



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:	Finite Group Theory
Module level, if applicable:	Bachelor
Code:	MAT2.61.8102
Sub-heading, if applicable:	-
Classes, if applicable:	Finite Group Theory
Semester:	7 th (Seventh)
Module coordinator:	Defri Ahmad, S.,Pd., M.Si.
Lecturer(s):	Defri Ahmad, S.,Pd., M.Si., and Team
Language:	Bahasa Indonesia
Classification within the curriculum:	Study Program Elective Course
Teaching format/class hours per week during the semester:	<p>Teaching format:</p> <ul style="list-style-type: none"> • Lectures (face to face activities): expository, group discussion • Structured assignment, • Independent activities <p>3 x 170 minutes = 510 minutes = 8.50 hours</p>
Workload:	<p>16 weeks per semester include midterm exam and final exam consisting of:</p> <ul style="list-style-type: none"> • 2.50 hours lectures (3 x 50 minutes) per week, • 3 hours structured assignments (3 x 60 minutes) per week, • 3 hours independent activities (3 x 60 minutes) per week <p>16 x 170 x 3 = 8160 Minutes =136 hours = 4.53 ECTS</p>
Credit points:	3 SKS (4.53 ECTS)
Prerequisite's course(s):	-
Course outcomes:	<p>After taking this course the students have ability to:</p> <p>CO 1: Express the concept of Finite Groups, Permutation Groups, Modular groups and generators, Lagrange's Theorem, Group Action, Jordan Holder's Theorem; Cauchy's Theorem, Sylow's Theorem.</p> <p>CO 2: Apply the concept of Finite Groups, Permutation Groups, Modular groups and generators, Lagrange's Theorem, Group Action, Jordan Holder's Theorem; Cauchy's Theorem, Sylow's Theorem</p> <p>CO 3: Analyze the concept of Finite Groups, Permutation Groups, Modular groups and generators, Lagrange's Theorem, Group Action, Jordan Holder's Theorem; Cauchy's Theorem, Sylow's Theorem</p> <p>CO 4: Prove the problems that connect the concept of Finite Groups, Permutation Groups, Modular groups and</p>

	<p>generators, Lagrange's Theorem, Group Action, Jordan Holder's Theorem; Cauchy's Theorem, Sylow's Theorem</p> <p>CO 5: Show the responsibility attitude in own works</p> <p>CO 6: Maintain the responsibility attitude in team work</p>
Content	<p>This course discusses:</p> <ol style="list-style-type: none"> 1. Number system: original, whole, rational, irrational, real, and complex 2. Mathematical induction, divisibility and binomial coefficients 3. Congruence: Diophantus linear equations, basic properties of congruence, linear congruence, system of congruence and Chinese remainder theorem 4. Multiplicative functions: tau and sigma functions, Euler's functions and Ceiling and floor functions 5. Primitive functions: integer order, primitive root, arithmetic index and primality test 6. Quadratic congruence: quadratic congruence law of quadratic reciprocity, Diophantus nonlinear equations: Pythagoras triples, Fermat's Theorems, and Sums of Square.
Study/exam achievements:	<p>Total Score = (30% x Midterm Exam) + (35% x Final Exam) + (25% x Assignment: homework, quiz) + (10% x Affective Score: responsibility, class 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> <p>1. Midterm Exam</p> <ul style="list-style-type: none"> ✓ Midterm Exam is held at the 9th meeting ✓ Midterm Exam is a written exam (essay test) and carried out in the classroom with an implementation time of 120 minutes according to the module schedule <p>2. Final Exam</p> <ul style="list-style-type: none"> ✓ Final Exam is held at the 16th meeting ✓ Final Exam is a written exam (essay test) and carried out in the classroom with an implementation time of 120 minutes which follows the Final Exam implementation schedule of the department <p>3. Assignments</p> <ul style="list-style-type: none"> ✓ Assignments are given as exercise before Midterm Exam and before Final Exam ✓ Assignments are about analyzing problems in daily life and solving them related to the contents of Finite Group Theory. ✓ Assignments are given as individual tasks and it is submitted in a limited time. <p>4. Affective Assessment</p> <ul style="list-style-type: none"> ✓ Affective assessment is held in every meeting by observing students' attitude in the classroom and daily interaction at campus such as punctuality, responsibility etc. ✓ The assessment is based on an observation sheet and it is given a score by affective rubric assessment.
Forms of media:	White-board, Laptop, LCD Projector

