DEPARTMENT OF MOLECULAR BIOTECHNOLOGY
COURSE SYLLABUS

Course Details			
Code		**Academic Year**	**Semester**
MBT433		4	7

Title	**T**	**A**	**L**	**ECTS**
Process Engineering for Biotechnology II	3	0	2	6

Language	German					
Level	**Undergraduate**	X	**Graduate**		**Postgraduate**	
Department / Program	Molecular Biotechnology					
Forms of Teaching and Learning	Face-to-Face					
Course Type	**Compulsory**			**Elective**		X
Objectives	Having knowledge about applications of bioreactors in industrial processes.					
Content	Bioreactors, their design principles and scale-up methods Model organisms for bioreactors and their metabolic processes Modeling of cellular metabolism Simulations with MATLAB					
Prerequisites	No					
Coordinator	Undefined					
Lecturer(s)	Undefined					
Assistant(s)						
Work Placement	No					

Recommended or Required Reading	
Books / Lecture Notes	Bioverfahrensentwicklung, Storhas, Wiley-VCH Lecture Notes
Other Sources	

Additional Course Material	
Documents	
Assignments	
Exams	

Course Composition		
Mathematics und Basic Sciences		%
Engineering		%
Engineering Design		%
Social Sciences		%
Educational Sciences		%

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Natural Sciences	100	%
Health Sciences		%
Expert Knowledge		%

Assessment		
Activity	**Count**	**Percentage (%)**
Midterm Exam	1	40
Quiz	0	0
Assignments	0	0
Attendance	0	0
Recitations	1	20
Projects	0	0
Final Exam	1	40
Total		**100**

ECTS Points and Work Load			
Activity	**Count**	**Duration**	**Work Load (Hours)**
Lectures	14	4	56
Self-Study	14	3	42
Assignments	0	0	0
Presentation / Seminar Preparation	0	0	0
Midterm Exam	1	10	10
Recitations	0	0	0
Laboratory	14	2	38
Projects	0	0	0
Final Exam	1	10	10
Total Work Load			**142**
ECTS Points (Total Work Load / Hour)			**6**

Learning Outcomes	
1	Having an understanding of bioreactor design and model organisms

Weekly Content	
1	Bioreactor design
2	Model organisms
3	Modeling metabolic processes
4	Simulations with MATLAB

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Contribution of Learning Outcomes to Program Objectives (1-5)							
	P1	**P2**	**P3**	**P4**	**P5**	**P6**	**P7**
1	5	5	5	5	-	5	-
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							
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