

# Bachelor of Engineering with Honours BE(Hons) Overview

Those who want to lead the way in innovation, improve infrastructure, build smarter technologies and find alternative energy sources, our Bachelor of Engineering (Honours) (BE(Hons)) will help them achieve just that.

New Zealand needs more professional engineers. Currently, fewer than 1,000 professional engineers graduate each year. Countries with similar populations to New Zealand have more than double that number of engineering graduates. Increasing the number of trained engineers is seen as essential for New Zealand's growth in technology-related enterprises.

Our Engineering School evolved directly out of the School of Science Technology and the School of Computing and Mathematical Sciences in the last 15 years. Close links in New Zealand industry ensures our graduates are work ready and can apply engineering skills and scientific knowledge to solve real world, industrial and society problems. Waikato's BE(Hons) encourages creative thinking and problem solving in all students using design

and engineering processes from year one. If your student is good at mathematics and physics but is also a highly creative thinker and enjoys making things, the BE(Hons) will appeal to them. At every stage of their degree, they'll be deeply involved in creating, designing and realising sophisticated engineering products. Studying engineering at Waikato offers students future-proofed, project-based learning that will put them at the top of their game for a career

in engineering. By the end of their degree they will have worked in teams, managed their own projects, worked with budgets and spent significant time working within the industry. Our eligible BE(Hons) programmes are accredited by the Institute of Professional Engineers New Zealand (IPENZ), meaning they are professionally recognised in 18 countries and regions, including Australia, Canada, the UK and the USA.

Y1	ENGEN170 Engineering and Society	ENGEN180 Foundation of Engineering	ENGEN183 Linear Algebra and Stats	ENGEN184 Calculus for Engineers	ENGEN103 Engineering Computing	ENGEN112 Materials Science and Engineering	Programme Specified	Programme Elective	
Y2	ENGEN270 Engineering Professional Practice 1	Design Challenge 1	ENGEN201 Engineering Maths 2	Programme Specified	Programme Specified	Programme Specified	Programme Specified	Programme Elective	ENGEN271 Industry Placement 1
Y3	ENGEV342 Sustainable Engineering	Design Challenge 2	ENGEN301 Engineering Maths 3	Programme Specified	Programme Specified	Programme Specified	Programme Specified	Programme Elective	
Y4	ENGEN570 Engineering Professional Practice 2	Research and Design Projects				Programme Specified	Programme Elective	Programme Elective	ENGEN371 Industry Placement 2

# BE(Hons) in Chemical and Biological Engineering



Y1	ENGEN170 Engineering and Society	ENGEN180 Foundation of Engineering	ENGEN183 Linear Algebra and Stats	ENGEN184 Calculus for Engineers	ENGEN103 Engineering Computing	ENGEN112 Materials Science and Engineering	CHEMY102B Chemical Reactivity	Programme Elective	
Y2	ENGEN270 Engineering Professional Practice 1	ENGCB280 Process Engineering Design 1	ENGEN201 Engineering Maths 2	ENGME221 Engineering Thermodynamics	ENGCB224 Heat and Mass Transfer	ENGCB223 Fluid Mechanics	ENGMP211 Materials 1	Programme Elective	ENGEN271 Industry Placement 1
Y3	ENGEV342 Sustainable Engineering	ENGCB280 Process Engineering Design 2	ENGEN301 Engineering Maths 3	ENGCB321 Thermal Engineering	ENGCB324 Mass Transfer Operations	ENGCB323 Reaction Engineering	ENGCB322 Chemical and Biological Operations	Programme Elective	
Y4	ENGEN570 Engineering Professional Practice 2	ENGEN591 Research Project		ENGCB580 Process Engineering Design Project		ENGCB521 Advanced Process Control	Programme Elective	Programme Elective	ENGEN371 Industry Placement 2



# BE(Hons) in Civil Engineering

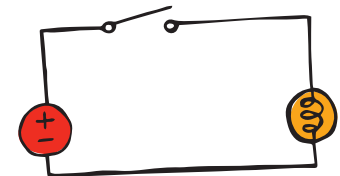
Y1	ENGEN170 Engineering and Society	ENGEN180 Foundation of Engineering	ENGEN183 Linear Algebra and Stats	ENGEN184 Calculus for Engineers	ENGEN103 Engineering Computing	ENGEN112 Materials Science and Engineering	ENGEN110 Engineering Mechanics	Programme Elective	
Y2	ENGEN270 Engineering Professional Practice 1	ENGCV280 Civil Design Challenge 1	ENGEN201 Engineering Maths 2	ENGCV223 Water Engineering 1	ENGCV231 Geotechnical Engineering 1	ENGCV212 Structural Engineering 1	ENGCV251 Construction 1	ENGCV241 Highways and Transportation	ENGEN271 Industry Placement 1
Y3	ENGEV342 Sustainable Engineering	ENGCV380 Civil Design Challenge 2	ENGEN301 Engineering Maths 3	ENGCV323 Water Engineering 2	ENGCV331 Geotechnical Engineering 2	ENGCV312 Structural Engineering 2	ENGCV351 Construction 2	ENGEV341 Environmental Engineering	
Y4	ENGEN570 Engineering Professional Practice 2	ENGEN591 Research Project		ENGCV580 Civil Design Challenge 3		Programme Elective	Programme Elective	Programme Elective	ENGEN371 Industry Placement 2



