FI583 Geothermal Physics

Module name:	Geothermal Physics	
Module level, if applicable:	Undergraduate	
Code:	FI583	
Sub-heading, if applicable:	-	
Classes, if applicable:	-	
Semester:	7th	
Module coordinator:	Mimin Iryanti	
Lecturer(s):	Mimin Iryanti	
Language:	Bahasa Indonesia	
Classification within the curriculum:	Elective course	
Type of Teaching	Contact hours per week during the semester	Class Size
1. Lecture (conceptual, contextual, and problem-solving approaches through expository and discussions). 2. Structured activities (assignments based on conceptual, contextual, and problem-solving approaches) 3. Self-study (reading literature)	1 hour 40 minutes	20
Workload:	Total workload is 90 hours 3.2 ECTS (5440 minutes) per semester which consists of 1400 minutes (0.82 ECTS) lectures, 1680 minutes (0.98 ECTS) structured activities, 1680 minutes (0.98 ECTS) self-study per week for 14 weeks, 400 minutes (0.2 ECTS) for each exam, and 480 (0.22 ECTS) minutes for each exam preparation.	
Credit points:	3.2 ECTS	
Pre-requisites course(s):	-	
Course Learning Outcomes (CLO):	After taking this course, the students have the ability to: CLO1. Describe geothermal systems CLO2. Explain the concept of the earth system CLO3. Explain the Geochemistry in the geothermal system CLO4. Explain the Geothermometer in the geothermal system CLO5. Apply the law thermodynamics in geothermal systems. CLO6. Explain the Geothermal energy CLO7. Explain thermal properties of Rocks CLO8. Explain Identification of Geothermal Minerals CLO9. Explain Geothermal Systems in Indonesia, CLO10. Explain Classification of Geothermal Systems CLO11. Explain Classification of Power Plants from Geothermal	

<table>
<tr><td></td><td>Systems
CLO12. Explain Geothermal Environments,
CLO13. Explain Geothermal Explorations</td></tr>
<tr><td>Content:</td><td>Geothermal Systems, Geochemistry, Geothermometers, Thermodynamics, Geothermal Energy, Thermal Properties of Rocks, Identification of Geothermal Minerals, Geothermal Systems in Indonesia, Classification of Geothermal Systems, Classification of Power Plants from Geothermal Systems, Geothermal Environments, and Geothermal Explorations.</td></tr>
<tr><td>Study/exam achievements:</td><td>
<table>
<tr><th>No</th><th>CLO</th><th>Assessment Object</th><th>Assessment Techniques</th><th>Weight</th></tr>
<tr><td>1</td><td>1 - 8</td><td>Subject specific competence:
a. Individual assignments
b. Mid Exam</td><td>

Written
Written test</td><td>

10%
40%</td></tr>
<tr><td>2</td><td>9 - 13</td><td>c. Individual assignments
d. Final Exam</td><td>Written
Written test</td><td>10%
40%</td></tr>
<tr><td colspan="4">Total</td><td>100%</td></tr>
</table>
The final mark will be weight as follow:
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<tr><td>Forms of media:</td><td>Board, LCD Projector, Laptop/Computer, LMS</td></tr>
<tr><td>Literature:</td><td>

1. Glaslley, W. E. (2010). Geothermal Energy Renewable and the Environment. CRC Press, Taylor and Francis Group LLC.
2. Gupta, H and Roy, S. (2007). Geothermal Energy an Alternative resource for the 21st Century. Elsevier.
3. Rogers, G. F., & Mayhew, Y. R. (2013). Thermodynamic and transport properties of fluids. John Wiley & Sons.
4. Min, K. (2009). Introduction to heat transfer.
5. Min, K. (2009). Reservoir geomechanics.
6. Cangel, Y. A. dan Michael Boles. (2011). Thermodynamics an engineering approach. Mcgraw-Hill.
7. Manfred Koch. (2013). Geothermal Energy, Geophysical concepts, application and limitations.
8. Saepuloh, A. (2016). SAR principle and theory for earth resource exploration. ITB.
9. Reynolds, J. M. (2011). An introduction to applied and environmental geophysics. Wiley.

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PLO and CLO mapping

	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PLO11	PLO12
CLO1		√										
CLO2		√										
CLO3		√										
CLO4		√										
CLO5		√										
CLO6		√										
CLO7		√										
CLO8		√										
CLO9		√										
CLO10		√										
CLO11		√										
CLO12		√										
CLO13		√										