



Universitas Negeri Surabaya
Faculty of Mathematics and Natural Sciences
Physics Education Undergraduate Study Program

Document Code

SEMESTER LEARNING PLAN

Courses	CODE	Course Family	Credit Weight			SEMESTER	Compilation Date
Evaluation of Learning and Learning	8420302240	Compulsory Study Program Subjects	T=2	P=0	ECTS=3.18	4	July 17, 2024
AUTHORIZATION	SP Developer		Course Cluster Coordinator			Study Program Coordinator	
			Mita Anggaryani, M.Pd., Ph.D.	

Learning model	Project Based Learning
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Program Learning Outcomes (PLO)	PLO study program which is charged to the course	
	Program Objectives (PO)	
	PO - 1	CPMK-1: Understand the concepts, approaches, principles, types and functions of assessment
	PO - 2	CPMK-2: Developing a cognitive domain assessment instrument
	PO - 3	CPMK-3: Analyzing instrument quality
	PO - 4	CPMK-4: Developing skills domain assessment instruments
	PO - 5	CPMK-5: Developing an affective domain assessment instrument
	PO - 6	CPMK-6: Developing authentic assessments
	PO - 7	CPMK-7: Analyzing the implementation of assessment in schools
	PLO-PO Matrix	

P.O
PO-1
PO-2
PO-3
PO-4
PO-5
PO-6
PO-7

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						✓	✓									
PO-4									✓							
PO-5																
PO-6																
PO-7																

Short Course Description	Study of the meaning, objectives, functions and principles of assessment, taxonomy of cognitive, affective and psychomotor learning outcomes, including scientific literacy and HOTS, various approaches, methods and assessment strategies/techniques, forms of instruments, assessment rubrics/guidelines, analysis and interpretation of assessment results, as well as their use. Learning is carried out through discussions, assignments and project assignments related to assessments at school.
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References	Main :						
	<ol style="list-style-type: none"> Anderson, L.W., & Krathwohl, D.R. 2001. A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom 19s Taxonomy of Educational Objectives. New York: Longman Arikunto, Suharsimi, I. Jabar, Cepi Safruddin Abdul. 2008. Evaluasi Program Pendidikan: Pedoman Teoritis bagi Mahasiswa dan Praktisi Pendidikan. Jakarta: Bumi Aksara Brookhart, Susan M. 2010. How to Assess Higher-Order Thinking Skills in Your Classroom. Alexandria: ASCD Glencoe Series. Performance Assessment in the Science Classroom. New York: McGraw- Hill Company. Gronlund, N.E. 2003. Assessment of Student Achievement 7th ed. Boston: Allyn and Bacon Johnson, D.W. & Johnson, R.T. 2002. Meaningful Assessment: A Manageable and Cooperative Process. Boston: Allyn and Bacon 12. Malley, J.M. & Pierce, L.V. 1996. Authentic Assessment. Virginia: Addison-Wesley Publishing Company 						
	Supporters:						
		<ol style="list-style-type: none"> Software ANATES Software SPSS 					
Supporting lecturer	Dr. Titin Sunarti, M.Si. Prof. Dr. Wasis, M.Si. Woro Setyarsih, S.Pd., M.Si. Abu Zainuddin, S.Pd., M.Pd. Mukhayyarotin Niswati Rodliyatul Jauhariyah, 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	Understand the concepts, approaches, principles, types and functions of assessment	<ol style="list-style-type: none"> 1.1. Describe measurement, assessment and evaluation. 2.2. Compare various approaches, types and functions of assessment. 3.3. Analyze the characteristics of assessment in the Independent Curriculum. 4.4. Express critical responses to the implementation of assessment in schools. 	Form of Assessment : Participatory Activities	2 X 50 repository discussion	2 X 50 repository discussion	Material: Concepts, approaches, principles, types and functions of assessment. References: <i>Gronlund, NE 2003. Assessment of Student Achievement 7th ed. Boston: Allyn and Bacon</i>	5%
2	Understand the concepts, approaches, principles, types and functions of assessment	<ol style="list-style-type: none"> 1.1. Describe measurement, assessment and evaluation. 2.2. Compare various approaches, types and functions of assessment. 3.3. Analyze the characteristics of assessment in the Independent Curriculum. 4.4. Express critical responses to the implementation of assessment in schools. 	Form of Assessment : Participatory Activities	2 X 50 repository discussion	2 X 50 repository discussion	Material: Concepts, approaches, principles, types and functions of assessment. References: <i>Gronlund, NE 2003. Assessment of Student Achievement 7th ed. Boston: Allyn and Bacon</i>	5%

