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

Geophysics

Calculus II

MMM 1102 / 3 credits

Mentoring

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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:** .....

SEMESTER LEARNING PROGRAM AND ACTIVITY PLAN (RPKPS)

Course Code	Course Name	Weight (credit)		Semester	Course Status	Prerequisite Courses
MFG 1102	*Calculus II*	*T: 3*	*P: -*	*Complete*	*Mandatory*	*Calculus I (MMM-1101)*

Course Brief Description	Upon completion of this matakulia, students are expected to have: 1. The ability to solve indefinite integral problems with appropriate methods. 2. The ability to determine the integral value of a function on intervals [a, b] using the definition of a specific integral. 3. Ability to use the Basic Theorem of Calculus and Change variable methods in integration. 4. The ability to characterize and resolve unnatural integrals. 5. The ability to apply certain integrals to determine the area, volume of a revolutionary solid, arc length, surface area of a solid, center of mass, and moment of inertia.	
Graduate Learning Outcomes (CPL) Charged to 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 of indefinite and definite integrals and unnatural integrals with appropriate methods. [CPL-2]
	CPMK-2	Students are able to apply certain integrals to determine the area, volume of a revolutionary solid, arc length, surface area of a solid, center of mass, and moment of inertia[CPL-2]

CPL mapping with CPMK

	CPMK1	CPMK2	CPMK3	CPMK4	CPMK4
CPL-2					

CPMK link with Learning Materials and Forms, as well as Time Allocation		Learning Materials	Forms of Learning	Time Allocation
	CPMK-1	Understanding the indefinite	TCL - SCL mixed	2 Hours
	CPMK-1	Properties of indefinite integrals	TCL - SCL mixed	2 Hours
	CPMK-1	Indefinite integral method	TCL - SCL mixed	2 Hours
	CPMK-1	Definition of definite integral	TCL - SCL mixed	2 Hours
	CPMK-1	Definite integral properties	TCL - SCL mixed	2 Hours
	CPMK-1	The basis of the calculus	TCL - SCL mixed	2 Hours

	CPMK-2	Changes in variables in definite integrals	TCL - SCL mixed	2 Hours
	UTS/ Project Task Results/ Case Analysis			
	CPMK-1	Improper integral	TCL - SCL mixed	4 Hours
	CPMK-2	Integral application to breadth	TCL - SCL mixed	2 Hours
	CPMK-2	Integral application on volume	TCL - SCL mixed	2 Hours
	CPMK-2	Integral application on arcs	TCL - SCL mixed	2 Hours
	CPMK-2	Integral application on solid area surfaces	TCL - SCL mixed	4 Hours
	UAS/ Project Task Results/ Case Analysis			

Learning Methods	TCL - SCL mixed
Student Learning Experience	Take lectures, discussions, and take tests
Access Learning Media / LMS and Offline &; Online Percentage	LCD, Whiteboard, Laptop/computer

Assessment Methods and Alignment with CPMK

Assessment Techniques	Assessment Percentage	Criteria/ Indicators	CPMK-1	CPMK-2
Participatory Activities *)				
***Project Results*/Hasil Case Study/ PBL Results**[*)]				
Cognitive				
Assignment	**20**	**Task grades**	√	√
Quiz	**40**	**UTS scores**	√	
UTS	**40**	**UAS value**		√
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%.

<table>
<tr><td>Reference List</td><td colspan="4">1. James Stewart, 2015, Calculus: Early Transcendentals Single Variable 8th Ed., Willey, USA. 2.
2. Robert A. Adam and Christopher Essex, 2010, Calculus, A Complete Course, Pearson. 3.
3. James Stewart, 1999, Calculus, 4th edition, Brooks/Cole Pub. Comp. 4.
4. Abe Mizrahi and Michael Sullivan, 1990, Calculus and Analytic Geometry, Wadsworth. 1.
5. Calculus Teaching Team, Diktat Lecture Calculus I, FMIPA UGM.</td></tr>
<tr><td>Name of Lecturer (Team Teaching)</td><td colspan="4">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.</td></tr>
<tr><td rowspan="2">Authorization</td><td>Drafting Date</td><td>Course Coordinator</td><td>Coordinator of Expertise (if applicable)</td><td>Head of Study Program</td></tr>
<tr><td>2022</td><td></td><td></td><td> 
Dr. Sudarmaji, MSi</td></tr>
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