2019 FINAL YEAR PROJECT DAY

Friday | 11 October

University of Auckland Newmarket Campus

**Department of Electrical, Computer, and Software Engineering
Department of Mechanical Engineering**

THE UNIVERSITY OF AUCKLAND
Te Whare Wānanga o Tāmaki Makaurau
NEW ZEALAND

ENGINEERING

Kia ora and welcome to our 2019 Final Year Project Day.

The Part IV Project is a momentous point in an undergraduate Engineering student's degree. These year-long research undertakings are the culmination of the knowledge they've attained so far, applied to relevant situations that they have to test and prototype, many of which you will be able to witness today. For us, Project Day is always an exciting time to see engineering theory come to life.

These projects are an opportunity not just for students to realise their capacity and build confidence in their skills, but also for employers to experience what an up-and-coming engineer can bring to the table. We put a strong emphasis on getting our students career-ready once they graduate, so it's great to see the range of industry sponsors who continue to get involved with the projects each year.

Whether you're a professional engineer, supervisor, colleague, classmate, parent, friend, or curious member of the general public, I hope you'll join us in proudly celebrating everything that our students have achieved this year.

Professor Nic Smith
Dean of Engineering

ELECTRICAL AND ELECTRONIC, COMPUTER SYSTEMS, AND SOFTWARE ENGINEERING PROJECTS

PROJECT NUMBER AND TITLE		CATEGORY	STUDENTS	LAB
22	Reinforcement Learning: Hallucinogenic learning	AI & Machine learning	Menake Ratnayake, Raymond Wang	903.304
86	Anomaly Detection based Software Analysis	AI & Machine learning	Ikgue Lee, Amar Parkash Singh	903.328
111	Reinforcement learning - On and Off Policy Hybrid Approach	AI & Machine learning	Andrew Fairweather, Dweep Kapadia	903.304
77	Are machines intelligent enough to create programs themselves?	AI & Machine learning	Nathan Cairns, Buster Major	903.304
79	Natural Hazard Evacuation Simulation	AI & Machine learning	Molly Farrant, Cameron Scoular	903.304
149	Fresh liquid milk level measurement	Control Systems	Tuva'a Clifton, Simon Yang	903.330
117	Inexact Small-World Group Consensus	Control Systems	James Finnie-Ansley, Rodger Gu	903.330
19	Underwater Wireless Sensor Network	Control Systems	Logan McMaster, Rainal Shandil	903.330
17	Underground wireless sensor network	Control Systems	Sanjaied Sian Aziz, Muhammad Faris Solahudin	903.330
147	A Universal Instrumentation System using Smart Phones	Embedded Systems	Oliver Li, George Xie	903.332
33	Security-Enhanced Software Implementation on Distributed Embedded Systems	Embedded Systems	Blain Cribb, Jerry Yang	903.332
8	Sensor and App design for Biofeedback	Embedded Systems	Henry Liu, Bijal Patel	903.332
72	Towards Intelligent Industrial IoT end-device	Embedded Systems	Corey Hill, Nick Rozenberg	903.332
58	Verified pacemaker design for the treatment of heart failure	Embedded Systems	Rohan D'Souza, Haren Pathi	903.332
102	PlugMeIn: A modular, reusable automated assessment tool for researchers	Games & Education Aids - 1	Blair Cox, Franklin Wang	903.332
82	EduFUSE: A user space tool for file systems education	Games & Education Aids - 1	Joel Clarke, Luke Thompson	903.332
146	Web and mobile educational application to learn AI	Games & Education Aids - 1	Torrance Kam, Sean Oldfield	903.328
101	Teaching Design Patterns	Games & Education Aids - 1	Young Sun An, Zain Azimullah	903.332
31	The design and the experimentation of an augmented reality application for lab orientation	Games & Education Aids - 1	Amal Chandra, Audrey Livirya	903.332
