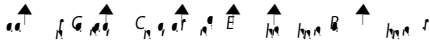


# Faculty of Engineering and Forestry

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



### 1. Programme of Study Requirements

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

- (i) pursue a programme of study approved by the Dean of Engineering and Forestry for not less than four years (one year Intermediate and three



5. Practical work shall be credited on the following basis:
  - (a) Credit is given only for hours worked;
  - (b) A day is defined as eight (8) hours work;
  - (c) Not more than 60 hours are credited in any one week.
6. 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.
7. 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.
8. The Faculty may relax or modify the application of clauses 1 to 7 in individual cases.

### 10. 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 years.



### 11. 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 without Honours.

### 12. Concurrent Enrolment in BE(Hons) and BSc Degrees

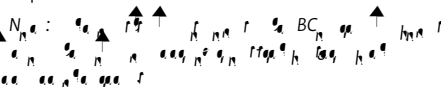
A candidate who enrolls concurrently for the Degree of Bachelor of Science and Bachelor of Engineering with Honours shall, in order to qualify for the award of both degrees, be enrolled for a course of study approved under the provisions of the General Course and Examination Regulation A3 for a period of at least five years or for at least four years if exempted

the whole Intermediate Examination, and shall:

- (a) meet all requirements as laid down in the current regulations for the Degree of Bachelor of Engineering with Honours;
- (b) obtain 172 points above 100-level by passing courses selected from the Schedule to the Regulations for the Degree of Bachelor of Science which have not been credited to the Degree of Bachelor of Engineering (Hons), or used to obtain exemption from a course in that degree. At least 84 of these points shall be at 300-level, at least 56 shall be from a single subject or as required by the subject matter. Students admitted into the Bachelor of Engineering (Hons) under BE(Hons) Regulation 4 must complete the 172 points as described above.

### 13. Concurrent Enrolment in BE(Hons) and BCom

A candidate who enrolls concurrently in the Degree of Bachelor of Engineering (Hons) and the Degree of Bachelor of Commerce may be exempt from one (or two) of the optional courses listed in the Regulations of the relevant Third Professional year provided that the candidate takes a course (or courses) worth at least 18 points (or at least 36 points) from the Commerce schedule to be credited to the Degree of Bachelor of Commerce. The exemption(s) must be as approved by the Head of the relevant Engineering Department.



### 14. Intermediate Examination

Courses selected in accordance with the Schedules A and B set out below to make up a total of at least 120 points. All courses are 15 points unless stipulated otherwise.

#### 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





- (8) ENCI 351 Geotechnical Engineering 2
- (9) ENCI 363 Infrastructure Management
- (10) ENCI 383 Environmental Engineering





of the Head of Department, a candidate may offer in place of one (or two) courses, listed under (5) in this Regulation, any set of degree courses which, in total, is equivalent to at least 18 (or 36) points at 100-level, or 22 (or 44) points at 200-level, or at least







Engineering and Forestry (including not more than one ENME 300-level course in Regulation 34 which has not already been credited towards the degree), provided that the candidate satisfies the necessary prerequisites for the course(s) concerned. A candidate offering a substitute course from outside the Faculty of Engineering and Forestry must also satisfy the necessary prerequisites for the course(s) concerned. That course must also be worth at least 18 points at 100-level, 22 points at 200-level or at least 14 points at 300-level, and not have been credited already to a degree.

The subject ENME 438 is an approved Project, the work of which is required to be described and presented in a written report or reports. The project work and the written report(s) together shall carry the weight of two courses.

## Mechatronics Engineering

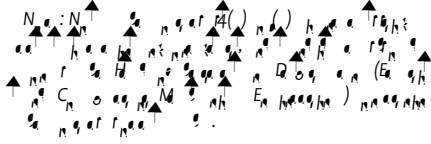
### 36. First Professional Examination

- (1) Either
  - (a) EMTH 204 Calculus and Algebra  
or
  - (b) EMTH 210 Engineering Mathematics and  
EMTH 271 Mathematical Modelling and  
Computation 2
- (2) ENME 222 Mechanics of Materials A
- (3) ENME 223 Mechanics of Machines
- (4) ENME 225 Engineering Thermodynamics A
- (5) ENEL 203 Principles of Electronics
- (6) ENEL 206 Principles of Computing
- (7) ENMT 201 Introduction to Mechatronics Design

1. C, C, T, ENME 204, ENME 205, ENME 206

(p) ENMT 453 Advanced Control

(q) ENMT 463 Robotics



# The Degree of Bachelor of Engineering (BE)

Faculty of Engineering and Forestry

## 1. Degree Requirements

Candidates who enrol for the degree Bachelor of Engineering with Honours may be awarded the degree of Bachelor of Engineering if, having passed all courses

governed by the following regulations, have obtained a minimum of 120 credit points, including 60 credit points at level 300 and 60 credit points at level 400, and have completed the following requirements:



