



Universitas Negeri Surabaya
Faculty of Mathematics and Natural Sciences
Science Education Doctoral Study Program

Document Code

SEMESTER LEARNING PLAN

Courses	CODE	Course Family	Credit Weight			SEMESTER	Compilation Date
Development of Assessment in Science Learning	8400102055	Compulsory Study Program Subjects	T=2	P=0	ECTS=5.04	2	January 10, 2023
AUTHORIZATION	SP Developer		Course Cluster Coordinator			Study Program Coordinator	
	Prof. Dr. Wasis, M.Si.		Prof. Dr. Wasis, M.Si.			Prof. Dr. Suyatno, M.Si.	

Learning model	Project Based Learning
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Program Learning Outcomes (PLO)	PLO study program which is charged to the course
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PLO-12	2. Master the latest theories related to scientific knowledge and science education
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Program Objectives (PO)	
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PO - 1	Develop new knowledge and innovation in the field of educational and/or learning instrumentation to support professional practice through research, to produce creative, original and tested work in the field of science education.
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PO - 2	Solving science learning problems through an inter- or multi-disciplinary approach based on data collected using developed educational instruments.
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PO - 3	Manage and develop research into the development of learning and/or educational instruments so that they can contribute to the world of education and the benefit of humanity, as well as being able to obtain national and international rewards.
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PLO-PO Matrix	
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	<table border="1"> <tr> <td>P.O</td> <td>PLO-12</td> </tr> <tr> <td>PO-1</td> <td></td> </tr> <tr> <td>PO-2</td> <td></td> </tr> <tr> <td>PO-3</td> <td></td> </tr> </table>	P.O	PLO-12	PO-1		PO-2		PO-3	
P.O	PLO-12								
PO-1									
PO-2									
PO-3									

PO Matrix at the end of each learning stage (Sub-PO)	
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	<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> </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																
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Short Course Description	This course deepens theoretical and practical understanding of the taxonomy of learning objectives, alternative assessment strategies for measuring learning outcomes and their development, including: written tests, performance assessments, presentations, projects, student academic portfolios, observations including participant observation and reflection in the classroom, assessing social skills, attitudes, interviews, journals and diaries, involving students in assessments, tests for higher level thinking abilities (conceptual understanding, thinking skills, metacognitive), scientific literacy, learning styles, mental models, and so on.
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References	Main :
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1. Aiken, L. R. (1997). Psychological testing and assessment, Ninth edition. Boston: Allyn Bacon
2. Anderson Lorin W. and Krathwohl David R. (eds). A taxonomy for learning, teaching, and assessing: a revision of bloom's taxonomy of educational objectives. New York: Longman.
3. Bellanca, James, Chapman Carolyn, and Swartz Elizabeth. (1997). Multiple assessment for multiples intelegences, third edition. Illinois: Skylight Training and Publishing, Inc.
4. Glencoe Science. (Tanpa Tahun).Performance assessment in the science classroom. New York: McGraw-Hill.
5. Johnson, David W and Johnson Roger T. (2002). Meaningful assessment: a manageable and cooperative process. Boston: Allyn Bacon.
6. Kubiszen Tom and Borich Gary. (2007). Educational testing and measurement. Houston: John Wiley and Sons, Inc.
7. McNeely, Sharon L. (1997). Observing students and teachers through objective strategies. Boston: Allyn and bacon.
8. Oosterhof, A. (2003). Developing and using classroom assessment. New Jersey: Merill Prentice Hall.
9. Seldin, P. (2004). The teaching portfolio: a practical guide to improve performance and promotion/tenure decisions. New York: Anker Publishing Company, Inc.
10. Seldin, P. & Miller J. Elizabeth. (2009). The academic portfolio: a practical guide to documenting teaching, research, and service. San Fransisco: John Willey.
11. Davis, S.L & Morrow, A.K. (TT). Creating usable assessment tools: a step-by-step guide to instrument design. Center for Assessment & Research Studies. James Madison University. devissl@jmu.edu.
12. Danielson, C. (2011 & 2013). The framework for teaching evaluation instrument. 2011 & 2013 edition. New Jersey: The Danielson Group
13. Wasis, Rahayu, Y.S., Sunarti, T., & Indana, S. (2020). HOTS & Literasi Sains: Konsep, pembelajaran, dan penilaiannya. Jombang Jawa Timur: Kun Fayakun

Supporters:

Supporting lecturer Prof. Dr. Endang Susantini, M.Pd.
Prof. Dr. Wasis, M.Si.

