

# Programme Regulations for:

## Vocational Pathway - Manufacturing and Technology Sector

Programmes leading to the National Certificate in Educational Achievement (Level 2)

|                     |                   |                        |            |
|---------------------|-------------------|------------------------|------------|
| <b>Wintec code:</b> | YP1503            | <b>MoE code:</b>       | NCEP2T     |
| <b>Level:</b>       | 2                 | <b>Credits:</b>        | 29 credits |
| <b>Owner:</b>       | Centre for Trades | <b>Effective Date:</b> | 1/1/2022   |

These regulations should be read in conjunction with the Institute's Academic Regulations.

### 1. Admission and Entry

#### 1.1 General Academic Admission

There is open entry into this programme, although candidates must demonstrate a reasonable likelihood of success.

#### 1.2 Selection Criteria

As part of the selection process candidates may be required to attend an interview. It is required that candidates have not yet achieved the National Certificate in Educational Achievement Level 2 (NCEA L2), are enrolled at a secondary school and currently working towards this qualification.

#### 1.3 English Language Requirements

Candidates who have English as a second language are required to have an International English Language Test System (IELTS) score of 5.5, with no individual band score lower than 5.0; or equivalent.

### 2. Transfer of Credit

Transfer of credit regulations do not apply to this programme.

### 3. Programme Requirements

3.1 Each candidate's programme of study shall comprise optional modules totalling 80 credits from the schedule of modules in section 5 of these regulations, as follows:

- a) All 20 credits from Section A: Literacy and Numeracy;
- b) A total of 60 credits from sections B & C
  - a. With a minimum of 20 credits from Section C: Sector-related standards

### 4. Award of the Qualification

4.1 Students must apply to the New Zealand Qualifications Authority to confirm their eligibility for the award of the National Certificate of Educational Achievement Level 2 with a vocational pathway in Manufacturing and Technology.

# Programme Regulations for:

## 5. Schedule of Modules

### Section A: Literacy and Numeracy Requirements

|          | Number / Code | Title   | Level | Version | Credits | Assessment Standard Type | Expiry Date | Delivery Year |
|----------|---------------|---|-------|---------|---------|--------------------------|-------------|---------------|
| LITERACY | 26622         | Write to communicate ideas for a purpose and audience |       |         | 4       | Unit Standard            |             |               |
|          | 26624         | Read texts with understanding                         |       |         | 3       | Unit Standard            |             |               |
|          | 26625         | Actively participate in spoken interactions           |       |         | 3       | Unit Standard            |             |               |
| NUMERACY | 26623         | Use number to solve problems                          |       |         | 4       | Unit Standard            |             |               |
|          | 26626         | Interpret statistical information for a purpose       |       |         | 3       | Unit Standard            |             |               |
|          | 26627         | Use measurement to solve problems                     |       |         | 3       | Unit Standard            |             |               |

### Section B: Recommended Standards for Manufacturing and Technology

|                            | Number / Code | Title  | Level | Version | Credits | Assessment Standard Type | Expiry Date | Delivery Year |
|----------------------------|---------------|--|-------|---------|---------|--------------------------|-------------|---------------|
| MATHEMATICS AND STATISTICS | 91256         | Apply co-ordinate geometry methods in solving problems |       |         | 2       | Achievement Standard     |             |               |
|                            | 91257         | Apply graphical methods in solving problems            |       |         | 4       | Achievement Standard     |             |               |
|                            | 91258         | Apply sequences and series in solving problems         |       |         | 2       | Achievement Standard     |             |               |
|                            | 91259         | Apply trigonometric relationships in solving problems  |       |         | 3       | Achievement Standard     |             |               |
|                            | 91260         | Apply network methods in solving problems              |       |         | 2       | Achievement Standard     |             |               |
|                            | 91261         | Apply algebraic methods in solving problems            |       |         | 2       | Achievement Standard     |             |               |

