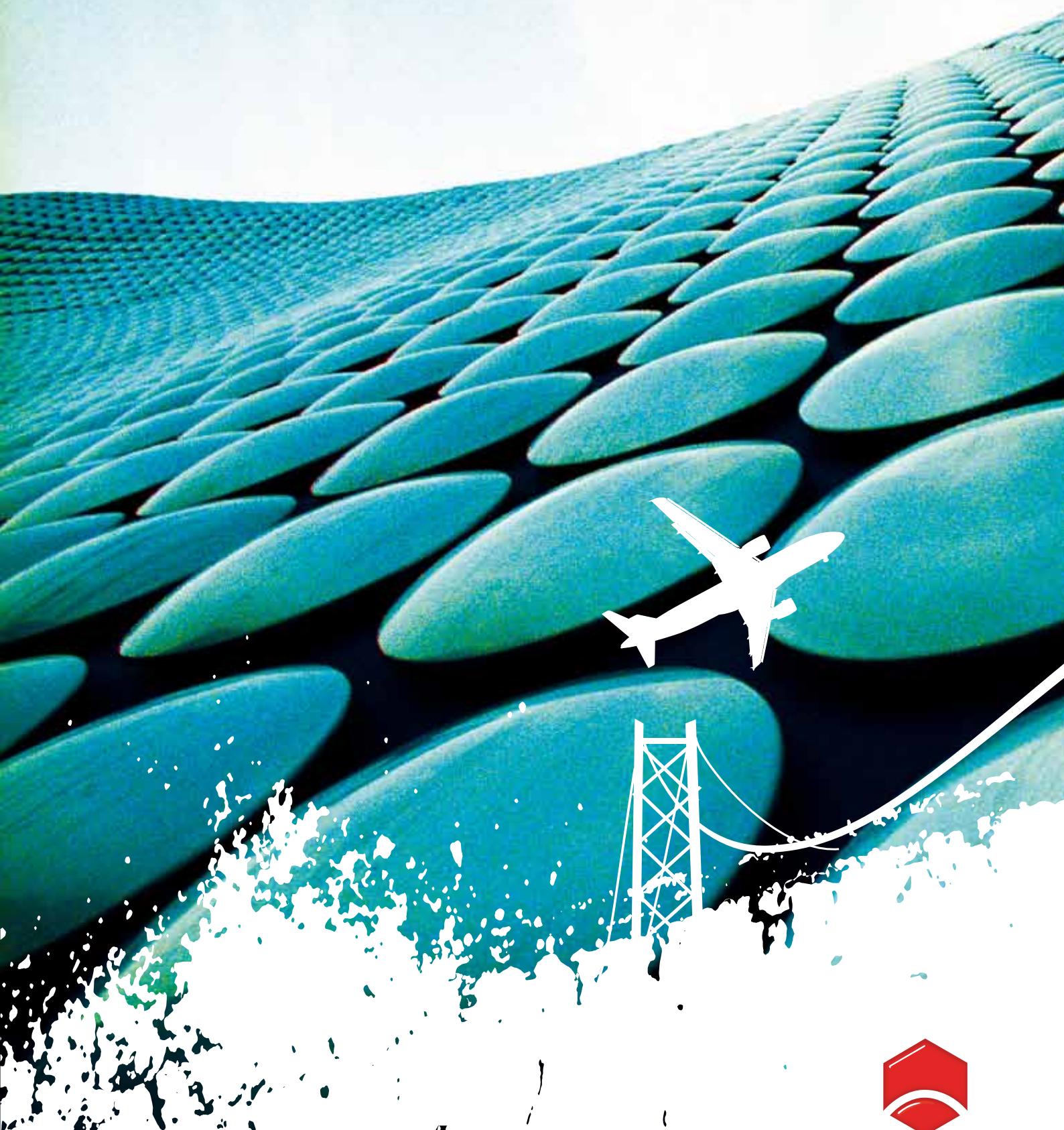


MIGRATION SKILLS ASSESSMENT

FOR RECOGNITION OF PERSONS INTENDING TO APPLY FOR SKILLED
MIGRATION TO AUSTRALIA WITHIN THE ENGINEERING PROFESSION

JULY 2011



ENGINEERS
AUSTRALIA

www.engineersaustralia.org.au

**Migration Skills Assessment
Education and Assessment**

Engineers Australia, 11 National Circuit BARTON ACT 2600 AUSTRALIA



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SECTION A
Introduction and Background

Introduction

This booklet has been developed by Engineers Australia to assist you in preparing your submission for an engineering qualifications assessment.

This section provides you with an introduction to the assessment of qualifications in engineering for migration purposes. You should read this booklet carefully before proceeding to the Application Forms.

1. Assessment for Migration Purposes

Engineers Australia is the designated assessing authority for most engineering occupations.

You should first check the 'Skilled Occupation Lists (SOL)' to determine that your skilled occupation is listed as being assessable by Engineers Australia, as there are some engineering occupations which are assessed elsewhere. The reference SOL documents, which list occupations and contact details of the designated assessing authorities, are available from the DIAC website www.immi.gov.au/skilled/sol/.

Applicants seeking assessment for migration purposes should first get a copy of the latest '**General Skilled Migration Booklet (6) - Form 1119**' from the Department of Immigration and Citizenship (DIAC) (www.immi.gov.au). This booklet will help applicants understand the requirements for General Skilled Migration to Australia.

Alternatively, the 'Employer Sponsored Migration Booklet (5) - form 1131' may be relevant.

Applicants should refer to the Australian Skills Recognition Information (ASRI) site at www.immi.gov.au/asri. This site helps you to find out how to get an assessment of your occupational qualifications and skills. It also contains information on state specific registration and licensing requirements.

Applicants should also refer to the Australian and New Zealand Standard Classification of Occupations (ANZSCO) at www.abs.gov.au. This reference provides the definition, skill level and tasks involved in a particular occupation.

2. Occupational Categories in Engineering

Engineers Australia recognises three occupational categories within the engineering team in Australia:

- Professional Engineer
- Engineering Technologist
- Engineering Associate

For migration purposes, an additional category of Engineering Manager is also recognised.

Shown below is a description of the pre-requisite engineering qualifications and the workplace role for each occupational category.

Professional Engineer

Academic qualification is an Australian four year Bachelor of Engineering degree following twelve years of schooling, or equivalent.

The Professional Engineer:

- Focuses on overall systems
- Develops and applies new engineering practices
- Applies leadership & management skills
- Pursues engineering opportunities in an holistic way, taking environmental, community & social issues into account
- Solves diverse problems.

Engineering Technologist

Academic qualification is an Australian three year Bachelor of Engineering Technology degree following twelve years of schooling, or equivalent.

The Engineering Technologist:

- Focuses on interactions within the system
- Modifies and adapts established engineering practices
- Advances engineering technology.

Engineering Associate

Academic qualification is an Australian two year Advanced Diploma of engineering following twelve years of schooling, or equivalent.

The Engineering Associate:

- Focuses on specific elements of the system
- Works within codes and applies established practices and procedures.

Engineering Manager

Academic qualification is normally a bachelor degree or higher qualification in engineering.

Engineering Manager:

- is a high level position involving the formulation of engineering strategies, policies and plans and the direction, administration and review of engineering operations for an organization
- must have a record of senior management over a period of five years or more. Letters of reference and organisational charts must be provided.

Applicants should note that this occupation is not an engineering occupation, but rather belongs to the Managers and Administrators' category. Consequently, a positive outcome will not allow automatic membership of Engineers Australia.

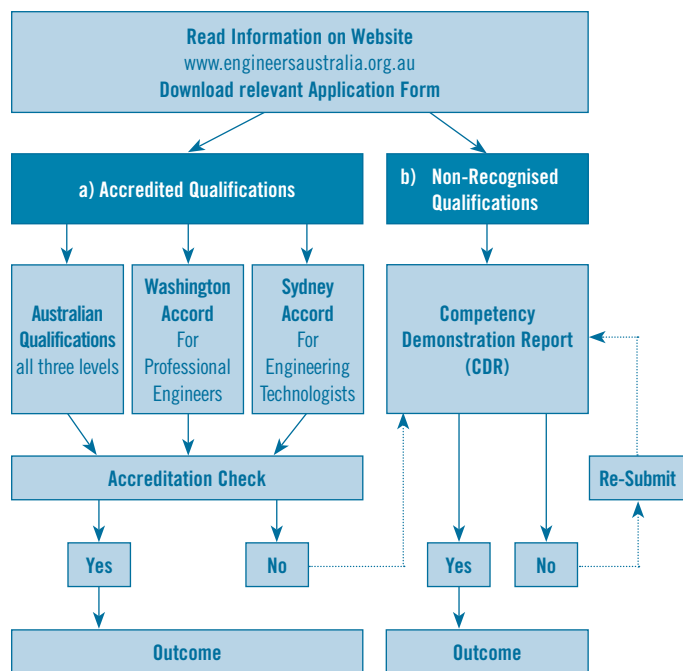
Further details on the general role descriptions for each occupational category are presented in the Appendix.

3. Pathways to Recognition

There are two pathways to recognition of your qualifications:

- a) through recognised (accredited) Engineering Qualifications
- b) through a Competency Demonstration Report (CDR) for non-recognised qualifications.

The pathways to recognition are shown schematically below:



Refer to Sections B and C for instructions associated with each pathway.

The assessment is primarily focused on the basic tertiary (post secondary) engineering qualification. Any application for assessment of a postgraduate qualification must have an underpinning undergraduate qualification.

4. English Language Requirements

All applicants applying to have their skills assessed by Engineers Australia are required to provide evidence of their English language competency. Applicants are required to have achieved a **minimum score of 6.0 in each of the four modules** of speaking, listening, reading and writing in either the 'General Training' or 'Academic' version of the International English Language Testing System (IELTS) www.ielts.org.

Please Note

You must arrange for an original IELTS Test Report Form (TRF) to be sent to Engineers Australia directly from the Test Centre. Certified copies are not acceptable. Use the address on the application form - see also page 25. For an IELTS Test Report Form to be valid, it must not be more than 2 years old at the date of receipt of the assessment application in this office.

A TRF received before receipt of assessment application is stored alphabetically and matched to the personal file when assessment commences.

Details of locations where IELTS assessments are conducted may be found on the IELTS website www.ielts.org.

The following applicants may be exempt from the requirement to provide an IELTS assessment result:

- Applicants who are native English speakers;
- Applicants who have completed an Australian undergraduate engineering qualification;
- Applicants who have completed a 2 year Masters degree or PhD program at an Australian university.

For the above exemption, documentary evidence is required of successful completion of the Australian degree program.

Please note that the above IELTS exemptions are determined on a case by case basis and Engineers Australia reserves the right to require an IELTS assessment result if it is deemed necessary.

5. Certification of Copies of Documents

You must provide certified true copies of your original degree/diploma testamur (certificate) and any other subsequent engineering qualifications together with their associated academic transcripts (list of subjects studied and results obtained). Do not send the course syllabus.

Certified copies are to be produced direct from the original documents, which the Certifier must sight. An original document is usually different from a photocopy or other reproduction. An original may often contain an official logo, seal, stamp or watermark, or may include a handwritten signature. Please note that colour scanned emailed or facsimile copies are not accepted. The certified copies bearing the Certifier's actual signature must be sent as hardcopy by post (or courier).

Where qualifications are not in the English language, you must provide certified copies of both the original language document and an English language translation carried out by an authorised translator. The signature, name, status and contact details of the translator must be provided on the English language version. If your current name is not the same as that on your degree documents, you must provide evidence of your name change.

All submitted documents which are copies of original documents must be certified.

Many applications for a skills assessment are delayed because documents are not properly certified. The assessors will contact you by letter or e-mail if there are any omissions in regard to certification. Please make sure your e-mail and contact addresses are up to date.

