

... plan and direct the engineering aspects of locating and extracting minerals, petroleum and natural gas from the earth.

Indicative Skill Level

Most occupations in this unit group have a level of skill commensurate with a Bachelor degree or higher qualification. In some instances relevant experience and/or on-the-job training may be required in addition to the formal qualification (ANZSCO Skill Level 1).

Skilled Occupation Criteria

Long-lead time

Mining Engineers meet the criteria for long lead time, as entry to this occupation requires a substantial training commitment.

- ▶ Employment as a Mining Engineer generally requires the completion of a university qualification of at least four years study (full-time equivalent), such as a Bachelor of Engineering (Mining Engineering).

High use

Mining Engineers meet the criteria for high use, showing that the skills which people have acquired through education and training are actually being deployed for the uses intended.

- ▶ Based on advice from Universities Australia, university courses in engineering have a strong degree of match with subsequent employment in engineering occupations.
- ▶ Of new graduates employed as Mining Engineers, 84% had studied in a related field, such as engineering and related technologies (*Australian Graduate Survey, 2009*).
- ▶ As professionals, Mining Engineers are expected to have a level of skill commensurate with a Bachelor degree or higher qualification. Of those employed as Mining Engineers, 100% were found to possess this level of skill (*ABS Survey of Education and Work, 2010*).¹

High risk

Mining Engineers also meet the criteria for high risk/high disruption. This indicates that the occupation is important for the effective operation of an enterprise and/or the broader economy.

- ▶ Mining Engineers are required to be registered with a professional board in some states and territories, such as Queensland and Western Australia. Membership of Engineers Australia and/or the Australasian Institute of Mining and Metallurgy (AusIMM) may also be required in order to gain professional recognition.
- ▶ Mining Engineers are important to meet government policy priorities at both the Commonwealth and state level. These include the production and export of minerals, national and international collaboration on exploration innovation, the development of clean coal and renewable energy technologies, and meeting the recommendations of the *Resourcing the Future* report.

¹ Analysis for the Skilled Occupations List (SOL) was conducted using the latest available data, including the 2010 ABS Survey of Education and Work (SEW). Percentages may therefore differ from those cited in the 'Occupation Trends' analysis (over the page), which uses alternative sources in some instances (e.g. the 2008 ABS Survey of Education and Work). Small sample sizes for some occupations may also result in fluctuations in the SEW data between 2008 and 2010. The specific data sources used for the Occupation Trends analysis can be found on the Skills Australia website: <http://www.skillsaustralia.gov.au/SOLsummarysheets.shtml>.

Occupation trends

ANZSCO: 2336

Mining Engineers

Employment level	12,200 Almost all workers are employed full-time (92.4%).
6 digit employment (2006 Census)	233611 Mining Engineer (excluding Petroleum) 2810 233612 Petroleum Engineer 1360
Employment growth	Over the five years to August 2010, employment increased by 145.8% (compared with growth of 12.1% for all occupations). Employment is expected to rise by 24.6% over the next five years (compared with projected growth of 9.5% for all occupations).
Unemployment rate	Below average (around 2.4%) compared with all occupations.
Educational profile	Around 66.6% have a Bachelor degree or higher qualification.
Vacancies	The Internet Vacancy Index (IVI) rose by 66.4% over the 12 months to September 2010 to 234.2 (March 2006=100). Vacancies for all occupations increased by 19.4%.
Gender	Around 12.4% of workers are female (compared with 45.4% for all occupations).
Labour turnover	Around 5.3% of workers leave this occupation in a year compared with 13.1% for all occupations.
Age profile	The median age is 39.2 years and 37.1% are aged 45 years and over (compared with 38.5% for all occupations).
Earnings	Median full-time weekly earnings (before tax) are high (\$2250).
Graduate outcomes	Graduate Careers Australia data show 92% of Bachelor degree graduates in mining engineering seeking full-time work were working four months after graduation, 91% of whom were employed as Engineering Professionals.
Skill shortages	National shortages of Mining Engineers have been identified continuously since 2005. Shortages of Petroleum Engineers were also identified in 2005, 2007, 2009 and 2010.

Labour market

233611 Mining Engineer: Shortages have persisted for the past six years and there have been low numbers of suitable applicants per vacancy over that time. The hardest to fill vacancies are for experienced Mining Engineers but employers surveyed in 2010 commented that graduates or junior positions are becoming increasingly difficult to fill.

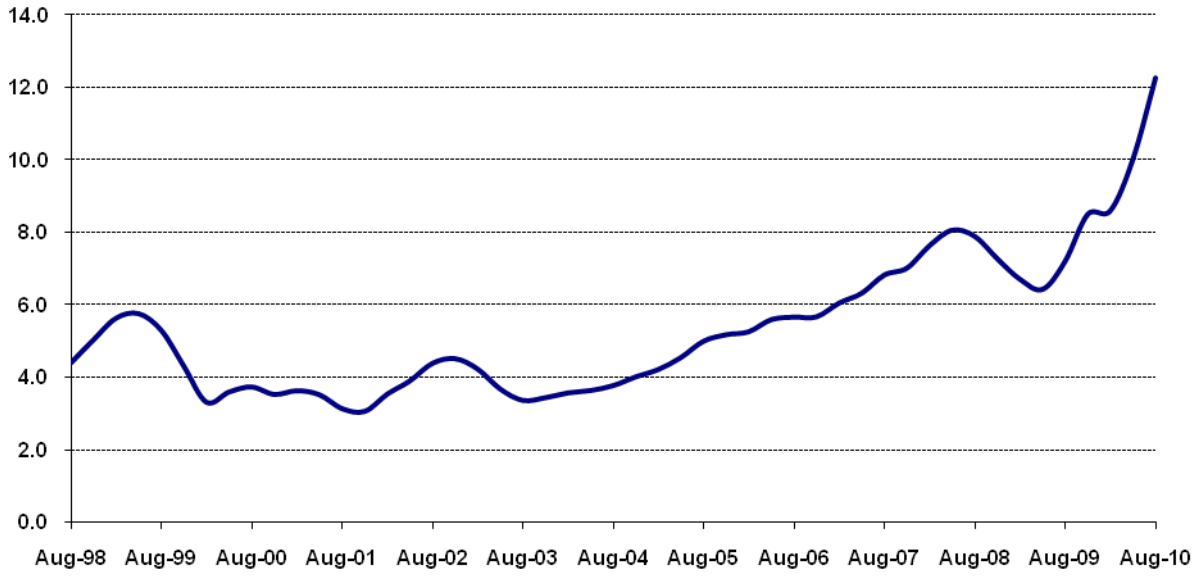
233612 Petroleum Engineer: Demand has fluctuated over recent years in this relatively small occupation and shortages have been apparent at times. Despite a fall in demand in late 2008 and an easing labour market, there were signs of tightening in the labour market over late 2009 and shortages re-emerged. Employers surveyed in early 2010 indicated continued strong demand that is expected to increase significantly due a number of large projects coming online.

Summary

Employment growth has been very strong over the past five years and strong growth is expected to continue. Shortages have been persistent over recent years and some remained evident through the global recession. Graduate outcomes are good and unemployment is below average. Employer comments suggest that recruitment of overseas trained workers is relatively common for these occupations.

Advertised vacancy levels have recovered markedly over 2010.

Mining Engineers
Employed Persons ('000s) Aug 1998 to Aug 2010



Internet Vacancy Index (IVI) - 3 Monthly Average - Nov 2006 - Sept 2010
Mining Engineers (March 2006 = 100)

