

### CREATE, INNOVATE, AND POWER THE FUTURE

## WHAT IS THE MANUFACTURING & **TECHNOLOGY PATHWAY?**

This pathway covers industries that design, produce, and maintain everything from everyday products to complex machinery and advanced technologies.

#### THIS PATHWAY INCLUDES SECTORS LIKE:

- · Engineering and Mechanical Trades
- · Electronics and Electrical Manufacturing
- · Fabrication and Welding
- · Automotive and Aviation Technology
- · Robotics, Automation, and Mechatronics
- · Product Design and Development

#### IS THIS THE PATHWAY FOR YOU?

- · Do you like working with tools, machines, or computers?
- · Are you a problem solver who enjoys fixing and improving things?
- · Do you enjoy precision and attention to detail?
- · Are you interested in new technologies and how things are made?
- · Do you like working in a team or independently to complete projects?

If you answered yes, this pathway offers exciting opportunities where your skills can thrive.

### WHAT JOBS COULD I DO?



#### **Entry-Level Jobs**

Machine Operator, Electrical Assembler, Apprentice Engineer, Electronics Technician, Production Line Worker

#### With Training or Experience

Welder or Fabricator, Automotive Technician, CNC Machinist, Automation Technician, Aviation Maintenance Technician

#### Specialist/Professional Roles

Mechanical Engineer, Robotics Technician, Quality Assurance Manager, Industrial Designer Manufacturing Engineer

#### WHAT CAN I EARN?

- Starting wages for entry roles usually range from \$45,000 - \$55,000/year.
- Skilled tradespeople and technicians earn between \$60,000 - \$85,000.
- Senior and engineering roles can reach \$90,000+, with potential for career growth in advanced technologies.

#### WHY THIS PATHWAY **MATTERS**

Manufacturing and technology keep industries running, fuel innovation, and create the products we rely on daily.

It's a sector that's always evolving — from traditional engineering to cutting-edge automation and robotics — offering a future full of possibilities.



## IT SUPPORT L2-3

# LAUNCH YOUR IT JOURNEY: REAL-WORLD SKILLS, REAL EXPERIENCE

Step into the world of tech and get hands-on experience that puts you ahead. At EmployNZ, a leading NZQA Category 1 provider, you'll gain practical skills and industry insight in a supportive, real-world learning environment.

In this course, you won't just learn about IT—you'll build and operate a functioning Help Desk, working as part of a team to solve real support issues. From troubleshooting hardware and fixing network problems to providing software solutions, you'll experience what it's like to be part of an IT support team in action.

Get skilled. Get confident. Get started in IT.

#### **KEY DETAILS**

Course delivery	Terms 1-3, 1 day per week
Location	TGA
NCEA level	2-3

#### **FUTURE PATHWAYS**

Diploma in Information and Technology L5, Diploma in Systems Administration L6, Computing or Administration and Technology, L3, Bachelor Degree of Applied Information and Technology, Bachelor's Degree in Computer Science, Computer Engineering, Information and Technology

#### **FUTURE CAREERS**

Computer Support Technician, Database/ Systems Administrator, Network Engineer, Network Security, Software Developer, Project Manager, Web Developer, Web Designer

#### INTRO TO IT SUPPORT L2

	UNIT STD	LEVEL	CREDITS
29772	Manage files and folders using digital devices	2	2
29782	Demonstrate knowledge of computing hardware, software and terminology to select digital tools for specified purposes	2	5
29783	Implement basic security when using digital devices and software	2	3
29781	Use the internet and common digital devices and software to gather information and connect with other users and devices	2	7
	TOTAL		17

#### IT SUPPORT L3

	UNIT STD	LEVEL	CREDITS
29796	Collaborate effectively with others in a digital environment	3	7
29793	Investigate, plan, design and create digital outcome solutions to meet the requirements of a specified brief	3	5
29789	Use a presentation application to produce an interactive multimedia presentation	3	3
29798	Troubleshoot, fix and escalate a range of common hardware and software problems	3	3
	TOTAL		18



## **EmployNZ**

Jack Baker futuresacademy@employnz.co.nz 0800 002 159



## **GAME DESIGN L3**

#### CREATE YOUR OWN ADVENTURE

Dive into the world of video game creation with this hands-on course. You'll explore the history and evolution of games—from classic board games to today's digital hits—and analyse different genres to understand what makes games fun and engaging.