50	Virtual reality art-making game for patients with stroke related disabilities	Games & Education Aids - 2	Madeleine Beagley, Emilie Pearce	903.204
67	Who am I? - Developing an interactive 3D game for psychometric testing	Games & Education Aids - 2	Aorthi Afroza, Kelsey Murray	903.204
84	A 2D simulation sandbox	Games & Education Aids - 2	William Ning, Oscar Sims	903.204
63	Exergaming for Cognitive Testing and Training	Games & Education Aids - 2	Mana Carr, Anthony Dang	903.204
130	Tabletop Augmented Reality for Design Meetings in Architecture, Engineering and Construction	Games & Education Aids - 2	Arun Ravindran, James Shore	903.328
42	Wireless DALI communication	Green Energy Technologies	Thanushan Thanababu, Dhairya Trivedi	903.120
59	Controlling RGB LEDs via inductive power transfer	Green Energy Technologies	Patrick Ah Wong, Norman Peni	903.120
110	Dongle System for Local Demand Control	Green Energy Technologies	Ainsley Duke, Jeremy Richards	903.120
2	Renewable Energy Intermittency Management by Complementary Operation of Solar/ Wind with Energy Storage	Green Energy Technologies	Parsa Akhavan Zakeri, Sang Hyun Kim	903.120
115	BookWyrm: Analyzing fictional text to provide narrative data	Human Computer Interaction	Alex Morgan, Samuel Zheng	903.328
126	SEAM	Human Computer Interaction	Kunal Bhatia, Prasham Jhaveri	903.328
122	Beep	Human Computer Interaction	Shane Barboza, Harpreet Singh	903.328
92	Three-way matchmaking system for Voluntari.ly	Human Computer Interaction	Darcy Cox, Cyrus Raitava-Kumar	903.328
139	Fit Mirror - Your Personal Trainer	Human Computer Interaction	Prashanthi Balakeyan, Salina Dhungel	903.330
81	Machine Learning based speech recognition solutions	Image & Voice Processing	Ravid Aharon, Timothy Finucane	903.206
123	Engineering Improvements to the Automatic Speech Recognition Pipeline	Image & Voice Processing	Harith Wannigama, Zinzan Zhao	903.206
80	Audiovisual Analysis for Portable Devices	Image & Voice Processing	Darin Choi, King Hang Tam	903.328
138	Video Visualisation in an Editing Context	Image & Voice Processing	Abhinav Behal, George Qiao	903.206
127	Names Sayer: A Names pronunciation app	Image & Voice Processing	Yuuko Casey, Joshua Rosairo	903.330
34	Application-Specific Processor to Accelerate Machine Learning for Autonomous Vehicles	Intelligent Systems & Industrial Informatics	Samuel Morgan, Ross Porter	903.332
95	Bird Eyes II: An Anomaly Detection System for Video Surveillance based on Edge Computing	Intelligent Systems & Industrial Informatics	Dylan Fu, Quentin Heng	903.328
53	Classify Smart Phone Usage from Smart Phone Sensors	Intelligent Systems & Industrial Informatics	Lucas Sherlock, Sijie Zhuo	903.330
104	Online auction simulator for fraud detection	Intelligent Systems & Industrial Informatics	Yianni Bares, Edwar Zhang	903.330
74	Balancing Edge, Fog and Cloud for Big Data Analytics	Parallel & Cloud Computing	Brian Choi, Isabelle Lee	903.332
119	Radiation-Proofing in Space: Software Recommendations for CubeSats	Parallel & Cloud Computing	James Brown, Victoria Skeggs	903.328
41	Assistive Healthcare Monitoring System	Parallel & Cloud Computing	Jae Lee, Kenny Li	903.332
129	Computer Vision for Assistive Technology	Parallel & Cloud Computing	Dennis Cheung, Peter Joe	903.332
131	Automated Emotional Aid Through Subreddit Recommendation With Sentiment Analysis	Parallel & Cloud Computing	Shurui Li, Bowen Zheng	903.332
X-Dept-1 (12)	GPU Implmentation	Parallel & Cloud Computing	Saif Charania, Jonathan Reshef	903.328

