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, 2 x 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:	**Knowledge (KNO-2)** **CLO-1** Mastering knowledge *basic concepts of mechanics in the problem of motion of objects in Classical mechanics* **CLO-2** Mastering knowledge and technology *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* **Competency (COM-3)** **CLO-3** Designing and creating d*emonstrate personal and interpersonal skills in solving problems of object motion systems within the scope of classical mechanics.*

<table>
<tr><td></td><td>CLO-4

Designing and creating demonstrate the ability to think critically in analyzing and solving object motion problems within the scope of classical mechanics</td></tr>
<tr><td>Content</td><td>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 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)

Final index is defined as follow:

<table>
<tr><th>Index</th><th>Converted Score</th><th>Score Range</th></tr>
<tr><td>A</td><td>4.00</td><td>85 ≤ A ≤ 100</td></tr>
<tr><td>A-</td><td>3.75</td><td>80 ≤ A- < 85</td></tr>
<tr><td>B+</td><td>3.50</td><td>75 ≤ B+ < 80</td></tr>
<tr><td>B</td><td>3.00</td><td>70 ≤ B < 75</td></tr>
<tr><td>B-</td><td>2.75</td><td>65 ≤ B- < 70</td></tr>
<tr><td>C+</td><td>2.50</td><td>60 ≤ C+ < 65</td></tr>
<tr><td>C</td><td>2.00</td><td>55 ≤ C < 60</td></tr>
<tr><td>D</td><td>1.00</td><td>40 ≤ D < 55</td></tr>
<tr><td>E</td><td>0.00</td><td>0 ≤ E < 40</td></tr>
</table></td></tr>
<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</td></tr>
</table>

	7. *Frederick J. Bueche, Eugene Hecht (2000). College Physics, Schaums's Outlines: Crash Course. New York: Mc Graw-Hill Companies, Inc.*
Notes:	**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*
	***1 CU = 2.24 ECTS according to Rector Decree of Universitas Negeri Surabaya No. 598/UN38/HK/AK/2020*
	Total ECTS = (total hours workload/ 60 min) / 25 hours* **Each ECTS is equals with 25 hours
Last Amendment	*5 January 2023*