| | Universitas Negeri Surabaya<br>Faculty of Mathematics and Natural Sciences,<br>Mathematics Education Masters Study Program | Document Code |
|---|---|---|

# SEMESTER LEARNING PLAN

| Courses | CODE | Course Family | Credit Weight | | | SEMESTER | Compilation Date |
|---|---|---|---|---|---|---|---|
| Media Development and Its Learning (Developing Media and Its Learning) | 8410202155 | | T=2 | P=0 | ECTS=4.48 | 3 | July 17, 2024 |

| AUTHORIZATION | SP Developer | Course Cluster Coordinator | Study Program Coordinator |
|---|---|---|---|
| | ..... | ..... | Dr. Agung Lukito, M.S. |

| | | |
|---|---|---|
| Learning model | Project Based Learning | |
| Program Learning Outcomes (PLO) | PLO study program that is charged to the course | |
| | 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-13 | Able to work independently on a complex problem in mathematics and mathematics education, and highly present and scientifically discuss the results both orally and in writing |
| | Program Objectives (PO) | |
| | PLO-PO Matrix | |

| P.O | PLO-6 | PLO-9 | PLO-11 | PLO-13 |
|---|---|---|---|---|

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 | | |
| References | Main : | |
| | | |
| | Supporters: | |
| | | |
| Supporting lecturer | Dr. Agung Lukito, M.S.<br>Dr. Janet Trineke Manoy, M.Pd.<br>Dr. Siti Khabibah, 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** | | | **Form of Assessment** : Participatory Activities | Explanation of mathematics learning media as a representation of mathematical objects | | | 5% |
| **2** | | | **Criteria:** Display of power point slides and videos about mathematics learning media<br><br>**Form of Assessment** : Participatory Activities | Student presentations related to:<br>● Concept of mathematics learning media<br>● Characteristics of mathematics learning media | | | 5% |
| **3** | | | **Form of Assessment** : Participatory Activities | Student presentations related to the types and properties of mathematics learning media | | | 5% |
| **4** | | 1.<br>2.● Identifying relevant learning media components<br>● Exploring the relationship between learning media components<br>● Determining the objectives of learning media | **Form of Assessment** : Participatory Activities | Analyzing examples of learning media | | | 5% |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **5** | Designing and producing manipulative learning media | ● Designing manipulative learning media for certain mathematics topics ● Producing manipulative learning media for certain mathematics topics | **Criteria:** Quantitative & Non-test (Performance report)<br><br>**Form of Assessment** : Project Results Assessment / Product Assessment | Designing and producing manipulative learning media | | **Materials:** 1. Mathematics books, both student books and teacher books. 2. Bell-Gredler, Margaret E. 1986. Learning and Instruction. New York: Macmillan Publishing Company. 3. Fenrich, P. (1997). Practical Guidelines For Developing Instructional Multimedia Applications. USA:Harcourt Brace College Publishers. 4. Heinich, R., Molenda. (1999). Instructional Media and Technologies for Learning. USA: Prentice Hall. 5. Journal of Education, both foreign and domestic 6. School curriculum 7. Robert Heinich Merrill, (2002) Instruction Media and Technologies for learning 8. Smaldino, SE, Deborah LL, and James DR, (2011) Instructional Technology and Media for Learning: Learning Technology and Media for Learning. Jakarta: Kencana. 9. Manoy, JT, (2021) Flipbook Class VIII Middle School Mathematics Learning Media (Manual) **Library:** | 18% |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **6** | Designing and producing manipulative learning media | ● Designing manipulative learning media for certain mathematics topics ● Producing manipulative learning media for certain mathematics topics | **Criteria:** Quantitative & Non-test (Performance report)<br><br>**Form of Assessment** : Project Results Assessment / Product Assessment | Designing and producing manipulative learning media | | **Materials:** 1. Mathematics books, both student books and teacher books. 2. Bell-Gredler, Margaret E. 1986. Learning and Instruction. New York: Macmillan Publishing Company. 3. Fenrich, P. (1997). Practical Guidelines For Developing Instructional Multimedia Applications. USA:Harcourt Brace College Publishers. 4. Heinich, R., Molenda. (1999). Instructional Media and Technologies for Learning. USA: Prentice Hall. 5. Journal of Education, both foreign and domestic 6. School curriculum 7. Robert Heinich Merrill, (2002) Instruction Media and Technologies for learning 8. Smaldino, SE, Deborah LL, and James DR, (2011) Instructional Technology and Media for Learning: Learning Technology and Media for Learning. Jakarta: Kencana. 