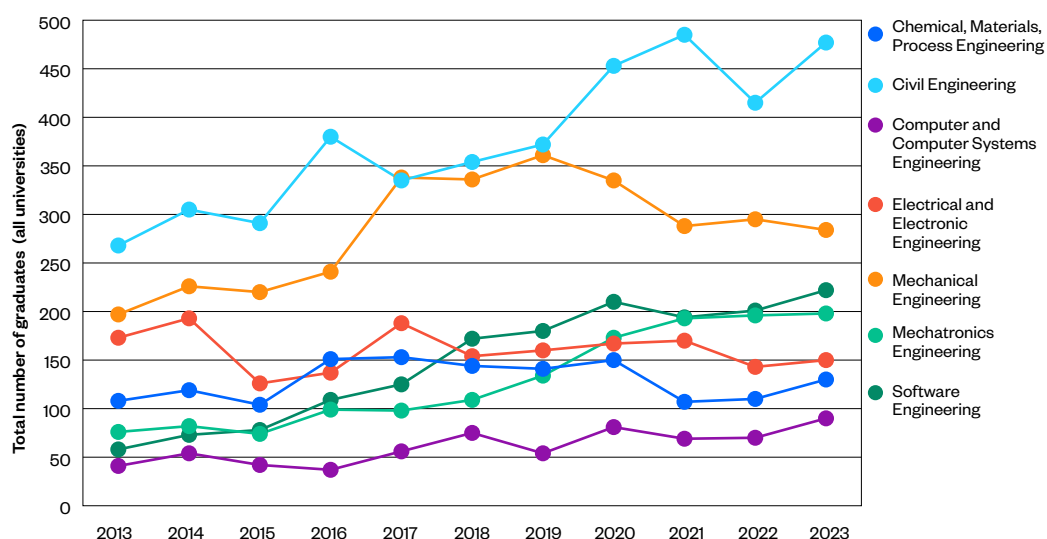


Figure 11: Total number of BE(Hons) graduates per year across all university providers (major specialisations)

Newer specialisations such as Architectural Engineering, Cybersecurity Engineering, and Construction Engineering have grown steadily since 2017, but their graduate numbers remain relatively small compared to major specialisations (Figure 12). For example, Construction Engineering saw the most significant increase, rising to a peak of 92 graduates in 2022, before dropping to 53 in 2023. Architectural Engineering grew modestly, reaching 28 graduates in 2022 but dropped back to 11 in 2023, while Cybersecurity Engineering grew to 10 graduates in 2022. These figures highlight that while these fields are expanding, they still trail behind dominant specialisations in overall graduate numbers.

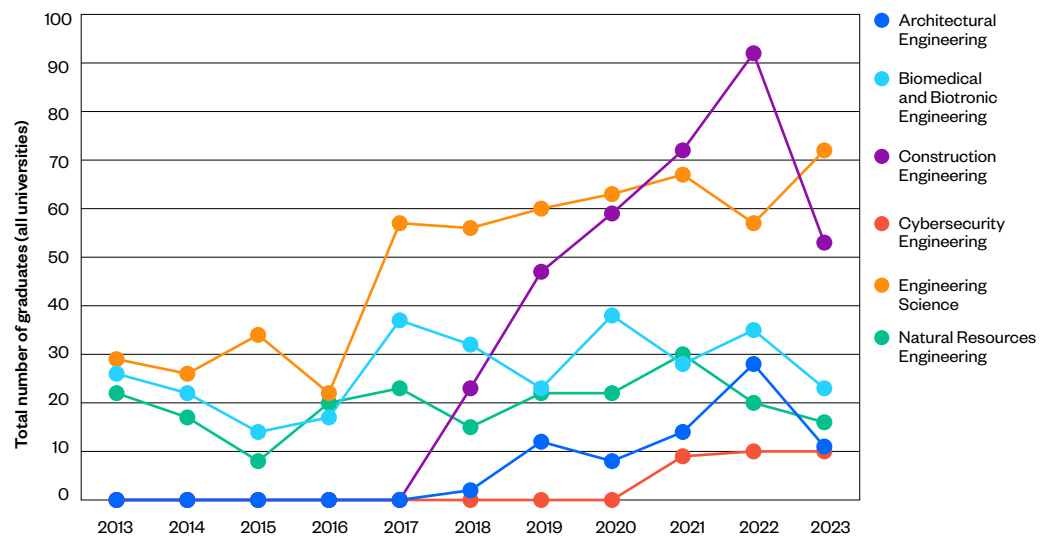


Figure 12: Total number of BE(Hons) graduates per year across all university providers (minor specialisations)

Gender distribution, by specialisation

The proportion of women graduates varies considerably across engineering specialisations (Figure 13). For most disciplines, women typically make up between 5% and 25% of graduates each year. However Chemical, Materials and Process Engineering stand out, with women comprising a notably higher share – consistently between 30% and 50% of graduates over the reporting period. These differences highlight that some specialisations have made greater progress towards gender diversity than others.¹³

