

# Faculty of Engineering and Forestry

## The Degree of Bachelor of Engineering with Honours (BE(Hons))

See also General Course and Examination Regulations

Electronic, Forest, Mechanical, Mechatronics and Natural Resources.

### 1. Programme of Study Requirements

In order to qualify for the Degree of Bachelor of Engineering with Honours every candidate shall matriculate and thereafter:

- (i) pursue a programme of study approved by the Dean of Engineering and Forestry for not less than four years (one year Intermediate and three Professional Years); or three years if exempted from the whole of the Intermediate Year or two years if exempted from the whole of the Intermediate Year and the First Professional Year;
- (ii) candidates must pass an approved academic writing test before they will be admitted into the Professional Programme;
- (iii) obtain passes in the examinations hereinafter prescribed (Note: In any course which involves laboratory, field, or project work, satisfactory performance in this work is necessary for a pass in the associated examination);
- (iv) perform to the satisfaction of the Faculty of Engineering and Forestry the period of approved practical work;
- (v) submit an approved valid First Aid Certificate;
- (vi) candidates enrolled either full-time or part-time in the Degree of Bachelor of Engineering with Honours must complete the academic and non-academic degree requirements of the three Professional Years in no more than six years.

*Note: Candidates admitted directly into any of the Professional Years and candidates who have completed their Engineering Intermediate at another university must pass an approved academic writing test before they will be permitted to progress to the succeeding Professional Year of study.*

### 2. Engineering Disciplines

The degree of Bachelor of Engineering with Honours may be awarded in the following disciplines: Chemical and Process, Civil, Computer, Electrical and

*admitted to the First Professional year unless he or she has passed the whole Intermediate Examination in not more than two years*

### 4. Direct Entry to the First Professional Year

A candidate who achieved sufficiently high grades in appropriate NCEA Level 3 subjects, or the New Zealand University Entrance, Bursaries and Scholarships qualification in appropriate subjects, or in other examinations approved by the Dean of

First Professional year of the BE(Hons) degree.

*Note: The standard of achievement and range of subjects to which this regulation shall apply shall be established by the Dean who shall have consulted with the relevant Head of Department.*

### 5. Entry to the BE (Hons) with prior learning

*programme under this clause the Dean of Engineering and Forestry shall take into consideration the candidate's completed course of study, in particular their preparation in Mathematics, and any relevant work experience in industry.*

- (c) Not more than 60 hours are credited in any one week.
- 6. Students wishing to graduate k uata tnn

*Civil Engineering, Forest Engineering, Mechanical Engineering, or Natural Resources Engineering*

① CHEM 113 Engineering Chemistry 18 pts

② PHYS 113 Waves, Thermodynamics and Materials      n y 18pt②

- (8) ENCH 371 Chemical Engineering Laboratories 2
- (9) One of the courses (a) to (h) listed below
  - (a) ENCH 323 Special Topic
  - (b) ENCH 380 Bioprocess Engineering
  - (c) ENCH 421 Industrial Pollution Control
  - (d) ENCH 422 Energy Resource Management
  - (e) ENCH 427 Wood Process Science (Chemical)
  - (f) ENCH 430 Composite Products
  - (g) ENCH 458 Advanced Chemical Engineering Materials
  - (h) ENCH 459 Chemical Engineering Mathematics

*Note: Not all the courses 9(a) to (h) will be necessarily available*





**Notes:**

- 1 *Not all the courses (a) to (n) will necessarily be available in any one year and candidates should consult the Head of Department concerning the courses to be taught and the alternative degree courses that might be approved.*
- 2 *Candidates may only attempt ENEL 427 if they are taking sufficient courses to complete the academic requirements of the degree.*

## Forest Engineering

### 30. First Professional Examination

- (1) EMTH 205 Engineering Statistics
- (2) EMTH 210 Engineering Mathematics
- (3) EMTH 271 Mathematical Modelling and Computation 2
- (4) ENCI 211 Design Studio 1
- (5) ENCI 230 Mechanics of Materials
- (6) ENCI 234 Structural Engineering 1
- (7) ENCI 241 Fluid Mechanics 1
- (8) ENCI 252 Geotechnical Engineering 1
- (9) ENNR 203 Environmental Quality and Ecosystems
- (10) ENFO 204 Forest Measurement

### 31. Second Professional Examination

- (1) ENCI 312 Design Studio 2
- (2) ENCI 332 Structural Concrete
- (3) ENCI 363 Infrastructure Management
- (4) ENFO 327 Wood Science
- (5) ENFO 343 Forest Engineering and Hydrology
- (6) SOIL 203 Soil Fertility

plus any set of degree courses which, in total, is equivalent to at least 18 points and at 300 level, provided the candidate satisfies the necessary prerequisites for each course concerned and that none of the courses has been credited towards a degree course. The choice of course or courses is subject to the approval of the Forest Engineering Committee of the Faculty of Engineering and Forestry.

