



UNIVERSITAS NEGERI PADANG
FACULTY OF MATHEMATICS AND NATURAL SCIENCES
MATHEMATICS DEPARTMENT, MATHEMATICS EDUCATION STUDY PROGRAM
Main Campus Universitas Negeri Padang,
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Bachelor of Mathematics Education

MODULE HANDBOOK

Module name:	Ordinary Differential Equations
Module level, if applicable:	Bachelor
Code:	MAT1.61.5101
Sub-heading, if applicable:	-
Classes, if applicable:	Ordinary Differential Equations
Semester:	5 th (fifth)
Module coordinator:	Drs. H. Yarman, M.Pd.
Lecturer(s):	Drs. H. Yarman, M.Pd., and Team
Language:	Bahasa Indonesia and English
Classification within the curriculum:	Program Study Compulsory Course
Teaching format / class hours per week during the semester:	Teaching format: <ul style="list-style-type: none">• Lectures (face to face activities): Problem Based Learning with presentations, group and class discussion and expository methods)• Structured assignment,• Independent activities,• Practice 3 x 170 minutes = 510 minutes = 8.50 hours
Workload:	16 weeks per semester include Midterm exam and Final exam which consist of: <ul style="list-style-type: none">• 1.67 hours lectures (2 x 50 minutes) per week,• 2hours structured assignments (2 x 60 minutes) per week,• 2 hours independent activities (2 x 60 minutes) per week• 2.83 hours practice (1 x 170) per week 16 x 170 x 3 = 8160 Minutes =136 hours = 4.53 ECTS
Credit points:	3 SKS (4.53 ECTS)
Prerequisites course(s):	Calculus and Elementary Linear Algebra

<p>Course outcomes:</p>	<p>After taking this course the students have ability to:</p> <p>CO1: Explain the concepts of differential equations & its solutions, first-order differential equations & its solutions, higher order differential equations & its solutions and linier differential equations.</p> <p>CO2: Apply the concepts of differential equations & its solutions, first-order differential equations & its solutions, higher order differential equations & its solutions and linier differential equations.</p> <p>CO3: Analyze the problems in real life that have connection with concepts of differential equations & its solutions, first-order differential equations & its solutions, higher order differential equations & its solutions and linier differential equations.</p> <p>CO4: Show responsibility attitude towards works by self and by team works.</p>
<p>Content:</p>	<p>This course discusses:</p> <ol style="list-style-type: none"> 1. the types and orders of differential equations 2. initial value problems and boundary value problems 3. first order ordinary differential equations 4. methods of solving first order ordinary differential equations 5. high order ordinary differential equations and methods of solving them 6. solving contextual problems that can be modeled using ordinary differential equations 7. solving differential equations with power series 8. Frobenius method 9. Bessel functions 10. Legendre polynomials 11. systems of differential equations and their applications
<p>Study/exam achievements:</p>	<p>Total Score = (30% x Midterm Exam Score) + (35% x Final Exam Score) + (20% x Assignment) + (15% x Affective Score, participation and attendance)</p> <p>The initial cut - off points for grades A, A-, B+, B, B-, C+, C, C-, and D should not be less than 85, 80, 75, 70, 65, 60, 55, 50, and 40 out of 100 respectively.</p> <p>Explanation:</p> <ol style="list-style-type: none"> 1. Midterm Exam <ul style="list-style-type: none"> ✓ Midterm exam will be conducted in the 9th meeting ✓ Midterm exam is in the form of a written test (essay) and will be conducted in the classroom ✓ The time allocation is 120 minutes according to the module schedule 2. Final Exam <ul style="list-style-type: none"> ✓ Final exam will be conducted in the 16th meeting. ✓ Final exam is in the form of a written test (essay) and will be conducted in the classroom. ✓ The time allocation is 120 minutes which follows the

