Engineering Industrial Experience  
(ENGG4000, ENGG5217)

Students must be exposed to industry practice either by a practical experience period of 12 weeks in industry or by the accumulation of equivalent industrial experience components in order to satisfy the requirements of Engineers Australia for an accredited degree program. Accordingly, students must be exposed to professional engineering practice to enable them to develop an engineering approach and ethos and to gain an appreciation of engineering ethics. The purpose of this is to facilitate entry into the profession and to develop the following generic attributes:

I. ability to apply knowledge of basic science and engineering fundamentals  
II. ability to communicate effectively, not only with engineers but also with the community at large  
III. in-depth technical competence in at least one engineering discipline  
IV. ability to undertake problem identification, formulation and solution  
V. ability to utilise a systems approach to design and operational performance  
VI. ability to function effectively as an individual and in multi-disciplinary and multi-cultural teams, with the capacity to be a leader or manager as well as an effective team member  
VII. understanding of the social, cultural, global and environmental responsibilities of the professional engineer, and the need for sustainable development  
VIII. understanding of the principles of sustainable design and development  
IX. understanding of professional and ethical responsibilities and commitment to them, and the  
X. expectation of the need to undertake lifelong learning, and the capacity to do so.

The sum of all components of practical experience must be at least the equivalent of a 12 week full time work experience (i.e. 420 hours). The industrial experience must involve technical work at a level commensurate with that of a graduate engineer. The objective is to utilise some aspects of your engineering education in a professional engineering environment.

Verification of work completed is by means of forms which must be included with any submitted Reports. An Industrial Experience Certificate must be included with each practical experience report.

*Please keep in mind that you are representing the Faculty and The University of Sydney, so at all times you are expected to act in a professional manner. Your conduct will impact on future students who follow you when they seek a position with the organisation.*
Industrial Experience Pathway Options

Completion of the industrial experience unit of study is based on the accumulation of 12 points which can be made up of either:

**EITHER**

- Compulsory period of Industrial Experience 12 weeks full time equivalent (420 hours)
  
  
  12 weeks = 12 points

**OR**

- Compulsory period of Industrial Experience 4 weeks full time equivalent (140 hours)
  
  
  4 weeks* = 6 points

PLUS any of the following components to equal the accumulation of 12 points

🌟 **Industrial Experience Workshop = 6 points**

Completed over 4 weeks over summer or winter break

Week 1 Workshops presented by Sydney Talent/Careers Centre; Week 2 Visits to Industry (8 -10);

Week 3 – 4 Industry placement of students in groups of 2 – 3

For enquiries, please contact:

Karen Pearce
Student Services Officer
Tel: 9351 8719
Email karen.pearce@sydney.edu.au

🌟 **Attendance / participation at conference/ seminar/workshop/ professional development = 2 points with max of 3 points**

🌟 **Industry based courses within degree studies = 4 points with max of 6 points**

🌟 **Site Visits = 2 points with max of 3 points**

*Note:* additional weeks of Industrial experience will be counted as follows:

5 weeks = 7 pts, 6 - 7 weeks = 8 pts, 8 - 9 weeks = 9 pts, 10 - 11 weeks = 10 pts,

12 weeks = 12 points

🌟 **Students who successfully complete a MIPPS program as part of their Engineering degree enrolment are exempt from ENGG4000/ENGG5217 Industrial Experience.**
Instructions for Students

Please read this document carefully as it contains important information. You will also need to download the required forms from the Industrial Experience website at:-

Master of Professional Engineering students must have completed 48 credit points before enrolling in ENGG5217 Industrial Placement.

Undergraduate students should have completed 30 credits of 3000 level units of study before enrolling in ENGG4000.

Industrial Experience 12 weeks = 12 points

1. Obtaining an Industrial Experience Position

You are personally responsible for ensuring that you complete the full period of practical work experience needed to obtain your qualification.

