Module/Course Description

INTRODUCTION TO MATHEMATICS (MAT 100)

A. Module Identity		
1.	Name	Introduction to Mathematics
2.	Code	MAT 100
3.	Credit	3 (2-2)
4.	Semester	1
5.	Coordinator	Ali Kusnanto
6.	Lecturers	Amril Aman, Bib. P. Silalahi, Budi Saharjo, Berlian Setiawaty, Donny C. Lesmana, Endar H. Nugrahani, Elis Khatizah, Fahren Bukhari, Farida Hanum, Hadi Sumarno, I Gusti Putu Purnaba, I Wayan Mangku, Jaharuddin, Tito Julito, Nur Aliatiningtyas, N.K. Kutha Ardana, Paian Sianturi, Prapto T. Supriyo, Ruhiyat, Retno Budiarti, Sugi Guritman, Sri Nurdiati, Siswandi, Toni Bakhtiar, Teduh Wulandari Mas'oed, Windiani Erliana, Hidayatul Mayyani
7.	Language	Indonesian
8.	Program(s) in which the course is offered	Internal department: - Other departments: *Common First Year Program (Education of general competency) by University*
9.	Type of teaching	a. Traditional classroom: 100 % b. Blended system: Traditional classroom….%, Online….% c. e-Learning system: ……..% d. Others: …….%

B. Workload of course components (total contact hours and credits per semester)								
Credit		Contact Hours				Self-Study	Other	Total
SKS *)	ECTS	Lecture	Exercise	Laboratory	Practice			
3		**28**	**28**			**56**		**112**

**) Semester credit unit according to the Indonesian higher educational system*
1 credit unit lecture = 2 hours/ week for lecture and 2 hours/ week for self-study within 14 weeks/ semester
1 credit unit class exercise or laboratory or field practice = 3 hours/week within 12-14 weeks/semester
***) 1 hour for lecture= 50 minutes; 1 hour for class exercise or laboratory or field practice = 60 minutes*

C. Module Objective (Learning Outcomes)
The student having the ability to explain the basic concepts in mathematics (mathematical logic; combinatorics; matrices; linear equation systems; intervals, inequality, and absolute values; functions; and limits and continuity); to use basic mathematical techniques for solving simple math problems; to apply basic mathematical concepts and techniques for applied problems solving.

D. Detailed Course Learning Outcomes (LO) in Relation to Learning Domains, Teaching Strategies, and Assignment Methods			
No.	**LO in Learning Domains**	**Teaching Strategies**	**Assessment Methods**
a.	**Knowledge**		
1.	Students are able **to explain** the propositions, basic sets, complex propositions, equality of two propositions, arguments, predicates, and principles of mathematical induction	Presentation of teaching materials Debriefing sessions Exercise	Midterm Exam
2.	Students are able **to use** the law of multiplication and addition, permutation, circular permutation and combinations in various problems	Presentation of teaching materials Debriefing sessions Exercise	Midterm Exam
3.	Students are able **to perform** operations on the matrix, **to use** basic line operations (OBD) on the matrix, to determine the matrix determinant, matrix rank, and matrix inverse	Presentation of teaching materials Debriefing sessions Exercise	Midterm Exam, Quiz
4.	Students are able **to explain** the intervals and **to solve** inequality and absolute value	Presentation of teaching materials Debriefing sessions Exercise	Final Exam
5.	Students are able **to identify** the domain and range of a functions and **to solve** the problems related to functions (mathematical models)	Presentation of teaching materials Debriefing sessions Exercise	Final Exam

6.	Students are able **to compute** the limits of functions and to determine the continuity of functions	Presentation of teaching materials Debriefing sessions Exercise	Final Exam, Quiz

E. Module Content

List of Topic	Number of Weeks	Contact Hours
Mathematical Logic	3	6
Combinatory	1	2
Matrices and Linear Equation Systems	3	6
Intervals, Inequality, and Absolute Values	1	2
Functions and Mathematic Model	3	6
Limits and Continuity	3	6

F. Course Assessments

No.	Assessment Type *)	Schedule (Week Due)	Proportion of the Final Mark
1.	Mid-term examination	8th week	45 %
2.	Final examination	16th week	45 %
	Quiz	6th and 15th week	10%

**) Example: mid-term examination, final examination, quiz, homework, project, etc.*

G. Media Employed

- Classroom
- Laptop
- LCD
- Microphone (loudspeaker)
- Whiteboard

H. Learning Resources

h1. Textbooks:

1. Tim Penulis. *Pengantar Matematika (Bahan UTS).* Departemen Matematika FMIPA IPB, Bogor.
2. Varberg D, Purcell EJ, Rigdon SE. 2011. *Kalkulus*. Ed ke-9. Jilid 1. Susila IN, penerjemah. Jakarta (ID): Penerbit Erlangga. Terjemahan dari: Calculus. 9th Ed.
3. Stewart J. 2002. *Kalkulus*. Ed ke-4. Jilid 1. Susila IN, Gunawan H, penerjemah. Jakarta (ID): Penerbit Erlangga. Terjemahan dari: Calculus. 4th Ed.