Unitar Online Catalogue

# Renewable Energies for Sustainable Development

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| 种类 ： | Course |
| 位置 ： | Web-based |
| 日期 ： | 3 2月 2020 to 5 4月 2020 |
| 期限 ： | 8 Weeks |
| 项目领域 ： | Environment, , Governance |
| 网址 ： | https://www.gaiaeducation.org/elearning-programmes/renewable-energies-for-susta... |
| 价格 ： | US$445.00 |
| 活动协调人 email: | elearning@gaiaeducation.org |
| 合伙 ： | University of Strathclyde and Gaia Education |

背景信息

Energy is the golden thread that connects economic growth, increases social equity and an environment that allows the world to thrive. Development is not possible without energy and sustainable development is not possible without sustainable energy.

This online programme will give a comprehensive overview of renewable energy as a means to enable sustainable development at a global scale. It will present

the case for how renewable energies represent both an environmental necessity and an economic opportunity.

The programme supports the UN Sustainable Energy for All initiative (SE4ALL), which aims to provide universal access to modern energy services, and double the worldwide rate of improvement in energy efficiency and the share of renewable energy in the global energy mix. Energy underpins all of the UN Sustainable Development Goals (SDGs), which this course is also closely aligned with.

Through a discussion of key benefits and suitability for a range of applications, together with extensive case studies, the programme aims to provide an overview of clean, secure and sustainable technology options for the development of renewable energy projects, and offer insights into the management of these projects, from small scale through to major projects.

**Certified by CPD UK**

The Renewable Energies for Sustainable Development course is certified by CPD UK – Continuing Professional Development.

Continuing Professional Development (CPD) is the commitment by professionals to develop new skills or enhance existing ones through online training programmes and face-to-face courses. Many organisations, companies and businesses prioritise CPD to ensure their workforce is up skilled, abreast with the latest knowledge and at the forefront of their sector.

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This course, offered in collaboration with Strathclyde University and Gaia Education, aims to enhance the capacity of local decision makers, energy/sustainable development officers and other personnel to make an informed decision on which renewable energy technologies will meet their own needs or the needs of their countries, communities, villages or neighbourhoods.

The programme’s key focus aligns with the SE4All objective; to provide sustainable energy to over 1 billion people in developing countries. However, the course recognises that renewable energies are integral to the sustainable future of any country (regardless of economic situation). This course therefore delivers

comparisons and case studies for both developing and industrialised countries. Through a broad and holistic syllabus scope, the course develops the ground knowledge and skills to enable the participants to place their energy projects within the global energy climate.

**By the end of the course the participant will be able to:**

- determine how renewable energy technologies can help to drive sustainable development.
- discuss the role that energy plays in advancing the Sustainable Development Goals.
- explain the benefits and drawbacks associated with a range of sustainable technologies and how they may be integrated.
- apply basic principles to determine the most appropriate renewable energy strategy in a given situation.
- compare and assess different business models and their suitability for different energy solutions.
- identify and use tools to overcome barriers to achieve sustainable energy goals.
- share best practices of their communities with others around the world.

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**Module 1 The Role of Energy in Society: A Global Perspective**

The importance of energy to society and to achieving development goals. We will discuss some of the ways in which energy underpins health, food production, education and economic growth. We will then go on to explore some global issues affecting access to and use of energy, including climate change, resource scarcity and increasing demand, all of which are of critical importance to developing

countries. Finally, we define what we mean by sustainable energy and describe a set of principles on which a sustainable energy future could be built.

**Module 2 Selecting a Sustainable Energy Solution**

Detailed introduction to what we mean by sustainable energy solutions and some of the key technologies that are relevant on the demand side and the supply side. You will be presented with a step-by-step methodology for selecting the most suitable sustainable energy solution for a given situation, encompassing resource mapping, geographical assessment, infrastructure audit and application market maturity.

**Module 3 Elements of a Sustainable Energy Solution**

Description of the main elements that comprise a renewable energy system including generation, conversion, storage and distribution. The technical considerations and constraints will be discussed and the implications for the use of renewables for different applications explored. The principle the benefits of interconnecting points of production with points of consumption are also discussed and the appropriateness of distributed or off-grid solutions is compared with network-based solutions. Strategies for developing local, regional and national level networks are discussed and the advantages of doing so investigated. Technologies that can be used to enable networks in the often challenging environments found in developing countries are highlighted.

**Modules 4 to 7** will follow a similar pattern to one another. Each will provide a basic overview of the principles underlying a particular technology before going on to discuss some of the specific features and considerations that might be relevant in terms of technology selection. It will discuss applications for which the technology might be suited, with reference to the four major axes of development described in Module 1, namely food production, education, health and economic growth. The modules will draw extensively on case studies from developing countries and will make clear reference to the SE4All Sectoral Action Areas.

