

# New Zealand Diploma in Engineering (NZDE)

**DRAFT 11**

## CIVIL MAJOR

<i>Year 1 – Levels 4 and 5</i>		<i>Year 2 – Levels 5 and 6</i>	
<b>Engineering Fundamentals L4</b>  DE4101 Common Compulsory	<b>Land Surveying 1 L4</b>  DE4202 Civil Compulsory	<b>Civil &amp; Structural Drawing L5</b>  DE5202 Civil Compulsory	<b>Engineering Project (Civil) L6</b>  DE6299 Civil Compulsory
<b>Mathematics 1 L4</b>  DE4102 Common Compulsory	<b>Geotechnical Engineering 1 L4</b>  DE4203 Civil Compulsory	<b>Hydraulics L5</b>  DE5203 Civil Compulsory	<b>Engineering Management L6</b>  DE6101 Common Compulsory
<b>Technical Literacy L4</b>  DE4103 Common Compulsory	<b>Highway Engineering 1 L5</b>  DE5204 Civil Compulsory	<b>Elective L5 or L6</b>	<b>Elective L6</b>
<b>Materials (Civil) L4</b>  DE4201 Civil Compulsory	<b>Structures 1 L5</b>  DE5201 Civil Compulsory	<b>Elective L6</b>	<b>Elective L6</b>
Year 1 = 120 credits		Year 2 = 120 credits	

Note: Electives within the Civil major are to be selected from courses within the programme with a coherent relationship to that major. A list of electives applicable to the Civil major are included in this document. In exceptional circumstances, an elective from outside the programme may be selected with approval from the Programme Committee/ Head of School.

All courses are 15 credits.

## **New Zealand Diploma in Engineering (NZDE)**

### **Civil Major - Elective Options**

- DE5205 Engineering Surveying L5
- DE5206 Structures 2 L5
  
- DE6201 Geotechnical Engineering 2 L6
- DE6202 Highway Engineering 2 L6
- DE6203 Traffic Engineering L6
- DE6204 Structures 3 L6
- DE6205 Water Engineering L6
- DE6206 Public Health Engineering L6
- DE6207 Land Surveying 2 L6

## New Zealand Diploma in Engineering (NZDE)

### ELECTRICAL MAJOR - Power Specialisation

<i>Year 1 – Levels 4 and 5</i>		<i>Year 2 – Levels 5 and 6</i>	
<b>Engineering Fundamentals L4</b>  DE4101 Common Compulsory	<b>Power Engineering L5</b>  DE5401 Power Compulsory	<b>Electrical Machines L5</b>  DE5404 Power Compulsory	<b>Engineering Project (Electrical) L6</b>  DE6499 Electrical Compulsory
<b>Mathematics 1 L4</b>  DE4102 Common Compulsory	<b>PLC Programming 1 L5</b>  DE5402 Power Compulsory	<b>Elective L4 or L5 or L6</b>	<b>Engineering Management L6</b>  DE6101 Common Compulsory
<b>Technical Literacy L4</b>  DE4103 Common Compulsory	<b>Electronics and Electrical Applications L4</b>  DE4402 Power Compulsory	<b>Elective L5 or L6</b>	<b>Power Systems 1 L6</b>  DE6401 Power Compulsory
<b>Electrical and Electronic Principles 1 L4</b>  DE4401 Electrical Compulsory	<b>Electrical and Electronic Principles 2 L5</b>  DE5403 Electrical Compulsory	<b>Elective L6</b>	<b>Elective L6</b>
Year 1 = 120 credits		Year 2 = 120 credits	

**Note:** Electives within the Electrical major are to be selected from courses within that major, or courses from the programme with a coherent relationship to that major. A list of additional electives applicable to the Electrical major are included in this document. In exceptional circumstances, an elective from outside the programme may be selected with approval from the Programme Committee/ Head of School.

All courses are 15 credits.