PROJECT NUMBER AND TITLE		CATEGORY	STUDENTS	LAB
135	Analysis and Modelling of Chaotic Systems	Power Electronics and Electronic Systems	Nick Osten, Edwardley Tarbing	903.330
106	Development of an analog-based noise-cancelling headphone for use in aircraft passenger cabins	Power Electronics and Electronic Systems	Parwez Ikhtiari, Basil Mustafa	903.330
23	Deep learning the inverse problem of electrocardiography	Power Electronics and Electronic Systems	Helena Li, Vilia Li	903.332
70	Underwater Ultrasonic Beamforming	Power Electronics and Electronic Systems	James Banyard, Dominic Kay	903.330
3	Machine Learning Based Solar Power Prediction	Power Systems	Bettadpura Chandramohan, Garyu Liu	903.120
60	Development of an in-motion EV charging demonstration track	Power Systems	Dionne Hohaia, Jack Straume	903.120
4	Modelling of Electric Vehicles (EV) in Netlogo to Mimic Real life EV Charging Scenario at Public Charging Stations	Power Systems	Shaurya Duggal, Vincent Kelleway	903.120
90	Electropermanent magnet based energy efficient door lock	Power Systems	callum harfield, Brendan Lee	903.330
133	Modelling signal blockage in 5G millimetre-wave cellular systems	Radio Systems	Semisi Ikahihifo, Reece Winikerei	903.304
21	Printing frequency selective surfaces using conductive ink	Radio Systems	Holley McKee, Rong Nie	903.304
62	Investigation of active shim coil design for MRI imaging systems	Radio Systems	Hyun Kim, Son Nguyen	903.304
61	Investigation of electromagnetic bio-interaction	Radio Systems	Jigar Patel, Anmol Thapar	903.304
94	Multi-human detection using 3D camera	Robotics	Timofey Pavlov, Jacky Wu	903.304
96	Indoor orchard robot system	Robotics	James Flood, Todd MacDonald	903.326
13	Simulated learning environment for mobile robotics	Robotics	Eugene Bulog, Matthew Frost	903.304
7	Model driven AI for autonomous vehicles	Robotics	Alex Kim, Jonathan King	903.332
16	Occupancy detection system in indoor environments	Robotics	Hasnain Cheena, Abin Thomas	903.330
X-Dept-3	Develop and test a virtual reality based driving simulator	Robotics	Alex Dong, Zhiwei Heng	903.304
116	Flying imagery – Towards 3D Movement Control with Imagination of Flying	Signal Processing	Wei Chen, Carl Tang	903.328
142	Checking wall insulation integrity via ultrasound signature analysis	Signal Processing	Osama Almulla, Dave Langdon	903.330
141	Analysis of Child Speech	Signal Processing	Jordan Chen, Aman Dwivedi	903.330
145	Automatic traffic monitoring for safety and efficiency	Signal Processing	Oliver Kim, Alexander Sye	903.330
144	Measuring room utilisation via computer vision and machine learning	Signal Processing	Raymond Chau, Alexander Maehl	903.330
36	Seismic preparedness for the general public using virtual reality	Smart Phone & Tablet Applications	Edwin Roesli, Chen Zhao	903.328
40	Smart Diet Diary	Smart Phone & Tablet Applications	Lincoln Choy, Henry Shen	903.332
51	Visual and auditory feedback for Te Reo pronunciation learning	Smart Phone & Tablet Applications	Rebekah Berriman, Tina Chen	903.204
112	Indoor Navigation using Augmented Reality	Smart Phone & Tablet Applications	Grace Meng, Suying Shen	903.328
124	deCode - a 2.5D Game for Teaching and Visualisation of Algorithms and Data Structures	Smart Phone & Tablet Applications	Simon Su, Edward Zhang	903.204
120	Review of Agile Transformation within Industry	Software Development Tools and Processes - 1	Benny Chun, Jack Mao	903.328
49	Using Identifiers to Measure Cohesion	Software Development Tools and Processes - 1	Henry Li, Reuben Rakete	903.304
26	Accomplishment Tracker for Software Developers	Software Development Tools and Processes - 1	Jessica Alcantara, Holly Hagenson	903.328
47	Using control-flow-graphs to provide feedback to students on code quality	Software Development Tools and Processes - 1	Lucy Jiang, Robert Rewcastle	903.304
15	Voice commands for software developers	Software Development Tools and Processes - 1	Woo Jin Kang, Jenny Lim	903.328
57	Track my fitness: a revolutionary approach to recording exercise	Software Development Tools and Processes -2	Kevin Manson, Raymond Young	903.203
113	A Smartphone app assisting a balanced lifestyle through analysis of spending data	Software Development Tools and Processes -2	Sam Broadhead, Charlie Rillstone	903.203
39	Understanding the VR potential of mobile devices	Software Development Tools and Processes -2	Kenneth Foo, Steven Yan	903.328
109	Summary of lecture to text	Software Development Tools and Processes -2	Brenan Revell-Nash, Winston Zhao	903.203
X-Dept-4	Software design for industrial automation	Software Development Tools and Processes -2	Louis Pienaar, Alexander Kalinin	903.203
11	Non-Foster matching networks	Telecommunications	Mark Davis, Damien Tao	903.304
10	Methods of Generating Random Numbers for the Transceiver Design in Wireless Sensor Networks	Telecommunications	Muhammad Arif Azmi, Ardini Farihin Saprudin	903.304
132	5G Coverage Assessment	Telecommunications	Ellen Li, Gareth Morrish	903.304
45	Omnidirectional Antennas for Millimetre Wave Communications	Telecommunications	Gen Konishi, Kody Simpson	903.304
118	Social profiling tool for the analysis and recommendation of gift ideas (Dena)	Web tools and Application	Nikhil Reddy Donthireddy, Kerwin Sun	903.203
78	Community Formation on Online Social Platforms	Web tools and Application	Dion Balmforth, Liam Brand	903.203
87	Improving the Usability of NZ Police Frontline Responder System	Web tools and Application	Jenny Lee, Sze-Meeng Tan	903.203
20	Web frontend for managing multiple peer to peer investments	Web tools and Application	Eric Chow, Phillip Quach	903.332
X-Dept-2	Unmanned aerial vehicle(UAV) enabled robotic bridge inspection	Web tools and Application	Mathew Taylor, Lanna Yi	903.328
121	Investigation of an alternative secondary power converter topology for use in IPT systems for EV charging	Wireless Power Technologies	Patrick Lawton, Tim Williams	903.120
18	Capacitive Power Transfer to Vehicles via Tyres	Wireless Power Technologies	Tasal Pasarlai, Linfeng Wu	903.330
91	Understanding the wireless power transfer mechanism by combined magnetic and electric field analysis	Wireless Power Technologies	Nur Shafiqah Anua, Royce Park	903.120
140	Improving Prosthetic Socket Design with Additive Manufacturing	Wireless Power Technologies	Connor Talbot	903.330

