



Bachelor Program in Geophysics

Faculty of Mathematics and Natural Sciences
HASANUDDIN UNIVERSITY

21. Mineral Deposits

Module Name	:	Mineral Deposits
Module Level	:	Bachelor
Code, if applicable	:	23H06131202
Subtitle, if applicable	:	-
Courses, if applicable	:	Geophysics
Semester(s) in which the module is taught	:	V (Fifth 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 courses in the third 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. Understand and analyze concepts of mineral formation and distribution, and apply them to relevant fields; CLO 2. Use geophysical principles to communicate mineralization phenomena to society; The following is the mapping of the ILO and the CLO of this course:



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		<table> <tr> <td></td> <td>ILO 4</td> <td>ILO 12</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> </table>		ILO 4	ILO 12	ILO 13	CLO 1	✓			CLO 2		✓	✓																				
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CLO 2		✓	✓																															
Content	:	1. Theory of mineral formation 2. Magmatic arc zones and mineralization 3. Alteration zones and pneumatolytic minerals 4. Types and distribution of mineral deposits in Indonesia 5. Alteration minerals in epithermal, mesothermal, hypothermal, and porphyry zones 6. Primary and secondary mineral deposits 7. Genesis of Au, Cu, Fe, Ni minerals 8. Tin, diamond, and asphalt deposits 9. Mineral physical-chemical properties 10. Mineral identification using analytical tools.																																
Study and examination requirements		Participants are marked based on their performance in theory: Project/Case Study: 61%, Assignments: 19%, 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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Exams and assessment formats	Assessment in this course consists of a project or case study, assignments, 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, 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. 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. Bateman, A. M. Economic Mineral Deposits. John Wiley & Sons 2. Misra, K. C. Understanding Mineral Deposits. Kluwer Academic Publishers 3. Robb, L. Introduction to Ore-forming Processes. Blackwell Publishing 4. Yuwono, Y. S. Petrology and Magmatism in South Sulawesi and Java Additional References: 1. Darman, H. & Sidi, H. Geology of Indonesia 2. Hamilton, W. Tectonics of the Indonesian Region 3. Massinai, M. A. Tectonic Geomorphology
Last revision date	July 1 st , 2025