

<b>ABDULLAH GUL UNIVERSITY</b> <b>INSTITUTE OF SCIENCE AND TECHNOLOGY</b> <b>BIOENGINEERING DEPARTMENT</b> <b>INFORMATION OF COURSE INTRODUCTION AND PRACTICE</b>					
Course Name	CODE	SEMESTER	I+P Hour	CREDIT	ECST
Introduction to Nanobiotechnology	BENG509	Spring-Fall	3 + 0	3	7,5

<b>Prerequisite Courses</b>	None
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<b>Course Type</b>	Selective
<b>Course Language</b>	English
<b>Course Coordinator</b>	Asist.Prof. Yoshiaki Z. Ohkubo
<b>Lecturers</b>	Asist.Prof. Yoshiaki Z. Ohkubo, Prof. Dr. Sevil D. İsoğlu
<b>Course Assistants</b>	-
<b>Course Objectives</b>	Making students understand the essential features of biology and nanotechnology
<b>Learning Outcomes</b>	Students will be gain solid understanding on bionanotechnology and nanomedicine
<b>Course Content</b>	Biomacromolecules, membrane transport, nanoparticles, carbon nanotubes, nanodisc, nanosensors, biomimetic molecules, scanning probe microscopy

WEEKLY SUBJECTS AND RELATED PRELIMINARY PAGES		
Week	Subjects	Preliminary
1	Proteins, lipids, and membranes	
2	Membrane transport	
3	Biomimetic molecules	
4	Nanoparticles	
5	Carbon nanotubes	
6	Student presentations	
7	Student presentations	
8	Quantum dots	
9	Midterm	
10	Nanodiscs	
11	Nanosensors	
12	Scanning probe microscopy	
13	Biolabelling	
14	Student presentations	
15	Student presentations	
16	Final	

RESOURCES	
<b>Course Notes</b>	Notes and slides
<b>Other Resources</b>	Nanobiotechnology: Concepts, Applications and Perspectives, Niemeyer and Mirkin, 2004.

MATERIAL SHARING	
<b>Documents</b>	Lecture notes
<b>Homework</b>	1 homework after each class
<b>Exams</b>	1 midterm and 1 final exam

RATING SYSTEM		
SEMESTER WORKS	NUMBER	CONTRIBUTION
Midterm	1	20
Presentation	3	20
Homework	8	30

<b>TOTAL</b>		70
<b>Success Rate of Semester</b>		70
<b>Success Rate of Final</b>	1	30
<b>TOTAL</b>		100

<b>Course Category</b>		
Basic Sciences and Mathematics		%50
Engineering Sciences		%50
Social Sciences		%0

THE RELATIONSHIP BETWEEN THE LEARNING OUTCOMES AND PROGRAM COMPETENCE						
No	Program Outcomes	Contribution Level				
		1	2	3	4	5
1	Understanding of Life Sciences, Mathematics and Engineering at the post-graduate level, and being able to implement of this knowledge into bioengineering problems				X	
2	Having the ability of developing a new scientific method or a technological product or process, and, designing experiments, implementing, collecting data and evaluating regarding these issues					X
3	Choosing technical equipment used in the applications related to bioengineering, having sufficient knowledge in adopting and using new technological equipment		X			
4	Having the ability of reaching the information, using resources, contributing to the literature by transferring the process and results of scientific studies as written or verbally in the national and international environments				X	
5	Having the ability of working as an individual or a team, in the teams composed of discipline or different disciplines, gaining awareness of leadership and taking responsibility				X	
6	Having advanced level of foreign language knowledge to manage efficient verbal, written and visual communication in the major field					X
7	Having the understanding of ethics in science and the responsibility in profession with the awareness of lifelong learning, being beneficial to society and sensitiveness to global issues		X			
8	Being aware of the social impacts of the solutions and applications of the challenges regarding Bioengineering		X			

\*From 1 to 5, it increasingly goes.

<b>ECTS / WORK-LOAD TABLE</b>			
Activities	Activities	Duration (Hour)	Total (Work-Load)
Course Duration (Including exam week: 16x total course hour)	16	3	48
Out of Class Exercise Time (Pre-study, reinforcement)	16	8	128
Reading	16	1	16
Searching on Internet, library study	16	2	32
Material Designing, practice			
Preparation of report			
Preparation of presentation	3	6	18
Presentation	3	3	9
Homework	8	5	40
Midterms	1	3	3
Final	1	3	3
<b>Total Work-Load</b>			297
<b>Total Work-Load / 30</b>			297/30
<b>Course ECTS Credit</b>			7,5