# 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) CHEMISTRY any 15 points at 100-level



- (3) FORE 445 Environmental Forestry
- (4) and any three electives from
  - (a) FORE 404-FORE 407 Special Topics
  - (b) FORE 408 Special Topic
  - (c) FORE 409 Special Topic
  - (d) FORE 422 Forest Harvest Planning
  - (e) FORE 423 Forest Transportation and Road Design
  - (f) FORE 426 Forest Products Marketing and International Trade
  - (g) FORE 435 Forest Economics 2
  - (h) FORE 436 Forest Tree Breeding
  - (i) FORE 441 Engineered Wood Products
  - (j) FORE 442 Application of Information Technology in Forestry
  - (k) FORE 443 Biosecurity Risk Management
  - (l) FORE 475 Independent Course of Study

individual cases.

4. 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).

### 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:

1. 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.
2. Practical work will be credited to a candidate's course only after confirmation by the candidate's employer of the number of days worked.
3. The Head of the School of Forestry may relax or modify the application of clauses 1 and 2 in



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 1.5 years).



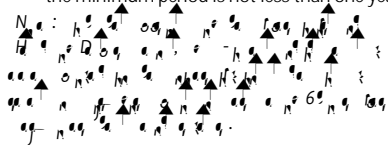


#### 4. Exemptions

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.



Certificate in Engineering may 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: ENCI690 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

ENBI 601 Medical Bioengineering  
ENBI 605 Biomedical Engineering Simulations

### Chemical and Process Engineering

ENCH 601 Advanced Thermodynamics and Statistical Thermodynamics  
ENCH 602 Introduction to Computational Fluid Dynamics  
ENCH 603 Physical, Chemical and Analytical Techniques  
ENCH 604 Advanced Separation Processes  
ENCH 605 Biological Waste Processing  
ENCH 606 Advanced Process Simulation  
ENCH 607 Modelling and Numerical Methods  
ENCH 620 Clean Technology and Processes

ENCH 621 Fundamentals for Sustainable Processes  
ENCH 622 Environmental Process Engineering  
ENCH 623 Environmental Management Systems

### Civil Engineering

ENCI 601 Risk Assessment  
ENCI 602 Introduction to Continuum Mechanics  
ENCI 603 Construction Operations Analysis and Management  
ENCI 611 Advanced Structural Steel  
ENCI 612 Bridge Structure  
ENCI 613 Structural Dynamics and Earthquake Engineering  
ENCI 614 Advanced Timber Engineering  
ENCI 615 Advanced Structural Concrete; Displacement Based Seismic Design and Retrofit Techniques

- ENCI 616 Finite Element Analysis
- ENCI 617 Engineering Seismology
- ENCI 618 Foundation Engineering
- ENCI 620 Geotechnical Earthquake Engineering
- ENCI 621 Concrete Materials and Practice
- ENCI 630 Special Topic: Nonlinear Concrete Mechanics
- ENCI 632 Ground Water Flow
- ENCI 634 Water Chemistry
- ENCI 635 Ecological Engineering
- ENCI 636 Advanced Biological Waste Processes
- ENCI 637 Marine Pollution Modelling
- ENCI 638 Environmental Fluid Dynamics
- ENCI 657 Special Topic: Advanced Shockwave Modelling for Fault Monitoring in Pipeline Systems

**Computer Science**

- COSC 410 Simulation Modelling and Analysis
- COSC 424 Secure Software
- COSC 426 Augmented Reality

**Construction Management**

(New Zealand Construction Association, 2009)

- ENCI 601 Risk Assessment
- ENCM 610 Construction Management
- ENCM 620 Construction Procurement and Contract Administration
- ENCM 630 Project Management
- ENCM 640 Strategy Management in Construction
- ENCM 682 Project
- ENTR 604 Pavement Management Systems

