



**MODULE HANDBOOK DESCRIPTION**

Module designation	Digital Image Processing	
Code	FBB0002	
Semester(s) in which the module is taught	6 / third year	
Person responsible for the module	Bulkis Kanata, S.T., M.T.	
Language	Indonesian	
Relation to curriculum	Elective on Telecommunication System	
Teaching methods	Lectures, Small Group Discussion, Case Base Method	
Workload (incl. contact hours, self-study hours)	<p>Contact Hours every week, each week of the 16 weeks/semester:</p> <ul style="list-style-type: none"> <li>• Lecture: 2 x 50 minutes</li> <li>• Exercises and Assignments: 2 x 60 minutes</li> <li>• Self-study: 2 x 60 minutes.</li> </ul> <p>total study hours = 5 hours 40 minutes/week</p>	
Credit points	2 (~ 3,2 ECTS)	
Required and recommended prerequisites for joining the module	Basic Programming (FBS1215)	
Module objectives/intended learning outcomes	1. Students are able to explain the definition of image and image processing, the process of forming analogue images into digital images, various operations on images	PLO3
	2. Students are able to design programs to apply various operations on images, convolution and Fourier transform to images, image compression, segmentation to images.	PLO4
	3. Students are able to conduct experiment on creating an image histogram and improving image quality.	PLO5

Content	Introduction to Image processing; Image processing application; Image Formation; Digital image elements; Arithmetic, Boolean and Geometric operations; Image convolution; Fourier transform of image; Formation and modification of the image histogram; Adjusting the brightness and stretching the contrast of the image; Image softening and sharpening; Image geometric transformation; Compressing the image; Image segmentation.
Examination forms	<i>Essay, Presentation case study, Create program</i>
Study and examination requirements	<i>The final grade in the module is composed of: Attendance: 10% Case assessment: 5 % x 5 = 25% Midterm and final test: 30% Exercise Report/ Homework: 35%</i>
Reading list	<ol style="list-style-type: none"> <li>1. Munir R, 2004, Pengolahan Citra Digital dengan Pendekatan Algoritmik, Bandung: Informatika,</li> <li>2. Priyanto Hidayatullah; 2017, Pengolahan Citra Digital Teori dan Aplikasi, Informatika</li> <li>3. Eko Prasetyo; 2011, Pengolahan Citra Digital dan Aplikasinya menggunakan Matlab, Yogyakarta, Andi</li> <li>4. <a href="https://www.mathworks.com/support/learn-with-matlab-tutorials.html">https://www.mathworks.com/support/learn-with-matlab-tutorials.html</a></li> </ol>