



UNIVERSITAS NEGERI YOGYAKARTA

FACULTY OF MATHEMATICS AND NATURAL SCIENCES
DEPARTMENT OF MATHEMATICS EDUCATION

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Bachelor of Education in Mathematics

MODULE HANDBOOK

Module name:	Differential Equations
Module level, if applicable:	Undergraduate
Code:	MAT6314
Sub-heading, if applicable:	-
Classes, if applicable:	-
Semester:	4 th
Module coordinator:	Eminugroho Ratna Sari, M.Sc.
Lecturer(s):	Eminugroho Ratna Sari, M.Sc., Dr. Jailani
Language:	Bahasa Indonesia
Classification within the curriculum:	Compulsory course
Teaching format / class hours per week during the semester:	150 minutes lectures and 180 minutes structured activities per week.
Workload:	Total workload is 136 hours per semester which consists of 150 minutes lectures, 180 minutes structured activities, and 180 minutes self-study per week for 16 weeks.
Credit points:	3
Prerequisites course(s):	Integral Calculus (MAT6307)
course outcomse:	After taking this course the students have ability to: CO1. Demonstrate collaborative attitude and independence to do individual or group assignments CO2. Communicate ideas in solving mathematical problems in writing or verbally

	<p>CO3. Explain the concepts and how to solve differential equations in one or higher order, homogeneous or non-homogeneous</p> <p>CO4. Formulate a mathematical model regarding differential equation problems</p>																							
<p>Content:</p>	<p>The course contains discussion on definition and solution of differential equation, exact solution of first order equation, method of grouping, integrating factor, separable equation, homogeneous equation, linear equation, Bernoulli equation, special integrating factor, special transformation, homogeneous equation with constant coefficients, undetermined coefficients method, variation of parameters, and Cauchy-Euler equation.</p>																							
<p>Study / exam achievements:</p>	<p>Attitude assessment is carried out at each meeting by observation and / or self-assessment techniques using the assumption that basically every student has a good attitude. The student is given a value of very good or not good attitude if they show it significantly compared to other students in general. The result of attitude assessment is not a component of the final grades, but as one of the requirements to pass the course. Students will pass from this course if at least have a good attitude.</p> <p>The final mark will be weight as follow:</p> <table border="1" data-bbox="620 1493 1429 1898"> <thead> <tr> <th>No</th> <th>CO</th> <th>Assessment Object</th> <th>Assessment Technique</th> <th>Weight</th> </tr> </thead> <tbody> <tr> <td rowspan="5">1</td> <td rowspan="5">CO2, CO3, and CO4</td> <td>a. Individual assessment</td> <td rowspan="5">Presentation/ Written test</td> <td>10%</td> </tr> <tr> <td>b. Group assessment (including presentation)</td> <td>20%</td> </tr> <tr> <td>c. Quiz</td> <td>10%</td> </tr> <tr> <td>d. Mid exam</td> <td>30%</td> </tr> <tr> <td>e. Final exam</td> <td>30%</td> </tr> <tr> <td colspan="4">Total</td> <td>100%</td> </tr> </tbody> </table>	No	CO	Assessment Object	Assessment Technique	Weight	1	CO2, CO3, and CO4	a. Individual assessment	Presentation/ Written test	10%	b. Group assessment (including presentation)	20%	c. Quiz	10%	d. Mid exam	30%	e. Final exam	30%	Total				100%
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		e. Final exam		30%																				
Total				100%																				

Forms of media:	Board, LCD Projector, Laptop/Computer
Literature:	<ol style="list-style-type: none"> 1. Ross, S.L, <i>Differential Equations</i>, 1984, J. Willey, New York 2. Boyce, W.E., dan Dprima, R.C. <i>Elementary Differential Equations dan Boundary Value Problems</i>, 1992, J. Willey, New York. 3. Zill, Dennis G., Cullen, Michael R. 1997. <i>Differential Equations with Boundary-value Problems</i>. Fourth Edition. USA : Brooks/Cole Publishing Company. 4. Trench, W.F. 2013. <i>Elementary Differential Equations</i>.

PLO and CO Mapping

	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PLO11	PLO12
CO1		✓										
CO2			✓									
CO3					✓							
CO4							✓					