



**Universitas Negeri Surabaya**  
**Faculty of Education,**  
**Bachelor of Primary School Teacher Education Study Program**

**Document Code**

**SEMESTER LEARNING PLAN**

Courses	CODE	Course Family	Credit Weight	SEMESTER	Compilation Date
Geometry and Measurement	8620602205	Compulsory Study Program Subjects	T=2 P=0 ECTS=3.18	2	July 17, 2024
AUTHORIZATION	SP Developer		Course Cluster Coordinator	Study Program Coordinator	
	Dr. Wiryanto, M.Si.		Dr. Wiryanto, M.Si.	Putri Rachmadyanti, S.Pd., M.Pd.	

<b>Learning model</b>	<b>Project Based Learning</b>
-----------------------	-------------------------------

<b>Program Learning Outcomes (PLO)</b>	<b>PLO study program that is charged to the course</b>																																																																																				
	<b>PLO-7</b>	Distinguish the characteristics of research types and apply them in designing, implementing and reporting research results through the publication of articles as the development of science in elementary schools.																																																																																			
	<b>Program Objectives (PO)</b>																																																																																				
	<b>PO - 1</b>	Have commitment and responsibility in implementing and developing learning to improve the quality of learning in elementary schools																																																																																			
	<b>PO - 2</b>	Mastering and developing learning materials in the field of mathematics in elementary schools, concepts of flat geometric theory, space geometry, flat analytical geometry, transformation geometry, trigonometry forms and standard and non-standard measurements																																																																																			
	<b>PO - 3</b>	Able to demonstrate independent, quality and measurable performance, apply logical, critical, systematic thinking, analyze, make decisions, communicate work results in solving various problems related to mathematics																																																																																			
	<b>PLO-PO Matrix</b>																																																																																				
		<table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <tr> <td style="padding: 5px;">P.O</td> <td style="padding: 5px;">PLO-7</td> </tr> <tr> <td style="padding: 5px;">PO-1</td> <td style="padding: 5px;"></td> </tr> <tr> <td style="padding: 5px;">PO-2</td> <td style="padding: 5px;"></td> </tr> <tr> <td style="padding: 5px;">PO-3</td> <td style="padding: 5px;"></td> </tr> </table>	P.O	PLO-7	PO-1		PO-2		PO-3																																																																												
	P.O	PLO-7																																																																																			
	PO-1																																																																																				
PO-2																																																																																					
PO-3																																																																																					
<b>PO Matrix at the end of each learning stage (Sub-PO)</b>																																																																																					
	<table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <tr> <td rowspan="2" style="padding: 5px;">P.O</td> <td colspan="16" style="padding: 5px;">Week</td> </tr> <tr> <td style="padding: 5px;">1</td><td style="padding: 5px;">2</td><td style="padding: 5px;">3</td><td style="padding: 5px;">4</td><td style="padding: 5px;">5</td><td style="padding: 5px;">6</td><td style="padding: 5px;">7</td><td style="padding: 5px;">8</td><td style="padding: 5px;">9</td><td style="padding: 5px;">10</td><td style="padding: 5px;">11</td><td style="padding: 5px;">12</td><td style="padding: 5px;">13</td><td style="padding: 5px;">14</td><td style="padding: 5px;">15</td><td style="padding: 5px;">16</td> </tr> <tr> <td style="padding: 5px;">PO-1</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td style="padding: 5px;">PO-2</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td style="padding: 5px;">PO-3</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </table>	P.O	Week																1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	PO-1																	PO-2																	PO-3																
P.O	Week																																																																																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16																																																																					
PO-1																																																																																					
PO-2																																																																																					
PO-3																																																																																					

<b>Short Course Description</b>	This course provides knowledge about flat geometry, space geometry, flat analytical geometry, transformation geometry, trigonometric forms and standard and non-standard measurements. The learning process includes guided discovery activities, providing information, group work, presentations, and individual assignments. Evaluation of learning outcomes includes mid-semester exams, final semester exams, independent assignments, group assignments and class activities.
---------------------------------	---

<b>References</b>	<p><b>Main :</b></p> <ol style="list-style-type: none"> <li>1. Rich, Barnett. 2005. Geometri . Jakarta: Erlangga.</li> <li>2. Hartono. 2001. Geometri . Surabaya: Unesa University Press.</li> <li>3. Rawuh. 1990. Geometri Transformasi . Bandung: FMIPA-ITB.</li> <li>4. Frank. M. Eccles. An Introduction to Transformational Geometry . Addison-Wesley Publishing Company, Massachusetts</li> <li>5. TIM. 1990. Geometri Analitika Bidang dan Ruang . Surabaya: IKIP Surabaya</li> </ol> <p><b>Supporters:</b></p>
-------------------	--

