

Modulname	Fossil and bio fuels, lubricants and plastics	
Modulverantwortlicher/ Modulverantwortliche	Claudia Beugel	
Qualifikationsziele	Students review basics of organic chemistry to understand differences between conventional and bio-based fuels, lubricants and plastics. They should know characteristics of fuels and lubricants. Students should be able to analyze pros and cons of the usage of fossil and bio-based products and to evaluate conventional and alternative production methods.	
Modulinhalte	lab experiments: making and testing of biodiesel 1. overview: structure and names of hydrocarbons (alkanes, alkenes, cyclic hydrocarbons, aromatic compounds, main functional groups) 2. formation and composition of fossil materials (coal, crude oil, natural gas) 3. processing of fossil raw materials into fuels, lubricants and plastics 4. classification and properties of fuels and lubricants 5. composition of biomass (plants oils, starch- and sugar-containing resources, wood, algae, vegetal and animal residues) 6. structures, names and properties of natural products (saccharides, starch, cellulose, fats, oils, waxes, proteins) 7. production and properties of alternative fuels and lubricants (biogas, bioethanol, plant oils, biodiesel, btl-biomass to liquid, syngas, bioplastics) 8. bioreactors (types, functional principles and operating parameters)	
Lehrformen	Vorlesung (2 SWS) Praktikum (2 SWS) Lecture Fossil and bio fuels, lubricants and plastics	
Voraussetzungen für die Teilnahme	fundamental chemical skills	
Literatur/multimediale Lehr- und Lernprogramme	Roussak, O./ Gesser, H.D.: Applied Chemistry – A Textbook for Engineers and Technologists, Springer-Verlag, 2013, ISBN 978-1-4614-4262-2 Schobert, H.: Chemistry of Fossil Fuels and Biofuels, Cambridge University Press, 2013, ISBN 978-0521781268	
Lehrbriefautor	keiner	
Verwendbarkeit	Pool International (English Lectures for Contact students) F MB PI	
Arbeitsaufwand/Gesamtworkload	Präsenzzeit 60 h + Vorbereitung 90 h = 150 Stunden = 5.0 Credit Punkte	
ECTS und Gewichtung der Note in der Gesamtnote	5	1
Leistungsnachweis	for the written examination (120 min) Prüfungsvorleistung: lab certificate (attestation)	
Semester	1., 2. Fachsemester	
Häufigkeit des Angebots	annually in the winter semester	

Version	Datum	Bearbeiter/in	Freigabe	Seite
0	05.03.2019	Stud.IP-MVV-Admin	Studiendekan	1 von 2

Dauer	1 Semester
Art der Lehrveranstaltung (Pflicht, Wahl, etc.)	anually in winter semester anually in summer semester
Besonderes	