PROJECT LOCATIONS

ELECTRICAL, COMPUTER, AND SOFTWARE ENGINEERING

BUILDING 903 | LEVEL 3

74 129
23 31
8 7
58 33
147 34
102 20
82
101 41

Embedded Systems & Industrial Informatics
903.332

104 53
90 117 127
149 144 18
40
17 106 135
131
141 140 70
16 145 19
142 139
72

Control Systems & Signal Processing
903.330

119 115 122
12 130 112
39
126 26 15
36
86 95 116
120 146 80
96

Parallel Computing & Software Engineering
903.328

92 XD2

Special Projects 903.328A

903.326

903.304C

903.318

Robotics 903.314

77 79
49 47
10 11 21
45 61 62
132 133 13
22 94
12 111

Radio Systems & Telecommunications
903.304

FROM 902 LEVEL 3

DOWN TO 903 LEVEL 2

TOILETS

LIFT

TIP: Level 3 is on the ground level of Newmarket Campus

BUILDING 903 | LEVEL 2

81 123
124 51 63
903.206 138
50 67
903.204 84

903.202

903.280

113 XD4
903.203 57
118 87
109 78

903.201

LIFT

DOWN TO 903 LEVEL 1

TOILETS

BUILDING 903 | LEVEL 1

903.120B   903.120A   903.120C

903.120D
903.120E
903.102A

Power Systems 903.120

2 3
59 60
110 91
4

Power Electronics 903.120

121
42

903.102

903.120F

ROLLER DOOR

903.105   903.101

LIFT

UP TO 903 LEVEL 2

ENTRANCE

BUILDING 901 | LEVEL 3

EXIT

30
34
17
2
1
3
15
11
97
16
19
95
13
20
18
49
107
41
42
43
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76
31
8
48
109
56 58 59 60

901.336
901.331
901.332
901.327
901.300C2
901.330
901.328
901.326
901.323
901.321   901.301A   901.301B
901.364
901.400C1
901.312 901.310
901.314
901.302
902.300E1
902.306
902.302

