	Universitas Negeri Surabaya **Faculty of Mathematics and Natural Sciences** **Bachelor of Mathematics Education Study Program**	**Document Code**

SEMESTER LEARNING PLAN

Courses	CODE	Course Family	Credit Weight			SEMESTER	Compilation Date
Geometry Systems	8420203201		T=3	P=0	ECTS=4.77	5	July 18, 2024

AUTHORIZATION	SP Developer	Course Cluster Coordinator	Study Program Coordinator
	.....	.....	Dr. Endah Budi Rahaju, M.Pd.

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	Study geometric structures including the parallelism postulate, Euclidean geometry, neutral geometry and non-Euclidean geometry through active learning with a deductive approach.
References	**Main :**

1. Budiarto, M.T. 2014. Sistem Geometri. Surabaya: Zifatama Publishing.
2. Moeharti, H.W. 1986. Sistem-sistem geometri. Jakarta :Universitas Terbuka, Depdikbud.
3. Prenowits, W., Meyer. J. 1989. Basic Concepts of Geometry. Toronto: Xerox Collage Publishing.
4. Software dan website yang dapat digunakan sebagai rujukan.
5. Taxicabgeometry.net
6. Demonstrations.wolfram.com/TaxicabGeometry/
7. Geogebra atau Cabri 3D
8. Video terkait Euclid dan non-Euclidean geometry
9. Finitegeometry.org/sc/8/plane.html

	Supporters:
Supporting lecturer	Prof. Dr. Mega Teguh Budiarto, M. Pd.

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	Understand the concept of ordered geometry and its applications	Solving problems regarding ordered geometry.		Collaborative Learning Approach (Lecture, discussion and question and answer) 6 X 50			0%
2							0%
3	Understand the concept of Affine geometry and its applications	Solving problems regarding affine geometry		Collaborative Learning Approach (Lecture, discussion and question and answer) 3 X 50			0%
4	Understand the concept of Euclides' parallelism postulate and its applications	Solving problems regarding Euclides' parallelism postulate		Collaborative Learning Approach (Lecture, discussion and question and answer) 3 X 50			0%
5	Understand the concept of Projective geometry and its applications	Solving problems regarding projective geometry		Collaborative Learning Approach (Lecture, discussion and question and answer) 3 X 50			0%
6	Understand the geometric concept of Incidence and its applications	Solving problems regarding incidence geometry		Collaborative Learning Approach (Lecture, discussion and question and answer) 3 X 50			0%
7	Understand the concept of neutral geometry which includes the basic meaning, postulates, definitions and applications	Solving problems regarding neutral geometry		Collaborative Learning Approach (Lecture, discussion and question and answer) 3 X 50			0%
8	U.S.S			3 X 50			0%
9	Understand the concept of neutral geometry which includes the basic meaning, postulates, definitions and applications	Solving problems regarding neutral geometry		Collaborative Learning Approach (Lecture, discussion and question and answer) 3 X 50			0%
10	Understand the concept of non-Euclidean and Reimann geometry and its applications	Solving problems regarding non-Euclidean and Riemann geometry		Collaborative Learning Approach (Lecture, discussion and question and answer) 6 X 50			0%
11							0%
12	Understand the concept of Fano geometry and its applications	Solving problems regarding fano geometry		Collaborative Learning Approach (Lecture, discussion and question and answer) 3 X 50			0%

13	Understand the concept of origami geometry and its applications	Solving problems regarding origami geometry		Collaborative Learning Approach (Lecture, discussion and question and answer) 6 X 50			0%
14							0%
15	Understand the concept of Taxicab geometry and its applications	Solving problems regarding taxicab geometry		Collaborative Learning Approach (Lecture, discussion and question and answer) 3 X 50			0%
16	UAS			2 X 50			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.