



Bachelor Program in Geophysics

Faculty of Mathematics and Natural Sciences
HASANUDDIN UNIVERSITY

27. Petrophysics

Module Name	:	Petrophysics
Module Level	:	Bachelor
Code, if applicable	:	23H06131803
Subtitle, if applicable	:	-
Courses, if applicable	:	Geophysics
Semester(s) in which the module is taught	:	V (Fifth Semester)
Module coordinator(s)	:	Sabrianto Aswad, S.Si., MT
Lecturer(s)	:	Sabrianto Aswad, S.Si., MT
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 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 recognize learning outcomes as a gift from God, thus upholding ethical, moral, and academic integrity in their learning process; CLO 2. Students can identify drilling environments and the distinction of well logging data; CLO3. Students can determine permeable zones, measure shale volume, and calculate porosity; CLO 4. Students can determine lithology using porosity logs;



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		CLO 5. Students can identify hydrocarbon-bearing zones and calculate their saturation The following is the mapping of the ILO and the CLO of this course: <table><tr><td></td><td>ILO 4</td><td>ILO 6</td><td>ILO 11</td><td>ILO 12</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><tr><td>CLO 5</td><td></td><td>✓</td><td>✓</td><td></td></tr></table>		ILO 4	ILO 6	ILO 11	ILO 12	CLO 1	✓				CLO 2	✓		✓		CLO 3		✓		✓	CLO 4		✓		✓	CLO 5		✓	✓	
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CLO 5		✓	✓																													
Content	:	1. Drilling environments 2. Caliper Log, Bottom Hole Temperature (BHT), Gamma Ray, Spontaneous Potential (SP) Logs 3. Porosity Logs: Sonic Log, Density Log, Neutron Log, and Combined Log Techniques 4. Resistivity Logs: Laterolog, Induction Log, and Microresistivity Log 5. Dipmeter and Borehole Image Logs 6. Log Interpretation 7. Petrophysical Techniques 8. Case Studies																														
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><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></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															
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75 - < 80	B+	3.5																														
70 - < 75	B	3.0																														



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			65 - < 70	B-	2.75	
			60 - < 65	C+	2.5	
			50 - < 60	C	2.00	
			40 - < 50	D	1.00	
			< 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, CLO 2, CLO 3, CLO 4 and CLO 5.					
Reading list	Main References: - Asquith, G. and Krygwski, D. (2004). <i>Basic Well Log Analysis</i>. The American Association of Petroleum Geologists, Tulsa, Oklahoma. - Schlumberger (1987). <i>Principles and Application of Well Logs</i>. Schlumberger Ltd., France. - Harsono, A. (1997). <i>Evaluasi Formasi dan Aplikasi Log</i>. Schlumberger Oil Services. Additional References: - Rider, M.H. (1996). <i>The Geological Interpretation of Well Logs</i> (2nd Ed.). Blackie and Son Ltd., London. - Dewan, J.T. (1983). <i>Essentials of Modern Open-Hole Log Interpretation</i>. PennWell Corporation, USA. - Websites: www.brookes.ac.uk/geology/peg/shortcourse					
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