ABDULLAH GUL UNIVERSITY
INSTITUTE OF SCIENCE AND TECHNOLOGY
BIOENGINEERING DEPARTMENT
INFORMATION OF COURSE INTRODUCTION AND PRACTICE

Course Name	CODE	SEMESTER	I+P Hour	CREDIT	AKTS
Research Techniques in Bioengineering	BENG534	Spring-Fall	3 + 2	3	7,5

Prerequisite Courses	none

Course Type	ELECTIVE
Course Language	English
Course Coordinator	Mona El Khatib
Lecturers	Dr. Sevil İşoğlu, Dr. Alper İşoğlu, Dr. Aysun Adan, Dr, Sebiha Kaplan, Dr. Y.Z. Ohkubo, Dr. Mona El Khatib
Course Assistants	Yagmur Kiraz, Berrak Albostan
Purpose of Course	Teaching students the basic biological techniques used in research different biological disciplines
Learning Outcome	1- Become familiar with the basic biological techniques in research 2- Be able to perform different biological techniques 3- Become familiar with the laboratory rules and environment 4- Acquire the ability to design and perform an experiment and analyze the outcomes
Course Content	Microscopy, molecular probes, electrophoresis, chromatography, PCR and sequencing, gene editing, Recombinant DNA technology, cell culture, flow cytometry, SPR and Nano-discs

WEEKLY SUBJECTS AND RELATED PRELIMINARY PAGES

Week	Subjects	Preliminary
1	Microscopy-I	
2	Microscopy-II	
3	Molecular Probes	
4	Electrophoresis	
5	Chromatography-I	
6	Chromatography-II	
7	Primer Design and PCR	
8	Midterm	
9	Sequencing Techniques	
10	Gene Editing	
11	Recombinant DNA Technology	
12	Cell Culture	
13	Flow cytometry	
14	SPR and Nano-discs	
15	Spectrophotometer	
16	Final	

RESOURCES

Course Notes	notes and slides
Other Resources	**-**

MATERIAL SHARING

Documents	Lecture notes
Homework	-
Exams	One Midterm and one final

RATING SYSTEM

SEMESTER WORKS	NUMBER	CONTRIBUTION

Midterm	1	50%
Quiz	-	-
Homework	-	-
Final	1	50%
TOTAL	2	100%
Success Rate of Semester		50
Success Rate of Final		50
TOTAL		100

Course Category	
Basic Sciences and Mathematics	X
Engineering Sciences	
Social Sciences	

THE RELATIONSHIP BETWEEN THE LEARNING OUTCOMES AND PROGRAM COMPETENCE

No	Program Competence	Impurity 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.

ECTS / WORK-LOAD TABLE

Activities	Activites	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	6	96
Reading			
Scanning on Internet, library study	16	3	48
Material Designing, practice	16	3	48
Preparation of report	15	2	30
Preparation of presentation			
Presentation			
Homework			
Midterms	1	15	15
Final	1	15	15
Total Work-Load			300
Total Work-Load / 30			300/30
Course ECTS Credit			7,5