# Programme Regulations for:

|                    | Number / Code | Title   | Level | Version | Credits | Assessment Standard Type | Expiry Date | Delivery Year |
|--------------------|---------------|---|-------|---------|---------|--------------------------|-------------|---------------|
|                    | 91262         | Apply calculus methods in solving problems  |       |         | 4       | Achievement Standard     |             |               |
| GENERIC COMPUTING  | 2781          | Manage and protect data in a personal computer system                                     |       |         | 3       | Unit Standard            |             |               |
|                    | 2783          | Demonstrate knowledge of the components of personal computer systems                      |       |         | 3       | Unit Standard            |             |               |
|                    | 2784          | Create and use a computer spreadsheet to solve a problem                                  |       |         | 3       | Unit Standard            |             |               |
|                    | 2786          | Create and use a computer database to solve a problem                                     |       |         | 3       | Unit Standard            |             |               |
|                    | 2788          | Produce desktop published documents to meet a set brief                                   |       |         | 5       | Unit Standard            |             |               |
|                    | 2790          | Use and maintain personal computer peripherals  |       |         | 3       | Unit Standard            |             |               |
|                    | 2791          | Integrate spreadsheet and database data into word processed documents to meet a set brief |       |         | 3       | Unit Standard            |             |               |
|                    | 5940          | Produce a presentation using a desktop presentation computer application                  |       |         | 3       | Unit Standard            |             |               |
|                    | 5957          | Produce schematic diagrams using a computer application                                   |       |         | 2       | Unit Standard            |             |               |
|                    | 20332         | Use the Internet for information retrieval in an organisation                             |       |         | 3       | Unit Standard            |             |               |
|                    | 25662         | Use digital communications technologies   |       |         | 3       | Unit Standard            |             |               |
| GENERIC TECHNOLOGY | 91354         | Undertake brief development to address an issue   |       |         | 4       | Achievement Standard     |             |               |
|                    | 91355         | Select and use planning tools to manage the development of an outcome                     |       |         | 4       | Achievement Standard     |             |               |
|                    | 91358         | Demonstrate understanding of how technological modelling supports risk management         |       |         | 4       | Achievement Standard     |             |               |

# Programme Regulations for:

| Number / Code | Title   | Level | Version | Credits | Assessment Standard Type | Expiry Date | Delivery Year |
|---------------|---|-------|---------|---------|--------------------------|-------------|---------------|
| 91359         | Demonstrate understanding of the role of material evaluation in product development                         |       |         | 4       | Achievement Standard     |             |               |
| 91360         | Demonstrate understanding of redundancy and reliability in technological systems                            |       |         | 4       | Achievement Standard     |             |               |
| 91361         | Demonstrate understanding of sociocultural factors, and how competing priorities are managed, in technology |       |         | 4       | Achievement Standard     |             |               |
| 91362         | Demonstrate understanding of the nature of technological outcomes   |       |         | 4       | Achievement Standard     |             |               |
| 91363         | Demonstrate understanding of sustainability in design   |       |         | 4       | Achievement Standard     |             |               |
| 91365         | Demonstrate understanding of advanced concepts used in manufacturing  |       |         | 4       | Achievement Standard     |             |               |

## Section C: Sector-related Standards for Manufacturing and Technology

| Number/ Code | Title   | Level | Version | Credits | Assessment Standard Type | Expiry Date | Delivery Year |
|--------------|---|-------|---------|---------|--------------------------|-------------|---------------|
| TE00229B     | Identify the general locations and functions of motor vehicle systems and main components | 2     | 10      | 4       | Unit Standard            | NA          | 2015          |
| TC02387      | Assemble mechanical components under supervision  | 2     | 7       | 2       | Unit Standard            | NA          | 2019          |
| TE02395B     | Select, use, and care for, engineering hand tools   | 2     | 9       | 4       | Unit Standard            | NA          | 2015          |
| TE15849      | Perform manual soldering and de-soldering procedures for electrotechnology work           | 2     | 6       | 2       | Unit Standard            | NA          | 2015          |
| TE18243      | Construct simple electronic products from supplied circuit schematics                     | 2     | 8       | 6       | Unit Standard            | NA          | 2015          |
| TE21671B     | Carry out general engineering tasks in the motor industry                                 | 2     | 2       | 4       | Unit Standard            | NA          | 2015          |
| TC29674      | DKO mechanical fasteners used in mechanical engineering                                   | 2     | 1       | 3       | Unit Standard            | NA          | 2019          |
| TE21718      | Demonstrate knowledge of hazardous materials used in the motor and related industries     | 2     | 2       | 2       | Unit Standard            | NA          | 2015          |