1. Rahmawati, Ika dkk. (2018). Pengaruh Penggunaan LKM Terbimbing terhadap Kemampuan Masalah Matematika Memahami Mahasiswa pada Mata Kuliah Geometri dan Pengukuran. Penelitian. Unesa: Surabaya
2. Tim Pengembang Modul Pembelajaran PKB Guru Madrasah Ibtidaiyah. (2020). Geometri dan Pengukuran. Direktorat GTK MI RI: Jakarta
3. Sianturi, Murni. (2019). Geometri dan Pengukuran di Pendidikan Dasar. Alfabeta: Bandung.
4. Marini, Arita. (2020). Geometri dan Pengukuran. Remaja Rosdakarya: Bandung.

**Supporting lecturer**  
 Drs. H. Budiyo, S.Pd., M.Pd.  
 Dr. Wiryanto, M.Si.  
 Neni Mariana, S.Pd., M.Sc., Ph.D.  
 Ika Rahmawati, S.Si., M.Pd.  
 Delia Indrawati, S.Pd., M.Pd.  
 Ramadhan Kurnia Habibie  
 Vivi Astuti Nurlaily, 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	Introduction to Lectures	-	<b>Criteria:</b> 1.85 < A < 100 2.80 < A- < 85 3.75 < B < 80 4.70 < B < 75 5.65 < B- < 70 6.60 < C < 65 7.55 < C < 60 8.40 < D < 55 9.0 < E < 40	Lectures, Discussions, Sharing information (sharing), PBL (Problem Based Learning) 2 X 50			0%
2	Mastering the concept of flat geometry (understanding the basics of geometry)	1.Describe the meaning of point 2.Describe the meaning of line 3.Describe the meaning of a line segment 4.Describe the meaning of line rays 5.Describe the meaning of angle	<b>Criteria:</b> 1.85 < A < 100 2.80 < A- < 85 3.75 < B < 80 4.70 < B < 75 5.65 < B- < 70 6.60 < C < 65 7.55 < C < 60 8.40 < D < 55 9.0 < E < 40  <b>Form of Assessment :</b> Participatory Activities	Lectures & Discussions Lectures and discussions about the concept of flat geometry (understanding the basics of geometry): rays, lines and angles. 2 X 50		<b>Material:</b> Understanding the basics of geometry: points, lines, line segments, rays, angles  <b>References:</b>	20%
3	Understand the meaning and types of flat shapes	1.Describe the meaning of flat shapes 2.Describe the meaning of triangular flat shapes and their various types 3.Describe the meaning of rectangular flat shapes and their various types 4.Describe the meaning of pentagons, hexagons and polygons 5.Describe the meaning of a circle	<b>Criteria:</b> 1.85 < A < 100 2.80 < A- < 85 3.75 < B < 80 4.70 < B < 75 5.65 < B- < 70 6.60 < C < 65 7.55 < C < 60 8.40 < D < 55 9.0 < E < 40  <b>Form of Assessment :</b> Participatory Activities	Lectures & Discussions Lectures and discussions about the meaning and types of plane shapes. 2 X 50		<b>Material:</b> 1. Understanding flat shapes, 2. Understanding triangular shapes and their various types, 3. Understanding rectangular shapes and various types, 4. Understanding pentagons, hexagons and polygons. , 5. Definition of a flat circle shape  <b>Library:</b>	20%

