



Universitas Negeri Surabaya
Faculty of Mathematics and Natural Sciences
Undergraduate Physics Study Program

Document Code

SEMESTER LEARNING PLAN

Courses	CODE	Course Family	Credit Weight			SEMESTER	Compilation Date																																
Basic Physics 1	4520103220		T=3	P=0	ECTS=4.77	1	July 18, 2024																																
AUTHORIZATION	SP Developer		Course Cluster Coordinator			Study Program Coordinator																																	
			Prof. Dr. Munasir, S.Si., M.Si.																																	
Learning model	Project Based Learning																																						
Program Learning Outcomes (PLO)	PLO study program that is charged to the course																																						
	Program Objectives (PO)																																						
	PLO-PO Matrix																																						
		P.O																																					
Short Course Description	PO Matrix at the end of each learning stage (Sub-PO)																																						
		<table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td rowspan="2" style="padding: 5px;">P.O</td> <td colspan="16" style="text-align: center; padding: 5px;">Week</td> </tr> <tr> <td style="padding: 5px;">1</td> <td style="padding: 5px;">2</td> <td style="padding: 5px;">3</td> <td style="padding: 5px;">4</td> <td style="padding: 5px;">5</td> <td style="padding: 5px;">6</td> <td style="padding: 5px;">7</td> <td style="padding: 5px;">8</td> <td style="padding: 5px;">9</td> <td style="padding: 5px;">10</td> <td style="padding: 5px;">11</td> <td style="padding: 5px;">12</td> <td style="padding: 5px;">13</td> <td style="padding: 5px;">14</td> <td style="padding: 5px;">15</td> <td style="padding: 5px;">16</td> </tr> </table>						P.O	Week																1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
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	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16																							
References	<p>Main :</p> <p>1.</p> <p>[1] Saroyo, A.G., 2014, <i>Seri Fisika Dasar Mekanika</i>, edisi 5, Salemba Teknika.</p> <p>[2] Serway, R.A., and Jewett, J.W., 2010, <i>Physics for Scientists and Engineers with Modern Physics</i>, Salemba Teknika.</p> <p>[3] Halliday & Resnick, 2007, <i>Fisika Jilid 1</i>, Erlangga.</p> <p>[4] Bueche, F.J., 2000, <i>Schaum's Outline of College Physics</i>, McGraw-Hill.</p> <p>[5] Tim Fisika Dasar, 2014, <i>Petunjuk Praktikum Fisika Dasar I</i>, Laboratorium Fisika Dasar, Jurusan Fisika, FMIPA, Unesa.</p> <p>Supporters:</p>																																						
Supporting lecturer	Prof. Tjipto Prastowo, Ph.D. Diah Hari Kusumawati, S.Si., M.Si. Meta Yantidewi, S.Si., M.Si. Arie Realita, M.Si. Dr. Binar Kurnia Prahani, S.Pd., M.Pd.																																						
Week-	Final abilities of each learning stage (Sub-PO)	Evaluation			Help Learning, Learning methods, Student Assignments, [Estimated time]		Learning materials [References]	Assessment Weight (%)																															

		Indicator	Criteria & Form	Offline (offline)	Online (online)		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Students are able to understand the concept of particle kinematics	1. Analyze quantities, units and vectors in everyday life. 2. Analyze straight motion in everyday life. 3. Analyze curved motion in everyday life. 4. Analyze relative motion in everyday life. 5. Solve particle kinematics problems in everyday life.		3 X 50			0%
2	Students are able to understand the concept of particle dynamics	1. Analyze Newton's First Law in everyday life. 2. Analyzing Newton's Second Law in everyday life. 3. Analyzing Newton's Third Law in everyday life. 4. Solving problems regarding Newton's laws in everyday life.		3 X 50			0%
3	Students are able to understand the concept of particle dynamics	1. Analyze friction forces in everyday life. 2. Analyzing centripetal force in everyday life. 3. Analyzing gravitational forces in everyday life.		3 X 50			0%
4	Students are able to understand the concepts of work and energy	1. Analyze Business by fixed forces in everyday life. 2. Analyze Business by changing forces in everyday life. 3. Analyze efforts by a conservative style in everyday life. 4. Analyze business in a non-conservative style in everyday life. 5. Analyze kinetic energy in everyday life. 6. Analyzing potential energy in everyday life.		3 X 50			0%
5	Students are able to explain the concepts of work and energy	1. Analyzing Power in everyday life. 2. Analyze impulse and linear momentum in everyday life. 3. Analyzing the motion of the center of mass in everyday life.		3 X 50			0%
6	Students are able to understand the concept of rotation dynamics.	1. Analyze rotational motion vectors in everyday life. 2. Analyze angular momentum and moments of force in everyday life. 3. Analyzing Moments of inertia in everyday life.		3 X 50			0%