Applicants should note the following points concerning certification of documents:

1. Certified copies of previously certified copies will not be accepted. You must provide a properly certified copy of the **ORIGINAL** document.
2. Proper certification should appear on **each page** to be certified, and should show:
 - (a) the **signature** of the person certifying the document and the **date** of signing
 - (b) the **name** of the person certifying the document. This should be clearly printed or evident in the official stamp
 - (c) the **contact details** of the person certifying the document. This may be a *business address*, *telephone number* or *e-mail address*, and
 - (d) where possible, an official stamp indicating the **status** of the person certifying the document, ie. Justice of the Peace, Commissioner for Oaths, Notary Public
 - (e) a statement "I certify this to be an identical copy of the original document, which I have sighted", or similar wording
 - (f) Where the name, status and contact details are in a foreign language, an English language translation of these three details needs to be provided.
3. The following classes of persons are authorized to certify copies of documents:
 - An authorised Notary Public
 - An authorised Commissioner for Oaths (Declarations)
 - An authorised Solicitor, Barrister or Judge
 - An authorised Justice of the Peace
 - An officer of an Australian Diplomatic Post
 - A current financial member of the Engineers Australia other than at the grade of student (membership number must be shown)
 - A staff member of Engineers Australia
4. If you employ the services of a legal firm, the solicitor must **sign** each page. It will not be satisfactory for the name of the law firm to appear in lieu of the actual name and signature of the solicitor certifying your documents. Collective responsibility implied in the use of "we", accompanied by the name of the law firm, is not acceptable.

Please Note

Assessment of your application will not proceed if you submit copies of documents where the class of person certifying the copy is not one of those listed above or where the requirements stated above are not complied with.

6. Steps in the Assessment Application Process

This section of the booklet assists you in the preparation and submission of your assessment applications.

If you are lodging a Washington Accord, a Sydney Accord, or an Australian Engineering Qualification assessment application, then full details of what to send us are on the relevant application form.

Go to Section B for details on preparing an application for assessment of a recognised qualification.

Compilation of a Competency Demonstration Report (CDR)

If you have non-recognised qualifications, you will need to submit a Competency Demonstration Report (CDR).

Section C of this booklet provides you with guidelines for a description of your personal engineering practice and an identification of your engineering competencies.

The Competency Demonstration Report or CDR is the substantial component of your application which provides the basis for Engineers Australia's assessment of your competencies. Apart from your engineering qualification, the success of your application will depend on your career episodes and your demonstration of the relevant set of competency elements.

You should follow the guidelines in Section C carefully when compiling your CDR.

Additional assessment services

If you require an opinion on a higher level qualification (eg PhD), or your relevant skilled employment for the purpose of claiming points from DIAC, then go to Section D for application details.

Note that the standard assessment will include an opinion on the comparable AQF Australian qualification level used in support of the assess outcome. This will enable the relevant points for such to be claimed from DIAC.

Checklist of documentation and dispatch

Section E of this booklet provides you with checklists of the required material, fees and dispatch address. The current assessment fee is also specified on the relevant application form.

7. Application Forms

Each assessment pathway has its own application form. Make sure you download and complete the application form for the pathway you have selected.

Application forms may be downloaded from the website www.engineersaustralia.org.au/migration_skills

When applying for a CDR assessment, you should specify the **occupational category** and **field of engineering** for which you are seeking an occupational outcome. You may wish to refer to the Australian and New Zealand Standard Classification of Occupations (ANZSCO) dictionary on www.abs.gov.au for the definition of the occupations.

Use of an Agent

If you have appointed a person to act as your agent you must complete the authorisation form, which may be downloaded from the website (www.engineersaustralia.org.au/migration_skills) under 'Migration Skills Assessment'. If you are appointing an Agent, a hard-copy version of this form, complete with your original signature, must accompany your assessment application.

If you employ an agent, Engineers Australia will communicate only with your agent regarding your assessment. You cannot independently contact Engineers Australia. If you do so you will be referred to your agent.

8. The Assessment Process

When your application arrives, a receipt will be posted to you within 5 to 7 working days. The receipt will specify your Contact ID (CID) number. Please use this number in correspondence with Engineers Australia.

Assessment turnaround time can vary and regular updates are to be found at www.engineersaustralia.org.au/migration_skills

Please do not telephone Engineers Australia within this time-frame as this will cause delays to processing.

If there are any deficiencies in your submission you will be notified in writing. If the application is successful you will receive an assessment outcome letter suitable for migration purposes. Please note that the assessment outcome letter has no expiry date from Engineers Australia's perspective.

Assessment outcome letters are sent by **ordinary post**. If you wish to use a courier you must organise that yourself. Please advise Engineers Australia if you intend to use a courier and you will be advised by e-mail when the letter is available for pick-up.

Please Note

Only one original letter of recognition will be issued. Provision of an additional letter will require a Statutory Declaration explaining the reason for the additional letter together with an administration fee of AUD\$80.

9. Appealing the Assessment Outcome

If you are not satisfied with the assessment outcome you should first contact your case officer and discuss your concerns. The case officer may refer your case to the Associate Director – Migration Skills Assessment for consideration.

- A Review or Appeal can only be made **within 12 months** of the date of the original assessment outcome letter
- If you have already used the assessment outcome letter for Migration purposes, then the assessment process is regarded as finished and no Appeal can be made.

There are two stages to an appeal:

Preliminary (Informal) Review

On receipt of request for a preliminary review, the Manager will refer your file to another assessor for an assessment which is independent of the first. Preliminary Reviews are done at no charge. You will be advised of the outcome by the Manager. If you are still not satisfied with the outcome you may go to a formal Appeal.

Formal Appeal

To lodge a formal appeal you must submit the form "Application for Formal Appeal of Assessment Outcome", downloadable from www.engineersaustralia.org.au/migration_skills

You may include reasons as to why you believe the outcome is not appropriate in your case. You cannot however present any new information/evidence. If you wish to add new material to your submission you must make a new application.

You must include the Appeal Fee of AUD\$200. This fee is refundable if you receive the outcome you are seeking. It is not refundable if the outcome remains as originally assessed.

All documents on your file will be photocopied and forwarded to an external Committee of engineers for re-assessment. Under Australian Privacy Legislation your permission will be required to forward copies of documents to the Committee. When requesting an Appeal, your signature will denote your consent to dissemination of the file documents.

Appeals take about three months to process.

The outcome of an Appeal is FINAL.

10. Fraud

Applications will be rejected where there is evidence of fraud, plagiarism or forged documents. We refer applicants to the *Engineers Australia Code of Ethics*, in particular the demonstration of integrity, available on the website www.engineersaustralia.org.au





SECTION B
Assessment of Recognised Qualifications

Accredited Qualifications

These are accredited Australian engineering qualifications and overseas engineering qualifications that are recognised through formal agreements with engineering accreditation bodies in other countries. These qualifications are readily recognisable through database listings of accredited programs.

For overseas qualifications there are two pathways

- one deals with undergraduate **Professional Engineering** programs. This is known as the **Washington Accord**.
- and the other deals with **Engineering Technologist** programs. This is known as the **Sydney Accord**.

Please note that all references to 'qualifications' refer to the **undergraduate engineering qualifications**.

Please Note

For all recognized (accredited) qualifications the occupational classification generally given to you will be according to the engineering discipline specified in the program title and/or as reflected in the academic content. If you wish to seek an engineering occupational classification other than the one specified in your qualifications, or have your work experience taken into consideration, you will need to submit a CDR.

Application forms for these pathways are available from the Engineers Australia website www.engineersaustralia.org.au/migration_skills

1. Australian Qualifications

If you have Australian undergraduate engineering qualifications at the Professional Engineer, Engineering Technologist or Engineering Associate level you should initially apply using the Australian Qualifications Application Form.

Please note that if your Australian qualifications are at the post-graduate level (eg, Postgraduate Diploma, Master of Engineering, PhD) but your undergraduate engineering qualifications are from overseas you cannot apply using this pathway.

Persons who hold Australian engineering qualifications at the Trade or Technician level must not apply to Engineers Australia for assessment. Details of the relevant assessing authority for these occupations can be found in the Skilled Occupation Listing (SOL) available from the Department of Immigration and Citizenship www.immi.gov.au.

If your Australian engineering qualification has not yet been awarded you may provide a certified copy of the official academic transcript in lieu of a copy of the actual degree. The transcript must specify that the program of study has been completed and you are eligible to graduate. If the academic transcript does not specify completion you must provide an original letter of completion (not a copy) signed by the Academic Registrar (not someone acting on his/her behalf).

If you have been given part exemption from an Australian qualification on the basis of recognition of prior learning (RPL) at another institution, you will need to provide evidence of that prior learning.

2. Washington Accord

The Washington Accord (www.washingtonaccord.org) is an agreement between the engineering accreditation bodies, listed below, to recognise as equivalent the **undergraduate** professional engineering programs of study which are accredited and delivered in those countries.

The following countries are full members of the Washington Accord. While Australia is a signatory country it is not listed here. If you have Australian engineering qualifications you must apply using the Australian Qualifications application form.

Some other countries are currently seeking full membership of the Washington Accord. Please refer to www.washingtonaccord.org.

Provisional membership does not give entitlement to apply under the Washington Accord. Full membership only provides this entitlement.

Canada (1989)	The Canadian Accreditation Board of the Canadian Council of Professional Engineers www.engineerscanada.ca
Ireland (1989)	The Institution of Engineers of Ireland www.iei.ie
New Zealand (1989)	The Institution of Professional Engineers, New Zealand www.ipenz.org.nz
United Kingdom (1989)	The Engineering Council of the UK www.engc.org.uk (see dual degree accreditation note)
United States of America (1989)	The Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology www.abet.org
Hong Kong SAR (1995)	The Hong Kong Institution of Engineers www.hkie.org.hk
South Africa (1999)	The Engineering Council of South Africa www.ecsa.co.za
Japan (2005)	Japan Accreditation Board for Engineering Education www.jabee.org
Singapore (2006)	The Institution of Engineers Singapore www.ies.org.sg
South Korea (2007)	Accreditation Board for Engineering Education for Korea www.abeek.or.kr
Taiwan (2007)	Institute of Engineering Education Taiwan www.ieet.org.tw
Malaysia (2009)	Board of Engineers Malaysia www.bem.org.my

Please Note

The Washington Accord only applies to **undergraduate professional engineering degrees accredited and delivered in the signatory countries**.

The Accord does not apply to:

- Qualifications at lower academic levels or
- Postgraduate qualifications in engineering.

You should first check that your qualification is listed as an accredited Professional Engineering program with the relevant body before applying. Washington Accord accreditation applies for degrees completed on or after the year (shown in brackets) for full signatory status.

If you consider your qualifications fall under the Washington Accord you should complete the Washington Accord application form and provide the required documentation and assessment fee. Your qualifications will be checked with the relevant Washington Accord accreditation body.

If your qualification is not listed as accredited under the Washington Accord, you will be invited to submit a Competency Demonstration Report (CDR).

Please Note

Applicants with accredited qualifications from signatory countries where the official language is **not** English will be required to submit a satisfactory IELTS assessment result.

3. Sydney Accord

The Sydney Accord is an agreement between the engineering accreditation bodies, listed below, to recognise as equivalent the Engineering Technologist programs of study which are accredited and delivered in those countries.

The following countries are full members of the Sydney Accord. While Australia is a signatory country it is not listed here. If you have Australian qualifications you must apply using the Australian qualifications application form.

Canada (2001)	The Canadian Council of Technicians and Technologists www.cctt.ca
Hong Kong SAR (2001)	The Hong Kong Institution of Engineers www.hkie.org.hk
Ireland (2001)	The Institution of Engineers of Ireland www.iei.ie
New Zealand (2001)	The Institution of Professional Engineers, New Zealand www.ipenz.org.nz
South Africa (2001)	The Engineering Council of South Africa www.ecsa.co.za
United Kingdom (2001)	The Engineering Council of the UK www.engc.org.uk (see dual degree accreditation note)
United States of America (2009)	The Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology www.abet.org

Provisional membership does not give entitlement to apply under the Sydney Accord. Full membership only provides this entitlement.

