



Bachelor Program in Geophysics

Faculty of Mathematics and Natural Sciences
HASANUDDIN UNIVERSITY

23. Geothermal

Module Name	:	Geothermal
Module Level	:	Bachelor
Code, if applicable	:	23H06131403
Subtitle, if applicable	:	-
Courses, if applicable	:	Geophysics Study Program
Semester(s) in which the module is taught	:	V (Fifth Semester)
Module coordinator(s)	:	Ir. Bambang Hari Mei Soeprapto, M.Si
Lecturer(s)	:	Ir. Bambang Hari Mei Soeprapto, M.Si. Dra. Maria, M.Si Muhammad Fawzy Ismullah Massinai, S.Si, M.T
Language	:	Bahasa (Indonesian language)
Relation to curriculum	:	Elective courses in the third 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 150 minutes lectures per week, plus 180 minutes per week for each of the following: structured assignments and independent study
Workload	:	Total workload is 135 hours per semester, consisting of 38 hours for lectures, and 48.5 hours each for structured assignments and independent study
Credit points	:	3 SKS (4.8 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 explain geochemistry and its relationship with earth science aspects and exploration. CLO 2. Students are able to explain the geothermal potential in Indonesia and the geothermal exploration process, especially geophysical exploration.



Bachelor Program in Geophysics

Faculty of Mathematics and Natural Sciences

HASANUDDIN UNIVERSITY

		The following is the mapping of the ILO and the CLO of this course: <table border="1"> <tr> <td></td><td>ILO 4</td><td>ILO 12</td></tr> <tr> <td>CLO 1</td><td>✓</td><td></td></tr> <tr> <td>CLO 2</td><td></td><td>✓</td></tr> </table>		ILO 4	ILO 12	CLO 1	✓		CLO 2		✓																					
	ILO 4	ILO 12																														
CLO 1	✓																															
CLO 2		✓																														
Content	:	1. Geochronology, isotopes, and radioactivity; 2. Geochemistry of igneous, sedimentary, and metamorphic rocks; 3. Geochemical exploration; 4. Hydrothermal alteration and geothermal exploration; 5. Geothermal exploration using geophysical methods.																														
Study and examination requirements		Participants are marked based on their performance in theory: Participatory activities (4%), Case Study (52%), Assignments (24%), Written Examination (20%). Students are marked based on their percentage of points obtained and based on the following grade scale: <table border="1"> <thead> <tr> <th>Percentage of Achievement</th><th>Grade</th><th>Conversion Value</th></tr> </thead> <tbody> <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> </tbody> </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
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																														



Bachelor Program in Geophysics

Faculty of Mathematics and Natural Sciences

HASANUDDIN UNIVERSITY

Exams and assessment formats	Assessment in this course consists of a project or case study, assignments, quizzes, participatory activities, written examination. The project or case study is conducted individually or in groups 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. 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. Quizzes are administered in a closed-book written format, typically consisting of short-answer and multiple-choice questions, to monitor students' ongoing understanding and provide early feedback on learning progress. Participatory activities include active involvement in class discussions, problem-solving sessions, or peer feedback exercises, and are evaluated based on engagement, relevance of contribution, and collaboration with peers. The written examination (closed-book, written) evaluates students' understanding of fundamental concepts covered in CLO 1 and CLO 2.
Reading list	1. Main References: 1. Armstead, H.C.H. 1978. Geothermal Energy. J. Willey. 2. Ellis, A.J. & Mahon, W.A.J. 1977. Geochemistry and Geothermal System. Academic Press. 3. Keller, G.V. 1981. Exploration for Geothermal Energy. Dev. In Geophysics, Exp. Method 2ed. A.A. Fitch, Ap. Sci.Pub, 1981. 4. Rybach, L & Muffler, L.J.P. 1981. Geothermal System Principles and Case Histories. J. Willey.
Last revision date	July 1 st , 2025