



**WAIHANGA ARA RAU**

**Construction and  
Infrastructure**

Workforce Development Council

# **ELECTRICAL ENGINEERING**

**EXEMPTIONS AND CREDIT TRANSFER FOR QUALIFICATION  
2388 OR 4204**

VERSION 4 | DECEMBER 2025

Approved by	GM Assurance
Date Approved	3 September 2024

Version	Date	Nature of Amendment
1.0	26/08/2022	New document created, based on tables supplied by Skills TITO.
2.0	3/04/2024	Updated based on feedback from Te Pūkenga-EarnLearn and ETCO
3.0	3/09/2024	Updated based on feedback from Te Pūkenga-EarnLearn and ETCO
4.0	11/12/2025	Updated to include all exemptions

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## 1. INTRODUCTION

Exemptions and credit transfer for apprentices who have partially completed qualification 2388 or 4204.

These tables list the exemptions and pre-approved award of credit for trainees with partially completed previous electrical training.

This recognises the transfer of learning from the previous award of standards that will contribute to the programme leading towards the New Zealand Certificate in Electrical Trade (Level 4) with strands in General Electrical, and Electricity Supply (Level 4) [Ref: 4204].

For most standards, the recognition is via the means of **exemption** from standards in this programme.

## 2. EXEMPTIONS

### Process:

Exemptions should be specified in a programme that leads toward qualification 4204-1 when it is submitted to the WDC for programme endorsement and to NZQA for programme approval.

If a provider considers that the exempts stated are no longer valid or there are exemptions that are missing, they should contact [moderation@waihangaararau.nz](mailto:moderation@waihangaararau.nz) in the first instance to get approval for changes to the exemptions outlined in this document.

Credit for	Exempt from
26551 Provide first aid for life threatening conditions (Level 2) (1 Credit)	6402 Provide basic life support (Level 1) (1 Credit)
26552 Demonstrate knowledge of common first aid conditions and how to respond to them (Level 2) (1 Credit)	6401 Provide first aid (Level 2) (1 Credit)
1174 Disconnect and reconnect fixed wired electrical appliances or equipment (Level 3) (4 Credits) And 15870 Inspect and test an electrical installation for compliance with AS/NZS 3000:2000 (Level 4) (3 Credits)	32618 De-commission, test, and commission, basic electrical appliances, fittings, and equipment (Level 4) (4 Credits)
1204 Demonstrate knowledge of earthing (Level 3) (2 Credits) And 29440 Demonstrate knowledge of electric	32638 Demonstrate knowledge of earthing systems and switchboards (Level 4) (6 Credits)

switchboards (Level 4) (3 Credits) <i>And</i> 15855 Demonstrate knowledge of circuit protection (Level 3) (3 Credits)	
1204 Demonstrate knowledge of earthing (Level 3) (2 Credits) <i>And</i> 29477 Demonstrate knowledge of the New Zealand national electricity grid and associated electrical protection (Level 3) (2 Credits)	32622 Demonstrate knowledge of the national supply grid, MEN system, and earthing (Level 3) (6 Credits)
1204 Demonstrate knowledge of earthing (Level 3) (2 Credits) <i>And</i> 5931 Select and install domestic or commercial electric switchboards (Level 4) (3 Credits) <i>And</i> 15855 Demonstrate knowledge of circuit protection (Level 3) (3 Credits)	32638 Demonstrate knowledge of earthing systems and switchboards (Level 4) (6 Credits)
1205 Demonstrate knowledge of electrical switchboards (Level 3) (Credits 3)	29471 Demonstrate knowledge of electric switchboards and lighting and power circuits (Level 3) (Credits 2)
1206 Demonstrate knowledge of a.c. power and power factor (Level 4) (4 Credits)	29476 Demonstrate and apply knowledge of capacitance, inductance, power factor, and power factor correction (Level 3) (Credits 7)
1206 Demonstrate knowledge of a.c. power and power factor (Level 4) (4 Credits) <i>And</i> 15857 Demonstrate knowledge of three-phase transformers (Level 4) (3 Credits)	32640 Demonstrate knowledge of power factor, three-phase AC power, and transformer safety and performance. (Level 4) (6 Credits)
14271 Carry out acceptance, commissioning and maintenance tests on power transformers (Level 4) (6 credits)	32057 Carry out routine inspection and service of a power transformer (Level 4) (6 credits)
14272 Carry out maintenance and/or acceptance tests on high voltage circuit breakers (Level 4) (Credits 6)	32058 Carry out routine inspection and service on a high voltage circuit breaker (Level 4) (Credits 6)
14273 Carry out maintenance and commissioning tests on instrument transformers (Level 4) (Credits 5)	32057 Carry out routine inspection and service of a power transformer (Level 4) (6 credits)
14329 Carry out routine inspection and servicing on distribution power transformers 33kV to 11kV (Level 4) (Credits 8)	32057 Carry out routine inspection and service of a power transformer (Level 4) (6 credits)
14332 Carry out routine inspection and service on oil filled distribution power transformers 11kV to 400V (Level 4) (Credits 8)	32057 Carry out routine inspection and service of a power transformer (Level 4) (6 credits)
14333 Carry out routine inspection and servicing on transmission power transformers above 33kV (Level 4) (Credits 8)	32057 Carry out routine inspection and service of a power transformer (Level 4) (6 credits)

