	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
Mathematics Learning in Elementary School	8620603208		T=3	P=0	ECTS=4.77	4	July 17, 2024

AUTHORIZATION	SP Developer	Course Cluster Coordinator	Study Program Coordinator
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Learning model	**Project Based Learning**	
Program Learning Outcomes (PLO)	**PLO study program that is charged to the course**	
	PLO-5	Analyzing the application of basic education science by prioritizing inclusive education based on technology and local wisdom.
	PLO-7	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.
	PLO-9	Solving integrated basic knowledge and skills problems in study areas (mathematics, language, science, social studies, civics, arts, sports).
	Program Objectives (PO)	
	PO - 1	Have commitment and responsibility in implementing and developing learning to improve the quality of learning in elementary schools.
	PO - 2	Mastering and developing learning materials in the field of mathematics studies in elementary schools including theoretical concepts, learning number concepts in elementary schools, number operations, place value, FPB, LCM and fractions, learning geometry and measurement, as well as learning data processing in elementary schools.
	PO - 3	Able to demonstrate independent, quality and measurable performance, applying logical, critical, systematic thinking, analyzing, making decisions, communicating work results, in solving various problems related to mathematics.
	PLO-PO Matrix	

P.O	PLO-5	PLO-7	PLO-9
PO-1	✔		✔
PO-2	✔	✔	✔
PO-3			

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
PO-1																
PO-2																✔
PO-3																

Short Course Description	This course equips students with knowledge of learning number concepts in elementary school, including number operations, place value, FPB, LCM and fractions, learning geometry and measurement, as well as learning data processing in elementary school, which is based on ethnomathematics and with a contextual and PMRI approach. The group project-based learning process includes activities that explore the cultural context related to mathematics learning concepts, both individually and in groups, as well as designing ethnomathematics-based learning using the PMRI approach and its simulations. Evaluation of learning outcomes includes mid-semester exams, final semester exams, independent assignments, group assignments and class activities.	
References	**Main :**	

1. Wilson, A., et all. (2023). The Mathematics Teacher in the Digital Era: International Research on Professional Learning and Practice. Jerman: Springer International Publishing.
2. Tosho.G (2021). Buku Panduan Guru Matenatika untuk Sekolah Dasar vol I. Jakarta : Pusat Perbukuan.
3. Mathematics - Connection And Beyond: Yearbook 2020 Association Of Mathematics Educators. (2021). Singapura: World Scientific Publishing Company.
4. Winslow, C., et all. (2021). Research and Development in University Mathematics Education: Overview Produced by the nternational Network for Didactic Research in University Mathematics. Britania Raya: Taylor & Francis.
5. Herman, T., Akbar, A., Farokhah, L., Febriandi, R., Zahrah, R. F., Febriani, W. D., ... & Abidin, Z. (2024). Kecakapan Abad 21: Literasi Matematis, Berpikir Matematis, dan Berpikir Komputasi. Indonesia Emas Group.

Supporters:

1. Abidin, Z., Herman, T., Wahyudin, W., Turmudi, T., Farokhah, L., Febriandi, R., & Huda, M. M. (2024). Computational Thinking with a Multi-literacy Model Using Interactive PowerPoint Media: An Experiment in Elementary Schools. KnE Social Sciences, 408-417.
2. Djam'an, N., Mariana, N., & Simanjorang, M. M. (2023). Trends in Mathematics Education Research in Indonesia. Asian Research in Mathematics Education: Mapping the Field, 163-175.
3. Dewi, I. S., Mariana, N., & Ekawati, R. (2023). Transformasi Pembelajaran Matematika di Sekolah Dasar Melalui Pendekatan Dilemma Story Pedagogy. Cetta: Jurnal Ilmu Pendidikan, 6(3), 566-579.
4. Wiryanto, W., Rahmawati, I., & Humaira, F. (2024). Realistic Mathematics Education (RME) Approach to Material on the Characteristics of Two-Dimentional Figures Using the Reog Ponorogo Performance in Elementary Schools. Edunesia: Jurnal Ilmiah Pendidikan, 5(2), 732-746.
5. Rahmawati, I. (2023). Realistic Mathematic Worksheets for Elementary School Teacher Education Students to Improve Problem Solving. KnE Social Sciences, 85-92.

