



Bachelor Program in Geophysics

Faculty of Mathematics and Natural Sciences
HASANUDDIN UNIVERSITY

5. Geothermodynamics

Module Name	:	Geothermodynamics								
Module Level	:	Bachelor								
Code, if applicable	:	23H06110402								
Subtitle, if applicable	:	-								
Courses, if applicable	:	Geothermodynamics								
Semester(s) in which the module is taught	:	II (Second Semester)								
Module coordinator(s)	:	Ir. Bambang Hari Mei Soeprapto, M.Si.								
Lecturer(s)	:	Ir. Bambang Hari Mei Soeprapto, M.Si., Drs. Erfan, M.Si.								
Language	:	Bahasa (Indonesian language)								
Relation to curriculum	:	Compulsory courses in the first year for Bachelor Degree in Geophysics								
Type of teaching, contact hours	:	This course is delivered through Lectures (i.e., 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. Solving classical thermodynamic equations; CLO 2. Analyze natural phenomena that occur from a thermodynamic perspective. The following is the mapping of the ILO and the CLO of this course: <table><tr><td></td><td>ILO 4</td><td>ILO 5</td><td>ILO 11</td></tr><tr><td>CLO 1</td><td>✓</td><td>✓</td><td></td></tr></table>		ILO 4	ILO 5	ILO 11	CLO 1	✓	✓	
	ILO 4	ILO 5	ILO 11							
CLO 1	✓	✓								



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		CLO 2			✓																														
Content	:	1. the concept of heat and temperature 2. The concept of a simple thermodynamic system 3. The concept of work in thermodynamics 4. The concept of the thermodynamics system 5. Gas Ideal, Engine, Cooling Aircraft 6. Entropy																																	
Study and examination requirements		Participants are marked based on their performance in theory: Case Study/Project (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
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< 40	E	0.00																																	
Exams and assessment formats		Assessment in this course is entirely case-study based. Students are provided with real or simulated cases, which they analyze in depth by processing and interpreting data, preparing a written report, and presenting their findings. The case studies are evaluated by the lecturer, with feedback given for revisions. Final assessment is determined by the quality of the analysis, accuracy of problem-solving, and the completeness of the revised report.																																	
Reading list		Main References:																																	



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	1. Zemansky MW and Dirmann RH, 1986, Kalor dan Termodinamika, 6th Ed., Perterjemah: The How Liong, Penerbit ITB Bandung Additional References: 1. Sonntag RE and Van Wylen GJ, 1991, Introduction to thermodynamics, Classical and Statistical, 3rd edition, John Wiley and Sons, USA.
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