# Programme Regulations for:

|         |  |   |   |   |               |    |      |
|---------|--|---|---|---|---------------|----|------|
| T21911  | Demonstrate knowledge of safety on engineering worksites                                     | 2 | 3 | 2 | Unit Standard | NA | 2015 |
| AS1178  | Follow safe practices in an electrical workplace   | 2 |   | 3 | Unit Standard |    |      |
| AS14995 | Construct free-hand drawings for use in furniture making                                     | 2 |   | 2 | Unit Standard |    |      |
| AS15845 | Draw and explain simple electrical diagrams  | 2 |   | 4 | Unit Standard |    |      |
| AS15846 | Demonstrate knowledge of capacitors and semiconductor diodes                                 | 2 |   | 3 | Unit Standard |    |      |
| AS15847 | Demonstrate knowledge of mathematics and mechanics for electrical trades                     | 2 |   | 4 | Unit Standard |    |      |
| AS15848 | Demonstrate knowledge of safeguards for use with portable electrical appliances              | 2 |   | 2 | Unit Standard |    |      |
| AS15851 | Demonstrate knowledge of electrical safety and safe working practices for electrical workers | 2 |   | 3 | Unit Standard |    |      |
| AS15852 | Isolate and test low-voltage electrical sub circuits   | 2 |   | 2 | Unit Standard |    |      |
| AS16113 | Demonstrate knowledge of safe working practices in an automotive workshop                    | 2 |   | 2 | Unit Standard |    |      |
| AS16231 | Calculate lengths, areas, and costs and percentages of waste for furniture making            | 2 |   | 3 | Unit Standard |    |      |
| AS16235 | Demonstrate knowledge of manufactured boards used in furniture operations                    | 2 |   | 4 | Unit Standard |    |      |
| AS18239 | Demonstrate introductory knowledge of circuit concepts and measurements for electronics      | 2 |   | 5 | Unit Standard |    |      |
| AS18240 | Demonstrate knowledge of basic electronic components   | 2 |   | 5 | Unit Standard |    |      |
| AS18241 | Demonstrate knowledge of basic electronic systems  | 2 |   | 5 | Unit Standard |    |      |
| AS18242 | Construct a simple printed circuit   | 2 |   | 3 | Unit Standard |    |      |
| AS18917 | Construct hand joints for furniture  | 2 |   | 3 | Unit Standard |    |      |
| AS18918 | Construct a furniture carcass  | 2 |   | 6 | Unit Standard |    |      |
| AS20917 | Demonstrate basic knowledge of engineering materials   | 2 |   | 2 | Unit Standard |    |      |
| AS21667 | Demonstrate knowledge of testing automotive electrical circuits                              | 2 |   | 3 | Unit Standard |    |      |
| AS21668 | Demonstrate knowledge of cleaning automotive components                                      | 2 |   | 2 | Unit Standard |    |      |
| AS21669 | Demonstrate knowledge of hand tools and workshop equipment for motor industry applications   | 2 |   | 2 | Unit Standard |    |      |
| AS21670 | Demonstrate knowledge of general engineering tasks in the motor industry                     | 2 |   | 3 | Unit Standard |    |      |
| AS21672 | Demonstrate knowledge of new and emerging technology in the motor industry                   | 2 |   | 5 | Unit Standard |    |      |