4	Understand the meaning and types of spatial structures	<ol style="list-style-type: none"> <li>Describe the meaning of building space</li> <li>Mention the various shapes of space and describe their meaning</li> <li>Describe the characteristics of various spatial structures</li> <li>Describe the meaning of a circle.</li> </ol>	<p><b>Criteria:</b></p> <p>1.85 &lt; A &lt; 100  2.80 &lt; A- &lt; 85  3.75 &lt; B &lt; 80  4.70 &lt; B &lt; 75  5.65 &lt; B- &lt; 70  6.60 &lt; C &lt; 65  7.55 &lt; C &lt; 60  8.40 &lt; D &lt; 55  9.0 &lt; E &lt; 40</p> <p><b>Form of Assessment :</b>  Participatory Activities</p>	Lectures & Discussions Lectures and discussions about the meaning and types of spatial structures. 2 X 50		<p><b>Material:</b> 1. Definition of spatial structures, 2. Types of spatial structures and their meanings, 3. Various types of spatial structures and their characteristics.  <b>References:</b></p>	0%
5	Understand the meaning and types of spatial structures	<ol style="list-style-type: none"> <li>Construct formulas for area and perimeter of rectangular flat shapes</li> <li>Construct formulas for the area and perimeter of a rectangular flat shape</li> <li>Construct the formula for the area and perimeter of a triangular flat shape</li> <li>Construct formulas for the area and perimeter of a parallelogram</li> </ol>	<p><b>Criteria:</b></p> <p>1.85 &lt; A &lt; 100  2.80 &lt; A- &lt; 85  3.75 &lt; B &lt; 80  4.70 &lt; B &lt; 75  5.65 &lt; B- &lt; 70  6.60 &lt; C &lt; 65  7.55 &lt; C &lt; 60  8.40 &lt; D &lt; 55  9.0 &lt; E &lt; 40</p> <p><b>Form of Assessment :</b>  Participatory Activities</p>	Lectures & Discussions Lectures and discussions on the concept and construction of area and perimeter of flat figures: square, rectangle, triangle, rhombus, circle, kite, trapezoid and parallelogram. 2 X 50		<p><b>Material:</b> Area and perimeter of rectangular, square, triangle, parallelogram  <b>Literature:</b></p>	20%
6	Understand the meaning and types of spatial structures	<ol style="list-style-type: none"> <li>Construct formulas for area and perimeter of rectangular flat shapes</li> <li>Construct formulas for the area and perimeter of a rectangular flat shape</li> <li>Construct the formula for the area and perimeter of a triangular flat shape</li> <li>Construct formulas for the area and perimeter of a parallelogram</li> </ol>	<p><b>Criteria:</b></p> <p>1.85 &lt; A &lt; 100  2.80 &lt; A- &lt; 85  3.75 &lt; B &lt; 80  4.70 &lt; B &lt; 75  5.65 &lt; B- &lt; 70  6.60 &lt; C &lt; 65  7.55 &lt; C &lt; 60  8.40 &lt; D &lt; 55  9.0 &lt; E &lt; 40</p> <p><b>Form of Assessment :</b>  Participatory Activities</p>	Lectures & Discussions Lectures and discussions on the concept and construction of area and perimeter of flat figures: square, rectangle, triangle, rhombus, circle, kite, trapezoid and parallelogram. 2 X 50		<p><b>Material:</b> Area and perimeter of flat shapes, circles, rhombuses, kites, trapezoids  <b>References:</b></p>	20%
7	Mastering the concept and construction of spatial volumes	<ol style="list-style-type: none"> <li>Construct the volume formula for block shapes</li> <li>Constructing a volume formula for a cube</li> <li>Constructing a volume formula for a right triangular prism</li> </ol>	<p><b>Criteria:</b></p> <p>1.85 &lt; A &lt; 100  2.80 &lt; A- &lt; 85  3.75 &lt; B &lt; 80  4.70 &lt; B &lt; 75  5.65 &lt; B- &lt; 70  6.60 &lt; C &lt; 65  7.55 &lt; C &lt; 60  8.40 &lt; D &lt; 55  9.0 &lt; E &lt; 40</p> <p><b>Form of Assessment :</b>  Participatory Activities</p>	Lectures & Discussions Lectures and discussions about the concept and construction of 2 X 50 geometric volumes		<p><b>Material:</b> Volume of blocks, cubes, right triangular prisms  <b>References:</b></p>	20%

