

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

Document Code

## SEMESTER LEARNING PLAN

5			CODE		Course Family	C	Cred	it Wei	ght	SEMESTER	Compilation Date	
SS, a	nd PISA studie	es	8420302251			٦	Т=2	P=0	ECTS=3.18	5	July 18, 202	
RIZAT	TION		SP Developer			Course	Clus	ter Co	oordinator	Study Program Coordinator		
										Mita Angga Ph	yani, M.Pd., .D.	
g	Case Studies											
m Ia	PLO study p	PLO study program Which is charged to the course Program Objectives (PO)										
ies	Program Ob	Program Objectives (PO) PO - 1 CPMK-1: Students are able to demonstrate knowledge of developing physics education assessment instruments in										
	PO - 1	CPMK the for	K-1: Students are able to many students and non-test	to der ts.	nonstrate knowle	dge of dev	velop	ping p	hysics educa	tion assessment	instruments	
	PO - 2	CPMk in the	X-2: Students are able t form of tests using item	Students are able to study the process of testing the quality of physics education assessment instruments n of tests using item analysis.								
	PO - 3	CPMk in non	PMK-3: Students are able to study the process of testing the quality of physics education assessment instru- non-test form using EFA (Exploratory Factor Analysis), Rasch Analysis, and CFA (Confirmatory Factor Analysis)								ent instrumen ctor Analysis).	
	PO - 4	CPMK	(-4: Students are able t	to dev	elop physics educ	ation asse	essm	ient in	struments in	the form of tests	and non-tests	
	PO - 5	- 5 CPMK-5: Students are able to apply the study of the quality testing process for physics education assessment instruments (both in the form of tests and non-tests) to instruments that have been previously developed.										
	PO - 6	CPMK-6: Students are able to use certain software (for example: ANATES, SPSS, AMOS, or Winstep) to evaluate the quality of previously developed physics education assessment instruments.										
	PO - 7	CPMK-7: Students are able to design physics education assessment instruments in the form of tests and non-tests up to the instrument quality testing stage.										
	PO - 8 CPMK-8: Students are able to compose articles on the development of physics education assessment instruments along with instrument quality tests to improve their pedagogical knowledge as a provision for continuing their studies to a higher level.											
	PLO-PO Mat	rix										
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			PO-1									
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Week-	Muk Final ab each lea stage (Sub-PC) ( Studem to dema pedago knowlea regardin develop assess instrum the form and nor	<ul> <li>ilities of arning</li> <li>i)</li> <li>2)</li> <li>2)</li> <li>2)</li> <li>2)</li> <li>ts are able onstrate gical dge ng the oment of ment of ment in n of tests n-tests</li> </ul>	Indicator (3) Indicator (3) I.1. Students are able to describe the process of developing physics education assessment instruments in the form of tests.2. Students are able to describe the process of developing non-test physics education assessment instruments. 2.2. Students are able to describe the process of developing non-test physics education assessment instruments. 2.2. Students are able to describe the process of developing non-test physics education assessment instruments. 2.2. Students are able to describe the process of developing non-test physics	Uhariyah	, S.Pd	, M.Pd. Form essmen Activities	2 X 5 repos discu	fline ( fline ) (5) 0 sitory ssion	Helppearni dent Esti	Onl	ning, sthods nmen i time] ine ( c (6) reposi	s, its, its, its, its, its, its, its, it	) 1	Lea mate [ Refer (	rning erials ences 7)	As w	sessmo eight (9 20%
Week-	Muk Final ab each lea stage (Sub-PC ( Student to demo pedago knowled regardii develop assessi instrum the form and nor	<ul> <li>ilities of arning</li> <li>i)</li> <li>2)</li> <li>3)</li> <li>4)</li> <li>4)<td>Indicator (3) I.1. Students are able to describe the process of developing physics education assessment instruments in the form of tests.2. Students are able to describe the process of developing non-test physics education assessment instruments. 2.2. Students are able to describe the process of developing non-test physics education assessment instruments. 2.2. Students are able to describe the process of developing non-test physics education assessment instruments. 2.2. Students are able to describe the process of developing non-test physics education are able to describe the process of developing non-test physics education</td><td>Uhariyah</td><td>, S.Pd</td><td>, M.Pd. Form essmen Activities</td><td>2 X 5 repos discu</td><td>fline ( fline ) (5) 0 sistory ssion</td><td>2 dent 2 d</td><td>Online 2 X 50</td><td>ning, sthods inmen i time] ine ( c (6) reposi</td><td>s, its, ponline itory</td><td>) 1</td><td>Lea mate Refer (</td><td>rning erials ences 7)</td><td>As w</td><td>sessmo eight (5 20%</td></li></ul>	Indicator (3) I.1. Students are able to describe the process of developing physics education assessment instruments in the form of tests.2. Students are able to describe the process of developing non-test physics education assessment instruments. 2.2. Students are able to describe the process of developing non-test physics education assessment instruments. 2.2. Students are able to describe the process of developing non-test physics education assessment instruments. 2.2. Students are able to describe the process of developing non-test physics education are able to describe the process of developing non-test physics education	Uhariyah	, S.Pd	, M.Pd. Form essmen Activities	2 X 5 repos discu	fline ( fline ) (5) 0 sistory ssion	2 dent 2 d	Online 2 X 50	ning, sthods inmen i time] ine ( c (6) reposi	s, its, ponline itory	) 1	Lea mate Refer (	rning erials ences 7)	As w	sessmo eight (5 20%