BUILDING 901 →
BUILDING 902 →

44
71

TOILETS

MAIN ENTRANCE/ RECEPTION

BUILDING 902 | LEVEL 3

54 55 57 74
69 70
902.303
10 38
103 40
86 87 88 112
80 81 82 83

75
ROLLER DOOR

4
5

25
28 67
108

902.363 CACM

902.363A   902.363B   902.363D   902.369

902.369

90 91 77 104 106 50 51 52 64 21 22 24 79 89 98 99 100 78

TO 903 LEVEL 3

72
102
111 61
110 105
66 63
23 26
902.329
68 73 93
47 46 36
35
85 92 94

902.311 902.313 902.315   902.317   902.323 902.325

TOILETS

MECHANICAL AND MECHATRONICS ENGINEERING

Overhead view of Newmarket Campus

901
902
904
903

Khyber Pass Road

MECHANICAL AND MECHATRONICS ENGINEERING PROJECTS

THERMOFLUIDS AND SPEED RACING

Project number and title		Student(s)
30	Feasibility of an integrated heat pump design for temperature and humidity control of a natatorium	Dhulkifl Ahmed, Patrick Meisel
34	Performance analysis and optimization of wine bottle coolers	Helen Mak, Joshua Young
17	Dehumidification with an expander	Devon Whitmore, Sun Ju Wong
8	Leakage characteristics of a revolving vane expander's blocker valve	Kevin Gao, Jack Gwillim
1	Analysis and development of a regenerative micro-combustor for microscale power generation applications	Annan Chen, Chen Zhong
2	Performance of a fixed wing UAV under extreme weather conditions	Tony Kamberi, Nathan Sycamore
3	Pulsating heat pipes for microscale thermal management	Haami Manning, Prashanth Sivasothy
15	Transient and Helmholtz resonance response of building cavities with a dominant opening	Jayesh Punjabi, Connor Stanfield
13	A feasibility study on the use of wingtips on hydrofoils for an AC-75 class yacht	Jack Cameron, Richard Young
11	Experimental determination of pressure drop through industrial air blast freezers	Andrew Battley, Harry Duncan
95	Experimental study of flow in the boundary layer wind tunnel	Thomas Fisher, Ryan Hone
97	Investigating the generation of twisted flow in a boundary layer wind tunnel	Connor Beamish, Alastair Campbell
20	Ultra-high speed, non-pneumatic wheels for land speed racing	Dorsa Morshedi, Summer Xia
16	An Investigation into the performance and implementation of cylindrical cells for use in a Formula SAE vehicle	Ruben Nepgen, Luke Prichard
18	Aerodynamics of an asymmetric land speed racing vehicle	Rohan Ahuja, Max McGuire
19	Suspension for an asymmetric land speed racing vehicle	Anis Syafiqah Mohd Roslan, Muhamad Halim Muhamad Shukor

DYNAMICS AND CONTROL

Project number and title		Student(s)
48	Design and implementation of self-driving RC car testbed	Sam Duanmu, Prempeh Frimpong
49	Heading orientation determination without the use of a magnetometer	Luke Dixon, Anaru Liddicoat
107	Tank pressure system for liquid fueled rockets	Luke Feldmann, Joel Raichur
109	Web application design for condition monitoring in Industry 4.0	Alexander Kalinin
56	Developing the hardware and software for a reconfigurable motion capturing system for human chewing for in-vitro analysis	Gian Paolo Averion, Vincent Krishna
41	Membrane and Helmholtz resonator designs for sound attenuation	Mara Deng
42	Self-adaptive nonlinear vibration neutraliser	Jacob Kalma, Joshua van Zweeden
45	Design, simulation and experiment of power electronics for piezoelectric and electret-based energy harvester	Saahil Chand, Ishaan Singhal
76	Energy harvesting backpack	Ethan Rodrigues, Joshua Torrens
31	Designing a wave energy harvester	Ryan Gwynn, Daniel Smith
33	Designing a pendulum type vibration absorber and energy harvester	Yujin Heo, Charles Im
43	Developing interactive demonstration equipment for teaching	Louis Habberfield-Short, Aaron Lamont
44	Improving navigation and communication methods for a remote mobile robot	Kieran Fong, Ozair Saiyad
58	Skydiver Tracking UAV	Parneet Kohli, Saachi Shahri
59	Drone canopy sampling using a cable-suspended cutter	George Bradley, Joshua Lamp-en-Smith
60	Human-drone physical interaction	Dah Young Kim, Zihao Zhang

