

Engineering Professional Practice Report

Guidelines for Students for Engineering Professional
Practice and preparation of the report

School of Science and Engineering

March 2020

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Introduction to Engineering Professional Practice Requirements

Engineers Australia requires all Bachelor of Engineering students to complete at least 12 weeks (60 working days) of relevant practical engineering professional practice whilst undertaking their undergraduate program prior to graduation. This engineering professional practice may be obtained via employment during vacations, or via permanent or casual employment undertaken concurrently whilst studying. This latter possibility recognises that many students need to work while they are studying. Engineering professional practice does not need to involve payment, but it must be relevant to the student’s undergraduate degree program.

Before you start your engineering professional practice, you must register your professional practice placements through [Sonia Online](#) (USC’s on-line system for managing and recording engineering professional practice), and have it approved by the engineering professional practice co-ordinator. Engineering professional practice can only be claimed while you are studying for your degree. Retrospective claims will not normally be approved. It is the responsibility of each student to arrange their own engineering professional practice.

The engineering professional practice:

- must total a minimum of 60 days;
- is not limited to a maximum number of days per year;
- may be paid or unpaid;
- may be undertaken in Australia or overseas (with approval);
- must be relevant to your engineering program;
- may be with different host organisations;
- may occur at any time over the entire length of your undergraduate studies;
- must occur after you have submitted your Engineering Professional Practice Application form (via [Sonia Online](#))

Activities that may be included in engineering professional practice may be categorised into three types:

- engineering work directly related to the student's degree program (minimum of 40 days)
- engineering focussed activities (such as attending an Engineers Australia event, and conference/seminar participation, with maximum allowed claim of 10 days)
- professional practice in a non-engineering environment that enables the student to gain greater experience of how communities in Australia and abroad deal with the issues facing them (such as involvement in programs organised by Challenges Abroad, local community-based programs, and Medecins sans Frontieres/Doctors without Borders, with maximum allowed claim of 10 days)

It is intended that the practical engineering professional practice will complement the learning outcomes achieved through your degree program and will give you experience in several different types of engineering roles. This could include generic areas such as business management (e.g. marketing, accounting, regulatory reporting), human and industrial relations, job organisation, maintenance, safety and environmental activities. More specific areas of engineering practice include activities such as planning, design, product development and manufacturing. Exposure to both generic and specific engineering professional practice, as a member of an organisation's general workforce, provides valuable preparation for your career as a professional engineer.

Information Regarding Engineering Professional Practice

The Engineering Professional Practice Report does not attract tuition fees, but you must obtain a satisfactory outcome for the report in order to graduate. Please note that you must not begin your engineering professional practice until all required documents and risk assessments have been completed, submitted and approved in [Sonia Online](#).

When Engineers Australia (EA) is considering applications for membership, it does so via detailed criteria. These criteria have been published and are available on the EA web site (<https://www.engineersaustralia.org.au/>). The document of particular interest is the [Stage 1 Competency Standard for Professional Engineers](#). Please refer to these Stage 1 Competencies when completing your Engineering Professional Practice Report.

Membership of Engineers Australia is available to people in a number of occupational categories, including professional engineers, and engineering technologists. This guideline is concerned about assessing engineering professional practice of students who will be taking on roles in the first category.

The National Generic Competency Standards recognise two Stages of competency:

- Stage 1 is the level of competency needed for entry to practice as a qualified member of the engineering team, corresponding to completion of an accredited or

recognised educational qualification, such as USC's Bachelor of Engineering programs.

- Stage 2 is the level of competency expected of an experienced engineering practitioner and is the requirement for Chartered membership of Engineers Australia. Stage 2 assessment is outside the scope of the engineering professional practice report and is mentioned here for completeness. There are also other membership categories (such as Engineering Executive and Fellow Engineer) which are for experienced engineering practitioners.

The Stage 1 competency standards provides the basis for the assessment of the Engineering Professional Practice report.

