UIN SUNAN KALIJAGA YOGYAKARTA
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Undergraduate Programme in Physics

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MODULE HANDBOOK

Module Name	Smart Materials
Module level, if applicable	Bachelor
Code, if applicable	FIS425035
Subtitle, if applicable	-
Courses, if applicable	Smart Materials
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	100 minutes lectures and 120 minutes structured activities per week.
Workload	Total workload is 90.7 hours per semester, which consists of 100 minutes lectures per week for 14 weeks, 120 minutes structured activities per week, 120 minutes individual study per week, in total is 16 weeks per semester, including mid exam and final exam
Credit points	2
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 to explain various types of smart materials, their properties, and be CO 2. able to identify their applications in various fields through continuously evolving technology.able to explain semiconductor devices. .
Content	Definition of smart materials and their classification, Piezoelectric , Magnetostrictive, Shape memory alloys ,Electro-Rheological fluid ,Fiber optics ,Shape memory polymers, pH-sensitive polymers, Smart battery materials, Applications of smart materials in industry, Applications of smart materials in the medical field ,Applications of smart materials in the environmental field
Study and examination requirements and forms of examination	The final mark will be weighted as follows:

NO	Assessment methods (components, activities)	Weight (percentage)

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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. Mel Schwartz,Smart Material, CRC Press Taylor & Francis Group,2009 2. Smart Material and Technologies, D. Michelle Addington Daniel L. Schodek

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						√			