



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

Document Code

**SEMESTER LEARNING PLAN**

<b>Courses</b>	<b>CODE</b>	<b>Course Family</b>	<b>Credit Weight</b>			<b>SEMESTER</b>	<b>Compilation Date</b>																																																																																			
Research methodology	8420303135		T=3	P=0	ECTS=4.77	4	July 17, 2024																																																																																			
<b>AUTHORIZATION</b>	<b>SP Developer</b>		<b>Course Cluster Coordinator</b>			<b>Study Program Coordinator</b>																																																																																				
	Dra. Suliyannah, M.Si.		Prof. Dr. Budi Jatmiko			Mita Anggaryani, M.Pd., Ph.D.																																																																																				
<b>Learning model</b>	Project Based Learning																																																																																									
<b>Program Learning Outcomes (PLO)</b>	PLO study program which is charged to the course																																																																																									
	Program Objectives (PO)																																																																																									
	PO - 1	Students can master physics education research methods.																																																																																								
	PO - 2	Students are able to carry out studies and evaluations of Physics learning using a quantitative and/or qualitative approach to solve Physics learning problems.																																																																																								
	PO - 3	Designing a Physics education research proposal.																																																																																								
	PLO-PO Matrix																																																																																									
		<table border="1" style="margin-left: 20px;"> <tr><td>P.O</td></tr> <tr><td>PO-1</td></tr> <tr><td>PO-2</td></tr> <tr><td>PO-3</td></tr> </table>						P.O	PO-1	PO-2	PO-3																																																																															
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PO Matrix at the end of each learning stage (Sub-PO)																																																																																										
	<table border="1" style="margin-left: 20px;"> <thead> <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> </thead> <tbody> <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> </tbody> </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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<b>Short Course Description</b>	Lectures discuss the nature of Physics education research; Various research methods in Physics education: experimental research, CAR, and R&D; Physics education research design: design, research subjects/population/sample, research instruments, data collection techniques, data analysis techniques according to various experimental research methods, PTK, and R&D; Issues and identification of problems in Physics education and learning; Writing a Physics education research proposal according to the research design.																																																																																									
<b>References</b>	<b>Main :</b>																																																																																									
		<ol style="list-style-type: none"> <li>1. Nazir, Moh. , Metode Penelitian, Penerbit Ghalia Indonesia, Bogor, 2009.</li> <li>2. Prabowo, Metodologi Penelitian, Penerbit Unesa University Press, Surabaya, 2011.</li> <li>3. Punaji Setyosari, Metode Penelitian Pendidikan dan Pengembangan, Penerbit Kencana, Jakarta, 2010.</li> <li>4. Sugiyono, Metode Penelitian Kuantitatif, Kualitatif dan R &amp; D, CV Penerbit Alfabeta, Bandung, 2010.</li> <li>5. Suharsimi Arikunto, Prosedur Penelitian Suatu Pendekatan Praktik, Penerbit Rineka Cipta, Jakarta, 2006.</li> </ol>																																																																																								
	<b>Supporters:</b>																																																																																									

<b>Supporting lecturer</b>		Prof. Dr. Budi Jatmiko, M.Pd. Dra. Sullyanah, M.Si. Dr. Titin Sunarti, M.Si. Dr. Dwikoranto, M.Pd. Dr. Eko Hariyono, S.Pd., M.Pd. Prof. Nadi Suprpto, S.Pd., M.Pd., Ph.D. Mita Anggaryani, M.Pd., Ph.D. 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 are able to understand basic research concepts which include general patterns of quantitative and qualitative research	<ol style="list-style-type: none"> <li>1.Explain general patterns of quantitative research</li> <li>2.Describes general patterns of qualitative research along with explanations</li> <li>3.Analyze the paradigms underlying quantitative research and qualitative research</li> <li>4.Describes general patterns of qualitative research along with explanations</li> </ol>	<b>Criteria:</b> Individual  <b>Form of Assessment :</b> Participatory Activities	Literature Study Discussion Questions and Answers 3 x 50	Literature Study Discussion Questions and Answers 3 x 50	<b>Material:</b> Basic concepts of research <b>Reference:</b> Prabowo, <i>Research Methodology</i> , Publisher Unesa University Press, Surabaya, 2011.	1%
2	Students are able to understand basic research concepts which include general patterns of quantitative and qualitative research	<ol style="list-style-type: none"> <li>1.Explain general patterns of quantitative research</li> <li>2.Describes general patterns of qualitative research along with explanations</li> <li>3.Analyze the paradigms underlying quantitative research and qualitative research</li> <li>4.Describes general patterns of qualitative research along with explanations</li> </ol>	<b>Criteria:</b> Individual  <b>Form of Assessment :</b> Participatory Activities	Literature Study Discussion Questions and Answers 3 x 50	Literature Study Discussion Questions and Answers 3 x 50	<b>Material:</b> Basic concepts of research <b>Reference:</b> Prabowo, <i>Research Methodology</i> , Publisher Unesa University Press, Surabaya, 2011.	1%

