



MODULE HANDBOOK

DIGITAL IMAGE PROCESSING AND ANALYSIS

MASTER DEGREE PROGRAM
DEPARTMENT OF MATHEMATICS
FACULTY OF SCIENCE AND DATA ANALYTICS
INSTITUT TEKNOLOGI SEPULUH NOPEMBER

MODULE HANDBOOK

MATHEMATICS OF MACHINE LEARNING

Module name	Digital Image Processing and Analysis	
Module level	Master	
Code	KM185277	
Course (if applicable)	Digital Image Processing and Analysis	
Semester	Spring (Genap)	
Person responsible for the module	Dr. Dwi Ratna Sulistyningrum, S.Si., M.T.	
Lecturer	Dr. Dwi Ratna Sulistyningrum, S.Si., M.T.	
Language	Bahasa Indonesia and English	
Relation to curriculum	Master degree program, mandatory , 2 nd semester.	
Type of teaching, contact hours	Lectures, <60 students	
Workload	1. Lectures : 3 x 50 = 150 minutes per week. 2. Exercises and Assignments : 3 x 60 = 180 minutes (3 hours) per week. 3. Private learning : 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 80% of the lectures to sit in the exams.	
Mandatory prerequisites	-	
Learning outcomes and their corresponding ILOs	Course Learning Outcome (CLO) after completing this module, <i>[C4] Students are able to analyze mathematical problems in one of the fields: analysis, algebra, modeling, system, optimization or computing sciences.</i>	CPL-2
Content	Digital Image Analysis is a course that contains basic mathematical concepts applied to image processing and algorithms for image processing. The basic mathematical concepts discussed include, namely, Fourier transformation, wavelet transform and morphological mathematical. Image processing techniques include image enhancement, restoration, segmentation and compression.	
Study and examination	<ul style="list-style-type: none"> • In-class exercises • Assignment 1, 2, 3 	

requirements and forms of examination	<ul style="list-style-type: none"> • Mid-term examination • Final examination
Media employed	LCD, whiteboard, websites (myITS Classroom), zoom.
Reading list	<p>Main :</p> <ol style="list-style-type: none"> 1. R. C. Gonzalez and R. E. Woods, <i>"Digital Image Processing, Third Edition"</i>, Pearson, 2008 2. John C. Russ, <i>"The Image Processing Handbook, Sixth Edition"</i>, CRC Press, 2011. <p>Supporting :</p> <ol style="list-style-type: none"> 1. Bhabatosh, Majumder, Dwijesh Dutta, <i>"Digital Image Processing And Analysis"</i>, Prentice Hall, 2006 2. Gonzalez, Woods, and Eddins, <i>"Digital Image Processing Using MATLAB (DIPUM)"</i>, Prentice Hall, 1st edition , 2004.