

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



Physical  
Geophysics  
Seismology Practicum  
MFG 3110/ 1 credits

Mentoring Team:  
Ade Anggraini, Wiwit

**GADJAH MADA UNIVERSITY  
FACULTY OF MATHEMATICS  
AND NATURAL SCIENCES  
2021**



**Gadjah Mada University**  
 Faculty of Mathematics and Natural Sciences  
 Department of Physics / S1 Geophysics Study  
 Program Academic Year 2021/2022

**Document Code:**

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**SEMESTER LEARNING PROGRAM AND ACTIVITY PLAN (RPKPS)**

Course Code	Course Name	Weight (credit)		Semester	Course Status	Prerequisite Courses
MFG 3110	Seismology Practicum	T: 2	P: 1	Odd	Mandatory	MFG 3110 (Seismology)


**Course Brief Description**

Seismology is the study of earthquakes, including things related to the propagation of elastic waves (seismic) in the earth, including studying the structure of the inside of the earth. The material of this course is: *Introduction to space and time dimensions (distance and time of arrival), introduction to seismograms, determining earthquake source parameters, calculating earthquake magnitude, earthquake statistics and earthquake data management.* Lectures are conducted offline and online through Google Classroom and Zoom. Weekly materials can be accessed by students before the lecture starts so that students can study in advance so that they are better prepared for class sessions. The lecturer will give an explanation of the week's topic, then give students the opportunity to ask questions. If necessary, lecturers can also hold quizzes (pre test or post test) to see student understanding.

<b>Graduate Learning Outcomes (CPL) Charged to MK</b>	<b>CPL-1</b>	<b>Good Attitude:</b> Graduates are honest, disciplined, curious, critical, confident, independent, emotionally mature, cooperative, and trustworthy. Uphold norms, values, morals, religion, general ethics and professional ethics, and actively play a role in the global movement of sustainable development and behave professionally
	<b>CPL-3</b>	<b>Operational and comprehensive skills:</b> Graduates are able to apply all geophysical methods (seismic, gravitational, magnetic, electrical, electromagnetic, and thermic methods) for energy exploration (e.g. oil and gas, coal, geothermal), mining materials (eg: iron, copper, gold, silver, tin) as well as groundwater and disaster mitigation
	<b>CPL-4</b>	<b>Application and analysis skills:</b> Graduates are able to carry out and manage a geophysical survey which includes scientific steps in the acquisition, processing and interpretation of data for the exploration of natural resources both for energy (e.g. oil and gas, coal, for energy exploration (e.g. oil and gas, coal, geothermal), mining materials (eg: iron, copper, gold, silver, tin) as well as groundwater and disaster mitigation.
	<b>CPL-5</b>	<b>Synthesis and Evaluation Skills:</b> Graduates are able to interpret geophysical data in the form of solving advanced and reverse problems (inverse problems) in an integrated manner that have ambiguous characters, carry out interpretation by making models and / or solving simple forward and reverse problems and

		Skilled in the use of computers both for the purposes of solving geophysical problems and for communication and internet access.			
<b>Course Learning Outcomes (CPMK)</b>	<b>After completing the learning of this course, students are expected to be able to:</b>				
	<i>CPMK-1</i>	Determining distance and azimuth on earth			
	<i>CPMK-2</i>	Determining earthquake source parameters			
	<i>CPMK-3</i>	Determining the magnitude of an earthquake			
	<i>CPMK-4</i>	Determine the mechanism of earthquake sources in detail			
<b>CPL mapping with CPMK</b>					
		<b>CPMK-1</b>	<b>CPMK-2</b>	<b>CPMK-3</b>	
	CPL-1	√	√	√	
	CPL-3	√	√	√	
	CPL-4		√	√	
CPL-5	Type equat	√	√	Type equati	
<b>The Relationship of CPMK with Learning Materials and Forms, as well as Time Allocation</b>		<b>Learning Materials</b>	<b>Forms of Learning</b>	<b>Time Allocation</b>	
	<i>CPMK-1</i>	Introduction to Seismology	TCL - SCL mixed	2 Hours	
	<i>CPMK-1</i>	Calculating Distances and Azimuths,	TCL - SCL mixed	2 Hours	
	<i>CPMK-2</i>	Reading Mid-Range Seismograms	TCL - SCL mixed	2 Hours	
	<i>CPMK-1</i>	Determining the Hypocentral Parameters of a single station seismogram	TCL - SCL mixed	2 Hours	
	<i>CPMK-2</i>	Body Wave Identification for earthquake points in	TCL - SCL mixed	2 Hours	
	<i>CPMK-2</i>	Body Wave Identification for Deep Earthquakes	TCL - SCL mixed	2 Hours	
	<i>CPMK-1</i>	Determination of Hypocentral Coordinates of	TCL - SCL mixed	2 Hours	
	<b>UTS/Project Task Results/Case Analysis Results</b>				
	<i>CPMK-1</i>	Determination of Hypocentral coordinates by the Richter method	TCL - SCL mixed	2 Hours	
	<i>CPMK-3</i>	Determination of Mb and Ms Earthquake	TCL - SCL mixed	2 Hours	
	<i>CPMK-3</i>	Determination of Group velocity of rayleigh waves	TCL - SCL mixed	2 Hours	
	<i>CPMK-4</i>	Determination of the	TCL - SCL mixed	2 Hours	

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<b>UAS/ Project Task Results/ Case Analysis</b>							
<b>Learning Methods</b>	TCL - SCL mixed						
<b>Student Learning Experience</b>	Discuss, download and study lecture materials Work on assignments						
<b>Access Learning Media / LMS and Offline &amp;; Online Percentage</b>	Synchronous or asynchronous in-person/virtual lectures						
<b>Assessment Methods and Alignment with CPMK</b>	<b>Assessment Techniques</b>	<b>Assessment Percentage</b>	<b>Criteria/ Indicators</b>	<b>CPMK-1</b>	<b>CPMK-2</b>	<b>CPMK-3</b>	<b>CPMK-4</b>
	<b>Participatory Activities</b>						
	<i>Project Results/H a sil Case Study/ PBL Results*)</i>	<b>50</b>					
	<b>Cognitive</b>						
	<b>Assignment</b>	<b>50</b>					
	<b>Quiz</b>						
	<b>UTS</b>						
	<b>UAS</b>						
	<b>Total</b>	<b>100</b>					
		*) can also be obtained from UTS or UAS which is the result of participatory activities or <i>project / case study</i> results. In accordance with IKU 7, <b>the percentage of</b> participatory activities and project results/case studies/PBL results is at least 50%.					
<b>Reference List</b>	1. Wiwit Suryanto et al, Seismology Practicum Module, Geophysics Study Program, 2022						
<b>Name of Lecturer (Team Teaching)</b>	Dr.rer.nat Wiwit Suryanto, MSi. Dr.rer.nat. Ade Anggraini,						
<b>Authorization</b>	<b>Drafting Date</b>	<b>Course Coordinator</b>	<b>Coordinator of Expertise (if applicable)</b>		<b>Head of Study Program</b>		

	2021			 Dr. Sudarmaji, MSi
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