	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
Deepening Science Concepts and Their Integration	8400103036	Compulsory Study Program Subjects	**T=3**	**P=0**	**ECTS=7.56**	2	January 10, 2023

AUTHORIZATION	SP Developer	Course Cluster Coordinator	Study Program Coordinator
	Prof. Dr. Budi Jatmiko, M.Pd.	Prof. Dr. Budi Jatmiko, M.Pd.	Prof. Dr. Suyatno, M.Si.

Learning model	**Project Based Learning**

Program Learning Outcomes (PLO)

PLO study program which is charged to the course

PLO-12	2. Master the latest theories related to scientific knowledge and science education

Program Objectives (PO)

PO - 1	Understand and produce a book on science concepts and their integration in depth from the results of studying journal articles and books from within and outside the country.
PO - 2	Understand and produce Science Concept Articles and their Integration in depth from the results of studies of various Journal Articles from within and outside the country.

PLO-PO Matrix

P.O	PLO-12
PO-1	
PO-2	

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																

Short Course Description	Study and explore science concepts and their integration selected in various science education journals and their integration from home and abroad and in science books and their integration from home and abroad to provide insight and input to build students' mindsets, and assist in perfection and smooth completion of the dissertation.

References

Main :

1. Berbagai Buku relevan Bidang Pendidikan IPA (Fisika) dan Integrasinya, baik dari Dalam maupun Luar Negeri
2. Berbagai Artikel pada Jurnal Pendidikan IPA (Fisika) dan Integrasinya, baik dari Dalam maupun Luar Negeri.

Supporters:

Supporting lecturer	Prof. Dr. Suyono, M.Pd. Prof. Dr. Budi Jatmiko, M.Pd. Prof.Dr. Yuni Sri Rahayu, 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	Understand the tasks given.	Describe the task given	**Criteria:** Based on the assessment rubric that has been created by the teaching lecturer **Form of Assessment** : Project Results Assessment / Product Assessment	Presentation, discussion and question and answer, case method 3 X 50		**Material:** Material orientation, discussion on equalizing perceptions and division of tasks. **References:**	5%
2	Able to produce and present books resulting from studies of science concepts and their integration from relevant science education and integration books from within and outside the country.	1. Produce books resulting from studies of science concepts and their integration from relevant science education books and their integration; 2. Able to present books resulting from studies of science concepts and their integration from relevant science education books and their integration	**Criteria:** Based on the assessment rubric that has been created by the teaching lecturer **Form of Assessment** : Project Results Assessment / Product Assessment	Presentations, discussions, questions and answers, PjBL 3 X 50	Presentations, discussions, questions and answers, PjBL 3 X 50	**Material:** Study of science concepts and their integration from relevant science education and integration books (topics chosen according to interest). **References:**	7%

3	Able to produce and present books resulting from studies of science concepts and their integration from relevant science education books (physics) and their integration from within and outside the country.	1. Producing books resulting from studies of science concepts and their integration from relevant science education books (physics) and their integration; 2. Able to present books resulting from studies of science concepts and their integration from relevant science education books and their integration	**Criteria:** Based on the assessment rubric that has been created by the teaching lecturer **Form of Assessment** : Project Results Assessment / Product Assessment	Presentations, discussions, questions and answers, PjBL 3 X 50	Presentations, discussions, questions and answers, PjBL 3 X 50	**Material:** Study of science concepts and their integration from relevant science education and integration books (topics chosen according to interest). **References:**	7%
4	Able to produce and present books resulting from studies of science concepts and their integration from relevant science education and integration books from within and outside the country.	1. Produce books resulting from studies of science concepts and their integration from relevant science education books and their integration; 2. Able to present books resulting from studies of science concepts and their integration from relevant science education books and their integration	**Criteria:** Based on the assessment rubric that has been created by the teaching lecturer **Form of Assessment** : Project Results Assessment / Product Assessment	Presentations, discussions, questions and answers, PjBL 3 X 50	Presentations, discussions, questions and answers, PjBL 3 X 50	**Material:** Study of science concepts and their integration from relevant science education and integration books (topics chosen according to interest). **References:**	7%

