



UNIVERSITAS GADJAH MADA

Faculty of Mathematics and Natural Sciences

Department of Computer Science and Electronics

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Bachelor in Electronics and Instrumentation

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MODULE HANDBOOK

Module name	Image Processing	Digital
Module level	Undergraduate	
Code	MII-212204	
Courses (if applicable)	Digital Image Processing	
Semester	Fall (Odd)	
Contact person	Agus Harjoko	
Lecturer	Agus Harjoko	
Language	Bahasa Indonesia & English	
Relation to curriculum	1. Undergraduate degree program, compulsory, 5th semester. 2. International undergraduate program, compulsory, 5th semester.	
Type of teaching, contact hours	1. Undergraduate degree program: lectures, < 60 students, 2. International undergraduate program: lectures, < 30 students.	
Workload	1. Lectures: 3 x 50 = 100 minutes (1 hours 10 menit) per week. 2. Exercises and Assignments: 3 x 50 = 100 minutes per week. 3. Private study: 3 x 50 = 100 minutes 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	Programming I	
Learning outcomes (course outcomes) and their corresponding PLOs	After completing this module, a student is expected to: CO1 Able to explain the basic concepts of digital image processing. CO2 Able to explain, design, and implement image quality improvement techniques CO3 Able to explain and implement methods digital image segmentation. CO4 Able to explain, design, and implement techniques to extract features of objects in digital images CO5 Able to explain, design, and implement techniques of object detection, classification or recognition simple CO6 Able to work together to solve related problems digital image processing	

	<table><tr><th colspan="2">PLO</th><th>CO1</th><th>CO2</th><th>CO3</th><th>CO4</th><th>CO5</th><th>CO6</th></tr><tr><td rowspan="5">Program Learning Outcome (PLO)</td><td>PLO1</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>PLO2</td><td>√</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>PLO3</td><td></td><td>√</td><td>√</td><td>√</td><td>√</td><td></td></tr><tr><td>PLO4</td><td></td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td></tr><tr><td>PLO5</td><td></td><td></td><td></td><td></td><td></td><td>√</td></tr></table>	PLO		CO1	CO2	CO3	CO4	CO5	CO6	Program Learning Outcome (PLO)	PLO1							PLO2	√						PLO3		√	√	√	√		PLO4		√	√	√	√	√	PLO5						√												
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Contents	1. Introduction 2. Basics of digital image 3. Color Model and Neighborhood Relationships 4. Image Enhancement 5. Segmentation 6. Morphology 7. Representation and Description 8. Interpretation																																																								
Study and examination requirements and forms of examination	The evaluation is done in 3 forms, namely: 1. Trial, either midterm or semester test, 2. Four tasks, individual assignments to be completed within a certain timeframe, and 3. Two quizzes, held on face-to-face, once before midterm exam and once after midterm exam, with a short answer form. Assessment is done using benchmark assessment, with the aim of measuring the level of student understanding related to the target and class rank.																																																								
Media employed	LCD, blackboard, and websites.																																																								
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Reading List	[1] R.C. Gonzalez dan R. Woods, Digital Image Processing, Addison Wesley, 2017.																																																								

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| | <ul style="list-style-type: none">[2] R.J. Schalkoff, Digital Image Processing and Computer Vision, John Wiley & Sons, 1989[3] R. Jain, R. Kasturi, B.G. Schunck, Machine Vision, McGraw-Hill, 1995.[4] Situs Digital Image Processing course, Dept. of Electrical and Computer Engineering, Univeristy of Wisconsin, USA. |
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