



MODULE HANDBOOK FUNCTIONAL ANALYSIS

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

MODULE HANDBOOK

FUNCTIONAL ANALYSIS

Module name	Functional Analysis	
Module level	Master	
Code	KM185102	
Course (if applicable)	Functional Analysis	
Semester	Fall (Gasal)	
Person responsible for the module	Dr. Mahmud Yunus, M.Si.	
Lecturer	Dr. Mahmud Yunus, M.Si.	
Language	Bahasa Indonesia and English	
Relation to curriculum	Master degree program, mandatory , 1 st 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, <i>CLO 1: Students are able to explain the characteristic of vector space, metric space, norm space, and inner product space.</i> <i>CLO 2: Students are able to explain and analyze the convergence of sequences, open set and function continuity.</i> <i>CLO 3: Students are able to prove the relevant theorems on those spaces.</i> <i>CLO 4: Students are able to define operator and analyze the boundedness and continuity of operator.</i>	
Content	<i>In this lecture, the concept of metric space, topological space, normed space, inner product space is discussed, so that students can analyze</i>	

	<i>the convergence of the sequence of functions, limitations and continuity of these spaces. We will examine several theorems relating to these spaces. In addition, it also discusses the limitations and continuity of operators working in these spaces.</i>
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 list	Main : 1. Yunus, M., Buku Ajar Analisis Fungsional, Jurusan Matematika ITS, 2014 2. Zeidler, E., Applied Fungsional Analysis, Springer Verlag, 1995 Supporting : -