5	Able to produce and present books resulting from studies of science concepts and their integration from relevant science education and integration books from within and outside the country.	1. Produce books resulting from studies of science concepts and their integration from relevant science education books and their integration; 2. Able to present books resulting from studies of science concepts and their integration from relevant science education books and their integration	**Criteria:** Based on the assessment rubric that has been created by the teaching lecturer **Form of Assessment** : Project Results Assessment / Product Assessment	Presentations, discussions, questions and answers, PjBL 3 X 50	Presentations, discussions, questions and answers, PjBL 3 X 50	**Material:** Study of science concepts and their integration from relevant science education and integration books (topics chosen according to interest). **References:**	7%
6	Able to produce and present books resulting from studies of science concepts and their integration from relevant science education and integration books from within and outside the country.	1. Produce books resulting from studies of science concepts and their integration from relevant science education books and their integration; 2. Able to present books resulting from studies of science concepts and their integration from relevant science education books and their integration	**Criteria:** Based on the assessment rubric that has been created by the lecturer **Form of Assessment** : Project Results Assessment / Product Assessment	Presentations, discussions, questions and answers, PjBL 3 X 50	Presentations, discussions, questions and answers, PjBL 3 X 50	**Material:** Study of science concepts and their integration from relevant science education and integration books (topics chosen according to interest). **References:**	7%
7	Able to produce and present papers resulting from studies of the concept of science education and its integration from various journals of science education and its integration from within and outside the country	1. Produce papers resulting from studies of science concepts and their integration from various journals; 2. Able to present papers resulting from concept studies and integration from various journals.	**Criteria:** Based on the assessment rubric that has been created by the lecturer **Form of Assessment** : Project Results Assessment / Product Assessment	Presentations, discussions, questions and answers, PjBL 3 X 50	Presentations, discussions, questions and answers, PjBL 3 X 50	**Material:** Study of the concept of science and its integration from various articles in the journal Science Education and its Integration from within and outside the country (topics chosen according to interest). **References:**	7%

8	Final capabilities from TM-1 to TM-7	Indicators from TM-1 to TM-7	**Criteria:** Based on the assessment rubric that has been created by the lecturer **Form of Assessment** : Project Results Assessment / Product Assessment, Test	Written test or assignment as a substitute for UTS 3 X 50		**Material:** Learning topics from TM-1 to TM-7 **Library:**	5%
9	Able to produce and present papers resulting from studies of the concept of science education and its integration from various journals of science education and its integration from within and outside the country	1. Produce papers resulting from studies of science concepts and their integration from various journals; 2. Able to present papers resulting from concept studies and integration from various journals.	**Criteria:** Based on the assessment rubric that has been created by the lecturer **Form of Assessment** : Project Results Assessment / Product Assessment	Presentations, discussions, questions and answers, PjBL 3 X 50	Presentations, discussions, questions and answers, PjBL 3 X 50	**Material:** Study of the concept of science and its integration from various articles in the journal Science Education and its Integration from within and outside the country (topics chosen according to interest). **References:**	7%
10	Able to produce and present papers resulting from studies of the concept of science education and its integration from various journals of science education and its integration from within and outside the country	1. Produce papers resulting from studies of science concepts and their integration from various journals; 2. Able to present papers resulting from concept studies and integration from various journals.	**Criteria:** Based on the assessment rubric that has been created by the lecturer **Form of Assessment** : Project Results Assessment / Product Assessment	Presentations, discussions, questions and answers, PjBL 3 X 50	Presentations, discussions, questions and answers, PjBL 3 X 50	**Material:** Study of the concept of science and its integration from various articles in the journal Science Education and its Integration from within and outside the country (topics chosen according to interest). **References:**	7%