Using industry-standard design software, you'll learn the key elements, mechanics, and rule sets behind successful games. Then, bring your ideas to life by designing and developing your very own game based on a genre you choose.

#### **KEY DETAILS**

Course delivery Terms 1–3, 1 day per week
Location ROT, TGA
NCEA level 3

#### **FUTURE PATHWAYS**

NZ Certificate in Communications Media (L4), NZ Certificate in Arts & Design (L4), NZ Certificate in Information Technology Essentials (L4), Bachelor of Creative Industries: major in Fashion Design, Graphic Design or Visual Arts (L7), Bachelor of Applied Information Technology (L7)

#### **FUTURE CAREERS**

Social Media and Content Creation, Film and Television Production, Commercial Freelance Video Capture and Production, Graphic Designer, Marketing Content Creator, Web Designer, 3D Technologies, AR/VR Technologies Content Creator, Arts Education Practitioner, Arts Administrator, Fashion Designer, Fashion Technician, Sample Machinist, Pattern Engineer, Production Designer, Buyer, Retailer, Costume Design, Roles in software development solutions – Design, Coding, Scripting and Testing, Programming, Education and Small Business Software, Self Employed Consultant or Contractor

	UNIT STD	LEVEL	CREDITS
18741	Create a computer program to provide a solution to a problem	3	6
29790	Use digital tools to create and monitor a project plan	3	3
29791	Capture and prepare digital media for integration into other applications	3	2
29793	Investigate, plan, design and create digital outcome solutions to meet the requirements of a specified brief	3	5
29797	Synchronise data across digital devices and multiple platforms	3	2
29798	Troubleshoot, fix and escalate a range of common hardware and software problems	3	3
	TOTAL		21

<sup>\*</sup>Toi Ohomai course details and locations may change. Please contact careers advisers for the most up to date information.

# TOI-OHOMAI Institute of Technology

#### TOI OHOMAI

Anne-Hélène, Jamie & Siniva STP@toiohomai.ac.nz 07 346 8858



## SPARK YOUR POTENTIAL L2

# STEP INTO THE WORLD OF ELECTRICITY AND POWER UP YOUR POTENTIAL!

This exciting, hands-on course gives you the chance to experience what it's really like to work as an electrician. From wiring circuits to exploring the wide range of career paths in the electrical industry, you'll get a real taste of the trade through practical, real-world tasks. Whether you're curious about the tools of the trade or already thinking about a career in electrical work, this course helps you make confident choices about further study or employment.

KEY DETAILS	;
Course delivery	Terms 1-3, 1 day per week
Location	WHK, ROT, TGA
NCEA level	2

#### **FUTURE PATHWAYS & CAREERS**

To provide the student with the opportunity to explore and experience the work of an electrician exposing them to the varied opportunities in electrical and to assist them in making an informed decision for further study and/or employment

	UNIT STD	LEVEL	CREDITS
30657	Isolate low-voltage electrical subcircuits and perform basic checks and tests to confirm isolation	2	1
30658	Demonstrate knowledge of fundamental electrical safety in the workplace	2	2
6401	Provide first aid	2	1
6402	Provide basic life support	2	2
29465	Apply knowledge of electrical safety and safe working practices for electrical workers	3	6
750	Demonstrate knowledge of electrical test instruments and take measurements	2	2
29474	Demonstrate and apply knowledge of electrical fittings and components and their installation	3	6
6705	Test electrical appliances for safety	2	3
	TOTAL		23



#### **ETCO ELECTRICAL**



# ELECTRICAL PRE-TRADE PROGRAMME L3

# KICKSTART YOUR ELECTRICAL CAREER WITH NZ'S LEADING TRAINING EXPERTS

Electricians are in demand—and ETCO has over 30 years of experience helping students launch their careers. Our Pre-Trade Programme (L3) teaches you essential electrical theory and practical skills, guided by registered electricians.

