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

Bachelor of Science in Mathematics	MODULE HANDBOOK

Module name:	Module Theory
Module level,if applicable:	Bachelor
Code:	MAT2.62.7003
Subheading,if applicable:	-
Classes,if applicable:	Module Theory
Semester:	7th (seventh)
Module coordinator:	Head of Algebra Expertise Group
Lecturer(s):	Drs. Yusmet Rizal, M.Si.
Language:	Indonesian Language and English
Classification within the curriculum:	Elective course in the fourth year (7th semester) Bachelor Degree
Teaching format / class hoursperweekduring the semester:	a. Lectures : Cooperative learning with methods such as expository, drill, and discussion. (3 x 50 minutes = 150 minutes) b. Structured assignment : Weekly individual written assignment. (3 x 60 minutes = 180 minutes) c. Individual study (3 x 60 minutes = 180 minutes)
Workload:	The total workload is 136 hours per semester, which consists of 150 minute lectures, 180 minute structured activities, and 180 minutes of self-study. In total, there are 16 weeks per semester, including midterm and final exams.
Creditpoints:	3 sks = 4.53 ECTS
Prerequisites course(s):	Algebraic Structure, Elementary Linear Algebra
Course outcomes:	After completing this course, the students have the ability to: CO1. understand the basic properties of modules and submodules CO2. recognize the concept of module homomorphism CO3. develop the concepts of generator and linear independence in modules. CO4. understand the concept of exact sequence and its application to further analysis.

	Content:	1. Modules and Submodules, 2. Generators, 3. Direct sums, 4. Factor modules, 5. Module homomorphism 6. Module homomorphism theorem, 7. Finitely generated modules, 8. Modules over Principal Ideal Domain, 9. Annihilators, torsion modules and torsion free modules, 10. Free modules and projective modules, 11. Exact sequences.

Study/ exam achievements:	The final grade will be weighted as follows: The assessment consists of a final exam (35%), a mid-term exam (35%), individual reports (20 %), and class activities: discussion (10%). The final and midterm exams are essay tests with a closed book (120 minutes). Individual reports are completed in class through exercises.
Forms of media:	White Board, laptop, Projector, e-learning via elearning2.unp.ac.id, and zoom meeting.
Literature:	1. Manfred Droste, Laszio Fuchs, Brendan Goldsmith, Lutz Strungmann, 2017, Groups, Modules, and Model Theory-Survey and Recent Developments, Springer International Publishing AG. 2. Adnan Tercan, Canan C. Yuecel, 2016, Module Theory, Extending Modules and Generalizations, Birkhaueser Basel. 3. Alberto Facchini, 2012, Module Theory, Springer Basel. 4. Paul E. Bland, 2011, Rings and Their Modules, Walter de Gruyter GmbH & Co, KG, Berlin/New York. 5. Albu, T., Birkenmeier, G.F., Erdogan, A., Tercan, A., 2010, Ring and Module Theory, Springer Basel, Basel

PLO and CO mapping

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