14334 Carry out routine service on transmission instrument transformers 33kV and above (Level 4) (Credits 7)	32057 Carry out routine inspection and service of a power transformer (Level 4) (6 credits)
14337 Carry out routine inspection and servicing on high voltage minimum oil circuit breakers (Level 4) (Credits 6)	32058 Carry out routine inspection and service on a high voltage circuit breaker (Level 4) (Credits 6)
14338 Carry out routine inspection and servicing on high voltage bulk oil circuit breakers (Level 4) (Credits 6)	32058 Carry out routine inspection and service on a high voltage circuit breaker (Level 4) (Credits 6)
14342 Carry out routine inspection and minor servicing on high voltage SF6 outdoor circuit breakers (Level 4) (Credits 5)	32058 Carry out routine inspection and service on a high voltage circuit breaker (Level 4) (Credits 6)
15843 Demonstrate knowledge of magnetism and electricity (Level 2) (15 Credits)	32609 Demonstrate knowledge of mathematical principles, conductors and insulators (Level 3) (7 Credits) <i>And</i> 32610 Demonstrate knowledge of voltage, power and energy, and DC circuits (Level 3) (6 Credits) <i>And</i> 32611 Demonstrate knowledge of magnetism and AC generation (Level 3) (6 Credits)
15843 Demonstrate knowledge of magnetism and electricity (Level 2) (Credits 15)	25072 Apply electromagnetic theory to a range of problems (Level 2) (Credits 5) <i>And</i> 25070 Explain the properties of conductors, insulators, and semiconductors and their effect on electrical circuits (Level 2) (Credits 7) <i>And</i> 25071 Demonstrate knowledge of electromotive force (e.m.f.) production (Level 2) (Credits 3)
15844 Select and install flexible cords (Level 2) (3 Credits) <i>And</i> 16409 Fit-off an electrical installation (Level 3) (5 Credits)	32616 Apply knowledge of common cords, cables, and electrical fittings (Level 4) (6 Credits)
15844 Select and install flexible cords (Level 3) (2 Credits) <i>And</i> 29419 Prepare for, install, test, and commission new electrical installations (Level 4) (10 Credits)	32616 Apply knowledge of common cords, cables, and electrical fittings (Level 4) (6 Credits)
15844 Select and install flexible cords (Level 3) (2 Credits) <i>And</i> 29422 Install, wire, test and fault-find, and repair power outlets and electric lighting systems in existing installations (Level 4) (7 Credits)	32616 Apply knowledge of common cords, cables, and electrical fittings (Level 4) (6 Credits)

<p>15845 Draw and explain simple electrical diagrams (Level 2) (4 Credits)</p> <p><i>And</i></p> <p>15854 Draw and interpret electrical diagrams (Level 3) (3 Credits)</p> <p><i>And</i></p> <p>1710 Demonstrate knowledge of electric lighting (Level 4) (3 Credits)</p>	<p>32620 Demonstrate knowledge of electrical plans, switching circuits, and lighting systems (Level 3) (5 Credits)</p>
<p>15848 Demonstrate and apply knowledge of safeguards for use with portable electrical appliances (Level 2) (3 Credits)</p> <p><i>And</i></p> <p>30645 Demonstrate practical application of theory and legislation for electrical appliance servicepersons (endorsed) (Level 3) (3 Credits)</p> <p><i>And</i></p> <p>29465 Apply knowledge of electrical safety and safe working practices for electrical workers (Level 3) (6 Credits)</p> <p><i>And</i></p> <p>29474 Demonstrate and apply knowledge of electrical fittings and components and their installation (Level 3) (6 Credits)</p> <p><i>And</i></p> <p>29479 Draw and explain electrical diagrams (Level 3) (4 Credits)</p> <p><i>And</i></p> <p>29480 Demonstrate knowledge of electric circuit design, control, and protection (Level 3) (6 Credits)</p>	<p>32606 Demonstrate knowledge of tools, fittings, and plans in the electrical industry (Level 3) (5 Credits)</p>
<p>15850 Demonstrate knowledge of single-phase transformers (Level 3) (3 Credits)</p> <p><i>And</i></p> <p>15864 Demonstrate knowledge of semiconductor power devices (Level 4) (4 Credits)</p>	<p>32626 Demonstrate knowledge of capacitors, inductors, and electronics in the electrical trade (Level 3) (5 Credits)</p>
<p>15850 Demonstrate knowledge of single-phase transformers (Level 3) (3 Credits)</p> <p><i>And</i></p> <p>15846 Demonstrate knowledge of capacitors and semiconductor diodes (Level 2) (3 Credits)</p>	<p>32626 Demonstrate knowledge of capacitors, inductors, and electronics in the electrical trade (Level 3) (5 Credits)</p>
<p>15850 Demonstrate knowledge of single-phase transformers (Level 3) (Credits 3)</p> <p><i>And</i></p> <p>15857 Demonstrate knowledge of three-phase transformers (Level 4) (Credits 3)</p>	<p>29473 Demonstrate knowledge of single-phase and three-phase transformers (Level 3) (Credits 3)</p> <p><i>And</i></p> <p>29445 Demonstrate and apply knowledge of single-phase and three-phase transformers (Level 4) (Credits 4)</p>
<p>15851 Demonstrate knowledge of electrical safety and safe working practices for electrical workers (Level 2) (3 Credits)</p>	<p>32630 Establish new worksites and interpret plans (Level 4) (4 Credits)</p>

