

PROGRAM PLAN AND SEMESTER LEARNING ACTIVITIES (RPKPS) 2021/2022 SCHOOL YEAR



Geophysics
Volcano Physics MFG
3111/ 2 credits

Teaching
Team: Imam
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**GADJAH MADA UNIVERSITY FACULTY
OF MIPA
2021**



Gadjah Mada University
 Faculty of Mathematics and Natural Sciences
 Department of Physics / Undergraduate Geophysics
 Study Program 2021/2022 Academic Year

Document Code:



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SEMESTER LEARNING PROGRAM AND ACTIVITY PLAN (RPKPS)

Course Code	Course Name	Weight (credits)		Semester	Course Status	Prerequisite Course
MFG 3111	<i>Volcano Physics</i>	<i>T: 2</i>	<i>P: 1</i>	<i>Odd</i>	<i>Required</i>	<i>MFG 3114 - Practicum of Non Seismic Methods?</i>
Brief Course Description	<p>The Volcano Physics course is an advanced course that implements several basic courses in the realm of volcanism. This course contains basic knowledge of volcanism symptoms, types and properties of magma, to the application of geophysical methods to determine the structure and monitoring of volcanoes. Learning in this course is an interactive learning method that combines lectures from lecturers (<i>Teacher Centered Learning</i>) and <i>Student Centered Learning (SLC)</i>. We motivate students to find problems that need to be discussed in class in relation to problems that arise in volcanoes as information sharing.</p>					
Graduate Learning Outcomes (ELOs) Charged to MKs	CPL-2	General knowledge mastery: Graduates are able to apply basic science (mathematics, physics, chemistry, biology, geology), and geophysics in general and its relationship with other sciences such as geology, geodesy, geochemistry, geography, computing and information technology.				
	CPL-3	Operational and comprehensive skills: Graduates are able to apply all geophysical methods (seismic, gravity, magnetic, electrical, electromagnetic, and thermic methods) for energy exploration (e.g. oil and gas, coal, geothermal), mining materials (e.g. iron, copper, gold, silver, tin) as well as groundwater and disaster mitigation.				
	CPL-4	Application and analysis skills: Graduates are able to carry out and manage a geophysical survey that includes scientific steps in data acquisition, processing and interpretation for natural resource exploration both for energy (e.g. oil and gas, coal, for energy exploration (e.g. oil and gas, coal, geothermal), mining materials (e.g. iron, copper, gold, silver, tin) as well as groundwater and disaster mitigation.				

Course Learning Outcomes (CPMK)	CPMK-1	Students are able to explain the nature of magma, static structures and dynamic processes that occur in the body of a volcano from a geophysical perspective. [SLO-2]																		
	CPMK-2	Students are able to apply geophysical methods to determine the static structure and dynamic processes of a volcano. [SLO-3]																		
	CPMK-3	Students are able to analyze and interpret geophysical data of volcano monitoring time series. [SLO-4]																		
Mapping SLO with CPMK		<table border="1"> <thead> <tr> <th></th> <th>CPMK-1</th> <th>CPMK-2</th> <th>CPMK-3</th> </tr> </thead> <tbody> <tr> <td>CPL-2</td> <td>30</td> <td></td> <td></td> </tr> <tr> <td>CPL-3</td> <td></td> <td>40</td> <td></td> </tr> <tr> <td>CPL-4</td> <td></td> <td></td> <td>30</td> </tr> </tbody> </table>				CPMK-1	CPMK-2	CPMK-3	CPL-2	30			CPL-3		40		CPL-4			30
	CPMK-1	CPMK-2	CPMK-3																	
CPL-2	30																			
CPL-3		40																		
CPL-4			30																	
CPMK linkage with Materials and Forms of Learning, and Time Allocation		Learning Materials	Form of Learning																	
	CPMK-1	RPKPS Volcano Physics, Introduction, Group Division, review of plate tectonics and symptoms of volcanism	TCL - SCL mixed																	
	CPMK-1	Volcano base and magma properties	TCL - SCL mixed																	
	CPMK- 1	Magma migration and segregation 1	TCL - SCL mixed																	
	CPMK- 2	Magma migration and segregation 2:	TCL - SCL mixed																	
	CPMK-1	Volcano structure and conduit system 1	TCL - SCL mixed																	
	CPMK-2	Volcano structure and conduit system 2	TCL - SCL mixed																	
	CPMK-1	Eruption and eruption hazard	TCL - SCL mixed																	

	<i>CPMK-2</i>	Volcano Monitoring	TCL - SCL mixed
	<i>CPMK-2</i>	Monitoring volcano with potential field method 1	TCL - SCL mixed
	<i>CPMK-3</i>	Monitoring volcano with potential field method 2	TCL - SCL mixed
	<i>CPMK-2</i>	Volcano Monitoring with Deformation method 1	TCL - SCL mixed
	<i>CPMK-3</i>	Volcano Monitoring with Deformas 2 method	TCL - SCL mixed
	<i>CPMK-2</i>	Monitoring volcano with seismic method 1	TCL - SCL mixed
	<i>CPMK-3</i>	Monitoring volcano with seismic method 2	TCL - SCL mixed
	UAS / Project Assignment Results / Case Analysis Results		
Learning Method	TCL - SCL mixed		
Student Learning Experience	Listening, discussing, answering quizzes, and presentations		
Learning Media Access/ LMS and Offline & Online Percentage	LCD, whiteboard, paper, journals, and research results and implement the use of LMS for materials and assignments.		

Assessment Method and Alignment with CPMK	Assessment Technique	Assessment Percentage	Criteria/ Indicator	CPMK-1	CPMK-2	CPMK-3
	Participatory Activity*)					
	Project Result / Case Study Result / PBL Result*)					
	Tasks	30		10	10	10
	Quiz	30		10	10	10
	UTS	20		10	10	
	UAS	20			10	10
	Total	100				
	*) can also be obtained from UTS or UAS which are the results of participatory activities or project/case study results. In accordance with KPI 7, the total percentage of participatory activities and the results of projects / case studies / PBL results is at least 50%.					
Reference List	<ol style="list-style-type: none"> 1. Fundamentals of Physical Volcanology by Elisabeth A. Parfitt and Lionel Wilson 2. The results of research and final projects on surveys and monitoring of volcanoes. 3. Volcano Physics Journals (Bulletin of Volcanology, Journal of Volcanology and Geothermal Research) 					
Name of Lecturer (Team Teaching)	Imam Suyanto, Ade Anggraini					
Authorization	Date of Preparation	Course Coordinator	Area of Expertise Coordinator (if any)	Head of Study Program		
	2020	 Dr. Ade Anggraini, S.Si., M.Si.		 Dr. Sudarmaji, MSi		