2	Students develop physics education assessment instruments in the form of Multiple Choice and Essays.	<ul> <li>1.1. Students are able to identify K-13 Basic Competencies (KD) and formulate indicators of competency achievement to indicators of knowledge domain questions.2. Students compose a grid of Multiple Choice questions and Essays based on the selected KD in K-13.3. Students prepare assessment instruments in the form of tests referring to the selected KD in K-13.4. Students communicate the process and results of preparing the assessment instruments that have been developed.</li> <li>2.2. Students prepare a grid of multiple choice questions and results of preparing the assessment instruments that have been developed.</li> <li>3.3. Students prepare a grid of multiple choice questions and/or essays based on the state the process and results of prepare an assessment instruments that have been developed.</li> <li>4.4. Students communicate the form of a test referring to the KD they have chosen.</li> <li>4.4. Students communicate the process and a result of the state the process and/or essays based on the KD they have chosen.</li> </ul>	Form of Assessment Participatory Activities	Collaborative Learning and guided workshops. 2 X 50	Collaborative Learning and guided workshops. 2 X 50	Material: Preparation of assessment instruments in the form of tests. Library: 2013 Curriculum Assessment Guide	30%
		test referring to the KD they have chosen. 4.4. Students communicate the process and results of preparing the assessment instruments that have been developed.					

3	Students develop physics education assessment instruments in the form of Multiple Choice and Essays.	<ul> <li>1.1. Students are able to identify K-13 Basic Competencies (KD) and formulate indicators of competency achievement to indicators of knowledge domain questions.2. Students compose a grid of Multiple Choice questions and Essays based on the selected KD in K-13.3. Students prepare assessment instruments in the form of tests referring to the selected KD in K-13.4. Students communicate the process and results of preparing the assessment instruments that have been developed.</li> <li>2.2. Students prepare a grid of multiple choice questions and/or essays based on the KD in the chosen curriculum.</li> <li>3.3. Students prepare an assessment instruments that have been developed.</li> <li>2.4. Students prepare a grid of multiple choice questions and/or essays based on the KD in the chosen curriculum.</li> <li>3.3. Students prepare an assessment instrument in the form of a test referring to the KD they have chosen.</li> <li>4.4. Students communicate the process and results of preparing the assessment instruments that have</li> </ul>	Form of Assessment Participatory Activities	Collaborative Learning and guided workshops. 2 X 50	Collaborative Learning and guided workshops. 2 X 50	Material: Preparation of assessment instruments in the form of tests. Library: 2013 Curriculum Assessment Guide	30%
		assessment instruments that have been developed.					

