



Academic Board Agenda

Executive Officer: Megan Kemmis

Secretariat, Quadrangle, A14

Phone: 9351 3306; Fax: 9351 3572

E-mail: admin@academicboard.usyd.edu.au

Web site: <http://www.usyd.edu.au/ab>

SUPPLEMENTARY AGENDA for the meeting on Wednesday 7 October 2009

Pages

- ★ 1. **Apologies**
Apologies have been received from:
Professor K Walker, Associate Professors A Dunn and G Ryan, Drs L Cutcher
and D Moses.

11. **Report of the Graduate Studies Committee**
(Associate Professor Peter McCallum)

Appendix F

11.2 **Report of the meeting held on 23 September 2009**

11.2.2 **Reports from Faculties**

11.2.2.3 **Faculty of Engineering and Information Technologies:**

Master of Professional Engineering

pages 2-11

Recommendation

That the Academic Board:

- (1) *approve the proposal from the Faculty of Engineering and Information Technologies to amend the Master of Professional Engineering,*
- (2) *recommend that Senate:*
 - (a) *endorse the Academic Board's approval of the proposal;*
 - (b) *approve the amendment of the Resolutions of Senate related to the course; and*
- (3) *approve the introduction of new Faculty Resolutions related to the course*

with effect from 1 January 2010, as set out in the report presented.

AGENDA ITEM 11
Report of the Graduate Studies Committee

11.2.2 Reports from Faculties

11.2.2.3 Faculty of Engineering and Information Technologies: Master of Professional Engineering *pages 3-11*

The Faculty of Engineering and Information Technologies is proposing to introduce some minor modifications in order to refine the original Master of Professional Engineering (MPE) degree to meet certain requirements for the accrediting professional bodies. The Faculty's currently in the process of obtaining accreditation for the MPE from the Institute of Engineers Australia. In their first visit in August 2009 the review panel made some recommendations in order for the degree to obtain provisional accreditation. The Faculty has now given careful consideration to these recommendations and the following proposal has been produced for the purpose of addressing these concerns. In addition, the Faculty wishes to make a minor amendment to remove the specialisation Automation and Manufacturing Systems from the degree.

At the Committee's meeting, the Faculty was asked to consider some suggested amendments to the Faculty Resolutions and to provide advice on how the Faculty would ensure students currently enrolled in the degree would meet the accreditation requirements of Engineering Australia. The Faculty has provided revised resolutions, which are included with this agenda, and has satisfied the Committee that current students will be assisted to meet the accreditation requirements.

The full proposal is available on the Committee's website at:

http://sydney.edu.au/ab/committees/grad_studies/grad_studies_agendas.shtml

Recommendation

That the Academic Board:

- (1) *approve the proposal from the Faculty of Engineering and Information Technologies to amend the Master of Professional Engineering,*
- (2) *recommend that Senate:*
 - (a) *endorse the Academic Board's approval of the proposal;*
 - (b) *approve the amendment of the Resolutions of Senate related to the course; and*
- (3) *approve the introduction of new Faculty Resolutions related to the course*

with effect from 1 January 2010, as set out in the report presented.

Amendment of the Resolutions of Senate

Master of Professional Engineering

The Resolutions of Senate relating to the Master of Professional Engineering in the Faculty of Engineering and Information Technologies are amended, with effect from 1 January 2010 as follows (additions indicated by underlined, deletions indicated by strikethrough):

Master of Professional Engineering

1. Requirements for the Master of Professional Engineering

1.1 A candidate who has been admitted to the Master of Professional Engineering shall proceed:

1.1.1 by coursework and project, in accordance with the relevant sections of the Resolutions;

1.2.1 complete successfully units of study giving credit for a total of 96 credit points.

1.2.2 complete successfully the core requirements of an Engineering specialisation as shown in the Master of Professional Engineering specialisations tables in the Faculty of Engineering and Information Technologies handbook.

1.2.3 satisfy the requirements of all other relevant By-Laws, Rules and Resolutions of the Faculty and the University.