Candidates are required to attend the Second Professional Examination Camp. Work at the camp will form part of the assessment for ENCI 363 Infrastructure Management.

### 32. Third Professional Examination

- (1) ENCI 415 Pavement Engineering
- (2) ENFO 316 Forest Management
- (3) ENFO 411 Engineering Design 3 (Forestry)
- (4) ENFO 420 Mechanics of Forestry Machines

(5) ENFO 422 Forest Harvest Planning

(6) ENFO 423 Forest Transportation Planning plus any set of degree courses which, in total, is equivalent to at least 18 points and at 300 level, provided the candidate satisfies the necessary prerequisites for each course concerned and that none of the courses has been credited towards a degree course. The choice of course or courses is subject to the approval of the Forest Engineering Committee of the Faculty of Engineering and Forestry.

Candidates admitted to First Professional with only MATH 106 or MATH 108 must offer EMTH 210 Engineering Mathematics as the optional course required by this Regulation. Students who go on a forest engineering exchange programme will offer ENCH 429 Engineered Wood Products as their optional course and may offer ENFO 491 Special Topic and/or ENFO 492 Special Topic in lieu of one or more of the courses listed (1) to (6) above. Any substitutions are subject to the approval of the Forest Engineering Committee of the Faculty of Engineering and Forestry.

## Mechanical Engineering

### 33. First Professional Examination

- (1) Either
  - (a) EMTH 210 Engineering Mathematics, or
  - (b) MATH 264 Multivariate Calculus and Differential Equations, or
  - (c) EMTH 204 Calculus and Algebra (see Note below)
- (2) EMTH 271 Mathematical Modelling and Computation 2
- (3) ENME 222 Mechanics of Materials A
- (4) ENME 223 Mechanics of Machines
- (5) ENME 224 Fluid Mechanics A
- (6) ENME 225 Engineering Thermodynamics A
- (7) ENME 226 Manufacturing Technology
- (8) ENME 227 Introduction to Materials Science for Engineers
- (9) ENME 211 Elements of Mechanical Design

*Note: Those candidates who obtain a sufficiently high grade in their Intermediate Year mathematics course should consider enrolling in, with Head of Department approval, the full year course EMTH 204 Calculus and Algebra rather than the First Semester courses EMTH 210 or EMTH 264.*



### 34. Second Professional Examination

- (1) EMTH 391 Engineering Applied Mathematics and Statistics (or another Mathematics course approved by the Head of Department)
- (2) ENME 331 Dynamics
- (3) ENME 332 Mechanics of Materials B
- (4) ENME 333 Control Engineering
- (5) ENME 339 Fundamentals of Electronics
- (6)



**40. Second Professional Examination**

- (1) ENCI 302 Engineering Mathematics 3 (Civil)
- (2) ENCI 303 Engineering Decision-making
- (3) ENCI 312 Design Studio 2
- (4) ENCI 341 Fluid Mechanics 2
- (5) ENCI 363 Infrastructure Management
- (6)

# The Degree of Bachelor of Engineering (BE)

*See also General Course and Examination Regulations*

## 1. Degree Requirements

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4. FORE 222 Biometry 1A, FORE 224 Biometry 1B









**9. Transfer from ME to PhD**

Where a candidate has demonstrated high research

**Bioengineering**

ENIVE 643 Advanced Computer Control and Instrumentation

ENIVE 645 Advanced Energy Engineering

ENIVE 654 Introduction to Acoustics

ENIVE 656 Advanced Computer-Aided Product Development

ENIVE 657 Advanced Fracture Mechanics and Failure Analysis

ENIVE 664 Biomechanics

ENIVE 665 Advanced HVAC Engineering

ENIVE 667 Advanced Polymeric and Composite Materials

ENIVE 671 Computational Methods in Elasto-dynamic Inverse Problems.

### Engineering Mathematics

EMITH 600 Dynamical Systems

EMITH 601 Continuous Biological Systems

EMITH 602 Fluid Mechanics

EMITH 603 Numerical Solution of Partial Differential Equations

EMITH 604 Optimisation Theory and Methods

EMITH 605 Approximation Theory

EMITH 606 Algebraic and Symbolic Computation

EMITH 607 Coding Theory

EMITH 608 Industrial Case Studies

### Transport Engineering

ENTR 602 Accident Reduction and Prevention

ENTR 603 Advanced Pavement Design

ENTR 604 Pavement Management Systems

ENTR 611 Planning and Managing for Transport

ENTR 612 Traffic Management Policies

ENTR 613 Highway Geometric Design

ENTR 614 Sustainable Transport Planning

ENTR 615 Transport Network Modelling

ENTR 616 Advanced Transport Planning and Modelling

ENTR 617 Traffic Engineering and Design

ENTR 618 Transport and Freight Logistics

Notes

- i. *Not all courses will be offered in any one year. Students are advised to contact the College of Engineering for an up to date list of courses offered.*
- ii. *Special topics are available in Chemical and*