# BE(Hons) in Electronic Engineering



Y1	ENGEN170 Engineering and Society	ENGEN180 Foundation of Engineering	ENGEN183 Linear Algebra and Stats	ENGEN184 Calculus for Engineers	ENGEN103 Engineering Computing	ENGEN112 Materials Science and Engineering	ENGEN111 Electricity and Electronics	Programme Elective	
Y2	ENGEN270 Engineering Professional Practice 1	ENGEE280 Design in Electronics	ENGEN201 Engineering Maths 2	ENGEE233 Digital Systems	ENGEE231 Circuit Theory	ENGEE232 Analog Electronics	ENGEE211 Electro-magnetics	COMPS203A Computer Systems	ENGEN271 Industry Placement 1
Y3	ENGEV342 Sustainable Engineering	ENGME352 Control and Apps	ENGEN301 Engineering Maths 3	ENGEE331 Signals	Programme Elective	Programme Elective	Programme Elective	Programme Elective	
Y4	ENGEN570 Engineering Professional Practice 2	ENGEN592 Research and Development Project			Programme Elective	Programme Elective	Programme Elective	Programme Elective	ENGEN371 Industry Placement 2



# BE(Hons) in Environmental Engineering

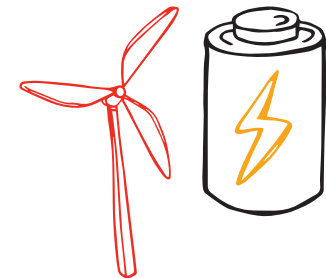
Y1	ENGEN170 Engineering and Society	ENGEN180 Foundation of Engineering	ENGEN183 Linear Algebra and Stats	ENGEN184 Calculus for Engineers	ENGEN103 Engineering Computing	ENGEN112 Materials Science and Engineering	Programme Elective	Programme Elective	
Y2	ENGEN270 Engineering Professional Practice 1	ENGCB280 Process Engineering Design 1	ENGEN201 Engineering Maths 2	ENGCV223 Water Engineering 1	ENGCV231 Geotechnical Engineering 1	ENVPL200 Environmental Planning	Programme Elective	Programme Elective	ENGEN271 Industry Placement 1
Y3	ENGEV342 Sustainable Engineering	ENGCB380 Process Engineering Design 2	ENGEN301 Engineering Maths 3	ENGCV323 Water Engineering 2	ENGCV331 Geotechnical Engineering 2	ENGEV341 Environmental Engineering	Programme Elective	Programme Elective	
Y4	ENGEN570 Engineering Professional Practice 2	ENGEN591 Research Project		ENGCV580 Civil Design Challenge 3		ENGEV541 Water and Waste Water Engineering	ENGEV542 Waste Minimisation Engineering	Programme Elective	ENGEN371 Industry Placement 2



# BE(Hons) in Materials and Process Engineering



Y1	ENGEN170 Engineering and Society	ENGEN180 Foundation of Engineering	ENGEN183 Linear Algebra and Stats	ENGEN184 Calculus for Engineers	ENGEN103 Engineering Computing	ENGEN112 Materials Science and Engineering	CHEMY102 Chemical Reactivity	ENGEN110 Engineering Mechanics	
Y2	ENGEN270 Engineering Professional Practice 1	ENGCB280 Process Engineering Design 1	ENGEN201 Engineering Maths 2	ENGMP211 Materials 1	ENGMP213 Mechanics of Materials 1	ENGME221 Engineering Thermodynamics	ENGCB224 Heat and Mass Transfer	ENGCB223 Fluid Mechanics	ENGEN271 Industry Placement 1
Y3	ENGEV342 Sustainable Engineering	ENGCB380 Process Engineering Design 2	ENGEN301 Engineering Maths 3	ENGMP311 Materials 2	ENGMP313 Mechanics of Materials 2	ENGCB321 Thermal Engineering	ENGCB324 Mass Transfer Operations	Programme Elective	
Y4	ENGEN570 Engineering Professional Practice 2	ENGEN591 Research Project		ENGCB580 Process Engineering Design Project		ENGMP511 Advanced Materials Engineering	Programme Elective	Programme Elective	ENGEN371 Industry Placement 2



# BE(Hons) in Mechanical Engineering

Y1	ENGEN170 Engineering and Society	ENGEN180 Foundation of Engineering	ENGEN183 Linear Algebra and Stats	ENGEN184 Calculus for Engineers	ENGEN103 Engineering Computing	ENGEN112 Materials Science and Engineering	ENGEN110 Engineering Mechanics	ENGEN111 Electricity and Electronics	
Y2	ENGEN270 Engineering Professional Practice 1	ENGME280 Design and Manufacturing 1	ENGEN201 Engineering Maths 2	ENGMP211 Materials 1	ENGME221 Engineering Thermodynamics	ENGMP213 Mechanics of Materials 1	ENGME251 Dynamics and Vibration	Programme Elective	ENGEN271 Industry Placement 1
Y3	ENGEV342 Sustainable Engineering	ENGME380 Design and Manufacturing 2	ENGEN301 Engineering Maths 3	ENGME353 Electricity and Mechanical Machines	ENGME352 Machine Control and Apps	ENGMP313 Mechanics of Materials 2	Programme Elective	Programme Elective	
Y4	ENGEN570 Engineering Professional Practice 2	ENGEN592 Research and Development Project			ENGME580 Product Development	Programme Elective	Programme Elective	Programme Elective	ENGEN371 Industry Placement 2