You'll learn everything from fault diagnosis to safe work practices and how to work professionally and ethically in the industry. Plus, you can apply for an ETCO apprenticeship during the course and find out if you've got a job before you graduate. Get ready to ignite your future with ETCO—the trusted name in electrical training.

#### **KEY DETAILS**

Course delivery	Terms 1-4, 3 days per week
Location	WHK, ROT, TGA, TPO
NCEA level	3

#### **FUTURE PATHWAYS**

NZ Certificate in Electrical Engineering Theory and Practice (Trade) L4, Apprenticeships: General Electrical, Electricity Supply

#### **FUTURE CAREERS**

Pre-Trade Programme Graduates: Electrical Wholesaling, Retailing, Electrical Meter Reading, Electrical Appliance Service Technician, Electrical Service Technician Electrical Apprentices: Business Ownership, Electrical Estimator, Inspector, Project Manager, Automation, Robotics, Supervisor, Solar and Wind Energy, Marine, Teaching

	UNIT STD	LEVEL	CREDITS
15847	Knowledge of mathematics and mechanics for electrical trades	2	4
15848	Safeguards for use with portable electrical appliances	2	3
15849	Manual soldering and de- soldering	2	2
15852	Isolate and test low voltage subcircuits	2	2
15855	Knowledge of circuit protection	3	3
25070	Properties of conductors, insulators, and semiconductors	2	7
25071	Knowledge of electromotive force (e.m.f.) production	2	3
25072	Electromagnetic theory	2	5
29465	Electrical safety and safe working practices	3	6



## **ETCO ELECTRICAL**



# ELECTRICAL PRE-TRADE PROGRAMME CONTINUED

29466	Legislation and standards for electrical workers	3	2
29467	Ethical work practices in the electrical industry	3	2
29468	Safe plant isolation and electrical testing	3	5
29469	Select and install flexible cords and cables	2	4
29470	Electric motor and generator operation	3	2
29471	Electric switchboards and lighting circuits	3	2
29473	Transformers (single and three- phase)	3	3
29474	Installation of fittings and components	3	6
29476	Capacitance, inductance, power factor	3	7
29477	NZ electricity grid and protection	3	2
29479	Draw and explain electrical diagrams	3	4
29480	Circuit design, control, and protection	3	6