3	Developing Cognitive Domain Assessment Instruments	<p>1.1. Comparing the old and revised Bloom's Taxonomy of cognitive domains.</p> <p>2.2. Describe the characteristics of levels C1-C6 in the revised Bloom's Taxonomy.</p> <p>3.3. Describe factual, conceptual, procedural and metacognitive knowledge.</p> <p>4.4. Compare various higher order thinking skills (HOTS).</p> <p>5.5. Create questions referring to the revised Bloom's Taxonomy and create scoring guidelines.</p> <p>6.6. Examining cognitive domain questions*</p>	<p>Form of Assessment : Participatory Activities</p>	Assignment and Discussion 2 X 50	Assignment and Discussion 2 X 50	<p>Material: Preparation of assessment instruments in the form of tests. Library: 2013 Curriculum Assessment Guide</p> <hr/> <p>Material: Bloom's Taxonomy Bibliography: Anderson, LW, & Krathwohl, DR 2001. A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom 19s Taxonomy of Educational Objectives. New York: Longman Independent Curriculum Assessment and Learning Guide</p>	30%
4	Developing Cognitive Domain Assessment Instruments	<p>1.1. Comparing the old and revised Bloom's Taxonomy of cognitive domains.</p> <p>2.2. Describe the characteristics of levels C1-C6 in the revised Bloom's Taxonomy.</p> <p>3.3. Describe factual, conceptual, procedural and metacognitive knowledge.</p> <p>4.4. Compare various higher order thinking skills (HOTS).</p> <p>5.5. Create questions referring to the revised Bloom's Taxonomy and create scoring guidelines.</p> <p>6.6. Examining cognitive domain questions*</p>	<p>Form of Assessment : Participatory Activities, Project Results Assessment / Product Assessment</p>	Assignment and Discussion 2 X 50	Assignment and Discussion 2 X 50	<p>Material: Preparation of assessment instruments in the form of tests. Library: 2013 Curriculum Assessment Guide</p> <hr/> <p>Material: Bloom's Taxonomy Bibliography: Anderson, LW, & Krathwohl, DR 2001. A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom 19s Taxonomy of Educational Objectives. New York: Longman Independent Curriculum Assessment and Learning Guide</p>	30%

5	Analyze the quality of the instrument	<p>1.1. Describe validity and reliability.</p> <p>2.2. Describe the different power, level of difficulty, and sensitivity index of the test items.</p> <p>3.3. Get to know the question item analysis software.</p> <p>4.4. Determine the validity of the assessment instrument.</p> <p>5.5. Calculate the reliability of questions in the form of tests and the sensitivity index of test items.</p> <p>6.6. Skilled in using question item analysis software.</p>	<p>Criteria:</p> <p>1.Performance assessment</p> <p>2.Participatory Activities</p> <p>Forms of Assessment :</p> <p>Participatory Activities, Project Results Assessment / Product Assessment, Portfolio Assessment, Practical Assessment, Practical / Performance</p>	Discussions, assignments, questions and answers, tutorials. 2 X 50	Discussions, assignments, questions and answers, tutorials. 2 X 50	<p>Material:</p> <p>ANATES software tutorial and workshop</p> <p>Reference:</p> <p>ANATES Software</p> <hr/> <p>Material:</p> <p>Analysis of Question Items</p> <p>References:</p> <p>Arikunto, Suharsimi, I. Jabar, Cipi Safruddin Abdul. 2008. Educational Program Evaluation: Theoretical Guidelines for Students and Educational Practitioners. Jakarta: Bumi Literacy</p>	10%
6	Analyze the quality of the instrument	<p>1.1. Describe validity and reliability.</p> <p>2.2. Describe the different power, level of difficulty, and sensitivity index of the test items.</p> <p>3.3. Get to know the question item analysis software.</p> <p>4.4. Determine the validity of the assessment instrument.</p> <p>5.5. Calculate the reliability of questions in the form of tests and the sensitivity index of test items.</p> <p>6.6. Skilled in using question item analysis software.</p>	<p>Criteria:</p> <p>1.Performance assessment</p> <p>2.Participatory Activities</p> <p>Forms of Assessment :</p> <p>Participatory Activities, Project Results Assessment / Product Assessment, Portfolio Assessment, Practical Assessment, Practical / Performance</p>	Discussions, assignments, questions and answers, tutorials. 2 X 50	Discussions, assignments, questions and answers, tutorials. 2 X 50	<p>Material:</p> <p>ANATES software tutorial and workshop</p> <p>Reference:</p> <p>ANATES Software</p> <hr/> <p>Material:</p> <p>Analysis of Question Items</p> <p>References:</p> <p>Arikunto, Suharsimi, I. Jabar, Cipi Safruddin Abdul. 2008. Educational Program Evaluation: Theoretical Guidelines for Students and Educational Practitioners. Jakarta: Bumi Literacy</p>	10%