~~1.2 A candidate proceeding by coursework and project shall:-~~

~~1.2.1 **Candidates with overseas engineering degrees** must complete coursework prescribed by the Committee.-~~

~~1.2.1.1 entering the Aerospace Engineering discipline must complete 12 credit points foundation units, 36 credit points specialist units, 12 credit points management core units and 12 credit points management elective units.~~

~~1.2.1.2 entering the Biomedical Engineering discipline must complete 12 credit points foundation units, 36 credit points specialist units, 12 credit points management core units and 12 credit points management elective units.~~

~~1.2.1.3 entering the Chemical & Biomolecular Engineering discipline must complete 12 credit points foundation core units, 12 credit points foundation elective units, 24 credit points specialist units, 6 credit points management core units and 6 credit points management elective units. Candidates following the Professional Pathway must complete 24 credit points elective units, 12 credit points of professional pathway core units and the industrial placement. Candidates following the Research Pathway must complete 12 credit points elective units, 24 credit points of research pathway core units and the industrial placement.~~

~~1.2.1.4 entering the Civil Engineering discipline must complete 36 credit points specialist units, 12 credit points management core units, 12 credit points management elective units and 12 credit points elective units.~~

~~1.2.1.5 entering the Electrical Engineering discipline must complete 36 credit points specialist units, 12 credit points management core units, 12 credit points management elective units and 12 credit points elective units.~~

~~1.2.1.6 entering the Mechanical Engineering discipline must complete 12 credit points foundation units, 36 credit points specialist units, 12 credit points management core units and 12 credit points management elective units.~~

~~1.2.1.7 entering the Software Engineering discipline must complete 24 credit points specialist units, 6 credit points management core units, 18 credit points management elective units and 24 credit points elective units.~~

~~1.2.1.8 Candidates in all disciplines "except Chemical and Biomolecular" following the Professional Pathway must complete 12 credit points of professional pathway core units, 12 credit points professional pathway elective units and the industrial placement. Candidates in all disciplines "except Chemical and Biomolecular" following the Research Pathway must complete 24 credit points of research pathway core units and the industrial placement.~~

1.2.2 Candidates with engineering degrees wanting to move into another discipline of engineering must complete coursework prescribed by the Committee.

~~1.2.2.1 entering the Aerospace Engineering discipline must complete 24 credit points foundation units, 36 credit points specialist units, 12 credit points management core units and 12 credit points management elective units.~~

~~1.2.2.2 entering the Biomedical Engineering discipline must complete 24 credit points foundation units, 36 credit points specialist units, 12 credit points management core units and 12 credit points management elective units.~~

~~1.2.2.3 entering the Chemical & Biomolecular Engineering discipline must complete 12 credit points foundation core units, 36 credit points foundation elective units, 24 credit points specialist units, 6 credit points management core units and 6 credit points management elective units.~~

~~1.2.2.4 entering the Civil Engineering discipline must complete 36 credit points foundation units, 24 credit points specialist units, 12 credit points management core units and 12 credit points management elective units.~~

~~1.2.2.5 entering the Electrical Engineering discipline must complete 36 credit points foundation units, 36 credit points specialist units, 12 credit points management core units.~~

~~1.2.2.6 entering the Mechanical Engineering discipline must complete 24 credit points foundation units, 36 credit points specialist units, 12 credit points management core units and 12 credit points management elective units.~~

~~1.2.2.7 entering the Software Engineering discipline must complete 18 credit points foundation units, 24 credit points specialist units, 6 credit points management core units, 18 credit points management elective units and 6 credit points elective units.~~

~~1.2.2.8 In addition, Software Engineering candidates must complete 12 credit points of professional pathway core units, 12 credit points of professional pathway elective units and the industrial placement. Candidates in all other disciplines must complete 12 credit points of professional pathway core units and the industrial placement. Candidates are not eligible for the Research Pathway.~~

~~**1.2.3 Candidates with science or other degrees** (non engineering background), must complete coursework prescribed by the Committee.~~

~~1.2.3.1 entering the Aerospace Engineering discipline must complete 48 credit points foundation units, 12 credit points specialist units, 12 credit points management core units and 12 credit points management elective units.~~

~~1.2.3.2 entering the Biomedical Engineering discipline must complete 24 credit points foundation units, 36 credit points specialist units, 12 credit points management core units and 12 credit points management elective units.~~

