



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: <http://s1-fisika.fmipa.unesa.ac.id/>, email: s1-fisika@unesa.ac.id

Undergraduate Programme In Physics

Module Handbook

Module Name :	<i>Fisika Matematika III</i> Mathematical Physics III
Module level :	Bachelor degree/Undergraduate Programme
Course Code :	4520103233
Abbreviation, if applicable:	-
Courses included in the module, if applicable:	Not Applicable
Semester/Term	4/Second Year
Module coordinator(s)	Dr. Z.A. Imam Supardi, M.Si
Lecturer(s):	Dr. Z.A. Imam Supardi, M.Si Nugrahani Primary Putri, M.Si Dr. Muhimmatul Khoiro, S.Si
Language:	<i>Bahasa Indonesia</i>
Classification within the curriculum:	Compulsory/ Elective
Teaching format/class hours per week during the semester:	3 contact hours of lectures (Indonesia credit semester or sks*)
Workload :	a. Lecture: 2 x 50 minutes lectures, 2 x 60 minutes structured activity, 2 x 60 minutes individual activity, 14 weeks per semester, 79.33 total hours per semester ~ 3.18 ECTS b. Lab activity: 1x170 minutes lab activity, 14 weeks per semester 39.67 total hours of lab activity per semester ~ 1.59 ECTS Total of lecture and lab activity= 119 total hours per semester ~ 4.77 ECTS**
Credit Point:	3 sks (4.77 ECTS)
Requirements:	Physical Mathematics II



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Learning goals/competencies:	1. Students master classical and modern physics knowledges to identify the properties of a simple physical systems using physics mathematics approach 2. Students are able to formulate problems of a simple physical systems into mathematics models using relevant symbolic/numeric languages 3. Students are able to use high level thinking process to form solutions of the simple physical models 4. Students are able to use scientific attitude, critical thinking, and innovation skills to study problems of physics learning using mathematics supports										
Content	This course study about: matrix and vector space, three dimensions vector analysis, tensor analysis, and complex variable functions using active learning with combination of discussion methods, question and answer (Q&A) and IT supported assignments in Python Programming Language										
Attribute Soft skill:	Scientific report, public speaking, programming skills and team work										
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"> <thead> <tr> <th>Assessment Components</th><th>Percentage contribution of</th></tr> </thead> <tbody> <tr> <td>Participation</td><td>20%</td></tr> <tr> <td>Assignment</td><td>30%</td></tr> <tr> <td>Mid-semester test</td><td>20%</td></tr> <tr> <td>Final semester test</td><td>30%</td></tr> </tbody> </table>	Assessment Components	Percentage contribution of	Participation	20%	Assignment	30%	Mid-semester test	20%	Final semester test	30%
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Learning Methods :	1. Student-centered approach, 2. Lecture and discussion, 3. Laboratorium activity 4. Presentations										
Form of Media:	Power Point slides, e-book file, multimedia, and Python software										



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Literature references):	(primary	1. Boas, M.L. 2006. Mathematical Methods in the Physical Science, edisi 3, John Wiley & Sons, New York. 2. Arfken, G. 1995. Mathematical Methods for Physicists, Academic Press. 3. Riley, K.F., Hobson, M.P., Bence, S.J. 2006. Mathematical Methods for Physics and Engineering, edisi 3, Cambridge Univ. Press. 4. Hassani, Sadri. 2009. Mathematical methods for students of physics and related fields, 2nd ed. Springer, Illinois.
Notes:		*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. **1 sks = 1,59 ECTS according to Rector Decree Of Universitas Negeri Surabaya No. 598/Un38/Hk/Ak/2019