And 15854 Draw and interpret electrical diagrams (Level 3) (3 Credits)	
15851 Demonstrate knowledge of electrical safety and safe working practices for electrical workers (Level 2) (3 Credits) And 15852 Isolate and test low-voltage electrical subcircuits (Level 2) (2 Credits)	32605 Demonstrate knowledge for working safely in the electrical industry (Level 3) (6 Credits)
15851 Demonstrate knowledge of electrical safety and safe working practices for electrical workers (Level 2) (Credits 3)	29465 Apply knowledge of electrical safety and safe working practices for electrical workers (Level 3) (Credits 6)
15853 Demonstrate knowledge of alternating current (a.c.) theory (Level 4) (Credits 7)	29476 Demonstrate and apply knowledge of capacitance, inductance, power factor, and power factor correction (Level 3) (Credits 7)
15854 Draw and interpret electrical diagrams (Level 3) (Credits 3) And 15845 Draw and explain simple electrical diagrams (Level 2) (Credits 4)	29479 Draw and explain electrical diagrams (Level 3) (Credits 4) And 29480 Demonstrate knowledge of electric circuit design, control, and protection (Level 3) (Credits 6)
15855 Demonstrate knowledge of circuit protection (Level 3) (3 Credits) And 1205 Demonstrate knowledge of electrical switchboards (Level 3) (3 Credits) And 1204 Demonstrate knowledge of earthing (Level 3) (Level 2)	32638 Demonstrate knowledge of earthing systems and switchboards. (Level 4) (6 Credits)
15855 Demonstrate knowledge of circuit protection (Level 3) (3 Credits) And 1205 Demonstrate knowledge of electrical switchboards (Level 3) (3 Credits) And 15856 Demonstrate knowledge of the New Zealand electricity supply system (Level 3) (2 Credits)	32638 Demonstrate knowledge of earthing systems and switchboards. (Level 4) (6 Credits)
15855 Demonstrate knowledge of circuit protection (Level 3) (3 Credits) And 29471 Demonstrate knowledge of electric switchboards and lighting and power circuits (Level 3) (2 Credits)	32623 Demonstrate knowledge of circuit protection and distribution board wiring (Level 4) (5 Credits)
15855 Demonstrate knowledge of circuit protection (Level 3) (3 Credits) And 5931 Select and install electric switchboards (Level 3) (4 Credits) And	32638 Demonstrate knowledge of earthing systems and switchboards. (Level 4) (6 Credits)



15856 Demonstrate knowledge of the New Zealand electricity supply system (Level 3) (2 Credits)	
15856 Demonstrate knowledge of the New Zealand electricity supply system (Level 3) (Credits 2)	29477 Demonstrate knowledge of the New Zealand national electricity grid and associated electrical protection (Level 3) (Credits 2)
15858 Demonstrate knowledge of a.c. motors (Level 4) (Credits 7)	29443 Demonstrate and apply knowledge of a.c. motors (Level 4) (Credits 4)
15859 Demonstrate knowledge of electrical cables and accessories (Level 3) (7 Credits)	32613 Demonstrate knowledge of cords, cables, and cable installation (Level 3) (4 Credits) <i>And</i> 32647 Install mains and submains cables. (Level 4) (5 Credits)
15859 Demonstrate knowledge of electrical cables and accessories (Level 3) (7 Credits) <i>And</i> 2016 Install earthing systems for multiple earthed neutral installations (Level 3) (3 Credits) <i>And</i> 15869 Install electrical equipment in damp situations (Level 4) (3 Credits)	32633 Install electrical equipment in damp situations and install earthing and lighting. (Level 4) (9 Credits)
15859 Demonstrate knowledge of electrical cables and accessories (Level 3) (7 Credits) <i>And</i> 5926 Demonstrate knowledge of programmable logic controllers (PLCs) (Level 4) (5 Credits)	32632 Design switching circuits and a PLC programme. (Level 4) (4 Credits)
15859 Demonstrate knowledge of electrical cables and accessories (Level 3) (Credits 7)	29469 Select and install flexible cords and cables (Level 2) (Credits 4)
15860 Demonstrate knowledge of legislation and standards governing the work of electricians (Level 3) (2 Credits)	29484 Demonstrate knowledge of theory and practice for electrical workers (Level 3) (Credits 1)
15860 Demonstrate knowledge of legislation and standards governing the work of electricians (Level 3) (2 Credits)	32612 Demonstrate knowledge of legislation, industry governance bodies and AS/NZS 3000 for the electrical industry (Level 3) (4 Credits)
15863 Demonstrate knowledge of a.c. electric motor connections, starters, and speed controllers	20962 - Demonstrate knowledge of a.c. electric motor control and installation
15866 Demonstrate and apply knowledge of and the procedures for the examination of and testing of electrical installations (Level 4) (3 Credits) <i>And</i> 29421 Inspect, test, fault-find, and repair fixed-wired electrical appliances and portable appliances (Level 3) (3 Credits)	32617 Select and use instruments for testing, fault finding, and repairing basic appliances (Level 4) (4 Credits)
15866 Demonstrate and apply knowledge of and the procedures for the examination of and testing of electrical installations (Level 4) (3 Credits) <i>And</i>	32624 Demonstrate knowledge of electrical installation testing, fault finding, and rectification of discovered faults (Level 4) (6 Credits)

