UIN SUNAN KALIJAGA YOGYAKARTA
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Undergraduate Programme in Physics

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MODULE HANDBOOK

Module Name	Biomaterial and Biosensor
Module level, if applicable	Bachelor
Code, if applicable	FIS424081
Subtitle, if applicable	-
Courses, if applicable	Biomaterial and Biosensor
Semester(s) in which the module is taught	5th (fifth)
Person responsible for the module	Dr. Widayanti, M.Si
Lecturer(s)	Dr. Widayanti, M.Si
Language	Indonesia
Relation to curriculum	Elective course in the third year (5th semester) Bachelor Degree
Type of teaching, contact hours	150 minutes lectures and 180 minutes structured activities per week.
Workload	Total workload is 136 hours per semester, which consists of 150 minutes lectures per week for 14 weeks, 180 minutes structured activities per week, 180 minutes individual study per week, in total is 16 weeks per semester, including mid exam and final exam
Credit points	3
Requirements according to the examination regulations	Minimum attendance 75% All assignments submitted Attendance on time
Recommended prerequisites	No prerequisites stated on
Module objectives/intended learning outcomes	After completing this course, the students: CO 1. Able to understand and explain the classification, characterization, and applications of biological materials CO 2. Able to understand and explain biomaterial sensing methods CO 3. Able to identify the application of biosensor technology in various fields
Content	Properties of Materials and Their Interactions with Biological Environments Synthetic Biomaterials: Polymer-based Biomaterials, Peptide-based Biomaterials, and Ceramic-based Biomaterials Natural Biomaterials: Protein-based Biomaterials and Polysaccharide-based Biomaterials Characterization and Applications of Biomaterials in Biological Tissue Technology and Regeneration Definition, Function, and Characteristics of Biosensors Optical Biosensors Electrochemical Biosensors Piezoelectric Biosensors

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	Thermometric Biosensors Wearable Biosensors Living Biosensors Immunosensors Applications of Biosensors in Health, Military, Agriculture, and Environment.
Study and examination requirements and forms of examination	The final mark will be weighted as follows:

NO	Assessment methods (components, activities)	Weight (percentage)
1	Final Examination	40%
2	Mid-Term Examination	30%
3	Class Activities : Quiz, Homework, etc.	30%

The final assessment is expressed in the form of a letter value converted from a number value with the following categories:

NO	Number Value	Letter Value	NO	Number Value	Letter Value
1	≥ 95	A	7	65-69.99	B/C
2	90-94.99	A-	8	60-64.99	C+
3	85-89.99	A/B	9	55-59.99	C
4	80-84.99	B+	10	50-54.99	C-
5	75-79.99	B	11	55-34.99	D
6	70-74.99	B-	12	<35	E

Media employed	White-board, Lcd Projector, e-learning (https://daring.uin-suka.ac.id/)
Reading list	1. J.Park, Biomaterials: An Introduction, Edition 3, Springer Science & Business Media,2007 2. William Murphy, Jonathan Black, Garth Hastings; Handbook of Biomaterial Properties, Springer Science+Business Media New York 2016 3. Ajit Sadana,Neeti Sadana , Handbook of Biosensors and Biosensor Kinetics, elsevier,2011

PLO and CO Mapping

	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9
CO 1			√						
CO 2				√					
CO 3					√				