



**Universitas Negeri Surabaya  
Faculty of Mathematics and Natural Sciences,  
Mathematics Education Masters Study Program**

**Document  
Code**

**SEMESTER LEARNING PLAN**

| Courses   | CODE         | Course Family | Credit Weight              |     |           | SEMESTER                  | Compilation Date |
|---|--------------|---------------|----------------------------|-----|-----------|---------------------------|------------------|
| Problems of Mathematics Education (Problematics of Mathematics Education) | 8410202153   |               | T=2                        | P=0 | ECTS=4.48 | 1                         | July 17, 2024    |
| AUTHORIZATION   | SP Developer |               | Course Cluster Coordinator |     |           | Study Program Coordinator |                  |
|   | .....        |               | .....                      |     |           | Dr. Agung Lukito, M.S.    |                  |

|                |              |
|----------------|--------------|
| Learning model | Case Studies |
|----------------|--------------|

|   |  |   |       |       |        |        |
|---|--|---|-------|-------|--------|--------|
| Program Learning Outcomes (PLO)                             | <b>PLO study program that is charged to the course</b> |   |       |       |        |        |
|   | PLO-6  | Able to design, implement, and evaluate an effective and innovative mathematics instruction   |       |       |        |        |
|   | PLO-9  | Able to demonstrate mathematics pedagogical content knowledge and understanding   |       |       |        |        |
|   | PLO-11   | Collaborate and be responsible professionally and ethically in completing mathematics and mathematics education tasks   |       |       |        |        |
|   | PLO-12   | Able to work on and present problems in mathematics and mathematics education   |       |       |        |        |
|   | <b>Program Objectives (PO)</b>                         |   |       |       |        |        |
|   | PO - 1   | Have knowledge about learning that occurs in school and learning that should be based on a learning theory and scientific journal articles related to the problems of mathematics education   |       |       |        |        |
|   | PO - 2   | Utilizing schools and information and communication technology to examine problems in schools related to mathematics content, learning culture, as well as the role of teachers and students in learning and designing learning trajectories to solve problems in mathematics education |       |       |        |        |
|   | PO - 3   | Able to communicate strategic ideas from the results of exploration of mathematics learning problems and alternative solutions effectively orally and in writing  |       |       |        |        |
|   | PO - 4   | Make strategic decisions based on data and learning theory in solving problems that have been formulated in the form of reports or papers   |       |       |        |        |
|   | PO - 5   | Responsible and have a character of faith, intelligent, independent, honest, caring and tough in completing tasks related to identifying problems and offering solutions  |       |       |        |        |
|   | <b>PLO-PO Matrix</b>                                   |   |       |       |        |        |
|   |  | P.O   | PLO-6 | PLO-9 | PLO-11 | PLO-12 |
|   |  | PO-1  |       |       |        |        |
|   |  | PO-2  |       |       |        |        |
|   | PO-3   |   |       |       |        |        |
|   | PO-4   |   |       |       |        |        |
|   | PO-5   |   |       |       |        |        |
| <b>PO Matrix at the end of each learning stage (Sub-PO)</b> |  |   |       |       |        |        |

|      |      | <table border="1"> <tr> <th rowspan="2">P.O</th> <th colspan="16">Week</th> </tr> <tr> <th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th><th>7</th><th>8</th><th>9</th><th>10</th><th>11</th><th>12</th><th>13</th><th>14</th><th>15</th><th>16</th> </tr> <tr> <td>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>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>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> <tr> <td>PO-4</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>PO-5</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 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | PO-4 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | PO-5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|------|------|--|---|---|---|---|---|---|---|----|----|----|----|----|----|----|--|-----|------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| 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 |      |  |   |   |   |   |   |   |   |    |    |    |    |    |    |    |  |     |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| PO-4 |      |  |   |   |   |   |   |   |   |    |    |    |    |    |    |    |  |     |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| PO-5 |      |  |   |   |   |   |   |   |   |    |    |    |    |    |    |    |  |     |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

