

DEPARTMENT OF MOLECULAR BIOTECHNOLOGY
COURSE SYLLABUS

Course Details					
Code				Academic Year	Semester
MBT332				3	6
Title	T	A	L	ECTS	
Process Engineering for Biotechnology I	2	1	0	6	
Language	German				
Level	Undergraduate	X	Graduate	Postgraduate	
Department / Program	Molecular Biotechnology				
Forms of Teaching and Learning	Face-to-face				
Course Type	Compulsory	X	Elective		
Objectives	Having an understanding of industrial applications of biological processes.				
Content	Bioreaction engineering Immobilization of biocatalysts Mass and heat transfer Bioreactors Reactor construction and peripheral units Cleaning and sterilization				
Prerequisites	-				
Coordinator	Prof. Dr. Hans-Jürgen Koepp-Bank				
Lecturer(s)	Prof. Dr. Hans-Jürgen Koepp-Bank				
Assistant(s)	Res. Asst. Şeyma İş				
Work Placement	-				
Recommended or Required Reading					
Books / Lecture Notes	Chmiel H. (2018): Bioprozesstechnik. Berlin: Springer Spektrum Dutta R. (2008): Fundamentals of Biochemical Engineering. Berlin: Springer Shuler M.L. & Kargi F. (2002): Bioprocess Engineering. Upper Saddle River: Prentice-Hall Storhas W. (2013): Bioverfahrensentwicklung. Weinheim: Wiley-VCH Lecture notes				
Other Sources					
Additional Course Material					
Documents					
Assignments					
Exams					
Course Composition					
Mathematics and Basic Sciences					%

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Engineering	40	%
Engineering Design	10	%
Social Sciences		%
Educational Sciences		%
Natural Sciences	50	%
Health Sciences		%
Expert Knowledge	100	%

Assessment

Activity	Count	Percentage (%)
Midterm Exam	1	20
Quiz	0	0
Assignments	0	0
Attendance	0	0
Recitations	0	0
Projects	0	0
Final Exam	1	80
Total		100

ECTS Points and Work Load

Activity	Count	Duration	Work Load (Hours)
Lectures	13	3	39
Self-Study	13	6	78
Assignments	-	-	-
Presentation / Seminar Preparation	-	-	-
Midterm Exam	1	9	9
Recitations	3	10	30
Laboratory	-	-	-
Projects	-	-	-
Final Exam	1	10	10
Total Work Load			166
ECTS Points (Total Work Load / Hour)			6

Learning Outcomes

1	Understanding working mechanisms of bioreactors.
2	Having an understanding of biological processes in industrial applications.

Weekly Content

1	Bioreaction engineering
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2	Bioreaction engineering
3	Bioreaction engineering
4	Immobilization of biocatalysts
5	Mass transfer
6	Heat transfer
7	Bioreactors
8	Exercises on bioprocess engineering
9	Bioreactors
10	Reactor construction and peripheral units
11	Reactor construction and peripheral units
12	Cleaning and sterilization
13	Cleaning and sterilization

Contribution of Learning Outcomes to Program Objectives (1-5)

	P1	P2	P3	P4	P5	P6	P7
1	5	4	5	5	3	5	4
2	5	4	5	5	3	5	4

Contribution Level: 1: Low 2: Low-intermediate 3: Intermediate 4: High 5: Very High

<https://obs.tau.edu.tr/oibs/bologna/progLearnOutcomes.aspx?lang=en&curSunit=5707>

Compiled by:	Res. Asst. Şeyma İş
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