Please Note

The Sydney Accord only applies to **undergraduate engineering technologist qualifications accredited and delivered in the signatory countries.**

The Accord does not apply to:

- Qualifications at lower academic levels or
- Postgraduate qualifications in engineering.

You should first check that your qualification is listed as an accredited Engineering Technologist program with the relevant body before applying. Sydney Accord accreditation applies for degrees completed on or after the year (shown in brackets) for full signatory status.

If you consider your qualifications fall under the Sydney Accord you should complete the Sydney Accord application form and provide the required documentation and assessment fee.

Your qualifications will be checked with the relevant Sydney Accord accreditation body.

If your qualification is not listed as accredited under the Sydney Accord, you will be invited to submit a Competency Demonstration Report (CDR).

Please Note

Applicants with accredited qualifications from signatory countries where the official language is **not** English will be required to submit a satisfactory IELTS assessment result.



Section C
Assessment of Non-Recognised Qualifications

1. Introduction

This section deals with the compilation of a Competency Demonstration Report (CDR) describing your engineering practice.

The purpose of the CDR is to demonstrate:

- how you have applied your engineering knowledge and skills;
- that such application meets the competency standards of the relevant occupational category in Australia.

You should be aware that the CDR must be all your own work.

You must carefully follow the instructions provided in preparing your CDR. You should realise that you are entering into a final assessment.

The major assessable features of the CDR are your narratives written in English of three career episodes and a Summary Statement of the competency elements you have claimed.

You should, where possible, type your CDR using a word processor and remember to keep a copy. The CDR must **not** be bound but presented in loose leaf A4 format.

Your CDR will be assessed against the competency standards of the occupational category specified by you. Engineers Australia will not assess your competencies against an occupational category higher than the one you have specified, but may consider assessment against a lower occupational category if you are assessed as not suitable for your nominated category.

Please Note

A submitted CDR which is incomplete when submitted or which does not meet the stated requirements will not be assessed.

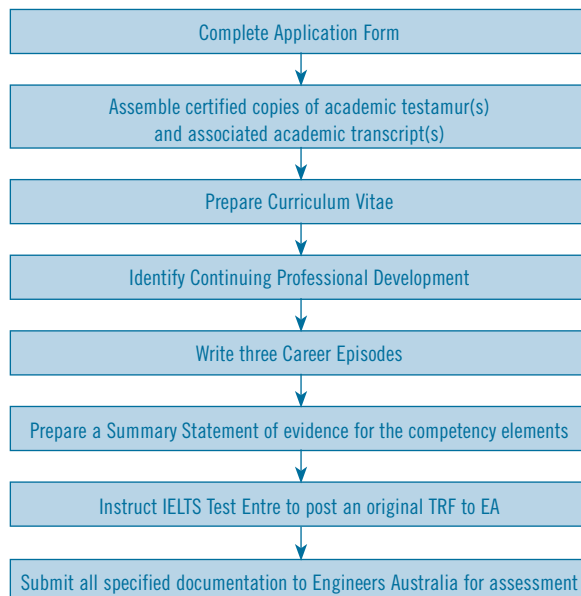
All submitted material becomes the property of Engineers Australia.

Applicants must make copies of all documents sent to Engineers Australia. Applicants who request copies of their submitted documents will be charged a AUD\$80 administration fee.

Do not present documents in a bound format as they must be dismantled for filing.

2. Steps in preparing a CDR:

The flow chart below shows the steps you need to take in preparing your CDR:



3. Components of the CDR:

You must first complete the CDR Application Form.

This is available from www.engineersaustralia.org.au/migration_skills

3.1 Declaration Page

Your Competency Demonstration Report must include the following declaration (shown below).

Declaration:

The following declaration must be signed and presented as part of your CDR submission:

‘All statements of fact in this report are true and correct and I have made claims of acquired competencies in good faith. The report is all my own work and is a true representation of my personal competence in written English. I confirm that I understand that members of the engineering team in Australia are required to display a commitment to exercising professional and ethical responsibility in all aspects of their work. I also understand that documentation submitted in support of my application may be referred to the Department of Immigration and Citizenship (DIAC) for integrity checking.’

Printed Name: _____

Signature: _____

Date: _____

This Declaration Form is on page 3 of the CDR Application Form, which may be downloaded from the Engineers Australia website www.engineersaustralia.org.au/migration_skills

3.2 Certified copies of qualifications and academic record(s)

Certified copies of the testamur (degree certificate) and transcript are mandatory documents. Many applications for a skills assessment are delayed because documents are not properly certified. See item 5 of Section A for full details of the certification requirements.

Documents not properly certified will not be accepted, and your application for assessment will not proceed.

3.3 Curriculum Vitae (CV) or Resume

Engineers Australia requires a full summary of your education and engineering work history to gain a full perspective of your engineering workplace practice.

Your CV must be a complete record of your activities and must not contain significant periods where no activity is recorded.

For each workplace provide:

- organisation name and location including contact details where possible
- dates and duration of employment
- title of position occupied by you
- your defined role (provide a duty or appointment statement where available) and/or a brief description of your activities

Your CV should be no more than three A4 pages.

The CV is to be a chronological listing of employment, not projects.

3.4 Evidence of Employment

If in your CV/Resume you claim engineering work experience of 12 months or more, then you must provide documentary evidence (originals or certified copies) of employment and certified translations into English where necessary.

The documentary evidence is to include; company letterhead (including name and location details), date of document, name and status of author, dates and duration of employment, title of position occupied and a brief description of duties/tasks/responsibilities.

If a career episode is based upon engineering work, then you must provide documentary evidence of employment, as above.

This instruction applies to the standard assessment service only. Go to Section D for further instructions on the additional assessment service for the identification of periods of skilled employment.

3.5 Identification of Continuing Professional Development

Continuing Professional Development (CPD) is the means by which you keep up-to-date with developments in your field of engineering **after you have graduated**. A brief summary of CPD you have undertaken must be included in your CDR. This CPD must take the form of a listing (title, date, duration, venue) of:

- formal post-graduate study;
- conferences at which you have delivered papers or attended.
- short courses, workshops, seminars and discussion groups, conferences, technical inspections and technical meetings you have attended;
- preparation and presentation of material for courses, conferences, seminars and symposia
- service to the engineering profession (volunteer work, board or committee volunteer, mentoring, etc)
- private study (includes books, journals, transactions, manuals, etc)

Your CPD listing need be no more than one A4 page. There is no necessity to include certificates from each course.

3.6 International English Language Test Result

All applicants applying to have their skills assessed by Engineers Australia are required to provide evidence of their English language competency. See item 4 of Section A for full details of the English competency requirements.

3.7 Writing your three career episodes

You are required to present an account of your engineering activities on each of three separate career episodes.

A career episode is a documented component of your engineering education and/or work experience which captures a particular period or distinct aspect of your engineering activity. It needs to clearly demonstrate the **application** of engineering knowledge and skills **in the nominated occupation**, not the acquisition of knowledge.

It may be:

- an engineering task undertaken as part of your educational program;
- a project you have worked on or are currently working on;
- a specific position that you occupied or currently occupy;
- a particular engineering problem that you were required to solve.

Each career episode must be in your own words and must be written in English.

Do not present large amounts of technical material. It is recommended that each narrative be a minimum of about 1000 words and a maximum of about 2000 words.

The career episode, being written in your own words, will also provide evidence to the assessor of your communication skills.

Please Note

Career Episodes must be written in the **first person singular** clearly indicating your own personal role in the work described. Remember, it is what 'I did', not what 'we did' or what 'I was involved in.'

Each career episode must clearly demonstrate the application of engineering knowledge and skills in the engineering discipline for which the applicant seeks recognition.

That is, describe 'what you did', with and emphasis on personal actions, eg "I designed...", "I investigated...". Excessive technical detail (diagrams, photos, calculations, tables) are not required.

Each career episode should emphasise any engineering problems identified and any particular problem solving techniques used by you. The purpose of this is to assess the nature of the contribution which you may have made to the engineering project or task - particularly if that contribution was of a novel nature or critical to the implementation of the task/project.

Please note that it is not sufficient to merely describe work in which you were involved. Your own role in the work must be clearly described by you, and be identifiable in the assessment.

You must number each paragraph in each of your career episodes. The following system is recommended;
Career episode 1 (paragraphs 1.1, 1.2, 1.3 etc)
Career episode 2 (paragraphs 2.1, 2.2, 2.3 etc)
Career episode 3 (paragraphs 3.1, 3.2, 3.3 etc)
This is necessary to construct the Summary Statement.

Each career episode should follow the format shown below:

a) Introduction (approx. 50 words)

This introduces the reader to the career episode and should include such things as:

- the chronology - the dates and duration of this career episode;
- the geographical location where the experience was gained;
- the name of the organisation;
- the title of the position occupied by you.

b) Background (200 – 500 words)

This sets the scene and provides the context in which you were studying/working. It should include such things as:

- the nature of the overall engineering project;
- the objectives of the project;
- the nature of your particular work area;
- a chart of the organisational structure highlighting your position;
- a statement of your duties (provide an official duty statement where available).

c) Personal Engineering Activity (500 – 1000 words)

This is the body of the narrative and the key assessable component. In this section you must describe in detail the actual work performed by you. It is not sufficient to describe the activity performed by a team or group - your own role must be clearly identified. Remember it is your own personal engineering competencies that are being assessed.

This section should include such things as:

- how you applied your engineering knowledge and skills;
- the tasks delegated to you and how you went about accomplishing them;
- any particular technical difficulties/problems you encountered and how you solved them;
- strategies devised by you including any original or creative design work;
- how you worked with other team members.

d) Summary (50 – 100 words)

This section sums up your impressions of the engineering activity and your role in it. It should include such things as:

- your view of the overall project;
- how the project fared in meeting the goals/requirements;
- how your personal role contributed to the project.

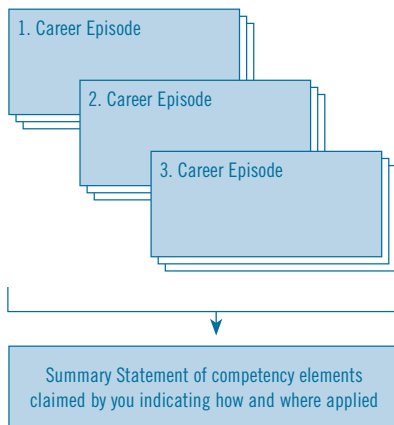
3.8 Preparation of the Summary Statement

Complete the three career episodes, then analyse them for the presence of ALL of the competency elements for the occupational category you have chosen.

The elements for each occupational category are listed in the following pages. The Appendix gives a detailed description of each competency element for each category.

The results of your analysis are to be reported in the form of a Summary Statement of competency elements claimed. The Summary Statement cross-references the relevant set of competency elements with the particular paragraph in your Career Episode where each element occurs. To do this, you will need to number the paragraphs in your career episodes.

The process is represented schematically below:



You must download and complete the appropriate summary statement for your nominated occupational category.

The summary statement templates are available at www.engineersaustralia.org.au/migration_skills

These are guides only. Do not attempt to restrict your Summary Statement to one page only.

Applicants may prepare their own summary table, but must include the complete set of competency elements for their nominated engineering category.

Please note, one Summary Statement only is to be provided covering all three career episodes combined.

PROFESSIONAL ENGINEER Summary Statement

These are the competency Units and Elements. These elements must be addressed in the Summary Statement (see Section C). If you are applying for assessment as a Professional Engineer, you will need to download this page, complete it and lodge it with your application. For details, refer to the Appendix, Pages 28-32.