## New Zealand Diploma in Engineering (NZDE)

### ELECTRICAL MAJOR - Electronics Specialisation

<i>Year 1 – Levels 4 and 5</i>		<i>Year 2 – Levels 5 and 6</i>	
<b>Engineering Fundamentals L4</b>  DE4101 Common Compulsory	<b>Computer Programming 1 L5</b>  DE5405 Electronics Compulsory	<b>Electronics 2 L5</b>  DE5407 Electronics Compulsory	<b>Engineering Project (Electrical) L6</b>  DE6499 Electrical Compulsory
<b>Mathematics 1 L4</b>  DE4102 Common Compulsory	<b>Microcontrollers 1 L5</b>  DE5406 Electronics Compulsory	<b>Elective L4 or L5 or L6</b>	<b>Engineering Management L6</b>  DE6101 Common Compulsory
<b>Technical Literacy L4</b>  DE4103 Common Compulsory	<b>Electronics and Electrical Applications L4</b>  DE4402 Electronics Compulsory	<b>Elective L5 or L6</b>	<b>Electronics 3 L6</b>  DE6402 Electronics Compulsory
<b>Electrical and Electronic Principles 1 L4</b>  DE4401 Electrical Compulsory	<b>Electrical and Electronic Principles 2 L5</b>  DE5403 Electrical Compulsory	<b>Elective L6</b>	<b>Elective L6</b>
Year 1 = 120 credits		Year 2 = 120 credits	

**Note:** Electives within the Electrical major are to be selected from courses within that major, or courses from the programme with a coherent relationship to that major. A list of additional electives applicable to the Electrical major are included in this document. In exceptional circumstances, an elective from outside the programme may be selected with approval from the Programme Committee/ Head of School.

All courses are 15 credits.

## New Zealand Diploma in Engineering (NZDE)

### ELECTRICAL MAJOR - Computer Specialisation

<i>Year 1 – Levels 4 and 5</i>		<i>Year 2 – Levels 5 and 6</i>	
<b>Engineering Fundamentals L4</b>  DE4101 Common Compulsory	<b>Computer Programming 1 L5</b>  DE5405 Computer Compulsory	<b>PC Engineering 1 L5</b>  DE5409 Computer Compulsory	<b>Engineering Project (Electrical) L6</b>  DE6499 Electrical Compulsory
<b>Mathematics 1 L4</b>  DE4102 Common Compulsory	<b>Network Engineering 1 L5</b>  DE5408 Computer Compulsory	<b>Network Engineering 2 L5</b>  DE5410 Computer Compulsory	<b>Engineering Management L6</b>  DE6101 Common Compulsory
<b>Technical Literacy L4</b>  DE4103 Common Compulsory	<b>Microcontrollers 1 L5</b>  DE5406 Computer Compulsory	<b>Elective L4 or L5 or L6</b>	<b>PC Engineering 2 L6</b>  DE6403 Computer Compulsory
<b>Electrical and Electronic Principles 1 L4</b>  DE4401 Electrical Compulsory	<b>Electrical and Electronic Principles 2 L5</b>  DE5403 Electrical Compulsory	<b>Elective L6</b>	<b>Elective L6</b>
Year 1 = 120 credits		Year 2 = 120 credits	

**Note:** Electives within the Electrical major are to be selected from courses within that major, or courses from the programme with a coherent relationship to that major. A list of additional electives applicable to the Electrical major are included in this document. In exceptional circumstances, an elective from outside the programme may be selected with approval from the Programme Committee/ Head of School.

All courses are 15 credits.