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 identify assessment problems in science learning	Identify important ideas about test theory, the role of test theory in research and evaluation.	<p>Criteria: Based on the assessment rubric that has been created by the teaching lecturer</p> <p>Form of Assessment : Participatory Activities</p>	Discussion, question and answer	Brainstorming, discussing problems and ideas related to solving assessment problems 2 x 50 minutes	<p>Material: a. Explanation of RPS. b. Tuition contract c. Terms in assessment</p> <p>Bibliography: <i>Anderson Lorin W. and Krathwohl David R. (eds). A taxonomy for learning, teaching, and assessing: a revision of bloom's taxonomy of educational objectives. New York: Longman.</i></p>	5%
2	Develop assessment indicators for the domains of knowledge, attitudes and skills (cognitive, affective and psychomotor)	Students can develop assessment indicators for the knowledge domain	<p>Criteria: Based on the assessment rubric that has been created by the teaching lecturer</p> <p>Form of Assessment : Project Results Assessment / Product Assessment</p>	Presentation, Discussion, Question and answer	Presentation and class discussion regarding concepts in assessment for the knowledge domain. • Provide responses to discussions between students 2 x 50 minutes	<p>Material: Assessment for the domain of knowledge</p> <p>References: <i>Aiken, LR (1997). Psychological testing and assessment, Ninth edition. Boston: Allyn Bacon</i></p>	5%

3	Develop assessment indicators for the domains of knowledge, attitudes and skills (cognitive, affective and psychomotor)	Understand, apply, and analyze the test preparation process.	<p>Criteria: Assessment for the attitude domain</p> <p>Form of Assessment : Project Results Assessment / Product Assessment</p>	Presentation, Discussion, Question and answer	<ul style="list-style-type: none"> • Presentation and class discussion regarding concepts in assessment for the attitude domain. • Provide responses to discussions between students 2 x 50 minutes 	<p>Material: • Presentation and class discussion regarding concepts in assessment for the attitude domain. • Responding to discussions between students.</p> <p>Library: <i>Anderson Lorin W. and Krathwohl David R. (eds). A taxonomy for learning, teaching, and assessing: a revision of bloom's taxonomy of educational objectives. New York: Longman.</i></p>	5%
4	Develop assessment indicators for the domains of knowledge, attitudes and skills (cognitive, affective and psychomotor)	Students can develop assessment indicators for the skills domain	<p>Criteria: Based on the assessment rubric that has been created by the teaching lecturer</p> <p>Form of Assessment : Project Results Assessment / Product Assessment</p>	Presentations, Discussions, Questions and Answers	<p>Presentation and class discussion regarding concepts in assessment for the skills domain.</p> <ul style="list-style-type: none"> • Provide responses to discussions between students 2 x 50 minutes 	<p>Material: Assessment for skill domains</p> <p>References: <i>Anderson Lorin W. and Krathwohl David R. (eds). A taxonomy for learning, teaching, and assessing: a revision of bloom's taxonomy of educational objectives. New York: Longman.</i></p>	5%
5	Able to analyze assessment problems in reputable international journal articles related to developing assessment instruments according to response variables.	Students are able to analyze reputable international journal articles related to the development of assessment instruments in accordance with the response variables that will be researched in the student's dissertation plan	<p>Criteria: Based on the assessment rubric that has been created by the teaching lecturer</p> <p>Form of Assessment : Project Results Assessment / Product Assessment</p>	Presentations, Discussions, Questions and Answers	<ul style="list-style-type: none"> • Class presentations and discussions regarding the development of assessment instruments in accordance with response variables in reputable journal articles. • Provide responses to discussions between students 2 x 50 minutes 	<p>Material: Reputable journal articles related to assessment instruments according to response variables.</p> <p>Literature:</p>	10%