Competency Element	A brief summary of how you have applied the element	Paragraph in the career episode(s) where the element is addressed
PE1 KNOWLEDGE BASE		
PE1.1 Knowledge of science and engineering fundamentals		
PE1.2 In-depth technical competence in at least one engineering discipline		
PE1.3 Techniques and resources		
PE1.4 General Knowledge		
PE2 ENGINEERING ABILITY		
PE2.1 Ability to undertake problem identification, formulation, and solution		
PE2.2 Understanding of social, cultural, global, and environmental responsibilities and the need to employ principles of sustainable development		
PE2.3 Ability to utilise a systems approach to complex problems and to design and operational performance		
PE2.4 Proficiency in engineering design		
PE2.5 Ability to conduct an engineering project		
PE2.6 Understanding of the business environment		
PE3 PROFESSIONAL ATTRIBUTES		
PE3.1 Ability to communicate effectively, with the engineering team and with the community at large		
PE3.2 Ability to manage information and documentation		
PE3.3 Capacity for creativity and innovation		
PE3.4 Understanding of professional and ethical responsibilities, and commitment to them		
PE3.5 Ability to function effectively as an individual and in multidisciplinary and multicultural teams, as a team leader or manager as well as an effective team member		
PE3.6 Capacity for lifelong learning and professional development		
PE3.7 Professional Attitudes		

ENGINEERING TECHNOLOGIST

Summary Statement

These are the competency Units and Elements. These elements must be addressed in the Summary Statement (see Section C). If you are applying for assessment as an Engineering Technologist, you will need to download this page, complete it, and lodge it with your application. For details, refer to the Appendix, Pages 33-37.

Competency Element	A brief summary of how you have applied the element	Paragraph in the career episode(s) where the element is addressed
ET1 KNOWLEDGE BASE		
ET1.1 Knowledge of science and engineering fundamentals		
ET1.2 In-depth knowledge and understanding of the technology and its applications		
ET1.3 Techniques and resources		
ET1.4 General Knowledge		
ET2 ENGINEERING ABILITY		
ET2.1 Ability to undertake problem identification, formulation, and solution		
ET2.2 Ability to apply and adapt the technology		
ET2.3 Proficiency in design of equipment or installations utilising the technology		
ET2.4 Ability to conduct an engineering project		
ET2.5 Ability to ensure reliable operation		
ET2.6 Responsibility as technical expert		
ET2.7 Capacity to contribute to advancement of technology		
ET2.8 Understanding of the business environment		
ET3 PROFESSIONAL ATTRIBUTES		
ET3.1 Ability to communicate effectively, with the engineering team and with the community at large		
ET3.2 Ability to manage information and documentation		
ET3.3 Capacity for creativity and innovation		
ET3.4 Understanding of professional and ethical responsibilities, and commitment to them		
ET3.5 Ability to function effectively as an individual and in multidisciplinary and multicultural teams with the capacity to be a team leader or manager as well as an effective team member		
ET3.6 Capacity for lifelong learning and professional development		
ET3.7 Professional Attitudes		

ENGINEERING ASSOCIATE Summary Statement

These are the competency Units and Elements. These elements must be addressed in the Summary Statement (see Section C). If you are applying for assessment as an Engineering Associate, you will need to download this page, complete it, and lodge it with your application. For details, refer to the Appendix, Pages 38-41.

Competency Element	A brief summary of how you have applied the element	Paragraph in the career episode(s) where the element is addressed
EA1 KNOWLEDGE BASE		
EA1.1 Knowledge of science and engineering fundamentals		
EA1.2 Knowledge and understanding of engineering and technology		
EA1.3 Techniques and resources		
EA1.4 General Knowledge		
EA2 ENGINEERING ABILITY		
EA2.1 Application of standards and codes of practice		
EA2.2 Specifying and installing systems		
EA2.3 Design procedures		
EA2.4 Assessing technical and policy options		
EA2.5 Observation, analysis and testing		
EA2.6 Operations and maintenance		
EA2.7 Specific training		
EA2.8 Responsibility as technical expert		
EA2.9 Understanding of the business environment		
EA3 PROFESSIONAL ATTRIBUTES		
EA3.1 Ability to communicate effectively, with the engineering team and with the community at large		
EA3.2 Ability to manage information and documentation		
EA3.3 Capacity for creativity and innovation		
EA3.4 Understanding of professional and ethical responsibilities, and commitment to them		
EA3.5 Ability to function effectively as an individual and in multidisciplinary and multicultural teams, as a team leader or manager as well as an effective team member		
EA3.6 Capacity for lifelong learning and professional development		
EA3.7 Professional Attitudes		

ENGINEERING MANAGER

Summary Statement

These are the competency Elements. These elements must be addressed in the Summary Statement (see Section C). If you are applying for assessment as an Engineering Manager, you will need to download this page, complete it, and lodge it with your application. For details, refer to the Appendix, Pages 42 and 43.

Competency Element	A brief summary of how you have applied the element	Paragraph in the career episode(s) where the element is addressed
EM1.1 Contributes to engineering business strategies		
EM1.2 Develops client relationships		
EM1.3 Manages the implementation of engineering plans within the business		
EM1.4 Manages resources		
EM1.5 Manages people		
EM1.6 Manages suppliers		
EM1.7 Manages business information		
EM1.8 Monitors engineering business performance		





Section D
Additional Assessment Services

Additional Assessment Services

Identification of:

- Relevant Engineering Qualifications; and / or

- Relevant Skilled Employment

for the purpose of claiming migration points

1. Introduction

As part of the introduction of the New Points Test for certain skilled migration visas on 1 July 2011, DIAC has advised applicants that they may request an opinion from their relevant assessing authority in two areas:

- identification of highest educational qualification, relevant to the nominated occupation
- identification of relevant work experience, both overseas and in Australia

See <http://www.immi.gov.au/skilled/general-skilled-migration/pdf/points-test.pdf>

Generally, the higher the level of qualification and the longer the period of relevant work experience, the greater the number of points claimable under the points test.

Engineers Australia can offer opinions in the two areas above, as necessary, on receipt of an application for the additional services (with evidence) over and above the standard assessment. It should be noted that – from 1 July 2011 – the standard assessment WILL INCLUDE an opinion on the comparable relevant Australian level qualification to the client's overseas qualification used in support of the assessed outcome. However, where a client holds a PhD degree for example, which may not necessarily need to be considered in the assessment process to provide the nominated outcome, then this additional assessing service may be employed to identify the overseas PhD as comparable to an Australian PhD.

Please Note

Engineers Australia does **NOT** issue the points for migration. This will be done by the DIAC case officer at the time of their review of the overall migration application, subsequent to assessment.

2. Applicability of additional services

It should be noted that not all clients will require these additional assessing services. Such services are anticipated to be ONLY of interest to the following clients:

- those who hold a higher-level qualification than may be strictly necessary to provide the nominated outcome; and / or
- those who have at least 1 year Australian work experience, and / or at least 3 years Overseas work experience in their nominated occupation or a closely-related occupation.

Either or both of these services may be applied for if the client wishes to claim the DIAC points.

3. Identification of higher level engineering qualifications

The standard assessment WILL INCLUDE an opinion on the comparable relevant Australian level qualification to the client's overseas qualification used in support of the assessed outcome. However, where a client holds a PhD degree for example, which may not necessarily need to be considered in the assessment process to provide the nominated outcome, then this additional assessing service may be employed to identify the overseas PhD as comparable to an Australian PhD.

Applicants who require this service will need to provide:

- a completed application form, with relevant fee payment
- properly-certified copies of all original academic documentation (testamurs and transcripts, as applicable) which shows that the client unconditionally holds the qualification claimed
- a listing of doctoral examiners and details
- a listing of publications made during and after the doctoral program.

4. Skilled Employment

DIAC will award points to applicants based on demonstration of a verifiable skilled employment history undertaken in the last 10 years, in Australia or overseas. For the necessary assessment by Engineers Australia, the experience MUST be in an applicant's nominated engineering occupation, or a closely related occupation.

In determining whether an applicant's skilled employment is closely related to their nominated occupation, the assessment by Engineers Australia will take into consideration the occupations within one unit group classified under the ANZSCO Classification of Occupations.

Engineers Australia has been authorised by DIAC to provide an opinion about an applicant's skilled employment claims as part of the skills assessment. However, the decision to award points for skilled employment remains with the DIAC case officer, who may also need to review claims of relevant employment gained subsequent to the formal assessment.

For applicants seeking an opinion about their skilled employment claims (as above) from Engineers Australia, submitted work experience documentation must:

- be an original document, or a certified true copy of the original in accordance with the MSA Booklet, Section A, Item 5;
- be written on the official letterhead of the company, or government department, providing the documentation;
- indicate clearly the full address of the company and any telephone, fax numbers, email and website addresses;
- be dated;
- include the name and position of the person endorsing the employment document ... these should be typed or stamped below that person's signature – a reference with an illegible signature will not be accepted;
- include the direct contact number of the person endorsing the document;
- indicate:
 - the exact period of employment (start and finish date, including day/month/year),
 - whether full or part-time (including hours/week if part-time),
 - the job title or positions held (positions should not be described by generic titles (eg, Engineer) but according to the nature of the duties undertaken (eg, Assistant Project Engineer – Civil),
 - the main five (5) duties undertaken

For periods of self-employment, the following certified copies or original documents may be acceptable:

- commissions that are signed by each of the clients for each project;
- proof of formal Registration (including duration) as an engineer in the home country;
- receipts issued for projects;
- third party confirmation of the period of self-employment, the position held and the individual duties performed.

Only those documents meeting the above requirements will be considered in the provision of formal written advice by Engineers Australia. **No further correspondence will be entered into in addressing shortcomings in the submitted documentation.**

In addition to the above independent confirmation of the claims made, applicants who require this service will need to provide:

- a completed application form, with relevant fee payment
- a completed 'Skilled Employment Record' of the work experience being claimed in support of the opinion requested from Engineers Australia. The 'Skilled Employment Record' template is available on www.engineersaustralia.org.au/migration_skills

Section E
Checklists, Fee Payment and Dispatch

1. Checklists

Before you dispatch your application you should use one of the following checklists to ensure that you have completed all the necessary steps and provided all the required documents. **Assemble your submission by placing documents in the order shown below.** Please do not bind your documents.

Checklist 1: for Washington/Sydney Accord and Australian Engineering Qualifications Assessment Applications

- Completed Application Form, with passport-style photo
- Application fee
- Form to appoint person to act as agent [if necessary]
- Certified true copy of passport bio-data page only (not the complete passport), and English language translation (if not in English) [Where this is not available, a copy of your Birth Certificate and/or National Identify Card may be acceptable in lieu]
- Certified true copy of name change document [If necessary]
- Original English language test (IELTS) result [necessary only if application is based on a qualification from a signatory country where the official language is not English]. You must arrange for this to be forwarded directly to Engineers Australia from the Test Centre
- Certified true copy of academic testamur
- Certified true copies of academic transcripts
- Curriculum Vitae (CV) / Resumé
- English language translations of above, where applicable

Checklist 2: for Competency Demonstration Report (CDR) Assessment Applications

- Completed Application Form, with passport-style photo
- Application fee
- Form to appoint person to act as agent [if necessary]
- Certified true copy of passport bio-data page only (not the complete passport), and English language translation (if not in English) [Where this is not available, a copy of your Birth Certificate and/or National Identify Card may be acceptable in lieu]
- Certified true copy of name change document [If necessary]
- Original English language test (IELTS) result [if necessary]. You must arrange for this to be forwarded directly to Engineers Australia from the Test Centre.
- Curriculum Vitae (CV) / Resumé
- Certified true copy of academic testamur(s)
- Certified true copies of academic transcript(s)
- Certified evidence of registration under the relevant licensing authority in the country in which you are practising [if necessary] e.g. Philippine Regulations Commission
- Certified documentary evidence of employment [must be provided if you have relevant work experience of 12 months or more, or if the work experience provides a basis of a career episode(s)]
- An account of Continuing Professional Development (CPD)
- CDR Declaration Page
- Three Career Episodes
- Summary Statement of evidence for the competency elements
- English language translations of above, where applicable

2. Fee Payment and Dispatch

The assessment fee as specified on the Application Form must accompany your submission.

The assessment fee is not refundable and may be subject to change without notice.

