Engineering Labour Force in the United Kingdom

Engineering Labour Force

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Engineering Labour Force

The United Kingdom (U.K.) – England, Scotland, Wales and Northern Ireland – has the third-largest engineering labour force in Europe (behind Germany and France), with more than 1.16 million engineering workers. There are slightly fewer engineers per capita in the U.K. than in Alberta.

Energy Industry Experience

Many engineers in the U.K. have experience in the energy industry, including the oil and gas and petrochemicals sectors. In 2010, 15 per cent of registered engineers[1] and 21 per cent of unregistered engineers in the U.K. worked in the energy industry. By comparison, fewer than five per cent of engineers in Germany and France work in the energy sector.

Professional Requirements

When recruiting engineers and geologists in the U.K., employers should target those who meet the requirements established by the Association of Professional Engineers and Geoscientists of Alberta (APEGA). Many, but not all, engineers working in the U.K. will have the education and experience required for professional licensing in Alberta.

Many technicians and technologists, though not all, will meet the competency requirements for voluntary certification with the Association of Science and Engineering Technology Professionals of Alberta (ASET).

Likelihood of Immigrating

Younger workers are more likely to consider international relocation; 29 per cent of engineers in the U.K. are under age 35.[2]

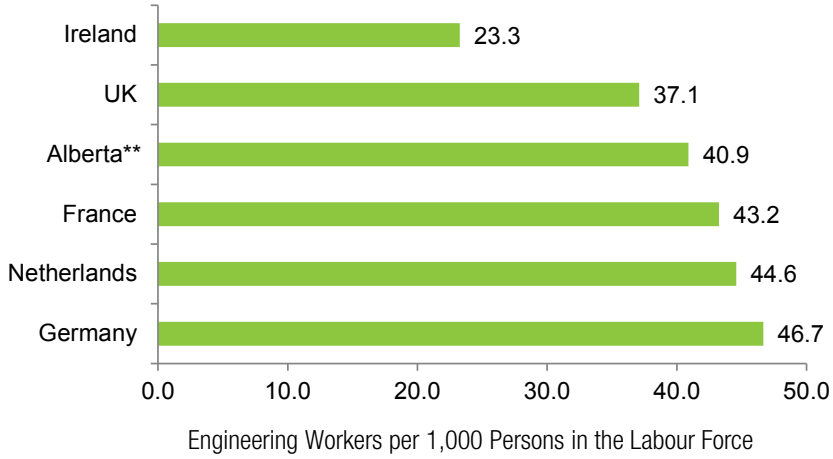
Foreign workers comprise a small portion of the U.K. engineering labour force (4 per cent), but represent a growing share of people migrating out of the country. As of 2010, non-British citizens represented 65 per cent of long-term migrants leaving the U.K., up from 43 per cent in 2005.

Many, though not all, engineers working in the U.K. will have the education and experience required to obtain professional licensure in Alberta.

[1]Refers to engineers registered with the U.K. Engineering Council or one of the Professional Engineering Institutions (PEIs) in the U.K. See Section on Recruiting Qualified Engineers for more information.

[2]See European Engineering Report 2007, FEANI

Figure 1. Engineering Labour Force per 1,000 Workers in the Labour Force by Country, 2010*

