



Bachelor Program in Geophysics

Faculty of Mathematics and Natural Sciences
HASANUDDIN UNIVERSITY

11. Satellite Image Data Processing

Module Name	:	Satellite Image Data Processing
Module Level	:	Bachelor
Code, if applicable	:	23H06122402
Subtitle, if applicable	:	-
Courses, if applicable	:	Geophysics Study Program
Semester(s) in which the module is taught	:	IV (Fourth Semester)
Module coordinator(s)	:	Dr. Samsu Arif, M.Si
Lecturer(s)	:	Dr. Samsu Arif, M.Si Aswar Syafnur, S.Si., M.Eng
Language	:	Bahasa (Indonesian language)
Relation to curriculum	:	Elective courses in the second year of the Bachelor of Geophysics program
Type of teaching, contact hours	:	This course is delivered through Lectures (i.e., Project/Case-based learning), complemented by structured assignments (paper review, project/case evaluation) and independent study. Contact hours consist of 100 minutes lectures per week, plus 120 minutes per week for each of the following: structured assignments and independent study
Workload	:	Total workload is 90 hours per semester, consisting of 28 hours for lectures, and 31 hours each for structured assignments and independent study
Credit points	:	2 SKS (3.2 ECTS)
Requirements according to the examination regulations	:	Students are eligible to attend the examination if their absences are less than 20% of the lectures
Recommended prerequisites	:	Mapping and GIS
Module objectives/intended learning outcomes	:	After completion of this module, students will be able to: CLO 1. Able to apply the basic concepts of remote sensing and the elements involved in it. CLO 2. Able to solve problems related to remote sensing satellite systems and the application of satellite examples commonly used in geophysics.



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		CLO 3. Able to process satellite imagery data for application in effective disaster mitigation according to triggers and environmental conditions. The following is the mapping of the ILO and the CLO of this course: <table><tr><td></td><td>ILO 7</td><td>ILO 10</td><td>ILO 13</td></tr><tr><td>CLO 1</td><td>✓</td><td></td><td></td></tr><tr><td>CLO 2</td><td></td><td>✓</td><td></td></tr><tr><td>CLO 3</td><td></td><td></td><td>✓</td></tr></table>		ILO 7	ILO 10	ILO 13	CLO 1	✓			CLO 2		✓		CLO 3			✓														
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CLO 1	✓																															
CLO 2		✓																														
CLO 3			✓																													
Content	:	1. Basic concepts of remote sensing 2. Types of satellite imagery data 3. Unsupervised classification 4. Supervised classification 5. Differential Interferometric Synthetic Aperture Radar (DInSAR)																														
Study and examination requirements		Participants are marked based on their performance in theory: Case Study (90%), and Assignments (10%). Students are marked based on their percentage of points obtained and based on the following grade scale: <table><tr><th>Percentage of Achievement</th><th>Grade</th><th>Conversion Value</th></tr><tr><td>85 – 100</td><td>A</td><td>4.00</td></tr><tr><td>80 - <85</td><td>A-</td><td>3.75</td></tr><tr><td>75 - < 80</td><td>B+</td><td>3.5</td></tr><tr><td>70 - < 75</td><td>B</td><td>3.0</td></tr><tr><td>65 - < 70</td><td>B-</td><td>2.75</td></tr><tr><td>60 - < 65</td><td>C+</td><td>2.5</td></tr><tr><td>50 - < 60</td><td>C</td><td>2.00</td></tr><tr><td>40 - < 50</td><td>D</td><td>1.00</td></tr><tr><td>< 40</td><td>E</td><td>0.00</td></tr></table>	Percentage of Achievement	Grade	Conversion Value	85 – 100	A	4.00	80 - <85	A-	3.75	75 - < 80	B+	3.5	70 - < 75	B	3.0	65 - < 70	B-	2.75	60 - < 65	C+	2.5	50 - < 60	C	2.00	40 - < 50	D	1.00	< 40	E	0.00
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Exams and assessment formats	Assessment in this course consists of a project or case study, and assignments. The project or case study is conducted in a group or individually and requires students to apply theoretical concepts to analyze and solve a problem, presented in the form of a written report. Assignments are completed individually and may include problem-solving tasks, data processing, or short essays; these are submitted in written form and may involve graphical or computational outputs.
Reading list	1. Main References: Lillesand, T.M and R.W. Kiefer., 1994. Remote Sensing and Image Interpretation, Third Edition, John Wiley and Sons Inc., New York.; Sutanto., 1994. Penginderaan Jauh, Jilid I dan II, Cetakan ketiga, Gadjah Mada University Press, Yogyakarta Additional References: John A. Richards and Xiuping Jia, 2006. Remote Sensing Digital Image Analysis. Springer-Verlag Berlin Heidelberg, Printed in German
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