

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

Automata and Language Theory and Applications

Module name	Automata and Language Theory and Applications		
Module level	Master		
Code	MII 6212		
Courses (if applicable)	Automata and Language Theory and Applications		
Semester	Even (Genap)		
Contact person	Reza Pulungan, Dr.-Ing., M.Sc.		
Lecturer	Retantyo Wardoyo, M.Sc., Ph.D., Suprpto, Dr., M.Ikom., Reza Pulungan, Dr.-Ing., M.Sc.		
Language	Bahasa Indonesia		
Relation to curriculum	Master program, elective, 2 nd semester		
Type of teaching, contact hours	Master program : lectures, <17 student		
Workload	1. Lectures: 3×50 = 150 minutes (2.5 hours) per week 2. Exercises and Assignments: 3×60 = 180 minutes (3 hours) per week 3. Private study: 3×60 = 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 75% of the lectures to sit in the exams		
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 master the concepts of set relations theory	PLO3, PLO4
	CO-2	be able to master concepts of grammar theory, regular expressions, CFG and its applications	PLO3, PLO4
	CO-3	able to master the concepts of theory of finite automata, DFA, N DFA, PDA, Turing Machine and its applications	PLO3, PLO4, PLO5
	CO-4	be able to apply syntax checking modeling	PLO4, PLO5, PLO6
Content	This course provides students with understanding of general concepts of relations and their application; language and regular expressions, grammar,		

	and context free grammar; finite automata, deterministic finite automata, non-deterministic finite automata, push down automata, turing machine, applications in model checking, syntax checking			
Study and examination requirements and forms of examination	Mid-term examination Final examination Assignments			
Media employed	LCD, blackboard, websites, and books			
Assessments and Evaluation	CO	Assessment Methods	Percentage	Total
	CO-1	Problem 1 of midterm exam	10%	30%
		Problem 2 of midterm exam	10%	
		Exercise 1	10%	
	CO-2	Problem 3 of midterm exam	10%	20%
		Problem 4 of midterm exam	10%	
	CO-3	Problem 1 of final exam	10%	30%
		Problem 2 of final exam	10%	
		Exercise 2	10%	
	CO-4	Problem 3 of final exam	10%	20%
Problem 4 of final exam		10%		
Reading List	<ul style="list-style-type: none"> • Martin, J.C., Introduction to Languages and the Theory of Computation, Mc Graw Hill, New York, 1997 • Lewis, H.R and C.H. Papadimitrion, Elements of the Theory of Computation, Prentice Hall, Englewood, 1981 • Rich, E., Automata, Computation, and Complexity: Theory and Applications, Paerson Prentice Hall, 2009 • Linz, P, An Introduction to Formal languages and Automata, Fifth Edition, John and Bartlett Learning, 2012 			