This report will indicate your:

- understanding of the body of engineering knowledge in the three areas listed below relevant to your occupational category (professional engineer); and
- ability to apply this knowledge to representative problems and situations, typical of the responsibilities of practitioners in your category.

You are also expected to have the attributes and skills necessary to function as a professional, and the intellectual skills to test and continually extend your knowledge through lifelong learning in formal and informal contexts. Therefore, Stage 1 competency is a combination of knowledge, competencies and professional attributes (and attitudes). The Stage 1 Competency Standard for professional engineers comprises three areas of Competency:

- area 1: Knowledge and Skill Base
- area 2: Engineering Application Ability
- area 3: Professional and Personal Attributes.

Each area is divided into a number of Elements - for example, the area 1 Knowledge Base will include appropriate aspects of science and engineering fundamentals.

Prior to commencing your engineering professional practice, you must submit your "Engineering Professional Practice Application" form (via [Sonia Online](#)). This is required for both paid and unpaid positions. The engineering professional practice co-ordinator will then review the information provided before approving the professional practice.

If you are undertaking unpaid engineering professional practice, the University's insurance will cover your activities (with some exceptions such as the use of a motor vehicle). If you are undertaking paid engineering professional practice, and therefore is an employee of the host organisation, the host organisation's insurance will cover your activities.

On request, the engineering professional practice co-ordinator will provide to the host organisation a copy of the Certificate of Currency for the USC insurance that covers you for unpaid engineering professional practice.

When you have completed a minimum of 60 days' engineering professional practice, you should submit your Engineering Professional Practice Report (via [Sonia Online](#)) indicating

what elements from each area you have been exposed to during your engineering professional practice. More details on the areas and elements are provided below. It is not expected that you will have gained proficiency in all elements in each of the three areas, but you will be expected to demonstrate an overall exposure to and understanding of the three areas of Competency.

The overall aims of this requirement are to enable you to:

- gain exposure to specific, discipline related issues in engineering and technological practice;
- gain exposure to generic issues associated with the modern workplace that may impact on engineering and technological practice;
- gain a greater understanding of alternate methods of applying engineering and technological principles;
- increase awareness of the nature of the engineering profession; and
- reflect on, and where appropriate change, their approach and attitudes towards your future professional activities.

Engineering Professional Practice Report

You are required to submit (via [Sonia Online](#)) a written report detailing your engineering professional practice. This is to be submitted in electronic format (either .pdf or .docx format) as a single file.

The expected content and suggested format for this report are given below. Please note that the engineering professional practice report will be assessed as either Satisfactory or Unsatisfactory. There is no numerical mark associated with this report grade. Students who receive Unsatisfactory will be given the opportunity to resubmit their report after having made suitable modifications to it. The engineering professional practice co-ordinator will provide comments highlighting areas for improvement when a report is not satisfactory.

For an engineering professional practice report to be assessed as Satisfactory, a you must demonstrate exposure to and understanding of a variety of elements in the three areas of competency. Assessment is made on a holistic basis and it is not expected that every element will be met/discussed/covered in detail.

The engineering professional practice report may be submitted at any time of year, but you should submit it at least 6 weeks prior to your intended graduation date (this will enable all administrative requirements to be completed).

Please note that it is not possible to submit group or team reports, even where two or more students have shared engineering professional practice in an organisation. Each student must submit an individual engineering professional practice report.

As this report is likely to be of interest to prospective employers, you are encouraged to submit a well prepared and presented, professional engineering report. This should include the use of photographs, maps, plant layouts and work procedures. You are expected to use

correct grammar and spelling, and follow the format suggested (see the “forma of engineering professional practice report” section below). Don’t forget that you must obtain permission in writing if you would like to include material owned by others.