29483 Single/three-phase rotating machines  29484 Intermediate knowledge for trades  29557 Fault identification and location 3 4  29749 Registration theory and practice (Stage 1)  29753 Registration theory and practice (Stage 2)  30645 Appliance serviceperson legislation 3 3  30657 Isolation of low voltage subcircuits 2 1  30658 Electrical safety in the workplace 2 2  31831 EST theory and legislation 4 4  1204 Knowledge of earthing 3 2  6401 Provide first aid 2 1  6402 Provide basic life support 2 2  6705 Test appliances for safety 3 3  Demonstrate knowledge of electrical test instruments and take measurements  Demonstrate and apply knowledge of and the procedures for the examination of and testing of electrical installations  TOTAL 121	29481	Lighting installation and repair	3	5
trades  29557 Fault identification and location 3 4  29749 Registration theory and practice (Stage 1) 4 2  29753 Registration theory and practice (Stage 2) 4 2  30645 Appliance serviceperson legislation 3 3  30657 Isolation of low voltage subcircuits 2 1  30658 Electrical safety in the workplace 2 2  31831 EST theory and legislation 4 4  1204 Knowledge of earthing 3 2  6401 Provide first aid 2 1  6402 Provide basic life support 2 2  6705 Test appliances for safety 3 3  Demonstrate knowledge of electrical test instruments and take measurements  Demonstrate and apply knowledge of and the procedures for the examination of and testing of electrical installations	29483	0, 1	3	4
29749 Registration theory and practice (Stage 1)  29753 Registration theory and practice (Stage 2)  30645 Appliance serviceperson legislation  30657 Isolation of low voltage subcircuits  30658 Electrical safety in the workplace  31831 EST theory and legislation  4 4  1204 Knowledge of earthing  44  1204 Knowledge of earthing  5401 Provide first aid  6402 Provide basic life support  6402 Provide basic life support  750 Demonstrate knowledge of electrical test instruments and take measurements  Demonstrate and apply knowledge of and the procedures for the examination of and testing of electrical installations	29484		3	1
practice (Stage 1)  29753 Registration theory and practice (Stage 2)  30645 Appliance serviceperson legislation  30657 Isolation of low voltage subcircuits  30658 Electrical safety in the workplace  31831 EST theory and legislation  4 4  1204 Knowledge of earthing  4 4  2 2  4 2  4 2  5 3  6 401 Provide first aid  6 402 Provide basic life support  6 750 Test appliances for safety  5 2 2  6 750 Demonstrate knowledge of electrical test instruments and take measurements  5 Demonstrate and apply knowledge of and the procedures for the examination of and testing of electrical installations	29557	Fault identification and location	3	4
practice (Stage 2)  30645 Appliance serviceperson legislation  30657 Isolation of low voltage subcircuits  30658 Electrical safety in the workplace  31831 EST theory and legislation 4  1204 Knowledge of earthing 3 2  6401 Provide first aid 2 1  6402 Provide basic life support 2 2  6705 Test appliances for safety 3 3  Demonstrate knowledge of electrical test instruments and take measurements  Demonstrate and apply knowledge of and the procedures for the examination of and testing of electrical installations	29749		4	2
legislation  30657 Isolation of low voltage subcircuits  30658 Electrical safety in the workplace  31831 EST theory and legislation 4  1204 Knowledge of earthing 3 2  6401 Provide first aid 2 1  6402 Provide basic life support 2 2  6705 Test appliances for safety 3 3  Demonstrate knowledge of electrical test instruments and take measurements  Demonstrate and apply knowledge of and the procedures for the examination of and testing of electrical installations	29753		4	2
subcircuits  30658 Electrical safety in the workplace  31831 EST theory and legislation 4  1204 Knowledge of earthing 3 2  6401 Provide first aid 2 1  6402 Provide basic life support 2 2  6705 Test appliances for safety 3 3  Demonstrate knowledge of electrical test instruments and take measurements  Demonstrate and apply knowledge of and the procedures for the examination of and testing of electrical installations	30645		3	3
workplace  31831 EST theory and legislation 4  1204 Knowledge of earthing 3 2  6401 Provide first aid 2 1  6402 Provide basic life support 2 2  6705 Test appliances for safety 3 3  Demonstrate knowledge of electrical test instruments and take measurements  Demonstrate and apply knowledge of and the procedures for the examination of and testing of electrical installations	30657		2	1
1204 Knowledge of earthing 3 2 6401 Provide first aid 2 1 6402 Provide basic life support 2 2 6705 Test appliances for safety 3 3  Demonstrate knowledge of electrical test instruments and take measurements  Demonstrate and apply knowledge of and the procedures for the examination of and testing of electrical installations	30658		2	2
6401 Provide first aid 2 1 6402 Provide basic life support 2 2 6705 Test appliances for safety 3 3  Demonstrate knowledge of electrical test instruments and take measurements  Demonstrate and apply knowledge of and the procedures for the examination of and testing of electrical installations	31831	EST theory and legislation	4	4
6402 Provide basic life support 2 2 6705 Test appliances for safety 3 3  Demonstrate knowledge of electrical test instruments and 2 take measurements  Demonstrate and apply knowledge of and the procedures for the examination of and testing of electrical installations	1204	Knowledge of earthing	3	2
6705 Test appliances for safety 3 3  Demonstrate knowledge of electrical test instruments and 2 2 take measurements  Demonstrate and apply knowledge of and the procedures for the examination of and testing of electrical installations	6401	Provide first aid	2	1
Demonstrate knowledge of electrical test instruments and 2 2 take measurements  Demonstrate and apply knowledge of and the 15866 procedures for the examination 4 3 of and testing of electrical installations	6402	Provide basic life support	2	2
750 electrical test instruments and 2 2 take measurements  Demonstrate and apply knowledge of and the 15866 procedures for the examination 4 3 of and testing of electrical installations	6705	Test appliances for safety	3	3
knowledge of and the 15866 procedures for the examination 4 3 of and testing of electrical installations	750	electrical test instruments and	2	2
TOTAL 121	15866	knowledge of and the procedures for the examination of and testing of electrical	4	3
		TOTAL		121



### **ETCO ELECTRICAL**



## SOLID WOOD MANUFACTURING L2-3

# HANDS-ON TIMBER TRAINING WITH REAL INDUSTRY EXPERIENCE

Train two days a week at a local timber mill through this hands-on course in partnership with Wood Wise. Learn timber grading, pole and post manufacturing, and explore the full timber production process while earning credits toward the NZ Certificate in Solid Wood Manufacturing.

