	Universitas Brawijaya **Faculty of Mathematics and Natural Sciences** **Department of Statistics / Bachelor Statistics Study Programme**

Module Handbook		
Module Name:	Mathematics II (MAS61113)	
Module Level:	Bachelor	
Abbreviation, if applicable:	-	
Sub-heading, if applicable:	-	
Courses included in the module, if applicable:	-	
Semester/term:	3rd/ Third Year	
Module Coordinator(s):	Luthfatul Amaliana, S.Si., M.Si	
Lecturer(s):	Luthfatul Amaliana, S.Si., M.Si	
	Darmanto, S.Si., M.Si	
	Achmad Efendi, S.Si., M.Sc., Ph.D	
Language:	Indonesian	
Classification within the curriculum:	Compulsory course	
Teaching format / class per week during semester:	3 × 50 minutes	
Workload:	2.5 hours lectures, 3 hours structural activities, 3 hours individual studies, 16 weeks per semester, and total 136 hours per semester 4.5 ECTS	
Credit Points:	3	
Requirements:	Mathematics I (MAS62112)	
Learning goals / competencies:	**General Competence (Knowledge):**	
	ILO1	The students are able to master basic scientific concepts and statistical analysis methods applied on computing, social science, humanities, economics, industry and life science.
	ILO5	The students are able to apply logical, critical, systematic, and innovative thinking independently when applied to science and technology that contain humanities values, based on scientific principles, procedures and ethics with excellent and measurable results.
	ILO6	The students are able to take appropriate decisions to solve the problems expertly, based on the information and data analysis.
	ILO8	The students are able to apply and internalize the spirit of independence, struggle, entrepreneurship, based on values, norms, and academic ethics of

		Pancasila in all aspects of life.
	Specific Competence:	
	M1	Students are able to understand the concepts of sequences, positive series, and determine its convergence. (ILO1, ILO5)
	M2	Students are able to understand the concepts of alternating series and determine its convergence.(ILO1, ILO5)
	M3	Students are able to understand the concepts of power series, Taylor series, Maclaurin series, and its operation. (ILO1, ILO5)
	M4	Students are able to solve differential equation using series. (ILO1, ILO5, ILO6)
	M5	Students are able to understand the concepts of Fourier series. (ILO1, ILO5)
	M6	Students are able to understand various types of special function (gamma, beta, Bessel function) and polynomial Legendre and its application. (ILO1, ILO5, ILO8)
	M7	Students are able to understand the concepts and apply Laplace transformation and its inverse. (ILO1, ILO5, ILO6)
	M8	Students are able to understand complex function and Cauchy-Riemann equation and its application in some cases. (ILO1, ILO5, ILO6)
Contents:	1	Series, sequences, and its convergence test
	2	Alternating series, and its convergence test (absolute and conditional)
	3	Power series, Taylor series, Maclaurin series, and its operation
	4	Differential equation (DE) solution using series
	5	Fourier series and integral Fourier
	6	Special Function (Gamma, Beta, Bessel) and Polynomial Legendre
	7	Laplace transformation and inverse Laplace transformation and its application
	8	Complex function and Cauchy-Riemann equation
Soft skill attribute:	Responsible, independently, and discipline	
Study/exam achievement:	Final score (NA) is calculated as follow: 5% Attitude, 15% Quizzes, 30% Midterm Exam, 30% Final Exam, 10% Assignments, 10% Tutorial Class Final index is defined as follow:	

	A : > 80 - 100 B+ : > 75 - 80 B : > 69 - 75 C+ : > 60 - 69 C : > 55 - 60 D+ : > 50 - 55 D : > 44 - 50 E : 0 - 44
Forms of media:	Laptop, LCD projector,
Learning methods:	Lecture, assessments, and discussion
Literature:	Main:
	1. Purcell, E.J, D. Varberg, and Rigdon, S.E, 1987 (terjemah : B. Kartasasmita, dkk). Calculus, jilid 1 dan 2, (9th Edition, 2010), Prentice Hall, Inc.
	Support:
	1. Wrede, R. & Spiegel, M.R., 2002. Advanced Calculus, (2nd Edition, 2007), Erlangga.
	2. Boyce, W.E. & DiPrima, R. C, 2009. Elementary Differential Equations and Boundary Values Problems, (9th Edition). John Wiley & Sons, Inc.
Notes:	