Faculty of Engineering and Forestry

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

See also General Course and Examination Regulations.

1. Requirements of the Degree

Every candidate for the Degree of Bachelor of Engineering with Honours shall follow a course of study and non-academic requirements approved by the Dean of Engineering and Forestry as laid down in these Regulations. In special circumstances the Dean of Engineering and Forestry may modify specific aspects of these degree regulations

2. Structure of the Degree

To qualify for the Degree of Bachelor of Engineering with Honours a candidate must complete:

(a) a programme of study for the Engineering Intermediate Year of not less than 120 points;
(b) an approved academic writing test;
(c) a programme of three Professional Year Examinations where each year is not less than 120 points;
(d) a programme of study which must include not less than 120 points at 400-level or higher;
(e) the non-academic requirements.

3. Engineering Disciplines

The degree of Bachelor of Engineering with Honours may be awarded in the following programmes: Chemical and Process, Civil, Computer, Electrical and Electronic, Forest, Mechanical, Mechatronics, and Natural Resources.

4. Prior Learning

A candidate may be exempt from the whole of the Intermediate Year based on prior learning, or from the whole of the First Professional Examination based on prior tertiary learning. Exemption is subject to approval from the Dean of Engineering and Forestry. The approved course of study shall not be less than two years.

5. Time Limitation for Honours Eligibility and Degree Completion

To be eligible for honours a student must complete the three professional years in no more than four years of study, or if an entrant to Second Professional Examination must complete the Second and Third Professional Examination in no more than three years of study. Candidates enrolled either full-time or part-time in the Degree of Bachelor of Engineering with Honours must complete the Professional Year Examinations and the non-academic requirements in no more than six years.

6. Class of Honours

The Degree of Bachelor of Engineering with Honours may be awarded with First Class Honours, with Second Class Honours, or with Third Class Honours. The list of candidates obtaining Second Class Honours shall be listed in two Divisions (Division I and Division II). The class of Honours awarded shall be determined by the candidate's performance in the Second and Third Professional Examination.

Note: Candidates may enquire from the Dean of Engineering and Forestry as to the Faculty guideline on this matter.

7. BE without Honours

Candidates who have passed all courses and completed all other requirements for a BE(Hons), but whose performance in the courses is deemed by the Dean of Engineering and Forestry, upon recommendation by the examiners, not to be of Honours standard, will be awarded a degree of Bachelor of Engineering.

8. Concurrent Enrolment in BE(Hons) and BCom Degrees

A candidate who enrols concurrently for the Degree of Bachelor of Commerce and Bachelor of Engineering with Honours shall, in order to qualify for the award of both degrees, be enrolled for a course of study approved under the provisions of the General Course and Examination Regulation A3, and shall:

(a) meet all requirements as laid down in the current regulations for the Degree of Bachelor of Engineering with Honours;
(b) meet all requirements as laid down in the current regulations for the Degree of Bachelor of Commerce.

9. Concurrent Enrolment in BE(Hons) and BSc Degrees

A candidate who enrols concurrently for the Degree of Bachelor of Science and Bachelor of Engineering with Honours shall, in order to qualify for the award of both degrees, be enrolled for a course of study approved under the provisions of the General Course and Examination Regulation A3, and shall:

(a) meet all requirements as laid down in the current regulations for the Degree of Bachelor of Engineering with Honours;
(b) meet all requirements as laid down in the current regulations for the Degree of Bachelor of Science

Note: Candidates should take particular note of Regulation 7 and 8 of the BSc Regulations.

10. Admission to BE(Hons) Candidacy

Admission to the BE(Hons) shall be by approval of the Dean of Engineering and Forestry. All candidates must pass an approved academic writing test prior to approval into the professional programme. Further, a candidate:

(a) may qualify for admission upon successful completion of the Engineering Intermediate Examination principally on the basis of the grades obtained in that Examination.
(b) who achieved sufficiently high grades in appropriate NCEA Level 3 subjects, or the New Zealand University Entrance, Scholarships qualification in appropriate subjects, or in other examinations approved by the Dean of Engineering and Forestry for the purposes of this regulation, may be considered for direct entry to the First Professional Examination of the BE(Hons) degree.
(c) who has completed a qualification from a tertiary institution with excellent grades may be exempted from the Intermediate Year Examination and, in some cases, from the First Professional Examination.

Notes:

1. *A candidate who is not exempted from the Intermediate Examination will not normally be admitted to the First Professional Examination unless he or she has passed the whole Intermediate Examination in not more than two years of study.*
2. *The Dean of Engineering and Forestry reserves the right to decline entry to a student who has been offered a place in the Professional Examination of the BE(Hons) degree and who has not completed his or her enrolment by the Friday preceding the first day of lectures of Semester 1.*
3. *The standard of achievement for Direct Entry to the First Professional Examination 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 or Director of Studies.*
4. *In considering a candidate's application based on prior tertiary learning the Dean of Engineering and Forestry shall take into consideration the candidate's completed course of study, in particular their preparation in Mathematics, Physics, and where applicable Chemistry or Computer Science, and any relevant work experience in industry*

11. Completion of the Non-academic Requirements

(a) The non-academic requirements are:
  i. an approved valid first aid certificate;
  ii. an approved course(s) of workshop training;
  iii. at least 800 hours (100 days) of approved practical work; and
  iv. submission of two satisfactory written work reports based on the practical work completed.
(b) A candidate shall present a university approved first aid certificate which is valid at some time during the candidate's enrolment in the three professional years.
(c) A candidate shall complete an approved course(s) of workshop training. This course(s) shall be completed before a candidate enrols for any subject of the Second Professional Examination or within the first year of study if admitted directly to the Second Professional Examination.
(d) Students may apply in writing for exemption from the workshop training course to the Departmental Practical Work Supervisor.
(e) The practical work requirement shall normally be completed in no more than three periods. Details of the nature of the work required by each Department may be obtained from the College of Engineering Office or on the College of Engineering website.
(f) Prior to commencement of each practical work period of employment a candidate shall notify the College of Engineering Office of details concerning the employment. The appropriate form is available on the student's practical work record in UCStudent Web or can be obtained from the College of Engineering Office or from the College website. Lists of employers' addresses are available at the College of Engineering Office.
(g) A candidate shall submit two satisfactory written reports covering different types of practical work. Reports shall be submitted not later than

the first Monday in April immediately following the period of work reported on. Different deadlines apply to students wishing to graduate (see (i)). Each report shall remain confidential to the student and the College of Engineering and shall not be disclosed to any other party. Note: Practical work will be credited towards a candidate's course only after a satisfactory report is received from the candidate's employer.

(h) Practical work shall be credited on the following basis:
   i. Credit is given only for hours worked;
   ii. A day is defined as eight (8) hours work;
   iii. Not more than 60 hours are credited in any one week.

(i) Students wishing to graduate at a ceremony during Semester 1 must have completed all practical work requirements by the first Monday in March. Those wishing to graduate at a December ceremony must have completed all practical work requirements by the first Monday in November.

(j) On receipt of a written application accompanied by supporting documents from a student who has served an indentured engineering apprenticeship or who has performed similar work for a satisfactory period, the Faculty may accept such work as partial or total exemption from the above practical work requirements. Students may apply in writing for an exemption of the practical work requirements to the College Practical Work Coordinator.

(k) Students are required to familiarise themselves with the practical work requirements by reading the guidelines on the College website.

(l) Faculty may modify the application of clauses (a)-(l) in individual cases.

12. Requirements in Subjects in Other Degrees

A candidate wishing to be enrolled in any subject which is also a subject of examination for another degree shall comply with the regulations for that degree relating to prerequisites, combinations of subjects, and practical work, as are applicable to that subject.

13. Intermediate Examination

The Programme of Study shall consist of:

(a) All courses in Schedule A

(b) Courses from Schedule B to meet the pre-requisites of at least one engineering programme.

(c) Additional courses, where required, to ensure a workload of not less than 120 points.

(d) Subject to the approval of the Dean of Engineering and Forestry, candidates may be approved into a modified Intermediate Year based on high achievement in NCEA or other equivalent examination, or through recognised prior learning at another tertiary institution.

Schedule A - Compulsory for all Engineering Intermediate students

(1) ENGR 101 Foundations of Engineering
(2) EMTH 171 Mathematical Modelling & Computation
(3) EMTH 118 Engineering Mathematics 1A
(4) EMTH 119 Engineering Mathematics 1B
(5) PHYS 101 Engineering Physics A: Mechanics, Waves and Thermal Physics

Schedule B - Engineering specialisations

Chemical and Process Engineering

(1) CHEM 111 General Chemistry A

Civil Engineering, Forest Engineering and Natural Resources Engineering

(1) CHEM 111 General Chemistry A
(2) ENGR 102 Engineering Mechanics and Materials

Computer Engineering and Electrical and Electronic Engineering

(1) PHYS 102 Engineering Physics B: Electromagnetism, Modern Physics and "How Things Work"
(2) COSC 121 Computer Science 1A

Mechanical Engineering

(1) CHEM 111 General Chemistry 1A (see Note below)
(2) ENGR 102 Engineering Mechanics and Materials
(3) At least one of:
(a) COSC 121 Computer Science 1A
(b) PHYS 102 Engineering Physics 2: Electromagnetism, Modern Physics and "How Things Work"

Note: Mechanical Engineering students may be exempt from CHEM 111 if they are able to demonstrate that they have reached a minimum level of preparation in chemistry through achievement of at least 14 credits in NCEA Level 3 chemistry (or equivalent). Completion of the course CHEM 114 Introductory Chemistry with a B+ grade or better is considered an equivalent standard. Following any exemption from CHEM 111 students must offer in its place another 15 point elective including any unused choice under Requirement (3) above.

Mechatronics Engineering

(1) COSC 121 Computer Science 1A
(2) PHYS 102 Engineering Physics B: Electromagnetism, Modern Physics and "How Things Work"

(3) ENGR 102 Engineering Mechanics and Materials

Notes:

1. Each of the Engineering Intermediate Courses is a prerequisite for the Engineering First Professional Examination. On the recommendation of the Dean of Engineering and Forestry, however, the examiners may pass a candidate in the Engineering Intermediate Examination as a whole, as a result of overall performance in the Intermediate courses. A candidate may enquire from the Dean as to the Faculty guideline on Pass Examination as a Whole.
2. A candidate may enquire from the Dean as to the Faculty guideline on restricted credit as described in the General Course and Examination Regulations.
3. Introductory courses (MATH 101, PHYS 111, CHEM 114) will not be considered for credit towards the BE(Hons) Intermediate Year.

14. Each Professional Examination to be Passed as a Whole

A candidate may complete an approved Intermediate Examination at another university. Admission to the BE(Hons) programme will be principally on the basis of grades obtained in that examination.

A Professional Examination is a subset of the Programme of Study which the candidate is required to undertake to complete the academic requirements of the Bachelor of Engineering with Honours.

Each Professional Examination will consist of a workload of not less than 120 points in each professional year examination. Candidates are required to pass each Professional Examination as a Whole. In recommending a candidate for a pass in any Professional Examination as a Whole the Dean of Engineering and Forestry shall take into consideration his or her performance in all the courses of that Professional Examination.