11	Able to produce and present papers resulting from studies of the concept of science education and its integration from various journals of science education and its integration from within and outside the country	1. Produce papers resulting from studies of science concepts and their integration from various journals; 2. Able to present papers resulting from concept studies and integration from various journals.	**Criteria:** Based on the assessment rubric that has been created by the lecturer **Form of Assessment** : Project Results Assessment / Product Assessment	Presentations, discussions, questions and answers, PjBL 3 X 50	Presentations, discussions, questions and answers, PjBL 3 X 50	**Material:** Study of the concept of science and its integration from various articles in the journal Science Education and its Integration from within and outside the country (topics chosen according to interest). **References:**	7%
12	Able to produce and present science concepts and their integration that are selected as dissertation material of interest	1. Produce science concepts and their integration selected from books and journal articles from within and outside the country as dissertations of interest. 2. Able to present Science Concept Papers and their Integration selected as a Dissertation.	**Criteria:** Based on the assessment rubric that has been created by the teaching lecturer **Form of Assessment** : Project Results Assessment / Product Assessment	Presentations, discussions, questions and answers, PjBL 3 X 50	Presentations, discussions, questions and answers, PjBL 3 X 50	**Material:** Study of the science concept and its integration which was chosen as material for the science concept and its integration in the dissertation of interest. **References:**	5%
13	Able to produce and present science concepts and their integration that are selected as dissertation material of interest	1. Produce science concepts and their integration selected from books and journal articles from within and outside the country as dissertations of interest. 2. Able to present Science Concept Papers and their Integration selected as a Dissertation.	**Criteria:** Based on the assessment rubric that has been created by the teaching lecturer **Form of Assessment** : Project Results Assessment / Product Assessment	Presentations, discussions, questions and answers, PjBL 3 X 50	Presentations, discussions, questions and answers, PjBL 3 X 50	**Material:** Study of the science concept and its integration which was chosen as material for the science concept and its integration in the dissertation of interest. **References:**	5%

14	Able to produce and present science concepts and their integration that are selected as dissertation material of interest	1. Produce science concepts and their integration selected from books and journal articles from within and outside the country as dissertations of interest. 2. Able to present Science Concept Papers and their Integration selected as a Dissertation.	**Criteria:** Based on the assessment rubric that has been created by the teaching lecturer **Form of Assessment** : Project Results Assessment / Product Assessment	Presentations, discussions, questions and answers, PjBL 3 X 50	Presentations, discussions, questions and answers, PjBL 3 X 50	**Material:** Study of the science concept and its integration which was chosen as material for the science concept and its integration in the dissertation of interest. **References:**	5%
15	Able to produce and present science concepts and their integration that are selected as dissertation material of interest	1. Produce science concepts and their integration selected from books and journal articles from within and outside the country as dissertations of interest. 2. Able to present Science Concept Papers and their Integration selected as a Dissertation.	**Criteria:** Based on the assessment rubric that has been created by the teaching lecturer **Form of Assessment** : Project Results Assessment / Product Assessment	Presentations, discussions, questions and answers, PjBL 3 X 50	Presentations, discussions, questions and answers, PjBL 3 X 50	**Material:** Study of the science concept and its integration which was chosen as material for the science concept and its integration in the dissertation of interest. **References:**	7%
16	Final capabilities from TM-9 to TM-15	Indicators from TM-9 to TM-15	**Criteria:** Based on the assessment rubric that has been created by the teaching lecturer **Form of Assessment** : Project Results Assessment / Product Assessment, Test	Written test or assignment as a substitute for UAS 2 X 50	Written test or assignment as a substitute for UAS 2 X 50	**Material:** Learning topics from TM-9 to TM-15 **Library:**	5%

Evaluation Percentage Recap: Project Based Learning

No	Evaluation	Percentage
1.	Project Results Assessment / Product Assessment	95%
2.	Test	5%
		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.