



Module Handbook

Module Name :	<i>Komputasi Matematika</i> Mathematical Computation
Module level :	Bachelor degree/Undergraduate Program
Course Code :	4420103063
Abbreviation, if applicable:	-
Courses included in the module, if applicable:	Not Applicable
Semester/Term	7 th / fourth year
Module coordinator(s)	Dr. Atik Wintarti, M.Kom.
Lecturer(s):	Dr. Atik Wintarti, M.Kom. Dr. Elly Matul Imah, M.Kom
Language:	Bahasa Indonesia (Indonesian Language)
Classification within the curriculum:	Compulsory / Elective
Teaching format/class hours per week during the semester:	2 contact hours of lectures (<i>sks</i> 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 ~4.77 ECTS**
Credit Unit:	3 credit unit (4.77 ECTS)
Requirements:	Integral Calculus, Discrete Mathematics, Data Structures and Algorithm Analysis, Linear Algebra



<p>Learning goals/competencies:</p>	<p>KNO 1 (Demonstrating mathematical knowledge and mathematical insight)</p> <p>CLO-1: Understanding procedural analysis using counting and mathematical modelling</p> <p>SKI 4 (Implementing simple mathematical procedures in computer programs)</p> <p>CLO-2: Make use of mathematics software in simulating the optimization, approximation, and data analysis problem based on exploration and logical reasoning</p> <p>COM 3 (Solving mathematical problems using technology)</p> <p>CLO-3: Interpret and Communicate by using mathematics software in simulating the solution of optimization, approximation, and data analysis problems</p> <p>SOC 1 (Working collaboratively and having social sensitivity (obligations as citizens and towards religion) and being able to bring change to a techno-ecopreneurship community.)</p> <p>CLO-4: Make problem decisions based on the theoretical concept of techno-ecopreneurship using mathematics software</p>
<p>Content</p>	<p>This subject discusses the application of mathematics software (Phyton/ Octave/ Matlab/ Scilab/ Maple), non-constraint optimization problem for single variable and multi-variables functions, function approximation for both classification and regression, Fourier and Wavelet, noise reduction, prediction and clustering. Lectures are carried out with task-based project in both individual and a group by simulating the result using computer program presented theoretically.</p>

<p>Attribute Soft skill:</p>	<p>Active communication; Discipline; Collaboration; Responsibility; and Argumentation in class.</p>									
<p>Study/exam achievements:</p>	<p>The final grade (<i>NA</i>) is calculated based on the following ratio:</p> <table border="1" data-bbox="539 1765 1347 2020"> <thead> <tr> <th data-bbox="539 1765 943 1827">Assessment Components</th> <th data-bbox="943 1765 1347 1827">Percentage of contribution</th> </tr> </thead> <tbody> <tr> <td data-bbox="539 1827 943 1890">Participation</td> <td data-bbox="943 1827 1347 1890">20%</td> </tr> <tr> <td data-bbox="539 1890 943 1953">Assignment</td> <td data-bbox="943 1890 1347 1953">30%</td> </tr> <tr> <td data-bbox="539 1953 943 2020">Mid-semester test</td> <td data-bbox="943 1953 1347 2020">20%</td> </tr> </tbody> </table>		Assessment Components	Percentage of contribution	Participation	20%	Assignment	30%	Mid-semester test	20%
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Learning Methods :	Student-centered approach; project-based learning; lecturer and discussion; and presentations (structured activities)																																
Form of Media:	Power point slides; video; worksheets, and textbooks																																
Literature (primary references):	<ol style="list-style-type: none"> 1. Affandi, Idrus and Karim Suryadi. 2005. Human Rights. Jakarta: Open University Publishing Center 2. Cogan, Johan L and Murry Print. 2012. Civic Education in The Asia Pacific Regional. Roeledge. ISBN -0415932130 3. Niemi, Richard G and Jane Junn. 2005. Civic Education: What Make Student Learn. The University of Chicago Press. S. Sumarsono, et al, Citizenship Education, Publisher PT. Gramedia Pustaka Utama, Jakarta, 2001 4. Team. MPK-Unesa Citizenship Education. 2015. Citizenship Education. Surabaya: Unesa University Press 5. UGM Lecturer Team. 2002. Citizenship Education. Yogyakarta: Paradigm 7., RI Law no. 3 of 2002 concerning National Defense. Publisher "Citra Umbara", Bandung, 2002 6. Law No. 12 of 2006 on Indonesian Citizenship. Publisher "Cemerlang", Jakarta, 2006. 7. Laws relevant to learning materials 																																



Notes:	*1 credit unit or <i>sks</i> 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 credit unit or <i>sks</i> = 1.59 ECTS according to Rector Decree Of Universitas Negeri Surabaya No. 598/UN38/HK/AK/2019