

ELEC 3010 RENEWABLE ENERGY SYSTEMS DESIGN

Credit Points 10

Legacy Code 301425

Coordinator Ali Hellany ([https://directory.westernsydney.edu.au/search/name/Ali Hellany/](https://directory.westernsydney.edu.au/search/name/Ali%20Hellany/))

Description This subject prepares engineering students to be conversant with renewable energy systems. Students will learn to appraise environmental, social, legal, economic and political issues concerning renewable energy systems. Students will also learn relevant design skills related to renewable energy 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 Undergraduate Level 3 subject

Pre-requisite(s) ELEC 1003 AND ENGR 1011

Equivalent Subjects ELEC 4006 Sustainable Energy Systems

Learning Outcomes

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

1. Analyse the technical aspects of renewable energy systems.
2. Design renewable energy systems for a given set of conditions.
3. Assess the social, legal, policy, political economic and environmental issues associated with renewable energy systems.
4. Demonstrate communication and collaboration skills in working with others in an ethical and respectful manner to produce professional analyses and reports

Subject Content

1. Introduction and principles of renewable energy
2. Heat transfer/solar radiation
3. Solar photovoltaics
4. Wind energy
5. Biofuels
6. Hydro-power
7. Wave energy and tidal power
8. Geothermal energy
9. Nuclear energy
10. Environmental impact of renewable energies
11. Economic issues
12. Political, social, policy and legal issues

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
Quiz	4 quizzes (open book)	20	N	Individual
Report	3,000 words	30	N	Group
Report	3,000 words	50	N	Individual

Prescribed Texts

- Kanoğlu, M, Çengel, YA & Cimbala, JM2023, *Fundamentals and Applications of Renewable Energy*, 2nd edn, McGrawHill LLC, New York.

Teaching Periods

Spring (2024)

Penrith (Kingswood)

On-site

Subject Contact Ali Hellany ([https://directory.westernsydney.edu.au/search/name/Ali Hellany/](https://directory.westernsydney.edu.au/search/name/Ali%20Hellany/))

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=ELEC3010_24-SPR_KW_1#subjects)

Parramatta City - Macquarie St

On-site

Subject Contact Ali Hellany ([https://directory.westernsydney.edu.au/search/name/Ali Hellany/](https://directory.westernsydney.edu.au/search/name/Ali%20Hellany/))

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=ELEC3010_24-SPR_PC_1#subjects)