You may obtain work experience (preferably through paid employment) in various ways:

- The University receives notices of employment through the Careers Centre, which may assist you in obtaining employment. You should contact the Careers Centre for more information (http://sydney.edu.au/careers).
- You may obtain employment by making direct contact with potential employers. This option is encouraged because employers appreciate students showing initiative. You are advised to make inquiries in writing and should attach a curriculum vitae or resume to the letter.
- You also have the option of obtaining unpaid work experience in a suitable professional engineering environment.

You must ensure that the industrial experience position is appropriate for a graduate engineer. You should complete the Industrial Experience Form with the details of the work and submit this to the Faculty Office for Academic and Faculty Approval. The Faculty office will notify you when approvals have been confirmed. You should return the Industrial Experience Form to the Faculty Office before commencing the position otherwise you will not be covered by the University’s insurance.

You may take leave at any time during the period of work experience, subject to agreement with the organisation, provided you are able to complete the stipulated period of training. If you are unable to complete the training over a vacation period, you should contact your industry supervisor to determine suitable arrangements for the completion of your period of experience.

2. When you have found a Position

I. When you have found an industrial experience position complete the “Engineering Industrial Experience” form.
II. The supervising engineer should complete and sign the appropriate section of the form to confirm you have been offered a position for the time period agreed. If you have any correspondence with the organisation confirming your offer of a position please include that with your form.

III. Return the completed form to the Faculty Office before the commencement of your position.

IV. Keep a log for the duration of your work as outlined in the Report Guidelines below.

V. When you have completed your industrial experience hours have the supervising engineer sign the "Industrial Experience Certificate" to indicate you have completed your work satisfactorily.

VI. Submit your work experience report to the Engineering Faculty Office no later than six weeks after you finish your work experience.

Insurance

If you are employed in Australia for a period of practical work experience, your employer is legally responsible for the relevant insurance, including cover for Worker's Compensation.

If you undertake unpaid practical experience in Australia and you are not an employee or worker of the organisation for the purposes of Worker's Compensation legislation, the University provides insurance cover including public liability insurance, professional indemnity insurance and personal accident insurance. Students who have secured an approved practical experience position in another country must ensure they have appropriate insurance coverage.

Details of the University insurance policies are at: http://sydney.edu.au/audit_risk/insurance/students/index.shtml

3. Industrial Experience Report Guidelines

To meet the degree requirements, you must submit a satisfactory written report on the period of Industrial Experience.

Report Structure

The report length shall be a minimum of 6,000 words, plus figures and appendices.

Reports must have a cover page with the student’s name and SID, the organisation’s name and location, and the start and finish dates of the practical experience, followed by a table of contents.

For the report body, the following headings and report structure are recommended:

- **History and Management Structure**
  Outline the development of the organisation from its inception to the present and the broad authority structure of the total organisation upwards from the student’s position. (In private enterprise, show the structure right up to the shareholder level or equivalent; in the public sector, to the Minister responsible.) (1000 words approx.)

- **The Organisation’s Role**
  This section should cover (a) what the organisation does and the nature of its market place (or service role); (b) the criteria the organisation considers important for success or competitiveness in that market place; (c) how the organisation’s engineering work contributes to that success or
competitiveness; and (d) the facilities, their layout and the methods/procedures/processes used to conduct the business. (2000 words approx.)

- **OHS Procedures and Policies**
  This section should include a general risk assessment of the work environment. The report should clearly indicate any hazards that are encountered as part of the job and detail the procedures used to mitigate these to ensure a safe environment.

- **Experience Gained**
  Describe the work you did, giving specific details. Include your observations on people's behaviour and their responses to work situations, as well as special skills you acquired (either technical or interpersonal). (2000 words approx.)

Also attach an Industrial Experience Log as an Appendix to the main report (as described below).

- **Appraisals, Criticisms and Suggestions**
  Select 5 topics from the list below corresponding to the generic attributes specified by Engineers Australia and relate your work experience to a discussion of each topic.

