MODULE HANDBOOK
Approximation Theory

MASTER DEGREE PROGRAM

DEPARTMENT OF MATHEMATICS

FACULTY OF SCIENCE AND DATA ANALYTICS

INSTITUT TEKNOLOGI SEPULUH NOPEMBER

MODULE HANDBOOK

Approximation Theory

Module name	Fuzzy Systems
Module level	Master
Code	KM185211
Course (if applicable)	Fuzzy Systems
Semester	Spring (Genap)
Person responsible for the module	Dr. Imam Mukhlash, S.Si, MT
Lecturer	Dr. Imam Mukhlash, S.Si, MT
Language	Bahasa Indonesia and English
Relation to curriculum	Master degree program, elective, 3rd 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 :* Being able to understand the main points of the classical approximation theory as a basis approximation method development and application. CLO – 2 : Being able to explain the advantages of some of the best approximation method CLO – 3 : Being able to apply some approximation methods in solving problems related approximation.
Content	This course discusses the main frame of approximation theory, with an emphasis on classical topics related to polynomial and rational functions, along with computational approaches. The main discussion begins from Weierstass Approximation Theorem, which includes a discussion interpolan Chebyshev, polynomials and Chebyshev series. Then on the best

	approximation that includes the convergence function convergence diferensiabel and analytic functions. While the last part will discuss topics relating to spectral methods and accelerated convergence.
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. Trefethen, LN, Approximation Approximation Theory and Practice, SIAM, 2013 2. christensen, O. and Christensen, KL, Approximation Theory, Birkhauser, 2005