MECHATRONICS

Project number and title		Student(s)
69	Extracting peripheral nerve activity for neural prostheses	Dylan Leslie, Zachary Searle
70	Augmented reality for sports rehabilitation	Vandna Patel, Aryaman Taore
71	An adaptive exoglove for motion rehabilitation	Keshav Krishna, Geetanjali Lamba
54	On transmission systems and differential mechanisms for adaptive, assistive exogloves	Charlie Chen, Jimmy Lin
55	An aerial grasping system based on a tether mechanism and an adaptive, ultrafast, passive closing gripper	Charlie Hu, Alice Xiao
57	A linkages-based adaptive prosthetic hand with a selectively lockable differential mechanism	Bryan Busby, Tzer Xi Lim
74	Cinema 2.0: On making movies using robots and AI	Amaasha de Alwis, Seo In Park
75	Reconfigurable, lightweight grasping mechanisms for aerial robotic vehicles	Lydia Hingston, Jonathan Mace
10	Pavement energy harvester - a complete system	Dazzle Johnson, Mikhael Sayat
38	Collaborative manipulation of soft/rigid objects via haptic communication	Thomas Lees, Sophie Taylor
40	Soft robotic mattress for pressure ulcers prevention and management	Daniel Lee, Ross Philip
103	Automated hull cleaning system	Rory Butler, Alma Ormsby
86	Machine learning and the functional organization of biological neural networks	Pascal Driver-Burgess, Daniel Song
87	Eye-tracking system for diagnosis of visual deficits	Sidhant Raje, Jerry Zhang
88	Investigating sleep apnea using shallow convolutional neural networks	Hazel Glasgow, Lucia Quirke
112	Machine learning and brain activity	Andrew Tan

ACOUSTICS, DESIGN AND MANUFACTURING

Project number and title		Student(s)
80	Rain noise	Kaitlin Franks, Kombe Kampanga
81	Development of UAV noise measurement method for noise reduction research	Jeremy Cathcart, Andrew Liu
82	Aerodynamics of ducted and unducted UAV propellers	Robin Go, Christopher Wagner-Toomer
83	Diffuse field sound absorption	Sungjin Kim, Momotaro Miura
4	Sound source localisation for behind-the-ear hearing aids	Ahmed Al-Ghusaini, Simon Sarkar
5	Difference in the effect of speech masking for native and non-native listeners	Eugena Au, Shirley Xiao
25	Design and test of a prototype wall impactor for collecting impact sound data and investigating a potential relationship with airborne sound insulation	Caitlin Janes, Bridget Young
28	Design of Helmholtz resonators for improving the sound transmission loss of stud partitions	Nicholas Ansley, William Zhu
67	Improving electric bicycle control systems	Montagu Walsh, Arthur Young
108	Smart glove control and drone	Antony Tang
90	Recycling of multi-layer plastic films through reprocessing	Azhar Ali, Samuel Lythe
91	Recycling of multilayer bags into fibre reinforced composites	Maryam Ahmad Latifi, Mohd Ikmal Md Danuri
77	Completion of an infrared-heating rotational moulding machine for performance evaluation of composites moulding	Max Hayman, Louie Heron
104	Development of reinforced polymer composite foam with controlled pore size using blowing agent loaded natural fibres	Owen Cao, Claire Ye
106	Plastic waste into value added products and utilization in polymer composite applications	Daniel De Leon