	physics education assessment instruments that have been developed for entry-level students or high school students.	are able to carry out trials of physics education assessment instruments in the form of tests.2. Students are able to make corrections and make reports on the results of testing physics education assessment instruments in the form of tests.3. Students are able to manually analyze the questions to be communicated at the next meeting. 2.2. Students are able to make corrections and make reports on the results of testing physics education assessment instruments in the form of tests. 3.3. Students are able to make corrections and make reports on the results of testing physics education assessment instruments in the form of tests. 3.3. Students are able to manually analyze the questions to be communicated at the next meeting.		learning 2 X 50	2 X 50	Testing of physics education assessment instruments in the form of tests. Library: Independent Curriculum Assessment and Learning Guide	
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5	Students are able to use ANATES software to analyze test items.	<ul> <li>1.1. Students are able to operate ANATES software to analyze question items (using ICT).2. Students are able to evaluate the results of the analysis of question items using ANATES.3. Students are able to report the results of the analysis of question items using ANATES software.</li> <li>2.2. Students are able to evaluate the results of item analysis using ANATES.</li> <li>3.3. Students are able to report the results of the analysis of question items using ANATES.</li> <li>3.3. Students are able to report the results of the analysis of question items using ANATES software.</li> </ul>	Criteria: 1.Performance assessment 2.Participatory Activities Form of Assessment : Participatory Activities	Software tutorial and 2 X 50 workshop	Software tutorial and 2 X 50 workshop	Material: ANATES software tutorial and workshop Reference: ANATES software	30%
6	Students are able to use SPSS software to analyze test items.	<ul> <li>1.1. Students are able to operate SPSS software to analyze question items (using ICT).2. Students are able to evaluate the results of item analysis using SPSS.3. Students are able to report the results of the analysis of question items using SPSS software.</li> <li>2.2. Students are able to evaluate the results of item analysis using SPSS.</li> <li>3.3. Students are able to report the results of the analysis of question items using SPSS.</li> <li>3.3. Students are able to report the results of the analysis of question items using SPSS software.</li> </ul>	Criteria: 1.Performance assessment 2.Work method	Software tutorial and 2 X 50 workshop	Software tutorial and 2 X 50 workshop	Material: SPSS software tutorial and workshop Reference: SPSS software	30%

7	Students are able to demonstrate knowledge of quality testing strategies for non-test assessment instruments.	<ul> <li>1.1. Students are able to identify types of non-test assessment instruments based on needs referring to KD in K-13.2. Students are able to describe the types of quality tests of non-test assessment instruments.3. Students are able to determine the type of instrument quality test used based on the type of non-test assessment instrument as well as the physics education research design that will be planned so that the instruments developed can truly measure the variables in the research.</li> <li>2.2. Students are able to determine the types of quality tests of non-test assessment instruments.</li> <li>3.3. Students are able to determine the type of instruments.</li> <li>3.3. Students are able to determine the type of instrument as well as the physics education research</li> </ul>	Criteria: quantitative assessment strategies, non-test form of Assessment : Participatory Activities	Classroom discussion 2 X 50	Classroom discussion 2 X 50	Material: strategies for testing the quality of assessment instruments in physics education research. Library: Free Curriculum Assessment and Learning Guide	20%
		on the type of non-test assessment instrument as well as the physics education research design that will be planned so that the instrument developed truly measures the variables in the research.					

8	Midterm exam	Practice exam for using ANATES and SPSS software	Form of Assessment : Practice / Performance	Practice exam for using ANATES and SPSS 2 X 50 software		Material: practice analyzing question items using ANATES Library: ANATES Software Material: practice analyzing the results of physics education measurements using SPSS Library: SPSS Software	20%
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	to develop non- test physics education assessment instruments in accordance with the selected KD in K-13	<ul> <li>1.1. Students are able to identify the need for non- test assessment instruments based on KD in K-13.2.</li> <li>Students are able to compile a non-test form of assessment grid based on needs.3.</li> <li>Students are able to prepare assessment instruments in the form of non-tests such as questionnaire sheets, observation sheets.4.</li> <li>Students are able to communicate non-test assessment plans that will be carried out based on the selected KD in K-13.</li> <li>2.2. Students are able to prepare a non-test form of assessment grid based on the research needs of physics education.</li> <li>3.3. Students are able to prepare non- test form of assessment grid based on the research needs of physics education.</li> <li>3.4. Students are able to prepare non- test assessment instruments such as questionnaire sheets, observation sheets.</li> <li>4.4. Students are able to communicate non-test assessment plans that will be carried out based on the selected KD in K-13.</li> </ul>		learning and workshops 2 X 50	2 X 50	Preparation of assessment instruments in the form of non-tests. <b>Reference:</b> <i>Independent</i> <i>Curriculum</i> <i>Assessment</i> <i>and Learning</i> <i>Guide</i>	50.90
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10	Students are able to develop non-	1.1. Students are able to	Form of Assessment	Collaborative learning and	Collaborative learning and workshops	Material: Preparation of	30%
	education	identify the need for non-	: Participatory Activities	workshops 2 X 50	2 X 50	assessment instruments in the form of	
	accordance with	test				non-tests.	
	the selected KD in K-13	instruments				Reference:	
		based on KD				Curriculum	
		Students are				Assessment and Learning	
		able to				Guide	
		non-test form					
		of assessment					
		needs.3.					
		Students are					
		prepare					
		assessment					
		the form of					
		non-tests such					
		questionnaire					
		sheets, observation					
		sheets,					
		interview auestion					
		sheets.4.					
		Students are able to					
		communicate					
		non-test assessment					
		plans that will					
		based on the					
		selected KD in					
		2.2. Students					
		are able to					
		non-test form					
		of assessment grid based on					
		the research					
		needs of physics					
		education.					
		3.3. Students are able to					
		prepare non-					
		assessment					
		instruments					
		questionnaire					
		sheets,					
		sheets,					
		interview					
		sheets.					
		4.4. Students					
		communicate					
		non-test assessment					
		plans that will					
		be carried out based on the					
		selected KD in					
		K-13.					

