ELEC 7010 POWER SYSTEM PLANNING AND ECONOMICS

Credit Points 10

Legacy Code 300197

Coordinator Mahmood Nagrial (https://directory.westernsydney.edu.au/search/name/Mahmood Nagrial/)

Description This subject covers planning techniques for energy and electrical power systems. It also covers the economics of various options and reliability of electrical power systems.

School Eng, Design & Built Env

Discipline Electrical And Electronic Engineering And Technology

Student Contribution Band HECS Band 2 10cp

Check your fees via the Fees (https://www.westernsydney.edu.au/currentstudents/current_students/fees/) page.

Level Postgraduate Coursework Level 7 subject

Restrictions

Students must be enrolled in a postgraduate program

Learning Outcomes

On successful completion of this subject, students should be able to:

1. Explain and analyse power systems under normal and transient conditions.
2. Analyse power systems using various techniques.
3. Explain optimal control and economic operation of power systems.
4. Identify and utilise the notions and implications of power system fault levels and stability on transmission planning.
5. Explain and analyse harmonics, their causes and effects on system operation & control.
6. Explain and formulate environmental issues associated with energy conversion systems.
7. Identify and critique alternative and renewable energy sources.

Subject Content

Advanced power system components.
Advanced power system control and operation.
Review of econometric generation allocation methods and their limitations.
Transmission planning and distribution planning.
The National Electricity Market - structure, network service and retail services providers.
Alternative energy sources.
1.The National Electricity Market - structure, network service and retail services providers, energy 'wheeling' and trading, the energy 'pool' and typical price behaviours.
2.Review of conventional planning techniques and their limitations.
3.Demand forecasting.
4.System reliability.
5.Transmission planning.
6.Distribution planning and demand management.

Assessment

The following table summarises the standard assessment tasks for this subject. Please note this is a guide only. Assessment tasks are regularly updated, where there is a difference your Learning Guide takes precedence.

Type	Length	Percent	Threshold	Individual/ Group Task	Mandatory
Practical	4 practicals with 2 hours duration for each practical	25	Y	Group	Y
Intra-session Exam	One hour	25	N	Individual	Y
Final Exam	2 hours	50	N	Individual	Y

Teaching Periods

Spring (2024)

Parramatta City - Macquarie St

On-site

Subject Contact Mahmood Nagrial (https://directory.westernsydney.edu.au/search/name/Mahmood Nagrial/)

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=ELEC7010_24-SPR_PC_1#subjects)

Spring (2025)

Parramatta City - Macquarie St

Hybrid

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View timetable (https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=ELEC7010_25-SPR_PC_3#subjects)