	Universitas Negeri Surabaya Faculty of Mathematics and Natural Sciences Master of Science Education Study Program	Document Code

SEMESTER LEARNING PLAN

Courses	CODE	Course Family	Credit Weight			SEMESTER	Compilation Date
Science Education Issues and Trends	8410102065		T=2	P=0	ECTS=4.48	1	July 17, 2024

AUTHORIZATION	SP Developer	Course Cluster Coordinator	Study Program Coordinator
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Learning model: Project Based Learning

Program Learning Outcomes (PLO)

PLO study program which is charged to the course

Program Objectives (PO)

PO - 1	Understand the concept of STEM/STEAM and the latest and strategic issues in the field of science education which refers to the curriculum used at international and national levels.
PO - 2	Understand the application of research issues and trends that have been published to analyze the novelty and uniqueness of each research that has been published in the form of scientific articles, books and the like.
PO - 3	Mastering the application of systematic literature review in science learning critically, systematically and creatively.
PO - 4	Understand the attitudes, norms and values and code of ethics of teachers (educators) who are also good citizens and citizens of the world

PLO-PO Matrix

P.O
PO-1
PO-2
PO-3
PO-4

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																

Short Course Description: The Science Education Issues and Trends course in the science education study program emphasizes the latest literacy related to scientific knowledge, research and education in the field of science education. Learning topics are focused on scientific literacy, scientific identity, STEAM/STEM, Next Generation Science Standards (NGSS), scientific creativity, problem solving skills, critical thinking skills. Apart from being facilitated to study topics related to existing issues and trends in science education, through this course, students are also facilitated to practice designing, compiling, applying and evaluating the implementation of science learning based on topics, issues and trends in science education in schools.

References

Main :

1. NSTA. 2011. Next Generation Science Standards (NGSS). (https://www.nextgenscience.org/)
2. B. Blackley, S. (2018). Using a makerspace approach to engage Indonesian primary students with STEM primary students with STEM, (March).
3. C. Burrows, A., & Barber, B. (2017). education sciences Integrated STEM: Focus on Informal Education and Community Collaboration through Engineering. Science Education International. https://doi.org/10.3390/educsci8010004
4. Armstrong, T. (2009). Multiple intelligences in the classroom. (3rd ed.). Alexandria,VA: Association for Supervision and Curriculum Development.

Supporters:

	1. Septaria, K. (2022). KEMAMPUAN BERTANYA VERSUS HASIL BELAJAR KOGNITIF MAHASISWA: ANALISIS KORELASI KEMAMPUAN BERTANYA PADA LEVEL MAHASISWA IPA. EDUPROXIMA (Jurnal Ilmiah Pendidikan IPA) Universitas Bhinneka PGRI Tulung Agung, 4(2), 60-71. 2. Wardah, I., Septaria, K., Mahbubah, K., & Mubarok, H. (2022). The Effect of Project Based Learning (PjBL) Model on Students' Science Literacy in Social Studies Subjects. Jurnal Penelitian dan Pengkajian Ilmu Pendidikan: e-Saintika, 6(2), 108-119. 3. 7. Septaria, K., & Rismayanti, R. (2022). The Effect of Scientific Approach on Junior High School Students' Scientific Creativity and Cognitive Learning Outcomes. Jurnal Penelitian dan Pengkajian Ilmu Pendidikan: e-Saintika, 6(3), 173-189.
Supporting lecturer	Beni Setiawan, S.Pd., M.Pd., Ph.D. Mita Anggaryani, M.Pd., Ph.D.