## New Zealand Diploma in Engineering (NZDE)

### ELECTRICAL MAJOR - Telecommunications Specialisation

<i>Year 1 – Levels 4 and 5</i>		<i>Year 2 – Levels 5 and 6</i>	
<b>Engineering Fundamentals L4</b>  DE4101 Common Compulsory	<b>Signal Processing 1 L5</b>  DE5411 Telecommunications Compulsory	<b>Telecommunications 1 L5</b>  DE5412 Telecommunications Compulsory	<b>Engineering Project (Electrical) L6</b>  DE6499 Electrical Compulsory
<b>Mathematics 1 L4</b>  DE4102 Common Compulsory	<b>Network Engineering 1 L5</b>  DE5408 Telecommunications Compulsory	<b>Telecommunications 2 L6</b>  DE6404 Telecommunications Compulsory	<b>Engineering Management L6</b>  DE6101 Common Compulsory
<b>Technical Literacy L4</b>  DE4103 Common Compulsory	<b>Electronics and Electrical Applications L4</b>  DE4402 Telecommunications Compulsory	<b>Elective L4 or L5 or L6</b>	<b>Telecommunications 3 L6</b>  DE6405 Telecommunications Compulsory
<b>Electrical and Electronic Principles 1 L4</b>  DE4401 Electrical Compulsory	<b>Electrical and Electronic Principles 2 L5</b>  DE5403 Electrical Compulsory	<b>Elective L5 or L6</b>	<b>Elective L6</b>
Year 1 = 120 credits		Year 2 = 120 credits	

**Note:** Electives within the Electrical major are to be selected from courses within that major, or courses from the programme with a coherent relationship to that major. A list of additional electives applicable to the Electrical major are included in this document. In exceptional circumstances, an elective from outside the programme may be selected with approval from the Programme Committee/ Head of School.

All courses are 15 credits.

## **New Zealand Diploma in Engineering (NZDE)**

### **Electrical Major - Additional Elective Options**

- DE5413 Power Protection Systems 1 L5
- DE5414 Electronic Manufacturing 1 L5
- DE5415 Illumination 1 L5
- DE5416 Emerging Technologies and Systems L5
- DE5417 Instrumentation and Control Systems L5
- DE5418 Mathematics 2 L5
  
- DE6406 Power Protection Systems 2 L6
- DE6407 Power Electronics L6
- DE6408 Electronic Manufacturing 2 L6
- DE6409 Electrical Building Services L6
- DE6410 Generation and Sustainable Energy L6
- DE6411 PLC Programming 2 L6
- DE6412 Computer Programming 2 L6
- DE6413 Industrial Automation Engineering L6
- DE6414 Advanced Instrumentation and Control Systems L6
- DE6415 Network Engineering 3 L6
- DE6416 Network Engineering 4 L6
- DE6417 Microcontrollers 2 L6
- DE6418 Illumination 2 L6
- DE6419 Maintenance Engineering Management L6

## New Zealand Diploma in Engineering (NZDE)

### MECHANICAL MAJOR - Mechanical Specialisation

Year 1 – Levels 3, 4 and 5		Year 2 – Levels 5 and 6	
<b>Engineering Fundamentals L4</b>  DE4101 Common Compulsory	<b>Engineering Modelling L4</b>  DE4301 Mechanical Compulsory	<b>Fluid Mechanics L6</b>  DE6301 Mechanical Compulsory	<b>Engineering Project (Mechanical) L6</b>  DE6399 Mechanical Compulsory
<b>Mathematics 1 L4</b>  DE4102 Common Compulsory	<b>Mechanics L4</b>  DE4302 Mechanical Compulsory	<b>Strength of Materials L5</b>  DE5302 Mechanical Compulsory	<b>Engineering Management L6</b>  DE6101 Common Compulsory
<b>Technical Literacy L4</b>  DE4103 Common Compulsory	<b>Thermodynamics and Heat Transfer L5</b>  DE5301 Mechanical Compulsory	<b>Manufacturing Processes L5</b>  DE5303 Mechanical Compulsory	<b>Mechanics of Machines L6</b>  DE6302 Mechanical Compulsory
<b>Engineering Practice L3</b>  DE3301 Mechanical Compulsory	<b>Material Properties L4</b>  DE4303 Mechanical Compulsory	<b>Mechatronics L5</b> <i>(working title)</i>  DE5304 Mechanical Compulsory	<b>Elective L6</b>
Year 1 = 120 credits		Year 2 = 120 credits	

**Note:** Electives within the Mechanical major are to be selected from courses within that major, or courses from the programme with a coherent relationship to that major. A list of additional electives applicable to the Mechanical major are included in this document. In exceptional circumstances, an elective from outside the programme may be selected with approval from the Programme Committee/ Head of School.

All courses are 15 credits.

