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

Geophysics

Calculus I

MMM 1101 / 3 credits

Mentoring Team:

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

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

SEMESTER LEARNING PROGRAM AND ACTIVITY PLAN (RPKPS)					
Course Code	**Course Name**	**Weight (credit)**		**Semester**	**Course Status**	**Prerequisite Courses**
MMM 1101	*Calculus I*	*T: 3*	*P:-*	*Odd*	*Mand atory*	-

Course Brief Description	Upon completion of this course, students must have: 1. The ability to solve problems related to some properties of real numbers and functions. 2. Ability to solve problems of limits, continuity, derivatives, and geometric interpretation of derivatives. 3. The ability to apply derivatives in solving problems related to limits, extreme values, and sketching graphs of a function. 4. The ability to determine the Taylor series and Maclaurin series of a function and its application.
Graduate Learning Outcomes (CPL) Charged n in MK	**CPL-2** — **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:**	
	CPMK-1	Students are able to solve problems related to the nature of real numbers and functions. [CPL-2]
	CPMK-2	Students are able to solve problems of limits, continuity, derivatives, and interpretation of geometric derivatives. [CPL-2]
	CPMK-3	Students are able to use derivatives as a solution to problems related to limits, extreme values, and drawing function graphs. [CPL-2]
	CPMK-4	Students are able to determine the Taylor and Maclaurin series of a function and its application. [CPL-2]

CPL Mapping with CPMK					
		CPMK1	**CPMK2**	**CPMK3**	**CPMK4**
	CPL-2				

CPMK link with Material and Forms		**Learning Materials**	**Forms of Learning**	**Time Allocat ion**
	CPMK1	Real number	TCL - SCL mixed	2 Hours
	CPMK1	Functions and their graphics	TCL - SCL mixed	2 Hours
	CPMK1	Function limits	TCL - SCL mixed	2 Hours

of Learning, and	*CPMK1*	Continuity	TCL - SCL mixed	2 Hours
Time Allocation	*CPMK1*	Derivatives	TCL - SCL mixed	2 Hours
	CPMK1	Interpretation of geometric derivatives	TCL - SCL mixed	2 Hours
	CPMK1	High-order derivatives	TCL - SCL mixed	2 Hours
		UTS/ Project Task Results/ Case Analysis Results
	CPMK2	Middle value theorem	TCL - SCL mixed	2 Hours
	CPMK2	L'Hopital's deflection theorem	TCL - SCL mixed	2 Hours
	CPMK2	The problem of extreme value	TCL - SCL mixed	2 Hours
	CPMK2	Application of extreme value problems	TCL - SCL mixed	2 Hours
	CPMK2	Up and down function	TCL - SCL mixed	2 Hours
	CPMK2	Concavity, inflection point, drawing function graph	TCL - SCL mixed	2 Hours
	CPMK2	Taylor and Maclaurin series	TCL - SCL mixed	2 Hours
		UAS/ Project Task Results/ Case Analysis Results

Learning Methods	TCL - SCL mixed

Student Learning Experiencen	Listen to lecturers' explanations and discussions

Access to Learning Media an/ LMS and Offline &; Online Percentage	Whiteboard, LCD projector, Laptop

Assessment Methods and Alignment with CPMK	**Technique Valuation**	**Percentage Valuation**	**Criterion/ Indicators**	**CPMK-1**	**CPMK-2**			
	Participatory Activities[*]							
	Project **Results / Case Study / PBL Results** [*]							

	Cognitive							
	Assignment							
	Quiz							
	UTS							
	UAS							
	Total	100						

	[*] can also be obtained from UTS or UAS which is the result of participatory activities or results *project*/case study. In accordance with IKU 7, **the percentage of** participatory activities and project results/case studies/PBL results is at least 50%.
Reference List	1. Abe Mizrahi and Michael Sullivan, 1990, *Calculus and Analytic Geometry*, Wadsworth. 2. James Stewart, 2014, *Calculus: Early Transcendentals*, 8th edition, Cengage Learning. 3. Robert A. Adam and Christopher Essex, 2010, *Calculus, A Complete Course,* Pearson. 4. Calculus Teaching Team, 2003, Diktat of Calculus Lecture I, FMIPA UGM. 5. Christopher Heil, Joel Hass, Maurice D. Weir, George B. Thomas, Jr., 2018, *Thomas' Calculus: Early Transcendentals*, fourteenth edition, Pearson.
Name of Lecturer Pengampu (*Team Teaching*)	Atok Zulijanto, S.Si.,M.Sc.,Ph.D.; Prof. Dr. Christiana Rini Indrati, M.Si.; Dewi Kartika Sari, S.Si., M.Sc., Ph.D.; Dr. Dwi Ertiningsih, S.Si., M.Si.; Hadrian Andradi, S.Si., M.Sc., Ph.D.; Prof. Imam Solekhudin, S.Si., M.Si. Ph.D.; Dr. Indarsih, S.Si., M.Si.; Dr.rer.nat. Lina Aryati, M.S.; Made Benny Prasetya Wiranata, S.Si. M.Sc.; Made Tantrawan, S.Si., M.Sc., Ph.D.; Prof. Dr. Salmah, M.Si.; Dr. Solikhatun, S.Si., M.Si.; Dr. Sumardi, M.Si.; Prof. Dr. Supama, M.Si.; Uha Isnaini, S.Si., M.Sc., Ph.D.; Umi Mahnuna Hanung, S.Si., M.Si.; Dr. Zenith Purisha, S.Si., M.Sc.

Authorization	Drafting Date	Course Coordinator	Coordinator of Expertise (if applicable)	Head of Study Program
	2022			Dr.. Sudarmaji,MSi