Supporting lecturer	Drs. H. Budiyono, 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	Mastering ethnomathematics concepts and the PMRI approach in elementary schools	1. Able to explain cultural practices that can be linked to ethnomathematics concepts in elementary schools 2. Able to explain the basic principles of PMRI for mathematics learning in elementary schools 3. Able to provide examples of the implementation of ethnomathematics in elementary school 4. Able to provide examples of PMRI implementation in elementary schools	**Criteria:** 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 **Form of Assessment** : Participatory Activities, Project Results Assessment / Product Assessment	Lectures, Discussions, Sharing information (sharing), PBL (Problem Based Learning) 3 X 50			0%

2	1. Understand the implementation of the concept of number sense and spatial abilities in elementary schools 2. Understanding innovative learning models for mathematics in elementary school	1. Able to explain the relationship between the concept of number sense and mental arithmetic in elementary school 2. Able to explain the relationship between the concept of number sense and spatial abilities for learning numbers in elementary schools 3. Able to explain the relationship between the concept of spatial ability and Van Hiele's theory in elementary schools 4. Able to describe the level of spatial ability in geometry learning in elementary school based on Van Hiele's theory	**Criteria:** 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 **Form of Assessment** : Participatory Activities, Portfolio Assessment	Lectures, Discussions, Sharing information (sharing), PBL (Problem Based Learning) 3 X 50			0%

3	Mastering the concept of learning Numbers in Elementary School	1. Able to find the cultural context related to the concept of whole numbers and arithmetic operations in elementary school 2. Able to develop steps for learning whole numbers and arithmetic operations using the PMRI approach from the cultural context found 3. Able to find the cultural context related to the concept of integers and arithmetic operations in elementary school 4. Able to organize steps for learning integers and arithmetic operations using the PMRI approach from the cultural context found 5. Able to find the cultural context related to the concept of place value in elementary schools 6. Able to develop steps for learning place value using the PMRI approach from the cultural context found 7. Able to find the cultural context related to the concept of square numbers and their square roots in elementary school 8. Able to develop steps for learning square numbers and their square roots using the PMRI approach from the cultural context found	**Criteria:** 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 **Form of Assessment** : Participatory Activities, Project Results Assessment / Product Assessment	PjBL (Project Based Learning) - Group Project for autoethnographic studies and preparation of icebergs PMRI Presentation of project work results Discussion and Questions and Answers 3 X 50			0%

4	Mastering the concept of FPB and KPK learning in elementary schools based on ethnomathematics using the PMRI approach	1. Able to find the cultural context related to the concepts of factors, common factors, and FPB in elementary schools 2. Able to develop learning steps for factors, common factors, and FPB using the PMRI approach from the cultural context found 3. Able to find the cultural context related to the concept of prime factorization and factor trees in elementary school 4. Able to develop learning steps for prime factorization and factor trees using the PMRI approach from the cultural context found 5. Able to find the cultural context related to the concepts of multiples, multiples, and KPK in elementary schools 6. Able to develop learning steps for multiples, multiples of alliances, and KPK using the PMRI approach from the cultural context found	**Criteria:** 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 **Form of Assessment** : Participatory Activities	PjBL (Project Based Learning) - Group Project for autoethnographic studies and preparation of icebergs PMRI Presentation of project work results Discussion and Questions and Answers 3 X 50			0%
5	Mastering the concept of learning fractions in elementary schools based on ethnomathematics using the PMRI approach	1. Able to find the cultural context related to the concept of fractions, decimal forms and percent in elementary school 2. Able to develop steps for learning fractions, decimal forms and percentages using the PMRI approach from the cultural context found 3. Able to find the cultural context related to the concept of fraction counting operations in elementary schools 4. Able to develop steps for learning fraction counting operations using the PMRI approach from the cultural context found	**Criteria:** 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 **Form of Assessment** : Participatory Activities	PjBL (Project Based Learning) - Group Project for autoethnographic studies and preparation of icebergs PMRI Presentation of project work results Discussion and Questions and Answers 3 X 50			3%

