MINISTRY OF EDUCATION, CULTURE, RESEARCH, AND TECHNOLOGY
UNIVERSITAS NEGERI SURABAYA
FACULTY OF MATHEMATICS AND NATURAL SCIENCE
UNDERGRADUATE PROGRAM OF MATHEMATICS
Ketintang Campus, C8-C9 Buildings of FMIPA, Surabaya
Email: s1-mat@unesa.ac.id

Module Handbook

Module Name :	*Pemodelan Matematika* Mathematics Modelling
Module level :	Bachelor degree/Undergraduate Program
Course Code :	4420103088
Abbreviation, if applicable:	-
Courses included in the module, if applicable:	Not Applicable
Semester/Term	7th/ fourth year
Module coordinator(s)	Dr. Abadi, M.Sc.
Lecturer(s):	Dr. Yusuf Fuad, M.App.Sc. Dr. Dian Savitri, M.Si. Dimas Avian Maulana, M.Si.
Language:	Bahasa Indonesia (Indonesian Language)
Classification within the curriculum:	Compulsory/ ~~Elective~~
Teaching format/class hours per week during the semester:	3 contact hours of lectures (*sks* or credit unit*)
Workload :	3 x 50 minutes lectures, 3 x 60 minutes structured activity, and 3 x 60 minutes individual activity per week, 14 weeks per semester 119 total hours per semester ~ 4.76 ECTS**
Credit Unit:	3 credit unit (4.76 ECTS)
Requirements:	Partial Differential Equation

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Learning goals/competencies:	**Knowledge (KNO-1:** Demonstrating mathematical knowledge and mathematical insight**)** CLO-1: Able to demonstrate knowledge and insight related to simple mathematical modelling in everyday life, mathematical modelling in physics, evolution-based mathematical modelling, and mathematical modelling in economics **Skill (SKI-2:** Formulating and solving fundamental mathematical problems**)** CLO-2: Able to use mathematical concepts and ordinary differential equations to solve simple mathematical modelling problems in everyday life, mathematical modelling in physics, evolutionary-based mathematical modelling, and mathematical modelling in economics
Content	This course discusses about the basic concepts of mathematical modelling, model formation approaches, implementing mathematical thinking frameworks to design, analyze, and evaluate problem-solving in everyday life through individual and group task-based learning and present the results well.. Lecture activities are carried out in a student center with discussions, observations, project assignments, and presentations.

Attribute Soft skill:	Active communication; Discipline; Collaboration; Responsibility; and Argumentation in class.
Study/exam achievements:	The final grade (*NA*) is calculated based on the following ratio:

Assessment Components	Percentage of contribution
Participation	20%
Assignment	30%
Mid-semester test	20%
Final semester test	30%

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<table>
<tr><td></td><td>Grade conversion of 0-100 scale into 0-4 scale is set as below:
<table>
<tr><th>Letter</th><th>Number</th><th>Grade Interval</th></tr>
<tr><td>A</td><td>4,00</td><td>85 ≤ A ≤ 100</td></tr>
<tr><td>A-</td><td>3,75</td><td>80 ≤ A- < 85</td></tr>
<tr><td>B+</td><td>3,50</td><td>75 ≤ B+ < 80</td></tr>
<tr><td>B</td><td>3,00</td><td>70 ≤ B < 75</td></tr>
<tr><td>B-</td><td>2,75</td><td>65 ≤ B- < 70</td></tr>
<tr><td>C+</td><td>2,50</td><td>60 ≤ C+ < 65</td></tr>
<tr><td>C</td><td>2,00</td><td>55 ≤ C < 60</td></tr>
<tr><td>D</td><td>1,00</td><td>40 ≤ D < 55</td></tr>
<tr><td>E</td><td>0,00</td><td>0 ≤ E < 40</td></tr>
</table></td></tr>
<tr><td>Learning Methods :</td><td>Student-centered approach; project-based learning; lecturer and discussion; and presentations (structured activities)</td></tr>
<tr><td>Form of Media:</td><td>Power point slides; video; worksheets, and textbooks</td></tr>
<tr><td>Literature (primary references):</td><td>1. Fox, W. P., et al. 2014. A First Course in Mathematical Modelling, 5th edition. Boston. Cengage Learning.
2. Dym, C. L., 2004. Principle of Mathematical Modelling, 2nd edition, California. Elsevier Academic Press.
3. Bellomo, N., et al. 2010. Lecture Notes on Mathematical Modelling in Applied Sciences. Politecnico Torino.</td></tr>
<tr><td>Notes:</td><td>*1 credit unit or 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.</td></tr>
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	**1 credit unit or *sks* = 1.59 ECTS according to Rector Decree Of Universitas Negeri Surabaya No. 598/UN38/HK/AK/2019