MODULE HANDBOOK DESCRIPTION

Module designation	Digital Image Processing	
Code	*FBC0005*	
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)	Contact Hours every week, each week of the 16 weeks/semester: • Lecture: 2 x 50 minutes • Exercises and Assignments: 2 x 60 minutes • Self-study: 2 x 60 minutes. total study hours = 5 hours 40 minutes/week	
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	*Essay, Presentation case study, Create program*
Study and examination requirements	*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%*
Reading list	1. Munir R, 2004, Pengolahan Citra Digital dengan Pendekatan Algoritmik, Bandung: Informatika, 2. Priyanto Hidayatullah; 2017, Pengolahan Citra Digital Teori dan Aplikasi, Informatika 3. Eko Prasetyo; 2011, Pengolahan Citra Digital dan Aplikasinya menggunakan Matlab, Yogyakarta, Andi 4. https://www.mathworks.com/support/learn-with-matlab-tutorials.html