

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



Physical
Geophysics
Mathematical Physics III
MFG 2024/ 3 credits

Mentoring Team:
Yep. Farchani Rosyid

**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 2024	<i>Mathematics of Physics III</i>	T : 3 P: -	<i>Odd</i>	<i>Mandatory</i>	<i>MMM 1101</i>												
Course Brief Description	<p>The Mathematics Physics III course is a continuation of the Mathematics Physics II course. The purpose of this course is for students to get to know, understand some typical functions and special functions and utilize these functions in several mathematical and physical problems. The content of the Mathematics Physics II course is typical functions (Gamma, Beta and Error functions), special functions (Legendre, Bessel, Hermite functions), complex variable functions (analytical functions, Taylor series and Laurent series, residues, applied residues in integral calculations), and calculus of variation. The learning method used is by providing material and solving mathematical and physical problems. In some meetings, students are given examples of simple problems to solve together in class and then equipped with additional assignments to do at home.</p>																
Graduate Learning Outcomes (CPL) Charged n in MK	<i>CPL-1</i>	Good Attitude: 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.															
	<i>CPL-2</i>	Mastery of general knowledge: Graduates are able to apply basic science (mathematics, physics, chemistry, biology, geology), and geophysics in general and their relationship with other sciences such as geology, geodesy, geochemistry, geography, computing and information technology.															
Course Learning Outcomes (CPMK)	After completing the learning of this course, students are expected to be able to:																
	<i>CPMK-1</i>	Students understand about typical functions of Gamma, Beta, error [CPL-1, CPL-2]															
	<i>CPMK-2</i>	Students understand the special functions of Legendre, Bessel and Hermite [CPL-1, CPL-2]															
	<i>CPMK-3</i>	Students understand complex variable functions [CPL-1, CPL-2]															
CPL Mapping with CPMK	<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th>CPMK1</th> <th>CPMK2</th> <th>CPMKn</th> </tr> </thead> <tbody> <tr> <td>CPL-1</td> <td></td> <td></td> <td></td> </tr> <tr> <td>CPL-2</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>						CPMK1	CPMK2	CPMKn	CPL-1				CPL-2			
	CPMK1	CPMK2	CPMKn														
CPL-1																	
CPL-2																	
CPM K link with	Learning Materials			Forms of Learning	Time Allocation												
	<i>CPMK1</i>	RPKPS Mathematics Physics III and		TCL - SCL mixed	2 Hours												

Material and Form of Learning, as well as Time Allocation		Introduction						
	<i>CPMK1</i>	An understanding of the typical functions of the Gamma function			TCL - SCL mixed	2 Hours		
	<i>CPMK1</i>	An understanding of typical Beta functions			TCL - SCL mixed	2 Hours		
	<i>CPMK1</i>	An understanding of typical Error functions			TCL - SCL mixed	2 Hours		
	<i>CPMK2</i>	Legendre Special Functions			TCL - SCL mixed	2 Hours		
	<i>CPMK2</i>	Bessel Special Functions			TCL - SCL mixed	2 Hours		
	<i>CPMK3</i>	Hermite Special Functions			TCL - SCL mixed	2 Hours		
	UTS/Project Task Results/Case Analysis Results							
	<i>CPMK3</i>	Complex variable functions analytical functions			TCL - SCL mixed	2 Hours		
	<i>CPMK3</i>	Laurent series complex variable functions			TCL - SCL mixed	2 Hours		
	<i>CPMK3</i>	Residual complex variable functions			TCL - SCL mixed	2 Hours		
	<i>CPMK3</i>	Functions of residual applied complex variables in integral calculations			TCL - SCL mixed	2 Hours		
	<i>CPMK3</i>	Complex variable functions of the 3D taylor			TCL - SCL mixed	2 Hours		
	<i>CPMK3</i>	Calculus of Variations			TCL - SCL mixed	2 Hours		
	UAS/ Project Task Results/ Case Analysis							
	Learning Methods	TCL - SCL mixed						
Student Learning Experience	Listen to lecturers' explanations and discussions							
Access to Learning Media an/ LMS and Offline & Online Percentage	Whiteboard, LCD, powerpoint							
Assessment Methods and Alignment with CPMK	Assessment Techniques	Assessment Percentage	Criteria/ Indicators	CPMK-1	CPMK-2	CPMK-3		
	Participatory Activities*							
	Project Results / Case Study / PBL Results *							
	Assignment	40						

	Quiz							
	UTS	30						
	UAS	30						
	Total	100						
	*) can also be obtained from UTS or UAS which is the result of participatory activities or <i>project</i> / case study results. In accordance with IKU 7, the percentage of participatory activities and project results/case studies/PBL results is at least 50%.							
Reference List	<ol style="list-style-type: none"> 1. M.L. Boas, <i>Mathematical Methods in The Physical Sciences 2nd ed</i>, John Wiley &; Sons, 1983. 2. G.B. Arfken and H.J. Weber, <i>Mathematical Methods for Physicists</i>, Academic Press, 1995. 3. K.F. Riley, M.P. Hobson, and S.J. Bence, <i>Mathematical Methods for Physics and Engineering, 3rd ed</i>. Cambridge University Press, 2006. 							
Name of Lecturer (Team Teaching)	Yep. Farchani Rosyid							
Authorization	Drafting Date	Course Coordinator			Coordinator of Expertise (if applicable)		Head of Study Program	
	2022						 Dr.. Sudarmaji,MSi	