Students are treated like trainee employees and will be interviewed for placement. Supported by experienced mill staff, you'll gain real industry insight — with opportunities for further training, apprenticeships, or even paid work. A third day of work experience may also be arranged.

#### **KEY DETAILS**

Course delivery	Terms 1-4, 2 days per week
Location	WHK, TGA
NCEA level	2-3

#### **FUTURE PATHWAYS**

L3, 4, 5 apprenticeships as a timber machinist, timber grader, saw doctor, finger jointer, sawmilling, manufacturing, maintenance trades, timber treatment, timber kiln drying

#### **FUTURE CAREERS**

Project or maintenance engineer, Optimisation technician, Kiln operator, Timber machinist, Quality control / grader, Health and safety or management roles

# SOLID WOOD MANUFACTURING

	UNIT STD	LEVEL	CREDITS
22970	Demonstrate employment and interrelationship foundation skills in a wood manufacturing operation	2	10
22973	Demonstrate knowledge of factors that affect the performance of workers in a wood manufacturing operation	2	10
22977	Demonstrate knowledge of workplace risks in a wood manufacturing operation	2	5
736	Demonstrate knowledge of physical characteristics of wood	2	5
27074	Demonstrate Knowledge of Timber grading	2	5
22969	Take and record measurements and make calculations in wood manufacturing	2	3
17971	Demonstrate knowledge of the solid wood manufacturing industry	2	5
729	Measure moisture content of word products	2	5
& 10 credits from the following		2	
20751	Operate a cross cut saw centre	3	5
8005	Stack timber in packets using mechanical timber stacking system	2	5



#### **WOOD WISE**

Please contact the mill site where your student wishes to be considered as a work based training trainee, to set up an interview and to send their application



# SOLID WOOD MANUFACTURING CONTINUED

24607	Wrap wood products manually	2	3
164	Tally timber	2	3
165	Handle, sort, and stack timber	2	3
20754	Demonstrate knowledge of mechanical stress grading timber	2	5
156	Demonstrate knowledge of phytosanitary standards in the wood manufacturing industry	2	3
	TOTAL		58

### POLE, POST & PILE

	UNIT STD	LEVEL	CREDITS
22970	Demonstrate employment and interrelationship foundation skills in a wood manufacturing operation	2	10
22973	Demonstrate knowledge of factors that affect the performance of workers in a wood manufacturing operation	2	10
22977	Demonstrate knowledge of workplace risks in a wood manufacturing operation	2	5
736	Demonstrate knowledge of physical characteristics of wood	2	5
17971	Demonstrate knowledge of the solid wood manufacturing industry	2	5
1252	Demonstrate knowledge of log making	3	5
6916	Demonstrate knowledge of the rules relating to chainsaw use	2	5

156	Demonstrate knowledge of phytosanitary standards in the wood manufacturing industry	2	3
8008	Demonstrate knowledge of log yard operations	2	5
20022	Grade roundwood products	3	8
20751	Operate a cross cut saw centre	3	5
22969	Take and record measurements and make calculations in wood manufacturing	2	3
165	Handle, sort, and stack timber	2	3
6917	Demonstrate basic chainsaw operation	3	12
	TOTAL		81

## TIMBER MILL WORK BASED TRAINING PARTNERS / SITES

EBOP : SEQUAL LUMBER				
Dave Turner david@sequal.nz 021 887 899				
TAURANGA: PUKE PINE				
David Sandford david@pukepine.co.nz 021 542 154				
WOOD WISE				
Paul Carpenter	paul@woodwise.co.nz	027 270 4431		



#### **WOODWISE**

Please contact the mill site where your student wishes to be considered as a work based training trainee, to set up an interview and to send their application



# WOOD MANUFACTURING L2

#### BUILDING PRACTICAL INDUSTRY SKILLS

Kickstart your career in wood manufacturing with practical training at New Zealand's only dedicated sawmill and wood manufacturing plant, right here at our Waipā Campus.