~~1.2.3.3 entering the Chemical & Biomolecular Engineering discipline must complete 12 credit points foundation core units, 36 credit points foundation elective units, 24 credit points specialist units, 6 credit points management core units and 6 credit points management elective units.~~

~~1.2.3.4 entering the Civil Engineering discipline must complete 48 credit points foundation units, 12 credit points specialist units, 12 credit points management core units and 12 credit points management elective units.~~

~~1.2.3.5 entering the Electrical Engineering discipline must complete 48 credit points foundation units, 12 credit points specialist units, 12 credit points management core units and 12 credit points management elective units.~~

~~1.2.3.6 entering the Mechanical Engineering discipline must complete 48 credit points foundation units, 12 credit points specialist units, 12 credit points management core units and 12 credit points management elective units.~~

~~1.2.3.7 entering the Software Engineering discipline must complete 42 credit points foundation units, 18 credit points specialist units, 6 credit points management core units and 18 credit points management elective units.~~

~~1.2.3.8 In addition, candidates must complete 12 credit points of professional pathway core units and the industrial placement. Candidates are not eligible for a specialisation or the Research Pathway.~~

~~1.2.4 carry out under supervision a project in a field of study approved by the School and submit for examination a report;~~

~~1.2.5 lodge with the school two bound copies (typewritten) of the project report.~~

2. The degree of Master of Professional Engineering for candidates with an engineering background may be is awarded in the following specialisations:

2.1 Aerospace Engineering

~~2.2 Automation and Manufacturing Systems~~

~~2.2 Biophysical Processes~~

2.2 Biomedical Engineering

2.3 Chemical and Biomolecular Engineering

2.4 Civil Engineering

2.5 Electrical Engineering

~~2.4 Environmental Engineering~~

2.6 Environmental Fluids

~~2.6 Fluid and Wind Engineering~~

2.7 Geotechnical Engineering

2.8 Mechanical Engineering

2.9 Network Engineering

2.10 Power Engineering

2.11 Software Engineering

2.12 Structural Engineering

~~2.13 Sustainable Processing~~

2.13 Wireless Engineering

3. ~~The degree of Master of Professional Engineering for candidates from a non-engineering background may be awarded in the following discipline area and the named testamurs for the degree shall specify the discipline area:–~~

~~3.1 Aerospace Engineering~~

~~3.2 Biomedical Engineering~~

~~3.3 Chemical and Biomolecular Engineering~~

~~3.4 Civil Engineering~~

~~3.5 Electrical Engineering~~

~~3.6 Mechanical Engineering~~

~~3.7 Software Engineering~~

Amendment of the Resolutions of Faculty

Master of Professional Engineering

The Resolutions of the Faculty relating to the Master of Professional Engineering in the Faculty of Engineering and Information Technologies are amended, with effect from 1 January 2010 as follows (additions indicated by underlined, deletions indicated by strikethrough):

Master of Professional Engineering

1. Eligibility for Admission for Master of Professional Engineering:

1.1. Except as provided in Part 9, the University of Sydney (Amendment Act) Rule 1999 of the By-laws, an applicant for admission to candidature for the degree of Master of Professional Engineering must hold one of the following qualifications:

1.1.1. be a graduate in Engineering from the University of Sydney with a minimum credit average; or

1.1.2 be a graduate of another institution holding equivalent qualifications to those of a Bachelor of Engineering graduate of the University of Sydney with a minimum credit average; or

1.1.3 be a graduate of the University of Sydney with a minimum credit average and have substantial tertiary knowledge equivalent to at least 48 credit points in mathematics, physics, chemistry, biology, geology, computing or statistics, as related to the entry requirements for the discipline area sought for admission; or

1.1.4 be a graduate of another institution holding equivalent qualifications to those of a graduate of the University of Sydney with a minimum credit average and have substantial tertiary knowledge equivalent to at least 48 credit points in mathematics, physics, chemistry, biology, geology, computing or statistics, as related to the entry requirements for the discipline area sought for admission.

1.2 All candidates entering the MPE degree must have completed prior learning equivalent to 96 credit points of units of study as specified in the relevant entry requirement tables as listed in the Faculty of Engineering and Information Technologies Handbook postgraduate tables.

