PROFESSIONAL OPTIONS HANDBOOK

ENGG255 /
ENGG355 /
ENGG455

SUBJECT OULINE + GUIDELINES
2020:
FOR BACHELOR OF ENGINEERING STUDENTS

UOW
AUSTRALIA

Faculty of Engineering and Information Sciences

Contents

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 Add Subject Faculty Approval form, signed by the student and then submitted to the Head of Students for approval and signature.

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

2. **Add subject Faculty 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)   Head of Students 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 Head of Students. 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 and professional 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 professional tasks and/or 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 subject.

Specific responsibilities of the industrial supervisor are:
- To familiarise themselves with the requirements of the professional options subject. This set of guidelines will be supplied to all industrial supervisors by the student
- To liaise with the academic supervisor to ensure the good governance of the proposed professional activities or 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 proposed activities or 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 or they should be experienced in supervision professional engineers. 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 professional activities or 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 online 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 submission date to the Moodle site.
- To attend meetings of the academic unit assessment committee where students' grades are determined.
- Monitor the subject Moodle site and mark submissions online.

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 professional activities or 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 professional activities or 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. This demonstrates a professional attitude to planning one's work.
- 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.
- Monitor the Professional Options Subject Moodle Site regularly.
- To submit all assignments[1] on time via the subject Moodle site assignments section.

2. Learning Outcomes

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

(i)   Write a technical report with proper structure and format of their industrial experience during their employment;
(ii)   Plan and critically evaluate the activities carried out during the period of employment;
(iii)   Report on the application and relevance of University subjects to their industrial employment
(iv)   Reflect on how their on the job learning has prepared them in relation to the Faculty of Engineering Graduate Capabilities and Engineers Australia's Stage One Competencies

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.**

Note that, except for Materials students, you do not have to complete ENGG255 before doing ENGG355. If you have completed all 100 level CME, Mechanical or Mechatronics subjects, you should apply for ENGG255. If you have completed all 200 level subjects you should apply for ENGG355 and so on. The level of ENGGx55 should match the level you are generally operating at in your job. For Materials students, one needs to complete ENGG255 before doing ENGG355 no matter what year level you are in.

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[1] Note that some submissions use the Turnitin.com and Grademark system. Some work e.g students working on defence projects, should not be submitted via turnitin. If in doubt, contact your industrial and academic supervisors for advice and/or alternative submission arrangements.

An "ADD SUBJECTS – Faculty Approval form" (Appendix 4) for the Professional Options Subject should be submitted to the EIS Central for Head of Students approval after all sections in Appendix 1 have been completed. Include a copy of Appendix 1. The last 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	4221 4591 | timmc@uow.edu.au
Environmental Engineering		
Mining Engineering		
Materials Engineering	A/Pr Yue Zhao	4221 5549 | yue@uow.edu.au
Mechanical Engineering	Dr Hontao Zhu	4221 4549 | hongtao@uow.edu.au
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 Head of Students.

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 Head of Students.

	ENGG 255 Prof Option 2	ENGG 355 Prof Option 3	ENGG455 Prof Option 4
Civil	Elective List A or B	Elective List A or B	Elective List A or B
Environmental	Elective List A or B	Elective List A or B	Elective List A or B
Materials	Elective List A or B	Elective List A or B	Elective List A or B
Mechanical	Elective List A or B	Elective List A or B	Elective List A or B
Mechatronics	Elective List A or B	Elective List A or B	Elective List A or B
Mining	Elective List A or B	Elective List A or B	Elective List A or B

4.   Assessment Tasks & Submissions

- The proposal package. This updates the application and elaborates on the planned schedule for the year. This is not formally assessed.
- The Progress Report, due in week 11 of the first session of enrolment, is worth 10%. This relates to learning outcomes (i) and (ii).

- There will be an oral presentation of the work done in week 12 of the second session of enrolment, this is worth 20%. This will be done on campus. This relates to learning outcomes (ii) and (iv)
- The final submission, a 4000 word technical report, is worth 70%. This relates to learning outcomes (i), (ii), (iii) and (iv).

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 and 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. Reduce drawings to A3 size max.

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.

As each work placement is unique, you should discuss your plans for your reports with your discipline coordinator.