DESIGN, MANUFACTURING AND INDUSTRY 4.0

Project number and title		Student(s)
72	Vision-based indoor localisation for people and robots	Munirah Mahadi, Meera Patel
102	Additive 3D printed dynamic canine prosthetics with electronic feedback aids	Sebastian Weaver
105	Carbon fibre and metal nodal structures in Formula SAE	Taylor Grey, Thomas Picken
110	Food 3D printer for the elderly	Michael Jessup
111	Batteryless portable medication cooler	George Maltby
50	Further developing a system for collecting engineering project data allowing simulation of projects in a "virtual environment"	Eric Picardo, Lance Ramos
51	Further developing an immersive VR system to visualise geometric design margins in a mechanical system	Mareko Fagasa-Nuku, Charlie Thomas
52	Integration of data-driven features into an e-bicycle (internet of things)	Paul McHardy, Bruce Nguyen
61	Use of chitosan-based materials for microfabrication: a feasibility study	Aathira Nair, Monique Oliver
63	Balancing the printability and final performance of nanocomposite conductive inkjet inks	Devdass Krishnan, Ryan Welsh
66	Adapting a desktop inkjet printer for small format powder bed 3D printing tests	Naeem Razali, Simon Yu
23	Industry 4.0: Internet of Things enabled AGVs for Smart Factories	Joshua Goh, Wanqing Xia
26	Machine learning for optimising 3D printing processes	Nikhil Harilal, Steve Tran
64	Towards fully-printable soft robots: 3D printing in silicone	Weichi Liu, Daniel Psaila
21	Self-supported free-form 3D printing using industrial robots	Rory Hooper, Chi-Yu Yang
22	Welding 4.0: Development of a roadmap for the New Zealand fabrication industry	Luke Thomas, Da Wei Zhang
24	Machine learning to enable cyber-physical-machine-tool for Industry 4.0	Flynn Letford, Max Rogers

COMPOSITE MATERIALS AND MANUFACTURING

Project number and title		Student(s)
79	3-D printing of conducting polymer yarns based of graphene materials	Jaffer Alsimawy, Italo Godoy-Morison
89	Thermal and mechanical properties of flax-polypropylene sandwich composites	Abdelrahman Elhennawi, Alex Melia
98	Investigation on flame retardant treatment of PET fibres for interior building panels	Div Bhatia, Corey Biddick
99	Development of conducting natural fibres using graphene materials	William Dyer, Samuel Wheadon
100	Thermal and mechanical performance of chicken feather fibre and polypropylene composites	Shari Masina, Jordan Takapi-Lambert
35	High production rate manufacturing of fibre reinforced plastics using the wet compression process	Kelly Chang, Himansu Daya
36	High temperature resin infusion processes for the manufacture of high performance yacht structures	James Grant, Maggie Zhang
46	Closed mould manufacture of carbon fibre reinforced thermoplastics from in-situ polymerised nylon	Jessica Chen, Nevil Patel
47	Design and manufacture of compliant structures for in-road wireless EV charging solutions	Ravindra Anurithan, Joseph Tildesley
68	Reduction of glue-film mass for a Formula SAE car	John Hughes, Jaiden Walmsley
85	Durability of biodegradable composites	Muath Alzahrani, Kimberley Ong
73	Performance prediction of CFRP wheel shells for a Formula SAE car	Ben Goodman, Lizzy Grant
92	Engaging kea birds with play-equipment utilising shape-memory alloys	Ellen Jose, Moi Moi Lowe
93	Development of a novel resin transfer impregnation process	Tobias Lorimer, Kallista Pijnaker
94	Development of passive morphing hydrofoils using composite bend-twist coupling for racing moths	Bart Fenwick-Bull, Skye Grut
78	Effect of lignin binder on the performance of rice husk particleboards	Tommy Qian, Ho Hin Tsang

ABOUT THE FINAL YEAR PROJECT

The Final Year Project, formally recognised as the Part IV Project, is a compulsory unit of our Bachelor of Engineering (Honours) degree. This involves final year Engineering students spending the bulk of the year — usually in pairs — on a research project supervised by engineering academics and/or industry professionals. This degree component also includes a final report, presentation, and technical demonstrations. In essence, it assesses a student's ability to utilise their knowledge of both theory and practice.

A variety of topics will be showcased by each department, and in some cases, a student's project may entail solving a real problem proposed by an engineering company. Because these projects are considered as learning experiences to encourage students to tackle problems the same way engineers do in their professional career, we encourage as much industry participation as possible. We ensure that this is the case by inviting industry professionals each year, not just as sponsors and supervisors, but also to review and judge the projects. Prizes are also awarded to outstanding submissions for each department.

The practical demo and display/exhibition component of the Final Year Project is what you will be seeing today.

More details about the
Part IV Project

Engineering departments featured at today's event:

Department of Electrical, Computer, and Software Engineering
ecse.auckland.ac.nz

Department of Mechanical Engineering
mech.auckland.ac.nz

engineering.auckland.ac.nz