# ELEC 3010 RENEWABLE ENERGY SYSTEMS DESIGN

**Credit Points** 10

**Legacy Code** 301425

**Coordinator** Ali Hellany (https://directory.westernsydney.edu.au/search/name/Ali Hellany/)

**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/)

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/)

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