	to demonstrate knowledge of quality analysis of non-test assessment instruments for physics education research (EFA, Rasch Analysis, CFA).	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. 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 : Participatory Activities	Discussion 2 X 50			
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	Students are able to demonstrate knowledge of quality analysis of non-test assessment instruments for physics education research (EFA, Rasch Analysis, CFA).	<ol> <li>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).</li> <li>Students are able to describe knowledge about the quality test of physics education assessment instruments in the form of non-tests using Rasch Analysis.</li> <li>Students are able to describe knowledge about the quality test of physics.</li> <li>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).</li> </ol>	Classroom Discussion 2 X 50		0%
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> <li>Students are able to use SPSS software for the purposes of testing the quality of physics education assessment instruments in non-test form.</li> <li>Students are able to use AMOS software for the purposes of testing the quality of physics education assessment instruments in non-test form.</li> <li>Students are able to use Winstep software for the purposes of testing the quality of physics are able to use Winstep software for the purposes of testing the quality of physics education assessment instruments in non-test form.</li> </ol>	Tutorial and workshop 2 X 50		0%

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> <li>Students are able to use SPSS software for the purposes of testing the quality of physics education assessment instruments in non-test form.</li> <li>Students are able to use AMOS software for the purposes of testing the quality of physics education assessment instruments in non-test form.</li> <li>Students are able to use Winstep software for the purposes of testing the quality of physics education assessment instruments in non-test form.</li> <li>Students are able to use</li> <li>Winstep software for the purposes of testing the quality of physics education assessment instruments in non-test form.</li> <li>Students are able to process data and</li> </ol>	Tutorial and workshop 2 X 50 Workshop and collaborative learning 2 X 50		0%
	test and non-test assessment instruments based on KD High School Physics in K-13 up to the instrument quality testing stage.	<ul> <li>information</li> <li>resulting from</li> <li>the analysis of</li> <li>the questions</li> <li>that have</li> <li>been carried</li> <li>out.</li> <li>2.Students are</li> <li>able to</li> <li>process data</li> <li>and</li> <li>information</li> <li>from the</li> <li>quality test</li> <li>results of non-</li> <li>test</li> <li>assessment</li> <li>instruments</li> <li>that have</li> <li>been carried</li> <li>out.</li> <li>3.Students are</li> <li>able to</li> <li>present the</li> <li>entire process</li> <li>of developing</li> <li>an</li> <li>assessment</li> <li>instrument</li> <li>based on the</li> <li>KD in K-13</li> <li>that has been</li> <li>selected up to</li> <li>the instrument</li> <li>quality testing</li> <li>stage.</li> </ul>	2 X 50		
16	Final exams	Presentation of scientific articles, revisions, and submission to target journals.	Presentation of scientific articles, revisions, and submission to target journals. 2 X 50		0%

Evaluation Percentage Recap: Case Study

No	Evaluation	Percentage	
1.	Participatory Activities	160%	
2.	Practice / Performance	20%	
		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.
- 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.