This technical trade offers real-world experience working alongside industry professionals in a busy, operational environment. If you enjoy hands-on work and want to be part of a growing industry fueled by New Zealand's expanding plantation forests, this course sets you up for strong job opportunities and a skilled future.

#### **KEY DETAILS**

Course delivery Terms 1-3, 1 day per week
Location ROT
NCEA level 2

#### **FUTURE PATHWAYS**

NZ Certificate in Solid Wood Manufacturing (L3) Saw Doctoring and Timber Machining, NZ Certificate in Solid Wood Manufacturing (L4) Laminating, NZ Certificate in Forest Harvesting Operations (L3) Manual Processing and Quality Control, NZ Certificate in Forest Harvesting Operations (L3) Woodsman Programme; Quality Control or Basic Machine Operation

#### **FUTURE CAREERS**

Forestry Operations, Machine Repairs, Wood Manufacturing Operator, Saw Doctor

	UNIT STD	LEVEL	CREDITS
159	Demonstrate knowledge of environmental issues in wood manufacturing industries	2	5
22977	Demonstrate knowledge of workplace risks in a wood manufacturing operation	2	5
17964	Demonstrate knowledge of the wood product manufacturing industry	2	5
22978	Demonstrate knowledge of wood product quality	2	5
	TOTAL		20

\*Toi Ohomai course details and locations may change. Please contact careers advisers for the most up to date information.

# TOI-OHOMAI Institute of Technology



## **BUILD A GO KART L2**

#### DESIGN. WELD. RACE.

Take your metalwork skills to the next level by building your own petrol-powered go kart from the ground up.

This hands-on course is perfect for students with some experience in metalwork who are ready to take on a real challenge. You'll learn practical fabrication, assembly, and mechanical skills while constructing a fully functioning go kart. Best of all, you'll have the opportunity to purchase your finished project at the end.

# KEY DETAILS Course delivery Terms 1-3, 1 day per week Location ROT, TGA NCEA level 2

#### **FUTURE PATHWAYS**

Automotive Engineering (L3), NZ Certificate in Automotive Engineering (L3) - Managed Apprentices

#### **FUTURE CAREERS**

Automotive Apprenticeship, Automotive Sales, Automotive Servicing, Brake Servicing, Panel Beaters, Tyre Servicing, Warrant of Fitness Testing

	UNIT STD	LEVEL	CREDITS
29580	Demonstrate good work habits and safe work practices in the automotive industry	2	4
21671	Carry out general engineering tasks in the motor industry	2	4
21685	Use an oxy-acetylene welding plant in the motor industry	2	3
2678	Join steel using the oxyacetylene welding process	2	3
21859	Select and use hand tools and workshop equipment for an automotive application	2	2
2387	Assemble mechanical components under supervision	2	2
30475	Demonstrate knowledge of motor industry engineering tasks	2	2
30476	Demonstrate knowledge of tools and equipment used in the motor industry	2	2
21715	Select and use fastening systems in the motor industry	2	3
	TOTAL		25

\*Toi Ohomai course details and locations may change. Please contact careers advisers for the most up to date information.

# TOI-OHOMAI

Institute of Technology



# **AUTOMOTIVE ENGINEERING L2**

# AN INTRODUCTION TO AUTOMOTIVE SYSTEMS AND SKILLS

Build foundational knowledge and handson experience to begin your journey in the automotive industry.

This practical, entry-level course introduces students to key automotive systems and workshop processes. Through guided, hands-on tasks, you'll gain a clear understanding of vehicle components, tools, and basic maintenance—providing the perfect starting point for future study or a career in the automotive sector.