Goods and Service Tax (GST)

- Applicants who are living in Australia MUST pay 10% GST on the application fee
- Applicants living overseas, who lodge their application from overseas, are NOT required to pay the GST
- Applicants living overseas, who lodge an application for assessment through an agent in Australia (Migration Agent, relative or friend living in Australia) are NOT required to pay the GST.

Assessment Fees

Assessment fees are listed below for each type of application:

Australian qualifications	AUD\$110, or \$121 incl. GST
Washington Accord	AUD\$275, or \$302.50 incl. GST
Sydney Accord	AUD\$275, or \$302.50 incl. GST
Competency Demonstration Report	AUD\$550, or \$605 incl. GST
<i>Additional Services:</i>	
Skilled Employment	AUD\$150, or \$165 incl. GST
Relevant PhD	AUD\$100, or \$110 incl. GST

The following methods of payment are acceptable:

- An international bank draft or cheque made out to 'Engineers Australia' in Australian dollars drawn on an Australian office of a bank operating in Australia
- An international money order made out to 'Engineers Australia' in Australian dollars
- A credit card authorisation on your Visa, Mastercard, Diners or American Express card

Please Note

A cheque/remittance drawn in a currency other than Australian dollars or drawn in Australian currency on a bank outside Australia is **not acceptable**.

For payment made within Australia, the following methods of payment are acceptable:

- A bank cheque or a personal cheque
- An Australian money order
- A credit card authorisation as above

Your completed Application Form, submission, and assessment fee should be sent direct to:

**Migration Skills Assessment
Education and Assessment
Engineers Australia
11 National Circuit
BARTON ACT 2600
AUSTRALIA**

Please Note

Assessment Turnaround Time: The turnaround time for processing assessments can vary, depending on numbers of incoming applications. For guidance on current turnaround time, we refer to www.engineersaustralia.org.au/migration_skills

Please DO NOT contact Engineers Australia within this time frame as delays will be caused to the processing time for all applications.



Appendix
Detailed Description of Competency Elements
for each Occupational Category

PROFESSIONAL ENGINEER

GENERAL DESCRIPTION OF ROLE

Professional engineers are required to take responsibility for engineering projects and programs in the most far-reaching sense. This includes the reliable functioning of all materials and technologies used; their integration to form a complete and self-consistent system; and all interactions between the technical system and the environment in which it functions. The latter includes understanding the requirements of clients and of society as a whole; working to optimise social, environmental and economic outcomes over the lifetime of the product or program; interacting effectively with the other disciplines, professions and people involved; and ensuring that the engineering contribution is properly integrated into the totality of the undertaking. Professional engineers are responsible for interpreting technological possibilities to society, business and government; and for ensuring as far as possible that policy decisions are properly informed by such possibilities and consequences, and that costs, risks and limitations are properly understood as the desirable outcomes.

Professional engineers are responsible for bringing knowledge to bear from multiple sources to develop solutions to complex problems and issues, for ensuring that technical and non-technical considerations are properly integrated, and for managing risk.

The work of professional engineers is predominantly intellectual in nature. In the technical domain, they are primarily concerned with the advancement of technologies and with the development of new technologies and their applications through innovation, creativity and change. They may conduct research concerned with advancing the science of engineering and with developing new engineering principles and technologies. Alternatively, they may contribute to continual improvement in the practice of engineering, and in devising and updating the Codes and Standards that govern it.

Professional engineers have a particular responsibility for ensuring that all aspects of a project are soundly based in theory and fundamental principle, and for understanding clearly how new developments relate to established practice and experience and to other disciplines with which they may interact. One hallmark of a professional is the capacity to break new ground in an informed and responsible way.

Professional engineers may lead or manage teams appropriate to these activities, and may establish their own companies or move into senior management roles in engineering and related enterprises.

PROFESSIONAL ENGINEER		
Summary Statement		
These are the competencies only and elements. These elements must be addressed in the Summary Statement (see Section C). If you are applying for assessment as a Professional Engineer, you will need to download this page, complete it and lodge it with your application.		
Competency Element	Is your competency at least you have applied the element?	Provide in the career statement where the element is addressed
FE1 KNOWLEDGE BASE		
FE1.1 Knowledge of science and engineering fundamentals		
FE1.2 In-depth technical competence in at least one engineering discipline		
FE1.3 Technical and innovation		
FE1.4 General Knowledge		
FE2 ENGINEERING ABILITY		
FE2.1 Ability to undertake problem-identification, formulation, and solution		
FE2.2 Understanding of social, cultural, legal, and environmental responsibilities and the need to employ principles of sustainable development		
FE2.3 Ability to utilise a systems approach to complex problems and to design and operational performance		
FE2.4 Proficiency in engineering design		
FE2.5 Ability to conduct an engineering project		
FE2.6 Understanding of the business requirements		
FE3 PROFESSIONAL ATTRIBUTES		
FE3.1 Ability to communicate effectively, with the engineering team and with the community at large		
FE3.2 Ability to manage information and documentation		
FE3.3 Capacity for creativity and innovation		
FE3.4 Understanding of professional and ethical responsibilities, and commitment to them		
FE3.5 Ability to function effectively as an individual and in multidisciplinary and multidisciplinary teams, as a team leader or manager as well as an effective team member		
FE3.6 Capacity for lifelong learning and professional development		
FE3.7 Professional attitudes		

See Summary Statement in Section C
Also downloadable at www.engineersaustralia.org.au

**PROFESSIONAL ENGINEER:
UNITS AND ELEMENTS OF COMPETENCY**

Units are numbered PE1, PE2 etc. Elements are numbered PE1.1, PE1.2 etc

PE1 KNOWLEDGE BASE

PE1.1 Knowledge of science and engineering fundamentals

- Sound knowledge of mathematics to the level required for fluency in the techniques of analysis and synthesis that are relevant to the broad field of engineering, and to potentially related fields
- Sound basic knowledge of the physical sciences, life sciences, and information sciences underpinning the broad field of engineering and potentially related fields, and appreciation of scientific method
- Strong grasp of the areas of engineering science that support the broad field of engineering
- Ability to work from first principles in tackling technically challenging problems

PE1.2 In-depth technical competence in at least one engineering discipline

- Knowledge of the major technical areas comprising at least one engineering discipline, and competence in applying mathematics, science and engineering science to the analysis and solution of representative problems, situations and challenges in those areas
- Knowledge of materials and resources relevant to the discipline, and their main properties, and ability to select appropriate materials and techniques for particular objectives
- Awareness of current technical and professional practice, critical issues, and the current state of developments in the major technical areas that constitute the discipline
- Advanced knowledge in at least one area within the discipline, to a level that engages with current developments in that area; understanding of the relevant techniques and ability to apply them to representative problems and situations to a significant level of technical complexity and challenge
- Ability to ensure that all aspects of a project or program are soundly based in theory and fundamental principles and to recognise results, calculations or proposals that may be ill-founded, identify the source and nature of the problem and take corrective action

- Understanding of how new developments relate to established theory and practice, and to other disciplines with which they may interact

PE1.3 Techniques and resources

- Ability to develop and construct mathematical, physical and conceptual models of situations, systems and devices, ability to utilise such models for purposes of analysis and design, and understanding of their applicability and shortcomings
- Ability to characterise materials, devices and systems relevant to the broad field and related fields
- Awareness of current tools for analysis, simulation, visualisation, synthesis and design, particularly computer-based tools and packages, and competence in the use of a representative selection of these
- Appreciation of the accuracy and limitations of such tools and the assumptions inherent in their use; ability to verify the credibility of results achieved, preferably from first principles, to a reasonable approximation
- Proficiency in a substantial range of laboratory procedures in the discipline, and strong grasp of principles and practices of laboratory safety
- Ability to design and conduct experiments, devise appropriate measurements, analyse and interpret data and form reliable conclusions
- Ability to perceive possible sources of error, eliminate or compensate for them where possible, and quantify their significance to the conclusions drawn
- Ability to construct and test representative components or sub-systems in a laboratory setting

PE1.4 General Knowledge

- Broad educational background and/or general knowledge necessary to understand the place of engineering in society

PE2 ENGINEERING ABILITY

PE2.1 Ability to undertake problem identification, formulation, and solution

- Ability to identify the nature of a technical problem, make appropriate simplifying assumptions, achieve a solution, and quantify the significance of the assumptions to the reliability of the solution
- Ability to investigate a situation or the behaviour of a system and ascertain relevant causes and effects

- Ability to address issues and problems that have no obvious solution and require originality in analysis
- Ability to identify the contribution that engineering might make to situations requiring multidisciplinary inputs (see also PE2.2 and PE2.3) and to recognise the engineering contribution as one element in the total approach

PE2.2 Understanding of social, cultural, global, and environmental responsibilities and the need to employ principles of sustainable development

- Appreciation of the interactions between technical systems and the social, cultural, environmental, economic and political context in which they operate, and the relationships between these factors
- Appreciation of the imperatives of safety and of sustainability, and approaches to developing and maintaining safe and sustainable systems
- Ability to interact with people in other disciplines and professions to broaden knowledge, achieve multidisciplinary outcomes, and ensure that the engineering contribution is properly integrated into the total project
- Appreciation of the nature of risk, both of a technical kind and in relation to clients, users, the community and the environment

PE2.3 Ability to utilise a systems approach to complex problems and to design and operational performance

- Ability to engage with ill-defined situations and problems involving uncertainty, imprecise information, and wide-ranging and conflicting technical and non-technical factors
- Understanding of the need to plan and quantify performance over the life-cycle of a project or program, integrating technical performance with social, environmental and economic outcomes
- Ability to utilise a systems-engineering or equivalent disciplined, holistic approach to incorporate all considerations
- Understanding of the process of partitioning a problem, process or system into manageable elements, for purposes of analysis or design; and of re-combining these to form the whole, with the integrity and performance of the overall system as the paramount consideration
- Ability to conceptualise and define possible alternative engineering approaches and evaluate their advantages and disadvantages in terms of functionality, cost, sustainability and all other factors
- Ability to comprehend, assess and quantify the risks in each case and devise strategies for their management

- Ability to select an optimal approach that is deliverable in practice, and justify and defend the selection
- Understanding of the importance of employing feedback from the commissioning process, and from operational performance, to effect improvements

PE2.4 Proficiency in engineering design

- Proficiency in employing technical knowledge, design methodology, and appropriate tools and resources to design components, systems or processes to meet specified performance criteria
- Experience in personally conducting a variety of such designs typical of the engineering discipline
- Experience in personally conducting a major design exercise to achieve a substantial engineering outcome to professional standards, demonstrating capacity to:
 - elicit, understand and document the required outcomes of a project and define acceptance criteria
 - the impact of all development and implementation factors including constraints and risks
 - write functional specifications, using engineering methods and standards, that meet the user requirements
 - seek advice from appropriate sources, including advice on latest applicable technologies
 - identify and analyse possible design concepts, and propose and agree optimal solution
 - ensure that the chosen solution maximises functionality, safety and sustainability, and identify any possibilities for further improvement
 - develop and complete the design or plan using appropriate engineering principles, resources, and processes
 - specify the equipment and operating arrangements needed
 - ensure integration of all functional elements to form a coherent, self-consistent system; check performance of each element and of the system as a whole
 - check the design solution against the engineering and functional specifications
 - quantify the engineering tasks required to implement the chosen solution
 - devise and document tests to verify performance and take any corrective action necessary

- Alternatively, experience as a member of a team conducting such a major design exercise, and ability to demonstrate a key contribution to the team effort and the success of the outcome

PE2.5 Ability to conduct an engineering project

- Experience in personally conducting and managing an engineering project to achieve a substantial outcome to professional standards, or as a member of a team conducting such a project, and ability to demonstrate a key contribution to the team effort and the success of the outcome
- Understanding of project management techniques and ability to apply them effectively in practice
- Have produced at least one major report demonstrating mastery of the subject matter and ability to communicate complex material clearly to both technical and lay readers