# Programme Regulations for:

|         |  |   |  |   |               |  |  |
|---------|--|---|--|---|---------------|--|--|
| AS21673 | Demonstrate knowledge of maintaining stock security in the motor and related industries            | 2 |  | 2 | Unit Standard |  |  |
| AS21674 | Demonstrate knowledge of terminology used in the motor industry                                    | 2 |  | 2 | Unit Standard |  |  |
| AS21675 | Demonstrate knowledge of automotive batteries  | 2 |  | 2 | Unit Standard |  |  |
| AS21676 | Select test equipment and test an automotive electrical circuit                                    | 2 |  | 4 | Unit Standard |  |  |
| AS21677 | Demonstrate knowledge of a diesel fuel system  | 2 |  | 2 | Unit Standard |  |  |
| AS21680 | Demonstrate knowledge of automotive lubricants and sealants  | 2 |  | 2 | Unit Standard |  |  |
| AS21682 | Demonstrate knowledge of an oxy-acetylene welding plant in the motor industry                      | 2 |  | 2 | Unit Standard |  |  |
| AS21683 | Demonstrate knowledge of MIG welding in the motor industry   | 2 |  | 2 | Unit Standard |  |  |
| AS21684 | Use a MIG welding plant in the motor industry  | 2 |  | 3 | Unit Standard |  |  |
| AS21685 | Use an oxy-acetylene welding plant in the motor industry   | 2 |  | 3 | Unit Standard |  |  |
| AS21688 | Demonstrate knowledge of disassembling and reassembling a four stroke multi-cylinder engine        | 2 |  | 3 | Unit Standard |  |  |
| AS21689 | Demonstrate knowledge of hydraulic brake fluid, fluid replacement, and brake bleeding procedures   | 2 |  | 2 | Unit Standard |  |  |
| AS21690 | Perform general servicing checks on a motor vehicle  | 2 |  | 3 | Unit Standard |  |  |
| AS21692 | Perform minor servicing tasks on a diesel fuel system  | 2 |  | 2 | Unit Standard |  |  |
| AS21694 | Mask a repair for priming; and prime, fill, and sand a repair in the motor body industry           | 2 |  | 3 | Unit Standard |  |  |
| AS21695 | Repair minor panel damage, shrink, and metal finish a repair in the motor body industry            | 2 |  | 3 | Unit Standard |  |  |
| AS21696 | Apply finish coats of paint to a complete panel in the motor body industry                         | 2 |  | 2 | Unit Standard |  |  |
| AS21697 | Demonstrate knowledge of repairing minor panel damage and shrinking a repair in the motor industry | 2 |  | 2 | Unit Standard |  |  |
| AS21698 | Remove and replace exterior and interior motor body parts and trim in the motor industry           | 2 |  | 3 | Unit Standard |  |  |
| AS21699 | Prepare a painted surface and prepare bare metal for painting in the motor body industry           | 2 |  | 3 | Unit Standard |  |  |
| AS21701 | Demonstrate knowledge of exterior and interior motor body parts and trim in the motor industry     | 2 |  | 2 | Unit Standard |  |  |

# Programme Regulations for:

|         |  |   |  |    |               |  |  |
|---------|--|---|--|----|---------------|--|--|
| AS21710 | Fill and sand a repair in the motor body industry  | 2 |  | 1  | Unit Standard |  |  |
| AS21716 | Select and apply lubricants and sealants for automotive and related industry applications        | 2 |  | 1  | Unit Standard |  |  |
| AS21719 | Remove and replace motor vehicle lamps in the motor industry                                     | 2 |  | 1  | Unit Standard |  |  |
| AS21720 | Demonstrate knowledge of vehicle braking systems   | 2 |  | 2  | Unit Standard |  |  |
| AS21721 | Demonstrate knowledge of vehicle steering and suspension systems                                 | 2 |  | 2  | Unit Standard |  |  |
| AS21858 | Demonstrate good work habits and perform safe work practices in the motor and related industries | 2 |  | 4  | Unit Standard |  |  |
| AS21859 | Select and use hand tools and workshop equipment for an automotive application                   | 2 |  | 2  | Unit Standard |  |  |
| AS21905 | Demonstrate knowledge of trade calculations and units for mechanical engineering trades          | 2 |  | 6  | Unit Standard |  |  |
| AS21906 | Perform basic mechanical engineering machining operations under supervision                      | 2 |  | 12 | Unit Standard |  |  |
| AS21907 | Demonstrate and apply knowledge of safe welding procedures under supervision                     | 2 |  | 3  | Unit Standard |  |  |
| AS21908 | Demonstrate knowledge of basic mechanics for mechanical engineering trades                       | 2 |  | 3  | Unit Standard |  |  |
| AS21909 | Demonstrate knowledge of fasteners used in mechanical engineering                                | 2 |  | 1  | Unit Standard |  |  |
| AS21913 | Shift loads in engineering installation, maintenance, and fabrication work                       | 2 |  | 2  | Unit Standard |  |  |
| AS2199  | Use and maintain hand tools for furniture making   | 2 |  | 4  | Unit Standard |  |  |
| AS230   | Repair and manufacture automotive components by oxy-acetylene gas welding                        | 2 |  | 3  | Unit Standard |  |  |
| AS231   | Explain the operation of two and four stroke petrol and diesel engines                           | 2 |  | 4  | Unit Standard |  |  |
| AS232   | Test an automotive electrical circuit  | 2 |  | 8  | Unit Standard |  |  |
| AS234   | Describe automotive starting and charging systems and their operation                            | 2 |  | 4  | Unit Standard |  |  |
| AS235   | Describe automotive ignition systems and their operation   | 2 |  | 4  | Unit Standard |  |  |
| AS2387  | Assemble mechanical components under supervision   | 2 |  | 2  | Unit Standard |  |  |
| AS239   | Demonstrate knowledge of automotive manual transmissions   | 2 |  | 2  | Unit Standard |  |  |
| AS2396  | Select, use and maintain portable hand held engineering power tools                              | 2 |  | 4  | Unit Standard |  |  |
| AS240   | Demonstrate knowledge of petrol fuel systems   | 2 |  | 3  | Unit Standard |  |  |
| AS242   | Change the fluid and bleed a brake hydraulic system  | 2 |  | 2  | Unit Standard |  |  |

