ELEC8341 Energy Management System

Unit Co-ordinator: Professor T. T. Nguyen

Lecturer & Tutor
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Assessment

The course unit assessment comprises an assignment. The assignment submission date is Friday 05 June 2009 (by 5 pm).

All work submitted must be the individual student’s own work. Each submission MUST include a completed Blue Cover Sheet to confirm that work submitted is that of the individual student and has no part been copied or reproduced by plagiarism.

Penalties

Assignment will receive 10% (of the assignment assessment) penalty for each day late.

Faculty Policies

Unit marks may be scaled in line with the Faculty’s Policy on Assessment Practices and Procedures.

See Faculty Policy on Assessment Practices and Procedures at http://www.ecm.uwa.edu.au/for/students/assess

See the University Guidelines on Academic Misconduct at http://www.ecm.uwa.edu.au/for/students/plagiarism

See Faculty Policy on Appeals at http://www.ecm.uwa.edu.au/for/students/exams

See the Charter of Student Rights at http://www.secretariat.uwa.edu.au/home/policies/charter

No supplementary examinations will be available for the unit.
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The availability of units in Semester 1, 2, etc. was correct at the time of going to press but may be subject to change.

Credit: 6 points  Availability: Semester 1 (see Timetable) Old unit code: 624.605, ENGT8341

Outcomes: Students develop an in-depth understanding of the main functions of the energy management system (EMS). In particular, they develop an understanding of optimal power flow (OPF) formulation with security constraints together with solution methodology based on constrained optimisation.

Content: This unit covers optimal operating states; automatic control and monitoring measures; SCADA system and its functions; load forecasting; state estimation; generator unit commitment; load dispatching; automatic generation control; optimal power flow; static and dynamic security assessments; load shedding; alarm processing; maintenance scheduling; cost accounting; computer resource requirements; objective functions; generation cost minimisation; network active-power loss minimisation; control variables; network operating constraints; comparisons among different formulations; security-constrained optimal power flow; inclusion of post-contingency corrective rescheduling; minimisation of control shift in rescheduling; minimising operating constraint violations; and constrained optimisation methods.

Assessment: This includes an examination and/or assignments/projects. The examination assesses the students' in-depth understanding of the materials presented and discussed in the lectures and tutorials. The assignments/projects test their ability in designing and implementing in software the key formulations related to OPF with security constraints.

Supplementary assessment is not available in this unit.

Location: UWA (Crawley)
Mode: on-campus

Unit Rules:
Advisable prior study: assumed prior knowledge in power systems (at a level equivalent to ELEC3305 Power and Machines and ELEC4307 Power Transmission and Control)
Contact hours—52 (lectures: 26 hrs; tutorials: 11 hrs; project: 15 hrs)

Unit Web Page: http://student.ee.uwa.edu.au/units/elec8341

Note: Some unit web pages are still under construction and will be available in 2009.

Texts

Assistance with study skills, including English language skills, is available free of charge from Student Services for all enrolled students (see http://www.studysmarter.uwa.edu.au/). Student Services location: Second Floor, South Wing, Guild Village; telephone: 6488 2423.

Books and other material wherever listed may be subject to change. Book lists relating to 'Preliminary Reading', 'Recommended Reading' and 'Textbooks' are, in most cases, available at the University Co-operative Bookshop (from early January) and appropriate administrative offices for students to consult. For first-year units the Bookshop will endeavour to make available photocopies of book lists for individual units. Books marked with an asterisk (*) are available in paperback.

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Location: http://units.handbooks.uwa.edu.au/page/17716