

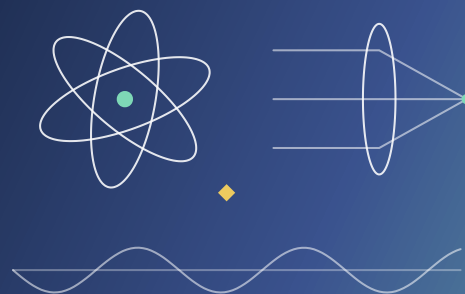
Module code

SEP-2401

Type of module

Undergraduate: Applied Physics – Elective

Introduction to Renewable Energy



Modular credits

4

Total student
engagement

56 hours

Prerequisite

None

Anti-requisite

None

Aims

To examine the availability and distribution of various renewable energy resources, including solar thermal, photovoltaic, wind, tidal, ocean, hydroelectric, fuel cells, and biomass, and to enable students to critically evaluate these resources in a well-informed manner.

Module learning outcomes (MLO)

On successful completion of this module, a student will be expected to be able to:

MLO 1

Critically evaluate the availability, performance, and environmental impacts of diverse renewable and non-renewable energy resources.

MLO 2

Integrate and analyse technical, environmental, and economic data to compare renewable energy technologies for specific contexts.

MLO 3

Design and justify feasible renewable energy solutions, considering resource availability, sustainability, and socio-economic factors.

MLO 4

Synthesise information from multiple sources to formulate well-supported arguments on the role of renewable energy in future energy systems.

MLO 5

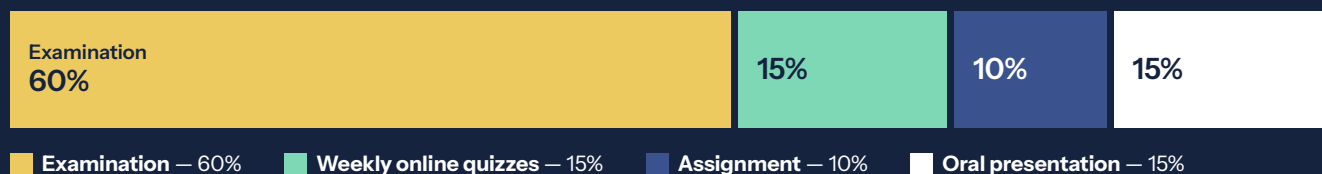
Communicate and defend evidence-based recommendations on renewable energy adoption through clear written and oral presentations.

Module contents

The sun, measurements and estimation of solar radiation	Solar thermal energy	Photovoltaic energy
Wind energy	Ocean and tidal energy	Geothermal energy
Fuel cells	Biomass	Hydroelectric
Energy storage	Evaluation of energy resources	Fossil fuels
Environmental effects of renewable and non-renewable energies		

Assessment

60% **40%**
Examination Coursework



Formative assessment

Weekly discussion and feedback

Summative assessment

COMPONENT	WEIGHTING
Examination	60%
Coursework	40%
Individual	25%
Weekly online quizzes	15%
Assignment	10%
Group	15%
Oral presentation	15%

Graduate attributes and skills

University learning objectives (ULO) addressed

B Balanced & holistic individuals	E Ethical leaders	S Sustainable thinkers	T Transdisciplinary practitioners	A Adaptable & resilient lifelong learners	R Responsible global citizens	I Innovative problem-solvers
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B, S, T, A, I

Sustainability concept addressed

7	SDG 7 Affordable and Clean Energy
13	SDG 13 Climate Action

Digital skills/software used (not limited to)

- Word processing software (e.g. Microsoft Word)
- Presentation software (e.g. PowerPoint)
- Web browsers (e.g. Internet explorer, Google Chrome)
- Learning Management Systems (e.g. Canvas)
- Multimedia Applications (e.g. Windows Media Player)

Micro-credentialling option No	Stackable towards GenBESTARI Undergraduate Degree Programme or other relevant Lifelong Learning Programmes No
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Document details

Office **ODVCE** Document date **23 June 2026** Status **New** Approval **GBF (12/02/2026)**