7	Analyze the quality of the instrument	<p>1.1. Describe validity and reliability.</p> <p>2.2. Describe the different power, level of difficulty, and sensitivity index of the test items.</p> <p>3.3. Get to know the question item analysis software.</p> <p>4.4. Determine the validity of the assessment instrument.</p> <p>5.5. Calculate the reliability of questions in the form of tests and the sensitivity index of test items.</p> <p>6.6. Skilled in using question item analysis software.</p>	<p>Criteria:</p> <p>1.Performance assessment</p> <p>2.Participatory Activities</p> <p>Forms of Assessment :</p> <p>Participatory Activities, Project Results Assessment / Product Assessment, Portfolio Assessment, Practical Assessment, Practical / Performance</p>	Discussions, assignments, questions and answers, tutorials. 2 X 50	Discussions, assignments, questions and answers, tutorials. 2 X 50	<p>Material:</p> <p>ANATES software tutorial and workshop</p> <p>Reference:</p> <p>ANATES Software</p> <hr/> <p>Material:</p> <p>Analysis of Question Items</p> <p>References:</p> <p><i>Arikunto, Suharsimi, I. Jabar, Cepi Safruddin Abdul. 2008. Educational Program Evaluation: Theoretical Guidelines for Students and Educational Practitioners. Jakarta: Bumi Literacy</i></p>	10%
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8	Midterm exam			Written Test/Exam 2 X 50	Written Test/Exam	<p>Material: Bloom's Taxonomy</p> <p>Bibliography: Anderson, LW, & Krathwohl, DR 2001. <i>A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom 19s Taxonomy of Educational Objectives</i>. New York: Longman</p> <p>Material: Analysis of Question Items</p> <p>Literature: Arikunto, Suharsimi, I. Jabar, Cepi Safruddin Abdul. 2008. <i>Educational Program Evaluation: Theoretical Guidelines for Students and Educational Practitioners</i>. Jakarta: Bumi Literacy</p> <p>Material: HOTS</p> <p>Reference: Brookhart, Susan M. 2010. <i>How to Assess Higher-Order Thinking Skills in Your Classroom</i>. Alexandria: ASCD</p> <p>Material: Basics of Assessment</p> <p>Literature: Gronlund, NE 2003. <i>Assessment of Student Achievement 7th ed</i>. Boston: Allyn and Bacon</p> <p>Material: Analysis of Question Items</p> <p>Reference: ANATES Software</p>	20%
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9	Develop skills domain assessment instruments (Hands on activity)	<p>1.1. Describe the taxonomy of the psychomotor domain.</p> <p>2.2. Compare Dave and Simpson's taxonomy.</p> <p>3.3. Develop an assessment instrument for the psychomotor domain.</p> <p>4.4. Describe science process skills.</p> <p>5.5. Develop an instrument for assessing science process skills.</p>	<p>Form of Assessment : Portfolio Assessment, Practice / Performance</p>	Discussion and Assignment 2 X 50	Discussion and Assignment 2 X 50	<p>Material: Library Skills Assessment : <i>Glencoe Series. Performance Assessment in the Science Classroom. New York: McGraw-Hill Company.</i></p> <hr/> <p>Material: Meaningful Assessment Reference: <i>Johnson, DW & Johnson, RT 2002. Meaningful Assessment: A Manageable and Cooperative Process. Boston: Allyn and Bacon</i></p> <hr/> <p>Material: Authentic assessment References: <i>12. Malley, JM & Pierce, LV 1996. Authentic Assessment. Virginia: Addison-Wesley Publishing Company</i></p>	30%
10	Students are able to develop non-test physics education assessment instruments in accordance with the selected KD in K-13	<p>1. Students are able to identify the need for non-test assessment instruments based on KD in K-13.2. Students are able to compile a non-test form of assessment grid based on needs.3. Students are able to prepare assessment instruments in the form of non-tests such as questionnaire sheets, observation sheets, interview question sheets.4. Students are able to communicate non-test assessment plans that will be carried out based on the KD in K-13 that has been selected.</p>	<p>Form of Assessment : Participatory Activities, Portfolio Assessment</p>	Collaborative learning and workshops 2 X 50	Collaborative learning and workshops 2 X 50	<p>Material: Preparation of assessment instruments in the form of non-tests. Reference: <i>Independent Curriculum Assessment and Learning Guide</i></p>	30%

