



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](mailto:s1-pfis@unesa.ac.id)

Undergraduate Programme of Physics Education

Module Handbook

Module Name :	<i>Fisika Matematika II</i> Mathematical Physics II
Module level :	Bachelor degree/Undergraduate Programme
Course Code :	8420303238
Abbreviation, if applicable:	-
Courses included in the module, if applicable:	Not Applicable
Semester/Term	3/Second Year
Module coordinator(s)	Dr. Z.A. Imam Supardi, M.Si
Lecturer(s):	Dr. Z.A. Imam Supardi, M.Si Drs. Supardiyono, M.Si Nugrahani Primary Putri, M.Si Dzulkiflih, S.Si., M.T
Language:	<i>Bahasa Indonesia</i>
Classification within the curriculum:	Compulsory/ <del>Elective</del>
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:	Mathematical Physics I
Learning goals/competencies:	<ol style="list-style-type: none"><li>1. Students master classical and modern physics knowledges to identify the properties of a simple physical systems</li><li>2. Students are able to formulate problems of a simple physical systems into mathematics models using relevant symbolic/numeric languages</li><li>3. Students are able to use high level thinking process to form solutions of the simple physical models</li><li>4. Students are able to use scientific attitude, critical thinking, and innovation skills to study problems of physics learning using mathematics supports</li></ol>
Content	This course study about: complex numbers, Fourier series, special functions, solutions of differential equations, and partial differential equations using active learning with combination of discussion methods, question and answer (Q&A) and IT supported assignments
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: right;">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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	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:	<i>Power Point</i> slides, e-book file, and multimedia.										
Literature (primary references):	<ol style="list-style-type: none"> <li>1. Boas, M.L. 2006. <i>Mathematical Methods in the Physical Science</i>, edisi 3, John Wiley &amp; Sons, New York.</li> <li>2. Arfken, G. 1995. <i>Mathematical Methods for Physicists</i>, Academic Press.</li> <li>3. Riley, K.F., Hobson, M.P., Bence, S.J. 2006. <i>Mathematical Methods for Physics and Engineering</i>, edisi 3, Cambridge Univ. Press.</li> <li>4. Hassani, Sadri. 2009. <i>Mathematical methods for students of physics and related fields</i>, 2nd ed. Springer, Illinois.</li> </ol>										
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										