

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



Geophysics
Numerical Completion
Practicum MFG 3952/ 2 credits

Mentoring Team:
Sudarmaji

**UNIVERSITAS GADJAH
MADA 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 4612	Numerical Completion Practicum	T : P: 1 -	Odd	Choice	MFG 4611
Course Brief Description	<p>After attending this practicum, students are expected to be able and skilled in completing numerical computing in the field of geophysics with the help of computer programs. The objectives of this course are:</p> <ol style="list-style-type: none"> 1. Practice of Solving Linear Equations 2. Practice of nonlinear System Solving and root finding 3. Interpolation and curve solving practices fitting 4. Differentiation and Integration Completion Practices 5. ODE (Ordinary Differential Equations) Solving Practices 6. Practice of Solving PDE (Partial Differential Equations) 				
Graduate Learning Outcomes (CPL) Charged to MK	<i>CPL1</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>CPL5</i>	Advanced Specific Skills Aspects Able to integrate methods in interpretation and modeling using computers			
Course Learning Outcomes (CPMK)	After completing the learning of this course, students are expected to be able to:				
	<i>CPMK1</i>	Discipline level and participant attendance [CPL 1]			
	<i>CPMK2</i>	Practice of Solving Linear Equations, Solving Nonlinear Systems and finding roots, Solving Interpolation and curves fitting, Solving Differentiation and Integration, ODE and PDE [CPL 5]			
CPM K link with Learning Material and Form, as well as Time Allocation		Learning Materials	Forms of Learning		Time Allocation
	<i>CPMK2</i>	Students practice Solving linear equations	TCL - SCL mixed		3 Hours
	<i>CPMK2</i>	Student Practice of nonlinear System Solving and root finding	TCL - SCL mixed		3 Hours
	<i>CPMK2</i>	Student Interpolation Completion Practice and curve fittings	TCL - SCL mixed		3 Hours



	CPMK2	Students Practice Solving Differentiation and Integration	TCL - SCL mixed	3 Hours
	CPMK2	Students Practice Solving ODE (Ordinary Differential)	TCL - SCL mixed	3Hours
	CPMK2	Practical Students Solving PDE (Partial Differential Equations)	TCL - SCL mixed	3 Hours

UAS/ Project Task Results/ Case Analysis

Learning Methods	TCL - SCL mixed
Student Learning Experience	
Access to Learning Media an/ LMS and Offline & Online Percentage	LCD, Python,, google classroom/ internet

Assessment Methods and Alignment with CPMK	Assessment Techniques	Assessment Percentage	Criteria/ Indicators	CPMK-1	CPMK-2
	Participatory Activities^{*)}	30		√	
	Project Results/Has il Case Study/ PBL Results^{*)}	70			√
Cognitive					
Assignment	-				
Quiz	-				
UTS	-				
UAS	-				
Total	100				

^{*)} can also be obtained from UTS or UAS which is the result of participatory activities or *project / 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. Chapra, C.S. and Canale, R.P, 2015, 'Numerical Methods for Engineers', 7th Edition, Mc Graw Hill Education, New York, USA 2. Kiusalaas, 2013,' Numerical Methods in Engineering with Python 3', cambridgeuniversitypress, New York, USA 3. Numeris Completion Practicum Guide, 2020, Geophysics Study Program UGM 			
Name of Lecturer (Team Teaching)	Dr. Sudarmaji, MSi. and Dr. Afif Rahman, MSi.			
Authorization	Drafting Date	Course Coordinator	Coordinator of Expertise (if any)	Head of Study Program
	September 7 2022	 Dr. Sudarmaji, MSi		 Dr. Sudarmaji, MSi