

THE ENGINEERING LINK GROUP

ORGANISATION DETAILS

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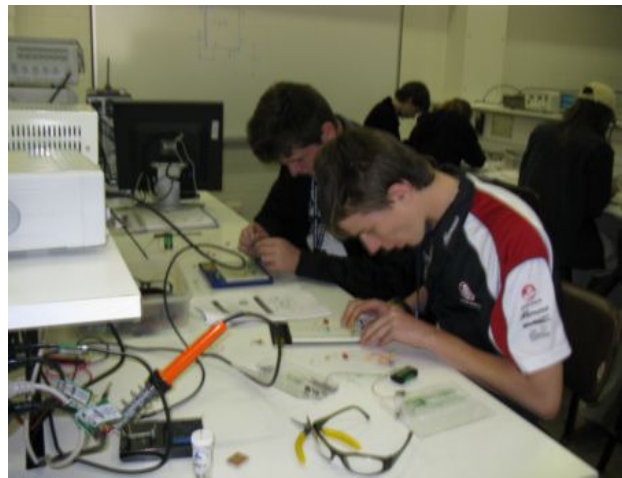
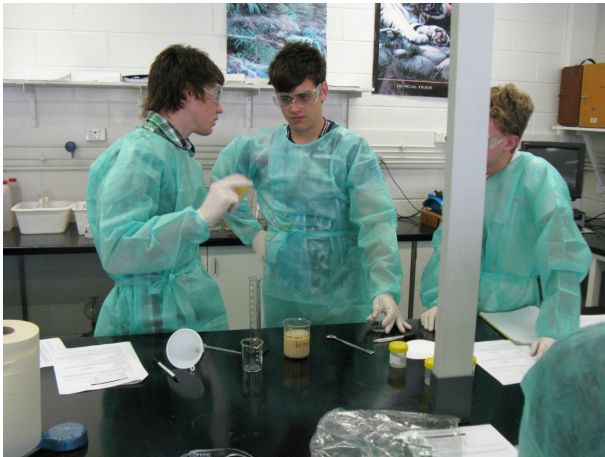
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Forging Links between Schools and Industry.



Overview:

Since its inception in 1994 as a three day camp for Year 11 students in Townsville, The Engineering Link Group has grown to be the exemplar in Queensland and Australia for introducing secondary school students to the discipline of engineering.

The major goal of The Engineering Link Group is that students (and teachers) be engineers, not just watch engineers.

Who we are:

The Engineering Link Group – TELG. Incorporated as an independent income tax exempt educational charitable institution, registered for GST. TELG has two operational directors and a Board of five people, all voluntary.

The board members are:-

Chairman,

Paul Richards, B.Sc., M. Ed., AfilmIEAus

Company Secretary

Greg Millican, B.Ed AfilmIEAus

Board Members

Jenny Hill - Councillor, Townsville City Council

Prof. Philip Schneider – School of Engineering, JCU

Mark Daniell - BHPBilliton, AusIMM

Our Vision:

Nationally recognised driver of school/industry partnerships that inspire more students and teachers to embrace the engineering paradigm and the life and career opportunities it provides.

What we do:

The Engineering Link Group (TELG) is an independent not-for-profit educational institution, with income tax deductible status (and working towards Deductible Gift Recipient status). It was started in 1994 by two high school teachers to:

- Encourage senior school students to study sciences and mathematics.
- Improve teachers' understanding of and appreciation for engineering, science and mathematics.
- Encourage indigenous students to study sciences and mathematics, and to consider engineering as a viable career path.
- Improve the number of students taking up engineering as a career.
- Improve students, teachers and parents understanding of the engineering profession.
- Improve the quality of mathematics and sciences teaching in Australian schools.
- Develop higher order cognitive abilities such as analysis, synthesis, and evaluation in senior high school students.

How we do it:

Students and their teachers enjoy and see enormous benefit in working with practising engineers and experiencing activities that increase their knowledge and choices about future career paths. This makes our product different and unique.

