

# ELEC 3010 RENEWABLE ENERGY SYSTEMS DESIGN

**Credit Points** 10

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**Description** This unit 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

**Student Contribution Band** HECS Band 2 10cp

Check your HECS Band contribution amount via the Fees ([https://www.westernsydney.edu.au/currentstudents/current\\_students/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.

Item	Length	Percent	Threshold	Individual/Group Task
Online quizzes	1 hour per quiz (open book)	20	N	Individual
Project Report	3000 words	30	N	Group
Final exam	2 hours	50	N	Individual

Prescribed Texts

- Peake, S & Open University (eds) 2012, Renewable energy : power for a sustainable future, 4th edn, Oxford University Press, Oxford.

Teaching Periods