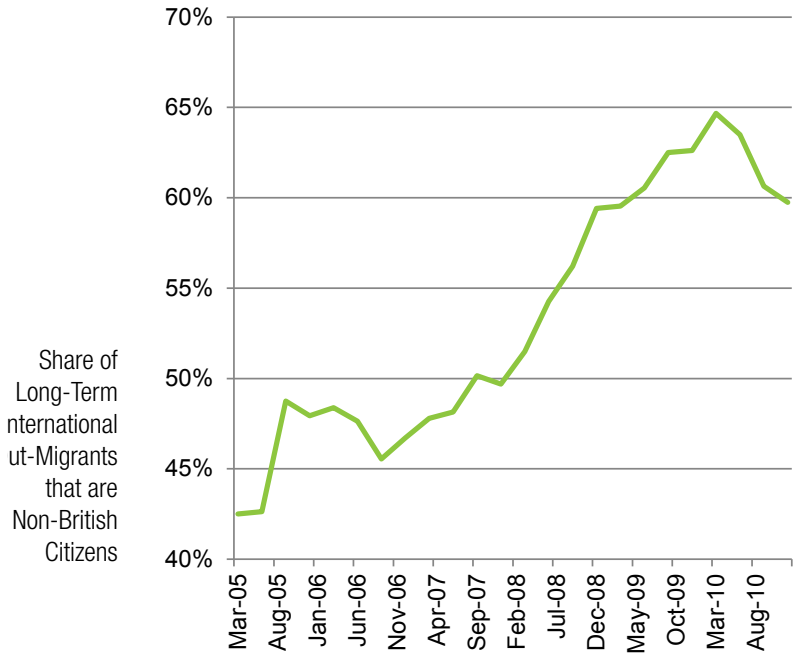


** Note: Figures for Alberta are based on the 2006 Census of Canada.*

***Alberta figures include several categories of engineers classified as "Other." Without them, the engineering labour force is significantly smaller.*

Sources: U.K. Labour Force Survey; European Social Survey; Census of Canada 2006; RDA Global Analysis.

Figure 2. Share of Long-Term International Out-Migrants from the U.K. who are non-British Citizens



Sources: United Kingdom International Passenger Survey (IPS); estimates of long-term international migration, rolling annual data to Q4 2010.

What Employers Need to Know

Engineers and Geoscientists

According to Alberta law, to practice engineering, geology or geophysics independently in Alberta, a worker must be licensed by APEGA. Unlicensed workers may practice engineering, but only under the supervision of a licensed engineer. Similar rules apply to internationally educated engineers. They may be permitted to work in Alberta without a license, provided that they work under the supervision of a licensed Professional Engineer (P.Eng). In order to practice engineering, geology or geophysics independently, internationally educated workers must have their credentials evaluated by APEGA to determine whether or not they meet the requirements for licensure.

Since Canada has a mutual recognition agreement with the U.K., Chartered Engineers are likely to be able to obtain a license to practice in Alberta, although APEGA will conduct an individual assessment of each applicant. In order to gain licensure in Alberta, all applicants must:

1. Take the professional practice exam and show relevant knowledge of Albertan law and ethics
2. Obtain one year of Canadian experience; they can apply and gain conditional approval before doing so
3. Be competent in English
4. Provide character references
5. Possess Canadian Citizenship or Permanent Resident status; an applicant not possessing either may apply as a Foreign Licensee

To learn more about APEGA's licensing requirements, see www.apega.ca.

In order to practice engineering, geology or geophysics independently, internationally educated workers must have their credentials evaluated by APEGA to determine whether or not they meet the requirements for licensure.

Technicians and Technologists

Technicians and technologists do not need licenses to practice in Alberta, but may voluntarily apply for certification from ASET. ASET uses a competency-based evaluation to assess the qualifications of internationally educated individuals. Successful applicants must have an appropriate combination of post-secondary education in their field and practical experience.

Many European bachelor's degrees are awarded after three years. Workers holding them would likely qualify for technologist or technician certification with ASET, while those with lower qualifications may qualify at the technician level. Candidates seeking ASET certification generally require:

1. At least two years of professional experience, including one year of Canadian experience
2. Completion of the professional practices exam
3. Three verifiable references
4. The ability to work in English
5. Canadian Citizenship or Permanent Resident status

To learn more about ASET's certification requirements, see www.aset.ab.ca.

Registered vs. Unregistered

The U.K. Engineering Council estimates that about half of all engineers who could qualify for registration have done so and obtained a professional qualification such as Chartered Engineer (CEng; similar to a Professional Engineer in Alberta), Incorporated Engineer (IEng), Engineering Technician (EngTech) or ICT Technician (ICTTech).

Registered and unregistered engineering workers work alongside one another in the U.K. and can have similar roles and responsibilities. Foreign credential recognition in Alberta will be easiest for workers who are registered as Chartered Engineers (CEng) in the U.K. or who have similar qualifications that would meet the requirements for registration with the Engineering Council. Approximately half of all unregistered engineers commonly work in energy and manufacturing industries in the U.K., with the balance working in construction and other industries.

