



Bachelor Program in Geophysics

Faculty of Mathematics and Natural Sciences

HASANUDDIN UNIVERSITY

20. Seismology

Module Name	:	Seismology
Module Level	:	Bachelor
Code, if applicable	:	23H06121103
Subtitle, if applicable	:	
Courses, if applicable	:	Geophysics
Semester(s) in which the module is taught	:	4 (Fourth Semester)
Module coordinator(s)	:	Sabrianto Aswad, S.Si., MT
Lecturer(s)	:	Sabrianto Aswad, S.Si., MT Muhammad Fawzy Ismullah Massinai, S.Si, M.T
Language	:	Bahasa (Indonesian language)
Relation to curriculum	:	Compulsory 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 150 minutes lectures per week, plus 180 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	:	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. Able to explain the basic concepts of seismology and apply them to other related fields; CLO 2. Able to use geophysical principles to communicate with the general public in conveying natural phenomena related to seismology; The following is the mapping of the ILO and the CLO of this course:



				ILO 1	ILO 4	ILO 8	ILO 11
		CLO 1	✓	✓			
		CLO 2				✓	✓

Content	:	1. Classification of earthquakes and seismic waves in local earthquakes 2. Wadati diagram 3. Particle motion 4. Apparent velocity 5. Hypocenter 6. Magnitude & intensity 7. Focal mechanism 8. Earthquake statistics																														
Study and examination requirements		Participants are marked based on their performance in theory: Project/Case Study (80%), 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
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40 - < 50	D	1.00																														
< 40	E	0.00																														
Exams and assessment formats		Assessment in this course consists of a project or case study, assignments, a 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,																														



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	presented in the form of a written report. The written examination (<i>closed-book</i> , written) evaluates students' understanding of fundamental concepts covered by CLO 1 and CLO 2.
Reading list	Main References: 1. Hurukawa, N., 2008, Practical Analyses of Local Earthquakes, (IISSE), Building Research Institute, Tsukuba, JAPAN. 2. Havskov, J. and Ottemöller, L., 2010, Routine Data Processing in Earthquake Seismology, Springer. 3. Afnimar, 2009, seismology, penerbit ITB, Bandung. Additional References: Seismological Research Letter, Bulletin of Seismological Society of America dan/ atau jurnal internasional beruptasi lainnya yang relevan terbitan 5 tahun terakhir
Last revision date	July 1 st , 2025