

Power Generation Skills Development

Queensland University of Technology (QUT), Courses 2012

Enrol Now!

- **Introduction to Power Plant**
- **Project Delivery**

Introduction to Power Plant

Unit/Subject Code: EPG001

7 - 9 or 14 - 16 February and 6 - 7 March OR
31 July – 2 or 7 – 9 August and 28, 29 August
Callide Power Plant, Biloela, QLD and QUT

Applications close on 20 January or 3 July 2012

The aim of this unit is to provide students with a working knowledge of modern power plants, electricity markets and alternative power generation technologies.

Electricity is a commodity being traded in a market, but unlike most other commodities it cannot be stored in any significant quantity. Understanding the context of the network and the electricity market is a crucial aspect of operating power plants.

This course delivers an overview of the operation, performance and maintenance of large coal-fired boiler-turbine-generator plants. It is intended as an introduction to whole of power station plant and systems which consist of a water and steam cycle, a fuel (coal and air) cycle and control systems to optimise performance. A typical power station burns millions of dollars worth of fuel weekly. Maximising plant efficiency in the face of plant problems, operational requirements and changes in fuel supply can reduce costs and environmental impacts of power generation.

What you can expect to learn

On completion of this course you will be able to:

1. Describe the systems in a typical boiler turbine plant.
2. Identify alternative technologies used to generate electricity (other than coal firing).
3. Identify the function of electricity markets and the implications on power station performance.
4. Monitor and maintain plant performance.

Applying

New students
Application instructions and the QUT Postgraduate Application Form are online at: www.qut.edu.au/study/courses/master-of-engineering-power-generation

Continuing Professional Development (single units)
Online registration: www.cpe.qut.edu.au/courses

Enrolling

QUT students
Email your enrolment enquiry to sef.enquiry@qut.edu.au

Cross institutional students (UQ or CQU)
Enrolment instructions and V-Form are located online under the **Apply** section at: www.qut.edu.au/study/courses/master-of-engineering-power-generation

Students from The University of Queensland (UQ) or Central Queensland University (CQU) enrolling in a QUT unit need to email the following to sef.enquiry@qut.edu.au:

- **V Form** together with a
- **Letter of approval** from the home university

Further Information

Science and Engineering Faculty
sef.enquiry@qut.edu.au

Course Coordinator
Professor Ted Steinberg, t.steinberg@qut.edu

Continuing Professional Education (single units)
cpe@qut.edu.au

For more information and contact details, please visit www.powergeneration.edu.au



Project Delivery

Unit/Subject Code: EPG005
20 – 22 March and 17 – 18 April or
9 – 11 and 23 – 24 October, QUT

Applications close on 21 February or 11 September 2012

The aim of this unit is to provide students with a working knowledge of aspects of project development and delivery within a modern power plant.

This course provides an overview of techniques and methods used by a project manager from project feasibility phase through to completion and handover. The successful development, implementation and management of projects and contracts, whether related to plant equipment, maintenance or life-time extensions including refurbishment of plant, can save resources and directly affect the environmental impact of a power generating facility.

What you can expect to learn

This course offers a series of experiential learning activities to demonstrate the complete project cycle and ensure achievement of key learning outcomes.
At the completion of this course, you can expect to:

1. Identify and evaluate key criteria for a feasibility study relevant to a power station.
2. Structure a project proposal for management approval.
3. Identify the key risks that can impact on project success.
4. Structure a project for effective management.
5. Effectively manage a project for plant installation, refurbishment and disposal.
6. Manage resources within the project team including sub-contractors.

Applying

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Upcoming Power Generation Skills Development Courses

Subject/Unit Code	Title	University	2012 Delivery Dates	Location
Semester 1				
EPG001	Introduction to Power Plant	QUT	Block A1: 7 - 9 February Block A2: 14 - 16 February Block B: 6, 7 March	Callide Power Plant, Biloela, QLD. Brisbane
EPG005	Project Delivery	QUT	Block A: 20 – 22 March Block B: 17, 18 April	Brisbane
MECH7650	Regulation, Compliance & Safety	UQ	Block A: 10 – 12 April Block B: 8, 9 May	Brisbane
ENPG21001	Power Plant Chemistry	CQU	Block A: 10 – 12 May	Brisbane
Semester 2				
ELEC7050	Generator Technology Design & Application	UQ	Block A: 18 - 20 July Block B: 24, 25 September	Brisbane
ENPG22002	Advanced Power Plant	CQU	Block A: Confirm dates with the University.	Brisbane
EPG001	Introduction to Power Plant	QUT	Block A1: 31 July - 2 August Block A2: 7 - 9 August Block B: 28, 29 August	Callide Power Plant, Biloela, QLD. Brisbane
EPG005	Project Delivery	QUT	Block A: 9 - 11 October Block B: 23, 24 October	Brisbane
ENPG21001	Asset Management Systems	CQU	Block A: November. Confirm dates with the University.	Brisbane



Facilitators

EPG001, Introduction to Power Plant

Graham Proud is Managing Director of Thermodyne Technologies. He holds a B.Eng (Hons) and has 25 years experience in power generation. After working in Swanbank and Tarong Power Stations for many years, he established Thermodyne Technologies to service asset intensive industries. Thermodyne has consulted to numerous generators and electricity distributors in a variety of roles including asset management, project management, information technology and change management.

Martin Castillo relocated to QUT from the National Institute of Advanced Industrial Science and Technology (AIST, Tsukuba, Japan) where he conducted research on liquid oxygen and liquid methane for light weight rocket fuel for the new GX series of rocket engines designed by the Japanese Aerospace Exploration Agency (JAXA). He also conducted research on the combustion of oxygen and hydrogen in variable gravity environments (drop tower) as a safety initiative, and the suppression of crystallisation of ZBLAN glasses in microgravity with levitation techniques, which entailed the use of thermodynamics.

Prior to AIST, Martin conducted research in self-propagating high temperature synthesis of materials to make bone scaffolding materials in microgravity with the Colorado School of Mines (Golden, Colorado, USA) and NASA.

Trevor Johnson from Stanwell Corporation, Asset and Technical Services group within Operations and Maintenance Division, is currently the Project Manager for its Low NOx Burner upgrade. He previously worked on the ZeroGen Clean Coal Project, co-generation projects in the sugar industry, Market Trading division and as an operator of 350MW units. Having been at Stanwell since construction he has been inside most areas of its plant.

Trevor is involved in several of Stanwell's Skills Development initiatives. These include support of the Queensland Minerals and Energy Academy (QMEA) for high school students, Power Engineering Alliance (PEA) Bursary program for engineering undergraduates and Master of Engineering – Power Generation for postgraduates. Prior to joining the electricity industry Trevor spent four years with Bundaberg Sugar at Fairymead Sugar Mill outside Bundaberg.

EPG005, Project Delivery

Geoffrey Spencer is a professional engineer registered to practice in Queensland. Geoff has 40 years experience within the power industry working on and leading projects ranging in value from $A1 million to over $A100 million across Europe, the Middle East, Asia and Australia. With his considerable experience, he has trained many engineers in the skills and art of project management throughout Australia, New Zealand and Pakistan. Geoff has also played a lead role in preparing tenders to various government and private organisations.

Martin Castillo is also co-facilitator of this course.