



MODULE HANDBOOK DIFFERENCE EQUATION

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

MODULE HANDBOOK

DIFFERENCE EQUATION

Module name	Difference Equation	
Module level	Undergraduate	
Code	KM184715	
Course (if applicable)	Difference Equation	
Semester	Fall (Ganjil)	
Person responsible for the module	Drs. Kamiran, M.Si	
Lecturer	Drs. Kamiran, M.Si	
Language	Indonesia and English	
Relation to curriculum	Undergraduate degree program, elective , 7 th semester.	
Type of teaching, contact hours	Lectures, <60 students	
Workload	1. Lectures : $2 \times 50 = 100$ minutes per week. 2. Exercises and Assignments : $2 \times 60 = 120$ minutes (2 hours) per week. 3. Private learning : $2 \times 60 = 120$ 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	Ordinary Differential Equation	
Learning outcomes and their corresponding PLOs	Course Learning Outcome (CLO) after completing this module, CLO-1 Students are able to follow developments and apply mathematics and are able to communicate actively and correctly both orally and in writing. CLO-2 Students are able to explain the basic principles of different calculus and methods of solving them. CLO-3 Students are able to explain intelligently and creatively about the significant role of different calculus in related knowledge clumps or other fields.	
Content	This course discusses natural phenomena in the form of nonlinear differential equations, linearity, system stability analysis using various methods, identification of bifurcation.	
Study and examination	<ul style="list-style-type: none"> In-class exercises 	

requirements and forms of examination	<ul style="list-style-type: none"> • Assignment 1, 2 • Mid-term examination • Final examination
Media employed	LCD, whiteboard, websites (myITS Classroom), zoom.
Reading list	Main: <ol style="list-style-type: none"> 1. Verhulst F., “Nonlinear Differential Equation and Dynamical Systems”, Springer, 2013 Supporting: <p>-</p>

