UCLouvain

lmeca2325

2019

Biomass conversion

In view of the health context linked to the spread of the coronavirus, the methods of organisation and evaluation of the learning units could be adapted in different situations; these possible new methods have been - or will be - communicated by the teachers to the students.

5 credits	30.0 h + 30.0 h	Q1

Teacher(s)	Gerin Patrick ;Jeanmart Hervé ;
Language :	English
Place of the course	Louvain-la-Neuve
Main themes	• Origin and composition of the biomass • Physico-chemical characterisation of biomass • Thermo-chemical conversion (pyrolysis, combustion, gasification) • Bio-chemical conversion (fermentation)
Aims	In consideration of the reference table AA of the program "Masters degree in Mechanical Engineering", this course contributes to the development, to the acquisition and to the evaluation of the following experiences of learning: • AA1.1, AA1.2, AA1.3 • AA2.3, AA2.4, AA2.5 • AA3.1, AA3.3 • AA5.1, AA5.2, AA5.3 1 • AA6.1, AA6.3 At the end of the course, the student should • be able to characterize a biomass feedstock and evaluate the potential of a biomass source; • be able to describe, illustrate and compare the different biomass conversion routes; • be able, given a biomass source and an application, to select technically the best conversion route. • be able to design a facility based on detailed specifications • be able to start a PhD in the field of biomass energy. - - - - *The contribution of this Teaching Unit to the development and command of the skills and learning outcomes of the programme(s) can be accessed at the end of this sheet, in the section entitled "Programmes/courses offering this Teaching Unit".*
Evaluation methods	**Due to the COVID-19 crisis, the information in this section is particularly likely to change.** The evaluation is based on the quality of the homeworks and on an oral discussion between the professors and the students.
Teaching methods	**Due to the COVID-19 crisis, the information in this section is particularly likely to change.** The course is based on lectures given by the two professors and on applications given to the students if the form of homeworks. The course content is updated yearly following the research progresses made by both teachers in their respective fields and by the scientific community. Several industrial visits and labs are also organised for the students to illustrate the theoretical content of the course.
Content	This is an advanced optional course. It is focused on the study of the different biomass conversion routes for energy purposes. It is split into two parts. One is dealing with the thermo-chemical conversions: pyrolysis, combustion and gasification. The other one is devoted to the bio-chemical conversion routes: ethanologenic fermentation and methanogenic fermentation. The production of biodiesel from oily biomass is not addressed.
Inline resources	http://moodleucl.uclouvain.be/enrol/index.php?id=7878
Other infos	This course is open to student following a master in engineering or bio-engineering.
Faculty or entity in charge	MECA

Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Aims
Master [120] in Electro-mechanical Engineering	ELME2M	5		
Master [120] in Mechanical Engineering	MECA2M	5		