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**Faculty of Engineering**

**PROFESSIONAL OPTIONS SUBJECTS**

**FOR BACHELOR OF ENGINEERING STUDENTS**

**ENGG255 Professional Options 2**  
**ENGG355 Professional Options 3**  
**ENGG455 Professional Options 4**

**FEBRUARY, 2009**

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## **SUMMARY OF WHAT STUDENTS NEED TO DO TO ENROL**

- 1. Application for Approval of Topic for Professional Options in Engineering,**  
(See Appendix 1 Page 11)

This form is to be used for subjects ENGG255, 355 and 455, should include the name of the Academic Supervisor and be signed by the

- (a) Student
- (b) Student's Employer
- (c) Professional Options Coordinator of relevant School

The Approval of Topic form should be attached to an Academic Approval form, signed by the student and then submitted to the Sub-Dean for approval and signature.

**Due: Monday, week 1 of first session of enrolment.**

- 2. Academic Approval Form** (See Appendix 4) for subjects

(ENGG 255 – Professional Options 2)  
(ENGG 355 – Professional Options 3)  
(ENGG 455 – Professional Options 4)

- (a) Student's signature required
- (b) Sub-Dean's approval and signature.

**Due: Friday, week 1 of first session of enrolment.**

- 3. The student should keep a copy of both forms.**

## **PROFESSIONAL OPTIONS SUBJECTS FOR BACHELOR OF ENGINEERING STUDENTS**

### **1. INTRODUCTION**

Professional Options subjects allow part-time students employed in appropriate industries or organisations to undertake engineering based work for credit towards their Bachelor of Engineering degree. These subjects permit you to combine your University studies with on the job experience, providing an ideal way to see how theory relates to practice in an industrial environment. Each Professional Option subject (ENGG255, ENGG355 and ENGG455) replaces a lecture-based subject that is part of the prescribed program for the degree and therefore has a 6-credit point value. The standard subject replacements are detailed in Section 3 of this document.

Students wishing to obtain credit for any of the Professional Options subjects must consult with the relevant Professional Options Coordinator (detailed in Section 3) and the Sub-Dean. Consultation should be arranged at the beginning of the academic year prior to the beginning of session so that an appropriate academic program can be arranged.

Approval will be granted to students who can demonstrate that their employment provides appropriate experience and training as part of their degree program. **Approval will not be granted for work that involves essentially trivial/routine tasks or that is not directly related to the discipline of engineering relevant to the student's program.** A minimum of 1 year full-time employment is required. Project work will be carried out under the joint guidance of an industrial supervisor and academic supervisor.

#### **1.1 Roles of Supervisors and Responsibilities of Students**

The overriding responsibility of supervisors is to provide continuing support to students in carrying out their project, so that the student has the opportunity to submit a report to the best of his/her capability.

##### **1.1.1 Roles and Responsibilities of Supervisors**

###### **What is the Role of the Industrial Supervisor?**

The industrial supervisor will provide the day to day guidance the student requires to complete the project.

Specific responsibilities of the industrial supervisor are:

- to familiarise themselves with the requirements of the professional options subject. A set of guidelines will be supplied to all industrial supervisors.
- to liaise with the academic supervisor to ensure the good governance of the project.
- to advise and assist students to comply with occupational health and safety and ethics requirements where relevant;
- to support students in developing strategies and a plan to complete their project within the required time frame;
- to ensure that additional work beyond the agreed scope, particularly additional work close to the submission date, is absolutely necessary and does not unreasonably add to the students' work commitments;
- to maintain regular contact with students in order to monitor their progress;
- to inform students about any planned absences during the candidature and arrangements for supervision during those absences;

- to advise students of inadequate progress or work below the standard generally required and to suggest appropriate action;

### **Who can be an Industrial Supervisor?**

Only a technical or production employee who has project management experience and line managerial responsibility of the student can be an industrial supervisor. They should normally be a member or eligible to become a member of Engineers Australia. Students currently enrolled in the University of Wollongong undergraduate programme cannot be industrial supervisors.

### **What is the Role of the Academic Supervisor?**

The academic supervisor will assist the student with the theoretical background information and application of theory to aid the student's completion of the project. Specifically the academic supervisor will

- familiarise themselves with the requirements of the professional options subject. A set of guidelines will be supplied to all academic supervisors.
- liaise with the industrial supervisor to ensure the good governance of the project.
- ensure that the overall work requirements are commensurate with a 6 credit point subject
- ensure that additional work beyond the agreed scope, particularly additional work close to the submission date, is absolutely necessary and does not unreasonably add to the students' work commitments
- maintain regular contact with students in order to monitor their progress
- inform students about any planned absences during the candidature and arrangements for supervision during those absences
- provide timely and helpful written feedback to students on any submissions and to assist them to develop solutions as problems are identified
- advise students of inadequate progress or work below the standard generally required and to suggest appropriate action
- submit marks from the progress report and final report to the Discipline Professional Options Coordinator within 7 days of the hand in date
- to attend meetings of the academic unit assessment committee where students' grades are determined.