## The Degree of Master of Engineering in Fire Engineering (MEFE)



## **7. Project Reports**

The following conditions shall apply to the preparation, presentation and examination of the project report:

- i. the project report shall describe work done by the candidate on a project approved by the



#### **4. Standards required for MEM with Distinction**

In recommending a candidate for admission to the degree and in recommending Distinction the examiners will take into consideration the combined results of the project report and of all courses taken.

*Note: Candidates may enquire from the Dean of*



# The Degree of Master of Engineering in Transportation (MET)

See also *General Course and Examination Regulations*

## 1. Qualifications Required to Enrol in the Degree

A candidate for the Degree of Master of Engineering in Transportation shall have:

- (a)
  - i. qualified for the award of the Degree of Bachelor of Engineering with Honours; or
  - ii. qualified for the award of the Degree of Bachelor of Engineering; or
  - iii. qualified for the award of an appropriate degree in New Zealand; or
  - iv. been admitted ad eundem statum as entitled to proceed to the Degree of Master of Engineering in Transportation; or
- (b) been approved as a candidate for the degree by the Dean of Engineering and Forestry.

*Notes*

- i. *The relevance and standard of undergraduate studies and any subsequent professional experience are the main criteria for approval.*
- ii. *Candidates will only be approved if appropriate research supervision is available.*

## 2. Qualifying Programmes

If a candidate does not hold any of the qualifications noted in Regulation 1(a) above, or has not demonstrated to the satisfaction of the Dean of Engineering and Forestry a suitable standard in previous work, he or she may be admitted to

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*candidate can not be enrolled continuously due to circumstances beyond their control they must apply to the Dean of Engineering and Forestry for a suspension.*

### **5. Programme of Study Involving Examinations and a Project**

A candidate for the Degree of Master of Engineering in Transportation by examination and project shall:

- i. enrol in and pursue either full-time for one year or part-time for not less than two years and not more than four years a programme of study approved by the Dean of Engineering and Forestry; and
- ii. pass courses with a total course weighting of not less than 72 points (0.6 EFTS), as approved by the Director of the Transportation Engineering Programme and selected from the Schedule to

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**Courses:**

ENTR 401 and 600-level Transportation Engineering courses listed in Schedule B of the MIE Regulations.

*Notes*

*(a) For new candidates from 2008 without an appropriate Bachelor of Engineering degree or equivalent experience/qualifications, ENTR 401 must normally be completed first prior to undertaking other ENTR courses.*









Schedule to the Regulations for the Postgraduate Certificate in

**Postgraduate Certificate in Professional Development  
(Electronics and ICT) (PGCertPD(Elec&ICT))**



**Structure of the Course**

3 To qualify for the award of the Postgraduate Certificate in Professional Development (Electronics and ICT) a candidate shall pass the prescribed modules/papers/courses to the value of 60 points, of which at least 30 points, including Module 4, must be completed with the University from which the candidate elects to graduate. The modules must be completed in the same sequence as they appear in the Schedule.

**Transfers and Cross Credits**

4. No credit will be granted towards the Postgraduate Certificate in Professional Development (Electronics and ICT) from a completed university qualification. Candidates may be permitted to transfer credit of up to 30 points from equivalent papers taken with another provider of the qualification.

**Schedule to the Regulations for the Postgraduate Certificate in Professional Development (Electronics and ICT)**

ENMG 501 Module 1 Technical Update

ENMG 502 Module 2 Essential Professional Studies

**Postgraduate Diploma in Engineering (PGDipEng)**

The Postgraduate Diploma in Engineering was discontinued in 2006. Candidates who are currently enrolled may complete the diploma

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### **5. Award of Diploma with Distinction**

The Postgraduate Diploma in Forestry may be awarded with Distinction.

### **6. Award of PGDipFor instead of MForSc**

Where a candidate has followed a course of study to qualify for the degree of Master of Forestry Science by Examination and Report or Examination and Thesis and the examiners are of the opinion that the award of that degree is not justified, they may recommend the award of the Postgraduate Diploma in Forestry.

Students in the two-year MForSc degree may, after completing the first year, elect to take a Postgraduate Diploma instead of continuing with Masters degree.

### **7. Transfer to MForSc**

A student who completes the Postgraduate Diploma is eligible for enrolment in the second year of a two-year MForSc programme, subject to the availability of staff and resources.