



MODULE HANDBOOK MATHEMATICAL MODELING

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

MODULE HANDBOOK

MATHEMATICAL MODELING

Module name	Mathematical Modeling	
Module level	Undergraduate	
Code	KM184701	
Course (if applicable)	Mathematical Modeling	
Semester	Fall (Gasal)	
Person responsible for the module	Prof. Dr. Basuki Widodo, M.Sc.	
Lecturer	Prof. Dr. Basuki Widodo, M.Sc	
Language	Indonesia and English	
Relation to curriculum	Undergraduate degree program, mandatory , 7 th semester.	
Type of teaching, contact hours	Lectures, <60 students Tuesdays, 11.00-12.50 (GMT+7)	
Workload	1. Lectures : 4 x 50 = 200 minutes per week. 2. Exercises and Assignments : 4 x 60 = 240 minutes (4 hours) per week. 3. Private learning : 4 x 60 =240 minutes (4 hours) per week.	
Credit points	4 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	-	
Learning outcomes and their corresponding PLOs	Course Learning Outcome (CLO) after completing this module, [C4] Students are able to analyze simple and practical problems in at least one field of analysis, algebra, modeling, system optimizations and computing sciences [C5] Students are able to work on a simple and clearly defined scientific task and explain the results, both written and verbally either on the area of pure mathematics or applied mathematics or computing sciences [C3] Students are able to make use of the principles of long life learning to improve knowledge and current issues on mathematics	PLO-03 PLO-04 PLO-05
Content	In this lecture, it is discussed about the formation of mathematical models based on applicable physical laws and measurement data.	

Study and examination requirements and forms of examination	<ul style="list-style-type: none"> • In-class exercises • Assignment 1, 2, 3 • Mid-term examination • Final examination
Media employed	LCD, whiteboard, websites (myITS Classroom), zoom.
Reading lists	<p>Main :</p> <ol style="list-style-type: none"> 1. Widodo, B., <i>Pemodelan Matematika</i>, ITS Press, 2012. 2. Lennart Ljung, <i>System Identification</i>, Wiley Encyclopedia of Electrical and Electronics Engineering, Wiley, 1999. 3. Bellomo.N, Angelis, E.D, and Delitala.M, 2007,” <i>Lecture Note on Mathematical Modelling in Applied Sciences</i>” Department of Mathematics Politecnico Torino Corso DucaDegli Abruzzi 24. 10129 Torino, Italy. 4. Taylor H.M, Karlin.S,1998,” <i>An Introduction to Stochastic Modeling</i>”, <i>Academic PressLimited</i>, Third Edition. <p>Supporting :</p> <p style="text-align: center;">-</p>