# Programme Regulations for:

|         |  |   |  |    |                      |  |  |
|---------|--|---|--|----|----------------------|--|--|
| AS2430  | Manually produce and interpret engineering sketches under supervision  | 2 |  | 4  | Unit Standard        |  |  |
| AS2431  | Manually produce and interpret simple engineering component drawings under supervision                       | 2 |  | 8  | Unit Standard        |  |  |
| AS2432  | Manually construct plane geometric shapes for engineering  | 2 |  | 3  | Unit Standard        |  |  |
| AS2433  | Produce simple engineering component drawings using CAD software   | 2 |  | 6  | Unit Standard        |  |  |
| AS247   | Prepare a vehicle and/or machine for use and shutdown after use  | 2 |  | 2  | Unit Standard        |  |  |
| AS25070 | Explain the properties of conductors, insulators, and semiconductors and their effect on electrical circuits | 2 |  | 7  | Unit Standard        |  |  |
| AS25071 | Demonstrate knowledge of electromotive force (e.m.f.) production   | 2 |  | 3  | Unit Standard        |  |  |
| AS25072 | Demonstrate knowledge of electromagnetism theory   | 2 |  | 5  | Unit Standard        |  |  |
| AS25075 | Perform basic fabrication operations under supervision   | 2 |  | 12 | Unit Standard        |  |  |
| AS3856  | Identify emergency procedures in the motor and related industries  | 2 |  | 2  | Unit Standard        |  |  |
| AS3877  | Demonstrate knowledge of protecting vehicle electronics in the motor industry                                | 2 |  | 2  | Unit Standard        |  |  |
| AS399   | Detail and groom a vehicle   | 2 |  | 4  | Unit Standard        |  |  |
| AS4435  | Select, use, and care for engineering dimensional measuring equipment  | 2 |  | 3  | Unit Standard        |  |  |
| AS4436  | Select, use, and care for engineering marking-out equipment  | 2 |  | 4  | Unit Standard        |  |  |
| AS5907  | Work safely with electrical equipment  | 2 |  | 1  | Unit Standard        |  |  |
| AS5922  | Use cutting tools and machines in the performance of electrical installation and maintenance                 | 2 |  | 2  | Unit Standard        |  |  |
| AS5934  | Prevent electrostatic damage to electronic components  | 2 |  | 1  | Unit Standard        |  |  |
| AS6626  | Demonstrate knowledge of electrical and electronic components  | 2 |  | 3  | Unit Standard        |  |  |
| AS750   | Demonstrate knowledge of electrical test instruments and take measurements                                   | 2 |  | 2  | Unit Standard        |  |  |
| AS91338 | Produce working drawings to communicate technical details of a design  | 2 |  | 4  | Achievement Standard |  |  |
| AS91339 | Produce instrumental perspective projection drawings to communicate design ideas                             | 2 |  | 3  | Achievement Standard |  |  |
| AS91344 | Implement advanced procedures using resistant materials to make a specified product with special features    | 2 |  | 6  | Achievement Standard |  |  |



