				Document Code
	Universitas Negeri Surabaya **Faculty of Mathematics and Natural Sciences** **Undergraduate Physics Study Program**			

SEMESTER LEARNING PLAN

Courses		CODE	Course Family	Credit Weight			SEMESTER	Compilation Date
Basic mathematic		4520103118		T=3	P=0	ECTS=4.77	1	July 17, 2024
AUTHORIZATION		**SP Developer**		**Course Cluster Coordinator**			**Study Program Coordinator**	
		....		....			Prof. Dr. Munasir, S.Si., M.Si.	

Learning model	**Project Based Learning**
Program Learning Outcomes (PLO)	**PLO study program which is charged to the course**
	Program Objectives (PO)
	PLO-PO Matrix
	P.O
	PO Matrix at the end of each learning stage (Sub-PO)

P.O	Week															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Short Course Description	Studying equations and inequalities, function concepts, probability theory, matrices, limits, derivatives and differentials, integrals and their applications and series.

References	**Main :**
	1. Stewart, J. 2012. Calculus 7th Edition . Belmont: Brooks/Cole 2. Thomas Jr., G., et. al. 2010. Thomas 19 Calculus 12th Edition . Boston: Addison-Wesley 3. Purcell, E. J. et al. 2010. Kalkulus Jilid 1 Edisi Kedelapan (Terjemahan) . Jakarta: Erlangga 4. Abadi, & Wintarti, A. 2014 (in press). Kalkulus, Buku 1 . Surabaya 5. Moesono, D. 1994. Kalkulus I (Edisi Revisi) . Surabaya: University Press Surabaya.
	Supporters:

Supporting lecturer	Dr. Pradnyo Wijayanti, M.Pd. Dr. Dian Savitri, S.Si., M.Si. Shofan Fiangga, S.Pd., M.Sc. Evangelista Lus Windyana Palupi, S.Pd., M.Sc. Riska Wahyu Romadhonia, S.Si., M.Sc.

Week-	Final abilities of each learning stage (Sub-PO)	Evaluation		Help Learning, Learning methods, Student Assignments, [Estimated time]		Learning materials [References]	Assessment Weight (%)
		Indicator	Criteria & Form	Offline (*offline*)	Online (*online*)		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Understanding functions, origin areas, product areas, drawing function graphs.	Determining the origin and result regions of a function. Drawing function graphs		3 X 50			0%

No	Competency	Indicator		Material/Time			%
2	Understand limits and continuity of functions	Determining the limit of a function Determines the continuity of a function at a point		3 X 50			0%
3	Understand limits and continuity of functions	Determining the limit of a function Determines the continuity of a function at a point		3 X 50			0%
4	Understand derivatives of algebraic functions and transcendent functions.	Determining the derivative of an algebraic function Determining the derivative of transcendent functions.		3 X 50			0%
5	Understand derivatives of algebraic functions and transcendent functions.	Determining the derivative of an algebraic function Determining the derivative of transcendent functions.		3 X 50			0%
6	Solving problems related to derivatives	Determine the extreme points and inflection points of functions using derivatives. Solve everyday problems using derivatives by first constructing a mathematical model of the given problem.		-Extreme points and inflection points -Finding the maximum/minimum value of an everyday problem 3 X 50			0%
7	Solving problems related to derivatives	Determine the extreme points and inflection points of functions using derivatives. Solve everyday problems using derivatives by first constructing a mathematical model of the given problem.		-Extreme points and inflection points -Finding the maximum/minimum value of an everyday problem 3 X 50			0%
8	UTS	UTS		3 X 50			0%
9	Understand the application of integrals	Determining the area under the curve Determining the volume of a rotating object Determining the arc length of the path Determining the center of gravity of a homogeneous surface		3 X 50			0%

10	Understand the application of integrals	Determining the area under the curve Determining the volume of a rotating object Determining the arc length of the path Determining the center of gravity of a homogeneous surface		3 X 50			0%
11	Solve problems involving various integration techniques	Determining the indefinite integral of a function using integration techniques: - algebraic substitution - trigonometric substitution - Partial Calculating the definite integral of a function with integral limits		3 X 50			0%
12	Solve problems involving various integration techniques	Determining the indefinite integral of a function using integration techniques: - algebraic substitution - trigonometric substitution - Partial Calculating the definite integral of a function with integral limits		3 X 50			0%
13	Solve problems involving various integration techniques	Determining the indefinite integral of a function using integration techniques: - algebraic substitution - trigonometric substitution - Partial Calculating the definite integral of a function with integral limits		3 X 50			0%
14	Understanding matrices and systems of linear equations	Determining the SPL solution using the Cramer method. Determining the SPL solution using the Gauss-Jordan method		3 X 50			0%
15	Understanding matrices and systems of linear equations	Determining the SPL solution using the Cramer method. Determining the SPL solution using the Gauss-Jordan method		3 X 50			0%
16							0%

Evaluation Percentage Recap: Project Based Learning

No	Evaluation	Percentage
		0%

Notes

1. **Learning Outcomes of Study Program Graduates (PLO - Study Program)** are the abilities possessed by each Study Program graduate which are the internalization of attitudes, mastery of knowledge and skills according to the level of their study program obtained through the learning process.
2. **The PLO imposed on courses** are several learning outcomes of study program graduates (CPL-Study Program) which are used for the formation/development of a course consisting of aspects of attitude, general skills, special skills and knowledge.
3. **Program Objectives (PO)** are abilities that are specifically described from the PLO assigned to a course, and are specific to the study material or learning materials for that course.
4. **Subject Sub-PO (Sub-PO)** is a capability that is specifically described from the PO that can be measured or observed and is the final ability that is planned at each learning stage, and is specific to the learning material of the course.
5. **Indicators for assessing** ability in the process and student learning outcomes are specific and measurable statements that identify the ability or performance of student learning outcomes accompanied by evidence.
6. **Assessment Criteria** are benchmarks used as a measure or measure of learning achievement in assessments based on predetermined indicators. Assessment criteria are guidelines for assessors so that assessments are consistent and unbiased. Criteria can be quantitative or qualitative.
7. **Forms of assessment:** test and non-test.
8. **Forms of learning:** Lecture, Response, Tutorial, Seminar or equivalent, Practicum, Studio Practice, Workshop Practice, Field Practice, Research, Community Service and/or other equivalent forms of learning.
9. **Learning Methods:** Small Group Discussion, Role-Play & Simulation, Discovery Learning, Self-Directed Learning, Cooperative Learning, Collaborative Learning, Contextual Learning, Project Based Learning, and other equivalent methods.
10. **Learning materials** are details or descriptions of study materials which can be presented in the form of several main points and sub-topics.
11. **The assessment weight** is the percentage of assessment of each sub-PO achievement whose size is proportional to the level of difficulty of achieving that sub-PO, and the total is 100%.
12. TM=Face to face, PT=Structured assignments, BM=Independent study.