  I. ability to apply knowledge of basic science and engineering fundamentals
  II. ability to communicate effectively, not only with engineers but also with the community at large
  III. in-depth technical competence in at least one engineering discipline
  IV. ability to undertake problem identification, formulation and solution
  V. ability to utilise a systems approach to design and operational performance
  VI. ability to function effectively as an individual and in multi-disciplinary and multi-cultural teams, with the capacity to be a leader or manager as well as an effective team member
  VII. understanding of the social, cultural, global and environmental responsibilities of the professional engineer, and the need for sustainable development
  VIII. understanding of the principles of sustainable design and development
  IX. understanding of professional and ethical responsibilities and commitment to them, and
  X. expectation of the need to undertake lifelong learning, and the capacity to do so

For each topic selected, give feedback on what was good or could be improved. Give your reasons and, where appropriate, offer suggestions for improvement. Appraisals, criticisms and suggestions are required – not just descriptions. (approx. 600 words per topic).

- **Conclusion**
  Give a brief outline (about 500 words approx.) of your opinion on the value of the experience, including any highlights and any aspects you found unsatisfactory or inadequate.

- **References**
  List all documents you have used which are publicly available, or which you expect the reader to be able to obtain. Private communications and confidential documents should not be included; however they should be mentioned in footnotes. Include any books and other technical references used (but not dictionaries and style books) and sufficient information (publisher, date etc.) for references to be identified and assessed. Please use a consistent standard format.

- **Appendices**
  The following must be given in appendices:

  I. An Industrial Experience Certificate signed by your industry supervisor
  II. An Industrial Experience Log
  III. Any other additional supporting documentation
The Industrial Experience Log must provide a summary of experience and insights gained from the projects in which the student was involved. It should be based on notes made by the student during the period of employment. Its main purpose is to provide a documented record of tasks performed and relevant observations. The log should be brief. An example is set out in Table 1.

<table>
<thead>
<tr>
<th>Name of student</th>
<th>Name of employer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project</td>
<td>Date</td>
</tr>
<tr>
<td>Project 1</td>
<td>Day 1</td>
</tr>
<tr>
<td></td>
<td>Day 2</td>
</tr>
<tr>
<td>Project 2</td>
<td>Day 1</td>
</tr>
<tr>
<td></td>
<td>Day 2</td>
</tr>
</tbody>
</table>

Table 1 Example of setting out a log.

**Assessment**

Reports will be assessed on both content and presentation. The content must be at least equivalent to that recommended above. Discussions must be informative and insightful. The report must be free of grammatical and spelling errors. The writing style must be clear and succinct.

You may find much of the information required (especially for Sections 1 and 2) is available in the form of company publications. *If you use these, they must be referenced.* Note that the material in them is rarely in suitable form for inclusion directly into your report, and will require considerable reorganisation and/or summarising. Copying or direct paraphrasing of blocks of material from such publications is plagiarism and is not acceptable. Please see the document “Plagiarism: Policy and Procedure” ([http://cusp.sydney.edu.au/ENGGIT/plagiarism_policy.pdf](http://cusp.sydney.edu.au/ENGGIT/plagiarism_policy.pdf)).

To compile the report properly, you will need to make appropriate enquiries during the period of work experience. All sources of information (either documentary or personal) must be identified. Material from an unreferenced source will be ignored in assessment.

You are encouraged to make liberal use of Figures such as diagrams, photos, tables, etc but they must be relevant. All should be described as Figures and numbered consecutively. If an essential figure is too large to be included within the text (e.g. a plan or a pamphlet), append it to the report, and indicate this in the text. Original figures by the author will be assessed on both content and standard of workmanship. Those produced by others must have their source acknowledged and will be assessed on their relevance (i.e. it is the author’s selection which will be assessed). It may be desirable to redraw figures if they are poorly produced or contain extraneous information.

Reports may be submitted in electronic format to engineering.postgraduate@sydney.edu.au. If submitting a hardcopy please do not use spiral binding or plastic envelope sleeves. A stapled document in a manilla folder will be sufficient.
Industrial Experience Workshop 6 points

This covers a 4 week period and is arranged by the Faculty over the Winter and Summer breaks.

