

Module Name	Biomass for Energy
Module Number	Eul-RES-E-EnBMN
Responsible Lecturer	Prof. Dr.-Ing. Michael Beckmann michael.beckmann@tu-dresden.de
Qualification Objectives	Students master the fundamentals of reaction kinetics. They are capable of characterizing fuels, selecting suitable process management strategies, and designing apparatus technology.
Contents	The module covers the fundamentals of reaction engineering with regard to the conversion of gaseous, liquid, and solid fuels, as well as associated pollutant formation and degradation mechanisms. It also includes process management for fermentation, pyrolysis, gasification, and combustion of various biomass types, as well as the basics of downstream synthesis processes such as gas treatment or biomass-to-liquid processes, and the essential apparatus and their application in energy process engineering.
Teaching and Learning Forms	2 hours per week of lectures, 1 hour per week of practical lab courses, and self-study.
Prerequisites for Participation	Competencies are required as acquired in the modules Physics, Materials, Engineering Mechanics, Fundamentals of Thermodynamics, Thermodynamics of Processes, Fundamentals of Fluid Mechanics, and Heat Transfer.
Usability	The module is an elective module from the elective area "Competence Deepening" according to § 6 paragraph 3 of the Study Regulations (SO) and § 33 paragraph 3 of the Examination Regulations (PO) in the main study phase of the diploma program Renewable Energy Systems.
Prerequisites for the Award of Credit Points	Credit points are awarded upon passing the module examination. The module examination consists of a non-public oral examination as an individual examination lasting 30 minutes and an ungraded portfolio with a workload of 10 hours.
Credit Points and Grades	5 credit points can be earned through the module. If the portfolio is passed, the module grade corresponds to the grade of the oral examination. Otherwise, the module grade is determined in accordance with § 15 paragraph 1 sentences 5 and 6 of the Examination Regulations, based on the weighted average of the grades of the individual examination components, with the portfolio weighted fourfold and the oral examination weighted sixfold.
Frequency of the Module	The module is offered every summer semester.
Workload	The total workload is 150 hours.
Duration of the Module	The module lasts one semester.