8	Midterm exam	Midterm exam	<b>Criteria:</b> 1.85 < A < 100 2.80 < A- < 85 3.75 < B < 80 4.70 < B < 75 5.65 < B- < 70 6.60 < C < 65 7.55 < C < 60 8.40 < D < 55 9.0 < E < 40	- 2 X 50			0%
9	Mastering the concept of flat analytical geometry theory	1. Construct the volume formula for a tube 2. Construct the volume formula for a rectangular upright pyramid 3. Construct the volume formula for a cone	<b>Criteria:</b> 1.85 < A < 100 2.80 < A- < 85 3.75 < B < 80 4.70 < B < 75 5.65 < B- < 70 6.60 < C < 65 7.55 < C < 60 8.40 < D < 55 9.0 < E < 40  <b>Form of Assessment :</b> Participatory Activities	Lectures & Discussions Lectures and discussions about the concept and construction of 2 X 50 geometric volumes		<b>Material:</b> Volume of cylindrical shapes, rectangular pyramid, cone  <b>References:</b>	20%
10	Mastering the concept of transformation geometry theory	1. Illustrate and prove the parallelism theorem 2. Illustrate and prove the related angle theorem	<b>Criteria:</b> 1.85 < A < 100 2.80 < A- < 85 3.75 < B < 80 4.70 < B < 75 5.65 < B- < 70 6.60 < C < 65 7.55 < C < 60 8.40 < D < 55 9.0 < E < 40  <b>Form of Assessment :</b> Participatory Activities	Lectures & Discussions Lectures and discussions about the concept of 2 X 50 flat analytical geometry theory		<b>Material:</b> 1. Parallelism theorem, 2. Related angle theorem  <b>References:</b>	0%
11	Mastering the concept of congruence theory	1. Illustrate and prove the congruence theorem 2. Solving everyday problems using the Pythagorean theorem	<b>Criteria:</b> 1.85 < A < 100 2.80 < A- < 85 3.75 < B < 80 4.70 < B < 75 5.65 < B- < 70 6.60 < C < 65 7.55 < C < 60 8.40 < D < 55 9.0 < E < 40  <b>Form of Assessment :</b> Participatory Activities	Lectures & Discussions Lectures and discussions about the concept of 2 X 50 congruence theory		<b>Material:</b> Congruence theorem  <b>References:</b>	0%
12	Mastering the concept of transformation geometry theory	1. Describe translation theory 2. Describe the theory of reflection 3. Describe the theory of rotation 4. Describe the theory of dilation 5. Construct formulas for the area and perimeter of a flat trapezium shape	<b>Criteria:</b> 1.85 < A < 100 2.80 < A- < 85 3.75 < B < 80 4.70 < B < 75 5.65 < B- < 70 6.60 < C < 65 7.55 < C < 60 8.40 < D < 55 9.0 < E < 40  <b>Form of Assessment :</b> Participatory Activities	Lectures & Discussions Lectures and discussions about the concept of 2 X 50 transformation geometric theory		<b>Material:</b> 1. Translation, 2. Reflection, 3. Rotation, 4. Dilation  <b>Literature Dilation:</b>	0%

13	Mastering the concept of trigonometry theory	<ol style="list-style-type: none"> <li>1. Illustrate and prove the Pythagorean theorem</li> <li>2. Use the Pythagorean theorem to determine the side lengths of a right triangle</li> <li>3. Solving everyday problems using the Pythagorean theorem</li> </ol>	<p><b>Criteria:</b></p> <p>1.85 &lt; A &lt; 100  2.80 &lt; A &lt; 85  3.75 &lt; B &lt; 80  4.70 &lt; B &lt; 75  5.65 &lt; B &lt; 70  6.60 &lt; C &lt; 65  7.55 &lt; C &lt; 60  8.40 &lt; D &lt; 55  9.0 &lt; E &lt; 40</p> <p><b>Form of Assessment :</b>  Participatory Activities</p>	Lectures & Discussions Lectures and discussions about the concept of trigonometry theory: solving everyday problems using the Pythagorean theorem 2 X 50		<p><b>Material:</b>  Pythagorean Theorem</p> <p><b>References:</b></p>	20%
14	Mastering the concept and construction of standard and non-standard units of measurement consisting of: length, area, volume, weight and time	Constructing non-standard measurements that are related to length, area, content, weight and time which are related to everyday life as the culture of the Indonesian people is known.	<p><b>Criteria:</b></p> <p>1.85 &lt; A &lt; 100  2.80 &lt; A &lt; 85  3.75 &lt; B &lt; 80  4.70 &lt; B &lt; 75  5.65 &lt; B &lt; 70  6.60 &lt; C &lt; 65  7.55 &lt; C &lt; 60  8.40 &lt; D &lt; 55  9.0 &lt; E &lt; 40</p> <p><b>Form of Assessment :</b>  Participatory Activities</p>	Lecture & Discussion Lecture and discussion about the concept of the non-standard unit of measurement 2 X 50		<p><b>Material:</b> Non-standard measurements</p> <p><b>References:</b></p>	0%
15	Mastering the concept and construction of standard and non-standard units of measurement consisting of: length, area, volume, weight and time	Constructing standard measurements related to length, area, content, weight and time which are related to everyday life as the culture of the Indonesian people is known.	<p><b>Criteria:</b></p> <p>1.85 &lt; A &lt; 100  2.80 &lt; A &lt; 85  3.75 &lt; B &lt; 80  4.70 &lt; B &lt; 75  5.65 &lt; B &lt; 70  6.60 &lt; C &lt; 65  7.55 &lt; C &lt; 60  8.40 &lt; D &lt; 55  9.0 &lt; E &lt; 40</p> <p><b>Form of Assessment :</b>  Participatory Activities</p>	Lecture & Discussion Lecture and discussion about the concept of the standard unit of measurement 2 X 50		<p><b>Material:</b>  Standard measurements</p> <p><b>References:</b></p>	0%
16	Final exams						0%

#### Evaluation Percentage Recap: Project Based Learning

No	Evaluation	Percentage
1.	Participatory Activities	140%
		100%

#### 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** abilities in the process and student learning outcomes are specific and measurable statements that identify the abilities 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.