- **Week 1 - Visits to Industry**
  
  8 – 10 visits will occur over the 5 days which will involve various types of industry situations (civil, mechanical, electrical, chemical, IT).

- **Week 2 - Workshops at The University of Sydney Presented by SydneyTalent and Careers Centre**
  
  Topics include: Graduate Labour Market, Employability Skills and Marketing Yourself to Employers, Self awareness for lifelong learning, Interpersonal communication in the workplace, Written applications – resumes, letters, online applications, Resume Checking, Working in a Team, Planning & Organisational Skills, Assessment Centres, Networking and presentations, Interview Skills, Mock Interviews, Graduate Panel featuring Engineering graduates working in different fields

  **Please Note:** Presentations and workshops on Project Management, Industrial Processes & Considerations, and OH&S may be scheduled in the evenings over the 4 weeks and attendance will be compulsory.

- **Weeks 3 and 4 – Industry placements of students in groups**
  
  Groups of 2-3 students will be required to work on a project within a company or university organisation. This work program will be organised by the Faculty. Students as a group will be required to submit a report on their placement, with information on the company, the project, people they worked with, other aspects of the company (eg their OH&S policies and risk management procedures, how the company operates in terms of environment, people, etc). The group will be required to do a presentation to appropriate company personnel at the end of placement with the expectation of feedback on the project. Students should take this opportunity to develop networks and identify potential mentors for their future.

  Each student is required to submit a Report and attach to the Report the Power Point presentation presented to the Company’s personnel along with their feedback.

Minimum of 4 weeks work experience 6 points

Additional weeks of Industrial experience are counted as follows: 5 weeks = 7 pts, 6 - 7 weeks = 8 pts, 8 - 9 weeks = 9 pts, 10 - 11 weeks = 10 pts, 12 weeks = 12 points.

You will be required to follow the guidelines and expectations outlined for the complete 12 week Industrial Experience Report.

Attendance / participation at a conference / seminar / workshop / professional development 2 points each with a max of 3 points

You are required to provide documentation of the professional development session with a 1 page report on how you benefited. The report could discuss:

- The company/presenters topics covered in the seminar.
• How the topics apply in an industrial situation.
• The learning outcomes of the session and how you might apply these to experiences more effectively and efficiently.
• Was the session positive, or did you feel there might be things that could have been covered under these topics?

🌟 Industry based course within degree studies 4 points

Approved units of study which have industry involvement can count units toward the total of required industrial experience points. You must receive a passing grade in the nominated unit.

**Approved units of study:**
AERO3465 Aerospace Technology 2  
CHNG 4802 Chemical Engineering Design A  
CHNG 4806 Chemical Engineering Design B

In addition to the unit of study assessment you need to submit a 1 page report covering the following:

- Unit Name and Coordinator
- Name of external industry person involved in delivery or project definition
- Name of company affiliation for above person

Select 5 topics from the list below corresponding to generic attributes specified by Engineers Australia and relate your experience to a discussion of the topic:
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- ability to undertake problem identification, formulation and solution.
- ability to utilise a systems approach to design and operational performance.
- ability to function effectively as an individual and in multi-disciplinary and multi-cultural teams, with the capacity to be a leader or manager as well as an effective team member.
- understanding of the social, cultural, global and environmental responsibilities of the professional engineer, and the need for sustainable development.
- understanding of the principles of sustainable design and development.
- expectation of the need to undertake lifelong learning, and the capacity to do so.

🌟 Site Visits 2 points each with max of 3 points

You are required to provide documentation of the visit with a 1 page report on how you benefited. The report could discuss:
- The company and what they do (company wide, at that site…)
- Type of processes they employ
- People they employ
- What their mission might be and what their outcomes might be
- What kind of efficiencies did you observe during the visit and how you believe the company could work more effectively and efficiently
- Was the working environment positive, or did you feel there might be things that could be done which would deliver benefits?