## New Zealand Diploma in Engineering (NZDE)

### MECHANICAL MAJOR - Services Specialisation

Year 1 – Levels 3, 4 and 5		Year 2 – Levels 5 and 6	
<b>Engineering Fundamentals L4</b>  DE4101 Common Compulsory	<b>Engineering Modelling L4</b>  DE4301 Mechanical Compulsory	<b>Fluid Mechanics L6</b>  DE6301 Mechanical Compulsory	<b>Engineering Project (Mechanical) L6</b>  DE6399 Mechanical Compulsory
<b>Mathematics 1 L4</b>  DE4102 Common Compulsory	<b>Mechanics L4</b>  DE4302 Mechanical Compulsory	<b>Water-based HVAC Systems L6</b>  DE6303 Services Compulsory	<b>Engineering Management L6</b>  DE6101 Common Compulsory
<b>Technical Literacy L4</b>  DE4103 Common Compulsory	<b>Thermodynamics and Heat Transfer L5</b>  DE5301 Mechanical Compulsory	<b>Piped Services System Design L6</b>  DE6304 Services Compulsory	<b>Elective L6</b>
<b>Engineering Practice L3</b>  DE3301 Mechanical Compulsory	<b>Material Properties L4</b>  DE4303 Mechanical Compulsory	<b>Mechatronics L5 (working title)</b>  DE5304 Services Compulsory	<b>Elective L6</b>
Year 1 = 120 credits		Year 2 = 120 credits	

**Note:** Electives within the Mechanical major are to be selected from courses within that major, or courses from the programme with a coherent relationship to that major. A list of additional electives applicable to the Mechanical major are included in this document. In exceptional circumstances, an elective from outside the programme may be selected with approval from the Programme Committee/ Head of School.

All courses are 15 credits.

## New Zealand Diploma in Engineering (NZDE)

### MECHANICAL MAJOR - Production Specialisation

Year 1 – Levels 3, 4 and 5		Year 2 – Levels 5 and 6	
<b>Engineering Fundamentals L4</b>  DE4101 Common Compulsory	<b>Engineering Modelling L4</b>  DE4301 Mechanical Compulsory	<b>Fluid Mechanics L6</b>  DE6301 Mechanical Compulsory	<b>Engineering Project (Mechanical) L6</b>  DE6399 Mechanical Compulsory
<b>Mathematics 1 L4</b>  DE4102 Common Compulsory	<b>Mechanics L4</b>  DE4302 Mechanical Compulsory	<b>Quality and Reliability L6</b>  DE6305 Production Compulsory	<b>Engineering Management L6</b>  DE6101 Common Compulsory
<b>Technical Literacy L4</b>  DE4103 Common Compulsory	<b>Thermodynamics and Heat Transfer L5</b>  DE5301 Mechanical Compulsory	<b>Manufacturing Processes L5</b>  DE5303 Production Compulsory	<b>Operations Management L6</b>  DE6306 Production Compulsory
<b>Engineering Practice L3</b>  DE3301 Mechanical Compulsory	<b>Material Properties L4</b>  DE4303 Mechanical Compulsory	<b>Mechatronics L5 (working title)</b>  DE5304 Production Compulsory	<b>Planning and Control L6</b>  DE6307 Production Compulsory
Year 1 = 120 credits		Year 2 = 120 credits	

**Note:** Electives within the Mechanical major are to be selected from courses within that major, or courses from the programme with a coherent relationship to that major. A list of additional electives applicable to the Mechanical major are included in this document. In exceptional circumstances, an elective from outside the programme may be selected with approval from the Programme Committee/ Head of School.

All courses are 15 credits.

## **New Zealand Diploma in Engineering (NZDE)**

### **Mechanical Major - Additional Elective Options**

- DE6308 Strength of Materials 2 L6
- DE6309 Advanced Thermodynamics L6
- DE6419 Maintenance Engineering Management L6 *(This is common with the Electrical Elective Options list)*
- DE6311 HVAC Air Handling Systems Design L6
- DE6312 HVAC Control and Building Management L6
- DE6313 Industrial Refrigeration System Design L6
- DE6314 Commercial and Industrial RAC Systems L6