UNIVERSITAS NEGERI PADANG
FACULTY OF MATHEMATICS AND NATURAL SCIENCES
MATHEMATICS DEPARTMENT, MATHEMATICS STUDY PROGRAM
Main Campus Universitas Negeri Padang.
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Bachelor of Science in Mathematics **MODULE HANDBOOK**

Module name:	Numerical Methods
Module level, if applicable:	Bachelor
Code:	MAT1.62.5001
Subheading, if applicable:	-
Classes, if applicable:	Numerical Methods
Semester:	5th (fifth)
Module coordinator:	Head of Applied Mathematics Expertise Group
Lecturer(s):	Dr. Edwin Musdi, M.Pd., Muhammad Subhan, M.Si and Defri Ahmad, S.Pd., M.Si.
Language:	Indonesian Language and English
Classification within the curriculum:	Elective course in the third year (5th semester) Bachelor Degree
Teaching format / class hours per week during the semester:	a. Lectures : Problem Based Learning with methods such as expository, discussion, and practicum. (1 x 50 minutes = 50 minutes) b. Structured assignment : Weekly individual written assignment. (1 x 60 minutes = 60 minutes). c. Individual study (1 x 60 minutes = 60 minutes). d. Laboratory work (2 x170 minutes = 340 minutes).
Workload:	The total workload is 136 hours per semester, which consists of 50 minutes lectures (theory) and 340 minutes laboratory work, 240 minutes structured assignment, and 240 minutes of individual study. In total, there are 16 weeks per semester, including midterm and final exams.
Credit points:	3 SKS = 4.53 ECTS

Prerequisites course(s):	Elementary Linear Algebra, Ordinary Differential Equations, Algorithm and Programming
Course outcomes:	After taking this course, the students have the ability to: CO1. Students show scientific ethics, responsibility, creativity, honesty, and confidence. CO2. Find numerical solutions of some mathematical problems in nonlinear equations, interpolations, systems of linear equations, ordinary differential equations. CO3. Creating computer programs related to numerical methods.
Content:	Introduction, Source of Errors, Localization of Roots, Numerical Methods for Roots of Nonlinear Equations, Interpolations, System of Linear Equations, Ordinary Differential Equations.
Study/exam achievements:	The final grade will be weighted as follows: The assessment consists of a final exam (30%), a midtest exam (30%), assignment (10 %), and practicum (20%). The final and midterm exams are divided into two sections: theory and practical test (120 minutes). Practical work in the laboratory is used to apply and reinforce the principles learned during the course. Each student gets a weekly assignment as an individual or group.
Forms of media:	White Board, laptop, Projector, e-learning via elearning2.unp.ac.id, and zoom meeting.
Literature:	1. Chapra (2010). Numerical Methods for Engineers 6th ed. McGraw- Hill. 2. Cheney (2008). Numerical Mathematics and Computing 6th edition. Thomson Brooks/Cole.

PLO and CO mapping

	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10
CO1		✔								
CO2					✔					
CO3			✔							