TELG currently runs six initiatives in Queensland, as well as having new ventures under development. These are:-

- **Engineering Link Project (ELP)** (est. 1994) – three day residential course for Year 11 and 12 Mathematics and Science students who are looking for an exciting career option where they can actually use what they learn in class.
- **Enterprise Management Project (EMP)** (est. 2004) - a business and entrepreneurial course for Year 12 students with an interest in engineering, to help them gain skills not offered at school.
- **Linking Engineers and Scientists with Teachers (LEaST)** (est. 2005) - One, two or three day courses for science and mathematics teachers, to demonstrate context-based teaching and to broaden their knowledge and experience of engineering.

- **Smallpeice UK Scholarships** (est. 1998) - Students who attend the ELP or EMP may apply for a scholarship to the United Kingdom. This involves a one week course in Engineering Management, operated by the Smallpeice Trust, and a week's sightseeing.
- **Smallpeice Teacher Experience** (est. 1998) - Teachers who supervise the ELP or EMP or attend a LEaST are invited to apply to accompany the Smallpeice Scholars to the UK. The Engineering Link Group offers the same conditions as the Scholars.
- **China Railway Engineers** (est. 2010) - Students who attend the ELP or EMP may apply to attend East China Jiao Tong University (ECJTU). Students complete a railway engineering course, written jointly by TELG and ECJTU and experience Chinese culture and hospitality.

TELG's new ventures:

We are demonstrably successful in Queensland, and consider that our Programs are transferrable (and desperately needed) across Australia. We plan to **expand our operation** to include every mainland state in Australia. As well as operate the programs listed above, we are currently working with several other groups to put new initiatives in place, developing our paradigm of linking students and teachers with engineers and scientists:

- **Specialist Engineers.** One day single-discipline courses for 30 students at centres specialising in those disciplines. These will develop and focus the students' interests in specific areas after they have refined their decisions to become engineers.
- **Specialist Professional Development.** Short courses focussed on single aspects of science and maths syllabuses, like Extended Experimental Investigations. As a direct adjunct to these, TELG intends to work closely with engineers, tertiary institutions and, most importantly, teachers to develop fully integrated teaching modules for Physics, Chemistry and Mathematics that draw upon:
 - Engineering principles and concepts.
 - Higher order thinking skills.
 - Direct industry links and communication between engineers and other professionals and current students.
 - Authentic pedagogy, relevant assessment and real life, current research aimed at Year 11 and 12 students.
- **OzSTEMIT:** TELG has already begun to create a database of lessons and experiences for teachers and students (like STEMIT in the UK and Curriki in the USA), and link with those two organisations, to:
 - compile a database of STEM lesson plans,
 - align the lessons with the Australian curricula,
 - arrange access to this database for Australian teachers.

Our programs compare and outdo to other similar works by maintaining personal links for each school with a current engineer in that field of work, to act as a mentor and liaison for the teacher and school as required.

Success:

Since we started in 1994, we have had over 3500 students and 300 teachers participate in one or more of our courses. Many students complete our courses more than once, often returning after they have finished school to assist with supervision and the general running of the courses. A document outlining our success over the years can be downloaded from www.telg.com.au/Docs/SoS.pdf

Engineers Australia

TELG have had a long association with Engineers Australia (Qld Branch) as an industry partner, strategic advisor and sponsor of our various education programs.

TELG is currently working with Engineers Australia at a national level to establish the necessary human resources and infrastructure to facilitate the successful development and roll-out of our programs nationally.

Funding:

Participants pay between \$30 and \$60 per day, depending on the course. The total cost of running (for example) an ELP is approximately \$25000, with variation in student numbers having only a small effect on the total. Costs of travel and accommodation to prepare and finalise each project, and administration is approximately \$12000.

The shortfall is made up by sponsorship. Sponsors are:-

- Federal instrumentalities.
- State instrumentalities,
- Trusts,
- Professional associations.
- Industry, which has supplied the main funding for the last few years.

Major sources of funding to date have been:-

- Queensland Department of Transport and Main Roads
- Engineers Australia, Queensland Division
- The University of Queensland
- James Cook University
- SKM
- CQUniversity
- Stanwell Corporation.
- Rio Tinto

A range of companies and institutions have offered funding in kind, mostly the services of their engineers.

These include:-

- The Australian Army
- Thiess
- Aurecon
- GHD
- Sedgman
- Hatch

