



Bachelor Program in Geophysics

Faculty of Mathematics and Natural Sciences

HASANUDDIN UNIVERSITY

Specialization Competency Courses

1. Renewable Energy

Module Name	:	Renewable Energy
Module Level	:	Bachelor
Code, if applicable	:	23H06121402
Subtitle, if applicable	:	-
Courses, if applicable	:	Renewable Energy
Semester(s) in which the module is taught	:	III (Third Semester)
Module coordinator(s)	:	Drs. Erfan, M.Si.
Lecturer(s)	:	Drs. Erfan, 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. Able to interpret the concept of renewable energy; CLO 2. Able to interpret energy concepts; CLO 3. Describe the forms of solar energy and their uses; CLO 4. Describe the forms of wind energy and their uses; CLO 5. Describe the forms of water energy and their use;



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CLO 6. Describe the form of biomass energy and its use;

CLO 7. Describe the forms of geothermal energy and their uses;

CLO 8. Describe the concept of energy conservation and policy.

The following is the mapping of the ILO and the CLO of this course:

	ILO 5	ILO 11	ILO 12
CLO 1	✓		
CLO 2	✓		
CLO 3		✓	
CLO 4		✓	
CLO 5		✓	
CLO 6			✓
CLO 7			✓
CLO 8			✓

Content

:

1. Energy concepts
2. Solar energy
3. Water energy
4. Wind energy
5. Biomass, biogas, biofuel
6. Geothermal energy
7. Energy conservation and policy.



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Study and examination requirements	Participants are marked based on their performance in theory: Project/ Case Study (100%). 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
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																													
Exams and assessment formats	Assessment in this course is conducted entirely through project/case studies. The project or case study is conducted in a group and requires students to apply theoretical concepts to analyze and solve a problem. This work is developed over several weeks under instructor guidance, culminating in a written report and an oral presentation of results.																														
Reading list	1. Main References: 1. Silitonga, A. S., & Ibrahim, H. (2020). Buku Ajar Energi Baru dan Terbarukan. Deepublish. 2. Apribowo, C. H. B. (2021). Buku Ajar Perancangan Pembangkit Energi Baru dan Terbarukan. Media Sains Indonesia. Additional References: 1. Buku Panduan Energi yang Terbarukan, PNPM Mandiri 2. Buku Putih Penelitian, Pengembangan dan Penerapan IPTEK Indonesia 2005 -2025.																														
Last revision date	July 1 st , 2025																														