11	Students are able to demonstrate knowledge of quality analysis of non-test assessment instruments for physics education research (EFA, Rasch Analysis, CFA).	<p>1. Students are able to describe knowledge about the quality test of physics education assessment instruments in the form of non-tests using EFA (Exploratory Factor Analysis).</p> <p>2. Students are able to describe knowledge about the quality test of physics education assessment instruments in the form of non-tests using Rasch Analysis.</p> <p>3. Students are able to describe knowledge about the quality test of physics education assessment instruments in the form of non-tests using CFA (Confirmatory Factor Analysis).</p>	<p>Form of Assessment :</p> <p>Participatory Activities, Portfolio Assessment</p>	Classroom Discussion 2 X 50			5%
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12	Students are able to demonstrate knowledge of quality analysis of non-test assessment instruments for physics education research (EFA, Rasch Analysis, CFA).	<ol style="list-style-type: none"> 1. Students are able to describe knowledge about the quality test of physics education assessment instruments in the form of non-tests using EFA (Exploratory Factor Analysis). 2. Students are able to describe knowledge about the quality test of physics education assessment instruments in the form of non-tests using Rasch Analysis. 3. Students are able to describe knowledge about the quality test of physics education assessment instruments in the form of non-tests using CFA (Confirmatory Factor Analysis). 	Form of Assessment : Portfolio Assessment	Classroom Discussion 2 X 50			5%
13	Students are able to use software to test the quality of physics education assessment instruments in non-test form so that they can measure physics education research variables well.	<ol style="list-style-type: none"> 1. Students are able to use SPSS software for the purposes of testing the quality of physics education assessment instruments in non-test form. 2. Students are able to use AMOS software for the purposes of testing the quality of physics education assessment instruments in non-test form. 3. Students are able to use Winstep software for the purposes of testing the quality of physics education assessment instruments in non-test form. 	Form of Assessment : Participatory Activities, Portfolio Assessment	Tutorial and workshop 2 X 50			5%

14	Students are able to use software to test the quality of physics education assessment instruments in non-test form so that they can measure physics education research variables well.	<ol style="list-style-type: none"> 1. Students are able to use SPSS software for the purposes of testing the quality of physics education assessment instruments in non-test form. 2. Students are able to use AMOS software for the purposes of testing the quality of physics education assessment instruments in non-test form. 3. Students are able to use Winstep software for the purposes of testing the quality of physics education assessment instruments in non-test form. 	Form of Assessment : Participatory Activities	Tutorial and workshop 2 X 50			0%
15	Students compose scientific articles about the development of test and non-test assessment instruments based on KD High School Physics in K-13 up to the instrument quality testing stage.	<ol style="list-style-type: none"> 1. Students are able to process data and information resulting from the analysis of the questions that have been carried out. 2. Students are able to process data and information from the quality test results of non-test assessment instruments that have been carried out. 3. Students are able to present the entire process of developing an assessment instrument based on the KD in K-13 that has been selected up to the instrument quality testing stage. 	Forms of Assessment : Participatory Activities, Project Results Assessment / Product Assessment, Portfolio Assessment	Workshop and collaborative learning 2 X 50			0%
16	Final exams	Presentation of scientific articles, revisions, and submission to target journals.	Form of Assessment : Project Results Assessment / Product Assessment	Presentation of scientific articles, revisions, and submission to target journals. 2 X 50			0%

Evaluation Percentage Recap: Project Based Learning

No	Evaluation	Percentage
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1.	Participatory Activities	81%
2.	Project Results Assessment / Product Assessment	21%
3.	Portfolio Assessment	46%
4.	Practical Assessment	6%
5.	Practice / Performance	21%
		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.