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

Geophysics

Geophysical Analysis Method

Practicum MFG-2107/ 1 credits

Mentoring Team:

Geophysical Analysis Method Practicum

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-2107	*Geophysical Analysis Methods Practicum*	*T: -*	*P: 1*	*Odd*	*Mandatory*		*MFG-2106*)*

Course Brief Description	Geophysical Analysis Method Practicum (MFG-2107) is a compulsory subject in the geophysics study program that teaches discrete/digital system analysis and discrete/digital data processing. This course aims to: 1. The practice of displaying loading, generating and displaying digital signal data 2. Practice formulates difference equations and impulse responses 3. The practice of conducting convolutions with signals and digital systems 4. Practice applying the Z transform 5. Practice implementing discrete fourier transform (DFT) 6. Practice implementing FFT 7. Practice designing FIR filters 8. Practice designing IIR filers	
Graduate Learning Outcomes (CPL) Charged to MK	***CPL-1***	**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
	CPL-3	**Operational and comprehensive skills**: 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.
	CPL-5	**Synthesis and Evaluation Skills** : 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 are skilled in the use of computers both for the purposes of solving geophysical problems and for communication and internet access
Course Learning Outcomes (CPMK)	**After completing the learning of this course, students are expected to be able to:**	
	CPMK-1	Cultivate a good and professional attitude when participating in practicum events [CPL-1]
	CPMK-2	The practice of displaying data and formulating models of physical systems from the field of geophysics [CPL-3]
	CPMK-3	The practice of processing and interpreting data in the frequency domain [CPL-5]
	CPMK-4	Practice formulating and applying analog and digital filters[CPL-5]
CPL mapping with CPMK		

	CPMK1	CPMK2	CPMK3	CPMK4
CPL-1	√			
CPL-3				
CPL-5			√	√

The Relationship of CPMK with Learning Materials and Forms, as well as Time Allocation		**Learning Materials**	**Forms of Learning**	**Time Allocation**
	CPMK-2	The practice of displaying, loading, generating and displaying analog and digital signal data	Project based learning mixed	2 Hours
	CPMK-2	Practice formulates difference equations and impulse responses	Project based learning mixed	2 hours
	CPMK-2	The practice of conducting convolutions with signals and	Project based learning mixed	2 Hour
	CPMK-3	Practice applying the Z transform	Project based learning mixed	2 Hour
	CPMK-3	Practice implementing discrete fourier transform (DFT)	Project based learning mixed	2 Hour
	UTS/Project Task Results/Case Analysis			
	CPMK-4	Practice implementing FFT	Project based learning mixed	2 Hour
	CPMK-4	Practice designing FIR filters	Project based learning mixed	2 Hour
	CPMK-4	Practice designing IIR filers	Project based learning mixed	2 Hour
	UAS/ Project Task Results/ Case Analysis			
Learning Methods	Student centered Learning			
Student Learning Experience	Class discussions, practical design and processing of data with computers			
Access Learning Media / LMS and Offline &; Online Percentage	CD, paper, pyton, Laptop, Zoom Meeting and Google meet			

Assessment Methods and Alignment with CPMK

Assessment Techniques	Assessment Percentage	Criteria/ Indicators	CPMK 1	CPMK 2	CPMK 3	CPMK 4	CPMK5	CPMK6
Participatory Activities*)	**10**	**Liveliness**	√					
***Project Results/*Case Study Results/PBL Results*)**	**40**	**Project results**		√	√	√	√	√
Cognitive								
Assignment	**40**	**Task Grad**		√	√	√	√	√
Quiz	**10**	**Liveliness**		√	√	√	√	√
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	1. Adams, M.D., 2013, Continuous-Time Signals and Systems, University of Victoria, Canada 2. Chaparro, L.F, 2010, Signals and systems using MATLAB , Academic Press Publication, USA				
Name of Lecturer (*Team Teaching*)	Dr. SUDARMAJI, MSi				
Authorization	**Drafting Date**	**Course Coordinator**	**Coordinator of Expertise (if any)**		**Head of Study Program**
	August 10 2022	 Dr. Sudarmaji, MSi.	Dr. rer.nat. Ade Anggraini, M.T.		 Dr. Sudarmaji, MSi.