A candidate who has failed to pass any Professional Examination as a Whole may, on the recommendation of the Dean of Engineering and Forestry, be credited with a course or courses of that Professional Examination. The candidate may then present in a subsequent year the remaining subjects of that Examination together with such courses of the succeeding Professional Examinations, if any, as the Dean may permit. The candidate may pass such a composite Examination under the same conditions as set out above. Candidates are not permitted to enrol in any engineering courses of the Third Professional Examination prior to completion of the First Professional Examination

Note: A candidate may enquire from the Dean as to the Faculty guideline on Pass Examination as a Whole.

Chemical and Process Engineering

15. First Professional Examination

(1) EMTH 210 Engineering Mathematics 2
(2) EMTH 271 Mathematical Modelling and Computation 2
(3) ENCH 241 Engineering Chemistry 2
(4) ENCH 281 Principles of Biology for Engineers
(5) ENCH 291 Chemical Process Technology
(6) ENCH 292 Transfer Operations and Thermodynamics
(7) ENCH 293 Fluid Mechanics 1
(8) ENCH 294 Process Engineering Design 1

16. Second Professional Examination

(1) ENCH 390 Process Analysis
(2) ENCH 391 Process Systems and Control
(3) ENCH 392 Thermodynamics and Chemical Reaction Engineering
(4) ENCH 393 Fluid Mechanics and Heat Transfer
(5) ENCH 394 Process Engineering Design 2
(6) ENCH 395 Process Engineering Laboratories
(7) ENCH 396 Chemical Engineering Separations 1
(8) One course selected from Schedule A listed below.

17. Third Professional Examination

(1) ENCH 449 Process Control
(2) ENCH 494 Process Engineering Design 3
(3) ENCH 495 Research Project
(4) ENCH 497 Process Management
(5) One course selected from Schedule B listed below
(6) One course selected from either Schedule A or B listed below or any 400-level 15 point Engineering paper.

Schedule A

(a) ENGR 404 Renewable Energy Technologies and Management
(b) ENGR 405 Industrial Pollution Control
(c) ENGR 406 Wood and Engineered Wood Products Processing
(d) ENGR 407 Bioprocess Engineering 1
(e) ENCH 486 Special Topic in Chemical and Process Engineering

Schedule B

(a) ENCH 401 Computational Fluid Dynamics
(b) ENCH 482 Bioprocess Engineering 2

(c) ENCH 487 Special Topic in Chemical and Process Engineering
(d) ENCH 491 Advanced Process Control and Simulation
(e) ENCH 492 Advanced Reaction Engineering
(f) Any 400-level engineering course approved by the Director of Studies

Note: Not all the courses in Schedule A or B will necessarily be available in any one year and prospective candidates should consult the Director of Studies concerning the courses to be taught.

Civil Engineering

18. First Professional Examination

(1) EMTH 210 Engineering Mathematics 2
(2) ENCN 213 Design Studio 1
(3) ENCN 221 Engineering Materials
(4) ENCN 231 Solid Mechanics
(5) ENCN 242 Fluid Mechanics and Hydrology
(6) ENCN 253 Soil Mechanics
(7) ENCN 261 Transport and Surveying
(8) ENCN 281 Environmental Engineering

Note: Students are required to attend the First Professional Examination Camp. Work at the camp will form part of the assessment for ENCN 261 Transport and Surveying.

19. Second Professional Examination

(1) ENCI 302 Engineering Mathematics 3 (Civil)
(2) ENCI 303 Engineering Decision-making
(3) ENCI 312 Design Studio 2
(4) ENCI 332 Structural Concrete
(5) ENCI 333 Structural Steel
(6) ENCI 334 Computational Mechanics
(7) ENCI 341 Fluid Mechanics 2
(8) ENCI 351 Geotechnical Engineering 2
(9) ENCI 363 Infrastructure Management
(10) ENCI 383 Environmental Engineering

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

20. Third Professional Examination

(1) ENCI 403 Management of Engineering Systems
(2) Sufficient courses selected from:
  (a) ENCI 412 Traffic Planning
  (b) ENCI 415 Pavement Engineering
  (c) ENCI 423 Structural Analysis
  (d) ENCI 425 Steel Structures
  (e) ENCI 426 Concrete Structures
  (f) ENCI 429 Structural Systems
  (g) ENCI 445 Coastal and Inland Waters
  (h) ENCI 452 Geotechnical Engineering 3
  (i) ENCI 462 Geographical Information Systems
  (j) ENCI 472 Engineering Geology 2
  (k) ENCI 481 Wastewater Treatment Plant Design
  (l) ENCI 482 Solid Waste Management
  (m) ENCI 496 Special Topic: Site Remediation
  (n) ENCI 497 Special Topic (Semester 1)
  (o) ENCI 498 Special Topic (Semester 2)
  (p) ENCI 499 Special Topic (Semester 2)
  (q) ENNR 404 Water Infrastructure and Design
  (r) ENNR407 Advanced Hydrology
  (s) ENNR 451 Engineering in Developing Communities
  (t) ENGR 403 Introduction to Fire Engineering
  (u) One of ENCI 493 Project, ENCI 494 Project or ENCI 495 Project
  (v) One or two elective courses approved by the Director of Studies

Note: Not all courses listed will be offered in any one year, and prospective candidates should consult the Director of Studies concerning which courses will be taught.

Computer Engineering

21. First Professional Examination

(1) EMTH 210 Engineering Mathematics 2
(2) EMTH 211 Engineering Linear Algebra and Statistics
(3) ENEL 200 Electrical and Computer Engineering Design
(4) ENEL 220 Circuits and Signals
(5) ENEL 270 Principles of Electronics and Devices
(6) ENCE 260 Computer Systems
(7) COSC 261 Foundations of Computer Science
(8) COSC 264 Data Communications and Networking

22. Second Professional Examination

(1) ENEL 350 Design and Management 2
(2) ENEL 351 Signals, Systems and Control
(3) ENEL 353 Computer Hardware Engineering 1
(4) Sufficient courses selected from:
  (a) COSC 265 Relational Database Systems
  (b) COSC 262 Algorithms or COSC329 Algorithms and Artificial Intelligence
  (c) COSC 324 Advanced Software Engineering or COSC 324 Advanced Software Engineering and COSC 325 Software Engineering Group Project
  (d) COSC 331 Data Communications and Networks
  (e) COSC 363 Computer Graphics
  (f) ENEL 332 Communications Engineering 1

(g) ENEL 333 Electronics 1
(h) ENEL 334 Electronic Device Engineering
(i) One 300-level course from Computer Science or Mathematics or Statistics, subject to the approval of the Director of Studies.

Note: Subject to the approval of the Director of Studies, candidates with sufficiently high GPA may be exempt pre-requisite requirements for entry to COSC 329

23. Third Professional Examination

(1) ENCE 427 Computer Engineering Project
(2) ENEL 429 Computer Hardware Engineering 2
(3) Sufficient courses selected from the Schedules A to C below. Course selection must include at least two courses from Schedule A and at least one course from Schedule B.

Schedule A

(a) COSC 401 Machine Learning
(b) COSC 408 Modern Telecommunication Networks (Selected Topics)
(c) COSC 411 Advanced Topics in HCI
(d) COSC 413 Advanced Topics in Algorithms
(e) COSC 422 Advanced Computer Graphics
(f) COSC 427 Advanced Object Oriented Design
(g) COSC 428 Computer Vision

Schedule B

(a) ENEL 430 Control Systems
(b) ENEL 433 Communications Engineering 2
(c) ENEL 434 Electronics 2
(d) ENEL 435 Micro- and Nano-Electronic Device Engineering
(e) ENEL 438 Engineering Economics and Management
(f) ENEL 440 Signal Processing

Schedule C

One 400-level course from Mathematics and Statistics

Notes:

1. *Candidates may only attempt ENCE 427 if they are taking sufficient courses to complete the academic requirements of the degree.*
2. *Not all courses in Schedules A or B will necessarily be available in any one year and candidates should consult the Director of Studies concerning the courses to be taught and the alternative degree courses that might be approved.*

Electrical and Electronic Engineering

24. First Professional Examination

(1) EMTH 210 Engineering Mathematics 2
(2) EMTH 211 Engineering Linear Algebra and Statistics
(3) ENEL 200 Electrical and Computer Engineering Design
(4) ENEL 220 Circuits and Signals
(5) ENEL 270 Principles of Electronics and Devices
(6) ENEL 280 Principles of Electrical Systems
(7) ENEL 290 Waves and Materials in Electrical Engineering
(8) ENCE 260 Computer Systems

25. Second Professional Examination

(1) ENEL 350 Design and Management 2
(2) ENEL 351 Signals, Systems and Control
(3) Sufficient courses selected from:
(a) ENEL 352 Electric Power Engineering
(b) ENEL 353 Computer Hardware Engineering 1
(c) ENEL 323 Computer Software Engineering 1
(d) ENEL 329 Electromagnetic Engineering 1
(e) ENEL 332 Communications Engineering 1
(f) ENEL 333 Electronics 1
(g) ENEL 334 Electronic Device Engineering
(h) ENEL 335 Power Electronics 1
(i) ENEL 340 Special Topic
(j) ENEL 341 Special Topic
(k) One COSC 300-level course or one MATH 300-level course or one STAT 300-level course
(l) One or two courses from any set of degree courses, subject to the approval of the Director of Studies.

Note: Not all courses in 3(a) to (l) will necessarily be available in any one year. Candidates should consult the concerning the courses to be taught and the alternative degree courses that might be approved

26. Third Professional Examination

(1) ENEL 427 Project
(2) Sufficient courses selected from:
(a) ENEL 428 Computer Software Engineering 2
(b) ENEL 429 Computer Hardware Engineering 2
(c) ENEL 430 Control Systems
(d) ENEL 432 Electromagnetic Engineering 2
(e) ENEL 433 Communications Engineering 2
(f) ENEL 434 Electronics 2
(g) ENEL 435 Micro- and Nano-Electronic Device Engineering 2
(h) ENEL 436 Power Electronics 2
(i) ENEL 437 Power Systems Engineering
(j) ENEL 438 Engineering Economics and Management
(k) ENEL 439 Power Engineering Applications
(l) ENEL 440 Signal Processing
(m) ENEL 441 Special Topic
(n) ENEL 442 Special Topic in Electrical and Electronic Engineering

Notes:

1. *Not all courses in 2(a) to (n) will necessarily be available in any one year and candidates should consult the Director of Studies 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

(Transitional regulations for 2011 year only)

27. First Professional Examination

(1) EMTH 210 Engineering Mathematics 2
(2) FORE 205 Introduction to Forest Engineering
(3) FORE 215 Introduction to Forest Economics
(4) ENCN 213 Design Studio 1
(5) ENCN 221 Engineering Materials
(6) ENCN 231 Solid Mechanics
(7) ENCN 253 Soil Mechanics
(8) ENFO 204 Forest Measurement

28. Second Professional Examination

(1) FORE 205 Introduction to Forest Engineering
(2) FORE 316 Forest Management
(3) FORE 342 Geospatial Technologies in Forestry
(4) ENCI 312 Design Studio 2
(5) ENCI 332 Structural Concrete
(6) ENCI 351 Geotechnical Engineering 2
(7) ENCI 363 Infrastructure Management
(8) ENFO 327 Wood Science.

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.