3	Students are able to understand literature review in research	1.Explain the benefits of libraries in research 2.Explain the role of literature in generating hypotheses 3.Conduct a library search	<b>Criteria:</b> Individual  <b>Form of Assessment :</b> Participatory Activities	Literature Study Discussion Questions and Answers 3 x 50	Literature Study Discussion Questions and Answers 3 x 50	<b>Material:</b> Literature review in research <b>Reference:</b> <i>Prabowo, Research Methodology, Publisher Unesa University Press, Surabaya, 2011.</i>	1%
4	Students are able to understand research design	Designing survey research, case study research, experimental research	<b>Criteria:</b> Individual  <b>Form of Assessment :</b> Participatory Activities	Literature Study Discussion Questions and Answers 3 x 50	Literature Study Discussion Questions and Answers 3 x 50	<b>Material:</b> Research design <b>References:</b> <i>Prabowo, Research Methodology, Publisher Unesa University Press, Surabaya, 2011.</i>	1%
5	Students are able to understand research design	Designing survey research, case study research, experimental research	<b>Criteria:</b> Individual  <b>Form of Assessment :</b> Participatory Activities	Literature Study Discussion Questions and Answers 3 x 50	Literature Study Discussion Questions and Answers 3 x 50	<b>Material:</b> Research design <b>References:</b> <i>Prabowo, Research Methodology, Publisher Unesa University Press, Surabaya, 2011.</i>	1%
6	Students can master and demonstrate knowledge about populations and samples	Distinguish between the meanings of sample and population with examples	<b>Criteria:</b> Individual  <b>Form of Assessment :</b> Participatory Activities	Literature Study Discussion Questions and Answers 3 x 50	Literature Study Discussion Questions and Answers 3 x 50	<b>Material:</b> Population and sample <b>References:</b> <i>Prabowo, Research Methodology, Publisher Unesa University Press, Surabaya, 2011.</i>	1%
7	Students can master and demonstrate knowledge about populations and samples	Distinguish between the meanings of sample and population with examples	<b>Criteria:</b> Individual  <b>Form of Assessment :</b> Participatory Activities, Project Results Assessment / Product Assessment	Literature Study Discussion Questions and Answers 3 x 50	Literature Study Discussion Questions and Answers 3 x 50	<b>Material:</b> Population and sample <b>References:</b> <i>Prabowo, Research Methodology, Publisher Unesa University Press, Surabaya, 2011.</i>	2%
8			<b>Form of Assessment :</b> Project Results Assessment / Product Assessment	UTS	UTS	<b>Material:</b> Research Methodology <b>Literature:</b> <i>Prabowo, Research Methodology, Publisher Unesa University Press, Surabaya, 2011.</i>	20%

