MODULE HANDBOOK
FUZZY SYSTEMS

MASTER DEGREE PROGRAM
DEPARTMENT OF MATHEMATICS
FACULTY OF SCIENCE AND DATA ANALYTICS

INSTITUT TEKNOLOGI SEPULUH NOPEMBER

MODULE HANDBOOK

FUZZY SYSTEMS

Module name	Fuzzy Systems
Module level	Master
Code	KM185382
Course (if applicable)	Fuzzy Systems
Semester	Fall (Ganjil)
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 : 2 x 50 = 100 minutes per week. 2. Exercises and Assignments : 2 x 60 = 120 minutes (2 hours) per week. 3. Private learning : 2 x 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	
Learning outcomes and their corresponding ILOs	Course Learning Outcome (CLO) after completing this module, *CLO- 1 :* Being able to develop mathematical concepts, especially in the form of fuzzy CLO – 2 : Able to formulate a common problem in the form of fuzzy mathematics models and get a settlement CLO – 3 : Being able to apply the frame of mathematics and computational principles to solve the problems of the development of intelligent systems CLO – 4 : Being able to identify problems and develop mathematical models and analyze the relevant fuzzy behavior CLO – 5 : Being able to communicate the results of research in a scientific forum at the national or international level.	

	CLO – 6 : Able to develop contemporary science and technology by mastering and understanding, approach, method, scientific principles along with their application skills in the field of optimization of the system, or computer science
Content	This course aims to give basic concepts and to further increase the structure of fuzzy theory and its application, this lecture consists of two parts: theory and application part. The first part (part theory) covers the basic concepts and operations of fuzzy sets, fuzzy set of multi-dimensional expansion of fuzzy theory to the number and function, development properties and the probability to fuzzy logic theory. The second part is an application that consists of a fuzzy inference techniques, application of fuzzy logic inference, decision-making in fuzzy environment.
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. Buckley J, and E. Eslami, "An Introduction to Fuzzy Logic and Fuzzy Sets", Physica Heidelberg, 2001 2. Klir, GJ and B. Juan, "Fuzzy Sets and Fuzzy Logic", Prentice Hall, New Jersey, 2001 3. Zimmerman H. J, "Fuzzy Set Theory and Its Applications", Kluwer Academic Publishers, 1996 4. Zadeh, LA., "Fuzzy Sets, Fuzzy Logic, and Fuzzy Systems: Selected Papers", Kluwer Academic Publishers, 1996