The Master of Electrical Power Engineering/Graduate Certificate in Electrical Power Engineering provides advanced power engineering knowledge to electrical engineering graduates working within the industry. The subject modules of the course are delivered by national and international industry experts from the electrical transmission and distribution sector.

The courses are focused on current technologies and challenges faced by engineers working in the field of electrical power engineering. The course modules are specifically designed to meet industry needs, by providing structured learning and development and providing knowledge and experience difficult to gain through workplace training programs. The modules have been selected from areas key to the Australian electricity transmission and distribution industry ensuring you receive up-to-date industry-specific education.

Students will acquire a better understanding of the design processes and technical requirements of the industry. Each subject module is taught over a three-day intensive period, followed an examination and online learning assessments and written assignments.

The course has been designed to accommodate the training allowances of the industry, delivering subject modules over three days, with a total of four subjects on offer each year. Modules are delivered on either side of a specified weekend to minimise workplace disruption. Credit exemptions may be available to students who have completed equivalent course modules at other institutions.

Admission Requirements

A Bachelor degree with Honours in Electrical Engineering from a recognised tertiary institution. Applicants without a Bachelor degree in Electrical Engineering may be considered based on other qualifications together with significant relevant work experience.

This course is currently not available to international students.

Summary of Program and Subject Outlines

The course consists of either a 48-cp course work program (eight subjects) or a 36-cp course work program and a 12-cp dissertation project (six subjects plus a short research project). The research project can be undertaken on a topic of interest to the industry, and is intended to enhance the research methodology of students.

Link to Course Handbook 2014

Those who enrol in or complete only a 24-cp program can be awarded a Graduate Certificate.
Delivery Method

The Electrical Power Engineering courses are structured for intensive subject module delivery mode, with a combination of face-to-face learning and materials and support.

A feature of these courses is the integration of presentations from recognised practising industry experts on specialist topics at targeted workshops. Targeted workshops are used to enhance communication and allow field work and contact with content experts.

These courses are only offered on a part-time basis, making it perfect for industry professionals looking to increase or enhance their skills whilst working full-time. The Masters course duration is two years if two subjects are taken per session. Students choosing to study only one subject per session may have to follow a restricted course structure as not all subjects are offered each session.

Students can elect to study eight coursework subjects, or six subjects and a 12-credit point research project on a topic of interest to the industry. A combination of distance learning and subjects taught in 3-day intensive mode provides the flexibility required by students who are in full-time employment.

It is possible to exit the program on successful completion of 24 credit points of study and be awarded the Graduate Certificate in Electrical Power Engineering.

Subject Modules

The subjects include learning and assessment tasks, followed by examinations in the following areas:

Overhead, Underground Line Design and Construction covers the design and construction aspects of overhead lines and underground cables, including planning, lightning protection, insulation, earthing and stress management.

Power Quality provides an understanding of power quality through the study of disturbances in the electricity supply system that might prevent customer equipment from operating as intended. It includes causes, effects, acceptable levels, determination of responsibility and mitigation.

Distribution System Reliability will give a comprehensive overview of electricity network reliability as it affects end users, introducing outage costs and how these may be balanced against CAPEX and OPEX in cost benefit analysis.

Renewable and Embedded Generation will provide students with an understanding of the significance of renewable and embedded generation in the operation of electric power systems.

High Voltage Engineering addresses issues such as: voltage stresses that occur in high voltage electrical power systems, how these stresses are generated and distributed throughout equipment, and techniques to accommodate voltage stresses.

Distribution Network Planning deals with modern distribution network planning systems and processes and includes: demand forecasting, embedded generation, standardisation of assets, smart grid and new technologies.

Electricity Market Structures and Demand Side Integration provides an understanding of market structures and the role of demand side integration in advancing the efficient and effective use of electricity in support of power system and customer needs.

Power Systems Earthing addresses the complex inductive and conductive relationships between substation and power line and cable earthing systems and other metallic systems.

Power System Protection and Communication uses examples and practical illustrations from realistic scenarios to reinforce the purpose and applications of protective systems in electrical distribution networks.

Substation Design covers aspects of the engineering and design of electrical substations and includes topics such as: major equipment selection, layout, site design, grounding system design, insulation coordination, protective relaying and instrumentation, design for reliability and substation automation.

Electrical Safety deals with the crucial safety aspects relevant to the power industry, including ventricular fibrillation, arcing hazards and burns, isolation, earth tagging and lock-out systems and maintaining a safety culture in the workplace.

Power System Stability will focus on steady state and transient stability with emphasis on types of stability relevant to distributed resources (e.g. voltage stability and rotor angle stability) connected to distribution networks including load modelling, rotating machine modelling, excitation and governor control, and modelling of other distributed resources, small signal stability of large embedded generators (e.g. single machine) in distribution networks.

Study Resources and Help

We understand that some mature-age students and industry professionals may have not studied for a few years and may be nervous or concerned about expectations in regards to assessments, exams and study. The University has a number of resources available to help make the transition back into studying easier for you.

The Learning Development site is a free service for students and provides you with information on time management, essay writing, referencing, exam preparation tips and much more. The Online Study Resource links will be most helpful.

The Current Students site has a wide range of information for students. The Study Information site in particular has information on plagiarism, referencing, thesis writing and more.

2014 Fees

Graduate Certificate in Electrical Power Engineering - full course fee $13,224
Master of Electrical Power Engineering - full course fee $26,448

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