For more information, see www.engc.org.uk.

Foreign credential recognition in Alberta will be easiest for workers who are registered as Chartered Engineers (CEng) in the U.K. or who have similar qualifications that would meet the requirements for registration with the U.K. Engineering Council.

Fact Sheets

Fact sheets on hiring internationally trained workers in engineering-related occupations can be found at www.albertacanada.com/immigration/publications.aspx. Follow the links below for more information on hiring for specific occupations:

- Hiring Architectural Technologists or Technicians from the United Kingdom
- Hiring Chemical Engineers from the United Kingdom
- Hiring Civil Engineers from the United Kingdom
- Hiring Civil Engineering Technologists or Technicians from the United Kingdom
- Hiring Drafting Technologists or Technicians from the United Kingdom
- Hiring Electical Engineers from the United Kingdom
- Hiring Electrical or Electronics Technologists or Technicians from the United Kingdom
- Hiring Electronic Service Technicians from the United Kingdom
- Hiring Engineering Managers from the United Kingdom
- Hiring Geoscientists from the United Kingdom
- Hiring Geoscience Technologists or Technicians from the United Kingdom
- Hiring Industrial or Manufacturing Engineers from the United Kingdom
- Hiring Mechanical Engineers from the United Kingdom
- Hiring Mechanical Engineering Technologists or Technicians from the United Kingdom
- Hiring Metallurgical or Materials Engineers from the United Kingdom
- Hiring Mining Engineers from the United Kingdom

Table 1. U.K. Titles for Engineering Occupations and Related Professional Organizations

Canadian Engineering Occupations	Similar Occupations/Titles in the U.K.	Professional Organizations
Engineering Managers	Chartered Engineers (CEng) often hold management positions in industry. CEngs holding positions of significant responsibility in their field for five or more years are eligible for Fellow membership in the PEIs that offer it.	N/A
Civil Engineers	Chartered Engineer (CEng), Chartered Civil Engineer (MICE)	Institution of Civil Engineers (ICE)
Mechanical Engineers	Chartered Engineer (CEng), Member IMechE (MIMechE)	Institution of Mechanical Engineers (IMechE)
Electrical and Electronics Engineers	Chartered Engineer (CEng), Fellow (FIET) or Member (MIET)	Institution of Engineering and Technology (IET)
Chemical Engineers	Chartered Chemical Engineer, Chartered Engineer (CEng), Chartered Chemical Engineer and Member of IChemE (MIChemE)	Institution of Chemical Engineers (IChemE)
Industrial and Manufacturing Engineers	Chartered Engineer (CEng), Fellow or Member in the IET (FIET and MIET)	Institution of Engineering and Technology (IET)
Metallurgical and Materials Engineers	Chartered Engineer (CEng), Fellow or Professional Member of IOM3 (FIMM or MIMMM)	Institute of Materials, Minerals and Mining (IOM3)
Mining Engineers	Chartered Engineer (CEng), Fellow or Professional Member of IOM3 (FIMM or MIMMM)	Institute of Materials, Minerals and Mining (IOM3)
Petroleum Engineers	Energy Engineer, Chartered Engineer (CEng), Fellow or Professional Member of EI (FEI or MEI), Chartered Energy Engineer or Chartered Petroleum Engineer (available to CEng and IEng)	Energy Institute (EI)
Civil Engineering Technologists and Technicians	Technologist: Incorporated Engineer (IEng), Associate Member of ICE (AMICE) Technician: Engineering Technician (EngTech), Technician Membership in ICE (TMICE)	Institution of Civil Engineers (ICE)
Mechanical Engineering Technologists and Technicians	Incorporated Mechanical Engineer or Mechanical Engineering Technician Technologist: Incorporated Engineer (IEng), Member IMechE (MIMechE) Technician: Engineering Technician (EngTech), Member IMechE (MIMechE)	Institution of Mechanical Engineers (IMechE)
Electrical and Electronics Engineering Technologists and Technicians	Incorporated Engineer (IEng), Member or Technician Member of the IET (MIET and TMIET)	Institution of Engineering and Technology (IET)
Industrial Instruments Technicians and Mechanics	Industrial Instruments Engineer, Electrical or Electronic Engineer or Technician, Technician Member of the IET (TMIET)	Institution of Engineering and Technology (IET)
Geosciences Occupations		
Geologist, Geochemists and Geophysicists	Chartered Geologist (CGeol), European Geologist (EurGeol), some Chartered Engineers (CEng) work in geosciences	Geological Society of London (GSL)
Geological and Mineral Technologists and Technicians	No professional titles, but Fellow Members of the GSL (FGS) will have a bachelor's degree or at least six years' experience.	
Architecture-Related Occupations		
Architectural Technologists and Technicians	Architects' Assistant, Chartered Architectural Technologist (MCIAT), Professionally Qualified Architectural Technician (TCIAT)	Chartered Institute of Architectural Technologists (CIAT)
Drafting Technologists and Technicians	Architectural Technician, Architects' Assistant or [Industry] Drafting Technician, Professionally Qualified Architectural Technician (TCIAT)	Chartered Institute of Architectural Technologists (CIAT)
Electronic Service Technicians		
Electronic Service Technicians	Electronic Service Technicians or Engineers, Engineering Technician (EngTech) or ICT Technician (ICTTech)	Institution of Engineering and Technology (IET)

