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<p>For further details about professional membership & course recognitions, please contact SIET @ SCWO: 96, Waterloo Street, #02-02, Singapore 187967. Tel: 6336 7289 ; Email: sietsg@gmail.com ; sammk1951@gmail.com</p>		

<h2 style="text-align: center;">Educational Opportunities in Engineering</h2>	
<p>Higher Education in Australia</p>	<p>La Trobe University, University of Tasmania, University of Sunshine Coast, Charles Stuart University, University of New England, Edith Cowan University.</p>
<p>Higher Education in China (English Medium)</p>	<p>Aerospace Engineering, EASA Part 66 Aircraft Maintenance Engineering License, Mechanical Engineering, Petroleum Engineering, Software Engineering, Civil Engineering at Zhejiang University, Wuhan University, Tianjin University, Nanjing University</p>

For further details about educational opportunities in Engineering , please contact:

 <p>Pacific Region Education Consultancy</p> <p>[A Professional Partner of SIET]</p> <p>[website: www.studyandmigrate.com] Contact : Lily Kong ; HP: (65) 9362 7018 ; Email: lilykong1963@gmail.com</p>

(A) What is Engineering?

Engineering is the discipline, art, skill and profession of acquiring and applying [scientific](#), [mathematical](#), [economic](#), social, and practical knowledge, in order to [design](#) and build structures, machines, devices, systems, materials and [processes](#) that safely realize improvements to the lives of people.

The [American Engineers' Council for Professional Development](#) (ECPD, the predecessor of [ABET](#)) has defined "engineering" as:

The creative application of scientific principles to design or develop structures, machines, apparatus, or manufacturing processes, or works utilizing them singly or in combination; or to construct or operate the same with full cognizance of their design; or to forecast their behavior under specific operating conditions; all as respects an intended function, economics of operation and safety to life and property.

(B) Main branches of engineering

Engineering is often characterized as having four main branches:

- [Chemical engineering](#) – The exploitation of chemical principles in order to carry out large scale chemical process, as well as designing new specialty [materials](#) and [fuels](#).
- [Civil engineering](#) – The design and construction of public and private works, such as [infrastructure](#) ([roads](#), [railways](#), water supply and treatment etc.), [bridges](#), dams, and buildings.
- [Electrical engineering](#) – a very broad area that may encompass the design and study of various electrical & electronic systems, such as [electrical circuits](#), [generators](#), [motors](#), [electromagnetic/electromechanical](#) devices, [electronic devices](#), [electronic circuits](#), [optical fibers](#), [optoelectronic devices](#), [computer](#) systems, [telecommunications](#) and [electronics](#).
- [Mechanical engineering](#) – The design of physical or mechanical systems, such as power and [energy](#) systems, [aerospace/aircraft](#) products, [weapon systems](#), [transportation](#) products [engines](#), [compressors](#), [powertrains](#), [kinematic chains](#), vacuum technology, and [vibration isolation](#) equipment.

© Engineering education

United States

[ABET](#) is the recognized accreditation authority granting universities that offer education in engineering and technology the right to confer degrees. Degree programs include a [Bachelor's degree](#) in engineering or sciences (4 years), to a [Master's](#) in the same fields (adding 2 or 3 years depending on the university), to a [Doctor of Engineering](#) which entails completing original research. Engineering [Doctors](#) often go on to teach in schools of engineering. Some engineering schools have agreements with 2-year colleges whereby the college provides the initial engineering education, and the engineering school automatically admits students for their last 2 years. In addition, many engineering schools have arrangements that allow students who spend 3 years in a liberal arts college studying math/physics subjects and 2 years in an engineering school studying core subjects to receive a bachelor's degree from each school. Some colleges and universities offer 5-year master's degree programs.

United Kingdom

In the UK, most engineering courses take 3 years for an undergraduate bachelors(BEng) and a 4 year period for an [Undergraduate Masters](#). Students who read a 4 years engineering course are awarded an [Masters of Engineering](#) (as opposed to [Masters of Science in Engineering](#)).

All accredited engineering courses are assessed and approved by the Professional Institutions reflecting the subject covered; [IMechE](#), [IET](#), [BCS](#), [ICE](#), [IStructE](#) etc. The degree then counts in part to qualifying as a [Chartered Engineer](#) after a period (usually 4–8 years) of structured professional practice, professional practice peer review and, if required, further exams to then become a corporate member of the relevant professional body. The term 'Chartered Engineer' is regulated by Royal Assent its use is restricted only to those registered; the awarding of this status is devolved to the professional institutions by the Engineering Council.

The BEng may be registered as an "**Incorporated Engineer**" by the Engineering Council after a period of structured professional practice, professional practice peer review and, if required, further exams to then become a member of the relevant professional body.

Mainland China

Engineering in Mainland China is becoming popular for international students. The programs field taught in English is getting more and more wide, like Electronic Engineering, Electrical Engineering, Telecom Engineering, Civil Engineering, Mechanical Engineering, Aeronautical Engineering, Computer Engineering, Architecture, Software Engineering, Chemical Engineering, Environmental Engineering, Industry Engineering, Material Science and Engineering, Petroleum Engineering, Marine Engineering and Navigation Technology.

Undergraduate programs in Engineering (in English) are normally of 4-year duration.

(D) International Mutual Agreements (Engineering)

There are six international agreements governing mutual recognition of engineering qualifications and professional competence.

Agreements covering tertiary qualifications in engineering

There are three agreements covering mutual recognition in respect of tertiary-level qualifications in engineering:

[The Washington Accord](#) signed in 1989 was the first - it recognises substantial equivalence in the accreditation of qualifications in professional engineering, normally of four years duration.

[The Sydney Accord](#) commenced in 2001 and recognises substantial equivalence in the accreditation of qualifications in engineering technology, normally of three years duration.

[The Dublin Accord](#) is an agreement for substantial equivalence in the accreditation of tertiary qualifications in technician engineering, normally of two years duration. It commenced in 2002.

Agreements covering competence standards for practising engineers

The other three agreements cover recognition of equivalence at the practising engineer level i.e. it is individual people, not qualifications that are seen to meet the benchmark standard. The concept of these agreements is that a person recognised in one country as reaching the agreed international standard of competence should only be minimally assessed (primarily for local knowledge) prior to obtaining registration in another country that is party to the agreement.

The oldest such agreement is the [APEC Engineer agreement](#) which commenced in 1999. This has Government support in the participating APEC economies. The representative organization in each economy creates a "register" of those engineers wishing to be recognised as meeting the generic international standard. Other economies should give credit when such an engineer seeks to have his or her competence recognised. The Agreement is largely administered between engineering bodies, but there can be Government representation and substantive changes need to be signed off at governmental APEC Agreement level.

The [Engineers Mobility Forum agreement](#) commenced in 2001. It operates the same competence standard as the APEC Engineer agreement but any country/economy may join. The parties to the agreement are largely engineering bodies. There are intentions to draw EMF and APEC closer together.

The [Engineering Technologist Mobility Forum agreement](#) was signed by participating economies/countries in 2003. The parties to the Agreement have agreed to commence establishing a mutual recognition scheme for engineering technologists.

