

**Vocational School / Electroneurophysiology**

**2023 - 2024 Academic Year**

**GENERAL BIOPHYSICS**

**Syllabus**

<b>Course Description</b>					
<b>Name</b>	<b>Code</b>	<b>Semester</b>	<b>T+A Hour</b>	<b>Credit</b>	<b>ECTS</b>
GENERAL BIOPHYSICS	EFZ1116360	Fall Semester	2+0	2	4
<b>Prerequisites Courses</b>					
<b>Recommended Elective Courses</b>					
<b>Language of Instruction</b>	Turkish				
<b>Course Level</b>	Short Cycle (Associate's Degree)				
<b>Course Type</b>	Required				
<b>Course Coordinator</b>	Lect. Cemil ÖZGÜL				
<b>Name of Lecturer(s)</b>	Lect. Cemil ÖZGÜL				
<b>Assistant(s)</b>					
<b>Aim</b>	The main purpose of this course is to translate the basic content and methods of biophysics to students in a clear and understandable way.				
<b>Course Content</b>	This course contains; Definition and scope of biophysics,The unit system of SI and dimensional analysis,Distribution water in the body and the main tasks of the body of water,Fluid Biophysics I,Fluid Biophysics II,Biophysical properties of straight and turbulent flows,The concept of pressure, hydrostatic pressure and osmotic pressure,Edema, and causes of edema formation in the body,Cells and their types,Cell membrane and its structure,Ions in the human body and their properties,Ion channels, their structures and types,The formation of an action potential in the cell and its importance,The stages of Action Potentials and its interpretation..				
<b>Course Learning Outcomes</b>			<b>Teaching Methods</b>	<b>Assessment Methods</b>	
1. Interpret the difference of between the understanding of physics and biophysics.			10, 16, 9	A	
3. list the importance of water for life, the distribution of the cells in the body and learn the main tasks of the body of water.			10, 16, 9	A	
4. Recognize the cell, tell to the cell structure, the cell membrane structure and then understand the importance of life.			12, 16, 9		
2. Understand to Physical quantities, SI unit system and understand importance of them for science and scientists			16, 9	A	
5. Explain the action potentials of the cell and understand how this situation results in cell responses.			10, 12, 9	A	
<b>Teaching Methods</b>	10: Discussion Method, 12: Problem Solving Method, 16: Question - Answer Technique, 9: Lecture Method				
<b>Assessment Methods</b>	A: Traditional Written Exam				
<b>Lecture Schedule</b>					
<b>Sequence</b>	<b>Topics</b>	<b>Preliminary Preparation</b>			
1	Definition and scope of biophysics				
2	The unit system of SI and dimensional analysis				
3	Distribution water in the body and the main tasks of the body of water				
4	Fluid Biophysics I				
5	Fluid Biophysics II				
6	Biophysical properties of straight and turbulent flows				
7	The concept of pressure, hydrostatic pressure and osmotic pressure				
8	Edema, and causes of edema formation in the body				
9	Cells and their types				
10	Cell membrane and its structure				
11	Ions in the human body and their properties				
12	Ion channels, their structures and types				
13	The formation of an action potential in the cell and its importance				
14	The stages of Action Potentials and its interpretation.				
<b>Evaluation Methods</b>		<b>Weight(%)</b>			
Midterm Exam		40			
General Exam		60			

<b>Resources</b>
Biyofizik, Ferit PEHLİVAN, Pelikan Yayınları. Biyomedikal Fizik, Gürbüz ÇELEBİ, Barış Yayınları Fakülteler Kitabevi.lecture notes