

Module Handbook

Module Name:	Biophysics
Module Level:	Bachelor
Abbreviation, if applicable:	FI2151
Sub-heading, if applicable:	
Courses included in the module, if applicable:	
Semester/term:	Second year
Module coordinator(s):	
Lecturer(s):	
Language:	Bahasa Indonesia
Classification within the curriculum:	General Studies / Major Subject / Elective Studies
Teaching format / class hours per week during the semester:	2 hours lectures, 2 hours tutorial
Workload:	2 hours lectures, 2 hours tutorial and structured activities, 2 hours individual study, 16 weeks per semester, and total 96 hours a semester
Credit Points:	2
Requirements:	
Learning goals/competencies:	<p>Knowledge</p> <ol style="list-style-type: none"> 1. Able to describe and explain impuls conductions in nervous systems, to analyse passive/active transport. 2. Able to describe and explain muscle contraction in the physical changes of the striated muscle 3. Able to describe the structure and function of ear in the hearing process 4. Able to describe the structure and function of eye in the vision process 5. Able to describe the structure and function of cardio in the blood circulation system 6. Able to describe the structure and function of respiratory system 7. Able to describe the free radicals from water radiolysis 8. Able to describe ultrasonic radiation and electromagnetic radiation as well as their effects on biological systems. 9. Able to describe the structure and function of biomolecule (protein) 10. Able to describe the radioactive tracer technique in living systems <p>Skill</p> <ol style="list-style-type: none"> 1. Able to model the work of lung system 2. Able to interpret the data of hearing levels from pure tone audiometer 3. Able to determine the parameters of the work of the heart 4. Able to assess the function of thyroid gland from the accumulation of Iodine radioisotopes
Content:	<p>After finishing this course, student has enough knowledge about the physical aspect of some organs of the body and radiation application for biological system. The course is consist of general topics including impuls conductions in nervous systems, physical changes in the muscle, the Physical aspect of the lungs and respiratory, cardiovascular, ears and hearing , eyes and vision; ultrasonic radiation, electromagnetic radiation, radioactivity, interaction of radiation and matter; energy transfer process, structure determination of biomolecular, radioactive tracer technique.</p>

Study/exam achievements:	Students are considered to be competent and pass if at least get 50% of maximum mark of the mid-term test, final examination, quizzes and home work.
Forms of Media:	Slides and LCD projectors, blackboards, lab.
Literature:	<ol style="list-style-type: none"> 1. Hughes, Aspects of Biophysics, John Wiley & Sons, 1979. 2. Ackerman et al., Biophysical Science, Prentice-Hall, 1979 3. P.S. Nobel, Introduction to Biophysical Plant Physiology, Freeman. 1974. 4. Subowo, Neur biologi, Bumi Aksara, Jakarta 5. R.K. Hobbie, Intermediate Physics for Medicine and Biology, John Wiley and Sons, 1978 6. Nave and Nave, Physics for the Health Science, WB saunders Co. 1980. 7. Erns-Georg Niemann; Radiation Biophysics 8. I Tarjan (editor), An introduction to Biophysics with medical orientation, Akademiai Kiado,1987. 9. J.R. Cameron and J.G. Skrofonick, Medical Physics, John Wiley and Sons, 1978 10. C. Sybesma, Biophysics, Kluwer Academic Pub.1989.
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