#### **KEY DETAILS**

Course delivery	Terms 1-3, 1 day per week
Location	ROT, TPO, TGA, TOK, WHK
NCEA level	2

#### **FUTURE PATHWAYS**

Automotive Engineering (L3), NZ Certificate in Automotive Engineering (L3) - Managed Apprentices

#### **FUTURE CAREERS**

Automotive Apprenticeship, Automotive Sales, Automotive Servicing, Brake Servicing, Panel Beaters, Tyre Servicing, Warrant of Fitness Testing

	UNIT STD	LEVEL	CREDITS
30476	Demonstrate knowledge of tools and equipment used in the motor industry	2	2
21716	Select and apply lubricants and sealants for automotive and related industry applications	2	3
21869	Remove and replace road wheels on a vehicle	2	1
21722	Balance wheels of a vehicle in the motor industry	2	2
30477	Demonstrate knowledge of petrol and diesel engines	2	4
21691	Disassemble and reassemble a single cylinder or multi-cylinder four stroke engine under supervision	2	2
30478	Demonstrate knowledge of automotive lubricants	2	2
21690	Perform general servicing checks on a motor vehicle	2	3
21718	Demonstrate knowledge of hazardous materials used in the motor industry	2	2
29579	Demonstrate knowledge of good work habits and safe work practices in the automotive industry	2	4
	TOTAL		25

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# TOI-OHOMAI

Institute of Technology

TOI OHOMAI

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# **AUTOMOTIVE ENGINEERING L3**

# DEVELOP ADVANCED WORKSHOP SKILLS AND INDUSTRY KNOWLEDGE

This hands-on course is designed to expand your understanding of automotive engineering through real workshop experience. You'll start with the basics and build a wide range of skills needed to service and repair various makes and models of vehicles.

Students will disassemble, measure, and reassemble engines, and learn how to service engine, transmission, and driveline systems. You'll also work on brake, steering, and suspension systems—developing the technical expertise required in modern automotive workshops.

Completion of STP1 or STP2 is recommended before enrolling in this course.

#### **KEY DETAILS**

Course delivery	Terms 1-3, 2 days per week
Location	ROT, TPO, TGA, TOK, WHK
NCEA level	3

#### **FUTURE PATHWAYS**

NZ Certificate in Automotive Engineering (L3) – Managed Apprentices, NZ Certificate in Automotive Electrical Engineering (L4)

#### **FUTURE CAREERS**

Automotive Apprenticeship, Automotive Sales, Automotive Servicing, Brake Servicing, Panel Beaters, Tyre Servicing, Warrant of Fitness Testing

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Demonstrate knowledge		
of carrying out emergency procedures in the automotive and related industries	3	2
Service a vehicle or machine	3	3
Demonstrate knowledge of automotive lubricants	2	2
Service an automotive cooling system	3	3
Demonstrate knowledge of automotive cooling systems and engine coolant	3	2
Demonstrate knowledge of equipment used to test engine mechanical condition	3	2
Remove and refit intake and exhaust system components	3	3
Demonstrate knowledge of drivelines and final drives	3	4
Remove and replace a bolted- on motor body panel in the automotive industry	3	3
Protect electronics when servicing or repairing a vehicle or machine in the automotive industry	3	2
Demonstrate knowledge of automotive charging and starting systems	3	4
Demonstrate knowledge of automotive lighting	3	2
Demonstrate knowledge of wiring and wiring diagrams used in automotive circuits	3	2
Demonstrate good work habits and safe work practices in the automotive industry	2	4
	and related industries  Service a vehicle or machine  Demonstrate knowledge of automotive lubricants  Service an automotive cooling system  Demonstrate knowledge of automotive cooling systems and engine coolant  Demonstrate knowledge of equipment used to test engine mechanical condition  Remove and refit intake and exhaust system components  Demonstrate knowledge of drivelines and final drives  Remove and replace a bolted-on motor body panel in the automotive industry  Protect electronics when servicing or repairing a vehicle or machine in the automotive industry  Demonstrate knowledge of automotive charging and starting systems  Demonstrate knowledge of automotive lighting  Demonstrate knowledge of wiring and wiring diagrams used in automotive circuits  Demonstrate good work habits and safe work practices in the	procedures in the automotive and related industries  Service a vehicle or machine  Demonstrate knowledge of automotive lubricants  Service an automotive cooling system  Demonstrate knowledge of automotive cooling systems  Demonstrate knowledge of automotive cooling systems and engine coolant  Demonstrate knowledge of equipment used to test engine mechanical condition  Remove and refit intake and exhaust system components  Demonstrate knowledge of drivelines and final drives  Remove and replace a boltedon motor body panel in the automotive industry  Protect electronics when servicing or repairing a vehicle or machine in the automotive industry  Demonstrate knowledge of automotive charging and starting systems  Demonstrate knowledge of automotive lighting  Demonstrate knowledge of wiring and wiring diagrams used in automotive circuits  Demonstrate good work habits and safe work practices in the automotive industry