6	Able to analyze assessment problems in reputable international journal articles related to developing assessment instruments according to response variables.	Students are able to analyze reputable international journal articles related to the development of assessment instruments in accordance with the response variables that will be researched in the student's dissertation plan	<p>Criteria: Based on the assessment rubric that has been created by the teaching lecturer</p> <p>Form of Assessment : Project Results Assessment / Product Assessment</p>	Presentations, Discussions, Questions and Answers	<ul style="list-style-type: none"> • Class presentations and discussions regarding the development of assessment instruments in accordance with response variables in reputable journal articles. • Provide responses to discussions between students 2 x 50 minutes 	<p>Material: Reputable journal articles related to assessment instruments according to response variables.</p> <p>Literature:</p>	10%
7	Develop instruments according to the title of the dissertation	Understand, apply and analyze instruments to validate a learning model and RPP tools based on this model including content validity, construct validity, practicality and effectiveness.	<p>Criteria: Based on the assessment rubric that has been created by the teaching lecturer</p> <p>Form of Assessment : Project Results Assessment / Product Assessment</p>	Presentations, Discussions, Questions and Answers	<ul style="list-style-type: none"> • Class presentations and discussions regarding the development of assessment instruments in accordance with response variables in reputable journal articles. • Provide responses to discussions between students 2 x 50 minutes 	<p>Material: development of instruments to validate a learning model and RPP tools based on this model including content validity, construct validity, practicality and effectiveness.</p> <p>References:</p>	10%
8	Final Capabilities from TM-1 to TM-7	TM-1 indicators up to TM-7 indicators	<p>Criteria: Based on the assessment rubric that has been created by the teaching lecturer</p> <p>Form of Assessment : Project Results Assessment / Product Assessment</p>		Written test or giving substitute assignments for UTS 2 x 50 minutes	<p>Material: UTS</p> <p>Library:</p>	5%

9	Analyze the instruments and scoring that have been developed	Analyze, evaluate, and create test, non-test, and performance assessment instruments that already exist or are in standard references.	<p>Criteria: Based on the assessment rubric that has been created by the teaching lecturer</p> <p>Form of Assessment : Project Results Assessment / Product Assessment</p>	Presentations, Discussions, Questions and Answers	<p>Implementing the PjBL stages:</p> <ol style="list-style-type: none"> 1. Basic questions, Creating instruments that will be used to measure response variables. 2. Product planning design: Developing test and non-test instruments as well as performance assessments 3. Activity schedule and project collection deadlines: Schedule for compiling and monitoring assessment development and deadlines for collecting science learning outcome assessment instruments according to the research variables selected in completing the dissertation at UAS 4 . Monitor project progress: each student presents the results of their draft instrument and scoring guidelines. 5. Testing the results: providing input on each stage of instrument development and scoring guidelines. 6. Evaluation: reflection on experience in compiling instruments according to dissertation variables. <p>2 x 50 minutes</p>	<p>Material: Test, non-test and performance assessment instruments.</p> <p>Reference: <i>Kubiszen Tom and Borich Gary. (2007). Educational testing and measurement. Houston: John Wiley and Sons, Inc.</i></p>	5%
10	Analyze the instruments and scoring that have been developed	Analyze, evaluate, and create existing or standard reference instruments.	<p>Criteria: Based on the assessment rubric that has been created by the teaching lecturer</p> <p>Form of Assessment : Project Results Assessment / Product Assessment</p>	Presentations, Discussions, Questions and Answers	<p>Implementation of PjBL</p> <ol style="list-style-type: none"> 4. Monitoring project progress: each student presents the results of their draft instrument and scoring guidelines. 5. Testing the results: providing input on each stage of instrument development and scoring guidelines. <p>2 x 50 minutes</p>	<p>Material: Instruments and scoring models</p> <p>References: <i>Johnson, David W and Johnson Roger T. (2002). Meaningful assessment: a manageable and cooperative process. Boston: Allyn Bacon.</i></p>	5%
11	Analyze the instruments and scoring that have been developed	Analyze, evaluate, and create existing or standard reference instruments.	<p>Criteria: Based on the assessment rubric that has been created by the teaching lecturer</p> <p>Form of Assessment : Project Results Assessment / Product Assessment</p>	Presentations, Discussions, Questions and Answers	<ol style="list-style-type: none"> 4. Monitor project progress: each student presents the results of their draft instrument and scoring guidelines. 5. Testing the results: providing input on each stage of instrument development and scoring guidelines. <p>2 x 50 minutes</p>	<p>Material: Instruments and scoring models</p> <p>References: <i>Johnson, David W and Johnson Roger T. (2002). Meaningful assessment: a manageable and cooperative process. Boston: Allyn Bacon.</i></p>	10%