9	Students are able to understand data collection methods	Designing the method used to collect research data	<b>Criteria:</b> Individual  <b>Form of Assessment :</b> Project Results Assessment / Product Assessment	Project Based Learning 3 x 50		<b>Material:</b> Quantitative and Qualitative Research Methods <b>Reference:</b> Sugiyono, <i>Quantitative, Qualitative and R &amp; D Research Methods</i> , Alfabeta Publisher CV, Bandung, 2010.	3%
10	Students are able to understand data collection methods	Designing the method used to collect research data	<b>Criteria:</b> Individual  <b>Form of Assessment :</b> Project Results Assessment / Product Assessment	Project Based Learning 3 x 50		<b>Material:</b> Quantitative and Qualitative Research Methods <b>Reference:</b> Sugiyono, <i>Quantitative, Qualitative and R &amp; D Research Methods</i> , Alfabeta Publisher CV, Bandung, 2010.	3%
11	Students are able to understand action research	1.Describe the steps of action research along with explanations 2.Designing action research	<b>Criteria:</b> Individual  <b>Form of Assessment :</b> Project Results Assessment / Product Assessment	Project Based Learning 3 x 50		<b>Material:</b> Quantitative, Qualitative and R & D Research Methods <b>Reference:</b> Sugiyono, <i>Quantitative, Qualitative and R &amp; D Research Methods</i> , Alfabeta Publisher CV, Bandung, 2010.	3%
12	Students are able to understand action research	1.Describe the steps of action research along with explanations 2.Designing action research	<b>Criteria:</b> Individual  <b>Form of Assessment :</b> Project Results Assessment / Product Assessment	Project Based Learning 3 x 50		<b>Material:</b> Quantitative, Qualitative and R & D Research Methods <b>Reference:</b> Sugiyono, <i>Quantitative, Qualitative and R &amp; D Research Methods</i> , Alfabeta Publisher CV, Bandung, 2010.	3%
13	Students are able to understand the stages of research effectively both individually and in groups.	1.Describes the stages that must be passed in the research process along with explanations 2.Carrying out each stage in the research process	<b>Criteria:</b> 1.Individual 2.Group  <b>Form of Assessment :</b> Project Results Assessment / Product Assessment	Project Based Team Learning 3 x 50		<b>Material:</b> Research stages <b>Bibliography:</b> Sugiyono, <i>Quantitative, Qualitative and R &amp; D Research Methods</i> , Alfabeta Publisher CV, Bandung, 2010.	10%

14	Students are able to understand the stages of research effectively both individually and in groups.	1.Describes the stages that must be passed in the research process along with explanations 2.Carrying out each stage in the research process	<b>Criteria:</b> 1.Individual 2.Group  <b>Form of Assessment :</b> Project Results Assessment / Product Assessment	Project Based Team Learning 3 x 50		<b>Material:</b> Research stages <b>Bibliography:</b> <i>Sugiyono, Quantitative, Qualitative and R &amp; D Research Methods, Alfabeta Publisher CV, Bandung, 2010.</i>	10%
15	Students are able to understand research proposals and reports.	1.Prepare research proposals 2.Prepare research reports	<b>Criteria:</b> Individual  <b>Form of Assessment :</b> Project Results Assessment / Product Assessment	Project Based Learning 3 x 50		<b>Material:</b> Research Proposal <b>Literature:</b> <i>Suharsimi Arikunto, Research Procedures, a Practical Approach, Rineka Cipta Publisher, Jakarta, 2006.</i>	20%
16	Students are able to understand research proposals and reports.	1.Prepare research proposals 2.Prepare research reports	<b>Criteria:</b> Individual  <b>Form of Assessment :</b> Project Results Assessment / Product Assessment	Project Based Learning 3 x 50		<b>Material:</b> Research Proposal <b>Literature:</b> <i>Suharsimi Arikunto, Research Procedures, a Practical Approach, Rineka Cipta Publisher, Jakarta, 2006.</i>	20%

#### Evaluation Percentage Recap: Project Based Learning

No	Evaluation	Percentage
1.	Participatory Activities	7%
2.	Project Results Assessment / Product Assessment	93%
		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.
- 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.
- 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.
- 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.
- 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.
- Forms of assessment:** test and non-test.
- 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.
- 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.
- Learning materials** are details or descriptions of study materials which can be presented in the form of several main points and sub-topics.
- 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%.
- TM=Face to face, PT=Structured assignments, BM=Independent study.

