

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

**Pattern Recognition**

Module name	<b>Pattern Recognition</b>		
Module level	Master Program		
Code	MII-6422		
Courses (if applicable)	Pattern Recognition		
Semester	Autum (Gasal)		
Contact person	Agus Harjoko, M.Sc., Ph.D.		
Lecturer	Agus Harjoko, M.Sc., Ph.D.		
Language	Bahasa Indonesia and English		
Relation to curriculum	Master program, elective, 3rd semester.		
Type of teaching, contact hours	Lectures, <= 15 students, regular: wednesdays, 1.30-4.00 pm.		
Workload	1. Lectures: 3 x 50 = 150 minutes (2.5 hours) per week. 2. Exercises and Assignments: 3 x 60 = 180 minutes (3 hours) per week. 3. Private study: 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 75% of the lectures to sit in the exams.		
Mandatory prerequisites	Computer Programming		
Learning outcomes and their corresponding PLOs	After completing this module, a student is expected to:		
	<b>CO</b>	<b>Description</b>	<b>Supported PLO</b>
	CO-1	understand and be able to explain the basic concepts and techniques in pattern recognition including detection, clustering, classification, identification and verification.	PLO2, PLO3
	CO-2	be able to design a solution for an pattern recognition problem.	PLO5
	CO-3	be able to determine the proper image preprocessing method and analyze the method	PLO5
	CO-4	be able to determine the relevant features (text, 1D, 2D) and the extraction methods	PLO4
	CO-5	be able to determine the feature selection method to obtain Bear optimal features	PLO8
	CO-6	be able to apply the pattern recognition system to real problem/case.	PLO6
Content	This course provides the students with the knowledge of methods for preprocessing of text, 1D, 2D and video data; feature extraction extraction methods, feature representation and feature matching methods (distance based, similarity based, machines learning based). Case studies will be discussed in the class.		

Study and examination requirements and forms of examination	CO-1: questions in midterm exam / assignments (total: 15%) CO-2: questions in midterm exam / assignments (total: 15%) CO-3: questions in midterm exam / assignments (total: 20%) CO-4: questions in final exam (total: 20%) CO-5: assignments / quizzes (total: 15%) CO-6: questions in final exam / assignments (total: 15%)
Media employed	C. Bishop, <i>Pattern Recognition and Machine Learning</i> , Springer, 2006 R.C. Gonzalez dan R. Woods, <i>Digital Image Processing</i> , Addison Wesley, 2015. Website of the Digital Image Processing course, Dept. of Electrical and Computer Engineering, Univeristy of Wisconsin, USA.
Assessments and Evaluation	
Reading List	