

Syllabus – Elective Course

Course title:

Current Practices in Renewable Energy

Credits:

6 ECTS credits

Teaching language:

English

Target students:

Undergraduate students from all study areas with an interest in the social, economic, environmental, theoretical, and technological background of renewable energy generation

Teacher in charge of the course:

Prof Abdel Aitouche, PhD, *Hautes Etudes d'Ingénieurs, Université Catholique de Lille*
Special lecturer: Dhaker Abbes, Assistant Professor, *Hautes Etudes d'Ingénieurs, Université Catholique de Lille*

COURSE PRESENTATION

Prerequisite:

Students undertaking this course should normally have successfully completed at least one semester at university, or have equivalent experience. They must have some ability to work as a group and be able to communicate easily in English at a standard university level. In other respects, the course is intended to serve a mix of profiles and learning backgrounds for a more diverse international learning experience.

Content:

This course will provide students with an overview of:

- Energy: Past, Present, and Future. A brief history of energy consumption
- Energy and Environment. Impact of CO₂
- Solar Energy, Basics of Solar Energy, PV, Computation and PV panels
- Solar Thermal Energy
- Biomass, Biomass Energy, Biomass Boilers
- Wind resources, Wind Energy, Wind turbines (vertical, horizontal)
- Environmental Impact
- Tidal, Wave, Hydrogen
- Particular focus is put on PV, Wind Energy and Biomass
- Wrap-up and evaluation

Learning Outcomes:

At the end of the course, the students should be able to:

- List and generally explain the main sources of energy and their primary applications in the world.
- Describe the challenges and problems associated with the use of various energy sources, including fossil fuels, with regard to future supply and the environment.
- Describe/illustrate basic scientific/technological concepts of the main renewable energy generation techniques such as solar, biomass, hydro and wind.
- Successfully propose a technically/economically sound methodology to generate renewable energy for underdeveloped countries.
- Work in a team setting project.
- Visit renewable energy generation sites in France.

WORKLOAD

French contact hours = 60 minutes (in some countries/institutions, 1 contact hour = 45-50 minutes)

Form:	Number of hours	Comments
Face-to-face, in-class, on-site learning	39 hours	13 sessions of 3 hours
Additional field trips		
Approximate personal work / homework	15 hours	
Student total workload	53 hours	

EDUCATIONAL METHODS

Lectures, fieldtrips, share of experiences, debate, case-studies, group work.

RESOURCES

All course materials will be supplied in class. References may be made to the following resources:

- *Renewable Energy: Power for a Sustainable Future*, edited by GODFREY BOYLE, Oxford Edition
- *Renewable Energy: A First Course*, Robert Ehrlich, CRC Press, Taylor & Francis Group, Boca Raton London New York
- *Introduction to Renewable Energy (Energy and the Environment)* 1st Edition by Vaughn C. Nelson, CRC Press
- *RETSCREEN*: Natural Resources Canada

ASSESSMENT

Form	Number	Duration	Comments
Continuous assessment (20%)			Q.C.M
Final exam (60%)	1	2 hours	Examination covering all aspects of course

Others (student participation...) (20%)			Attendance, participation, and contribution to group discussion
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This syllabus is based on information available at the time of publication (November 2018). Changes may occur.

For updated information about course content, please contact us: esp@univ-catholille.fr