29557 Apply fundamental techniques for identifying and locating faults in electrical fittings or systems (Level 3) (4 Credits)	
15866 Demonstrate procedures for examination and testing of electrical installations (Level 4) (2 Credits) <i>And</i> 16411 Fault-find, repair, and re-commission fixed-wired electrical appliances (Level 3) (4 Credits) <i>And</i> 16412 Fault-find, repair, and re-commission electric lighting (Level 3) (4 Credits)	32624 Demonstrate knowledge of electrical installation testing, fault finding, and rectification of discovered faults (Level 4) (6 Credits)
15866 Demonstrate procedures for examination and testing of electrical installations (Level 4) (2 Credits) <i>And</i> 16411 Fault-find, repair, and re-commission fixed-wired electrical appliances (Level 3) (4 Credits)	32617 Select and use instruments for testing, fault finding, and repairing basic appliances (Level 4) (4 Credits)
15867 Install, wire, and test lights in existing installations (Level 3) (5 Credits) <i>And</i> 2016 Install earthing systems for multiple earthed neutral installations (Level 3) (3 Credits) <i>And</i> 15869 Install electrical equipment in damp situations (Level 4) (3 Credits)	32633 Install electrical equipment in damp situations and install earthing and lighting. (Level 4) (9 Credits)
15867, Install, wire, and test lights in existing installations (Level 3) (5 Credits) <i>And</i> 5926 Demonstrate knowledge of programmable logic controllers (PLCs) (Level 4) (5 Credits)	32632 Design switching circuits and a PLC programme. (Level 4) (4 Credits)
15870 Inspect and test an electrical installation for compliance with AS/NZS 3000 (Level 4) (5 Credits) <i>And</i> 29422 Install, wire, test and fault-find, and repair power outlets and electric lighting systems in existing installations (Level 4) (7 Credits)	32635 Use fault-finding and fault rectification techniques on electrical installations (Level 4) (4 Credits)
15870 Inspect and test an electrical installation for compliance with AS/NZS 3000 (Level 4) (5 Credits) <i>And</i> 29421 Inspect, test, fault-find, and repair fixed-wired electrical appliances and portable appliances (Level 3) (3 Credits)	32617 Select and use instruments for testing, fault finding, and repairing basic appliances (Level 4) (4 Credits)
15870 Inspect and test an electrical installation for compliance with AS/NZS 3000 (Level 4) (5 Credits) <i>And</i> 29557 Apply fundamental techniques for identifying and locating faults in electrical fittings or systems (Level 3) (4 Credits)	32635 Use fault-finding and fault rectification techniques on electrical installations (Level 4) (4 Credits)

<p>15870 Inspect and test an electrical installation for compliance with AS/NZS 3000:2000 (Level 4) (3 Credits)</p> <p><i>And</i></p> <p>16411 Fault-find, repair, and re-commission fixed-wired electrical appliances (Level 3) (4 Credits)</p> <p><i>And</i></p> <p>16412 Fault-find, repair, and re-commission electric lighting (Level 3) (4 Credits)</p>	<p>32635 Use fault-finding and fault rectification techniques on electrical installations (Level 4) (4 Credits)</p>
<p>15870 Inspect and test an electrical installation for compliance with AS/NZS 3000:2000 (Level 4) (3 Credits)</p> <p><i>And</i></p> <p>16411 Fault-find, repair, and re-commission fixed-wired electrical appliances (Level 3) (4 Credits)</p>	<p>32617 Select and use instruments for testing, fault finding, and repairing basic appliances (Level 4) (4 Credits)</p>
<p>16278 Evaluate faults on electricity supply network plant and equipment (Level 4) (Credits 9)</p>	<p>28195 Demonstrate knowledge of fault diagnosis and power restoration on electricity supply network plant and equipment (Level 4) (Credits 4)</p>
<p>16407 Use and maintain hand and power tools for electrical work (Level 3) (3 Credits)</p> <p><i>And</i></p> <p>29474 Demonstrate and apply knowledge of electrical fittings and components and their installation (Level 3) (6 Credits)</p> <p><i>And</i></p> <p>29479 Draw and explain electrical diagrams (Level 3) (4 Credits)</p>	<p>32606 Demonstrate knowledge of tools, fittings, and plans in the electrical industry (Level 3) (5 Credits)</p> <p><i>And</i></p> <p>32608 Apply knowledge of tools, fittings, and plans in the electrical industry (Level 4) (7 Credits)</p>
<p>16407 Use and maintain hand and power tools for electrical work (Level 3) (4 Credits)</p> <p><i>And</i></p> <p>15859 Demonstrate knowledge of electrical cables and accessories (Level 3) (7 Credits)</p>	<p>32606 Demonstrate knowledge of tools, fittings, and plans in the electrical industry (Level 3) (5 Credits)</p> <p><i>And</i></p> <p>32608 Demonstrate knowledge of tools, fittings, and plans in the electrical industry (Level 3) (7 Credits)</p>
<p>16408 Pre-wire an electrical installation (Level 3) (Credits 5)</p> <p><i>And</i></p> <p>16409 Fit-off an electrical installation (Level 3) (Credits 5)</p> <p><i>And</i></p> <p>16410 Plan, install, test, and commission small electrical installations (Level 4) (Credits 5)</p>	<p>29419 Prepare for, install, test, and commission new electrical installations (Level 4) (Credits 10)</p>
<p>16410, Plan, install, test, and commission small electrical installations (Level 4) (5 Credits)</p>	<p>32647 Install mains and submains cables. (Level 4) (5 Credits)</p>
<p>16410, Plan, install, test, and commission small electrical installations (Level 4) (5 Credits)</p> <p><i>And</i></p> <p>16411 Fault-find, repair, and re-commission fixed-wired electrical appliances (Level 3) (4 Credits)</p> <p><i>And</i></p>	<p>32635 Use fault-finding and fault rectification techniques on electrical installations (Level 4) (4 Credits)</p>