29. Third Professional Examination

(1) FORE 316 Forest Management
(2) FORE 422 Forest Harvest Planning
(3) FORE 423 Forest Transportation and Road Design
(4) ENFO 411 Forest Engineering Research and Design
(5) ENFO 420 Harvest System Evaluation
(6) Two or more elective courses approved by the Director of Studies.

Mechanical Engineering

30. First Professional Examination

(1) EMTH 210 Engineering Mathematics
(2) EMTH 271 Mathematical Modelling and Computation 2
(3) ENME 201 Design Communication
(4) ENME 202 Stress, Strain and Deformation in Machine Elements
(5) ENME 203 Dynamics and Vibrations
(6) ENME 204 Introduction to Thermo-fluids Engineering
(7) ENME 207 Materials Science and Engineering
(8) ENME 221 Engineering Design and Manufacture

31. Second Professional Examination

(1) EMTH 391 Engineering Applied Mathematics and Statistics (or an alternative Mathematics course approved by the Director of Studies)
(2) ENME 331 Dynamics
(3) ENME 332 Mechanics of Materials B
(4) ENME 333 Control Engineering
(5) ENME 339 Fundamentals of Electronics
(6) ENME 340 Mechanical Engineering Design A
(7) ENME 341 Mechanical Engineering Design B
(8) ENME 345 Thermo-fluids Transport
(9) Sufficient courses selected from:
  (a) ENME 336 Production Management
  (b) ENME 337 Materials and Metallurgical Engineering
  (c) ENME 342 Introduction to Computational Solid Mechanics
  (d) ENME 354 Engineering Thermo-fluids B
  (e) ENME 348 Special Topic
  (f) ENME 349 Special Topic

32. Third Professional Examination

(1) ENME 438 Project
(2) ENME 440 Mechanical System Design - Process
(3) ENME 450 Industrial Management
(4) Sufficient courses selected from:
  (a) ENME 432 Mechanics of Vibration
  (b) ENME 433 Modern Control Theory
  (c) ENME 435 Heat and Mass Transfer
  (d) ENME 436 Manufacturing Technology
  (e) ENME 441 Mechanical System Design - Special Applications
  (f) ENME 442 Applied Computational Solid Mechanics
  (g) ENME 443 Computer Control and Instrumentation
  (h) ENME 445 Energy Engineering
  (i) ENME 448 Special Topic: Advanced Materials and Processing
  (j) ENME 449 Special Topic: Physiological Modelling
  (k) ENME 454 Introduction to Acoustics
  (l) ENME 456 Computer Aided Product Development
  (m) ENME 457 Fracture Mechanics and Failure Analysis

(n) ENME 464 Biofluid Mechanics
(o) ENME 465 HVAC Engineering
(p) ENME 466 Manufacturing Optimisation
(q) ENME 467 Polymeric and Composite Materials
(r) ENME 474 Aerodynamics
(s) ENME 477 Polymer Science and Engineering
(t) ENGR 401 Introduction to Computational Fluid Dynamics
(u) ENMT463 Robotics
(v) MDPH 401 Anatomy and Physiology for Medical Physicists
(w) One or two courses of which one course must be selected from within the Faculty of Engineering and Forestry courses. Course selection is subject to approval of the Director of Studies.

Note: Not all courses in 4(a) to (v) will necessarily be available in any year, and candidates should consult the Director of Studies concerning the courses to be taught.

Mechatronics Engineering

33. First Professional Examination

(1) EMTH 210 Engineering Mathematics 2
(2) EMTH 211 Engineering Linear Algebra and Statistics
(3) ENCE 260 Computer Systems
(4) ENEL 270 Principles of Electronics and Devices
(5) ENME 202 Stress, Strain and Deformation in Machine Elements
(6) ENME 203 Dynamics and Vibrations
(7) ENMT 201 Mechatronics Design

34. Second Professional Examination

(1) ENMT 301 Mechatronics System Design
(2) EMTH 391 Engineering Applied Mathematics and Statistics
(3) ENEL 335 Power Electronics 1
(4) ENMT 322 Operations and Quality Management
(5) ENME 331 Dynamics
(6) ENEL 351 Signals, Systems and Control or ENME 333 Control Engineering
(7) ENEL 353 Computer Hardware Engineering 1 or COSC 361 Microprocessor System 1
(8) Sufficient courses selected from:
  (a) ENEL 333 Electronics 1
  (b) ENEL 323 Computer Software Engineering 1
  (c) ENME 204 Introduction to Thermo-fluids Engineering
  (d) One elective course approved by the Director of Studies.

35. Third Professional Examination

(1) ENMT 401 Project
(2) ENME 433 Modern Control Theory
(3) Sufficient courses selected from the schedule below:
  (a) COSC 428 Computer Vision
  (b) ENEL 428 Software Engineering 2
  (c) ENEL 429 Computer Hardware Engineering 2
  (d) ENEL 434 Electronics 2
  (e) ENEL 436 Power Electronics 2
  (f) ENEL 438 Economics & Management or ENME 450 Industrial Management
  (g) ENEL 440 Signal Processing
  (h) ENME 432 Mechanics of Vibration
  (i) ENME 436 Manufacturing Technology
  (j) ENME 440 Mechanical System Design - Process
  (k) ENME 441 Mechanical System Design - Special Applications
  (l) ENME 456 Computer-Aided Product Development
  (m) ENME 474 Aerodynamics
  (n) ENMT 443 Measurement Technology
  (o) ENMT 448 Special Topic: Thermo-Fluids Transport
  (p) ENMT 453 Advanced Control
  (q) ENMT 463 Robotics

Note: Not all courses in 3(a) to (q) will necessarily be available in any one year, and candidates should consult the Director of Studies concerning the courses to be taught.

Natural Resources Engineering

36. First Professional Examination

(1) EMTH 210 Engineering Mathematics 2
(2) ENCN 213 Design Studio 1
(3) ENCN 221 Engineering Materials
(4) ENCN 231 Solid Mechanics
(5) ENCN 242 Fluid Mechanics and Hydrology
(6) ENCN 253 Soil Mechanics
(7) ENCN 261 Transport and Surveying
(8) ENCN 281 Environmental Engineering

Note: Students are required to attend the First Professional Examination Camp. Work at the camp will form part of the assessment for ENCN 261 Transport and Surveying.

37. 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) ENCI 383 Environmental Engineering
(7) ENNR 305 Ecological Engineering
(8) ENNR 306 Integrated Catchment Analysis
(9) ENNR 346 Energy Engineering 1
(10) ENCI 351 Geotechnical Engineering 2 or ENGE 486 Engineering Geomorphology

Note: Candidates are required to attend the Second Professional Year Camp. Work at the camp will form part of the assessment for ENCI 363.

38. Third Professional Examination

(1) ENNR 429 Natural Resources Engineering Project
(2) Sufficient courses selected from schedule A and B listed below. Three courses must be selected from Schedule A and three courses from Schedule B.

Schedule A

(a) ENNR 405 Ecological Engineering 2
(b) ENNR 422 Water Resources Engineering
(c) ENNR 423 Energy Engineering 2
(d) ENNR 431 Bio-resources Engineering
(e) ENNR 451 Engineering in Developing Communities
(a) ENNR 404 Water Infrastructure and Design
(b) ENNR 407 Advanced Hydrology
(c) ENGR405 Industrial Pollution Control
(d) ENCI 445 Coastal and Inland Waters
(e) ENCI 481 Wastewater Treatment Plant Design
(f) ENCI 482 Solid Waste Engineering
(g) Two electives chosen with the approval of the Director of Studies.

Note: Not all courses in Schedule A or B may be offered in any one year and prospective candidates should consult the Director of Studies concerning which courses will be taught.

39. Transitional Regulation

A candidate who has commenced the BE(Hons) before 2011 shall complete the degree by taking courses approved by the Dean of Engineering and Forestry which are consistent with the regulations in the relevant Calendar.

40. Student Affected by Change of Regulations

If the course of study of a candidate is affected by a change in any of the above Regulations for the Degree of Bachelor of Engineering with Honours, the examinations which must be passed to complete the degree shall be determined by the Dean of Engineering and Forestry.

The Degree of Bachelor of Forestry Science (BForSc)

See also General Course and Examination Regulations.

1. Structure of the Degree

Subject to the provisions of the following Regulations, the degree shall consist of a First, Second, Third and Fourth Forestry Examination.

Note: Prescriptions for these Examinations are given elsewhere in the Calendar.

(a) Exemption from the First Forestry Examination
A candidate who has achieved sufficiently high grades in the appropriate NCEA Level 3 subjects or the University Entrance Bursaries Examination (or any other examination approved for the purpose by the Dean of Engineering and Forestry) may substitute other courses for part of or be exempt all or part of the First Forestry Examination.

(b) Pass in Examination as a Whole
Except as hereinafter provided, a candidate shall be expected to pass each Examination as a Whole. In recommending a candidate for a pass in any Examination the Dean of Engineering and Forestry shall take into consideration his or her performance in all the subjects of that Examination.

If a student has passed all of the courses except one of any given Examination, the Dean of Engineering and Forestry may, upon consideration of the student's grades in the successful courses, grant a Pass in the Examination as a Whole.

A candidate who has failed to pass any Examination as a whole, may, on the recommendation of the Dean, be credited with a course or courses of that Examination. The candidate may then present in a subsequent year the remaining courses of that Examination together with such courses of the succeeding Examination, if any, as the Dean may permit. The candidate shall be required to pass such a composite Examination under the same conditions as set out above.

(c) Approval of Course of Study for First Forestry Examination
Candidates who intend to take the First Forestry Examination at either the University of Canter-

bury or any other New Zealand University are required to have their course of study approved by the Dean of Engineering and Forestry prior to, or at the time of, enrolment.

Forestry Examinations

2. First Forestry Examination

The courses of the First Forestry Examination shall normally be as follows:

(1) BIOL 112 Ecology, Evolution and Conservation
(2) BIOL 113 Diversity of Life
(3) FORE 111 Trees, Forests and the Environment
(4) FORE 131 Trees in the Landscape
(5) FORE 141 Forest Growth and Measurements
(6) FORE 151 Commercial Aspects of Forestry
(7) STAT 101 Statistics 1
(8) Any 15 points of Chemistry at 100-level

Notes:

1. *CHEM 114 - Introductory Chemistry is the recommended option for the 100-level Chemistry course.*
2. *Students enrolling in the First Forestry Examination at Canterbury must complete FORE 111. Students completing the First Forestry Examination at another university should complete FORE 102 as part of their examination, in lieu of FORE 111. FORE 102 is also available for students who are intending to do Forestry and who are unable to attend FORE 111 on campus.*
3. *A candidate who has failed to gain a pass in all of the courses of the First Forestry Examination and is not eligible for a pass in the Examination as a Whole may, with the approval of the Dean of Engineering and Forestry, be permitted to repeat the course or courses failed or enrol for approved substitutes concurrently with courses of the Second Forestry Examination.*
4. *The Chair, Forestry Board of Studies, in consultation with the Dean of Engineering and Forestry, may modify the First Forestry Examination based on prior learning.*

3. Second Forestry Examination

The courses of the Second Forestry Examination shall normally be as follows:

(1) FORE 205 Forest Engineering
(2) FORE 215 Introduction to Forest Economics
(3) FORE 218 Forest Biology
(4) FORE 219 Introduction to Silviculture
(5) FORE 222 Biometry 1A
(6) FORE 224 Biometry 1B
(7) SOIL 203 Soil Fertility

Note: A candidate who has failed to gain a pass in all of the courses of the Second Forestry Examination and is not eligible for a pass in the Examination as a Whole may, with the approval of the Dean of Engineering and Forestry, be permitted to repeat the course or courses failed or enrol for approved substitutes concurrently with courses of the Third Forestry Examination

4. Third Forestry Examination

The courses of the Third Forestry Examination shall normally be as follows:

(1) FORE 307 Plantation Silviculture
(2) FORE 316 Forest Management
(3) FORE 327 Wood Science
(4) FORE 342 Geospatial Technologies in Forestry
(5) One course from either the Bachelor of Forestry Science 400-level schedule elective list or one course of at least 15 points from courses offered for any other degree at the 200-level or above.

