

Course: BioMass Energy

credits: 5

Course code	ZVWH18BME	Modes of delivery	Practical / Training Tutorial
Name	BioMass Energy		
Study year	2022-2023	Assessments	Assignment BioMass Energy - Assignment BioMass Energy Theory - Written, organised by STAD examinations
ECTS credits	5		
Language	English		
Coordinator	F. Faber		

Learning outcomes

At the completion of this topic the students should know
The fundamentals of residual biomass and energy crops
The fundamentals of biomass conversion processes and devices, with
the emphasis on biological conversion processes, using bioreactors.

At the completion of this topic the students should be able to
Select appropriate methodologies from the range of different
biomass energy technologies
Processing of analytical results obtained during the a practical course
on biogas production into a scientific report, drawing appropriate
conclusions linked to scientific literature.

Content

Content:

With fossil fuel resources becoming limited, a possible alternative
energy resource is the use of
biomass. The module 'Biomass Energy' describes the various
processes and techniques
involved in conversion of the energy stored in biomass to other types
of usable bio-energy.
Present conversion techniques already show the ability to connect
biofuels to the current
infrastructure. However, the availability of biomass as well as the
current conversion efficiencies
of the various conversion techniques are not sufficient to replace
fossil fuels.

Basic knowledge on chemical and biological conversion processes of
biomass will lead to an
integral approach, increasing the potentials for biomass in the fields
of energy for the
generation of renewable energy. The biomass conversion techniques
described in the module
'Biomass Energy' might play just as an important role in the
transition from fossil fuels to
alternative energy sources as other fields of energy such as wind and
solar energy. There is a special emphasis on the process of anaerobic
digestion, producing biogas from various types o biomass. During
the course various mathematical exercises will be done related to the
yield of bioenergy by the various conversion techniques. This module
contributes to the overall knowledge on renewable energy sources
students acquire during the core of the MSc program.

The module 'Biomass Energy' also includes a practical course, in
which the theoretical knowledge on anaerobic digestion will be
applied in a lab experiment producing biogas in a bioreactor. General
lab techniques will be combined with complex analytical
measurements, resulting in various parameters on biogas
production, which will be the basis an a scientific report written by
the students.

Included in programme(s)

European Master in Renewable Energy

School(s)

Institute of Engineering