**Module 4 Solar Energy and its Applications**

Technologies: solar photovoltaic (PV), concentrating solar and solar thermal.

**Module 5 Bioenergy: Health and Environment**

**Module 6 Wind: Small and Large Technologies**

Technologies: small wind, large wind

**Module 7 Marine and Hydro Technologies**

Technologies: Wave, tidal, small hydro and large hydro

**Module 8 The Role of the Public and Private Sectors in Ensuring the Development of Low Carbon Energy Solutions**

The range of policy measures that may be adopted by governments in order to encourage investment in energy and to stimulate the transition towards sustainable solutions is discussed in module 8. The potential for combining private enterprise and entrepreneurship with government action in order to achieve energy development goals is investigated and the opportunities for exploiting expertise and competitive advantage in sustainable energy to aid economic growth discussed. In addition, appropriate business models that might be employed and encouraged are discussed making reference to examples already presented in Modules 4 – 7. The role of private sector investment is discussed and the ways in which this might be supplemented by public sector measures outlined. Reference will be made to the Enabling Action Areas identified by SE4All.

Learning activities are based on UNITAR‘s sound adult learning pedagogical principles. They are distributed in such a way as to ensure the achievement of the learning objectives in a flexible manner: learning materials can indeed be consulted in a non-linear way so as to provide participants with a high degree of flexibility in choosing the learning pace that is most suitable for them. Thus, participants are responsible for their own learning throughout the course. Recognised experts from the University of Strathclyde, a world leader in renewable energy, moderate the course. Each module aims to deepen each participant’s skills and understanding as well as provide him/her with the opportunity to network and dialogue with other participants, sharing country specific experiences and good practice in sustainability issues.

**Learning materials include the following elements:**

- Basic reading materials (compulsory) intended to understand the basic concepts and principles of modules' subject matter;

- Advanced reading materials (optional) for participants willing to learn more about the topic;
- External links to relevant publications, reports and websites;
- Glossaries of terms and of acronyms as supportive learning tools;
- A community discussion board (forum) will allow participants to discuss topics initiated by the course moderator and to post questions, comments or new discussions
- Online group learning sessions (webinars) allowing participants an opportunity to ask questions and discuss in real time with course moderators and fellow participants

**Learning Time**

The learning time is estimated to be about 5 hours per week. This includes study time (about 3 hours/week) and participation in collaborative activities (about 2 hours/week). Time dedicated to assessment activities is not taken into account in this estimation.

**Course Completion & Certification**

Successful completion of the course requires participants to achieve a minimum total score of 70% and entitles to a certificate of completion. A certificate of participation will be issued to participants who took all the exercises but achieved a score inferior to 70%.

**Assessment Activities**

The assessment activities are organised as follows:

- Eight mandatory quizzes which aim at evaluating participants' comprehension of the course content. The 8 tests altogether account for 50% of the final grade.
- Participation in the online discussion forums which accounts for 10% of the final grade.
- A case study where participants can apply their knowledge practically. The basis of the case study scenario takes as a basis the creation of a draft sustainable energy plan focused on participants' region/country. The case study accounts for 50% of the final grade.

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The course is open to those in the business, non-profit, public and academic sectors who wish to install renewable energy systems in both urban and rural settings or make their contribution to reducing carbon emissions through energy efficiency and use of sustainable energy sources. The course aims to provide delegates with a high level understanding of the key issues as well as sufficient technical insights to allow them to make informed decisions about technology choices.

- Sustainable Development Officers
- Energy Officers
- Strategic Managers of Planning and Environmental Services
- Community Planning Officers
- Local Authority representatives
- Policymakers and Regulators
- Development Officers
- Social and Economic Development Officers
- Entrepreneurs and private sector players who want to assess opportunities, develop strategies

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**Technical Requirements**

UNITAR recommends the following hardware and software to take our E-Learning courses:

**Platform:** Windows XP sp3, Vista sp2, Windows 7 sp1, MacOS X

**Hardware:** 2 GB of RAM and higher for Vista and Windows 7

**Software:** Microsoft Word, Microsoft Excel, Microsoft Powerpoint and Adobe Acrobat Reader (downloadable for free at adobe.com)

**Browser:** Internet Explorer 10, Chrome; Safari (please note that it is recommended to update your web browser before taking this course)

**Internet connection:** 128kbps and higher

**Note:** JavaScript, pop-ups & cookies must be enabled