16412 Fault-find, repair, and re-commission electric lighting (Level 3) (4 Credits)	
16414 Carry out planned electrical maintenance work of electrical equipment (Level 4) (6 Credits)	32653 Maintain electrical installations (Level 4) (5 Credits)
1710 Demonstrate knowledge of electric lighting (Level 4) (Credits 3)	29472 Demonstrate knowledge of electric lighting systems (Level 3) (Credits 6) <i>And</i> 29481 Apply knowledge of lighting installation, testing, repair, and disposal (Level 3) (Credits 5)
17602 Apply hazard identification and risk assessment procedures in the workplace (Level 3) (Credits 4) <i>And</i> 25046 Describe hazard identification and control, and apply risk assessment procedures under supervision in the workplace (Level 2) (Credits 2)	30265 Apply health and safety risk assessment to a job role (Level 3) (Credits 8)
18029 Carry out polarity and phasing on electricity supply networks (Level 3) (Credits 2)	23899 Describe and carry out phasing tests on high voltage electricity networks (Level 3) (Credits 2) <i>And</i> 23898 Describe and carry out polarity and phasing tests on low voltage electricity networks (Level 3) (Credits 2)
2020 Plan and install cable support systems (Level 3) (3 Credits) <i>And</i> 29419 Prepare for, install, test, and commission new electrical installations (Level 4) (10 Credits)	32621 Demonstrate knowledge of wiring support systems and cable installation (Level 3) (5 Credits)
2020 Plan and install cable support systems (Level 3) (3 Credits) <i>And</i> 29422 Install, wire, test and fault-find, and repair power outlets and electric lighting systems in existing installations (Level 4) (7 Credits)	32621 Demonstrate knowledge of wiring support systems and cable installation (Level 3) (5 Credits)
2020 Plan and install cable support systems (Level 3) (3 Credits) <i>And</i> 29469 Select and install flexible cords and cables (Level 2) (4 Credits)	32621 Demonstrate knowledge of wiring support systems and cable installation (Level 3) (5 Credits)
2020 Plan and install cable support systems (Level 3) (4 Credits) <i>And</i> 15859 Demonstrate knowledge of electrical cables and accessories (Level 3) (7 Credits)	32631 Install, join, and terminate cables (Level 4) (7 Credits)
2020 Plan and install cable support systems (Level 3) (4 Credits) <i>And</i>	32621 Demonstrate knowledge of wiring support systems and cable installation (Level 3) (5 Credits)

15859 Demonstrate knowledge of electrical cables and accessories (Level 3) (7 Credits)	
2030 Schedule and manage preventative maintenance for industrial electrical equipment (Level 5) (6 Credits)	32653 Maintain electrical installations (Level 4) (5 Credits)
20961 Demonstrate knowledge of special electrical installations (Level 4) (4 Credits) <i>And</i> 15858 Demonstrate knowledge of a.c. motors (Level 4) (7 Credits)	32625 Demonstrate knowledge of damp situations, SELV and PELV systems, and single-phase transformers (Level 3) (5 Credits)
20961 Demonstrate knowledge of special electrical installations (Level 4) (Credits 4)	29478 Demonstrate knowledge of electrical installations in special situations (Level 4) (Credits 6)
20962 Demonstrate knowledge of a.c. electric motor control and installation (Level 4) (8 Credits) <i>And</i> 16413 Fault-find, repair, and test electric motors (Level 4) (8 Credits)	32641 Demonstrate knowledge of electric motors and motor faults. (Level 4) (3 Credits)
20962 Demonstrate knowledge of a.c. electric motor control and installation (Level 4) (Credits 8)	29444 Demonstrate and apply knowledge of a.c. electric motor control and installation (Level 4) (Credits 5)
25070 Explain the properties of conductors, insulators, and semiconductors and their effect on electrical circuits (Level 2) (7 Credits)	32609 Demonstrate knowledge of mathematical principles, conductors and insulators (Level 3) (7 Credits)
25070 Explain the properties of conductors, insulators, and semiconductors and their effect on electrical circuits (Level 2) (7 Credits) <i>And</i> 25071 Demonstrate knowledge of electromotive force (e.m.f.) production (Level 2) (3 Credits)	32610 Demonstrate knowledge of voltage, power and energy, and DC circuits (Level 3) (6 Credits)
25071 Demonstrate knowledge of electromotive force (e.m.f.) production (Level 2) (3 Credits) <i>And</i> 25072 Apply electromagnetic theory to a range of problems (Level 2) (5 Credits)	32611 Demonstrate knowledge of magnetism and AC generation (Level 3) (6 Credits)
25072 Demonstrate knowledge of electromagnetism theory (Level 2) (5 Credits) <i>And</i> 15858 Demonstrate knowledge of a.c. motors (Level 4) (7 Credits)	32629 Demonstrate knowledge of electric motors and alternators (Level 4) (5 Credits)
26551 Provide first aid for life threatening conditions (Level 2) (1 Credit)	6402 Provide basic life support (Level 2) (2 Credits)
26552 Demonstrate knowledge of common first aid conditions and how to respond to them (Level 2) (1 Credit)	6401 Provide first aid (Level 2) (1 Credit)

