Admission

Applicants must have a Bachelor of Engineering or Bachelor of Engineering (Honours) or Bachelor of Science degree or reached an equivalent level of qualification in Science or Engineering. Applicants also must have a satisfactory level of English language proficiency - 6.5 in IELTS or 90 in TOEFL (internet).

Prospective students should start the process of applying for admission in early 2011.

To apply, go to www.auckland.ac.nz/applynow

Costs

The course fees for 2010 were

- Domestic students NZ$3,800
- International students NZ$14,750

For more information, go to www.auckland.ac.nz/fees

Accommodation, including all meals for 19 weeks, is available at one of the University student hostels (the 2010 cost was NZ$5,700). Note: There are additional costs for airfares, health and travel insurance.

Visas

Most international students wishing to study for the PGCertGeothermTech will require a visa. Details about how to obtain a visa to study in New Zealand can be found at www.immigration.govt.nz/

Please allow at least two to three months for arranging your visa.

PGCertGeothermTech student on a field trip at Waiotopu thermal area

Geothermal Training in New Zealand

New Zealand is a beautiful country in the South Pacific with more than 25 high temperature geothermal systems and with many beautiful natural geothermal springs.

The Wairakei geothermal system was the first liquid-dominated high temperature geothermal system to be developed for power generation in 1958, and since then New Zealanders have been at the forefront of geothermal research and training.

More than 850 students from more than 50 counties have graduated from the Geothermal Institute at the University of Auckland with a world recognized qualification in Geothermal Energy from 1978 to the present; many of our graduates are now leaders in the geothermal industry world-wide.

We work closely with the New Zealand geothermal industry to ensure that our students obtain maximum benefit from the 12 days unique field experience of data collection and interpretation from geothermal production sites and natural features, all situated in a tectonically active geothermal landscape.

Contact

For more information about the PGCertGeothermTech or for help with admission please contact:

Contact:
Professor Michael O'Sullivan
Phone: 64 9 3737 599 ext 88393
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Phone: 64 9 3737 599 ext 85542
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Geothermal Institute
University of Auckland
Private Bag 92019, Auckland Mail Centre
Auckland 1142, New Zealand
Fax: 64 9 3737 468

THE UNIVERSITY OF AUCKLAND
FACULTY OF ENGINEERING
Department of Engineering Science

Postgraduate Certificate in

Geothermal Energy Technology

Course Outline

The Postgraduate Certificate in Geothermal Energy Technology (PGCertGeothermTech) is a one-semester programme aimed at giving engineering and science graduates training in geothermal science and engineering, available through the Geothermal Institute with the Faculty of Engineering at The University of Auckland.

The PGCertGeothermTech consists of three courses and a project, and will be taught during Semester Two in 2011 (18th July to 11th November).

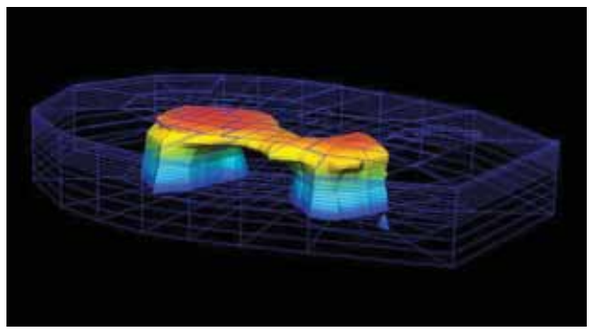
The programme covers:

- Geothermal science and technology
- Geothermal engineering
- Geothermal geoscience
- Geothermal field studies

There are two compulsory introductory courses:
GEOTHERM 601 and GEOTHERM 602

There is one elective course. The options are:
GEOTHERM 603 (Geoscience) or GEOTHERM 620 (Geothermal Engineering)

The research project is industry focused and is compulsory:
GEOTHERM 689



Model of the Wairakei Geothermal Field by Professor Mike O'Sullivan

Course Prescriptions

GEOTHERM 601

Worldwide occurrence of geothermal systems, Introductory geology and volcanology, NZ geothermal systems and the Taupo Volcanic Zone, Hydrothermal alteration, Permeability and porosity, Introduction to Geochemistry of Geothermal systems, Geothermal surface manifestations, Overview of geophysics for geothermal exploration, Geothermal resource development.

GEOTHERM 602

Worldwide geothermal development, Types of geothermal systems, Thermodynamics Properties of water and steam tables, Heat transfer, Fluid mechanics, Steamfield equipment, Geothermal power stations, Geothermal drilling, Wellbore processes, completion tests, downhole measurements, Reinjection, Stored heat, Darcy's law, geothermal reservoirs, Direct use (introduction), Reservoir modelling, Reservoir monitoring and field management.

GEOTHERM 603

Hydrothermal alteration, Fluid inclusions and sinters, Direct use, Subsidence, Scaling and corrosion in geothermal wells, Production geochemistry, Environmental aspects of geothermal development, Geothermal Geophysics, Feasibility study.

GEOTHERM 620

Completion tests, Wellbore flow, Two-phase flow, Geothermal power cycles, Flow measurements, Direct use of Geothermal Energy, Environmental effects, Scaling and corrosion in geothermal wells, Subsidence, Heat exchangers, Geothermal well-test analysis, Stimulation, Pipeline design, Feasibility study, Reservoir modelling theory, MULGRAPH and TOUGH2, Reservoir modelling process , Case study; Data processing and conceptual model, Wairakei model, Natural state modeling.

GEOTHERM 689

This is an individual project based on a study using field, laboratory, or theoretical methods. Students are required to submit a report on some aspects of geothermal exploration or production.

Field Trips

Highlights of the PGCertGeothermTech are the two field trips to the Taupo Volcanic Zone (TVZ). Students visit geothermal power plants at Wairakei and Mokai, direct-use projects at Taupo and Rotorua and several undeveloped geothermal fields (e.g. Waimangu and Waiotapu). These field trips will enable students to gain practical experience in collecting field data and making measurement on geothermal wells is gained.

Teaching

The PGCertGeothermTech is taught by lecturers from the Department of Engineering Science, the School of the Environment, the Institute of Earth Science and Engineering, and Guest lecturers from the New Zealand geothermal industry.

PGCertGeothermTech students on a site visit