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:	Basic Algebra and Trigonometry
Module level, if applicable:	Bachelor
Code:	MAT1.61.1302
Sub-heading, if applicable:	-
Classes, if applicable:	Basic Algebra and Trigonometry
Semester:	1st (first)
Module coordinator:	Dra. Arnellis, M.Si.
Lecturer(s):	Dra. Arnellis, M.Si., 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: • Lectures by using Problem-Based Learning method such us: group discussion, expository, and tutorials/guidance • Structured assignment • Independent activities • Practice (working on HOTS problems) 3 x 170 minutes = 510 minutes = 8.50 hours
Workload:	16 weeks per semester include Midterm Exam and Final Exam which consist of: • 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)
Prerequisite's course(s):	-
Course outcomes:	After completing this course, the students have ability to: CO 1 : Express the basic concepts of equations and inequalities, algebraic and transcendental functions, trigonometry and their properties CO 2 : Interpret basic concepts related to equations and inequality, algebraic and transcendental functions, trigonometry and their properties

	CO3 : Solve problems related to the basic concepts of equality and inequality, algebraic and transcendental functions, trigonometry and their properties
	CO 4 : Analyze problems in daily life related to the basic concepts of equality and inequality, algebraic and transcendental functions, trigonometry and their properties
	CO5 : Show responsibility attitude towards working in groups and individually.
Content:	This course discusses: 1. equation, inequalities and systems of linear equations and inequalities: linear equations, applications involving linear equation, quadratic equations, other types of equations linear inequalities, polynomial and rational inequalities, absolute value equations and inequalities 2. functions and their graphs: functions; graphs of functions; operations on functions and composition of functions; one-to-one functions and inverse functions 3. algebra function: quadratic functions; polynomial functions of higher degree and its properties; rational and irrational functions. transcendental function 4. trigonometric: angles, degrees, and triangles 5. definition 1 of trigonometric functions: right triangle ratios, applications of right triangle trigonometry: solving right triangles 6. definition 2 of trigonometric functions: cartesian plane, trigonometric functions of non-acute angles, radian measure and applications 7. definition 3 of trigonometric functions: unit circle approach, graphs of sine and cosine functions, graphs of other trigonometric functions 8. analytic trigonometry: basic trigonometric 9. identities, verifying trigonometric identities, sum and difference identities, double-angle identities, half-angle identities, product-to-sum and sum-to-product identities, inverse trigonometric functions, trigonometric equations 10. additional topics in trigonometry: sinus and cosines law

Study/exam achievements:	Total Score = (30 % x Midterm Exam Score) + (35% x Final Exam Score) + (25% x Assignment: presentation, HOTS Problem, Quiz)+ (10% x Affective Score: responsibility, class attendance)
	
	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.
	
	Explanation:
	1. Midterm Exam
	   ✓ 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

	2. Final Exam
	  ✓ 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
	3. Assignments
	  ✓ 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 content of Basic Algebra and Trigonometry
	  ✓ HOTS Problems and QUIZ are given as individual tasks and it is submitted in a limited time
	  ✓ Presentations: Students are divided into several groups and discusses topics related to Basic Algebra and Trigonometry. After that, they present it in the face to face meeting
	4. Affective Assessment
	  ✓ 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
Literature:	1. Kristanto, Y. D., & Santoso, E. B. (2017). *Aljabar dan Trigonometri*. Yogyakarta: Sanata Dharma Pers Universitas. 2. Stewart, J., Redlin, L., & Watson, S. (2016). Algebra and Trigonometry, Fourth Edition. USA: Boston. 3. Larson, R. & Falco, D.C. (2014). Algebra and Trigonometry, Ninth Edition. USA: Boston. 4. Chintya Young, (2013). Algebra and *Trigonometry.Third Edition,.USA* : John Wiley & Sons, Inc. 5. Zill, D.G. & Dewar, J.M. (2012). Algebra and Trigonometry, Third Edition. USA.

PLO and CO Mapping

	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PLO11	PLO12
CO1	✓											
CO2	✓											
CO3	✓											
CO4	✓											
CO5										✓		