28895 Maintain substation earthing and bonding (Level 3) (Credits 3)	32060 Install and inspect an earthing and bonding system for equipment used in the electricity supply industry (Level 4) (Credits 3)
29419 Prepare for, install, test, and commission new electrical installations (Level 4) (10 Credits)	32650 Install a complete electrical installation (Level 4) (10 Credits)
29420 Fault-find, test, and commission electric motors (Level 4) (4 Credits) <i>And</i> 29444 Demonstrate and apply knowledge of a.c. electric motor control and installation (Level 4) (5 Credits)	32641 Demonstrate knowledge of electric motors and motor faults (Level 4) (3 Credits)
29422 Install, wire, test and fault-find, and repair power outlets and electric lighting systems in existing installations (Level 4) (7 Credits)	32646 Plan circuit protection, and install and test distribution boards (Level 4) (10 Credits)
29422 Install, wire, test and fault-find, and repair power outlets and electric lighting systems in existing installations (Level 4) (7 Credits) <i>And</i> 2016 Install earthing systems for multiple earthed neutral installations (Level 3) (3 Credits) <i>And</i> 15869 Install electrical equipment in damp situations (Level 4) (3 Credits)	32633 Install electrical equipment in damp situations and install earthing and lighting (Level 4) (9 Credits)
29422 Install, wire, test and fault-find, and repair power outlets and electric lighting systems in existing installations (Level 4) (7 Credits) <i>And</i> 29434 Install and programme a PLC (Level 4) (2 Credits)	32632 Design switching circuits and a PLC programme (Level 4) (4 Credits)
29422 Install, wire, test and fault-find, and repair power outlets and electric lighting systems in existing installations (Level 4) (7 Credits) <i>And</i> 5926 Demonstrate knowledge of programmable logic controllers (PLCs) (Level 4) (3 Credits)	32632 Design switching circuits and a PLC programme (Level 4) (4 Credits)
29423 Carry out planned maintenance of electrical equipment (Level 4) (3 Credits)	32653 Maintain electrical installations (Level 4) (5 Credits)
29430 Select and install industrial electric switchboards (Level 4) (3 Credits)	32648 Install a main switchboard (Level 4) (5 Credits)
29430 Select and install industrial electric switchboards (Level 4) (3 Credits) <i>And</i> 15855 Demonstrate knowledge of circuit protection (Level 3) (3 Credits) 32634	32634 Plan circuit protection, and install and test distribution boards (Level 4) (10 Credits)
29430 Select and install industrial electric switchboards (Level 4) (Credits 3)	32059 Select and install an electric switchboard in the electricity supply industry (Level 4) (Credits 3)

29439 Schedule and manage preventative maintenance for domestic or commercial electrical equipment (Level 4) (5 Credits)	32653 Maintain electrical installations (Level 4) (5 Credits)
29465 Apply knowledge of electrical safety and safe working practices for electrical workers (Level 3) (6 Credits) <i>And</i> 15852 Isolate and test low-voltage electrical subcircuits (Level 2) (2 Credits)	32605 Demonstrate knowledge for working safely in the electrical industry (Level 3) (6 Credits)
29465 Apply knowledge of electrical safety and safe working practices for electrical workers (Level 3) (6 Credits) <i>And</i> 29429 Demonstrate and apply knowledge of safe practices in an electrical workplace (Level 4) (2 Credits) <i>And</i> 15852 Isolate and test low-voltage electrical sub-circuits (Level 2) (2 Credits)	32607 Apply knowledge of working safely in the electrical industry (Level 4) (8 Credits)
29465 Apply knowledge of electrical safety and safe working practices for electrical workers (Level 3) (6 Credits) <i>And</i> 29479 Draw and explain electrical diagrams (Level 3) (4 Credits)	32630 Establish new worksites and interpret plans (Level 4) (4 Credits)
29466 Demonstrate knowledge of legislation and Standards governing electrical workers (Level 3) (2 Credits)	32612 Demonstrate knowledge of legislation, industry governance bodies and AS/NZS 3000 for the electrical industry (Level 3) (4 Credits)
29468 Demonstrate and apply knowledge of safe plant isolation, recommissioning, and associated electrical testing procedures (Level 3) (5 Credits) <i>And</i> 15870 Inspect and test an electrical installation for compliance with AS/NZS 3000 (Level 4) (5 Credits)	32618 De-commission, test, and commission, basic electrical appliances, fittings, and equipment (Level 4) (4 Credits)
29468 Demonstrate and apply knowledge of safe plant isolation, re-commissioning, and associated electrical testing procedures (Level 3) (5 Credits) <i>And</i> 29427 Install, test, and commission electrical appliances (Level 4) (2 Credits)	32618 De-commission, test, and commission, basic electrical appliances, fittings, and equipment (Level 4) (4 Credits)
29469 Select and install flexible cords and cables (Level 2) (4 Credits) <i>And</i> 29419 Prepare for, install, test, and commission new electrical installations (Level 4) (10 Credits)	32613 Demonstrate knowledge of cords, cables, and cable installation (Level 3) (4 Credits)
29469 Select and install flexible cords and cables (Level 2) (4 Credits)	32616 Apply knowledge of common cords, cables, and electrical fittings (Level 4) (6 Credits)



