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 :	*Fisika Matematika I* Mathematical Physics I
Module level :	Bachelor degree/Undergraduate Programme
Course Code :	8420303081
Abbreviation, if applicable:	-
Courses included in the module, if applicable:	Not Applicable
Semester/Term	2/First 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 Dzulkiflih, S.Si., M.T. Dr. Muhimmatul Khoiro, M.Si
Language:	*Bahasa Indonesia*
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 :	3 x 50 minutes lectures, 3 x 60 minutes structured activity, 3 x 60 minutes individual activity, 14 weeks per semester, 135 total hours per semester ~ 4.77 ECTS**
Credit Point:	3 sks (4.77 ECTS)
Requirements:	Basic Mathemathics
Learning goals/competencies:	1. Students are able to formulate simple physical systems related to mechanics and thermodynamics into mathematical model using relevant symbolic/numeric language. 2. Students are able to solve problems in simple physical systems related to mechanics and thermodynamics using mathematical physics and computational approach. 3. Students are able to analyze a simple physical system related to mechanics and thermodynamics using mathematical physics and computational approach.
Content	This course examines infinite series, partial differential, ordinary differential equations, and vector analysis through active learning by combining the methods of discussion, questions and answers, also assignment using IT.
Attribute Soft skill:	Scientific report, public speaking, 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:

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	Assessment Components	Percentage of contribution
	Participation	20%
	Assignment	30%
	Mid-semester test	20%
	Final semester test	30%
Learning Methods :	Student-centered approach, lecture and discussion, and presentations (structured activities)	
Form of Media:	*Power Point* slides, e-book file, and multimedia.	
Literature (primary references):	1. Boas, M.L. 2006. Mathematical Methods in the Physical Science, 3rd ed. New York: John Wiley & Sons. 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, 3rd ed. Cambridge Univ. Press. 4. Hassani, Sadri. 2009. Mathematical Methods for Students of Physics and Related Fields, 2nd ed. Illinois: Springer.	
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	