



MINISTRY OF EDUCATION AND CULTURE
UNIVERSITAS NEGERI SURABAYA
FACULTY OF MATHEMATICS AND NATURAL SCIENCES
DEPARTMENT OF PHYSICS

Ketintang Campus, Jalan Ketintang, C3 Building, Surabaya 60231
 Website: <https://pendidikan-fisika.fmipa.unesa.ac.id/>, email: s1-pfis@unesa.ac.id

Undergraduate Programme of Physics Education

Module Handbook

Module Name :	<i>Mekanika</i> Mechanics
Module level :	Bachelor degree/Undergraduate Programme
Course Code :	8420304130
Abbreviation, if applicable:	-
Courses included in the module, if applicable:	Not Applicable
Semester/Term	3/Second Year
Module coordinator(s)	Prof. Dr. Budi Jatmiko, M.Pd.
Lecturer(s):	Prof. Dr. Budi Jatmiko, M.Pd. Prof. Dr. Munasir, M.Si. Dr. Dwikoranto, M.Pd. Woro Setyarsih, S.Pd., M.Si. Nugrahani Primary Putri, M.Si.
Language:	<i>Bahasa Indonesia</i>
Classification within the curriculum:	Compulsory/ Elective
Teaching format/class hours per week during the semester:	4 contact hours of lectures (Indonesia credit semester or sks*)
Workload :	4 x 50 minutes lectures, 4 x 60 minutes structured activity, 4 x 60 minutes individual activity, 14 weeks per semester, 180 total hours per semester ~ 6.36 ECTS**
Credit Point:	4 sks (6.36 ECTS)
Requirements:	Basic Physics I Basic Physics II
Learning goals/competencies:	<ol style="list-style-type: none"> 1. Identify, apply, and analyze basic concepts of mechanics and vectors in mechanics problems 2. Representing the phenomenon of the motion system of objects in the form of a simple mathematical physical model to solve the problem of the object's motion system 3. Demonstrate personal and interpersonal skills in solving object motion system problems 4. Demonstrate critical thinking skills in analyzing and solving object motion problems
Content	Mechanics course is a mechanics material in Basic Physics lectures. The study of mechanics discusses the concepts and principles of particle kinematics, particle dynamics, harmonic motion, central forces, non-inertial reference frames, particle systems, rigid bodies, and Lagrange and Hamiltonian mechanics.
Attribute Soft skill:	Scientific report, public speaking, and team work



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Study/exam achievements:	Students are considered to complete the course and pass if they obtain at least 40% of maximum final grade. The final grade (NA) is calculated based on the following ratio:										
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Assessment Components</th> <th style="text-align: left;">Percentage of contribution</th> </tr> </thead> <tbody> <tr> <td>Participation</td> <td style="text-align: right;">20%</td> </tr> <tr> <td>Assignment</td> <td style="text-align: right;">30%</td> </tr> <tr> <td>Mid-semester test</td> <td style="text-align: right;">20%</td> </tr> <tr> <td>Final semester test</td> <td style="text-align: right;">30%</td> </tr> </tbody> </table>	Assessment Components	Percentage of contribution	Participation	20%	Assignment	30%	Mid-semester test	20%	Final semester test	30%
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Final semester test	30%										
Learning Methods :	Student-centered approach, lecture and discussion, and presentations (structured activities)										
Form of Media:	<i>Power Point</i> slides, e-book file, and multimedia.										
Literature (primary references):	<ol style="list-style-type: none"> 1. Alessandro Bettini. 2016. Undergraduate Lecture Notes in Physics: A Course in Classical Physics 1—Mechanics. Springer International Publishing Switzerland 2. Benacquista, Matthew J. Romano, Joseph D. 2018. Undergraduate Lecture Notes in Physics: Classical Mechanics. Springer International Publishing AG. 3. Helrich, Carl S. 2017. Undergraduate Lecture Notes in Physics: Analytical Mechanics. Springer International Publishing Switzerland. 4. Greiner, W., 2004, Classical Mechanics-Point Particles and Relativity, Springer. 5. Grant R. Fowles, and George L. Cassiday. 2005. Analytical Mechanics, (Seventh Edition)-Thomson Learning - Brooks_Cole. 6. Fowles, G.R., 1999, Analytical Mechanics, Seventh Edition, New York: Saunders College Publishing 7. Arya, P. Atam, 1990, Introduction to Classical Mechanics, Prentice Hall. 										
Notes:	<p>*1 sks in learning process = three periods consist of: (a) scheduled instruction in a classroom or laboratory (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. 44 Year 2015 jo. the Regulation of Indonesia Ministry of Research, Technology, and Higher Education No. 50 Year 2018.</p> <p>**1 sks = 1,59 ECTS according to Rector Decree Of Universitas Negeri Surabaya No. 598/Un38/Hk/Ak/2019</p>										