PE2.6 Understanding of the business environment

- Introductory knowledge of the conduct and management of engineering enterprises and of the structure and capabilities of the engineering workforce
- Appreciation of the commercial, financial, and marketing aspects of engineering projects and programs and the requirements for successful innovation
- Ability to assess realistically the scope and dimensions of a project or task, as a starting point for estimating costs and scale of effort required
- Understanding of the need to incorporate cost considerations throughout the design and execution of a project and to manage within realistic constraints of time and budget
- General awareness of business principles and appreciation of their significance

PE3 PROFESSIONAL ATTRIBUTES

PE3.1 Ability to communicate effectively, with the engineering team and with the community at large

- High level of competence in written and spoken English
- Ability to make effective oral and written presentations to technical and non-technical audiences
- Capacity to hear and comprehend others' viewpoints as well as convey information
- Effectiveness in discussion and negotiation and in presenting arguments clearly and concisely
- Ability to represent engineering issues and the engineering profession to the broader community

PE3.2 Ability to manage information and documentation

- Ability to locate, catalogue and utilise relevant information, including proficiency in accessing, systematically searching, analysing and evaluating relevant publications
- Ability to assess the accuracy, reliability and authenticity of information
- Ability to produce clear diagrams and engineering sketches
- Fluency in current computer-based word-processing and graphics packages
- Ability to maintain a professional journal and records and to produce clear and well-constructed engineering documents such as progress reports, project reports, reports of investigations, proposals, designs, briefs, and technical directions
- Awareness of document identification and control procedures

PE3.3 Capacity for creativity and innovation

- Readiness to challenge engineering practices from technical and non-technical viewpoints, to identify opportunities for improvement
- Ability to apply creative approaches to identify and develop alternative concepts and procedures
- Awareness of other fields of engineering and technology with which interfaces may develop, and openness to such interactions
- Propensity to seek out, comprehend and apply new information, from wide range of sources
- Readiness to engage in wide-ranging exchanges of ideas, and receptiveness to change

PE3.4 Understanding of professional and ethical responsibilities, and commitment to them

- Familiarity with Engineers Australia's Code of Ethics, and any other compatible codes of ethics relevant to the engineering discipline and field of practice, and commitment to their tenets
- Awareness of legislation and statutory requirements relevant to the discipline and field of practice
- Awareness of standards and codes of practice relevant to the discipline and field of practice

PE3.5 Ability to function effectively as an individual and in multidisciplinary and multicultural teams, as a team leader or manager as well as an effective team member

- Manage own time and processes effectively, prioritising competing demands to achieve personal and team goals and objectives
- Earn trust and confidence of colleagues through competent and timely completion of tasks
- Communicate frequently and effectively with other team members
- Recognise the value of diversity, develop effective interpersonal and intercultural skills, and build network relationships that value and sustain a team ethic
- Mentor others, and accept mentoring from others, in technical and team issues
- Demonstrate capacity for initiative and leadership while respecting others' agreed roles

PE3.6 Capacity for lifelong learning and professional development

- Recognise limits to own knowledge and seek advice, or undertake research, to supplement it
- Take charge of own learning and development; understand the need to critically review and reflect on capability, invite peer review, benchmark against appropriate standards, determine areas for development and undertake appropriate learning programs
- Commit to the importance of being part of a professional and intellectual community: learning from its knowledge and standards, and contributing to their maintenance and advancement
- Improve non-engineering knowledge and skills to assist in achieving engineering outcomes

PE3.7 Professional Attitudes

- Present a professional image in all circumstances, including relations with clients, suppliers and stakeholders as well as professional and technical colleagues
- Demonstrate intellectual rigour and readiness to tackle new issues in a responsible way
- Demonstrate a sense of the physical and intellectual dimensions of projects and programs, and related information requirements, based on reasoning from first principles and on developing experience

ENGINEERING TECHNOLOGIST

GENERAL DESCRIPTION OF ROLE

Engineering technologists normally operate within a relatively well-defined technical environment, and undertake a wide range of functions and responsibilities. They are often specialists in the theory and practice of a particular branch of engineering technology or engineering-related technology, and in its application, adaptation and management in a variety of contexts. Their expertise lies in familiarity with its current state of development and its most recent applications. Within their specialist field, their expertise may be at a high level, and fully equivalent to that of a professional engineer; but they are not expected to exercise the same breadth of perspective as a professional engineer, or carry the same wide-ranging responsibilities for stakeholder interactions, for system integration, and for synthesising overall approaches to complex situations and complex engineering problems.

The work of engineering technologists combines the need for a strong grasp of practical situations and applications, with the intellectual challenge of keeping abreast of leading-edge developments in their particular field. For this purpose they need a strong understanding of scientific and engineering principles and a well-developed capacity for analysis. The work of technologists is most often concerned with applying current and emerging technologies, often in new contexts; or with the application of established principles in the development of new practice. They may also contribute to the advancement of particular technologies.

Some engineering technologist qualifications include an emphasis on technical management as well as a grounding in a particular area of technology. Technical management is seen as an appropriate field of specialisation in itself, and many technologists build their career paths in this direction. Examples of such specialisation include product development for manufacturing, manufacturing management, mine management, and management and maintenance of processing plants, complex building services, or testing laboratories.

Persons may also be recognised as engineering technologists who hold degrees in fields related to engineering, and who have developed expertise and experience in applying their knowledge in conjunction with engineering work. Examples might be in geology and geotechnics, information technology and software development, mining, biomedical technology, optical communications, renewable energy systems, agriculture, and so on.

The competencies of engineering technologists equip them to approve and certify many technical operations such as calibration and testing regimes, compliance with performance-based criteria for fire safety, and design of components and sub-systems and of installations such as building services in circumstances that do not call for significant new development. Such certification should be fully acceptable in the public domain and should not require further endorsement by other practitioners perceived to be more highly qualified.

Engineering technologists may lead or manage teams appropriate to these activities. Some may establish their own companies or may move into senior management roles in engineering and related enterprises, employing professional engineers and other specialists where appropriate.

ENGINEERING TECHNOLOGIST		
Summary Statement		
Competency Element	Is/are competency of how you have performed the element?	Provide to the career standards board the evidence to support it
ET1: KNOWLEDGE BASE		
ET1.1 Knowledge of science and engineering fundamentals		
ET1.2 In-depth knowledge and understanding of the technology and its applications		
ET1.3 Techniques and resources		
ET1.4 General Knowledge		
ET2: TECHNICAL SKILLS		
ET2.1 Ability to undertake problem identification, formulation, and solution		
ET2.2 Ability to apply and adapt the technology		
ET2.3 Proficiency in design of equipment or installation utilising the technology		
ET2.4 Ability to conduct an engineering project		
ET2.5 Ability to ensure reliable operation		
ET2.6 Responsibility for technical support		
ET2.7 Capacity to contribute to advancement of technology		
ET2.8 Understanding of the business environment		
ET3: PERSONAL ATTRIBUTES		
ET3.1 Ability to communicate effectively, with the engineering team and with the community at large		
ET3.2 Ability to manage information and documentation		
ET3.3 Capacity for creativity and innovation		
ET3.4 Understanding of professional and ethical responsibilities, and commitment to them		
ET3.5 Ability to function effectively as an individual and in multidisciplinary and multicultural teams with the capacity to be a team leader or manager as well as an effective team member		
ET3.6 Capacity for lifelong learning and professional development		
ET3.7 Professional Attitudes		

See Summary Statement in Section C
Also downloadable at www.engineersaustralia.org.au

**ENGINEERING TECHNOLOGIST:
UNITS AND ELEMENTS OF COMPETENCY**

Units are numbered ET1, ET2 etc.

Elements are numbered ET1.1, ET1.2 etc.

ET1 KNOWLEDGE BASE

ET1.1 Knowledge of science and engineering fundamentals

- Sound knowledge of mathematics to the level required for fluency in the techniques of analysis and synthesis that are relevant to a branch of engineering technology and its major areas of application, and to related technologies
- Sound basic knowledge of the physical sciences, life sciences, and/or information sciences underpinning the technology and related technologies, and appreciation of scientific method
- Strong grasp of the areas of engineering science that support the technology
- Ability to work from first principles in tackling technically challenging problems in the area of specialisation
- Appreciation of the future need to apply fundamental knowledge to ongoing developments in the technology and to new technologies relevant to the area of application

ET1.2 In-depth knowledge and understanding of the technology and its applications

- Knowledge of all aspects of an engineering technology and its major industrial, commercial and community applications; and/or of the technologies supporting a particular industry sector
- Competence in applying mathematics, science and engineering science to the analysis and solution of representative problems, situations and challenges in the technology and its utilisation
- Knowledge of relevant materials and resources and their main properties, and ability to select appropriate materials, resources and techniques for particular applications
- Ability to recognise results, calculations or proposals that may be ill-founded, identify the source and nature of the problem and take corrective action
- Awareness of current technical and professional practice, critical issues, and the current state of developments in the technology and its major areas of application
- Understanding of how new developments in the technology or its areas of application relate to established theory and practice, and to other technical areas with which they may interact

- Advanced knowledge in at least one area of application of the technology, to a level that engages with current developments in that area
- Ability to ensure that applications and extensions of the technology are soundly based in theory and fundamental principles
- Formal knowledge of the management of technical operations including business, financial, human resource, logistic, marketing, organisational, and procurement aspects, product and process development, and managed approaches to innovation

ET1.3 Techniques and resources

- Familiarity with mathematical and physical modelling techniques relevant to the field of specialisation; ability to utilise these techniques for purposes of analysis and design, and understanding of their applicability and limitations
- Ability to characterise materials, devices and systems relevant to the field of specialisation
- Awareness of relevant current tools for analysis, simulation, synthesis and design, particularly computer-based tools and packages, and competence in their use
- Appreciation of the accuracy and limitations of such tools and the assumptions inherent in their use. Ability to verify the credibility of results achieved, preferably from first principles, to a reasonable approximation
- Proficiency in the range of laboratory and testing procedures relevant to the technology, and strong grasp of principles and practices of laboratory safety
- Ability to design and conduct relevant experiments, devise appropriate measurements, analyse and interpret data and form reliable conclusions
- Ability to perceive possible sources of error, eliminate or compensate for them where possible, and quantify their significance to the conclusions drawn
- Ability to construct and test representative components or sub-systems in a laboratory setting

ET1.4 General Knowledge

- Educational background and/or general knowledge necessary to understand the place of engineering and technology in society

ET2 ENGINEERING ABILITY

ET2.1 Ability to undertake problem identification, formulation, and solution

- Within the relevant field of specialisation, ability to identify the nature of a technical problem, formulate an approach to its solution, make appropriate simplifying assumptions, and achieve a solution
- Ability to quantify the significance of the assumptions to the reliability of the solution and take further steps if necessary
- Ability to investigate a situation, or the behaviour of a system, and identify any underlying causes relevant to the field of specialisation
- Ability to recognise problems that have origins outside the area of specialisation and communicate them to an appropriately competent person

ET2.2 Ability to apply and adapt the technology

- Knowledge of the factors likely to be important in particular areas of application of the technology, and ability to understand and manage them
- Ability to appreciate and manage the interactions between the technology and other parts of an overall technical system, define operating interfaces with other technologies, equipment or systems, and ensure that such interfaces function effectively
- Ability to adapt the technology to a variety of situations, understanding its properties, possibilities and limitations
- Ability to identify and solve effectively a wide variety of practical problems arising from application of the technology in different contexts

ET2.3 Proficiency in design of equipment or installations utilising the technology

- Ability to design equipment or installations utilising the technology
- Experience in personally conducting a significant design exercise to achieve an engineering outcome to professional standards, demonstrating capacity to:
 - understand and document the required outcomes of a project or program utilising the technology
 - evaluate and confirm the appropriateness of the proposed use of the technology
 - develop and complete the design using appropriate engineering principles, resources, processes, codes and standards