9. Manoy, JT, (2021) Flipbook Class VIII Middle School Mathematics Learning Media (Manual) **Library:** | 0% |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **7** | Designing and producing manipulative learning media | ● Presenting manipulative learning media designs for certain mathematics topics ● Presenting manipulative learning media products for certain mathematics topics | **Criteria:** Quantitative & Non-test<br><br>**Form of Assessment** : Project Results Assessment / Product Assessment | Presentation of manipulative learning media designs | | **Materials:** 1. Mathematics books, both student books and teacher books. 2. Bell-Gredler, Margaret E. 1986. Learning and Instruction. New York: Macmillan Publishing Company. 3. Fenrich, P. (1997). Practical Guidelines For Developing Instructional Multimedia Applications. USA:Harcourt Brace College Publishers. 4. Heinich, R., Molenda. (1999). Instructional Media and Technologies for Learning. USA: Prentice Hall. 5. Journal of Education, both foreign and domestic 6. School curriculum 7. Robert Heinich Merrill, (2002) Instruction Media and Technologies for learning 8. Smaldino, SE, Deborah LL, and James DR, (2011) Instructional Technology and Media for Learning: Learning Technology and Media for Learning. Jakarta: Kencana. 9. Manoy, JT, (2021) Flipbook Class VIII Middle School Mathematics Learning Media (Manual) **Library:** | 14% |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **8** | Designing and producing manipulative learning media | ● Presenting manipulative learning media designs for certain mathematics topics ● Presenting manipulative learning media products for certain mathematics topics | **Criteria:** Quantitative & Non-test<br><br>**Form of Assessment** : Project Results Assessment / Product Assessment | Presentation of manipulative learning media designs | | **Materials:** 1. Mathematics books, both student books and teacher books. 2. Bell-Gredler, Margaret E. 1986. Learning and Instruction. New York: Macmillan Publishing Company. 3. Fenrich, P. (1997). Practical Guidelines For Developing Instructional Multimedia Applications. USA:Harcourt Brace College Publishers. 4. Heinich, R., Molenda. (1999). Instructional Media and Technologies for Learning. USA: Prentice Hall. 5. Journal of Education, both foreign and domestic 6. School curriculum 7. Robert Heinich Merrill, (2002) Instruction Media and Technologies for learning 8. Smaldino, SE, Deborah LL, and James DR, (2011) Instructional Technology and Media for Learning: Learning Technology and Media for Learning. Jakarta: Kencana. 9. Manoy, JT, (2021) Flipbook Class VIII Middle School Mathematics Learning Media (Manual) **Library:** | 0% |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **9** | Designing and producing manipulative learning media | ● Presenting manipulative learning media designs for certain mathematics topics ● Presenting manipulative learning media products for certain mathematics topics | **Criteria:** Quantitative & Non-test<br><br>**Form of Assessment** : Project Results Assessment / Product Assessment | Presentation of manipulative learning media designs | | **Materials:** 1. Mathematics books, both student books and teacher books. 2. Bell-Gredler, Margaret E. 1986. Learning and Instruction. New York: Macmillan Publishing Company. 3. Fenrich, P. (1997). Practical Guidelines For Developing Instructional Multimedia Applications. USA:Harcourt Brace College Publishers. 4. Heinich, R., Molenda. (1999). Instructional Media and Technologies for Learning. USA: Prentice Hall. 5. Journal of Education, both foreign and domestic 6. School curriculum 7. Robert Heinich Merrill, (2002) Instruction Media and Technologies for learning 8. Smaldino, SE, Deborah LL, and James DR, (2011) Instructional Technology and Media for Learning: Learning Technology and Media for Learning. Jakarta: Kencana. 9. Manoy, JT, (2021) Flipbook Class VIII Middle School Mathematics Learning Media (Manual) **Library:** | 0% |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **10** | Design and produce IT-based learning media | ● Presenting IT-based learning media designs for certain mathematics topics ● Presenting IT-based learning media products for certain mathematics topics | **Criteria:** Quantitative & Non-test (Performance report)<br><br>**Form of Assessment** : Project Results Assessment / Product Assessment | Designing IT-based learning media | | **Material:** [1]. School curriculum [2]. School mathematics books, both student books and teacher books [3]. Ivers, KS & Barron, AE 2009. Multimedia Projects in Education: Designing, Producing, and