The final report should be submitted via the Turnitin Assignment link on the Moodle site by **Friday Week 11 of the final session of enrolment.**

ALL forms MUST be submitted as PDF or hardcopy to EIS Central. Reports must be submitted as PDF documents via the Moodle site

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

There are two main styles of report. Some students will be doing a specific project for their professional option subject. Others will be engaged in a range of professional activities in their normal day to day work. Depending on your circumstances the style of report may differ a bit from the items below.

Key areas to be addressed in the progress report are
- 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
- Executive summary
- A brief description of the major activities of the organization. Include an organisation chart indicating your position with your employer.
- 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.
- A brief description of the work completed to date. 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);
- Executive summary
- 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. Give appropriate examples of work output in appendices.
- 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.
- Evaluation of the learning outcomes in relation to the Engineers Australia Stage One Competency Standard for Professional Engineers (https://www.engineersaustralia.org.au)

> 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). This should be scanned and included with your PDF file.

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	
Professional Options Approval: (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			
Academic Approval Form: (Form in Appendix 4 should be submitted to the Head of Students with Appendix 1)	**First**	Fri	1			
Proposal Package: (Topic, problem definition, aims and objectives, methodology, resources, work plan (including dates for completion of tasks) and OHS issues). Submit via Moodle Assignment	**First**	Mon	3	Fri	4	None
Progress Report: (Refined aims, objectives and scope, project status, modifications and justification of modifications of work plan and results to date.) Submit via Turnitin Assignment on Moodle	**First**	Mon	11	Fri	13	10
Draft report: (Submission of PDF via Turnitin Assignment on Moodle for corrections from the academic supervisor)	**Final**	Fri	9	Fri	10	None
Final Report: (See section 5.1 above. Submission via Turnitin Assignment on Moodle should be PDF (Max file size 20Mb)	**Final**	Fri	11	-	-	70
Oral Presentation: (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 1

UNIVERSITY OF WOLLONGONG AUSTRALIA

APPLICATION FOR APPROVAL OF TOPIC FOR
PROFESSIONAL OPTIONS IN ENGINEERING

THIS FORM IS TO BE USED FOR SUBJECTS ENGG255, 355 AND 455

Student Name:		**Subject Number:**	
Employer Name:		**Employer email:**	
Employer Address:			
Employer Phone:		**Employer Fax:**	
Type of Employment:			
Name of Industrial Supervisor(s):		**Position:**	
Supervisor Phone:		**Supervisor Email:**	
Academic Supervisor:		**Subject that Professional Option Replaces:**	

Proposed area of work to be carried out by student. Please indicate student's likely: level of responsibility in supervision and planning of work program; application of engineering technical skills required; examples of tasks to be performed, etc.

			13
Approved on behalf of the Faculty Name & Signature of the Professional Options Discipline Coordinator		Date:	
Name & Signature of Student		Date:	
Approved on behalf of Employer Name & Signature		Date:	

Appendix 2

PROFESSIONAL OPTIONS SUBMISSION FRONT COVER SHEET

Student Name:		Student Number:	Subject Number:
Title:			
Employer:			
Position Held:			
Period of Employment:			
Industrial Supervisor:			
Position Held:			

Certification by industrial supervisor including comments.
I certify that the report represents a true and accurate record of the work completed _____   _____ Signature of industry supervisor   Date
Name of Discipline
University Academic supervisor's name
Date of submission to Moodle Turnitin Assignment

Appendix 3

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

Name:	Student No:	Subject No:
Title Page: Employer ☐ Position Held ☐ Period of Employment ☐ Supervisor ☐ Position Held ☐ Comments:		
Major activities of the organisation: ☐ Comments:		
Has student explained details of work done: ☐ Comments:		
Has student explained what was learnt from the experience: ☐ Comments:		
Evaluation/correlation between work and university theory: ☐ Comments:		
Total Length (4000 words) ☐ Word count included? ☐ Comments:		
Certification by industrial supervisor ☐ Comments:		
Comments: Technical report: Marker: Date: / /		

Appendix 4

ADD SUBJECTS – Faculty Approval form

https://bps.uow.edu.au/suite/sites/add-subject

Follow the link above and complete the form, then print it, sign it and submit with your application