Notes:

1. *A BForSc student may credit no more than 30 points from other degrees toward BForSc in total in Years Three and Four.*
2. *A candidate who has failed to gain a pass in all of the courses of the Third Forestry Examination and is not eligible for a pass in the Examination as a Whole may, with the approval of the Dean of Engineering and Forestry, be permitted to repeat the course or courses failed or enrol for approved substitutes concurrently with courses of the Fourth Forestry Examination.*

5. Fourth Forestry Examination

The courses for the Fourth Forestry Examination shall normally be as follows:

(1) FORE 419 Management Case Study
(2) FORE 444 Sustaining Biodiversity on Private Land
(3) FORE 445 Environmental Forestry
(4) And any four electives from:
  (a) FORE 404–409 Special Topics
  (b) FORE 422 Forest Harvest Planning
  (c) FORE 423 Forest Transportation and Road Design
  (d) FORE 426 Forest Products Marketing and International Trade
  (e) FORE 435 Forest Economics 2
  (f) FORE 436 Forest Tree Breeding
  (g) FORE 441 Engineered Wood Products
  (h) FORE 443 Biosecurity Risk Management
  (i) FORE 475 Independent Course of Study
  (j) Up to 30 points from courses offered at 300-level or above for any other degree.

Notes:

1. *A candidate's course of study shall be subject to the approval of the Dean of Engineering and Forestry.*

2. *Not all courses listed in the option schedule will necessarily be offered in any one year. Prospective candidates should consult the Dean of Engineering and Forestry concerning the courses to be taught.*
3. *A BForSc student may credit no more than 30 points from other degrees toward BForSc in total in Year Three and Four.*

6. Field Courses and First Aid Certificate

Every candidate shall complete to the satisfaction of the Board of Studies in Forestry three Field Courses and submit an approved First Aid Certificate.

Practical Work

Candidates are required to obtain practical work experience in forestry, conservation or forest industry during the summer vacations. The School may assist students in obtaining such work, which will be credited to a candidate's course only if performed in accordance with the following requirements:

(a) A candidate shall have completed 90 days work in employment approved by the Head of the School of Forestry before admission to the Fourth Forestry Examination.
(b) Practical work will be credited to a candidate's course only after confirmation by the candidate's employer of the number of days worked.
(c) The Head of the School of Forestry may relax or modify the application of clauses 1 and 2 in individual cases.
(d) Candidates are required to submit an approved current First Aid Certificate during the final year of study.

7. Requirements in Subjects in Other Degrees

Except as otherwise provided in these Regulations, a candidate enrolling for any course of the BForSc degree which is also a course for examination for any other degree shall comply with such of the Regulations for that degree relating to prerequisites, combinations of courses and practical work as are applicable to that course.

8. BForSc with Honours

Admission to candidacy for the BForSc with Honours shall be by approval of the Dean of Engineering and Forestry.

A candidate may qualify for admission at the end of Year 3 of the BForSc on the basis of grades in courses taken in Years 2 and 3. A candidate for BForSc with Honours will be required to enrol in FORE 414 Dissertation in addition to satisfying the requirements of the Fourth Forestry Examination. A candidate whose work has been of a sufficiently high standard shall be recommended for admission to the Degree with First or Second Class Honours. Each candidate obtaining Second Class Honours shall be listed in either of two divisions (Division I or Division II).

9. Exemption for BSc and BSc(Hons) Graduates

With the approval of the Academic Board, a candidate who has previously qualified at any New Zealand university for the award of the degree of Bachelor of Science (with or without Honours) or for any other degree may be exempted from the whole or part of both the First and Second Forestry Examinations. A special course of study, which could include both Year 2 and Year 3 papers, may be approved by the Dean of Engineering and Forestry.

10. Exemption for Candidates with NZ Certificate in Forestry, NZ Diploma in Forestry or NZ Certificate in Science

(a) Notwithstanding anything contained in these Regulations, a candidate who has qualified for the New Zealand Diploma in Forestry may, with the approval of the Dean of Engineering and Forestry, be exempted from parts of the first three Forestry Examinations but the Dean will require a special course of study of at least one year but normally two years prior to entry into the Fourth year.
(b) Notwithstanding anything contained in these Regulations, a candidate who has qualified with outstanding merit for the New Zealand Certificate in Forestry and who has completed the practical requirements for the award of that Certificate may, with the approval of the Dean of Engineering and Forestry, be exempted from the whole or part of the First and Second Forestry Examinations. A special course of study may be approved by the Dean.

    Note: Candidates should be adequately prepared in Mathematics and other basic sciences and may be required to undertake additional studies in these subjects before being accepted into the Third Forestry Examination. Candidates should consult with the Dean before completing enrolment.
(c) Notwithstanding anything contained in these Regulations, a candidate who has qualified with outstanding merit for the New Zealand Certificate in Science may, with the approval of the Dean of Engineering and Forestry, be exempted from all or part of the First Forestry Examination.

    Note: This regulation does not make provision for credit towards a BSc degree. If sought this must be applied for separately. See the BSc Regulation 9.

11. Cross Credits between BForSc and BCom Degrees

A candidate for the Degree of Bachelor of Forestry Science who is or has been enrolled for the Degree of Bachelor of Commerce shall, in addition to the credit permitted under Regulation K1 of the General Course and Examination Regulations, be permitted, with the approval of the Dean of Engineering and Forestry, to cross credit a further 15 points (0.125 EFT) from the Bachelor of Commerce Schedule in place of any FORE 400-level elective.

12. Cross Credits and Substitutes between BForSc and BSc Degrees

(a) A candidate for the Degree of Bachelor of Forestry Science who is or has been enrolled for the Degree of Bachelor of Science shall, in order to qualify for the award of both degrees, meet all requirements as laid down in the Regulations for the Degree of Bachelor of Forestry Science and obtain 180 points above 100-level in courses selected from the Schedule of Bachelor of Science which have not been credited to the Degree of Bachelor of Forestry Science or used to obtain exemption from a course in that degree. Of these points, 90 must be from 300-level courses, and include at least 60 points from a single subject or as required by the subject major. The remainder of the points must come from approved 200-level or 300-level courses.

(b) With the approval of the Dean of Engineering and Forestry a candidate may substitute additional 200-level courses equivalent to 15 points or 300-level courses equivalent to 15 points from the Bachelor of Science schedule for any FORE 400-level elective.

13. Transitional Regulation

A candidate who has commenced a BForSc degree before 1999 shall complete the degree by taking courses approved by the Dean of Engineering and Forestry which are consistent with the regulations in this Calendar.

Graduate Diploma in Forestry (GradDipFor)

See also General Course and Examination Regulations.

1. Qualifications Required to Enrol in the Diploma

(a) Every candidate for the Graduate Diploma in Forestry shall, before enrolling in the diploma, fulfil one of the following conditions, either:
  i. qualify for a bachelor's degree; or
  ii. be admitted ad eundem statum as entitled to enrol for the Graduate Diploma in Forestry.

(b) Every candidate for the Diploma shall have been approved as a candidate by the Dean of Engineering and Forestry.

Note: Graduates of the BForSc will not be admitted to the GradDipFor but may apply for the MForSc or PGDipFor.

2. Structure of the Diploma

To qualify for the diploma a candidate must complete courses which have a minimum weighting of 120 points. At least 90 points shall be from the 300- and 400-level Forestry courses.

3. Award of Diploma with Distinction

The Graduate Diploma in Forestry may be awarded with Distinction.

4. Exemption from Prerequisites

Normal prerequisites for any courses may be exempted at the discretion of the Dean of Engineering and Forestry.

5. Part-time Enrolment

The Graduate Diploma may be studied part-time.

6. Time Limits

The Graduate Diploma will be completed in one year of full-time study (under exceptional circumstances the Dean may extend this to 18 months) or two years of part-time study. A part-time candidate is one who, because of employment, health, family or other reasons, is unable to devote his or her full-time to study; part-time enrolment requires the approval of the Academic Board.

7. Repeating of Courses

A candidate who has failed one or more courses is allowed to repeat those courses for credit subject to the time limits in Regulation 6.

The Degree of Master of Engineering (ME)

See also General Course and Examination Regulations.

Note: The regulations to the ME offered prior to 2006 have been discontinued. Candidates who are currently enrolled under the existing regulations may complete their degree under those regulations (see page 253, 2005 Calendar).

1. Degree Programmes

The degree of Master of Engineering (ME) may be awarded endorsed in the following subjects: Bioengineering, Chemical and Process Engineering, Civil Engineering, Construction Management, Electrical and Electronic Engineering, and Mechanical Engineering.

2. Qualifications Required to Enrol in the Degree

A candidate shall have:

(a) either
   i. qualified for the award of the Degree of Bachelor of Engineering with first or second class honours; or
   ii. qualified for the award of the Postgraduate Diploma or Postgraduate Certificate in Engineering with a GPA of 5 or more; or
   iii. qualified for the award of the Degree of Bachelor of Science with first or second class honours in appropriate subjects; or
   iv. in exceptional circumstances, qualified for the award of another appropriate degree in New Zealand; or
   v. been admitted ad eundem statum as entitled to proceed to the Degree of Master of Engineering; and

(b) been approved as a candidate for the degree by the Dean of Engineering and Forestry.

Notes:

1. *Relevance and standard of previous study are the main criteria for approval.*
2. *Candidates will be approved only if appropriate research supervision and resources are available.*

3. Structure of the Degree

(a) The ME degree may be awarded as an endorsed degree in an area of specialisation selected from those specialisations listed in Schedule A.

(b) Each candidate must complete a programme of study with a minimum total weight of 1.4 EFTS. The programme of study consists of a thesis (1.0 EFTS) and courses with a total course weighting of not less than 48 points (0.4 EFTS). The courses must be selected as follows:
   i. courses with a total course weighting of not less than 12 points (0.1 EFTS) must be selected from the 600-level courses listed in Schedule B; and
   ii. additional courses with a total course weighting of not less than 24 points (0.3 EFTS) must be selected from the courses listed in Schedule B, or from postgraduate courses offered outside the Engineering programmes; and
   iii. any remaining courses, that ensure that the total course weight is not less than 48 points (0.4 EFTS), may be selected from 400-level courses offered in the Engineering programmes; and
   iv. the courses selected must satisfy the specific requirements for the chosen specialisation in Schedule A.

   Note: Not all courses may be available in a given discipline in any year.

(c) Each programme of study must be approved by the Head of Department and Dean of Engineering and Forestry.