6	Mastering the concept of data processing learning in elementary schools based on ethnomathematics using the PMRI approach	1. Able to find the cultural context related to the concept of data processing in elementary schools 2. Able to develop learning steps for data processing using the PMRI approach from the cultural context found	**Criteria:** 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 **Form of Assessment** : Participatory Activities, Portfolio Assessment	PjBL (Project Based Learning) - Group Project for autoethnographic studies and preparation of icebergs PMRI Presentation of project work results Discussion and Questions and Answers 3 X 50			5%
7	Mastering the concept of learning geometry and measurement in elementary schools based on ethnomathematics using the PMRI approach	1. Able to find the cultural context related to the concept of flat shapes in elementary schools 2. Able to develop learning steps for flat shapes using the PMRI approach from the cultural context found 3. Able to find the cultural context related to the concept of building space in elementary schools 4. Able to develop learning steps to build space using the PMRI approach from the cultural context found 5. Able to find the cultural context related to the concept of perimeter and area of flat shapes in elementary schools 6. Able to develop steps for learning the circumference and area of flat shapes using the PMRI approach from the cultural context found 7. Able to find the cultural context related to the concepts of surface area and volume of spatial shapes in elementary schools 8. Able to develop steps for learning surface area and volume of spatial shapes using the PMRI approach from the cultural context found	**Criteria:** 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 **Form of Assessment** : Participatory Activities	PjBL (Project Based Learning) - Group Project for autoethnographic studies and preparation of icebergs PMRI Presentation of project work results Discussion and Questions and Answers 3 X 50			5%

8	Midterm exam	Midterm exam	**Criteria:** 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 **Form of Assessment** : Project Results Assessment / Product Assessment	- 3 X 50			25%
9	Mastering the concept of making lesson plans focused on learning numbers and data processing in elementary schools based on ethnomathematics using the PMRI approach	1. Create lesson plans for numbers and data processing that refer to the 2013 curriculum based on ethnomathematics with the PMRI approach 2. Creating media for learning numbers and data processing in elementary school	**Criteria:** 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 **Form of Assessment** : Participatory Activities, Project Results Assessment / Product Assessment	Lectures, Discussions, Sharing information (sharing), PBL (Problem Based Learning) 3 X 50			3%
10	Mastering the concept of making lesson plans focused on learning geometry and measurement in elementary schools based on ethnomathematics using the PMRI approach	1. Create geometry and measurement lesson plans that refer to the 2013 ethnomathematics-based Curriculum with the PMRI approach 2. Creating geometry and measurement learning media in elementary school	**Criteria:** 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 **Form of Assessment** : Project Results Assessment / Product Assessment	Lectures, Discussions, Sharing information (sharing), PBL (Problem Based Learning) 3 X 50			3%
11	Simulates number learning in elementary school	Students are able to create number learning devices and media and are able to simulate number learning in elementary school	**Criteria:** 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	Simulation, Discussion, Information sharing, presentation 3 X 50			3%
12	Simulates learning geometry and measurement in elementary school	Students are able to create tools and media for learning geometry and measurement, and are able to simulate learning geometry and measurement in elementary school	**Criteria:** 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	Simulation, Discussion, Information sharing, presentation 3 X 50			3%

13	Simulating data processing learning in elementary schools	Students are able to create data processing learning devices and media and are able to simulate data processing learning in elementary school	**Criteria:** 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 **Form of Assessment** : Participatory Activities, Project Results Assessment / Product Assessment	Simulation, Discussion, Information sharing, presentation 3 X 50			3%
14	Mastering the concept of making lesson plans focused on mathematics learning in elementary schools	1. Create lesson plans that refer to the 2013 Curriculum and KTSP (online based) 2. Creating mathematics learning media in elementary school (online based)	**Criteria:** 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 **Form of Assessment** : Project Results Assessment / Product Assessment	Lectures, Discussions, Sharing information (sharing), PjBL (Project Based Learning) 3 X 50			5%
15	Simulating mathematics learning in elementary school online	Students are able to create learning devices and media and are able to simulate mathematics learning in elementary school (online based)	**Criteria:** 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 **Form of Assessment** : Project Results Assessment / Product Assessment	Simulation, Discussion, Information sharing, Presentation 3 X 50			5%
16	Simulating online mathematics learning in elementary school (UAS)	Students are able to create learning devices and media and are able to simulate mathematics learning in elementary school (online based)	**Criteria:** 85 < A < 100 **Form of Assessment** : Project Results Assessment / Product Assessment	Simulation, Discussion, Information sharing, Presentation 3 x 50			30%

Evaluation Percentage Recap: Project Based Learning

No	Evaluation	Percentage
1.	Participatory Activities	13.5%
2.	Project Results Assessment / Product Assessment	71%
3.	Portfolio Assessment	2.5%
		87%

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.