Master Program of Science Education **Module Handbook**

Module Name :	*Kajian Fisika Sains I/* Study of Physical Science I*)
Module level :	Master Program of Science Education
Course Code :	8410102197
Abbreviation, if applicable:	-
Courses included in the module, if applicable:	Not Applicable
Semester/Term	2nd /First Year
Module coordinator(s)	Prof. Dr. Munasir, S.Si., M.Si.
Lecturer(s):	Prof. Dr. Budi Jatmiko, M.Pd.
Language:	Indonesian Language
Classification within the curriculum:	Compulsory/ ~~Elective~~
Teaching format/class hours per week during the semester:	2 contact hours of lectures (Indonesia credit semester or CU*)
Workload :	2 x 50 minutes lectures, 2 x 90 minutes structured activity, 2x 100 minutes individual activity, 14 weeks per semester, 112 total hours per semester ~ 4.48 ECTS**
Credit Point:	2 CU (4.48 ECTS)
Requirements:	
Learning goals/competencies:	1. Identify, apply, and analyze the basic concepts of mechanics in the problem of motion of objects in Classical mechanics (C1, C3, C4) 2. Represents the phenomenon of the motion system of objects in the form of a simple mathematical physical model to solve the problem of the motion system of objects in classical mechanics (C3) 3. Demonstrate personal and interpersonal skills in solving problems of object motion systems within the scope of classical mechanics (C2) 4. Demonstrate the ability to think critically in analyzing and solving object motion problems within the scope of classical mechanics (C2).
Content	The Mechanics course is a deepening of mechanics material in Basic Physics lectures. The study of mechanics discusses the concepts and principles of particle kinematics, particle dynamics, harmonic motion, central force, two-body problem systems, non-inertial frame of reference, N particle systems, rigid bodies, and Lagrange and Hamiltonian mechanics, terms of reference and the

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<tr><td></td><td>principle of Einstien relatives.</td></tr>
<tr><td>Attribute Soft skill:</td><td>Scientific report, public speaking, and team work</td></tr>
<tr><td>Study/exam achievements:</td><td>Students are considered to be competent and pass if at least get 70. Final score is calculated as follows: 20% Participation + 30% Assignment + 20% Middle Exam (UTS) + 30% Final Exam (UAS)
Table index of graduation:
<table>
<tr><th>Interval Score</th><th>Index</th></tr>
<tr><td>0 - 39,999</td><td>E</td></tr>
<tr><td>40 - 54,999</td><td>D</td></tr>
<tr><td>55 - 59,999</td><td>C</td></tr>
<tr><td>60 - 64,999</td><td>C+</td></tr>
<tr><td>65 - 69,999</td><td>B-</td></tr>
<tr><td>70 - 74,999</td><td>B</td></tr>
<tr><td>75 - 79,999</td><td>B+</td></tr>
<tr><td>80 – 84,999</td><td>A-</td></tr>
<tr><td>85 – 100</td><td>A</td></tr>
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<tr><td>Learning Methods :</td><td>Case Method and Discussion</td></tr>
<tr><td>Form of Media:</td><td>Power Point slides, e-book file, and multimedia.</td></tr>
<tr><td>Literature (primary references):</td><td>1. Berkshire, T. W. (2004). Classical Mechanics. London: Imperial College Press.
2. Fitzpatrick, R. (2006). Classical Mechanics: An introductory course. Texas: Lulu Enterprises, Inc.
3. Grant R. Fowles (2005). Analytical Mechanics: International student edition. USA: David Haris.
4. Murray R. Spiegel. (1967). Schaum’s Outline Series theory and Problems: Theoretical Mechanics. New York: Mc Graw-Hill Book Company.
5. Walter Greiner. 2003. Classical Theoretical: Point Particles and Relativity. New York: Springers
6. Walter Greiner. 2003. Classical Theoretical: Systems of Particles and Hamiltonian Dynamics. New York: Springers
7. Frederick J. Bueche, Eugene Hecht (2000). College Physics, Schaums’s Outlines: Crash Course. New York: Mc Graw-Hill Companies, Inc.</td></tr>
<tr><td rowspan="2">Notes:</td><td>*1 CU in learning process = three periods consist of: (a) scheduled instruction in a classroom (50 minutes); (b) structured activity (90 minutes); and (c) individual activity (100 minutes) according to according to Rector Decree of Universitas Negeri Surabaya No. 598/UN38/HK/AK/2020</td></tr>
<tr><td>**1 CU = 2.24 ECTS according to Rector Decree of Universitas Negeri Surabaya No. 598/UN38/HK/AK/2020</td></tr>
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	*Total ECTS = (total hours workload/ 60 min) / 25 hours **Each ECTS is equals with 25 hours**
Last Amendment	5 January 2023