- specify the equipment and operating arrangements needed
- quantify the engineering tasks needed to implement the design
- devise and document tests to verify performance
- if appropriate, produce technical manual for users of the equipment or installation
- Alternatively, experience as a member of a team conducting such a significant design exercise, and ability to demonstrate a key contribution to the team effort and the success of the outcome
- Ability to ensure that all proposals and designs emphasise safety, reliability, maintainability, cost-effectiveness, product quality and value, and user-friendliness

ET2.4 Ability to conduct an engineering project

- Experience in personally conducting and completing an engineering project appropriate to the field, to a high standard; or experience as a member of a team conducting and completing such a project, and ability to demonstrate a key contribution to the team effort and the success of the outcome
- Have produced at least one substantial report demonstrating mastery of the subject matter and ability to communicate complex material clearly

ET2.5 Ability to ensure reliable operation

- Thorough understanding of standards and codes of practice relating to the technology and its applications
- Understanding of the concept and processes of inspection and testing of equipment or installations which utilise the technology, identification of shortcomings, and where appropriate certification of compliance with standards and codes and/or performance-based criteria
- Where the technology is itself a medium for measuring or testing materials, components, or quantities, ability to conduct such measurements or tests and accept responsibility for accuracy and validity
- Understanding of fundamental properties and limitations of the technology and ability to identify circumstances that suggest a significant problem

ET2.6 Responsibility as technical expert

- Ability to communicate the significance of the technology and its use in a particular context, to other technical and non-technical stakeholders in a project or program
- Ability to identify, assess, communicate and manage technical risk associated with use of the technology
- Appreciate the interactions between technical systems and the social, cultural, environmental, economic and political context in which they operate; appreciate the imperative of sustainability, and approaches to developing and maintaining sustainable systems

ET2.7 Capacity to contribute to advancement of technology

- Appreciation of the evolving nature of technology and its applications
- Capacity to contribute to the advancement of technology and its adaptation to new applications or situations
- Readiness to apply fundamental knowledge to ongoing developments in technology, and to embrace new technologies relevant to the industry sector or field of application

ET2.8 Understanding of the business environment

- Introductory knowledge of the conduct and management of engineering enterprises and of the structure and capabilities of the engineering workforce
- Appreciation of the commercial, financial and marketing aspects of engineering projects and programs and the requirements for successful innovation
- Ability to assess realistically the scope and dimensions of a project or task in the field of specialisation, as a starting point for estimating costs and scale of effort required
- Understanding of the need to incorporate cost considerations throughout the design and execution of a project and to manage within realistic constraints of time and budget
- General awareness of business principles and appreciation of their significance

ET3 PROFESSIONAL ATTRIBUTES**ET3.1 Ability to communicate effectively, with the engineering team and with the community at large**

- Fluency in written and spoken English
- Ability to make effective oral and written presentations to technical and non-technical audiences
- Capacity to hear and comprehend others' viewpoints as well as convey information
- Effectiveness in discussion and in presenting arguments clearly and concisely
- Ability to represent engineering issues and the engineering profession to the broader community

ET3.2 Ability to manage information and documentation

- Ability to locate, analyse, catalogue and utilise relevant information, including proficiency in accessing, systematically searching, analysing and evaluating relevant publications
- Ability to assess the accuracy, reliability, and authenticity of information relevant to the field
- Ability to produce clear diagrams and engineering sketches
- Fluency in current computer-based word-processing and graphics packages
- Ability to maintain a professional journal and records and to produce clear and well-constructed engineering documents such as progress reports, project reports, reports of investigations, proposals, designs, briefs, and technical directions
- Awareness of document identification and control procedures

ET3.3 Capacity for creativity and innovation

- Readiness to challenge engineering and technological practices from a technical and non-technical viewpoint, to identify opportunities for improvement
- Ability to apply creative approaches to identify and develop alternative solutions
- Awareness of other fields of engineering and technology with which interfaces may develop, and openness to such interactions
- Propensity to seek information from widest practicable range of sources
- Readiness to engage in wide-ranging exchanges of ideas, and receptiveness to change

ET3.4 Understanding of professional and ethical responsibilities, and commitment to them

- Familiarity with Engineers Australia's Code of Ethics, and any other compatible codes of ethics relevant to the technology and its areas of application, and commitment to their tenets
- Awareness of legislation and statutory requirements relevant to the technology and its areas of application
- Familiarity with standards and codes of practice relevant to the technology and its areas of application

ET3.5 Ability to function effectively as an individual and in multidisciplinary and multicultural teams with the capacity to be a team leader or manager as well as an effective team member

- Manage own time and processes effectively, prioritising competing demands to achieve personal and team goals and objectives
- Earn trust and confidence of colleagues through competent and timely completion of tasks
- Communicate frequently and effectively with other team members
- Recognise the value of cultural diversity, develop effective intercultural skills, and build network relationships that value and sustain a team ethic
- Mentor others, and accept mentoring from others, in technical and team issues
- Demonstrate capacity for initiative and leadership while respecting others' agreed roles

ET3.6 Capacity for lifelong learning and professional development

- Recognise limits to own knowledge and seek advice, or undertake research, to supplement knowledge and experience
- Take charge of own learning and development. Understand the need continually to review own strengths, determine areas for development and undertake appropriate learning programs
- Commit to the importance of being part of a professional community: learning from its knowledge and standards, and contributing to their maintenance and advancement
- Improve non-engineering knowledge and skills to assist in achieving engineering outcomes

ET3.7 Professional Attitudes

- Present a professional image in all circumstances, including relationships with clients, suppliers and stakeholders as well as professional and technical colleagues
- Demonstrate intellectual rigour and readiness to tackle new issues in a responsible way
- Demonstrate a sense of the physical and intellectual dimensions of projects and programs, and related information requirements, based on reasoning from first principles and on developing experience

ENGINEERING ASSOCIATE

GENERAL DESCRIPTION OF ROLE

Engineering associates focus mainly on practical applications. They may be expert in installing, testing and monitoring equipment and systems, in the operation and maintenance of advanced plant, and in managing or supervising tradespeople in these activities. They may be expert in selecting equipment and components to meet given specifications, and in assembling these to form systems customised to particular projects.

Engineering associates are often required to be closely familiar with Standards and Codes of Practice, and to become expert in their interpretation and application to a wide variety of situations. Many develop very extensive experience of practical installations, and will be more knowledgeable than a professional engineer or technologist on detailed aspects that can contribute very greatly to safety, cost or effectiveness in operation.

In other instances, associates may develop high levels of expertise in aspects of design and development processes. These might include, for example, the use of advanced software to perform detailed design of structures, mechanical components and systems, manufacturing or process plant, electrical and electronic equipment, information and communications systems, and so on. Other examples might be in the construction of experimental or prototype equipment. Again, experienced operators in these areas often develop detailed practical knowledge and experience complementing the broader or more theoretical knowledge of others.

Associates need a good grounding in engineering science and the principles underlying their field of expertise, to ensure that their knowledge and skills are portable across different applications and situations. Equipment-specific or context-specific training in a particular job are not sufficient to guarantee generic competency. Given a good knowledge base, however, associates may build further on this through high levels of training in particular contexts and in relation to particular equipment. Aircraft maintenance is an excellent example.

The competencies of engineering associates equip them to certify the quality of engineering work and the condition of equipment and systems in defined circumstances, laid down in recognised standards and codes of practice. Such certification should be fully acceptable in the public domain and should not require further endorsement by other practitioners perceived to be more highly qualified.

Engineering associates may lead or manage teams appropriate to these activities. Some may establish their own companies or may move into senior management roles in engineering and related enterprises, employing professional engineers and other specialists where appropriate.

ENGINEERING ASSOCIATE
Summary Statement
 These are the competencies, skills and knowledge. These elements need to be addressed in the Summary Statement task Section C. If you are applying for membership as an Engineering Associate, you will need to download this page, complete it, and lodge it with your application.

Competency Element	A brief summary of how you have achieved the element	Paragraph in the cover statement where the element is addressed
EA1 KNOWLEDGE BASE		
EA1.1 Knowledge of science and engineering fundamentals		
EA1.2 Knowledge and understanding of engineering and technology		
EA1.3 Techniques and resources		
EA1.6 General knowledge		
EA2 ENGINEERING ABILITY		
EA2.1 Application of standards and codes of practice		
EA2.2 Specifying and installing systems		
EA2.3 Design procedures		
EA2.4 Drawing technical and policy options		
EA2.5 Observation, analysis and testing		
EA2.6 Operations and maintenance		
EA2.7 Specific training		
EA2.8 Responsibility as technical expert		
EA2.9 Understanding of the business environment		
EA3 PROFESSIONAL ATTRIBUTES		
EA3.1 Ability to communicate effectively with the engineering team and with the community at large		
EA3.2 Ability to manage information and documentation		
EA3.3 Capacity for creativity and innovation		
EA3.4 Understanding of professional and ethical responsibilities, and commitment to them		
EA3.5 Ability to function effectively as an individual and in multidisciplinary and cross-functional teams, or as a team leader or manager or as an effective team member		
EA3.6 Capacity for lifelong learning and professional development		
EA3.7 Professional practices		

See Summary Statement in Section C
 Also downloadable at www.engineersaustralia.org.au

**ENGINEERING ASSOCIATE:
UNITS AND ELEMENTS OF COMPETENCY**

Units are numbered EA1, EA2 etc.

Elements are numbered EA1.1, EA1.2 etc.

EA1 KNOWLEDGE BASE

EA1.1 Knowledge of science and engineering fundamentals

Engineers Australia considers it essential for Engineering Associates to have a level and breadth of fundamental knowledge that ensures portability of their skills across different operating environments.

- Knowledge of mathematics sufficient to understand from an analytical viewpoint the physical phenomena relevant to the field of engineering and to the technologies commonly employed, and the functioning and limitations of relevant plant and equipment; and to solve problems commonly encountered in the field
- Knowledge in the physical sciences, life sciences and information sciences sufficient to understand situations addressed by the field of engineering and the functioning and limitations of relevant plant and equipment
- Sound basic knowledge of the engineering sciences that support the field of engineering and the technologies employed, and ability to apply this knowledge in normally-encountered situations; awareness of the further scope of relevant engineering sciences
- Knowledge of the properties of materials commonly used in the field of engineering
- Analytical skills sufficient to understand and quantify operating situations and to recognise when they may exceed the limits of accepted procedures
- Appreciation of the future need to apply fundamental knowledge to ongoing developments in the field of engineering and to new technologies relevant to the field

EA1.2 Knowledge and understanding of engineering and technology

- Sound knowledge and understanding of the functioning, performance and operating characteristics of plant and equipment used in the field of engineering
- Ability to apply analytical techniques and knowledge of engineering science to quantify requirements, and to the specification of equipment and materials (where appropriate, including software) to perform satisfactorily in particular situations
- Competence in applying mathematics, science and engineering science to the solution of problems and situations routinely encountered in the field of engineering
- Awareness of current technical and professional practice, critical issues, and the current state of developments in field of engineering

- Ability to relate changing practices to existing knowledge and to question apparent departures from established principles
- Understanding of how new developments in the field of engineering relate to established theory and practice, and to other technical areas with which they may interact

EA1.3 Techniques and resources

- Awareness of standard design practices and tools currently used in the field, particularly computer-based tools and packages, and competence in their use
- Proficiency in laboratory and testing procedures relevant to the field, and strong grasp of principles and practices of laboratory safety
- Ability to calibrate and use measuring instruments, conduct relevant measurements and tests, analyse and interpret data and form reliable conclusions
- Knowledge of common sources of error and their avoidance: ability to recognise known sources of error, eliminate or compensate for them where possible, and quantify their significance to results and conclusions drawn
- Ability to construct and test representative components or sub-systems in a laboratory setting

EA1.4 General Knowledge

- General knowledge necessary to appreciate the place of engineering and technology in society

EA2 ENGINEERING ABILITY

EA2.1 Application of standards and codes of practice

- Thorough understanding of the standards and codes of practice relating to the field of engineering and appreciation of their range of applicability
- Ability and commitment to apply the relevant standards and codes in all work undertaken
- Ability to inspect engineering work or installations that are subject to recognised standards and codes, detect shortcomings and verify compliance or otherwise, and specify remedial action