Source: RDA Global, contributions from listed professional organizations.

Rates of Pay

Total compensation in the U.K. is similar to base salaries in Alberta and other EU countries. A 2010 study[3] found essentially no difference in rates of pay for engineers in the U.K., Germany and France - the three largest EU labour markets.

In 2010, Chartered Engineers had annual earnings of £67,714 ($103,900 CAD) inclusive of all bonuses, overtime compensation and commissions. This is essentially equivalent to the average annual base salary (not including overtime or bonus payments) of engineers and geoscientists in Alberta in 2009 ($102,744).

Incorporated engineers in the U.K. (similar to engineering technologists in Alberta) earned an annual average income of £49,412 in 2010 ($75,800 CAD). Engineering technicians in the U.K. had average annual income of £41,826 ($64,200 CAD). By comparison, engineering technologists and technicians in Alberta earned an average of $61,000 CAD in 2009.

There is no licensure requirement to work in engineering in the U.K., but analysis of income data suggests workers who *are* registered with the U.K. Engineering Council as Chartered Engineers[4] earn significantly higher incomes than their unregistered counterparts.

Total remuneration in the U.K. is similar to base salaries in Alberta and other EU countries.

[3]See Engineers: An Inter-Country Comparison (2010), U.K. Engineering Council, Conseil National des Ingenieurs et Scientifiques de France (CNISF) and the Verein Deutscher Ingenieure (VDI).

[4]A CEng in the U.K. is similar to a Professional Engineer (P.Eng.) in Alberta.

Table 2. U.K. Engineering Labour Force by Occupation, Average Age and Average Income

