



UNIVERSITAS SEBELAS MARET
FACULTY OF TEACHER TRAINING AND EDUCATION
SCIENCE EDUCATION STUDY PROGRAM

Jl Ir. Sutami No 36A Kentingan Surakarta 57126
Telephone (0271) 669124, Facsimile (0271) 648939
Website: <http://ipa.fkip.uns.ac.id>, Email: ipa@fkip.uns.ac.id

Module Handbook

Module Name	Fisika Dasar (Basic Physics)																	
Module Level	Undergraduate Program																	
Code, if applicable	2213142003																	
Date created	27 th July 2020																	
Date updated	24 th January 2023																	
Sub-title, if applicable	-																	
Courses, if applicable	-																	
Semester(s) in which the module is taught	1 st																	
Module coordinator(s)	Dr. Riezky Maya Probosari, S.Si., M.Si.																	
Lecturer(s)	Drs. Supurwoko, M.Si. Dyah Fitriana M, M.Sc																	
Language	Bahasa Indonesia (Indonesian Language)																	
Course Classification	Compulsory Course / Elective Studies																	
Teaching format/class hours per week during semester	Direct instruction/face to face/blended learning: 2 x 50 minutes / Week: lecture, discussion Structured Activity: 2 x 60 minutes / Week: Team-based projects Self-study Activity: 2 x 60 minutes / Week Practicum in laboratory: 1 x 170 minutes/week/topic. Laboratory activity = 5 topic x 170 minutes = 850 minutes Hour = 850 minute/60 = 14,17 h																	
Workload	<table><tr><th>Type</th><th>CSU</th><th>Face to Face</th><th>Structured Activity</th><th>Self-study</th></tr><tr><td>T</td><td rowspan="2">2</td><td>22.53h (0.74 ECTS)</td><td>27h (0,89 ECTS)</td><td>27h (0,89 ECTS)</td></tr><tr><td>P</td><td colspan="3">14,17h (0,48 ECTS)</td></tr></table> <p>Note: 1 hour equals with 0.033 ECTS The workload hours including the examination and preparation</p>				Type	CSU	Face to Face	Structured Activity	Self-study	T	2	22.53h (0.74 ECTS)	27h (0,89 ECTS)	27h (0,89 ECTS)	P	14,17h (0,48 ECTS)		
Type	CSU	Face to Face	Structured Activity	Self-study														
T	2	22.53h (0.74 ECTS)	27h (0,89 ECTS)	27h (0,89 ECTS)														
P		14,17h (0,48 ECTS)																
Credit Points	2 CSU (3 ECTS)																	
Requirements	-																	



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Learning goals/competencies	<p>PLO 1 Demonstrate comprehensive knowledge of core concept in physics, biology, chemistry, and earth science</p> <p>PLO 09 Identify problems and apply logical and critical thinking in the context of science and technology</p> <p>PLO 12 Organize data and information in science education-based entrepreneurship</p> <p>CLO 1 Student are able to apply the concepts in Basic Physics in everyday life</p> <p>CLO 2 Students are able to observe, make measurements, and report experiment results</p> <p>CLO 3 Students are able to demonstrate responsibility in conducting and reporting experiments</p>
Category	Basic Science/ Basic Integrated /Integrated Science
Content	<p>The objective of this course is to equip, strengthen and provide a foundation for students in the field of physics so that they can take advanced courses related to their field. The material presented includes: Mechanics (Particle kinematics and dynamics; Impulse and linear momentum; Work and energy; particle system motion; Special Relativistic kinematics; Force moment/torque and angular momentum, Rotation and translation of rigid bodies); Temperature and Heat (Temperature, Heat and its changes, Phase changes), Light and Optics (Geometry Optics, Image formation), Electricity (static and Current)</p> <p>This course is completed by hands-on experiment in the laboratory.</p>
Attribute Soft skill	Students can solve problems in the field of study studied



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Study/exam achievements	<p>Students are considered to complete the course and pass if they obtain at least 60% of maximum final grade. The final grade (FS) is calculated based on the following ratio:</p> <table border="1"> <thead> <tr> <th>Aspect</th><th>(%)</th></tr> </thead> <tbody> <tr> <td>Project</td><td>52</td></tr> <tr> <td>Participation</td><td>18</td></tr> <tr> <td>Mid-Term Test</td><td>15</td></tr> <tr> <td>Final Exam</td><td>15</td></tr> <tr> <td>Final Score</td><td>100</td></tr> </tbody> </table>	Aspect	(%)	Project	52	Participation	18	Mid-Term Test	15	Final Exam	15	Final Score	100
Aspect	(%)												
Project	52												
Participation	18												
Mid-Term Test	15												
Final Exam	15												
Final Score	100												
Literature	<ol style="list-style-type: none"> 1. Alrasheed, S. (2019). Principles of Mechanics Fundamental University Physics. In <i>Advances in Science, Technology and Innovation</i>. Springer. 2. Debora M. Katz, 2017, <i>Physics for Scientists and Engineers: Foundations and Connections with Modern Physics, Student Edition</i>, Boston-USA: Cengage Learning. 3. EUGENE HECHT, 2018, <i>College Physics, Twelfth Edition</i>, USA: McGraw-Hill Education 4. Serway, R. A. & Jewett, J. W. (2004). Physic for Scientists and Engineers,. Six Edition. California: Thomson Brook/Cole 5. Giancoli Douglass C., Physiscs for Engineering and Physiscis, (1994) Canada D Van Nostrad Co. 6. John R. Taylor, An Introduction to Error Analysis, University Science Books, 1997 												
Notes	(a)Scheduled instruction in a classroom (50 minutes); (b) structured activity (60 minutes); and (c) individual activity (60 minutes) according to the Regulation of Indonesia Ministry of Research, Technology, and Higher Education No. 03/2020.												

PLO and CLO Mapping

	PL O1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PLO 11	PLO 12	PLO 13	PLO 14
CLO 1	√													
CLO 2									√					

[illegible]

Assessment

ATTITUDE ASSESSMENT SHEET

No.	Student Number	Aspect			Score
		Responsibility	Teamwork	Discussion Ethics	

PARTICIPATION OBSERVATION SHEET

No.	Student Number	Frequency			Score
		Asking	Answering	Refuse or support	

POSTER/PRODUCT ASSESSMENT RUBRIC

Aspect	Criteria			Score
	1	2	3	
Content	Short text	Many information	Easy to understand	4, if 3 criteria are met 3, if 2 criteria are met



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Design	Interesting color	Key information stand out	Proporsional	2, if 1 criteria are met 1, if 0 criteria are met 0, if the task haven't done
Picture	Interesting	Meaningful according to the contents	Originality (input the source)	
Purpose	Information is easy to read	Information is less easy to read	Information is hard to read	