



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>Fisika Dasar I</i> Basic Physics I
Module level :	Bachelor degree/Undergraduate Programme
Course Code :	8420303065
Abbreviation, if applicable:	-
Courses included in the module, if applicable:	Not Applicable
Semester/Term	1/First Year
Module coordinator(s)	Dr. Z.A. Imam Supardi, M.Si.
Lecturer(s):	Dr. Z.A. Imam Supardi, M.Si Woro Setyarsih, S.Pd., M.Si Dra. Suliyanah, M.Si Diah Hari Kusumawati, M.Si Drs. Dwikoranto, M.Pd Nugrahani Primary Putri, M.Si Dr. Titin Sunarti, M.Si. Mukhayyarotin Niswati Rodliyatul Jauhariyah, M.Pd. Utama Alan Deta, S.Pd., M.Pd., M.Si. Dr. Binar Kurnia Prahani, M.Pd.
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:	
Learning goals/competencies:	<ol style="list-style-type: none">1. Be able to explain basic concepts and principles of kinematics, particle dynamics and rotation, vibration, heat transfer, and thermodynamics.2. Mastering the material, structure, and concepts of physical science and its application in technology.3. Using basic physics concepts and proper mathematical methods to get solutions to quantitative problems in physics.4. Able to work in groups in the discussion process related to the mechanics and thermodynamics concepts that are being discussed during the lesson.



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Content	<p>The study of quantities, units and measurements, particle kinematics (one, two and three dimensional motion), particle dynamics (Newton's laws and their use, work and energy, linear momentum and collisions), rotational dynamics (rotation of rigid bodies, angular momentum and force moments , rigid body equilibrium), harmonious vibrations, universal laws of gravity, fluid mechanics, mechanical waves (sound waves, superposition and standing waves), thermophysics (temperature, expansion and ideal gases, heat) and the laws of thermodynamics I (kinetic theory of gases) and laws thermodynamics II (heat engine, ethropy) by observing physical phenomena in everyday life and analyzing them by applying learned physics concepts, problem solving, guided discovery</p>										
Attribute Soft skill:	Scientific report, public speaking, and team work										
Study/exam achievements:	<p>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:</p> <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: center;">20%</td> </tr> <tr> <td>Assignment</td> <td style="text-align: center;">30%</td> </tr> <tr> <td>Mid-semester test</td> <td style="text-align: center;">20%</td> </tr> <tr> <td>Final semester test</td> <td style="text-align: center;">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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Mid-semester test	20%										
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. Sarojo, A.G., 2014, Seri Fisika Dasar Mekanika, edisi 5, Salemba Teknika. 2. Halliday & Resnick, 2007, Fisika Jilid 1, Erlangga 3. Serway, R.A., and Jewett, J.W., 2010, Physics for Scientists and Engineers with Modern Physics, Salemba Teknika 4. Bueche, F.J., 2000, Schaum's Outline of College Physics, McGraw-Hill. 										
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>										



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