

**UNDERGRADUATE PROGRAM IN COMPUTER SCIENCE  
DEPARTMENT OF COMPUTER SCIENCE AND ELECTRONICS  
FACULTY OF MATHEMATICS AND NATURAL SCIENCES  
UNIVERSITAS GADJAH MADA**

Module name	<b>Pattern Recognition</b>	
Module level	Undergraduate	
Code	MIK 4405	
Courses (if applicable)	Pattern Recognition	
Semester	Spring (Genap)	
Contact person	Agus Harjoko, M.Sc., Dr.	
Lecturer	Agus Harjoko, M.Sc., Dr.	
Language	Bahasa Indonesia	
Relation to curriculum	<ol style="list-style-type: none"> <li>Undergraduate degree program, elective, 4<sup>th</sup>, 6<sup>th</sup> and 8<sup>th</sup> semester.</li> <li>International undergraduate program, elective, 4<sup>th</sup>, 6<sup>th</sup> and 8<sup>th</sup> semester.</li> </ol>	
Type of teaching, contact hours	<ol style="list-style-type: none"> <li>Undergraduate degree program: lectures, &lt; 60 students,</li> <li>International undergraduate program: lectures, &lt; 30 students.</li> </ol>	
Workload	<ol style="list-style-type: none"> <li>Lectures: 3 x 50 = 150 minutes per week.</li> <li>Exercises and Assignments: 3 x 60 = 180 minutes (3 hours) per week.</li> <li>Private study: 3 x 60 = 180 minutes (3 hours) per week.</li> </ol>	
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	Programming II	
Learning outcomes and their corresponding PLOs	After completing this module, a student is expected to:	
	<b>LO1</b> Students should be able to explain the pattern recognition concept and techniques in pattern recognition.	<b>PLO3</b>
	<b>LO2</b> Students should be able to design a solution for simple pattern recognition problem.	<b>PLO4</b>

	<b>LO3</b> Students should be able to apply mathematical and physical model and related software tools to solve pattern recognition problem.	<b>PLO4</b>
	<b>LO4</b> Students should be able to implement design into computer program for solving simple pattern recognition problem	<b>PLO4</b>
	<b>LO5</b> Students should be able to solve simple pattern recognition problem professionally.	<b>PLO5</b>
	<b>LO6</b> Students should be able to express his/her knowledge in a proper way either in writing or spoken.	<b>PLO8</b>
Content	This course is related to digital image processing, multimedia data processing and data mining. Case studies will be discussed in the class based on a number of papers on pattern recognition.	
Study and examination requirements and forms of examination	<ol style="list-style-type: none"> <li>1. Assignments.</li> <li>2. Mid-terms examination and Final examination.</li> </ol>	
Media employed	LCD, blackboard, and websites.	
Assessments and Evaluation	<b>LO1:</b> Problem 1 in midterm (10%) <b>LO2:</b> Problem 2 and 3 in midterm (15%), and problem 1, 2, and 3 in final exam (15%). <b>LO3:</b> Problem 2 and 3 in midterm (15%), and problem 1, 2, and 3 in final exam (15%). <b>LO4:</b> Assignment (10%). <b>LO5:</b> Assignment (10%). <b>LO6:</b> Assignment (10%).	
Reading List	<ol style="list-style-type: none"> <li>1. Pattern Classification (2nd. Edition) by R. O. Duda, P. E. Hart and D. Stork, Wiley 2000.</li> <li>2. Pattern Recognition and Machine Learning by C. Bishop, Springer 2007.</li> <li>3. Introduction to Pattern Recognition: A Matlab Approach by Sergio Theodoridis and Aggelos Pikrakis, 2006.</li> <li>4. Pattern Recognition and Neural Network, Brian D. Ripley, 2008.</li> <li>5. Learning site, Pattern Recognition from Department of Computer Science and Engineering, University of Buffalo,</li> </ol>	

	<p><a href="http://www.cedar.buffalo.edu/%7Esrihari/CSE555/Chap1.Part1.pdf">http://www.cedar.buffalo.edu/%7Esrihari/CSE555/Chap1.Part1.pdf</a></p> <ol style="list-style-type: none"><li data-bbox="540 346 1307 380">6. Information and data source at <a href="http://kdd.ics.uci.edu/">http://kdd.ics.uci.edu/</a>.</li><li data-bbox="540 384 1369 457">7. R. Jain, R. Kasturi, B.G. Schunck, <i>Machine Vision</i>, Mc Graw-Hill, 1995.</li></ol>
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