12	Analyze the instruments and scoring that have been developed	Developing HotS and Literacy instruments	<p>Criteria: Based on the assessment rubric that has been created by the teaching lecturer</p> <p>Form of Assessment : Project Results Assessment / Product Assessment</p>		Presentation, Discussion, Question and answer 2 x 50 minutes	<p>Material: Hots and Literacy Readers : <i>Bellanca, James, Chapman Carolyn, and Swartz Elizabeth. (1997). Multiple assessment for multiple intelligences, third edition. Illinois: Skylight Training and Publishing, Inc.</i></p>	5%
13	Analyze the instruments and scoring that have been developed	Analyze, evaluate and create effectiveness instruments that already exist or are in standard references.	<p>Criteria: Based on the assessment rubric that has been created by the teaching lecturer</p> <p>Form of Assessment : Project Results Assessment / Product Assessment</p>	Presentation, Discussion, Question and answer	2 x 50 minutes	<p>Material: Instruments and models References: <i>Seldin, P. & Miller J. Elizabeth. (2009). The academic portfolio: a practical guide to documenting teaching, research, and service. San Francisco: John Willey.</i></p>	5%
14	Analyze the instruments and scoring that have been developed	Analyze, evaluate and create effectiveness instruments that already exist or are in standard references.	<p>Criteria: Based on the assessment rubric that has been created by the teaching lecturer</p> <p>Form of Assessment : Project Results Assessment / Product Assessment</p>	Presentation, Discussion, Question and answer	Implementation of PjBL 4. Monitoring project progress: each student presents the results of the draft instrument in accordance with the dissertation variables 5. Testing the results: providing input for each stage of development of the instrument developed in accordance with the student's dissertation developed 2 x 50 minutes	<p>Material: Finalization of instruments according to dissertation variables References: <i>Danielson, C. (2011 & 2013). The framework for teaching evaluation instruments. 2011 & 2013 edition. New Jersey: The Danielson Group</i></p>	5%
15	Develop instruments in accordance with the dissertation developed	Produce assessment instruments for science learning outcomes in accordance with dissertation variables	<p>Criteria: Based on the assessment rubric that has been created by the teaching lecturer</p> <p>Form of Assessment : Project Results Assessment / Product Assessment</p>	Presentation, Discussion, Question and answer	Implementation of PjBL 6. Evaluation: Reflection on experience developing assessment instruments for science learning outcomes in accordance with dissertation variables. 2 x 50 minutes	<p>Material: Presentation and discussion of instruments according to dissertation variables References:</p>	5%
16	Final Capabilities from TM-9 to TM-15	TM-9 indicators up to TM-15 indicators	<p>Criteria: Based on the assessment rubric that has been created by the teaching lecturer</p> <p>Form of Assessment : Project Results Assessment / Product Assessment</p>	Written test or giving substitute assignments for UAS 2 x 50 minutes		<p>Material: UAS Literature:</p>	5%

Evaluation Percentage Recap: Project Based Learning

No	Evaluation	Percentage
1.	Participatory Activities	5%
2.	Project Results Assessment / Product Assessment	95%
		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** abilities in the process and student learning outcomes are specific and measurable statements that identify the abilities 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.