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 Nicolas Waldhoff, 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:

The course topics will be organised as follows:

1) Introduction
2) Background information
3) History
4) Key figures
5) Solar Energy
6) Wind Power
7) Hydropower
8) Biomass
9) Energy Storage

+ 1 installation sizing using 1 or 2 types of software heavily used in the industry (PVSYST & Homer)

+ Group work on a new technological advance in renewable energy
+ 4 company visits are included:
- The company Gecco is expert in the recovery of biofuel catering waste in Avelin: https://www.gecco.fr/
- The Centre for Development of Renewable Energies in Loos en Gohelle: http://www.cd2e.com/
- The Centre for Waste Management “centre de valorisation organique” in Sequedin: https://fr.wikipedia.org/wiki/Centre_de_valorisation_organique_de_Sequedin
- The company ELISE in Wambrechies, Recycling and destruction of office papers: https://www.elise.com.fr/

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.
- Describe the operation of several renewable energy generation sites in France.

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

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<tr>
<th>Form</th>
<th>Number of hours</th>
<th>Comments</th>
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<tbody>
<tr>
<td>Face-to-face, in-class, on-site learning</td>
<td>39 hours</td>
<td>13 sessions of 3 hours + 1 session to prepare the final project</td>
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<td>Additional field trips</td>
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<tr>
<td>Approximate personal work / homework</td>
<td>15 hours</td>
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<tr>
<td>Student total workload</td>
<td>53 hours</td>
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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:
- *RETSSCREEN*: Natural Resources Canada

## ASSESSMENT

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<th>Form</th>
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<th>Duration</th>
<th>Comments</th>
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<tbody>
<tr>
<td>Continuous assessment (20%)</td>
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<td>Multiple choice questionaires</td>
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<tr>
<td>Final exam (60%)</td>
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<td>Report/Defense</td>
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<td>Others (student participation...) (20%)</td>
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<td>Attendance, participation, and contribution to group discussion</td>
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This syllabus is based on information available at the time of publication (November 2019). Changes may occur. For updated information about course content, please contact us: lilleprograms@univ-catholille.fr