# Programme Regulations for:

|         |   |   |  |   |                      |  |  |
|---------|---|---|--|---|----------------------|--|--|
| AS91345 | Implement advanced procedures using textile materials to make a specified product with special features           | 2 |  | 6 | Achievement Standard |  |  |
| AS91346 | Demonstrate understanding of advanced concepts used to make textile products                                      | 2 |  | 4 | Achievement Standard |  |  |
| AS91347 | Demonstrate understanding of advanced concepts used to make products  | 2 |  | 4 | Achievement Standard |  |  |
| AS91348 | Demonstrate understanding of advanced concepts related to structural frameworks                                   | 2 |  | 3 | Achievement Standard |  |  |
| AS91349 | Demonstrate understanding of advanced concepts related to machines  | 2 |  | 3 | Achievement Standard |  |  |
| AS91350 | Make advanced adaptations to a pattern to change the structural and style features of a design                    | 2 |  | 4 | Achievement Standard |  |  |
| AS91351 | Implement advanced procedures to process a specified product  | 2 |  | 4 | Achievement Standard |  |  |
| AS91352 | Demonstrate understanding of advanced concepts used in processing   | 2 |  | 4 | Achievement Standard |  |  |
| AS91353 | Demonstrate understanding of advanced concepts used in preservation and packaging for product storage             | 2 |  | 4 | Achievement Standard |  |  |
| AS91357 | Undertake effective development to make and trial a prototype   | 2 |  | 6 | Achievement Standard |  |  |
| AS91360 | Demonstrate understanding of redundancy and reliability in technological systems                                  | 2 |  | 4 | Achievement Standard |  |  |
| AS91365 | Demonstrate understanding of advanced concepts used in manufacturing  | 2 |  | 4 | Achievement Standard |  |  |
| AS91366 | Undertake development and implementation of an effective manufacturing process                                    | 2 |  | 6 | Achievement Standard |  |  |
| AS91367 | Demonstrate understanding of advanced concepts relating to managing shared information within information systems | 2 |  | 3 | Achievement Standard |  |  |
| AS91368 | Implement advanced procedures to produce a specified digital information outcome with dynamically linked data     | 2 |  | 6 | Achievement Standard |  |  |
| AS91369 | Demonstrate understanding of advanced concepts of digital media   | 2 |  | 4 | Achievement Standard |  |  |
| AS91370 | Implement advanced procedures to produce a specified digital media outcome  | 2 |  | 4 | Achievement Standard |  |  |
| AS91371 | Demonstrate understanding of advanced concepts from computer science  | 2 |  | 4 | Achievement Standard |  |  |

# Programme Regulations for:

|         |  |   |  |   |                      |  |  |
|---------|--|---|--|---|----------------------|--|--|
| AS91372 | Construct a plan for an advanced computer program for a specified task                             | 2 |  | 3 | Achievement Standard |  |  |
| AS91373 | Construct an advanced computer program for a specified task  | 2 |  | 3 | Achievement Standard |  |  |
| AS91374 | Demonstrate understanding of advanced concepts used in the construction of electronic environments | 2 |  | 3 | Achievement Standard |  |  |
| AS91375 | Implement advanced interfacing procedures in a specified electronic environment                    | 2 |  | 3 | Achievement Standard |  |  |
| AS91376 | Implement advanced techniques in constructing a specified advanced electronic and embedded system  | 2 |  | 3 | Achievement Standard |  |  |
| AS91377 | Demonstrate understanding of local area network technologies                                       | 2 |  | 3 | Achievement Standard |  |  |
| AS91378 | Implement procedures for administering a local area network  | 2 |  | 4 | Achievement Standard |  |  |
| AS924   | Clean automotive components and maintain cleaning equipment  | 2 |  | 1 | Achievement Standard |  |  |
| AS9786  | Set and operate a sanding machine to sand shaped furniture components                              | 2 |  | 2 | Achievement Standard |  |  |