**Short Course Description** Short Description of MK This course provides insight, knowledge and skills in making reports in the form of creative and reflective papers regarding real problems that occur in schools and provides alternative solutions. Material Coverage Covers mathematics education problems in terms of mathematics content, learning culture, as well as the role of teachers and students in learning, alternative solutions to problems that can be improved in learning practices found in Indonesia, either through observation or journal study as well as solving based on certain theories. This course is delivered through observations, theoretical explanations, presentations and discussions

**References**

**Main :**

1. Kurikulum Sekolah
2. Buku matematika sekolah, baik buku siswa maupun buku guru
3. Gredler, M. E. 2009. Learning and Instruction: Theory into Practice. New Jersey: Merrill Pearson Education, Inc
4. Jurnal Pendidikan, terbitan baik luar negeri maupun dalam negeri
5. Safitri, R. A., Megantara, B. A., Saadah, A. M., Widyawati, I. O., Budiarto, K. D., & Darmadi. (2021). Analisis Problematika Pembelajaran Matematika Di Sekolah Menengah Pertama Dalam Pembelajaran Daring. JPdK (Jurnal Pendidikan Dan Konseling), 3(2), 81–84. <https://journal.universitaspahlawan.ac.id/index.php/jpdK/article/view/1799>
6. Sari, R. K. (2019). Analisis Problematika Pembelajaran Matematika Di Sekolah Menengah Pertama Dan Solusi Alternatifnya. Prisma: Jurnal Pendidikan Dan Riset Matematika, 2(1), 23–31. <http://ejurnal.budiotomolang.ac.id/index.php/prismatika/article/view/510>

**Supporters:**

**Supporting lecturer** Prof. Rooselyna Ekawati, Ph.D.

| 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     | Able to understand learning culture and mathematics content, as well as the roles of teachers and students and the concept of school mathematics learning                           | Explains the basic concepts of school mathematics learning and the culture of learning mathematics | <b>Criteria:</b> Quantitative and test<br><b>Form of Assessment :</b> Participatory Activities | Collaborative approach (discussion and expository) 2 x 50               |                   |                                   | 0%                    |
| 2     | Able to understand the problems of mathematics education  | Explaining the problems of mathematics education   | <b>Criteria:</b> Quantitative and test<br><b>Form of Assessment :</b> Participatory Activities | Collaborative approach (discussion and expository) 2 x 50               |                   |                                   | 5%                    |
| 3     | 1.Able to study problems at school in terms of learning culture and mathematics content<br>2.the role of teachers and students in learning through observation activities in groups | Explaining problems in mathematics education   | <b>Criteria:</b> Quantitative and test<br><b>Form of Assessment :</b> Participatory Activities | Collaborative approach (discussion and expository) 2 x 50               |                   |                                   | 0%                    |
| 4     | 1.Able to study problems at school in terms of learning culture and mathematics content<br>2.the role of teachers and students in learning through observation activities in groups | Explaining problems in mathematics education   | <b>Criteria:</b> Quantitative and test<br><b>Form of Assessment :</b> Participatory Activities | Collaborative approach (discussion and expository) 2 x 50               |                   |                                   | 0%                    |