(d) In exceptional circumstances the Dean of Engineering and Forestry may approve appropriate substitutions for courses listed in Regulation 3(b) above.

4. Exemptions

Subject to the approval of the Dean of Engineering and Forestry, students with relevant previous postgraduate study, or extensive relevant industry experience, may apply for exemption from some, or all, of the coursework (48 points) component of the degree.

5. Full-time and Part-time Enrolment

(a) A candidate shall normally enrol as a full-time candidate.
   i. A full-time candidate will enrol for not less than one year four months and not more than three years; or
   ii. if a candidate has been exempted courses under Regulation 4, then a minimum and maximum period of enrolment, consistent with the level of exemption, will be determined by the Dean of Engineering and Forestry at the time of enrolment, such that the minimum period is not less than one year.

   Note: With the approval of the supervisor and Head of Department, a full-time candidate may be employed in the university in academically relevant

work for up to an average of 6 hours per week over the calendar year.

(b) With the approval of the Dean of Engineering and Forestry, a candidate may be enrolled as a part-time candidate. A part-time candidate is one who, because of health, employment, family, or other circumstances, is unable to devote himself or herself to full-time study and research.
   i. A part-time candidate will enrol part-time for not less than two years six months and not more than four years; or
   ii. if a candidate has been exempted courses under regulation 4, then a minimum and maximum period of part-time enrolment, consistent with the level of exemption, will be determined by the Dean of Engineering and Forestry at the time of enrolment.

Note: Candidates are expected to be enrolled either part-time or full-time on a continuous basis. If a 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.

6. ME with Distinction

Candidates who obtain a GPA of 8.00 or more in their programme of study will be eligible for the award of ME with Distinction.

7. Theses

The presentation of the thesis shall conform to the requirements of the General Course and Examination Regulations: L, to the Guidelines for Master's Thesis Work, and to the Library Guide to the Presentation of Theses.

8. Transfer from ME to MEngSt

Subject to approval of the Dean of Engineering and Forestry, a candidate may transfer from the Master of Engineering to the Master of Engineering Studies subject to satisfying the regulation requirements of the MEngSt.

9. Transfer from ME to PhD

Where a candidate has demonstrated high research potential and has the support of the Head of Department, the candidate may abandon the Master of Engineering degree and apply to transfer to a PhD degree with such backdating of research thesis enrolment as may be approved by the Academic Board.

10. Award of ME instead of PhD

Where a thesis has been presented for the degree of Doctor of Philosophy in the Faculty of Engineering and Forestry, and the examiners are of the opinion that it does not justify the award of that degree they may recommend that it be presented for the degree of Master of Engineering. In this case the Dean of Engineering and Forestry may, if required for the award of the degree, exempt the course work component of the degree.

11. Award of PGCertEng instead of ME

Should a candidate fail to complete the requirements for the Master of Engineering degree but successfully complete the requirements for the award of the Postgraduate Certificate in Engineering, he or she may be awarded, upon the recommendation of the Academic Board, a Postgraduate Certificate in Engineering instead.

12. Transfer from PGCertEng to ME

Where a candidate has demonstrated research potential and has the support of the Head of Department or the appropriate Programme Director, he or she may abandon the Postgraduate Certificate before the completion of the qualification, and transfer to the Master of Engineering (ME), with such backdating of enrolment as may be approved by Academic Board.

(a) Subject to approval of the Dean of Engineering and Forestry, a candidate for the Postgraduate Certificate in Engineering my transfer to the Master of Engineering provided the following conditions have been met:
   i. The candidate has completed 48 points (0.4 EFTS) of the course requirements for the PGCertEng.
   ii. The candidate has achieved an average GPA of 5.0 or better in the completed courses; and
   iii. The courses completed by the candidate fulfil the coursework requirements of one of the ME specialisations, given in Schedule A of the ME Regulations; and
   iv. Suitable thesis supervision and research resources are available.

(b) Where the transfer of a candidate from the PGCertEng to a suitable ME Endorsement has been approved, the Dean of Engineering and Forestry will transfer appropriate courses from the candidate's PGCertEng studies towards their ME degree.

13. Transition Arrangements

Candidates enrolled in the Master of Engineering degree under previous regulations may complete their degree under those regulations. Such candidates, if they believe that they will be able to satisfy the requirements of a particular

specialisation given in Schedule A, may, subject to the approval of the Dean of Engineering and Forestry, transfer to a Master of Engineering in that specialisation.

Schedule A to the Regulations for the Degree of Master of Engineering (Endorsed)

Bioengineering

Required course: ENBI 601

Thesis: ENBI 690

Construction Management

Thesis: ENCM 690 and at least 24 points (0.2 EFTS) from the Construction Management course list listed in schedule B of the ME regulations.

Chemical and Process Engineering

Thesis: ENCH 690

Civil Engineering

Thesis: ENCI 690 and at least 24 points (.2 EFTS) 600-level ENCI courses

Electrical and Electronic Engineering

Thesis: ENEL 690

Mechanical Engineering

Thesis: ENME 690

Schedule B to the Regulations for the Degree of Master of Engineering (Endorsed)

Bioengineering

(1) ENBI 601 Medical Bioengineering
(2) ENBI 605 Biomedical Engineering Simulations

Chemical and Process Engineering

(1) ENCH 601 Advanced Thermodynamics and Statistical Thermodynamics
(2) ENCH 602 Computational Fluid Dynamics
(3) ENCH 603 Physical, Chemical and Analytical Techniques
(4) ENCH 604 Advanced Separation Processes
(5) ENCH 605 Biological Waste Processing
(6) ENCH 606 Advanced Process Simulation
(7) ENCH 607 Modelling and Numerical Methods
(8) ENCH 620 Clean Technology and Processes
(9) ENCH 621 Fundamentals for Sustainable Processes
(10) ENCH 622 Environmental Process Engineering
(11) ENCH 623 Environmental Management Systems

Civil Engineering

(1) ENCI 601 Risk Management
(2) ENCI 602 Introduction to Continuum Mechanics
(3) ENCI 603 Construction Operations Analysis and Management
(4) ENCI 611 Advanced Structural Steel
(5) ENCI 612 Bridge Structure
(6) ENCI 613 Structural Dynamics and Earthquake Engineering
(7) ENCI 614 Advanced Timber Engineering
(8) ENCI 615 Advanced Structural Concrete; Displacement Based Seismic Design and Retrofit Techniques
(9) ENCI 616 Finite Element Analysis
(10) ENCI 617 Engineering Seismology
(11) ENCI 618 Foundation Engineering
(12) ENCI 620 Geotechnical Earthquake Engineering
(13) ENCI 621 Concrete Materials and Practice
(14) ENCI 629 Special Topic: Structural Bridge Engineering
(15) ENCI 630 Special Topic: Nonlinear Concrete Mechanics
(16) ENCI 631 Environmental Systems Engineering
(17) ENCI 632 Ground Water Flow
(18) ENCI 634 Water and Soil Chemistry
(19) ENCI 635 Ecological Engineering
(20) ENCI 636 Advanced Biological Waste Processes
(21) ENCI 637 Marine Pollution Modelling
(22) ENCI 638 Environmental Fluid Dynamics
(23) ENCI 639 Advanced water hammer analysis and design
(24) ENCI 648 Special Topic: Soil and Water Conservation Engineering
(25) ENCI 657 Special Topic: Advanced Shockwave Modelling for Fault Monitoring in Pipeline Systems
(26) ENCI 660 Special Topic: Advanced Physical-Chemical Water/Wastewater Treatment

Computer Science

(1) COSC424 Secure Software
(2) COSC426 Augmented Reality
(3) COSC410 Simulation Modelling and Analysis

Construction Management

(1) ENCI 601 Risk Management
(2) ENCM 610 Construction Management
(3) ENCM 620 Construction Procurement and Contract Administration

(4) ENCM 630 Project Management, Planning and Control Techniques
(5) ENCM 640 Strategic Management in Construction
(6) ENCM 682 Research Project
(7) ENTR 604 Road Asset Management

Electrical and Electronic Engineering

(1) ENEL 611 Advanced Communications Electronics
(2) ENEL 614 Biomedical Engineering
(3) ENEL 615 High Frequency Switching Techniques
(4) ENEL 619 Computational Image Recovery
(5) ENEL 622 Advanced Signal Processing
(6) ENEL 629 Advanced Power System Engineering
(7) ENEL 641 Advanced Semiconductor Devices
(8) ENEL 650 Advanced Digital Communications
(9) ENEL 657 Applied Digital Signal Processing
(10) ENEL 661 Special Topic: Electrical System Design
(11) ENEL 662 Special Topic: Electrical System Design 2
(12) ENEL 672 Nano-Engineered Materials and Devices
(13) ENEL 674 Applied Random Processes
(14) ENEL 675 Special Topic: Advanced Embedded Systems
(15) ENEL 677 Advanced Systems and Control
(16) ENEL 678 Special Topic: Electric Power Engineering, Economics and the Environment
(17) ENEL 685 Electrical Postgraduate Project

Engineering

(1) ENGR 684 Special Topic: Parallel Computing Architectures
(2) ENGR 685 Special Topic: Structured Programming for Scientific Computing
(3) RNGR 686 Special Topic: Structured Programming for Scientific Computing
(4) ENGR 687 Special Topic: Structured Programming for Scientific Computing

Forestry Science

(1) FORE 606 Forest Transport
(2) FORE 607 Forest Harvesting
(3) FORE 609 Advanced Wood-based Composites
(4) FORE 616 Restoration Ecology
(5) FORE 641 Plantation Forest Management
(6) FORE 642 Advanced IT Applications in Forestry and Natural Resource Management

Fire Engineering

(1) ENFE 601 Structural Fire Engineering
(2) ENFE 602 Fire Dynamics
(3) ENFE 603 Fire Safety Systems
(4) ENFE 604 Fire Design Case Study
(5) ENFE 610 Advanced Fire Dynamics

Mechanical Engineering

(1) ENME 601 Product Innovation
(2) ENME 630 Advanced Computational Solid Mechanics
(3) ENME 632 Advanced Mechanics of Vibration
(4) ENME 633 Advanced Modern Control Theory
(5) ENME 635 Advanced Heat and Mass Transfer
(6) ENME 636 Advanced Manufacturing Technology
(7) ENME 640 Advanced Mechanical System Design - Process
(8) ENME 641 Advanced Mechanical System Design - Special Applications
(9) ENME 643 Advanced Computer Control and Instrumentation
(10) ENME 645 Advanced Energy Engineering
(11) ENME 654 Introduction to Acoustics
(12) ENME 656 Advanced Computer-Aided Product Development
(13) ENME 657 Advanced Fracture Mechanics and Failure Analysis
(14) ENME 664 Biofluid Mechanics
(15) ENME 665 Advanced HVAC Engineering
(16) ENME 667 Advanced Polymeric and Composite Materials
(17) ENME 671 Computational Methods in Elasto-dynamic Inverse Problem
(18) ENME 676 Biomaterials Science

Engineering Mathematics

(1) EMTH 600 Dynamical Systems
(2) EMTH 601 Continuous Biological Systems
(3) EMTH 602 Fluid Mechanics
(4) EMTH 603 Numerical Solution of Partial Differential Equations
(5) EMTH 604 Unconstrained Optimisation
(6) EMTH 605 Approximation Theory
(7) EMTH 606 Algebraic and Symbolic Computation
(8) EMTH 607 Coding Theory
(9) EMTH 608 Industrial Case Studies