**Electrical and Electronic Engineering**

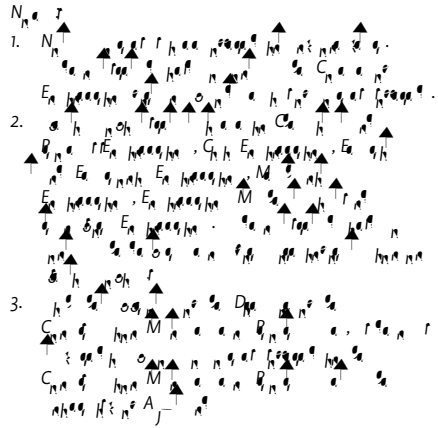
- ENEL 611 Advanced Communications Electronics
- ENEL 614 Biomedical Engineering
- ENEL 615 High Frequency Switching Techniques
- ENEL 619 Computational Image Recovery
- ENEL 622 Advanced Signal Processing 1
- ENEL 629 Advanced Power System Engineering
- ENEL 641 Advanced Semiconductor Devices
- ENEL 650 Advanced Digital Communications
- ENEL 657 Applied Digital Signal Processing
- ENEL 672 Nano-Engineered Materials and Devices
- ENEL 674 Applied Random Processes
- ENEL 675 Special Topic: Advanced Embedded Systems
- ENEL 677 Advanced Systems and Control
- ENEL 679 Special Topic: Aspects of Research Procedures
- ENEL 685 Electrical Postgraduate Project



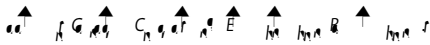
- EMTH 605 Approximation Theory
- EMTH 606 Algebraic and Symbolic Computation
- EMTH 607 Coding Theory
- EMTH 608 Industrial Case Studies

**Transport Engineering**

- ENTR 602 Accident Reduction and Prevention
- ENTR 603 Advanced Pavement Design
- ENTR 604 Pavement Management Systems
- ENTR 611 Planning and Managing for Transport
- ENTR 612 Traffic Management Policies
- ENTR 613 Highway Geometric Design
- ENTR 614 Sustainable Transport Planning
- ENTR 615 Transport Network Modelling
- ENTR 616 Advanced Transport Planning and Modelling
- ENTR 617 Traffic Engineering and Design
- ENTR 618 Transport and Freight Logistics



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



## 1. Qualifications Required to Enrol in the Degree

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

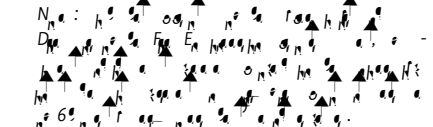
- (a) i. qualified for the award of the Degree of Bachelor of Engineering with Honours; or
- ii. qualified for the award of the Degree of Bachelor of Engineering; or
- iii. qualified for the award of an appropriate degree in New Zealand; or
- iv. been admitted ad eundem statum as entitled to proceed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

The degree may be completed:

- i. by examination and project report; or
- ii. by examination and thesis.

#### 4. Full-time and Part-time Enrolment

- (a) 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.



- (b) 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



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

### Courses:

- ENCI 601 Risk Assessment
- ENFE 601 Structural Fire Engineering
- ENFE 602 Fire Dynamics
- ENFE 603 Fire Safety Systems
- ENFE 604 Fire Design Case Study
- ENFE 610 Advanced Fire Dynamics
- ENFE 612 Special Topic
- ENFE 613 Special Topic: Human Behaviour in Fire
- ENFE 614 Special Topic

### Project:

ENFE 680

### Thesis:

ENFE 690 (full-time students)

(0.65 EF)

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)

### 1. Qualifications Required to Enrol in the Degree

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

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

(MEM)



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;

ii. 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;

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

iv. 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

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





Forestry; and

- ii. 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.

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### 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:

- i. 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;
- ii. the candidate shall submit for examination two hard bound copies of the project report to the Director of the Transportation Engineering Programme;
- iii. 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;
- iv. 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.

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### 12. Award of PG CertEng instead of MET

Should a candidate fail to complete the requirements for the Master of 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 PG CertEng to MET

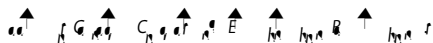
Where a candidate has demonstrated research potential and has the support of the Head of Department or the appropriate Programme Director, he or she may abandon the Postgraduate Certificate before the completion of the qualification, and transfer to the Master of Engineering in Transportation (MET) with 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





## The Degree of Master of Forestry Science (MForSc)



### 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:

- i. qualified for the award of the Degree of Bachelor of Forestry Science with or without Honours; or
- ii. qualified, with appropriate subjects, for the award of a degree other than the Bachelor of Forestry Science; or
- iii. qualified for the award of Postgraduate Diploma in Forestry; or
- iv. been admitted ad eundem 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





# Postgraduate Certificate in Engineering (PGCertEng)

Postgraduate Certificate in Engineering (PGCertEng)

## 1. Certificate programmes

- (a) The qualification of Postgraduate Certificate in Engineering (PGCertEng) is offered by







# Postgraduate Diploma in Forestry (PGDipFor)

## 1. Qualifications Required to Enrol in the Diploma

Every candidate for the Postgraduate Diploma in Forestry shall:

- (a) 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.

