UNIVERSITAS NEGERI YOGYAKARTA
FACULTY OF MATHEMATICS AND NATURAL SCIENCES
DEPARTMENT OF MATHEMATICS EDUCATION
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Bachelor of Science in Mathematics **MODULE HANDBOOK**

Module name:	Partial Differential Equations
Module level,ifapplicable:	Undergraduate
Code:	MAT6320
Sub-heading,ifapplicable:	-
Classes,ifapplicable:	-
Semester:	4^{th}
Module coordinator:	Nikenasih B, M.Sc
Lecturer(s):	Nikenasih B, M.Sc
Language:	Bahasa Indonesia
Classification within the curriculum:	Compulsory course
Teaching format / class hours perweek 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.
Creditpoints:	3
Prerequisites course(s):	Differential Equations (MAT6314)
course outcomes:	After taking this course the students have ability to: CO1. demonstrate collaborative attitude and independence to do individual or group assigntments CO2.Communicate ideas in solving mathematical problems in writing or verbally CO3.Understanding the motivation to learn partial differential

<table>
<tr><td></td><td>equations and their relation to elementary differential equations.
CO4.solving partial differential equation linear order one, semilinear and quasilinear
CO5.solving partial differential order two, parabolic, hyperbolic, elliptic
CO6. Understanding Fourier series concept
CO7. Understanding separation variable method.
CO8. Analyzing first-order partial differential models of conservation law equations and applying them to the case of traffic flow
CO9. Understanding "The Big Three Models" : Heat Equations, Laplace Equations and Wave Equations
CO10. Using MAPLE software to analyze results</td></tr>
<tr><td>Content:</td><td>The course contains discussion on First order of partial differential equation, classifications: hyperbolic, parabolic, and elliptic, characteristic’s curve, d’alembert equation, Fourier series, convergence of Fourier series, odd and even function, separation of variable’s method, The Big Three Equations.</td></tr>
<tr><td>Study/exam achievements:</td><td>CO1: 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.

The final mark will be weight as follow:

<table>
<tr><th>No</th><th>CO</th><th>Assessment Object</th><th>Assessment Technique</th><th>Weight</th></tr>
<tr><td>1</td><td>CO 2</td><td>presentation</td><td>Observation</td><td>10%</td></tr>
<tr><td></td><td>CO</td><td>a. Individual</td><td>Written test</td><td>10%</td></tr>
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		3,CO 4, CO 5, CO 6 and CO 7	assessment b. Quiz c. Mid exam d. Final exam		10% 20% 25%
		CO 8, CO 9 and CO 10	Group assessment	Written test	25%
				Total	100%
Forms of media:	Board, LCD Projector, Laptop/Computer				
Literature:	1. Binatari, Nikenasih. 2019. Modul Persamaan Diferensial Parsial. 2. Haberman, Richard. 2013. Applied Partial Differential Equations with Fourier Series and Boundary Value Problems, 5th Ed. USA. Pearson. 3. Agarwal, Ravi P. O'Regan, Donal. 2009. Ordinary and Partial Differential Equations. USA. Springer. 4. Zaghmanoglou, E.C. Thoe, Dale W. Introduction to Partial Differential Equation with Application. New York. Dover Publications, Inc.				

PLO and CO mapping

	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10
CO1		✓								
CO2			✓							
CO3					✓					
CO4					✓					
CO5					✓					
CO6					✓					
CO7					✓					
CO8							✓			
CO9							✓			
CO10										✓