Transport Engineering

(1) ENTR 602 Accident Reduction and Prevention
(2) ENTR 603 Advanced Pavement Design
(3) ENTR 604 Road Asset Management
(4) ENTR 611 Planning and Managing for Transport
(5) ENTR 612 Transport Policy and Demand Management
(6) ENTR 613 Highway Geometric Design
(7) ENTR 614 Planning and Design of Sustainable Transport
(8) ENTR 615 Transport Network Modelling
(9) ENTR 616 Advanced Transport Planning and Modelling
(10) ENTR 617 Traffic Engineering and Design
(11) ENTR 618 Transport and Freight Logistics

Notes:

1. *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.*
2. *Special topics are available in Chemical and Process Engineering, Civil Engineering, Electrical and Electronic Engineering, Mechanical Engineering, Engineering Mathematics and Transport Engineering. Students are advised to contact the departments for more information on special topics.*
3. *With the approval of the Director of the Construction Management Programme, students may credit up to two courses offered in the Construction Management Programme at the University of Auckland*

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

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 Fire Engineering shall have:

(a) either
   i. qualified for the award of the Degree of Bachelor of Engineering with First or Second Class Honours; or
   ii. qualified for the award of the Postgraduate Diploma or Postgraduate Certificate in Engineering with a GPA of 5 or more; or
   iii. qualified for the award of the Degree of Bachelor of Science with Honours in appropriate subjects; or
   iv. in exceptional circumstances, qualified for the award of an appropriate degree in New Zealand; or
   v. been admitted ad eundem statum as entitled to proceed to the Degree of Master of Engineering in Fire Engineering; and

(b) for MEFE by examination and project report, have completed a suitable period of professional engineering experience; and

(c) been approved as a candidate for the degree by the Dean of Engineering and Forestry.

Notes:

1. *Relevance and standard of undergraduate studies are the main criteria for approval.*
2. *Candidates will only be approved if appropriate research supervision is available.*
3. *The period of professional engineering experience required for entry to MEFE by examination and project report will normally be four years.*

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 a qualifying programme of study, specified by the Director of the Fire Engineering Programme and approved by the Dean of Engineering and Forestry. Completion of this programme to a satisfactory standard and approval as a candidate for the degree by the Dean of Engineering and Forestry will qualify the candidate for enrolment in a Master of Engineering in Fire Engineering.

Note: Candidates will be approved for the degree by the Dean of Engineering and Forestry only if an appropriate research topic is identified during the qualifying programme and supervision is available for that topic.

3. Structure of the Degree

For each candidate, the Dean of Engineering and Forestry will approve, on the basis of academic background and work experience, the programme of study to be followed to qualify for the degree. Candidates without prior practical experience will normally be required to complete a thesis rather than a project report.

The degree may be completed:

(a) by examination and project report; or

(b) by examination and thesis.

4. Full-time and Part-time Enrolment

(a) Full-time study:
   i. A candidate shall normally be enrolled as a full-time or part-time candidate.
   ii. A full-time candidate is one who throughout the calendar year regards study and research for the Master of Engineering in Fire Engineering as a full-time occupation.

   Note: With the approval of the supervisor and Director of the Fire Engineering programme, a full-time candidate may be employed in the university in academically relevant work for up to an average of 6 hours a week over the calendar year.

(b) Part-time study:
   i. With the approval of the Academic Board, a candidate may be enrolled as a part-time candidate.

ii. A part-time candidate is one who, because of employment, health, family or other reasons, is unable to devote his or her full-time to study and research.
iii. An applicant for part-time enrolment must produce evidence, including a statement from any employer, that he or she will be able to pursue satisfactorily the necessary study and research. The Dean of Engineering and Forestry will not approve part-time enrolment unless satisfied that the candidate can devote sufficient time to study and research to be able to complete the degree within the relevant time as stated in Regulation 4 above, that any necessary access to required facilities will be available and that adequate regular communication with a nominated supervisor is assured.

(c) After the commencement of study and research for the degree a candidate may, with the permission of the Academic Board, transfer from part-time to full-time status, or vice-versa. In granting such permission, the Dean shall determine the minimum period of study and may impose other conditions.

Note: Candidates are expected to be enrolled either part-time or full-time on a continuous basis. If a 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

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

(a) 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
(b) pass an examination in six courses selected from the Schedule to these regulations; and
(c) present a project report and satisfy the examiners therewith.

A candidate for the Degree of Master of Engineering in Fire Engineering by examination and thesis shall:

(a) enrol in and pursue either full-time for not less than one year and not more than three years, 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
(b) pass an examination in six courses selected from the Schedule to these regulations; and
(c) present a thesis and satisfy the examiners therewith.

6. MEFE with Distinction

In cases of exceptional merit candidates may, on the recommendation of the examiners, have the degree awarded 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 all courses taken.

Note: Candidates may enquire from the Dean of Engineering and Forestry as to the standards required for Distinction.

7. Project Reports

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

(a) the project report shall describe work done by the candidate on a project approved by the Director of the Fire Engineering programme. The project shall be carried out by the candidate at the University under the direct supervision of a member of academic staff. In particular circumstances the project may be carried out in such other places and for such period or periods of time as may be approved by the Director of the Fire Engineering programme;
(b) the candidate shall submit for examination two hard bound copies of the project report to the Director of the Fire Engineering programme;
(c) the project report shall be submitted by a full-time candidate within one year or by a part-time candidate within four years from the date upon which study for the MEFE commenced, unless the candidate is permitted a longer period by the Dean of Engineering and Forestry.
(d) the project report shall be examined by one or more examiners appointed by the Director of the Fire Engineering programme.

8. Theses

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

(a) the presentation of the thesis shall conform to the requirements of the General Course and Examination Regulations, Part L, to the Guidelines for Masters Thesis Work and to the Library's guide to thesis production;
(b) the thesis shall describe the work done by the candidate in an investigation in a subject approved by the Director of the Fire Engineering programme. The investigation shall be carried

out at the University by the candidate under the direct supervision of a member of the academic staff. In special circumstances the investigation may be carried out in such other places for such period or periods as may be determined by the Head of Department.

(c) the candidate shall submit for examination two copies of the thesis;

(d) the thesis shall be examined by an external examiner appointed by Council and by one or more internal examiners appointed by Council (Note: See also General Course and Examination Regulations, Part D);

(e) if the thesis at its first presentation is inadequate to secure a pass the Academic Board may, on the recommendation of the examiners, permit the candidate to revise the thesis and resubmit it by a specified date;

(f) except with the approval of the Dean of Engineering and Forestry the thesis shall be submitted within three calendar years by a full-time candidate and within four years by a part-time candidate.

9. Transfer from MEFE to PhD

Where a candidate has demonstrated high research potential and has the support of the Director of the Fire Engineering programme, he or she may apply for transfer to a PhD degree with such backdating of enrolment as may be approved by the Academic Board.

10. Transfer from PGCert to MEFE

Should a candidate fail to complete the requirements for the Degree of Master of Engineering in Fire Engineering he or she, after completing such extra work, if any, as may be required by the Director of the Fire Engineering Programme, may apply to the Academic Board for the award of a Postgraduate Diploma in Engineering.

Note: The Postgraduate Diploma in Engineering was discontinued from 2006. The award of PGDipEng instead of the MEFE will not be available to new candidates enrolled from 2006

11. Award of PGCertEng instead of MEFE

Should a candidate fail to complete the requirements for the Degree of Master of Engineering in Fire Engineering, but successfully completes the requirements for the award of the Postgraduate Certificate in Engineering, he or she may be awarded, upon the recommendation of the Academic Board, a Postgraduate Certificate in Engineering.

Schedule to the Regulations for the Degree of Master of Engineering in Fire Engineering

Courses

(1) ENCI 601 Risk Management
(2) ENFE 601 Structural Fire Engineering
(3) ENFE 602 Fire Dynamics
(4) ENFE 603 Fire Safety Systems
(5) ENFE 604 Fire Design Case Study
(6) ENFE 610 Advanced Fire Dynamics
(7) ENFE 612 Special Topic
(8) ENFE 613 Special Topic: Human Behaviour in Fire
(9) ENFE 614 Special Topic

Project

ENFE 680

Note: Part-time enrolment is available on approval.

Thesis

ENFE 690 (full-time students)

Note: Part-time enrolment (0.65 EFTS) is available on approval.

Certain courses offered at the University of Auckland may be offered in lieu of one or more of the above courses. Intending students must consult the Director of the Fire Engineering Programme for details of these courses, and to determine which courses ENFE 610-614 will be offered in any one year, and their subject matter.

The Degree of Master of Engineering in Management (MEM)

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 Management shall have:

(a) either
   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 Management; and

(b) been approved as a candidate for the degree by the Dean of Engineering and Forestry.

Notes:

1. *Relevance and standard of undergraduate studies are the main criteria for approval.*
2. *Candidates will only be approved if appropriate research supervision is available.*

2. Structure of the Degree

A candidate for the Degree of Master of Engineering in Management shall:

(a) enrol in and pursue full-time for one year a programme of study approved by the Dean of Engineering; and

(b) during the year of study, pass an examination in six courses selected from the Schedule to these Regulations; and

(c) during the year of study, present a project report and satisfy the examiners therewith.

3. MEM with Distinction

In cases of exceptional merit candidates may, on the recommendation of the examiners, have the degree awarded with Distinction

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 Engineering and Forestry as to the standards required for Distinction.

5. Project Reports

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

(a) the project report shall describe work done by the candidate on a project approved by the Director of the Master of Engineering in Management programme. The project shall be carried out by the candidate at the University under the direct supervision of a member of academic staff. In particular circumstances the project may be carried out in such other places and for such period or periods of time as may be approved by the Director of the Master of Engineering in Management programme;

(b) the candidate shall submit for examination two hard bound copies of the project report to the Director of the Master of Engineering in Management programme;

(c) the project report shall be submitted within one calendar year from the date upon which study for the Master of Engineering in Management commenced;

(d) the project report shall be examined by one or more examiners appointed by the Director of the Master of Engineering in Management programme.

Schedule to the Regulations for the Degree of Master of Engineering in Management

Courses

(1) ENMG 601 Engineering Accounting
(2) ENMG 602 Engineering Economics and Finance
(3) ENMG 603 Legal and Human Resource
(4) ENMG 604 Technology, Innovation and Engineering Management
(5) ENMG 605 Marketing, Selling and Service
(6) ENMG 606 Strategic Management
(7) ENMG 607 Special Topic
(8) ENMG 608 Special Topic
(9) ENMG 609 Special Topic

Project

ENMG 680

Note: Not all courses will be offered in a single year.

Intending students must consult the Director of the Master of Engineering in Management Programme to determine which courses in ENMG 601-9 will be offered in any one year, and their subject matter.

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) either
   i. qualified for the award of the Degree of Bachelor of Engineering with First or Second Class Honours; or
   ii. qualified for the award of the Postgraduate Diploma or Postgraduate Certificate in Engineering with a GPA of 5 or more; or
   iii. qualified for the award of the Degree of Bachelor of Science with Honours in appropriate subjects; or
   iv. in exceptional circumstances, qualified for the award of an appropriate degree in New Zealand; or
   v. been admitted ad eundem statum as entitled to proceed to the Degree of Master of Engineering in Transportation; and

(b) been approved as a candidate for the degree by the Dean of Engineering and Forestry.