### **Who can be an Academic Supervisor?**

An academic supervisor must be a member of the academic staff and have related expertise to the student project being undertaken.

#### **1.1.2 Responsibilities of Students**

Students have the primary responsibility for the timely completion of their project and other assessment tasks. Specific responsibilities are:

- to develop a project plan for completing the project within the timeframe stipulated elsewhere in this document;
- to maintain regular contact with the supervisors;
- to present required written material to the supervisors in sufficient time to allow for comments and discussions before scheduled meetings;
- to undertake additional work towards their project identified as necessary by the supervisors;
- to leave adequate time at the end of the final session of enrolment to account for unpredictable occurrences

- to accept responsibility for the quality and originality of all submitted work.
- to meet all specified deadlines (see table in Section 8 “**DATES TO REMEMBER**” for deadline details) and to satisfy other requirements.

## 2. OBJECTIVES

At the conclusion of this subject students will be able to:

- Write a technical report of their industrial experience during their employment;
- Plan and critically evaluate the activities carried out during the period of employment;
- Report on the application and relevance of University subjects to their industrial employment.

## 3. APPLICATION PROCEDURE FOR ENROLLING IN PROFESSIONAL OPTIONS

An Application for Approval of Topic for Professional Options in Engineering form (see Appendix 1) should be submitted by the student to the Discipline Professional Options Coordinator by Monday of Week 1 of the first session of enrolment. This form is to be approved and signed by a Professional Engineer, ie a member or eligible to become a member of Engineers Australia, representing the organisation where the Professional Option is to be obtained. The Industrial supervisor should give a brief description of work to be undertaken, at section 8 of the approval of topic form. Students should provide a 250 word summary on the detail of the proposed work program, this should be attached to the approval of topic form. **Students are strongly advised to start this process early as it may take a number of iterations before a suitable project can be agreed by the University and the student’s employer.**

An Academic Approval form (Appendix 4) for the Professional Options Subject should be submitted to the EEC for Sub-Dean approval after all sections in Appendix 1 have been completed. Include a copy of Appendix 1. The due date for the Application to enrol is Friday of week 1 of the first session of enrolment. Note that Section B is the appropriate section on the academic approval form.

### Discipline Professional Option Coordinators

Civil Engineering	Prof Tim McCarthy	Ext. 4591
Environmental Engineering		
Mining Engineering		
Materials Engineering	A/Prof Brian Monaghan	Ext. 4580
Mechanical Engineering	Dr Devi Saini	Ext. 3060
Mechatronics Engineering		

Professional Options subjects are available for students who are undertaking suitable full-time employment, or approved International work placement, during their Degree Course. Only **one** Option subject can be credited in any one calendar year.

The three Professional Option subjects replace standard subjects as approved by the Discipline Professional Option Coordinator and the Sub-Dean.

## Standard Subject Substitutions

The standards subject substitutions for Professional Option subjects are listed in the table below for each degree. Any variation to the standard subject substitutions must be approved by the Professional Options Coordinator and the Sub-Dean.

	<b>ENGG 255 Prof Option 2</b>	<b>ENGG 355 Prof Option 3</b>	<b>ENGG455 Prof Option 4</b>
Civil	Elective	ENGG 361 or Elective	Elective
Environmental	Elective	Elective	Elective
Materials	Elective	Elective	Elective
Mechanical	Elective	Elective	Elective
Mechatronics	Elective	Elective	Elective
Mining	Elective	Elective	ENGG 461

## 4. ASSESSMENT TASKS

- The Progress Report, due in week 11 of the first session of enrolment, is worth 10%.
- There will be an oral presentation of the work done in week 12 of the second session of enrolment, this is worth 20%.
- The final submission, a 4000 word technical report, is worth 70%.

The report when completed must be certified by a supervising professional engineer to the fact that the report is a true and accurate record of the industrial experience gained. This supervising professional engineer will normally be your industrial supervisor.

## 5. REPORT FORMAT & SUBMISSION PROCEDURE

Each student enrolled in a Professional Option subject must submit a report on the training received during the year. This report, of approximately 4000 words in length (include a word count), must be word-processed with one and half spacing on one side of A4 size paper and submitted as a professional engineering report. Any relevant figures (e.g. design project), photographs, drawings, computer programs, data, plans etc may be added as an appendix to the main report. An electronic copy of the text of your report must be submitted on CD.