Assessing. Libraries Unlimited. [4]. Gredler, ME 2009. Learning and Instruction: Theory into Practice. Merrill Pearson Education, Inc. [5]. Janet Trineke Manoy, 2021. Class VIII Manual Learning Media Series. Flipbook [6]. Various educational journals published both abroad and domestically **. Library:**<br><br>**Material:** [7]. Lang-Raad, ND & Marzano, RJ 2019. The New Art and Science of Teaching Mathematics. Solution Tree Press. **References:**<br><br>**Material:** Principles of designing and producing IT-based learning media **Library:** | 27% |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **11** | Design and produce IT-based learning media | ● Presenting IT-based learning media designs for certain mathematics topics ● Presenting IT-based learning media products for certain mathematics topics | **Criteria:** Quantitative & Non-test (Performance report)<br><br>**Form of Assessment** : Project Results Assessment / Product Assessment | Designing IT-based learning media | | **Material:** [1]. School curriculum [2]. School mathematics books, both student books and teacher books [3]. Ivers, KS & Barron, AE 2009. Multimedia Projects in Education: Designing, Producing, and Assessing. Libraries Unlimited. [4]. Gredler, ME 2009. Learning and Instruction: Theory into Practice. Merrill Pearson Education, Inc. [5]. Janet Trineke Manoy, 2021. Class VIII Manual Learning Media Series. Flipbook [6]. Various educational journals published both abroad and domestically **. Library:**<br><br>**Material:** [7]. Lang-Raad, ND & Marzano, RJ 2019. The New Art and Science of Teaching Mathematics. Solution Tree Press. **References:**<br><br>**Material:** Principles of designing and producing IT-based learning media **Library:** | 0% |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **12** | Design and produce IT-based learning media | ● Presenting IT-based learning media designs for certain mathematics topics ● Presenting IT-based learning media products for certain mathematics topics | **Criteria:** Quantitative & Non-test (Performance report)<br><br>**Form of Assessment** : Project Results Assessment / Product Assessment | Designing IT-based learning media | | **Material:** [1]. School curriculum [2]. School mathematics books, both student books and teacher books [3]. Ivers, KS & Barron, AE 2009. Multimedia Projects in Education: Designing, Producing, and Assessing. Libraries Unlimited. [4]. Gredler, ME 2009. Learning and Instruction: Theory into Practice. Merrill Pearson Education, Inc. [5]. Janet Trineke Manoy, 2021. Class VIII Manual Learning Media Series. Flipbook [6]. Various educational journals published both abroad and domestically **. Library:**<br><br>**Material:** [7]. Lang-Raad, ND & Marzano, RJ 2019. The New Art and Science of Teaching Mathematics. Solution Tree Press. **References:**<br><br>**Material:** Principles of designing and producing IT-based learning media **Library:** | 0% |
| **13** | | ● Present IT-based learning media designs for certain mathematics topics ● Present IT-based learning media products for certain mathematics topics | **Criteria:** Quantitative & Non-test<br><br>**Form of Assessment** : Project Results Assessment / Product Assessment | Presenting IT-based learning media designs and products | | | 21% |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **14** | | ● Present IT-based learning media designs for certain mathematics topics ● Present IT-based learning media products for certain mathematics topics | **Criteria:** Quantitative & Non-test<br><br>**Form of Assessment** : Project Results Assessment / Product Assessment | Presenting IT-based learning media designs and products | | | 0% |
| **15** | | ● Present IT-based learning media designs for certain mathematics topics ● Present IT-based learning media products for certain mathematics topics | **Criteria:** Quantitative & Non-test<br><br>**Form of Assessment** : Project Results Assessment / Product Assessment | Presenting IT-based learning media designs and products | | | 0% |
| **16** | | ● Present IT-based learning media designs for certain mathematics topics ● Present IT-based learning media products for certain mathematics topics | **Criteria:** Quantitative & Non-test<br><br>**Form of Assessment** : Project Results Assessment / Product Assessment | Presenting IT-based learning media designs and products | | | 0% |

**Evaluation Percentage Recap: Project Based Learning**

| No | Evaluation | Percentage |
|---|---|---|
| 1. | Participatory Activities | 20% |
| 2. | Project Results Assessment / Product Assessment | 80% |
| | | 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** 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.