



## Renewable Energy Technologies & Infrastructure

Delve into the various renewable energy sources and technologies crucial for achieving net zero emissions. This course covers areas such as solar, wind, hydropower, geothermal, and bioenergy. The module would explore the design, implementation, and management of renewable energy infrastructure, including considerations related to grid integration, storage solutions, and emerging technologies.

### Who Should Attend

The Renewable Energy Technologies and Infrastructure course is aimed at individuals, including engineers, designers, managers, team leaders and professionals working in industries/businesses with responsibilities in the energy sector concerned with renewable technology, energy infrastructure, climate change and sustainability.

### Aims

Impart knowledge of the significance of renewable energy sources and technologies, focusing on their production, infrastructure, utilisation, economic aspects, and regulatory measures. Cultivate a profound understanding of the technologies at hand, their economic implications, policy and regulation, environmental impacts, and the forthcoming challenges and trends in the sector. Upon completion, participants will not only grasp the technicalities of energy and power but will also be equipped with the skills to apply this knowledge across various engineering disciplines, especially in addressing energy-related challenges. This course is tailored for professionals, including engineers, designers, and managers, engaged in sectors dealing with renewable technology, energy infrastructure, and sustainability.

### Learning Outcomes

After completing this course, delegates will demonstrate improved knowledge and increased understanding of various interacting and complex renewable energy concerns. In general, participants will be able to:

#### Technical Outcomes

- Comprehend the fundamentals of energy and power.

- Investigate different energy sectors and technologies, identifying constraints including environmental and sustainability limitations; ethical, economics, health, safety, security and risk issues.
- Determine methods for energy transfer and infrastructure to generate power.

## Non-Technical Outcomes

- Ability to apply and integrate knowledge and understanding of other engineering disciplines to support the study of their engineering discipline or line of work.

Understanding of and the ability to apply an integrated or systems approach to solving energy-related engineering problems.

## Course Programme

- Renewable energy sources and technologies - Solar, wind, hydroelectric, geothermal, biomass, tidal
- Renewable energy infrastructure - Transmission lines, distribution lines, storage facilities, grids
- Policy and regulation - Renewable portfolio standards, other incentives
- Economics - Cost of renewable energy, levelized cost of energy
- Environmental impact - Greenhouse gas emissions, air and water pollution, land use
- Future of renewable energy - Trends, challenges and opportunities

## Course Delivery

The course is conveniently delivered through Swansea University's Learning Management System, Canvas, providing a seamless online learning experience. Students are granted a generous three-month period to complete the course, allowing for personalised learning at their own preferred pace.

Throughout the course, participants will engage in three progressive assessment quizzes, complemented by a comprehensive final written assessment that culminates their learning journey. All assessments are conveniently submitted through the secure and user-friendly platform, Canvas.

To ensure a supportive and enriching learning environment, expert guidance and assistance are readily available from our project lecturers and dedicated learning technologists. These experienced professionals can be easily reached through Canvas or via email.

**Website:** [www.netzeroskills.wales](http://www.netzeroskills.wales)

**Email:** [fse-netzeroskills@swansea.ac.uk](mailto:fse-netzeroskills@swansea.ac.uk)