# TOI-OHOMAI

Institute of Technology



# ELECTRIC SCOOTER PROJECT L2

#### **ENGINEERING IN ACTION**

A fun, hands-on project where students design and build an electric scooter using repurposed parts. While doing so, they'll learn wiring, mechanical assembly, teamwork, safety practices, and key engineering concepts. This project aims to ignite interest in electrical and mechanical pathways through practical learning and project-based outcomes. Students will earn NZQA Level 2 credits along the way.

#### **KEY DETAILS**

Course delivery	Terms 1-3, 1 day per week
Location	ROT, TGA
NCFA level	2

#### **FUTURE PATHWAYS**

NZ Cert Electrical level 3 Pre-Trade (L3), NZ Cert in Mechanical Engineering (L3), NZ Cert in Mechanical Engineering (Trade) (L4), NZ Cert in Engineering Fabrication (L4), NZ Diploma in Engineering (L6) Civil Engineering, NZ Engineering – Mechanical, NZ Diploma Engineering – Electrical

#### **FUTURE CAREERS**

Engineering Technician, Electrical Apprentice, Mechanical Apprentice, Engineering Fabrication, CAD Technician, Maintenance Engineer Technician, Design Technician, Power Systems Technician, Project Engineer (Junior), Field Service Technician

	UNIT STD	LEVEL	CREDITS
15847	Demonstrate knowledge of mathematics and mechanics for electrical trades	2	4
4432	Demonstrate knowledge of, and convert, units of measure used in engineering	2	2
18239	Demonstrate introductory knowledge of circuit concepts and measurements for electronics	2	5
29672	Assemble fabricated components using mechanical connections	2	2
2387	Assemble mechanical components under supervision	2	2
30658	Demonstrate knowledge of fundamental electrical safety in the workplace	2	2
29655	Manually produce engineering sketches	2	3
29550	Demonstrate basic knowledge of common engineering metals	2	3
	TOTAL		23

<sup>\*</sup>Toi Ohomai course details and locations may change. Please contact careers advisers for the most up to date information.

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<sup>\*\*</sup> New course subject to approval.



# MECHANICAL ENGINEERING L2

#### **EXPLORING ENGINEERING PATHWAYS**

Interested in the dynamic world of engineering but unsure where to start? This one-year L2 course offers you a hands-on introduction to the engineering industry.

While still at school, you'll develop a range of valuable skills that will prepare you either to progress into L3 Engineering studies or to enter the workforce confidently. Discover the opportunities available in mechanical and general engineering as you build a strong foundation for your future career.

## KEY DETAILS

Course delivery	Terms 1-3, 1 day per week	
Location	ROT, TGA	
NCEA level	2	

#### **FUTURE PATHWAYS**

NZ Certificate in Mechanical Engineering (L3), NZ Certificate in Mechanical Engineering (Trade) (L4), NZ Certificate in Engineering Fabrication (L4), NZ Diploma in Engineering (L6) Civil Engineering, Electrical Engineering, Mechanical Engineering

#### **FUTURE CAREERS**

Machining (manual and CNC), fabrication and welding in steel, stainless steel, and aluminium across industries such as construction, transport, automotive, marine, and dairy. Roles may also include plant maintenance and service technician positions in food processing, forestry, pulp and paper, power generation, and dairy sectors

	UNIT STD	LEVEL	CREDITS
21911	Demonstrate knowledge of safety on engineering worksites	2	2
21912	Apply safe working practices on an engineering worksite	2	2
4433	Select, use, and care for simple measuring devices used in engineering	2	2
2395	Demonstrate and apply knowledge of the selection, use, and care of engineering hand tools	2	4
4436	Select, use, and care for engineering marking-out equipment	2	3
14866	Demonstrate workshop skills for mechanical engineering	2	12
	TOTAL		25

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