MODULE HANDBOOK
Dynamical System

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

MODULE HANDBOOK
DYNAMICAL SYSTEM

Module name	**Dynamical System**
Module level	Master
Code	KM185221
Course (if applicable)	Dynamical System
Semester	Fall (Gasal)
Person responsible for the module	Dr. Tahiyatul Asfihani, S.Si, M.Si
Lecturer	Dr. Tahiyatul Asfihani, S.Si, M.Si
Language	Bahasa Indonesia and English
Relation to curriculum	Master degree program, **mandatory**, 2nd semester.
Type of teaching, contact hours	Lectures, <60 students
Workload	1. Lectures : 3 x 50 = 150 minutes per week. 2. Exercises and Assignments : 3 x 60 = 180 minutes (3 hours) per week. 3. Private learning : 3 x 60 = 180 minutes (3 hours) per week.
Credit points	3 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 ILOs	Course Learning Outcome (CLO) after completing this module, *CLO 1: Students are able to identify real problems into dynamic system forms* *CLO 2: Students are able to get dynamic system parameter values* *CLO 3: Students are able to analyze the stability and occurrence of dynamic system bifurcations* *CLO 4: Students are able to simplify the system by normalizing and establishing a manifold center*

	CLO 5: Students are able to analyze system stability with delay *CLO 6: Students are able to work together in analyzing dynamic systems and present them in written and oral form well*	
Content	*This course examines the behavior of dynamic systems in the form of ordinary differential equations, both linear and non-linear by identifying systems to determine parameter values, analysis of stability and system bifurcation.*	
Study and examination requirements and forms of examination	• In-class exercises • Assignment 1, 2, 3 • Mid-term examination • Final examination	
Media employed	LCD, whiteboard, websites (myITS Classroom), zoom.	
Reading list	Main : 1. Wiggins, S. 2009, *"Introduction to Applied Non Linear Dynamical System and Chaos- second edition",* Springer-Verlag 2. Xiaoxin Liao, Wang, L. And Pei Yu, 2007, *"Stability of System Dynamic",* Elsivier Supporting : -	