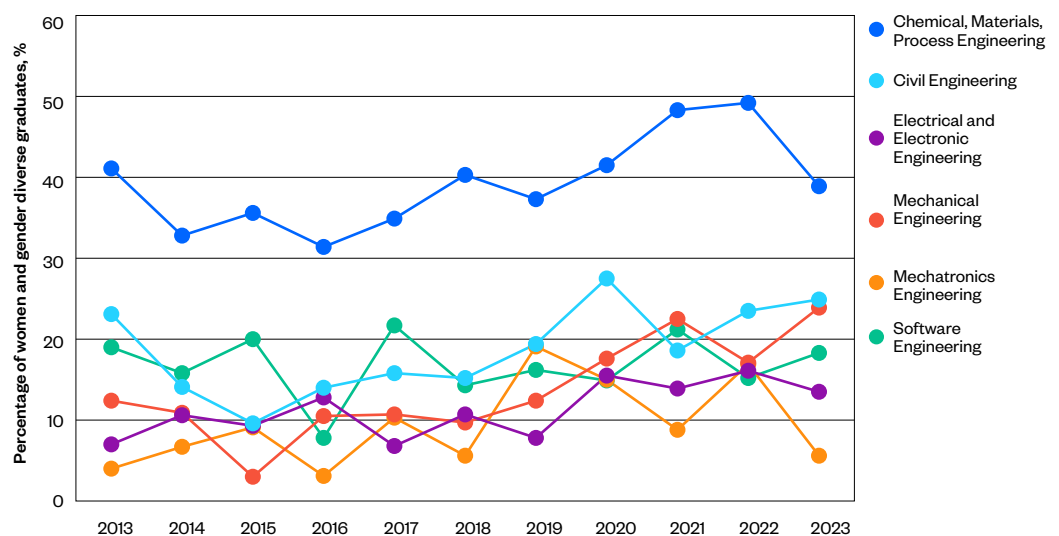


Figure 13: Percentage of women graduates, by engineering degree

Challenges

While the 10 years covered by the reporting period 2013–2023 saw significant growth in engineering enrolments and graduations, the data illustrates some ongoing challenges:

Persistent Long-Term Skills Shortages:

Despite increased numbers of graduates and the current economic downturn, New Zealand continues to face a long-term shortage of engineers. The current rate of graduation is insufficient to meet the long-term demands of national infrastructure, innovation and economic growth. It is estimated that New Zealand needs between 1,500 and 2,300 additional engineers each year.¹⁴

Underrepresentation of Key Groups:

Although there has been progress in increasing participation by Māori, Pasifika and women students, these groups are still underrepresented relative to their share of the working-age population. Achieving a more inclusive and representative profession remains an ongoing priority for us all.

Specialisation Alignment:

Civil and Mechanical Engineering continue to dominate graduate numbers, while newer specialisations such as Mechatronics, Software, and Cybersecurity Engineering are growing but remain a small proportion of total graduates. Ensuring that graduate output aligns with evolving workforce needs is an ongoing challenge, as is ascertaining future demand for specific disciplines.

External Disruptions:

Events such as the Covid-19 pandemic look to have impacted enrolment and graduation patterns, highlighting the need to continually learn from past and overseas experiences and ensure we factor this into our future education and workforce strategies.

Appendix 1: Data limitations

The report uses data as provided, without adjustments. While the information in this report provides valuable insights, there are some gaps and differences in how data has been collected and reported.

Variation in data provided

Data completeness varies – some providers supplied only graduation figures, while others included enrolment and demographic details. In some cases, privacy measures resulted in estimated demographic breakdowns. Where data could not be analysed in detail, omissions are noted, but this does not reflect a lack of cooperation.

Differences in reporting and comparability

Graduation dates are reported differently across institutions, with some recording when degree requirements are met and others using the official ceremony date, leading to minor timing discrepancies. Direct comparison between provider-specific data and the Ministry of Education data is limited by differences in definitions, qualification groupings, and counting methods for enrolments and course loads.

Endnotes

- 1 Universities record graduation dates in different ways. Some count the date when a student finishes all their degree requirements, which is often late in the year. Others use the date of the graduation ceremony, which usually happens the following year. Because of these differences, we use a three-year gap between starting and graduating as a best estimate. For every group of students who started, about two out of three finished their degree within this timeframe.
- 2 Gender diverse graduate statistics have been grouped in with the statistics on women graduates. We apologise that we could not accurately report gender diverse graduates separately because of the way some of the data was reported.
- 3 See educationcounts.govt.nz/statistics/achievement-and-attainment
- 4 Some enrolments – potentially 500–1,000 students per year – may not be captured in the dataset.
- 5 The following factors need to be considered when reading the data for Conversion of Part 1 Enrolments to BE (Hons) Graduates: 1. Universities don't track individual students through their engineering degrees, so it's not possible to give exact numbers for how many students finish or drop out. 2. The data is affected by the fact some students skip the first year, transfer in or out of engineering, or take longer to finish due to part-time study or work experience. 3. The available data lets us compare how many students start in the first year and how many eventually graduate.
- 6 Note that New Zealand's population grew significantly between 2013 and 2023, increasing by approximately 17.7% over the decade. See stats.govt.nz/information-releases/2023-census-population-counts-by-ethnic-group-age-and-maori-descent-and-dwelling-counts
- 7 See endnote 1.
- 8 Note that in 2023 Māori made up 14.9% of the working age population. See stats.govt.nz/information-releases/labour-market-statistics-september-2023-quarter
- 9 Note that in 2023 Pacific Peoples made up 6.9% of New Zealand's working age population. See stats.govt.nz/information-releases/labour-market-statistics-september-2023-quarter
- 10 See endnote 2.
- 11 Note that in 2023 women made up 50.5% of New Zealand's working age population. See stats.govt.nz/information-releases/labour-market-statistics-september-2023-quarter
- 12 Civil Engineering includes Structural Engineering. 'Chemical, Materials, Process' includes Chemical and Process, Chemical and Biological, and Materials and Process specialisations
- 13 The data presented in Figure 13 is based on aggregated graduate numbers from selected providers and should be interpreted as indicative rather than comprehensive. In future reporting, further separation of gender categories may be possible as data quality improves.
- 14 PricewaterhouseCoopers Consulting (New Zealand) LP (2021) Economic impact of engineering – update: Final report for Engineering New Zealand. Available at: engineeringnz.org/public-tools/engineering-for-everyone/pwc-report