1.2.1 Candidates requiring additional studies to meet these entry requirements may be granted conditional admission to the Master of Professional Engineering. This is subject to candidates successfully completing one of the following awards with a minimum credit average:

1. 2.1.1 Graduate Certificate of Engineering; or

1. 2.1.2 Graduate Diploma of Engineering.

1.3 All candidates entering the MPE must have completed units of study or their equivalents as listed in the Tables of Entry Requirements given below, for their specialisation, irrespective of their prior undergraduate degree.

1.3.1 Applicants undertaking additional studies to meet these entry requirements will not have that study credited toward the requirements of the Master of Professional Engineering.

1.3.2 Entry Requirements for Master of Professional Engineering

1.3.2.1 To gain admission to the Master of Professional Engineering, candidates must have completed the units of study or other study deemed by the Faculty to be equivalent to these units as listed in the Faculty of Engineering and Information Technologies Table of Entry Requirements for the Master of Professional Engineering, below, for the specialisation they wish to pursue.

Table of Entry Requirements for the Master of Professional Engineering

MPE degree entry requirements for Aerospace Engineering

Units of study name		CP
MATH1001	Differential Calculus	3
MATH1002	Linear Algebra	3
MATH1003	Integral Calculus and Modelling	3
MATH1005	Statistics	3

MATH2065	Partial Differential Equations (Intro)	6
MATH2061	Linear Mathematics and Vector Calculus	6
ENGG1801	Engineering Computing	6
AERO1560	Introduction to Aerospace Engineering	6
AERO1400	Intro to Aircraft Construction & Design	6
ENGG1802	Engineering Mechanics	6
ENGG1803	Professional Engineering 1	6
ENGG1802	Engineering Mechanics	6
AMME1550	Dynamics	6
AERO2703	Aerospace Technology 1	6
AMME2301	Mechanics of Solids	6
AMME2500	Engineering Dynamics	6
AMME2302	Materials 1	6
MECH2400	Mechanical Design 1	6
AMME2200	Thermodynamics and Fluids	6
	Total	96

MPE degree entry requirements for Biomedical Engineering

Units of study name		CP
MATH1001	Differential Calculus	3
MATH1002	Linear Algebra	3
MATH1003	Integral Calculus and Modelling	3
MATH1005	Statistics	3
MATH2067	Des and Vector Calculus for Engineers	6
ENGG1801	Engineering Computing	6
CHEM1101	Chemistry 1A	6
BIOL1003	Human Biology	6
ENGG1802	Engineering Mechanics	6
AMME1550	Dynamics 1	6
AMME2301	Mechanics of Solids	6
AMME2500	Engineering Dynamics	6
ELEC2004	Electrical Engineering: Foundations	6
AMME2200	Thermodynamics and Fluids	6
AMME2302	Materials 1	6
MECH2400	Mechanical Design 1	6
MECH2901	Anatomy and Physiology for Engineers	6
ENGG1803	Professional Engineering 1	6
	Total	96

MPE degree entry requirements for Mechanical Engineering

Unit of study name		CP
MATH1001	Differential Calculus	3
MATH1002	Linear Algebra	3
MATH1003	Integral Calculus and Modelling	3
MATH1005	Statistics	3
MATH2061	Linear Mathematics and Vector Calculus	6
MATH2065	Partial Differential Equations (Intro)	6

ENGG1801	Engineering Computing	6
MECH1560	Introduction to Mechanical Engineering	6
MECH1400	Mechanical Construction	6
ENGG1802	Engineering Mechanics	6
AMME1550	Dynamics 1	6
AMME2301	Mechanics of Solids	6
AMME2500	Engineering Dynamics	6
ELEC2004	Electrical Engineering: Foundations	6
AMME2200	Thermodynamics and Fluids	6
AMME2302	Materials 1	6
MECH2400	Mechanical Design 1	6
ENGG1803	Professional Engineering 1	6
	Total	96

