Notes on the module handbook of the department Mechanical and Process Engineering

Die hier dargestellten veröffentlichten Studiengang-, Modul- und Kursdaten des Fachbereichs Maschinenbau und Verfahrenstechnik ersetzen die Modulbeschreibungen im KIS und wuden mit Ausnahme folgender Studiengänge am 28.10.2020 verabschiedet.

Ausnahmen:

- BSc. Bio- und Chemieingenieurwissenschaften (Stand WS 20/21): https://www.mv.uni-kl.de/fileadmin/mv/Studium_Lehre/Modulhandbuecher/MH_BSc_BCI.pdf (https://www.mv.uni-kl.de/fileadmin/mv/Studium_Lehre/Modulhandbuecher/MH_BSc_BCI.pdf)
- BEd. Lehramt Metalltechnik (Stand WS 19/20): https://www.mv.uni-kl.de/fileadmin/mv/Studium_Lehre/Modulhandbuecher/MHB_Bachelor_Lehramt_Metalltechnik.pdf (https://www.mv.uni-kl.de/fileadmin/mv/Studium_Lehre/Modulhandbuecher/MHB_Bachelor_Lehramt_Metalltechnik.pdf)
- MSc. Bio- und Chemieingenieurwissenschaften (Stand WS 20/21): https://www.mv.uni-kl.de/fileadmin/mv/Studium_Lehre/Modulhandbuecher/MH_Msc_BCI.pdf (https://www.mv.uni-kl.de/fileadmin/mv/Studium_Lehre/Modulhandbuecher/MH_Msc_BCI.pdf)
- MEd. Lehramt Metalltechnik Werkstoffe und Fertigung (Stand WS 19/20): https://www.mv.uni-kl.de/fileadmin/mv/Studium_Lehre/Modulhandbuecher/MHB_Master_Lehramt_Metalltechnik_-_Werkstoffe_und_Fertigung.pdf (https://www.mv.uni-kl.de/fileadmin/mv/Studium_Lehre/Modulhandbuecher/MHB_Master_Lehramt_Metalltechnik_-_Werkstoffe_und_Fertigung.pdf)
- MEd. Lehramt Metalltechnik Maschinen- und Fahrzeugtechnik (Stand WS 19/20): https://www.mv.uni-kl.de/fileadmin/mv/Studium_Lehre/Modulhandbuecher/MHB_Master_Lehramt_Metalltechnik_-_Fahrzeugtechnik.pdf (https://www.mv.uni-kl.de/fileadmin/mv/Studium_Lehre/Modulhandbuecher/MHB_Master_Lehramt_Metalltechnik_-_Fahrzeugtechnik.pdf)
- MEd. Lehramt Metalltechnik Verfahrenstechnik (Stand WS 19/20): https://www.mv.uni-kl.de/fileadmin/mv/Studium_Lehre/Modulhandbuecher/MHB_Master_Lehramt_Metalltechnik_-_Verfahrenstechnik.pdf (https://www.mv.uni-kl.de/fileadmin/mv/Studium_Lehre/Modulhandbuecher/MHB_Master_Lehramt_Metalltechnik_-_Verfahrenstechnik.pdf)

Module MV-BioVT-134-M-7

Biorefinement (M, 3.0 LP)

Module Identification

Module Number	Module Name	CP (Effort)
MV-BioVT-134-M-7	*Biorefinement*	3.0 CP (90 h)

Basedata

CP, Effort	3.0 CP = 90 h
Position of the semester	1 Sem. in WiSe
Level	[7] Master (Advanced)
Language	[DE] German
Module Manager	Ulber, Roland, Prof. Dr. (PROF | DEPT: MV) (/staff/297/)
Lecturers	Ulber, Roland, Prof. Dr. (PROF | DEPT: MV) (/staff/297/)
Area of study	[MV-BioVT] Bioprocess Engineering
Reference course of study	[MV-88.B10-SG] M.Sc. Energy and Process Engineering (/mhb/FB-MV/cos-573/)
Livecycle-State	[NORM] Active

Courses

Type/SWS	Course Number	Choice in Module-Part	SL	PL	CP	Sem.
2V	**MV-BioVT-86434-K-7** (/mhb/courses/MV-BioVT-86434-K-7/)	P	-	PL1	3.0	WiSe

- About **[MV-BioVT-86434-K-7]**: Title: "Biorefinement"; Presence-Time: 28 h; Self-Study: 62 h

Examination achievement PL1

- Form of examination: **talk (20-30 Min.)**
- Examination Frequency: Examination only within the course
- Examination number: 10434 ("Biorefinement")

Evaluation of grades

The grade of the module examination is also the module grade.

Contents

From [MV-BioVT-86434-K-7] Biorefinement (/mhb/courses/MV-BioVT-86434-K-7/)**:**

The lecture focuses on the sustainable use of renewable resources by biotechnological or chemical means (integrated biorefinery concepts). The following topics will be treated in detail:

- Overview of biorefinery concepts
- Concept of the Biobased Economy
- Coupling of the biorefinery to chemical production networks
- Sugar- and starch-based biorefineries
- Whole plant biorefinery
- Lignocellulose Biorefinery
- Enzymes for biorefineries
- Biorefinery product families (sugar, lignin, biopolymers, specialty chemicals)

Competencies / intended learning achievements

From [MV-BioVT-86434-K-7] Biorefinement (/mhb/courses/MV-BioVT-86434-K-7/)**:**

The students are able to

- develop different biorefinery concepts
- make economic and ecological assessments of biorefineries
- reflect existing industrial biorefinery concepts
- understand and evaluate complex industrial concepts for the use of renewable resources
- independently calculate material and energy flows in industrial systems using SuperProDesigner

Literature

From [MV-BioVT-86434-K-7] Biorefinement (/mhb/courses/MV-BioVT-86434-K-7/)**:**

- B. Kamm, P.R. Gruber, M. Kamm; Biorefineries – Industrial Processes and Products; Wiley-VCH ISBN-10: 3-527-31027-4

Current literature will be provided in the lecture.

Requirements for attendance (informal)

In-depth knowledge of bioprocess technology (e.g. through corresponding BSc. degree), basic chemical and microbiological knowledge

Modules:

- [MV-BioVT-120-M-7] Bioprocess Engineering II (M, 6.0 LP) (/mhb/modules/MV-BioVT-120-M-7/)

Requirements for attendance (formal)

None

References to Module / Module Number [MV-BioVT-134-M-7]

Course of Study	Section	Choice/Obligation
[MV-88.A29-SG] M.Sc. Biological and Chemical Engineering (/mhb/FB-MV/cos-567/)	Studienschwerpunkt I	[WP] Compulsory Elective

Module-Pool	Name
[MV-ALL-MPOOL-6 (/mhb/modulepools/MV-ALL-MPOOL-6/)]	Wahlpflichtmodule allgemein
[MV-EVT-MPOOL-6 (/mhb/modulepools/MV-EVT-MPOOL-6/)]	Wahlplichtmodule Energie- und Verfahrenstechnik