



Bachelor Program in Geophysics

Faculty of Mathematics and Natural Sciences
HASANUDDIN UNIVERSITY

5. Sedimentology and Stratigraphy

Module Name	:	Sedimentology and Stratigraphy
Module Level	:	Bachelor
Code, if applicable	:	23H06121802
Subtitle, if applicable	:	-
Courses, if applicable	:	Geophysics
Semester(s) in which the module is taught	:	4 (Fourth Semester)
Module coordinator(s)	:	Prof. Dr. Ir. Muh. Altin Massinai, MT., Surv.
Lecturer(s)	:	Prof. Dr. Ir. Muh. Altin Massinai, MT., Surv. Makhrani, S.Si. M.Si
Language	:	Bahasa (Indonesian language)
Relation to curriculum	:	Elective course in the second year for Bachelor Degree in Geophysics
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	:	-
Module objectives/intended learning outcomes	:	After completion of this module, students will be able to: CLO 1. Students are able to apply the concept of layering and its changes in sedimentary rocks; CLO 2. Students are able to implement the concept of rock strata in sedimentary rocks with field implementation (due to tectonic factors, sedimentary environment) according to specific geological conditions and time periods;



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		CLO 3. Able to explain stratigraphic concepts and apply them to other related fields CLO 4. Able to use geophysical principles to communicate with the general public in conveying natural phenomena related to stratigraphy The following is the mapping of the ILO and the CLO of this course: <table><tr><td></td><td>ILO 4</td><td>ILO 8</td><td>ILO 9</td><td>ILO 14</td></tr><tr><td>CLO 1</td><td>✓</td><td></td><td></td><td></td></tr><tr><td>CLO 2</td><td></td><td>✓</td><td></td><td></td></tr><tr><td>CLO 3</td><td></td><td></td><td>✓</td><td></td></tr><tr><td>CLO 4</td><td></td><td></td><td></td><td>✓</td></tr></table>		ILO 4	ILO 8	ILO 9	ILO 14	CLO 1	✓				CLO 2		✓			CLO 3			✓		CLO 4				✓
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Content	:	1. Classification and characteristics of sediments, 2. Texture and structure of sediments, 3. Granulometric analysis, 4. Flow systems and deposition mechanisms, and 5. Depositional environment analysis 6. Stratigraphic concepts and depositional environments 7. Regression and transgression 8. Facies and unconformities 9. Well log data 10. Stratigraphic sequences and tract systems, 11. Carbonate sequences, lithostratigraphy, volcanic stratigraphy, biostratigraphy, and chronostratigraphy, 12. Rock units and stratigraphic columns.																									



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Study and examination requirements	Participants are marked based on their performance in theory: Project/Case Study (80%) and written examination (20%). 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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< 40	E	0.00																													
Exams and assessment formats	Assessment in this course consists of a project or case study and written examination. 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, culminating in a written report that is evaluated and may be revised after feedback. The written examination (<i>closed-book</i>, written) evaluates students' understanding of fundamental concepts covered by CLO 1 and CLO 2.																														
Reading list	1. Main References: 1. Pettijohn, F. J. , 1957, Sedimentary rocks, Classification and nomenclature. New York. 2. Katili, J. A. 1959, Pengantar Geologi Umum, Bandung. 3. Friedman, G. M., and Sanders, J. E., 1978, Principles of sedimentologi, John Willey, New York. 4. Boggs, Sam, Jr., 1995, Principles of Sedimentology and Stratigraphy. Edisi 2. Prentice-Hall, New Jersey. 5. Massinai, Muhammad Altin. 2015. Geomorfologi Tektonik. Jogyakarta. Pustaka Ilmu Publishing.																														



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	6. Dumbor and Roger., 1957, Principle of Stratigraphy, John Wiley and Sons Inc, New York, 356p 7. Martodjojo, S dan Djuhaeni., 1996, Sandi Stratigrafi Indonesia, Ikatan Ahli Geologi Indonesia (IAGI) Additional References: 1. Nichols, G., 1999. Sedimentology and Stratigraphy. Blackwell Science Ltd., Oxford. 2. Selley R.C., 1980, Ancient Sedimentary Environments. Chapman & Hall, London. 3. Selley R. C., 1988, Applied Sedimentology, Academic Press, New York 4. Sarg, Rick. 2011. Sequence Stratigraphy of Carbonates. Subsurface Consultants & Associates Publication. Texas. 5. Van Wagoner, J.C, Michum, R.M, Campion, K.M & Rahmanian, V.D., 1990, Siliciclastic Sequence Stratigraphy in Well Logs, Cores 6. and Outcrops: Concepts for high-resolution Correlation of Time and Facies, Am.Ass. Petrol. Geol. Methods in Exploration Series No. 7. U.S.A 55p. 8. Jurnal internasional bereputasi yang relevan terbitan 5 tahun terakhir.
Last revision date	July 1 st , 2025