



**UNIVERSITAS NEGERI PADANG**  
 FACULTY OF MATHEMATICS AND NATURAL SCIENCE  
 MATHEMATICS DEPARTMENT, MATHEMATICS EDUCATION STUDY PROGRAM  
 Main Campus Universitas Negeri Padang.  
 Jalan Prof. Dr. Hamka Air Tawar Padang, Sumatera Barat  
 Phone: +62 751 7053902, Fax: +62 751 7055628  
 Email: matematika@fmipa.unp.ac.id

**Bachelor of Mathematics Education**

**MODULE HANDBOOK**

Module name:	Abstract Algebra
Module level, if applicable:	Bachelor
Code:	MAT1.61.4302
Sub-heading, if applicable:	-
Classes, if applicable:	Abstract Algebra
Semester:	4 <sup>th</sup> (fourth)
Module coordinator:	Dr. Irwan, M.Si.
Lecturer(s):	Dr. Irwan, M.Si., and Team
Language:	Bahasa Indonesia
Classification within the curriculum:	Study Program Compulsory Course
Teaching format / class hours per week during the semester:	Teaching format: <ul style="list-style-type: none"> <li>• Lectures (group discussion/ expository)</li> <li>• Structured assignment, and</li> <li>• Independent activities.</li> </ul> 4 x 170 minutes = 680 minutes = 11.33 hours
Workload:	16 weeks per semester include Midterm Exam and Final Exam which consist of: <ul style="list-style-type: none"> <li>• 3.33 hours lectures (4 x 50 minutes) per week,</li> <li>• 4 hours structured assignments (4x 60 minutes) per week,</li> <li>• 4 hours independent activities (4 x 60 minutes) per week</li> </ul> 16 x 170 x 4 = 10880 minutes = 181.33 hours = 6.04 ECTS
Credit points:	4 SKS (6.04 ECTS)
Prerequisite's course(s):	Number Theory and Introduction Basic Mathematics
Course outcomes:	After taking this course the students have ability to: <ul style="list-style-type: none"> <li>CO1. Describe the basic concepts of the group, subgroup, homomorphism, ring, subring, field, and integral areas.</li> <li>CO2. Interpret the concepts of groups, subgroups, homomorphism, rings, subring, fields, and integral areas.</li> <li>CO3. Apply the concepts of groups, subgroups,</li> </ul>

	<p>homomorphism, ring, subring, field, and internal areas in solving mathematical problems.</p> <p>CO4. Analyze problems related to the concept of groups, subgroups, homomorphism, rings, subring, fields, and integral areas.</p> <p>CO5. Show responsibility attitude towards working in groups and individually.</p>
Content:	<p>This course discusses Algebraic structure on a set with one binary operation which discusses:</p> <ol style="list-style-type: none"> <li>1. groups and their examples</li> <li>2. properties of groups</li> <li>3. subgroups</li> <li>4. symmetry groups</li> <li>5. cyclic groups</li> <li>6. isomorphism groups</li> <li>7. normal cosets and subgroups</li> <li>8. homomorphism</li> </ol>
Study/exam achievements:	<p>Total Score = (35% x Midterm Exam Score) + (35% x Final Exam Score) + (20% x Assignment) + (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><b>Explanation:</b></p> <ol style="list-style-type: none"> <li><b>1. Midterm Exam</b> <ul style="list-style-type: none"> <li>✓ Midterm Exam will be conducted in the 9<sup>th</sup> meeting</li> <li>✓ Midterm Exam is in the form of a written test (essay) and will be conducted in the classroom</li> <li>✓ The time allocation is 120 minutes according to the module schedule</li> </ul> </li> <li><b>2. Final Exam</b> <ul style="list-style-type: none"> <li>✓ Final Exam will be conducted in the 16<sup>th</sup> meeting.</li> <li>✓ Final Exam is in the form of a written test (essay) and will be conducted in the classroom.</li> <li>✓ The time allocation is 120 minutes which follows the Final Exam schedule provided by the Department.</li> </ul> </li> <li><b>3. Assignment</b> <ul style="list-style-type: none"> <li>✓ Assignments are given as exercise before Midterm Exam and Final Exam.</li> <li>✓ Assignments are about analyzing problem in daily life and solve it with the concept of the content in abstract algebra.</li> <li>✓ Assignments are given as independent activities and it is submitted in limited time.</li> </ul> </li> <li><b>4. Affective Assessment</b> <ul style="list-style-type: none"> <li>✓ Affective assessment is held in every meeting by observing students' attitude in the classroom.</li> <li>✓ The assessment is based on the observation sheet by using the given scoring rubrics.</li> </ul> </li> </ol>
Forms of media:	White-board, Laptop, and LCD

Literature:	<ol style="list-style-type: none"> <li>1. Smith, J.D.H. (2015). Introduction to Abstract Algebra.</li> <li>2. Judson, T.W. (2014). Abstract Algebra Theory and Applications. Nacogdoches Texas: Stephen F. Austin State University.</li> <li>3. Zaki Riyanto. (2011). Pengantar Aljabar Abstrak I. Diklat. Yogyakarta: AJM.</li> <li>4. Gallian, J. A. (2010). Contemporary Abstract Algebra (7th ed.). Belmont, California, USA: Brooks/Cole Cengage Learning.</li> <li>5. Pinter, C.C. (2010). A Book of Abstract Algebra: Second Edition, Second Edition.</li> </ol>
-------------	---

**PLO and CO mapping**

	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PLO11
CO1	✓										
CO2	✓										
CO3	✓										
CO4	✓										
CO5										✓	