MPE degree entry requirements for Chemical and Biomolecular Engineering

Maths and Chemistry (24 cp)		
It is expected applicants have completed a minimum of 24 cp unit of studies or equivalents to a high standard level.		CP
MATH1001	Differential Calculus	3
MATH1002	Linear Algebra	3
MATH1003	Integral Calculus and Modelling	3
MATH1005	Statistics	3
CHEM1101	Chemistry 1A	6
CHEM1102	Chemistry 1B	6
Applied Science and computing (24 cp)		
It is expected applicants have completed a minimum 24 cp unit of studies in applied science and computing or equivalents.		
ENGG1801	Engineering Computing	6
CHNG2802	Applied mathematics	6
CHEM2403	Physical chemistry for chemical engineers	6
CHEM2404	Chemistry of Biological systems	6
Foundation Engineering (48 cp)		
It is expected applicants have completed a minimum of 48 cp unit of studies in engineering or equivalent.		
ENGG1800	Introduction to disciplines	6
ENGG1803	Professional engineering 1	6
CHNG1103	Material and energy transformation	6
CHNG 2804	Chemical/biological systems(Thermodynamics)	6
CHNG 2801	Conservation and transport processes	6
CHNG 2803	Energy and fluid systems practice	6
CHNG2806	Materials purification	6
CHNG2805	Industrial systems	6
CHNG 3805	Particle mechanics	6
CHNG 3802	Process control	6
CHNG 3806	Project management	6
CHNG 3807	Project economics	6
CHNG 3801	Process design (Reaction engineering/ Separation	6

	processes)	
Total		96

MPE degree entry requirements for Civil Engineering and Structural Engineering and Geotechnical Engineering and Environmental Fluids

Unit of study name		CP
MATH1001	Differential Calculus	3
MATH1002	Linear Algebra	3
MATH1003	Integral Calculus and Modelling	3
MATH1005	Statistics	3
MATH2061	Linear Mathematics and Vector Calculus	6
ENGG1800	Intro to Engineering Disciplines	6
PHYS1001	Physics 1	6
GEOL1501	Engineering Geology	6
CHEM1001	Chemistry 1A	6
ENGG1801	Engineering Computing	6
ENGG1803	Professional Engineering 1	6
ENGG1802	Engineering Mechanics	6
CIVL2201	Structural Mechanics	6
CIVL2110	Materials	6
CIVL2810	Engineering Construction & Surveying	6
CIVL2410	Soil Mechanics	6
CIVL2611	Fluid Mechanics: Inviscid Flow	6
CIVL2230	Introduction to Structural Concepts & Design	6
	Total	96

MPE degree entry requirements for Electrical Engineering and Network Engineering and Power Engineering and Wireless Engineering

Unit of study name		CP
MATH1001	Differential Calculus	3
MATH1002	Linear Algebra	3
MATH1003	Integral calculus and Modelling	3
MATH1005	Statistics	3
INFO1103	Introduction to Programming	6
INFO1105	Data Structures	6
PHYS1001	Physics 1 (Regular)	6
ENGG1805	Professional Engineering and IT	6
ELEC1601	Foundation of Computer Systems	6
ELEC1103	Fundamentals of Elec and Electronic Eng	6
COMP2129	Operating Systems and Machine Principles	6
ELEC2103	Simulations & Numerical Solutions in Eng	6
ELEC2104	Electronic Devices and Circuits	6
ELEC2302	Signals and Systems	6
ELEC2602	Digital System Design	6
MATH2061	Linear Mathematics and Vector Calculus	6
PHYS1003	Physics 1 (Technological)	6
PHYS2213	Physics 2EE	6
	Total	96 CP

MPE degree entry requirements for Software Engineering

Unit of study name		CP
Note: any of the units of study marked with a * can be substituted by other engineering, IT, science or business units.		
INFO1103	Introduction to Programming	6
INFO1105	Data Structures	6
MATH1001	Differential Calculus	3
MATH1002	Linear Algebra	3
MATH1003	Integral calculus and Modelling	3
MATH1005	Statistics	3
ELEC1601	Foundations of Computer Systems	6
ENGG1805	Professional Engineering and IT	6
*PHYS1001	Physics 1 (Regular)	6
*PHYS1003	Physics 1 (Technological)	6
COMP2007	Algorithms and Complexity	6
COMP2129	Operating Systems and Machine Principles	6
INFO2110	Systems Analysis and Modelling	6
INFO2120	Database Systems 1	6
INFO2315	Introduction to IT Security	6
MATH2069	Discrete Mathematics and Graph Theory	6
*ELEC2602	Digital System Design	6
*ELEC2302	Signals and Systems	6
	Total	96

