MODULE HANDBOOK

	UNIVERSITAS PADJADJARAN **FACULTY OF MATHEMATICS AND NATURAL SCIENCES** **BACHELOR OF BIOLOGY PROGRAMME**	**COURSE CODE :** **D10D-2011**
Module designation	Biophysics and Instrument	
Semester in which the module is taught	4	
Persons responsible for the module	1. Prof. Dr. Eng I Made Joni M.Sc. 2. Dr. Ayi Bahtiar M.Si 3. Norman Syakir M.Si 4. Ferry Faizal PhD	
Medium of instruction	Indonesian and English	
Relation to curriculum	Compulsory course	
Teaching methods	Student-Centered Learning, Project-based Learning, Collaborative Learning	
Workload	Total workload : 5440 minute = 90.67 hour Lecture and discussion : 2 x 50 minute x 16 week = 1600 minute = 26.67 hour Exercises : 2 x 60 minute x 16 week = 1920 minute = 32 hour Self-study : 2 x 60 minute x 16 week = 1920 minute = 32 hour	
Credit points	2.00 (3.62 ECTS)	
Required and recommended prerequisites for joining the module	-	
Module objectives/intended learning outcomes	1. Students can understand basic physics concepts, especially those related to physical phenomena in everyday life 2. Students are able to apply and relate basic physics theories to physical phenomena that occur in everyday human life 3. Students are able to analyze every physical phenomenon that occurs in everyday life	
Contents	The Biophysics and Instruments course combines the principles of physics with biological systems to understand the mechanisms of life at the molecular, cellular, and organismal levels. Students will learn basic biophysics concepts such as the thermodynamics of biological processes, tissue biomechanics, and bioelectric principles, including membrane potential and nerve signal conduction. In addition to theory, this course also introduces various advanced instruments used in modern biological research, such as spectroscopy for biomolecular analysis, various microscopy techniques (fluorescence, electron, and confocal), and biological sensors for detection and diagnostics.	
Examination forms	Quiz, Midterm exam, Assignment, and Final exam	
Study and examination requirements	The minimum attendance in lectures is 80%. Final grades are evaluated based on quiz (10%), midterm exam (15%), assignment (10%), final exam (15%), project and participation (50%)	
Reading lists	1. Biophysics, an Introduction, Rodney Cotterill, John Willey and Son, 2002 2. Fundamental of Biophysics, Andrey B. Rubin, Scrivener Publishing, 2014 3. An Introduction to Biomechanics, Jay D. Humphrey and Sherry L. O'Rourke Second Edition, Springer, 2015 4. Louis A. Bloomfield, How Things Work; the physics of everyday life, 5 th edition, Jhon Wiley & Sons, 5. Tipler, P. A. (2001). FISIKA Untuk Sains dan Teknik (Terjemahan:Bambang Soegijono). Jakarta: Erlangga 6. Abdullah, M. (2016). Fisika Dasar 1. Bandung: ITB	