



MODULE HANDBOOK
INTRODUCTION TO FINANCIAL MATHEMATICS

BACHELOR DEGREE PROGRAM
DEPARTMENT OF MATHEMATICS
FACULTY OF SCIENCE AND DATA ANALYTICS
INSTITUT TEKNOLOGI SEPULUH NOPEMBER

MODULE HANDBOOK

INTRODUCTION TO FINANCIAL MATHEMATICS

Module name	Introduction to Financial Mathematics	
Module level	Undergraduate	
Code	KM184718	
Course (if applicable)	Introduction to Financial Mathematics	
Semester	Fall (Gasal)	
Person responsible for the module	Endah Rokhmati MP, S.Si, MT, Ph.D	
Lecturer	Endah Rokhmati MP, S.Si, MT, Ph.D	
Language	Bahasa Indonesia and English	
Relation to curriculum	Undergraduate degree program, elective , 7 th semester.	
Type of teaching, contact hours	Lectures, <60 students	
Workload	<ol style="list-style-type: none"> 1. Lectures : 2 x 50 = 100 minutes per week. 2. Exercises and Assignments : 2 x 60 = 120 minutes (2 hours) per week. 3. Private learning : 2 x 60 = 120 minutes (2 hours) per week. 	
Credit points	2 credit points (sks)	
Requirements according to the examination regulations	A student must have attended at least 80% of the lectures to sit in the exams.	
Mandatory prerequisites	Teori Peluang <i>Opportunity Theory</i>	
Learning outcomes and their corresponding PLOs	<p>Course Learning Outcome (CLO) after completing this module,</p> <p>CLO-1 : Understand problems in finance through mathematical models, analyze and solve them.</p> <p>CLO-2 : Able to apply a mathematical frame of mind and identify simple financial problems in the financial sector. To further model and solve problems analytically and empirically</p>	
Content	In this course, the fundamentals of Financial Mathematics are presented in a discrete manner which includes basic probability theory and discrete random variables, Brownian geometric motion, and the concept of interest and present value analysis. Furthermore,	

	<p>the discussion is focused on two financial derivative products, namely European and American options, where the option pricing is carried out through arbitrage. The option price model discussed is the Black-Scholes model and the numerical method discussed is the binomial method. In addition, the implementation of Brownian geometric motion on stock prices and crude oil prices will be discussed as enrichment.</p>
<p>Study and examination requirements and forms of examination</p>	<ul style="list-style-type: none"> • In-class exercises • Assignment 1, 2, 3 • Mid-term examination • Final examination
<p>Media employed</p>	<p>LCD, whiteboard, websites (myITS Classroom), zoom.</p>
<p>Reading lists</p>	<p>Main :</p> <ol style="list-style-type: none"> 1. Ross, M. Sheldon, An Introduction to Mathematical Finance, Cambridge University Press, 1999 <p>Supporting :</p> <ol style="list-style-type: none"> 1. John C Hull, "Options, Futures, and Other Derivatives", Pearson, 2009