2 Credit transfer policy

2.1 Subject to the restriction in 1.1.2, candidates transferring from the Graduate Diploma of Engineering and Master of Engineering to the Master of Professional Engineering are eligible to transfer 24 credit points from their current degree provided units of study have been completed at credit average and equivalent to units of study offered under the Master of Professional Engineering, subject to approval of the Program Director. Further credit may be given subject to approval of the Program Director.

2.1.1 Where study has been undertaken at postgraduate level in an institution which is acceptable to the University of Sydney and no award has been granted, a maximum of 36 credit points may be transferred to the Master of Professional Engineering subject to the approval of the Program Director.

2.1.2 Credit towards postgraduate awards will not be granted for previously completed postgraduate awards except in the case of awards in an embedded program at the University of Sydney, or a program completed at another university or institution deemed by the relevant faculty to be the equivalent of a University of Sydney embedded program.

3. Students at Risk

3.1 The Faculty requires students to demonstrate satisfactory progress with their studies.

3.2 A student may be deemed not to have made satisfactory progress in any semester if the student:

3.2.1 fails to complete at least half the credit points in which he/she is enrolled; or

3.2.2 obtains a Weighted Average Mark (WAM) of less than 50 based on units of study for a given semester; or

3.2.3 fails a unit of study for the second time; or

3.2.4 has an unsatisfactory attendance record; or

3.2.5 is unable to complete the degree in the maximum time permitted.

3.3 A student who fails to demonstrate satisfactory progress in any semester of enrolment may be considered to fall into the “Students at Risk” category and will be subject to the procedures of University policy on Identifying and Supporting Students at Risk.

3.4 A student who has been identified as being at risk on three consecutive instances will normally be called upon to show good cause why he or she should be allowed to re-enrol in the degree course.

3.5 Where a student fails to show good cause why he or she should be allowed to re-enrol, the Dean may exclude the student from re-enrolment in the degree.

3.6 Appeals

3.6.1 A two level appeals process will be available to students.

3.6.2 A student who:

3.6.2.1 has been listed in an At Risk Report for the third time and who has been excluded from their award course (Stage 3); or

3.6.2.2 has been listed in an At Risk Report for the fourth time and automatically excluded (Stage 4);

will be entitled to appeal against the decision of the Faculty in accordance with the Resolutions of the Academic Board: *Postgraduate Coursework Awards; and Procedures for Student Appeals Against Academic Decisions for Postgraduate Research Awards.*

3.6.3 Students will be entitled to appeal to the Student Appeals Body in accordance with the *University of Sydney (Student Appeals against Academic Decisions) Rule 2006.*

4. Degree Requirements

4.1 *Master of Professional Engineering*: A candidate shall proceed—

4.1.1 by coursework and project, in accordance with sections 6 to 10.

5. A candidate proceeding by coursework and project shall:

5.1 Complete units of study that total at least 96 credit points and comprise:

5.1.1 the core units of study as set out in the stream requirements tables in the Faculty of Engineering and Information Technologies Handbook Postgraduate tables relating to the stream that the student is pursuing; and

5.1.2 recommended units of study, to the credit value specified in the relevant stream requirement tables as referred to in 5.1.1; and

5.1.3 such additional free elective units of study as may be necessary to gain a total of not less than 96 credit points.

6. The degree of Master of Professional Engineering may be awarded in the following specialisations and the testamur for the degree shall specify the specialisation:

6.1 Aerospace Engineering

6.2 Biomedical Engineering

6.3 Mechanical Engineering

6.4 Chemical and Biomolecular Engineering

6.5 Civil Engineering

6.6 Environmental Fluids

6.7 Geotechnical Engineering

6.8 Structural Engineering

6.9 Electrical Engineering

6.10 Network Engineering

6.11 Power Engineering

6.12 Software Engineering

6.13 Wireless Engineering