Notes:

1. *The relevance and standard of undergraduate studies and any subsequent professional experience are the ma in criteria for approval..*
2. *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 a qualifying programme of study, specified by the Director of the Transportation Engineering Programme and approved by the Dean of Engineering and Forestry. Completion of this programme to a satisfactory standard and approval as a candidate for the degree by the Dean of Engineering and Forestry will qualify the candidate for enrolment in a Master of Engineering in Transportation

Note: Candidates will be approved for the degree by the Dean of Engineering and Forestry only if an appropriate research topic is identified during the qualifying programme and supervision is available for that topic.

3. Structure of the Degree

For each candidate the Dean of Engineering and Forestry will approve, on the basis of academic background and work experience, the programme of study to be followed to qualify for the degree.

The degree may be completed:

(a) by examination and project report, or
(b) by examination and thesis, or
(c) by thesis.

Note: In any year not all programmes of study may be available.

4. Full-time and Part-time Enrolment

(a) Full-time study:
   i. A candidate may be enrolled as a full-time or part-time candidate.
   ii. A full-time candidate is one who throughout the calendar year regards study and research for the Master of Engineering in Transportation as a full-time occupation. Note: With the approval of the supervisor and Director of the Transportation Engineering Programme, a full-time candidate may be employed in the university in academically-relevant work for up to an average of six hours a week over the calendar year.

(b) Part-time study:
   i. With the approval of the Dean of Engineering and Forestry, a candidate may be enrolled as a part-time candidate.
   ii. A part-time candidate is one who, because of employment, health, family or other reasons, is unable to devote his or her full-time to study and research.
   iii. An applicant for part-time enrolment must produce evidence, including a statement from any employer, that he or she will be able to pursue satisfactorily the necessary study and research. The Dean will not ap-

prove part-time enrolment unless satisfied that the candidate can devote sufficient time to study and research to be able to complete the degree programme within four years, that any necessary access to required facilities will be available, and that adequate regular communication with a nominated supervisor is assured.

(c) After the commencement of study and research for the degree a candidate may, with the permission of the Academic Board, transfer from part-time to full-time status, or vice-versa. In granting such permission, the Dean shall determine the minimum period of study and may impose other conditions.

Note: Candidates are expected to be enrolled either part-time or full-time on a continuous basis. If a 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) A candidate for the Degree of Master of Engineering in Transportation by examination and project shall:

(b) 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

(c) 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 these Regulations; and

(d) during the programme of study, present a project report and satisfy the examiners therewith.

6. Programme of Study Involving Examinations and a Thesis

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

(a) enrol in and pursue either full-time for not less than one year and not more than three years, 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

(b) pass an examination in one to four courses as determined by the Director of the Transportation Engineering Programme and selected from the Schedule to these Regulations; and

(c) present a thesis and satisfy the examiners therewith, and, if so required, take an oral examination on the subject of the thesis and related subjects.

7. Programme of Study Involving a Thesis Alone

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

(a) enrol in and pursue either full-time for not less than one year and not more than three years, 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

(b) present a thesis and satisfy the examiners therewith, and, if so required, take an oral examination on the subject of the thesis and related subjects.

8. MET with Distinction

In cases of exceptional merit candidates may, on the recommendation of the examiners, have the degree awarded 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 or thesis and of all courses taken.

Note: Candidates may enquire from the Dean of Engineering and Forestry as to the standards required for Distinction.

9. Theses

The presentation of the thesis shall conform to the requirements of the General Course and Examination Regulations: L, to the Guidelines for Master's Thesis Work,and to the Library Guide to the Presentation of Theses.

10. Project Reports

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

(a) the project report shall describe work done by the candidate on a project approved by the Director of the Transportation Engineering Programme; the project shall be carried out by the candidate at the University under the direct supervision of a member of academic staff; in particular circumstances the project may be carried out in such other places and for such period or periods of time as may be approved by the Director of the Transportation Engineering Programme;

(b) the candidate shall submit for examination two hard bound copies of the project report to

the Director of the Transportation Engineering Programme;

(c) the project report shall be submitted by a full-time candidate within one calendar year from the date upon which study for the Master of Engineering in Transportation by examination and project commenced or within four years by a part-time candidate;

(d) the project report shall be examined by one or more examiners appointed by the Director of the Transportation Engineering Programme.

11. Transfer from MET to PhD

Where a candidate has demonstrated high research potential and has the support of the Director of the Transportation Engineering Programme, he or she may abandon the Master of Engineering degree and apply for transfer to a PhD degree with such backdating of enrolment as may be approved by the Academic Board.

Note: Candidates transferring to PhD must meet the normal entry requirements for that degree.

12. Award of PGCertEng instead of MET

Should a candidate fail to complete the requirements for the Master or Engineering in Transportation degree, but successfully complete the requirements for the award of the Postgraduate Certificate in Engineering, he or she may be awarded, upon the recommendation of the Academic Board, a Postgraduate Certificate in Engineering instead.

13. Transfer from PGCertEng to MET

Where a candidate has demonstrated research potential and has the support of the Head of Department or the appropriate Programme Director, he or she may abandon the Postgraduate Certificate before the completion of the qualification, and transfer to the Master of Engineering in Transportation (MET) with such backdating of enrolment as may be approved by Academic Board.

(a) Subject to approval of the Dean of Engineering and Forestry, a candidate for the Postgraduate Certificate in Engineering may transfer to the Master of Engineering in Transportation provided the following conditions have been met:
   i. The candidate has completed 48 points (0.4 EFTS) of the course requirements for the PGCertEng.
   ii. The candidate has achieved an average GPA of 5.0 or better in the completed courses; and
   iii. Suitable thesis or project supervision and research resources are available.

(b) Where the transfer of a candidate from the PGCertEng to the MET has been approved, the Dean of Engineering and Forestry will transfer appropriate courses from the candidate's PGCertEng studies towards their MET degree.

Note: Candidates may be required to complete further course requirements depending on which programme of study they enrol in. See also MET Degree Regulations.

Schedule to the Regulations for the Degree of Master of Engineering in Transportation

Courses

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

Notes:

1. *For new candidates from 2008 without an appropriate Bachelor of Engineering degree or equivalent experience/qualif ications, ENTR 401 must normally be completed prior to undertaking other ENTR courses.*
2. *All new students from 2008 shall normally be required to complete ENTR 611 as part of their qualification. This should normally be undertaken before (or in co njunction with) any other 600-level ENTR courses.*
3. *With the approval of the Director of the Transportation Engineering programme, the following may be offered in lieu of one or more of the above courses, provided that not less than half the courses for the degree are from the above Schedule:*
   (a) Other relevant courses offered by the University of Canterbury at 400-level or greater; or
   (b) Courses offered in the Transportation Engineering programme at the University of Auckland; or
   (c) Other relevant co urses offered at other universities.
4. *Intending candidates must consult the Director of the Transportation Engineering programme to determine which courses will be offered in any one year and which courses they will be required to complete.*

Project:

ENTR 680 (full-time students)

Note: Part-time enrolment is available on approval.

Thesis:

ENTR 690 (full-time students)

Note: Part-time enrolment (0.65 EFTS) is available on approval.

The Degree of Master of Engineering Studies (MEngSt)

See also General Course and Examination Regulations.

1. Degree Programmes

(a) The degree of Master of Engineering Studies (MEngSt) is offered by the Departments of Chemical and Process Engineering, Civil and Natural Resources Engineering, Electrical and Computer Engineering, and Mechanical Engineering.
(b) It may be awarded endorsed in the following subjects:
   i. Civil Engineering
   ii. Construction Management
   iii. Mechanical Engineering

2. Qualifications Required to Enrol in the Degree

A candidate shall have:
(a) either
   i. qualified for the award of the Degree of Bachelor of Engineering with First or Second Class Honours; or
   ii. qualified for the award of the Postgraduate Diploma or Postgraduate Certificate in Engineering with a GPA of 5 or more; or
   iii. qualified for the award of the Degree of Bachelor of Science with Honours in appropriate subjects; or
   iv. in exceptional circumstances, qualified for the award of an appropriate degree in New Zealand; or
   v. been admitted ad eundem statum as entitled to proceed to the Degree of Master of Engineering Studies; and
(b) been approved as a candidate for the degree by the Dean of Engineering and Forestry.

   Note: Relevance and standard of previous study is the main criteria for approval.

3. Structure of the Degree

Each candidate must complete a programme of study that consists of courses with a total course weighting of not less than 120 points (1.0 EFTS). The courses must be selected as follows:
(a) courses with a total course weighting of not less than 72 points (0.6 EFTS) must be selected from the courses listed in Schedule B of the Master of Engineering regulations, or from postgraduate courses offered outside the Engineering programmes; and
(b) any remaining courses, that ensure that the total course weight is not less than 120 points (1.0 EFTS), may be selected from the list of 400-level courses offered by the Engineering programmes; and
(c) the total course weight of courses selected from outside the Engineering programmes may not amount to more than 36 points (0.3 EFTS).

Note: In any year not all courses may be available in a given discipline.

4. Full-time and Part-time Enrolment

A candidate may be enrolled for the Master of Engineering Studies as a full-time or part-time candidate. A full-time candidate will enrol for not less than one year and not more than two years. A part-time candidate will enrol for not less than two years and not more than five years. Part-time enrolment requires the approval of the Dean of Engineering and Forestry.

Notes:
1. *With the approval of the Head of Department, a full-time candidate may be employed in the University in academically relevant work for up to an average of 6 hours per week over the calendar year.*
2. *Candidates are expected to be enrolled either part-time or full-time on a continuous basis. If a 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. MEngSt with Distinction

Candidates who obtain a GPA of 8.00 or more in their programme of study will be eligible for the award of MEngSt with Distinction.

6. Transfer from MEngSt to ME/MET

(a) Subject to the approval of the Dean of Engineering and Forestry, a candidate for the Master of Engineering Studies may transfer to a Master of Engineering or Master of Engineering in Transportation provided the following conditions have been met:
   i. the candidate has completed 48 points (0.4 EFTS) of the course requirements for the MEngSt; and
   ii. the candidate has achieved an average GPA of 5.0 or better in the completed courses; and
   iii. the courses completed by the candidate fulfil the coursework requirements of one of the ME specialisations given in Schedule A of the ME regulationsor the schedule to the regulations of the MET; and
   iv. suitable thesis supervision and research resources are available.

(b) Where the transfer of a candidate from the MEngSt to a suitable ME endorsement has been approved, the Dean of Engineering and Forestry will transfer appropriate courses from the candidate's MEngSt studies towards their ME degree.

7. Award of PGCertEng instead of MEngSt

Should a candidate fail to complete the requirements for the Master of Engineering Studies degree, but successfully complete the requirements for the award of the Postgraduate Certificate in Engineering, he or she may be awarded, upon the recommendation of the Academic Board, a Postgraduate Certificate in Engineering instead.

Schedule to the Regulations for the Degree of Master of Engineering Studies (un-endorsed)

See Regulation 3 above.

Note: Not all courses will be offered in any one year.