Canadian Occupations	Related Occupations in the U.K. (ISCO-88)	Labour Force	Labour Force per 1,000 Workers	Average Age	Average Annual Income 2010 (GBP)	Average Annual Income 2010 (CAD)
Geologist, Geochemists and Geophysicists	2114 Geologists and Geophysicists	18,850	0.6	43	£46,643	$81,159
Civil Engineers	2142 Civil Engineers	92,504	2.9	31	£37,862	$65,880
Mechanical Engineers	2145 Mechanical Engineers	77,959	2.5	48	£40,223	$69,988
Electrical and Electronics Engineers	2143 Electrical Engineers	44,554	1.4	41	£44,151	$76,823
	2144 Electronics and Telecommunications Engineers	30,495	1	41	£44,530	$77,482
Chemical Engineers	2146 Chemical Engineers	22,777	0.7	43	£44,450	$77,343
Industrial and Manufacturing Engineers	2141 Industrial and Production Engineers	33,350	1.1	49	£36,391	$63,320
Metallurgical and Materials Engineers	2147 Mining Engineers, Metallurgists and related professionals	4,782	0.2	43	N/A	N/A
Mining Engineers						
Petroleum Engineers						
Other Engineers and Related Professionals	2149 Architects, engineers and related professionals not classified elsewhere	216,542	6.9	45	N/A	N/A
Geological and Mineral Technologists and Technicians	3111 Chemical and Physical Science Technicians	93,084	3	48	N/A	N/A
Chemical Technologists and Technicians	3117 Mining and Metallurgical Technicians	10,167	0.3	41	N/A	N/A
	3116 Chemical Engineering Technicians	7,250	0.2	22	£26,571	$46,234
Civil Engineering Technologists and Technicians	3112 Civil Engineering Technicians	51,336	1.6	48	£26,527	$46,157
Mechanical Engineering Technologists and Technicians	3115 Mechanical Engineering Technicians	50,332	1.6	39	N/A	N/A
Electrical and Electronics Engineering Technologists and Technicians	3113 Electrical Engineering Technicians	30,975	1	33	£31,538	$54,876
	3114 Electronics and Telecommunications Engineering Technicians	57,136	1.8	57		
Electronic Service Technicians	7243 Electronics Mechanics and Servicers	66,359	2.1	39	N/A	N/A
Industrial Instruments Technicians and Mechanics						
Architectural Technologists and Technicians	Architectural Technologists	147,359	4.7	47	£27,010	$46,997
Drafting Technologists and Technicians	3118 Draughtspersons				£27,129	$47,204
Other Related Technician and Technologist Occupations	3119 Physical and Engineering Science Technicians not classified elsewhere	108,025	3.4	45	N/A	N/A
All Geoscientists		**18,850**	**0.6**	**43**	**£46,643**	**$81,159**
All Engineers		**522,963**	**16.7**	**43**	**N/A**	**N/A**
All Engineering Technicians and Technologists		**622,023**	**19.8**	**45**	**N/A**	**N/A**
All Engineering Occupations		**1,163,836**	**37.1**	**44**	**N/A**	**N/A**

Sources: U.K. Labour Force Survey; European Social Survey; Annual Survey of Hours and Earnings (ASHE); Analysis by RDA Global; exchange rate for GBP/CAD equivalent income comparison: 1 GBP = 1.74 CAD.

Where to Recruit

About a third of the engineering-related labour force in the U.K. is in London and the surrounding East and South East regions. In total there are nearly 400,000 workers in engineering-related occupations in these three regions of England.

Beyond London and the East and South East regions, other cities recommended for recruiting, based on the size of the engineering labour force, include Manchester, Leeds, Glasgow (Scotland) and Birmingham.

Figure 3. Regions of the U.K.

Table 3. Engineering Labour Force by U.K. Region or Country

Region	Cities	Engineering-Related Workforce (2010)*	Share of Engineering-Related Labour Force (2010)	Total Workers Employed at Engineering Firms (2009)**	Share of Workforce Employed at Engineering Firms (2009)
South East	Brighton, Oxford, Portsmouth, Southampton	165,255	14.2%	818,713	17.9%
London	London	113,880	9.8%	470,528	10.3%
East of England	Cambridge, Norwich, Peterborough, St Albans	113,460	9.7%	543,802	11.9%
North West	Manchester	107,600	9.2%	428,358	9.4%
Scotland	Glasgow, Edinburgh	102,535	8.8%	315,047	6.9%
Yorkshire and Humberside	Leeds, Sheffield, Bradford, Wakefield, Hull	102,242	8.8%	349,207	7.6%
South West	Bristol, Plymouth	101,318	8.7%	362,026	7.9%
West Midlands	Birmingham, Coventry	98,864	8.5%	473,308	10.4%
East Midlands	Nottingham, Leicester,	91,186	7.8%	328,816	7.2%
Wales	Cardiff	51,414	4.4%	190,689	4.2%
North East	Sunderland, Newcastle upon Tyne	49,513	4.3%	162,164	3.6%
Northern Ireland	Belfast	44,150	3.8%	123,658	2.7%
Merseyside	Liverpool	22,419	1.9%	N/A	N/A
Total U.K.		**1,163,836**	**100%**	**4,566,316**	**100%**

** Includes workers in selected occupations.*

*** Includes all workers regardless of occupation. These figures include workers who are not engineers or engineering technicians/technologists.*

Source: Engineering U.K. 2011; The State of Engineering.



www.AlbertaCanada.com/immigration

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