The report should be written in such a way that readers, *even those unfamiliar with the topic or the industry*, would have no difficulty in following the arguments.

The report should be submitted by **Friday Week 11 of the final session of enrolment.**

**ALL** forms and reports **MUST** be submitted to the Engineering Enquiries Centre - a receipt will be issued for each document submitted.

**NOTE:** Reports **WILL NOT** be accepted after the final submission date without prior approval in writing from the Professional Options Discipline Coordinator.

## 5.1 What Do I Put in the Progress Report

Key areas to be addressed in the progress report are

- Refinement of aims, objectives and scope (if any) from the original proposal package in week 3.
- Any refinement and modification to the original project must be justified and explained in the progress report. Modifications that are deemed to reduce the academic significance of the project may not be acceptable to University and therefore rejected. To ensure that any modified project is of a suitable academic standing, the student is required to seek agreement for any project modifications from their Academic Supervisor.
- A new work plan based on the project experience to date should be developed. This can be in the form of a Gantt chart or table showing the dates and times of tasks and when they are expected to be completed. The student must be explicit about what tasks they will be carrying out and what tasks are the responsibility of their colleagues.
- Tables and figures of results and project findings to date. Whilst the student is not required to discuss their findings or results in their progress report, it is in their interests to have reflected on their results/findings to get useful feedback from their supervisors.

## 5.2 What Do I Put in My Report?

Apart from the details of industrial activities, the report must contain the following information:

- The title of the report, the employer and the position held by the student; name and position of the industrial and academic supervisors, where appropriate (on the front page see Appendix 2);
- The grading sheet (see Appendix 3);
- Period of full-time employment (including holidays);
- A brief description of the major activities of the organization.
- A description of the work performed, information collected, assumptions and decisions made, the outcome, with conclusions, and a very clear indication of your contribution and what you learned from this experience. The latter is important in assessing experience gained.
- Technical engineering aspects encountered that the student considered interesting and/or significant should be highlighted.
- Evaluation by the student of the correlation between industrial experience and the theoretical knowledge gained at the university and relate them to particular subjects.

**The report after completion, must be submitted to the industrial supervisor for comment on the report as well as the student's work and signed by the supervisor with a statement to certify that the report represents a true and accurate record of the work completed (see Appendix 2)**

### 5.3 How will the report be assessed?

When marking your report, examiners will be looking for:

- Demonstration that you understand the significance of the work undertaken, and that your report contains background information from lecture subjects and/or references where appropriate,
- An indication that you understand the methods used and why they were selected,
- Meaningful presentation and analysis of data (do your results really show what you claim they do?),
- Succinct, well thought out conclusions, and
- Well organized, professional presentation including literary qualities.

## 6. SEMINAR PRESENTATION

### How Do I Present the Seminar?

For Professional Options 20% of your final mark will be based on your seminar. You will have 15 minutes for the oral presentation, followed by questions. Your seminar must be concise, yet clearly describe what you have done and what you concluded. Examiners will be looking for a clear, professional presentation of the details of your work experience, its significance, the methods used and the results obtained. Particular aspects that will be judged are:

- professional appearance,
- oral delivery,
- technical content,
- organization and presentation of material,
- quality and use of visual aids, and
- competence in answering questions.

Seminars will be held during week 12 of the second session of enrolment.

## 7. HOW MUCH WORK SHOULD BE PUT INTO A PROFESSIONAL OPTION SUBJECT?

Each professional option replaces one lecture based subject, so it is important that the work undertaken reflects the amount of work that would have been required in that subject. All professional option subjects are worth 6 credit points which corresponds to 6 hours/week of study on an annual basis.

## 8. DATES TO REMEMBER

Section/Item	Session	Student Deadlines		Supervisor Feedback		% Final
		Day	Wk	Day	Wk	
<b>Professional Options Approval:</b> (Form in Appendix 1 must be completed by the student and project agreed by Professional Options Discipline Coordinator. Students are advised to start this process early as agreement on the project between the University and the student's employer may require a number of iterations)	First	Mon	1			
<b>Academic Approval Form:</b> (Form in Appendix 4 should be submitted to the sub dean with Appendix 1)	First	Fri	1			
<b>Proposal Package:</b> (Topic, problem definition, aims and objectives, methodology, resources, work plan (including dates for completion of tasks) and OHS issues)	First	Mon	3	Fri	4	None
<b>Progress Report:</b> (Refined aims, objectives and scope, project status, modifications and justification of modifications of work plan and results to date.)	First	Mon	11	Fri	13	10
<b>Draft report:</b> (Submission of one stapled or spiral bound draft copy for comments/corrections from the academic supervisor)	Final	Fri	9	Fri	10	None
<b>Final Report:</b> (See section 5.1 above. Note that an electronic copy of the text of your report should also be submitted on CD with one spiral bound hardcopy of the report.)	Final	Fri	11	-	-	70
<b>Oral Presentation:</b> ( See section 6 above: Use of aids such as overheads, power point etc, technical and other content, delivery including eye contact and time management, answers to questions)	Final	Mon-Fri	12	-	-	20





