ENG-618

Biomass conversion

Maréchal François, Viana Ensinas Adriano

Cursus	Sem.	Type
Energy		Obl.

Language of teaching	English
Credits	2
Session	
Exam	Project report
Workload	60h
Hours	**36**
Courses	20
TP	16
Number of positions	

Frequency

Every year

Summary

The learning outcomes are to get to know the biomass ressources and its characteristics; study of biomass conversion pathways and study of process flow-sheets; establish the flow diagram of an industrial process with biomass as feedstock and calculate the corresponding mass and energy balances; etc

Content

- Biomass classification and characterization aspects;
- Availability and potential of bioenergy in local and global scale;
- Biomass conversion pathways - current technology available and R&D status;
- Biological pathways - Thermochemical pathways
- Main unit operations related with biomass conversion and biofuels production;
- Design of industrial processes with biomass as feedstock;
- Process integration applied to biomass conversion processes;
- Thermo - economic analysis of biomass conversion processes;
- Environmental impacts and life cycle analysis of biomass conversion processes;
- Principle of biorefineries
- Application to one process case study.

Note

Maximum number of participants : 20

Keywords

Biomass, biofuel, energy conversion, process design

Learning Prerequisites

Recommended courses

Thermodynamics, heat and mass transfer, unit operation, process design, process integration

Assessment methods

Project report evaluation