

MODULE HANDBOOK
Master Program in Computer Science
Department of Computer Science and Electronics
Faculty of Mathematics and Natural Sciences
Universitas Gadjah Mada

Fuzzy Logic

Module name	Fuzzy Logic		
Module level	Master		
Code	MII-6454		
Courses (if applicable)	Logika Fuzzy / Fuzzy Logic		
Semester	Summer (Genap)		
Contact person	Aina Musdholifah, Ph.D.		
Lecturer	Aina Musdholifah, Ph.D. Drs. Retantyo Wardoyo, M.Sc., Ph.D.		
Language	Bahasa Indonesia		
Relation to curriculum	Master program, Elective, 2 nd semester		
Type of teaching, contact hours	Master program: lectures, 13 student (class A) and 8 student (class B), Thursday, 10.00 - 12.30.		
Workload	<ol style="list-style-type: none"> 1. Lectures: $3 \times 50 = 150$ minutes (2.5 hours) per week. 2. Exercises and Assignments: $3 \times 60 = 180$ minutes (3 hours) per week. 3. Private study: $3 \times 60 = 180$ minutes (3 hours) per week. 		
Credit points	3 credit points (sks).		
Requirements according to the examination regulations	-		
Recommended prerequisites	-		
Learning outcomes and their corresponding PLOs	After completing this module, a student is expected to:		
	CO	Description	Supported PLO
	CO-1	be able to formulate membership function.	PLO-2
	CO-2	be able to explain and apply fuzzy set properties, operators of fuzzy set such as complement, s-norm da and t-norm	PLO-5 PLO-4
	CO-3	able to explain and apply fuzzy relation and its composition, also properties of fuzzy relation.	PLO-2 PLO-5

	CO-4	able to explain and apply linguistic variables, fuzzy propositions, operators of fuzzy logic, and fuzzy implication.	PLO-3
	CO-5	able to explain and apply generalised modus ponens, generalised modus tollens, and generalised hypothetical syllogism	PLO-3 PLO-5
	CO-6	be able to explain and apply fuzzy system, fuzzification method, and defuzzification methods.	PLO-3 PLO-4
Content	This course provides a concept of fuzzy logic, difference of crisp set and fuzzy set, fuzzy operators, how to formulate membership function, concept of linguistic variables, concept of fuzzy proposition, fuzzy implication, fuzzy relation, and how to design fuzzy system, also the implication of fuzzy approach in control system, expert system and classification system.		
Study and examination requirements and forms of examination	Mid-terms examination and Final examination.		
Media employed	LCD, blackboard, websites, and e-learning.		
Assessments and Evaluation	CO1: Quiz 1 (7.5%) and Problem 1 in Midterm Exam (7.5%) CO2: Quiz 2 (7.5%) and Problem 2 in Midterm Exam (7.5%) CO3: Problem 3 in Midterm Exam (7.5%) CO4: Quiz 3 (5%), Problem 4 in Midterm Exam (7.5%) and Problem 3 in Final Exam (10%) CO5: HW 1 (7.5%) and Problem 2 in Final Exam (10%) CO6: Project (12.5%) and Problem 3 in Final Exam (10%)		
Reading List	Wang, L., 1997, "A Course in Fuzzy Systems and Control", Prentice-Hall International, Inc., New Jersey. Zimmerman, H.J., 1991, "Fuzzy Set Theory and Its Applications", Kluwer Publishing Co, Amsterdam. Klir, G.J. and T.A. Folger, 1988, "Fuzzy Sets, Uncertainty, and Information", Prentice-Hall, New Delhi. Kaufmann, A. and M.M. Gupta, 1991, "Introduction to Fuzzy Arithmetic Theory and Applications", Van Nostrand Reinhold, New York.		