In the report, you are required to include a signed statement from your employer(s), on organisational letterhead, verifying their employment and providing contact details. A proforma of this statement is provided in the section “Format of engineering professional practice report”. It is suggested that you prepare a draft of this proforma highlighting their details and experience and ask a suitable person within the organisation to approve and sign it. Where you have obtained engineering professional practice in more than one organisation, statements must be included from all organisations. As the engineering professional practice report is submitted electronically via [Sonia Online](#), the document should include a scanned copy of the written statement(s). The original statement(s) must be provided upon request from the engineering professional practice coordinator. Feedback will normally be given within two weeks.

Content of Engineering Professional Practice Report

In the engineering professional practice report, you are expected to demonstrate exposure to and understanding of the three areas of competency (based on Engineers Australia’s requirements detailed above). These areas are:

- area 1: Knowledge and Skill Base
- area 2: Engineering Application Ability
- area 3: Professional and Personal Attributes.

In general, you are asked to demonstrate:

- appropriate understanding of engineering and scientific knowledge;
- how you have applied this knowledge to real world problems and situations; and
- how the attributes and skills you have gained have enabled you to carry out your tasks in a professional manner.

Your report should describe the learning experiences through which you have developed and demonstrated appropriate competencies. This discussion should relate to your experiences gained in engineering employment that occurred after you commenced your engineering studies and be highlighted within the context of the competencies listed below.

You should put your effort into developing comprehensive descriptions of several such learning experiences or situations. Describe each experience and then indicate which areas and elements were involved. Do not write separately about each area or element, but rather present a larger picture giving a strong overview. It is not expected that each experience or situation will demonstrate all areas or elements. You should aim to describe various circumstances (possibly in different organisations) that together provide a complete overview of your engineering professional practice to a suitable level.

You must write in the first person singular (i.e. “I”) and describe work you have actually performed personally. This is different to most engineering documents which do not use first person singular. When writing about a team project, you should describe the project overall. However, you must also describe the specific part you played personally, how it contributed to the overall objective, what you actually did, and what you gained from the experience.

Format of Engineering Professional Practice Report

You should note that the format of the engineering professional practice report is similar to the format required for your final year project report. The comments below should be read carefully and followed closely.

You must remember to write about your own personal performance. It is not enough to say that a project, in which you took part, covered certain activities. You must describe what you did, as an individual.

As a guideline, it is suggested that a total of 3,500 words, covering several situations, should provide ample scope to demonstrate your engineering professional practices. This word limit does not include tables, diagrams, or appendices.

The Engineering Professional Practice report format given below is strongly recommended:

Title page (see example given below)

Table of contents

Acknowledgments

List of symbols and abbreviations

Introduction

Dates and duration of the projects or appointments you are writing about, plus the name, position title, and contact details of your supervisor in your host organisation must be provided in a table (see proforma table below)

Name of employing organisation and location of worksite (note that it will be necessary to include a signed statement from your employer, on organisational letterhead, verifying your employment and providing contact details, see proforma letter below). This statement should be included in an appendix.

Title of the position(s) you occupied

Background

- Nature and objectives of the overall engineering work (or project)
- Nature of your particular work area and statement of your duties

- An organisation chart highlighting your position

Personal performance

- Detailed description of the work you performed personally, including:
- technical details of the work;
- how you applied your engineering and technical knowledge and skills;
- the tasks delegated to you and how you went about accomplishing them;
- any particular difficulties you encountered and how you solved them;
- strategies you devised, including any original or creative design work;
- how you worked with other team members

Summary

- Your view of your engineering professional practice
- How well your work succeeded in meeting its goals and requirements
- How your personal role contributed to the organisation

References

- List of references using the Harvard Referencing system.

Appendices

- These may contain, if necessary, drawings or other relevant material. Make sure you have written permission to include such information in your report. The letter(s) of verification from your host organisation(s) should also be included here.