|    |  |   |  |  |  |  |     |
|----|--|---|--|--|--|--|-----|
| 5  | Able to formulate and solve mathematics education problems at the elementary/middle school/senior high school level which have been formulated in the form of reports or papers in groups            | Analyze problems that have been explored with alternative solutions   | <b>Form of Assessment :</b><br>Participatory Activities, Practice/Performance  | Collaborative approach (discussion and expository)<br>Project based<br>Task 1: review explore, analyze, identify and determine solutions from research articles on school mathematics problems<br>2 x 50 |  |  | 5%  |
| 6  | Able to explore, analyze, identify and determine solutions from research results on school mathematics problems  | Explore, analyze, identify and determine solutions from research results on school mathematics problems       | <b>Criteria:</b><br>Quantitative and test<br><b>Form of Assessment :</b><br>Participatory Activities                       | Collaborative approach (discussion and expository)   |  |  | 5%  |
| 7  | Able to explore, analyze, identify and determine solutions from research results on school mathematics problems  | Explore, analyze, identify and determine solutions from research results on school mathematics problems       | <b>Criteria:</b><br>Quantitative and test<br><b>Form of Assessment :</b><br>Participatory Activities                       | Collaborative approach (discussion and expository)   |  |  | 5%  |
| 8  |  |   | <b>Form of Assessment :</b><br>Test  | 2 X 50   |  |  | 30% |
| 9  | Able to formulate problems in mathematics education/mathematics learning and alternative solutions at the elementary, middle school, high school and vocational school levels in individual articles | Find essential problems in mathematics education and alternative solutions in the form of individual articles | <b>Criteria:</b><br>Quantitative and test<br><b>Form of Assessment :</b><br>Participatory Activities, Practice/Performance | Collaborative approach (discussion and expository)<br>2 x 50   |  |  | 10% |
| 10 | Able to formulate problems in mathematics education/mathematics learning and alternative solutions at the elementary, middle school, high school and vocational school levels in individual articles | Find essential problems in mathematics education and alternative solutions in the form of individual articles | <b>Criteria:</b><br>Quantitative and test<br><b>Form of Assessment :</b><br>Participatory Activities                       | Collaborative approach (discussion and expository)<br>2 x 50   |  |  | 5%  |
| 11 | Able to formulate problems in mathematics education/mathematics learning and alternative solutions at the elementary, middle school, high school and vocational school levels in individual articles | Find essential problems in mathematics education and alternative solutions in the form of individual articles | <b>Criteria:</b><br>Quantitative and test<br><b>Form of Assessment :</b><br>Participatory Activities, Practice/Performance | Collaborative approach (discussion and expository)<br>2 x 50   |  |  | 10% |
| 12 | Able to formulate problems in mathematics education/mathematics learning and alternative solutions at the elementary, middle school, high school and vocational school levels in individual articles | Find essential problems in mathematics education and alternative solutions in the form of individual articles | <b>Criteria:</b><br>Quantitative and test<br><b>Form of Assessment :</b><br>Participatory Activities                       | Collaborative approach (discussion and expository)<br>2 x 50   |  |  | 5%  |

|    |  |  |  |  |  |  |     |
|----|--|--|--|--|--|--|-----|
| 13 | Able to present mathematics learning problems and alternative solutions at elementary, middle school, high school and vocational school levels in articles | Shows essential problems in mathematics education and alternative solutions in the form of individual articles | <b>Criteria:</b><br>Quantitative and test<br><b>Form of Assessment :</b><br>Portfolio Assessment                           | Collaborative approach (discussion and expository)<br>2 X 50 |  |  | 5%  |
| 14 | Able to present mathematics learning problems and alternative solutions at elementary, middle school, high school and vocational school levels in articles | Shows essential problems in mathematics education and alternative solutions in the form of individual articles | <b>Criteria:</b><br>Quantitative and test<br><b>Form of Assessment :</b><br>Participatory Activities, Portfolio Assessment | Collaborative approach (discussion and expository)<br>2 X 50 |  |  | 10% |
| 15 |  |  | <b>Form of Assessment :</b><br>Participatory Activities  |  |  |  | 5%  |
| 16 |  |  |  |  |  |  | 30% |

#### Evaluation Percentage Recap: Case Study

| No | Evaluation               | Percentage |
|----|--------------------------|------------|
| 1. | Participatory Activities | 47.5%      |
| 2. | Portfolio Assessment     | 10%        |
| 3. | Practice / Performance   | 12.5%      |
| 4. | Test                     | 30%        |
|    |                          | 100%       |

#### Notes

- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- Forms of assessment:** test and non-test.
- 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.
- 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.
- Learning materials** are details or descriptions of study materials which can be presented in the form of several main points and sub-topics.
- 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%.
- TM=Face to face, PT=Structured assignments, BM=Independent study.