## Appendix 2

### PROFESSIONAL OPTIONS SUBMISSION FRONT COVER SHEET

<b>Student Name:</b>	<b>Student Number:</b>	<b>Subject Number:</b>
<b>Title:</b>		
<b>Employer:</b>		
<b>Position Held:</b>		
<b>Period of Employment:</b>		
<b>Industrial Supervisor:</b>		
<b>Position Held:</b>		
<b>Certification by industrial supervisor including comments.</b>		
<p>I certify that the report represents a true and accurate record of the work completed</p> <p>_____</p> <p><b>Signature of industry supervisor</b> <span style="float: right;">_____</span> <b>Date</b></p>		
<b>Name of Discipline</b>		
<b>University Academic supervisor's name</b>		
<b>Date of submission to EEC</b>		

### Appendix 3

#### PROFESSIONAL OPTIONS GRADING SHEET (refer to guidelines in Section 5 of Contents)

Name:	Student No:	Subject No:
Title Page:    Employer <input type="checkbox"/> Position Held <input type="checkbox"/> Period of Employment <input type="checkbox"/>		
Supervisor <input type="checkbox"/> Position Held <input type="checkbox"/>		
Comments:		
Major activities of the organisation: <input type="checkbox"/>		
Comments:		
Has student explained details of work done: <input type="checkbox"/>		
Comments:		
Has student explained what was learnt from the experience: <input type="checkbox"/>		
Comments:		
Evaluation/correlation between work and university theory: <input type="checkbox"/>		
Comments:		
Total Length (4000 words) <input type="checkbox"/>		
Word count included? <input type="checkbox"/>		
Comments:		
Certification by industrial supervisor <input type="checkbox"/>		
Comments:		
<b>Comments:</b>		
Technical report: (70%)		
Seminar presentation: (20%)		
Progress Report (10%) _____ %		
Report: (70%) _____ %		
Seminar: (20%) _____ %		
<b>Total Mark/100:</b>	<b>Marker:</b>	<b>Date:</b> /    /



## Academic Approval

### INSTRUCTIONS

This form is for students who wish to have the pre/co-requisites waived for a provisional subject (**Section A only**), to be enrolled into an Over Quota or Course Constraint subject or be enrolled in a subject after the Last Date to Add Subjects via the web (refer to SOLS for dates) and have a provisional waived (**Section B**), or to Enrol in Excess Credit Points (**Section C**). **This form is not applicable to Graduate School of Medicine students.**

1. Complete the relevant sections of this form.
2. Seek approval from the Head of Academic Unit **for each subject**. Please contact the faculty to determine the correct signing authority.
3. Return the **completed** application with the **approval** signatures to Student Central – Building 17.

### PERSONAL DETAILS

Student Number	Last Name	First Name
Course Code	Course Name	Major

### SECTION A: PROVISIONAL SUBJECT WAIVER ONLY

I wish to have the Pre/Co Requisite for the following subjects waived:

Provisional Subject			Pre/Co Requisite to be waived	
Subject Code	Subject Name	Session of enrolment	Pre/Co Requisite to be waived	Head of Academic Unit Signature

### SECTION B: SUBJECT ADDITION FOR OVER QUOTA *OR* COURSE CONSTRAINT SUBJECTS *OR* AFTER LAST DATE TO ENROL VIA THE WEB AND HAVE PROVISIONALS WAIVED

I wish to enrol in the following subjects **and** have the relevant Pre/Co Requisite waived:

Subject to be added			Pre/Co Requisite to be waived		Head of Academic Unit Signature
Subject Code	Subject Name	Session of enrolment	Pre/Co Requisite to be waived	Subject Code	
			Yes / No		
			Yes / No		
			Yes / No		
			Yes / No		

### SECTION C: ENROL IN EXCESS CREDIT POINTS

Total credit points for which permission is sought		Approved	Sub Dean / Dean Signature
More than 64 credit points		Yes / No	
Up to 64 credit points		Yes / No	
More than 32 credit points	Autumn	Yes / No	
More than 32 credit points	Spring	Yes / No	
More than 16 credit points	Summer	Yes / No	

### STUDENT SIGNATURE

I acknowledge that I have read and have accepted the conditions outlined in this form.

Student Signature		Date	
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