<p>And</p> <p>29419 Prepare for, install, test, and commission new electrical installations (Level 4) (10 Credits)</p>	
<p>29469 Select and install flexible cords and cables (Level 2) (4 Credits)</p> <p>And</p> <p>29422 Install, wire, test and fault-find, and repair power outlets and electric lighting systems in existing installations (Level 4) (7 Credits)</p>	<p>32613 Demonstrate knowledge of cords, cables, and cable installation (Level 3) (4 Credits)</p>
<p>29469 Select and install flexible cords and cables (Level 2) (4 Credits)</p> <p>And</p> <p>29422 Install, wire, test and fault-find, and repair power outlets and electric lighting systems in existing installations (Level 4) (7 Credits)</p>	<p>32616 Apply knowledge of common cords, cables, and electrical fittings (Level 4) (6 Credits)</p>
<p>29470 Demonstrate knowledge of electric motor and generator construction and operation. (Level 3) (2 credits)</p> <p>And</p> <p>25072 Apply electromagnetic theory to a range of problems. (Level 2) (5 credits)</p> <p>And</p> <p>29483 Demonstrate and apply knowledge of single-phase and three-phase rotating machines. (Level 3) (4 Credits)</p>	<p>32629 Demonstrate knowledge of electric motors and alternators (Level 4) (5 credits)</p>
<p>29473 Demonstrate knowledge of single-phase and three-phase transformers (Level 3) (3 Credits)</p> <p>And</p> <p>29475 Demonstrate and apply knowledge of electronics (Level 3) (8 Credits)</p>	<p>32626 Demonstrate knowledge of capacitors, inductors, and electronics in the electrical trade (Level 3) (5 Credits)</p>
<p>29476 Demonstrate and apply knowledge of capacitance, inductance, power factor, and power factor correction (Level 3) (7 Credits)</p> <p>And</p> <p>29473 Demonstrate knowledge of single-phase and three-phase transformers (Level 3) (3 Credits)</p> <p>And</p> <p>29445 Demonstrate and apply knowledge of single-phase and three-phase transformers (Level 4) (Credits 4)</p>	<p>32640 Demonstrate knowledge of power factor, three-phase AC power, and transformer safety and performance (Level 4) (6 Credits)</p>
<p>29477 Demonstrate knowledge of the New Zealand national electricity grid and associated electrical protection (Level 3) (2 Credits)</p> <p>And</p> <p>5931 Select and install domestic or commercial electric switchboards (Level 4) (3 Credits)</p> <p>And</p>	<p>32638 Demonstrate knowledge of earthing systems and switchboards (Level 4) (6 Credits)</p>



15855 Demonstrate knowledge of circuit protection (Level 3) (3 Credits)	
29477 Demonstrate knowledge of the New Zealand national electricity grid and associated electrical protection (Level 3) (2 Credits) <i>And</i> 29430 Select and install industrial electric switchboards (Level 4) (3 Credits) <i>And</i> 15855 Demonstrate knowledge of circuit protection (Level 3) (3 Credits)	32638 Demonstrate knowledge of earthing systems and switchboards (Level 4) (6 Credits)
29477 Demonstrate knowledge of the New Zealand national electricity grid and associated electrical protection (Level 3) (2 Credits) <i>And</i> 29440 Demonstrate knowledge of electric switchboards (Level 4) (3 Credits) <i>And</i> 15855 Demonstrate knowledge of circuit protection (Level 3) (3 Credits)	32638 Demonstrate knowledge of earthing systems and switchboards (Level 4) (6 Credits)
29478 Demonstrate knowledge of electrical installations in special situations (Level 4) (6 Credits)	32644 Demonstrate knowledge of hazardous areas, construction and demolition sites, and special installations (Level 4) (5 Credits)
29478 Demonstrate knowledge of electrical installations in special situations (Level 4) (6 Credits) <i>And</i> 29473 Demonstrate knowledge of single-phase and three-phase transformers (Level 3) (3 Credits)	32625 Demonstrate knowledge of damp situations, SELV and PELV systems, and single-phase transformers (Level 3) (5 Credits)
29479 Draw and explain electrical diagrams (Level 3) (4 Credits) <i>And</i> 29480 Demonstrate knowledge of electric circuit design, control, and protection (Level 3) (6 Credits) <i>And</i> 29472 Demonstrate knowledge of electric lighting systems (Level 3) (6 Credits)	32620 Demonstrate knowledge of electrical plans, switching circuits, and lighting systems (Level 3) (5 Credits)
29482 Demonstrate and apply knowledge of special power supplies (Level 3) (3 Credits) <i>And</i> 29442 Demonstrate and apply knowledge of renewable energy electricity generation systems (Level 4) (4 Credits)	32643 Demonstrate knowledge of alternative energy systems (Level 4) (3 Credits)
30265 Apply health and safety risk assessment to a job role (Level 3) (Credits 8)	17602 Apply hazard identification and risk assessment procedures in the workplace (Level 3) (Credits 4)
30657 Isolate low-voltage electrical subcircuits and perform basic checks and tests to confirm isolation (Level 2) (1 Credit)	32605 Demonstrate knowledge for working safely in the electrical industry (Level 3) (6 Credits)

