



MODULE SPECIFICATION

Faculty of Engineering

Last Updated (22 October 2018)

1. Module Title

Energy and Environment

2. Module Code

EM5303

3. Number of credits

10

4. Level

5

5. Semester

2a

6. Pre-requisites for admission to the module

Normal entry requirements

7. Module Coordinator

Dr Hjh Roslynna Hj Rosli

8. Aims

This module aims to enable the students to analyse the dynamic relationship between energy generation and its impacts on the environment to promote the positive attitude towards energy conservation and efficient use.

9. Summary of Contents

The module covers the following topics:

- **Energy Generation:** conventional energy generation from fossil fuels, alternative energy generation from renewable energy resources, effective generation of energy, carbon capture and storage, types of renewable energy resources.
- **Current Trends of Energy Generation, Consumption and Motivation:** global energy production and consumption, current policy and politics, global commitment to energy generation, global warming and climate change.
- **Energy Hierarchy:** concept of energy use, energy efficiency and conservation measures and management, energy transition to alternative resources.
- **Sustainability in Energy Generation:** Impact of energy use on the environment (both conventional and renewable), Environmental Impact Assessment (EIA), implications of energy plans and policy, future outlook.

10. Module Intended Learning Outcomes (MILOs)

Upon successful completion of this module, students will be able to:

No.	MILOs	Weightage (%)
1	Distinguish between the conventional and non-conventional generation of energy and its impact on the environment.	25
2	Critically review different energy systems and processes and their interaction with the environment.	25
3	Conduct environmental impact assessment on different aspects of energy generation.	25
4	Formulate a sustainable energy plan.	25

11. Teaching and Learning Activities (TLAs)

MILO No.	TLAs	Functions	Hours/Week
1 - 4	Lecture	Present and convey critical information and theories	2
1 - 4	Tutorial	Interactive problem-solving session used for transfer of knowledge and develop critical thinking	2

12. Assessment Tasks/Activities

MILO No.	Type of Assessment Tasks/Activities	Weightage (%)
1 - 4	University Examination	60
1 - 3	Class Test	10
2 - 4	2 Assignments	30

Assessment Criteria:

Assessment components of the module shall be University Examination and Coursework. To achieve a pass in the module students must obtain a minimum overall mark of 50% and a minimum of 40% in each assessment component.

Resit: Students eligible for resit shall be assessed according to the programme area Examination Board recommendation.

13. Attendance Requirements

Students are expected to attend all lectures and tutorials.

14. Contribution to Programme Intended Learning Outcomes

PILO		MILO No.			
		1	2	3	4
1	Science & Mathematics	✓	✓		
2	Engineering Analysis	✓	✓	✓	✓
3	Design				
4	Advanced Design				
5	Engineering Practice Knowledge			✓	✓
6	Engineering Practice				
7	Ethical, Economic & Social			✓	✓
8	Management, Legal & Environmental		✓	✓	✓
9	General Skills	✓	✓	✓	✓

15. Grading of Student Achievement

Marks (%)	Grades	Grade Definition
85-100	A+	Excellent
75-84	A	
70-74	B+	Very Good
65-69	B	
60-64	C+	Good
55-59	C	
50-54	D	Satisfactory
0-49	F	Fail

16. Resources

Primary texts

No	Name of Author(s)	Year of Publication	Title of Book	Edition	Publisher's Name	ISBN
1	Wolfson, R	2017	Energy, Environment and Climate	3 rd	W.W. Norton	9780393622911
2	Ristinen, R.A	2016	Energy and the Environment	3 rd	Wiley	9781119179245

Secondary texts

No	Name of Author(s)	Year of Publication	Title of Book	Edition	Publisher's Name	ISBN
1	Energy Department, PMO	2014	Brunei Energy White Paper		EDPMO	
2	Mallone, K	2006	Renewable Energy Policy and Politics	1 st	Earthscan	9781844071265