EA2.2 Specifying and installing systems

- Ability to select and combine available components to form systems meeting given specifications:
 - Understand and document the client's functional requirements
 - Analyse the functional requirements and develop a performance specification
 - Confirm that the specification can be met by standard components and equipment in compliance with applicable standards and codes of practice
 - Select, specify and document the system including all necessary equipment, components and software
 - Where possible, supervise installation of the system; or construct a prototype system

- Conduct all required tests to confirm satisfactory operation
- Document operating procedures

EA2.3 Design procedures

- Ability to utilise standard design practices, including advanced software or other design aids, to perform detailed design of components and/or systems
- Ability to perceive unexpected or inconsistent results of the design process, take corrective action, and bring persistent problems to attention

EA2.4 Assessing technical and policy options

- Ability to undertake feasibility studies for prototype development; upgrading, extension or replacement of plant or equipment; procurement of new equipment; new operational procedures etc:
 - Understand and document the objectives
 - Formulate performance measures including functionality, maintainability, safety, sustainability, user impact, training requirements, and cost-effectiveness
 - Consult technical and other literature to identify available options
 - Evaluate options and quantify or rank each against the performance measures
 - Recommend and justify preferred option
 - Produce clear and concise report of the investigation, comprehensible to both technical and non-technical readers

EA2.5 Observation, analysis and testing

- Ability to conduct expert analysis and testing of materials or processes using agreed procedures, calibrate test instruments and processes, record data, and provide advice on properties, condition, or satisfactory operation
- Ability to critically observe, test and record progress of construction, assembly and commissioning of engineering work

EA2.6 Operations and maintenance

- Ability to supervise and monitor the operation of complex plant, verify satisfactory and safe operation according to agreed standards, detect and interpret unusual circumstances and bring these to attention
- Ability to conduct condition monitoring and maintenance programs in accordance with agreed standards and procedures, diagnose faults or incipient faults, and propose and/or undertake remedial action
- Ability to investigate technical malfunctions and their causes, or deviations from normal performance, and propose and/or undertake remedial action

EA2.7 Specific training

Candidates whose background has included advanced equipment-specific training:

- Evidence of having applied this training in a situation of responsibility and/or taken responsibility for certifying satisfactory condition or operation

Candidates from mainly educational background:

- Appreciation of the likely need to undertake advanced training in specific equipment or procedures and take responsibility for their condition or operation

EA2.8 Responsibility as technical expert

- Ability to communicate the significance of a technical issue to other technical and non-technical stakeholders in a project or program
- Ability to identify, assess, communicate and manage technical risk in area of expertise
- Appreciate the interactions between technical systems and the social, cultural, environmental, economic and political context in which they operate
- Appreciate the imperatives of safety and of sustainability, and approaches to developing and maintaining safe and sustainable systems

EA2.9 Understanding of the business environment

- Introductory knowledge of the conduct and management of engineering enterprises and of the structure and capabilities of the engineering workforce
- Appreciation of the commercial, financial and marketing aspects of engineering projects and programs and the requirements for successful innovation
- Understanding of the need to incorporate cost considerations throughout the design and execution of a project and to manage within realistic constraints of time and budget
- General awareness of business principles and appreciation of their significance

EA3 PROFESSIONAL ATTRIBUTES

EA3.1 Ability to communicate effectively, with the engineering team and with the community at large

- Fluency in written and spoken English
- Ability to make clear oral and written presentations to technical and non-technical audiences
- Capacity to hear and comprehend others' viewpoints as well as convey information
- Effectiveness in discussion and in presenting arguments clearly and concisely
- Ability to represent engineering issues and the engineering profession to the broader community

EA3.2 Ability to manage information and documentation

- Ability to locate, analyse, catalogue and utilise relevant information including proficiency in accessing, searching, and evaluating relevant publications
- Ability to gauge the accuracy, reliability and authenticity of information
- Ability to produce clear diagrams and engineering sketches
- Fluency in current computer-based word-processing and graphics packages
- Ability to maintain records and to produce clear engineering documents such as progress reports, project reports, reports of investigations, proposals, designs, and technical directions
- Awareness of document identification and control procedures

EA3.3 Capacity for creativity and innovation

- Readiness to challenge engineering and technological practices from a technical and non-technical viewpoint, to identify opportunities for improvement
- Readiness to apply creative approaches to identify and develop alternative solutions
- Awareness of other fields of engineering and technology with which interfaces may develop, and openness to such interactions
- Propensity to seek information from widest practicable range of sources
- Readiness to engage in wide-ranging exchanges of ideas, and receptiveness to change

EA3.4 Understanding of professional and ethical responsibilities, and commitment to them

- Familiarity with Engineers Australia's Code of Ethics, and any other compatible codes of ethics relevant to the field of engineering, and commitment to their tenets
- Awareness of legislation and statutory requirements relevant to the field of engineering
- Familiarity with standards and codes of practice relevant to the field of engineering

EA3.5 Ability to function effectively as an individual and in multidisciplinary and multicultural teams, as a team leader or manager as well as an effective team member

- Manage own time and processes effectively, prioritising competing demands to achieve personal and team goals and objectives
- Earn trust and confidence of colleagues through competent and timely completion of tasks
- Communicate continuously and effectively with other team members
- Recognise the value of cultural diversity, develop effective intercultural skills, and build network relationships that value and sustain a team ethic
- Mentor others, and accept mentoring from others, in technical and team issues
- Demonstrate capacity for initiative and leadership while respecting others' agreed roles

EA3.6 Capacity for lifelong learning and professional development

- Recognise limits to own knowledge and seek advice, or undertake research, to supplement knowledge and experience
- Take charge of own learning and development. Understand the need continually to review own strengths, determine areas for development and undertake appropriate learning programs
- Commit to the importance of being part of a professional community: learning from its knowledge and standards, and contributing to their maintenance and advancement
- Improve non-engineering knowledge and skills to assist in achieving engineering outcomes

EA3.7 Professional Attitudes

- Present a professional image in all circumstances, including relationships with clients, suppliers and stakeholders as well as professional and technical colleagues
- Demonstrate appreciation of the evolving nature of engineering and technology, and readiness to tackle new issues in a responsible way
- Demonstrate readiness to apply fundamental knowledge to ongoing developments in engineering and technology, and to embrace new technologies relevant to the industry sector or field of application
- Demonstrate a sense of the dimensions and level of challenge of projects and programs, and related information requirements, based on reasoning from first principles and on developing experience

ENGINEERING MANAGER

GENERAL DESCRIPTION OF ROLE

This is a high level position involving engineering strategic policy and planning for an organisation. Engineering Managers are expected to have a bachelor degree or higher qualification and at least five years experience operating at this level.

Experience needs to be demonstrated through letters of reference and organisational charts showing the applicant's position.

Engineering Managers plan, organise, direct, control and coordinate the engineering and technical operations of organisations.

Tasks include:

- determining, implementing and monitoring engineering strategies, policies and plans
- interpreting plans, drawings and specifications, and providing advice on engineering methods and procedures to achieve construction and production requirements
- establishing project schedules and budgets
- ensuring conformity with specifications and plans, and with laws, regulations and safety standards
- ensuring engineering standards of quality, cost, safety, timeliness and performance are observed
- overseeing maintenance requirements to optimise efficiency
- liaising with marketing, research and manufacturing managers regarding engineering aspects of new construction and product design
- contributing to research and development projects.

(ANZSCO First Edition 2006)

Competency Element	Is listed on your resume	Presented in the current application
EA1 KNOWLEDGE BASE		
EA1.1 Contribution to engineering business strategies		
EA1.2 Development of client relationships		
EA1.3 Management of the coordination of engineering plans within the business		
EA1.4 Management of resources		
EA1.5 Management of people		
EA1.6 Management of facilities		
EA1.7 Management of business information		
EA1.8 Management of monitoring of engineering business performance		

See Summary Statement in Section C
Also downloadable at www.engineersaustralia.org.au

ENGINEERING MANAGER: ELEMENTS OF COMPETENCY

Elements are numbered EM1.1, EM1.2 etc.

EM1.1 Contributes to engineering business strategies

- Provides engineering analysis to contribute to the development of strategic plans and sustainability
- Integrates engineering objectives into business planning
- Seeks emergent business opportunities based upon engineering initiatives to create opportunities
- Works with others to develop engineering performance targets and financial plans
- Provides advice on engineering related costs and risks
- Implements processes to monitor and adjust team performance within the organisation's continuous improvement policies
- Undertakes risk assessment within organisational guidelines
- Develops quality plans for engineering operations
- Applies whole of life costing

EM1.2 Develops client relationships

- Plans to meet internal and external clients' engineering requirements
- Ensures delivery of quality engineering products and services
- Seeks client feedback on the delivery of engineering products and services
- Monitors adjusts and reports on the client service received
- Assists customers to identify sustainable options and implications

EM1.3 Manages the implementation of engineering plans within the business

- Allocates roles and responsibilities to staff to achieve engineering plans
- Provides engineering leadership
- Manages performance and standards
- Contributes to the solution of engineering problems
- Monitors strategic engineering plans, goals and targets
- Manages costs
- Manages safety and quality
- Manages environmental issues
- Manages risks and contingencies

EM1.4 Manages resources

- Implements resource management plans
- Procures resources
- Manages asset maintenance
- Manages disposal, waste management and recycling plans
- Provides advice on engineering costs
- Contributes to the innovative management of resources

EM1.5 Manages people

- Implements people management plan
- Monitors team and individual performance targets
- Participates in the selection of staff
- Ensures the provision of skills and competencies requested to meet business targets
- Manages the workplace culture so that staff work in a continual learning environment
- Ensures the adherence to ethical, OH&S and quality standards
- Provides performance feedback

EM1.6 Manages suppliers

- Participates in supplier selection
- Prepares documents for engagement of suppliers
- Plans and implements monitoring of suppliers

EM1.7 Manages business information

- Identifies and complies with all statutory reporting requirements
- Uses management information systems effectively to store and retrieve data for decision making
- Prepares and presents business plans / budgets in accordance with the organisation's guidelines and requirements

EM1.8 Monitors engineering business performance

- Establishes monitoring processes and feedback systems to ensure agreed targets are met
- Establishes monitoring and reporting processes to ensure statutory requirements are met
- Establishes and monitors processes so that continuous improvement is achieved at all levels of the business

ANZSCO OCCUPATIONS DESIGNATED TO ENGINEERS AUSTRALIA;

Professional Engineer Category (Skill Level 1)

Aeronautical Engineer (233911) including specializations

Agricultural Engineer (233911) including alternative title

Biomedical Engineer (233913) including specializations

Civil Engineer (233211) including specializations

Chemical Engineer (233111)

Electronics Engineers (233411) including specialization

Electrical Engineer (233311) including specializations

Environmental Engineer (233915)

Geotechnical Engineer (233212)

Industrial Engineer (233511) including specialization

Materials Engineer (233112)

Mechanical Engineer (233512) including specializations

Mining Engineer (233611) including specialization

Naval Architect (233916)

Petroleum Engineer (233612) including specializations

Production or Plant Engineer (233513) including specialization

Structural Engineer (233214)

Telecommunications Engineer (263311) including specialization

Telecommunications Network Engineer (263312) including alternative titles

Transport Engineer (233215)

Engineering Professional nec (233999)

Engineering Technologist Category (Skill Level 1)

Engineering Technologist (233914) including specialisations

Engineering Associate Category (Skill Level 2)

Civil Engineering Draftsperson (312211) including specializations

Electrical Engineering Draftsperson (312311) including specializations

Electronics Engineering Draftsperson (312411) including specializations

Mechanical Engineering Draftsperson (312511) including specializations

Telecommunication Field Engineer (313212)

Telecommunications Network Planner (313213)

Telecommunications Technical Officer or Technologist (313214)

Building & Engineering Technicians nec (312999)

Managers and Administrators Category (Skill Level 1)

Engineering Manager (133211)





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