<p><i>And</i> 29465 Apply knowledge of electrical safety and safe working practices for electrical workers (Level 3) (6 Credits)</p>	
<p>30657 Isolate low-voltage electrical subcircuits and perform basic checks and tests to confirm isolation (Level 2) (1 Credit) <i>And</i> 30658 Demonstrate knowledge of fundamental electrical safety in the workplace (Level 2) (2 Credits)</p>	32605 Demonstrate knowledge for working safely in the electrical industry (Level 3) (6 Credits)
<p>30658 Demonstrate knowledge of fundamental electrical safety in the workplace (Level 2) (2 Credits) <i>And</i> 15852 Isolate and test low-voltage electrical subcircuits (Level 2) (2 Credits)</p>	32605 Demonstrate knowledge for working safely in the electrical industry (Level 3) (6 Credits)
5931 Select and install domestic or commercial electric switchboards (Level 4) (3 Credits)	32648 Install a main switchboard (Level 4) (5 Credits)
<p>5931 Select and install domestic or commercial electric switchboards (Level 4) (3 Credits) <i>And</i> 15855 Demonstrate knowledge of circuit protection (Level 3) (3 Credits)</p>	32634 Plan circuit protection, and install and test distribution boards (Level 4) (10 Credits)
5931 Select and install domestic or commercial electric switchboards (Level 4) (Credits 3)	32059 Select and install an electric switchboard in the electricity supply industry (Level 4) (Credits 3)
<p>750 Demonstrate knowledge of electrical test instruments and take measurements (Level 2) (2 Credits) <i>And</i> 16411 Fault-find, repair, and re-commission fixed-wired electrical appliances (Level 3) (4 Credits)</p>	32617 Select and use instruments for testing, fault finding, and repairing basic appliances (Level 4) (4 Credits)
<p>750 Demonstrate knowledge of electrical test instruments and take measurements (Level 2) (2 Credits) <i>And</i> 29421 Inspect, test, fault-find, and repair fixed-wired electrical appliances and portable appliances (Level 3) (3 Credits)</p>	32617 Select and use instruments for testing, fault finding, and repairing basic appliances (Level 4) (4 Credits)
<p>750 Demonstrate knowledge of electrical test instruments and take measurements (Level 2) (2 Credits) <i>And</i> 29466 Demonstrate knowledge of legislation and Standards governing electrical workers (Level 3) (2 Credits) <i>And</i> 15855 Demonstrate knowledge of circuit protection (Level 3) (3 Credits) <i>And</i></p>	32614 Demonstrate knowledge of electrical faults, circuit protection, commissioning, and de-commissioning (Level 3) (6 Credits)

29468 Demonstrate and apply knowledge of safe plant isolation, re-commissioning, and associated electrical testing procedures (Level 3) (5 Credits)	
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### 3. CREDIT TRANSFER

#### Waihangā Ara Rau WDC Pre-approved Credit Transfer

This allows prior award of a unit standard to be a valid assessment tool to achieve additional unit standards identified in this programme. This is quality assured by Waihangā Ara Rau WDC.

#### Process:

Providers must confirm the Apprentice entering the programme has the unit standard(s) listed in the left-hand column on their NZQA Record of Learning and does not have the ones on the right.

Upon confirmation, the listed unit standards in the right-hand column of the same row should be awarded by the provider.

Credit for	Can be awarded
21766 Demonstrate knowledge of theory for registration of electricians (Level 4) (3 Credits)	29484 Demonstrate intermediate knowledge for working in electrical trades (Level 3) (1 Credit)  And  32619 Demonstrate fundamental knowledge for working in electrical trades (Level 3) (1 Credit)
29484 Demonstrate intermediate knowledge for working in electrical trades (Level 3) (1 Credit)	32619 Demonstrate fundamental knowledge for working in electrical trades (Level 3) (1 Credit)
1702 Demonstrate knowledge of, and apply electrical legislation, codes of practice, and standards (Level 4) (8 Credits)  And  29469 Select and install flexible cords and cables (Level 2) (4 Credits)	32639 Demonstrate knowledge of cable selection, underground cable systems, and specialised cables (Level 4) (4 Credits)