



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:	Discrete Mathematics
Module level, if applicable:	Bachelor
Code:	MAT1.61.5304
Sub-heading, if applicable:	-
Classes, if applicable:	Discrete Mathematics
Semester:	5 th (fifth)
Module coordinator:	Dr. Armiami, M.Pd.
Lecturer(s):	Dr. Armiami, M.Pd., and Team
Language:	Bahasa Indonesia and English
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">• Lectures (face to face activities): Group discussion, expository, problem-based learning,• Structured assignment• Independent activities• Practice 3 x 170 minutes = 510 minutes = 85.50 hours
Workload:	16 weeks per semester include Exam which consist of: <ul style="list-style-type: none">• 1.67 hours lectures (2 x 50 minutes) per week• 2 hours 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 Minute = 136 hours = 4.53 ECTS
Credit points:	3 SKS (4.53 ECTS)

Prerequisites course(s):	Introduction Basic Mathematics.
Course outcomes:	<p>After completing this course, the students have ability to:</p> <p>CO1 : Express concepts of a Pigeonhole principles inclusion-exclusion principle, generating function, recurrence relations, and introduction to graph theory, partially ordered sets, Boolean's algebra, and logic gates.</p> <p>CO2 : Interpret concepts of a Pigeonhole principles inclusion-exclusion principle, generating function, recurrence relations, and introduction to graph theory, partially ordered sets, Boolean's algebra, and logic gates.</p> <p>CO 3 : Apply the concept of a Pigeonhole principles inclusion-exclusion principle, generating function, recurrence relations, and introduction to graph theory, partially ordered sets, Boolean's algebra, and logic gates.</p> <p>CO4. : Analyze problems related to the concepts of a Pigeonhole principles inclusion-exclusion principle, generating function, recurrence relations, and introduction to graph theory, partially ordered sets, Boolean's algebra, and logic gates.</p> <p>CO 5 : Show responsibility attitude towards independent activities and team works.</p>
Content:	<p>This course discusses:</p> <ol style="list-style-type: none"> 1. Pigeonhole's Principles (1 meeting) 2. Inclusion-Exclusion Principles (2 meetings include 1st Exam) 3. Generating Functions (3 meetings) 4. Recurrence Relations (2 meetings include 2nd Exam) 5. Introduction to Graph Theory (4 meetings include 3rd Exam) 6. Partially Ordered Sets (1 meeting) 7. Boolean's Algebra (1 meeting) 8. Logic Gates (1 meeting) – 4th Exam
Study/exam achievements:	<p>Total Score = (20% x First Exam Score) + (20% x Second Exam Score) + (20% x Third Exam Score) + (20% x Fourth Exam Score) + (15% x Assignment: Practice on HOTS problems) + (5% x Participation)</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. First Exam</p> <p>✓ First Exam is conducted in the 3rd meeting</p>

	<ul style="list-style-type: none"> ✓ First Exam is to assess students' knowledge related to Pigeonhole's Principles and Inclusion-Exclusion Principles ✓ First Exam is in the form of a written test (essay) and is conducted in the classroom ✓ The time allocation is 60 minutes according to the module schedule <p>2. Second Exam</p> <ul style="list-style-type: none"> ✓ Second Exam is conducted in the 8th meeting ✓ Second Exam is to assess students' knowledge related to Generating Functions and Recurrence Relations ✓ Second Exam is in the form of a written test (essay) and is conducted in the classroom ✓ The time allocation is 60 minutes according to the module schedule <p>3. Third Exam</p> <ul style="list-style-type: none"> ✓ Third Exam is conducted in the 12th meeting. ✓ Third Exam is to assess students' knowledge related to Introduction to Graph Theory ✓ Third Exam is in the form of a written test (essay) and is conducted in the classroom. ✓ The time allocation is 60 minutes according to the module schedule <p>4. Fourth Exam</p> <ul style="list-style-type: none"> ✓ Fourth Exam is conducted in the 16th meeting ✓ Fourth Exam is to assess students' knowledge related to Partially Ordered Sets, Boolean's Algebra, and Logic Gates ✓ Fourth Exam is in the form of a written test (essay) and is conducted in the classroom ✓ The time allocation is 60 minutes according to the module schedule <p>5. Assignment</p> <ul style="list-style-type: none"> ✓ Practice on HOTS: Students are required to solve some HOTS problems related to the learning content after finishing a topic in face to face meeting <p>6. Participation</p> <ul style="list-style-type: none"> ✓ Students' participation is assessed in every meeting by observing students' attitude in the classroom ✓ The assesment is based on the observation sheet by using the given scoring rubrics
Forms of media:	White-board and LCD Projector
Literature:	<ol style="list-style-type: none"> 1. Munir, R. (2014). Matematika Diskrit. Bandung: Informatika. 2. Rosen, K. H. (2012). Discrete Mathematics and Application to Computer Science 7 th Edition. USA: Mc-Graw Hill. 3. Rosen, K. H. (2012). Discrete Mathematics and Its Applications, Sixth Edition, Boston: Mc Graw Hill International. 4. Rossen, K. H. (2011). Discrete Mathematics and Its Applications 7th Ed. New Delhi: Tata McGraw-Hill. 5. Bennett, J. O. & Briggs, W. L. (2011). Using and Understanding Mathematics. A Quantitative Reasoning Approach, Fifth Edition. Pearson. 6. Gallier, J.H. (2011). Discrete mathematics. New York: Springer.