7	Students are able to understand the concept of rotation dynamics	1. Analyze the motion of rigid objects in everyday life. 2. Conservation of angular momentum in everyday life. 3. Balance of rigid bodies in everyday life.		3 X 50			0%
8				3 X 50			0%
9	Students are able to understand the concept of vibration	1. Analyzing the equation of harmonious vibrations 2. Analyzing the energy of harmonious vibrations in everyday life 3. Analyzing examples of vibrations in everyday life 4. Analyzing the combination of two harmonious vibrations in everyday life 5. Analyzing damped harmonic Vibrations in everyday life		3 X 50			0%
10	Students are able to understand the concept of mechanics of objects changing shape	1. Students can analyze elasticity phenomena in everyday life. 2. Students can solve problems in everyday life that are relevant to elasticity.		· Discussion · Problem solving · Independent assignment 6 X 50			0%
11	Students are able to understand the concept of mechanics of objects changing shape	1. Students can solve problems in everyday life that are relevant to hydrostatics. 2. Students can solve problems in everyday life that are relevant to hydrodynamics.		· Discussion · Problem solving · Independent assignment 6 X 50			0%
12	Students are able to understand the concepts of thermometry and calorimetry	1. Analyze the concept of temperature and thermometer. 2. Analyzing Expansion. 3. Analyzing the Effect of the Heat Concept. 4. Analyzing Black Principles. 5. Analyzing Calorimetry. 6. Solve problems related to thermometry and calorimetry in everyday life.		3 X 50			0%
13	Students are able to understand the concept of heat transfer	1. Analyze conduction in everyday life. 2. Analyzing radiation in everyday life. 3. Analyze convection in everyday life. 4. Solving problems related to heat transfer in everyday life.		3 X 50			0%

14	Students are able to understand the concept of thermodynamics	1. Analyze the 0th law of thermodynamics 2. Analyze the kinetic theory of gases 3. Analyze heat and work 4. Solve problems regarding thermodynamics in everyday life.		3 X 50			0%
15	Students are able to understand the concept of thermodynamics	1. Analyze the first law of thermodynamics 2. Analyze the heat capacity of an ideal gas 3. Analyze the 2nd law of thermodynamics 4. Analyze entropy 5. Solving problems regarding thermodynamics in everyday life		3 X 50			0%
16							0%

Evaluation Percentage Recap: Project Based Learning

No	Evaluation	Percentage
		0%

Notes

- Learning Outcomes of Study Program Graduates (PLO - Study Program)** are the abilities possessed by each Study Program graduate which are the internalization of attitudes, mastery of knowledge and skills according to the level of their study program obtained through the learning process.
- The PLO imposed on courses** are several learning outcomes of study program graduates (CPL-Study Program) which are used for the formation/development of a course consisting of aspects of attitude, general skills, special skills and knowledge.
- Program Objectives (PO)** are abilities that are specifically described from the PLO assigned to a course, and are specific to the study material or learning materials for that course.
- Subject Sub-PO (Sub-PO)** is a capability that is specifically described from the PO that can be measured or observed and is the final ability that is planned at each learning stage, and is specific to the learning material of the course.
- Indicators for assessing** ability in the process and student learning outcomes are specific and measurable statements that identify the ability or performance of student learning outcomes accompanied by evidence.
- Assessment Criteria** are benchmarks used as a measure or measure of learning achievement in assessments based on predetermined indicators. Assessment criteria are guidelines for assessors so that assessments are consistent and unbiased. Criteria can be quantitative or qualitative.
- Forms of assessment:** test and non-test.
- Forms of learning:** Lecture, Response, Tutorial, Seminar or equivalent, Practicum, Studio Practice, Workshop Practice, Field Practice, Research, Community Service and/or other equivalent forms of learning.
- Learning Methods:** Small Group Discussion, Role-Play & Simulation, Discovery Learning, Self-Directed Learning, Cooperative Learning, Collaborative Learning, Contextual Learning, Project Based Learning, and other equivalent methods.
- Learning materials** are details or descriptions of study materials which can be presented in the form of several main points and sub-topics.
- The assessment weight** is the percentage of assessment of each sub-PO achievement whose size is proportional to the level of difficulty of achieving that sub-PO, and the total is 100%.
- TM=Face to face, PT=Structured assignments, BM=Independent study.