Schedule to the Regulations for the Degree of Master of Engineering Studies (endorsed)

Civil Engineering

Courses with a total course weighting of not less than 72 points (0.6 EFTS) shall be selected from ENCI courses listed in Schedule B of the Master of Engineering Regulations.

Construction Management

Courses with a total course weighting of not less than 72 points (0.6 EFTS) shall be selected from the Construction Management course list listed in Schedule B of the Master of Engineering regulations and subject to approval of the Programme Director.

Note: With the approval of the Director of the Construction Management Programme, students may credit up to two courses offered in the Construction Management Programme at the University of Auckland.

Mechanical Engineering

Courses with a total course weighting of not less than 72 points (0.6 EFTS) shall be selected from ENME courses listed in Schedule B of the Master of Engineering Regulations.

The Degree of Master of Forestry Science (MForSc)

See also General Course and Examination Regulations.

1. Qualifications Required to Enrol in the Degree

Every candidate for the Degree of Master of Forestry Science shall before entering upon a course of study for the degree satisfy the Dean of Engineering and Forestry of his or her ability to undertake the course and in particular shall have either:

(a) qualified for the award of the Degree of Bachelor of Forestry Science with or without Honours; or
(b) qualified, with appropriate subjects, for the award of a degree other than the Bachelor of Forestry Science; or
(c) qualified for the award of Postgraduate Diploma in Forestry; or
(d) been admitted ad eundum statum as entitled to proceed to the Degree of Master of Forestry Science.

2. Course of Study

The Dean of Engineering and Forestry shall determine, for each candidate, whether he or she shall follow a course of study to qualify for the degree either:

(a) by examination and report; or
(b) by examination and thesis; or
(c) by thesis.

Note: Eligibility for the above options will depend on the nature and standard of the candidate's prior qualification, and the nature of any proposed research topic.

3. Part-time Study

A candidate may be enrolled for the degree either full-time or part-time. A part-time candidate is one who, because of employment, health, family or other reasons, is unable to devote his or her fulltime to study; part-time enrolment requires the approval of the Academic Board.

4. Courses and Time Requirements

(a) A candidate for the degree by Examination and Report must pass six courses from the Schedule to these Regulations and present a satisfactory project report which has the weight of two courses. The minimum and maximum times for full-time study will normally be two years and three years respectively; the minimum and maximum times for part-time study will normally be three years and four years respectively.

Note: Normally a full-time student will complete four courses in the first year and two courses and the report in the second year.

(b) A candidate for the degree by Examination and Thesis must pass four courses from the Schedule to these Regulations, and present a satisfactory thesis which has the weight of four courses. The minimum and maximum times for full-time study will normally be two years and three years respectively; the minimum and maximum times for part-time study will normally be three years and four years respectively.

Note: Normally a full-time student will complete four courses in the first year and the thesis in the second year.

(c) The minimum and maximum times for full-time study for the degree by thesis will normally be one year and two years respectively; the minimum and maximum times for part-time study for the degree by thesis will normally be 18 months and three years respectively.

(d) To qualify for the award of the degree, all requirements must be completed within the times listed above, from the date of commencing the course of study, unless the candidate is granted an extension of time by the Academic Board because of special circumstances.

5. Courses from Other Degrees

A candidate may with the approval of the Head of School of Forestry and of the Head of the other Department concerned replace up to two of the courses prescribed for this degree by courses from a subject listed for another Masters degree or at an equivalent level for another Honours degree.

6. Examination of Theses

Where a candidate is taking the degree by Thesis or by Examination and Thesis the candidate will present a thesis embodying the results of an investigation conducted by the candidate in a subject approved by the Dean and satisfy the examiners therewith and, if so required, take an oral examination on the subject of the thesis.

7. Thesis Requirements

Where a thesis is required, the requirements of the General Course and Examination Regulations Part L, and the following conditions shall be met:

(a) The thesis shall describe the work done by the candidate in an investigation in a subject approved by the Dean. The investigation shall be carried out by the candidate under the direct supervision of a university teacher at a University institution or in special circumstances in an approved institution outside the University for such period or periods as may be determined from time to time by the Academic Board.

(b) A candidate shall not present a thesis any part of which has previously been accepted for any degree.

(c) If the thesis at its first presentation is unsatisfactory the examiners may recommend that the thesis be revised and resubmitted by a specified date.

8. Award of Honours

The degree may be awarded with Honours, which may be First Class or Second Class (Division 1 or 2). No candidate who has exceeded the time limits set out in Regulation 4 of these Regulations shall be eligible for honours, except with the approval of the Academic Board.

9. Award of MForSc instead of PhD

Where a thesis has been presented for the Degree of Doctor of Philosophy in the School of Forestry and the examiners are of the opinion that it does not justify the award of that degree they may recommend that the candidate be awarded the Degree of Master of Forestry Science.

10. 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 their MForSc degree.

11. Transfer from PGDipFor 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.

Schedule to the Regulations for the Degree of Master of Forestry Science

(1) FORE 606 Forest Transport
(2) FORE 607 Forest Harvesting
(3) FORE 609 Advanced Wood-Based Composites
(4) FORE 610 Research Methods
(5) FORE 612 Advanced Forest Economics
(6) FORE 613 Marketing
(7) FORE 616 Restoration Ecology
(8) FORE 624 Plantation Silviculture
(9) FORE 641 Plantation Forest Management
(10) FORE 642 Advanced Information Technology Applications in Forestry and Natural Resource Management
(11) FORE 643 Modelling for Forestry Management
(12) FORE 650-659 Special Topics
(13) FORE 665 Pest Management and Biological Security
(14) FORE 670-672 Special Topics

Note: Not all courses in this Schedule will necessarily be offered in any one year. Students are advised to consult with the Dean of Engineering and Forestry to determine which courses will be offered in any one year and their subject matter.

Postgraduate Certificate in Engineering (PGCertEng)

See also General Course and Examination Regulations.

1. Certificate programmes

(a) The qualification of Postgraduate Certificate in Engineering (PGCertEng) is offered by the Departments of Chemical and Process Engineering , Civil and Natural Resources Engineering , Electrical and Computer Engineering , and Mechanical Engineering.
(b) It may be awarded endorsed in the following subjects:
  i. Civil Engineering
  ii. Construction Management
  iii. Fire Engineering;
  iv. Mechanical Engineering
  v. Transportation Engineering.

2. Qualifications required to enrol in the Certificate

A candidate shall have:
(a) either
  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 the Degree of Bachelor of Science with Honours in appropriate subjects; or
  iv. in exceptional circumstances, qualified for the award of another appropriate degree in New Zealand; or
  v. been admitted ad eundem statum and entitled to proceed to the qualification of Postgraduate Certificate in Engineering; and
(b) been approved as a candidate for the Postgraduate Certificate by the Dean of Engineering and Forestry.

Note: The relevance and standard of undergraduate studies and any subsequent professional work experience are the main criteria for approval.

3. Structure of the Certificate

(a) To qualify for the award of the Postgraduate Certificate in Engineering, a candidate shall pass the prescribed courses in the Schedule to the value of 60 points (0.5 EFTS). The courses must be selected as follows:
  i. courses with a total course weighting of not less than 36 points (0.3EFTS) must be selected from the courses listed in Schedule B of the Master of Engineering regulations, or from postgraduate courses offered outside the Engineering programmes; and
  ii. any remaining courses, that ensure that the total course weight is not less than 60 points (0.5 EFTS) may be selected from the list of 400-level courses offered by the Engineering programmes; and
  iii. the total course weight of courses selected from outside the Engineering programmes may not amount to more than 15 points (0.125 EFTS).
(b) Each programme of study must be approved by the Head of Department or Director of Studies and the Dean of Engineering and Forestry.

4. Full-time and Part-time enrolment

A candidate may be enrolled, either part-time or full-time, for not more than 4 years.

Note: Candidates are expected to be enrolled either part-time or full-time on a continuous basis. If a candidate cannot be enrolled continuously due to circumstances beyond their control they must apply in writing to the Dean of Engineering and Forestry for a suspension of studies.

5. Award of PGCertEng instead of ME or MEFE or MET or MEngSt

Should a candidate fail to complete the requirements for the Master's degree, but successfully completes the requirements for the award of the Postgraduate Certificate in Engineering, he or she may be awarded, upon the recommendation of the Academic Board, a Postgraduate Certificate in Engineering instead.

Schedule to the Regulations for the Postgraduate Certificate in Engineering (un-endorsed)

See Regulation 3 above.

Note: Not all courses will be offered in any one year.

Schedule to the Regulations for the Postgraduate Certificate in Engineering (endorsed)

Civil Engineering

Courses with a total course weighting of not less than 36 points (0.3 EFTS) must be selected from the ENCI courses listed in Schedule B of the ME regulations

Construction Management

Courses with a total course weighting of not less than 36 points (0.3 EFTS) must be selected from the Construction Management course list listed in Schedule B of the ME regulations.

Fire Engineering

Courses with a total course weighting of not less than 36 points (0.3 EFTS) must be selected from the 600 level Fire Engineering (ENFE) courses listed in Schedule B of the ME regulations.

Mechanical Engineering

Courses with a total course weighting of not less than 36 points (0.3 EFTS) must be selected from the ENME courses listed in Schedule B of the ME regulations.

Transportation Engineering

Courses with a total course weighting of not less than 36 points (0.3 EFTS) must be selected from the Transportation Engineering (ENTR) courses listed in Schedule B of the ME regulations. Subject to approval of the Dean of Engineering and Forestry a candidate may offer postgraduate courses offered in the Transportation Engineering Programme at the University of Auckland in lieu of no more than 0.2 EFTS of course work.

Notes:

1. *Candidates without a suitable background in Transportation Engineering will be required to include ENTR 401 as one of the required courses.*
2. *Not all courses will be offered in any one year.*

Postgraduate Diploma in Forestry (PGDipFor)

See also General Course and Examination Regulations

1. Qualifications Required to Enrol in the Diploma

Every candidate for the Postgraduate Diploma in Forestry shall:

(a) either
   i. have qualified for the award of a bachelor's degree in Forestry or a related area of study in New Zealand; or
   ii. have qualified for the award of a bachelor's or higher degree in other areas and have gained relevant experience in a Forestry related area satisfactory to the Dean of Engineering and Forestry; or
   iii. have been admitted ad eundem statum as entitled to proceed to the Postgraduate Diploma; and

(b) have been approved as a candidate by the Dean of Engineering and Forestry.

Note: The standard of achievement in undergraduate studies and relevance of background are the main criteria for approval.

2. Course of Study

A candidate for the Postgraduate Diploma in Forestry

must pursue a course of study approved by the Dean of Engineering and Forestry, and pass four courses at 600-level from those listed in the Schedule for the Degree of Master of Forestry Science.

3. Replacement of a Prescribed Course

A candidate may, with the approval of the Head of the School of Forestry and the Head of the other Department concerned, replace one course prescribed for the Postgraduate Diploma by one or two courses prescribed for another subject at an equivalent or higher level.

4. Time Limits

The Postgraduate Diploma will be completed in one year of full-time study (under exceptional circumstances the Dean may extend this to 18 months) or two years of part-time study. Criteria for part-time candidates are the same as those for Masters students as given in MForSc Regulation 3; part-time enrolment requires the approval of the Dean of Engineering and Forestry.

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.