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

# SEMESTER LEARNING PLAN

| Courses | CODE | Course Family | Credit Weight | | | SEMESTER | Compilation Date |
|---|---|---|---|---|---|---|---|
| Physics E-Learning | 8420302253 | | T=2 | P=0 | ECTS=3.18 | 5 | July 18, 2024 |

| AUTHORIZATION | SP Developer | Course Cluster Coordinator | Study Program Coordinator |
|---|---|---|---|
| | ..... | ..... | Mita Anggaryani, M.Pd., Ph.D. |

| | |
|---|---|
| **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** | E-Learning Physics studies and equips prospective undergraduate students with physics education about analyzing, evaluating and creating interactive simulation based physics learning, mobile based physics learning, web based physics learning, and distance learning of physics to be able to compete and excel in the era 4.0 and welcoming society 5.0 and being able to communicate scientifically and work effectively both individually and in groups. |
| **References** | **Main :** |


1. Griffin, P. & Care, E. (2015). Assessment and teaching of 21st century skills: Methods and approach. New York: Springer.
   Nichols, J. R. (2015). 4 Essential Rules of 21st Century Learning. Teach Thought.
   Benade, L. (2017). Being a teacher in the 21st century: A critical new zealand research study. New York: Springer.
   Watson, J. (2008). Blended learning: The converegence of online and face-to-face education. Florida: NACOL.


| | |
|---|---|
| | **Supporters:** |
| **Supporting lecturer** | Dr. Dwikoranto, M.Pd.<br>Dr. Eko Hariyono, S.Pd., M.Pd.<br>Nurita Apridiana Lestari, S.Pd., M.Pd.<br>Dr. Binar Kurnia Prahani, S.Pd., 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** | Students can analyze, evaluate and create interactive simulations based on physics learning and are able to communicate scientifically and work effectively both individually and in groups. | 1. Students understand interactive simulation based physics learning2. Students analyze important factors in interactive simulation based physics learning | | Lecture, Literature Study, and Discussion 2 X 50 | | | 0% |
| **2** | Students can analyze, evaluate and create interactive simulations based on physics learning and are able to communicate scientifically and work effectively both individually and in groups. | 1. Students are able to evaluate interactive simulation based physics learning from literature reviews 2. Students plan interactive simulation based physics learning in groups | | Literature Review, Discussion, and Assignment 2 X 50 | | | 0% |
| **3** | Students can analyze, evaluate and create interactive simulations based on physics learning and are able to communicate scientifically and work effectively both individually and in groups. | 1. Students present the interactive simulation based physics learning design. 2. Students criticize the interactive simulation based physics learning design | | Presentation and Discussion 2 X 50 | | | 0% |
| **4** | Students can analyze, evaluate and create mobile based physics learning and are able to communicate scientifically and work effectively both individually and in groups. | 1. Students understand mobile based physics learning2. Students analyze important factors in mobile based physics learning | | 2 X 50 | | | 0% |
| **5** | Students can analyze, evaluate and create mobile based physics learning and are able to communicate scientifically and work effectively both individually and in groups. | 1. Students are able to evaluate mobile based physics learning from literature reviews 2. Students plan mobile based physics learning in groups | | Literature Review, Discussion, and Assignment 2 X 50 | | | 0% |
| **6** | Students can analyze, evaluate and create mobile based physics learning and are able to communicate scientifically and work effectively both individually and in groups. | 1. Students present their mobile based physics learning design2. Students criticize the design of mobile based physics learning | | Presentation and Discussion 2 X 50 | | | 0% |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **7** | Students can analyze, evaluate and create web based physics learning and are able to communicate scientifically and work effectively both individually and in groups. | 1. Students understand web based physics learning2. Students analyze important factors in web based physics learning | | Lecture, Literature Study, and Discussion<br>2 X 50 | | | 0% |
| **8** | UTS | | | Test<br>2 X 50 | | | 0% |
| **9** | Students can analyze, evaluate and create web based physics learning and are able to communicate scientifically and work effectively both individually and in groups. | 1. Students are able to evaluate web based physics learning from literature reviews 2. Students plan web based physics learning in groups | | Literature Review, Discussion, and Assignment<br>2 X 50 | | | 0% |
| **10** | Students can analyze, evaluate and create web based physics learning and are able to communicate scientifically and work effectively both individually and in groups. | 1. Students present web based physics learning 2. Students criticize web based physics learning | | Presentation and Discussion<br>2 X 50 | | | 0% |
| **11** | Students can analyze, evaluate and create distance learning of physics and are able to communicate scientifically and work effectively both individually and in groups. | 1. Students understand distance learning of physics2. Students analyze important factors in distance learning of physics | | Lecture, Literature Study, and Discussion<br>2 X 50 | | | 0% |
| **12** | Students can analyze, evaluate and create distance learning of physics and are able to communicate scientifically and work effectively both individually and in groups. | 1. Students evaluate distance learning of physics2. Students plan distance learning of physics in groups | | Literature Review, Discussion, and Assignment<br>2 X 50 | | | 0% |
| **13** | Students can analyze, evaluate and create distance learning of physics and are able to communicate scientifically and work effectively both individually and in groups. | 1. Students present distance learning of physics 2. Students criticize distance learning of physics | | Presentation and Discussion<br>2 X 50 | | | 0% |
| **14** | Mini Projects | Students demonstrate mini projects | **Criteria:**<br>1.1. Creativity<br>2.2. Truth of Content<br>3.3. Display<br>4.4. Operational<br>5.5. Collaboration | Presentation<br>2 X 50 | | | 0% |
| **15** | Mini Projects | Students demonstrate mini projects | **Criteria:**<br>1.1. Creativity<br>2.2. Truth of Content<br>3.3. Display<br>4.4. Operational<br>5.5. Collaboration | Presentation<br>2 X 50 | | | 0% |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **16** | | | | | | | 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.