Proforma for Table summarising Student engineering professional practice

Employer	Start Date	Finish Date	Days Worked	Nature of Tasks	Host Supervisor Contact Details
ACME Manufacturing	24/11/16	16/01/17	26	Production operator, data logging	John Bossman Plant Manager jbossman@acme.com (07) 5599 5599
ACME Manufacturing	22/11/17	11/02/18	50	Trades assistant, pump replacement project, data logging	John Bossman Plant Manager jbossman@acme.com (07) 5599 5599

Engineering Professional Practice Report at ACME Engineering

Submitted by

F. Bloggs

In fulfilment of the requirements for the
Engineering Professional Practice report
School of Science and Engineering
University of the Sunshine Coast

February 2020

Figure 1 - Example of an Engineering Professional Practice report Title Page

ACME Manufacturing Pty.Ltd.
121 Acme Rd
Acmeville, QLD., 4999

17th February, 2020

To Whom It May Concern,

Re: Employment of USC Engineering Student A.B. Jones

This letter is to inform you that USC Engineering student Arthur Jones was employed by ACME Manufacturing Pty.Ltd. at our Acmeville site from 24th November, 2016 to 16th January, 2017, and again from 22nd November, 2017 to 11th February, 2018.

During these times Arthur worked as a plant operator on our widget manufacturing line and as a trades assistant based in our maintenance workshop. Both roles involved shift work. He was also given a small project (replacing a centrifugal pump with a diaphragm pump) to complete with a minimum of supervision. He also entered production data onto our computer system.

Should you wish to discuss this, I may be contacted on (07) 5599 5599 or at the address indicated above.

Yours sincerely



J.P. Bossman
Plant Manager

Figure 2 - Proforma for Statement (on the organisation's letterhead) from Host Organisation regarding Student Engineering Professional Practice report

Appendix - Steps Involved in Registering and Approving for your Engineering Professional Practice:

Steps involved in registering and getting approvals for your Engineering Professional Practice:

- You identify a potential organisation (host) for you to undertake engineering professional practice with.
- You discuss the potential engineering professional practice tasks with the host supervisor to ensure that the work is relevant and appropriate for your engineering degree.
- You complete and submit the online Engineering Professional Practice Application form (after logging in to [Sonia Online](#))
- Engineering professional practice co-ordinator provides in-principal approval for intended engineering professional practice placement.
- The details you provide will be checked by the University, and you will be allocated (within the Sonia Online system) to the Host Organisation.
- After you receive your in-principal approval, the following documents become available in [Sonia Online](#) for you to action:
 - Link to PrePlace modules (in Blackboard)
 - Engineering Code of Conduct form
 - USC Generic Engineering Risk Assessment form
 - Student Placement Agreement
- At the same time as you receive your in-principle approval:
 - USC sends a USC Placement Partner Agreement to host organisation for review and approval. Host sends signed agreement back to USC.
 - After the agreement is received back from the host, the Head of School countersigns the agreement and this is filed (copy sent to host).
- You will receive an email notification when all your forms and tasks have been successfully approved. This notification allows you to commence your engineering professional practice placement.
- Within one week of commencing your engineering professional practice, you must submit (in [Sonia Online](#)) a copy of all internal risk assessments and safe work method statements you have developed with the host organisation to manage your potential risks while you are undertaking your engineering professional practice.

Please understand that all these approvals and checks take time, so please allow a minimum of two weeks' after you submit your application before you could expect to receive official approval to commence your engineering professional practice.

Please be aware that you are not permitted to commence your engineering professional practice before you have successfully completed all your [Sonia Online](#) tasks and received official notification that you are allowed to commence your engineering professional practice. Claims for engineering professional practice undertaken before official approval is received

will not be considered. You will also NOT be covered by University insurances if you commence your engineering professional practice before you receive your official notification.

Existing Student Placements

Unless you are graduating in April this year, you will need to register your engineering professional practice on [Sonia Online](#). Once you have registered, you need to demonstrate 60 days of engineering professional practice after that date. If you have previously had your engineering professional practice approved by Dr White, you need to email me evidence of this approval so I can adjust your records. Otherwise, you will also need to demonstrate 60 days of engineering professional practice after the date you register your engineering professional practice.

Terry Lucke