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	1.Understand the scope of issues and trends in science education 2.Understand the benefits of science education research 3.Understand how to search for science education research literature via the internet such as Springer, Elsevier, ERIC, Google Scholar, and the like	1.Able to understand the scope & activities of lectures, issues and trends in science education well 2.Able to understand the benefits of science education research well 3.Able to understand how to search for science education research literature via the internet such as springer, elsevier, ERIC, Google Scholar, and the like well	**Criteria:** 1.Presentation 2.Literature review **Form of Assessment** : Participatory Activities		Class 100 Discussion Presentation		2%
2	Able to understand Scientific Literacy	1.Understand the concept of scientific literacy well 2.Understand aspects/content/types of scientific literacy well. 3.Discuss literature related to scientific literacy well. 4.Reviewing scientific literacy using the Systematic Literature Review (SLR) method well. 5.Create a rubric for assessing each scientific literacy indicator well	**Criteria:** 1.Presentation 2.Literature review **Form of Assessment** : Participatory Activities		Class 100 Discussion Presentation		2%
3	Understanding the concept of science identity in students (students)	Understand the concept of scientific identity among students (students) well.	**Criteria:** 1.Presentation 2.Literature review **Form of Assessment** : Participatory Activities		Discussion Presentation 100		3%
4	Understanding the concept of Scientific Creativity in students (students)	Able to understand the concept of scientific creativity in students (students)	**Criteria:** 1.Presentation 2.Literature review **Form of Assessment** : Participatory Activities		Discussion Presentation 100		3%
5	Understand aspects/content/indicators of Socioscientific issues	1.Able to present aspects/content/indicators of Socioscientific issues well 2.Able to understand aspects/content/indicators of Socioscientific issues	**Criteria:** 1.Presentation 2.Literature review **Form of Assessment** : Participatory Activities		Discussion Presentation 100		5%
6	Understand aspects/content/indicators of students' Nature of Science	1.Able to understand students' aspects/content/indicators of Nature of Science well 2.Able to present the Nature of Science literature review well	**Criteria:** 1.Presentation 2.Literature review **Form of Assessment** : Participatory Activities		Discussion Presentation 100		5%
7	Understand aspects/content/indicators of Ethnoscience	1.Able to understand aspects/content/indicators of Ethnoscience well 2.Able to present Ethnoscience literature studies well	**Criteria:** 1.Presentation 2.Literature review **Form of Assessment** : Participatory Activities		Discussion Presentation 100		5%

8	UTS	Make ethnoscience papers on Physics and Environmental Topics well	**Criteria:** Paper/Scientific Work **Form of Assessment** : Project Results Assessment / Product Assessment		Independent Assignment 100		20%
9	Reviewing scientific articles or books related to students' Scientific Attitudes using the Systematic Literature Review (SLR) method	Reviewing scientific articles or books related to students' Scientific Attitudes using the Systematic Literature Review (SLR) method well	**Criteria:** 1.Presentation 2.Literature review **Form of Assessment** : Participatory Activities		Discussion Presentation 100		3%
10	Reviewing literature related to students' Science Argumentation and Communication Skills using the Systematic Literature Review (SLR) method	Able to review literature related to Science Argumentation and Communication Skills, students use the Systematic Literature Review (SLR) method well	**Criteria:** 1.Presentation 2.Literature review **Form of Assessment** : Participatory Activities		Discussion Presentation 100		3%
11	Reviewing scientific articles related to students' Science Process Skills using the Systematic Literature Review (SLR) method	Able to review scientific articles related to students' Science Process Skills using the Systematic Literature Review (SLR) method well	**Criteria:** 1.Presentation 2.Literature review **Form of Assessment** : Participatory Activities		Discussion Presentation 100		3%
12	Reviewing scientific articles related to students' Critical Thinking and Critical Analysis Skills using the Systematic Literature Review (SLR) method	Able to review scientific articles related to Critical Thinking and Critical Analysis Skills, students use the Systematic Literature Review (SLR) method well	**Criteria:** 1.Presentation 2.Literature review **Form of Assessment** : Participatory Activities		Discussion Presentation 100		3%
13	Reviewing scientific articles or books related to students' Scientific Reasoning Skills using the Systematic Literature Review (SLR) method	Able to review scientific articles or books related to Scientific reasoning. Students' skills use the Systematic Literature Review (SLR) method well	**Criteria:** 1.Presentation 2.Discussion **Form of Assessment** : Participatory Activities		Discussion Presentation 100		3%
14	Create an assessment rubric for each student's Science Laboratory Skills indicator that pays attention to attitudes, norms, values and codes of ethics as well as being a good citizen	Able to create an assessment rubric for each student's Science Laboratory Skills indicator that pays attention to attitudes, norms, values and codes of ethics as well as being a good citizen	**Criteria:** Compiled assessment rubric **Form of Assessment** : Project Results Assessment / Product Assessment		Discussion Presentation		5%
15	Create an assessment rubric for each student's Scientific Interpretation indicator that pays attention to attitudes, norms, values and codes of ethics as well as being a good citizen	Able to create an assessment rubric for each student's Scientific Interpretation indicator that pays attention to attitudes, norms, values and codes of ethics as well as being a good citizen	**Criteria:** Compiled assessment rubric **Form of Assessment** : Project Results Assessment / Product Assessment		Discussion Presentation 100		5%
16	UAS	Make bibliometric papers using the Systematic Literature Review (SLR) method on Physics and the Environment topics well	**Form of Assessment** : Project Results Assessment / Product Assessment		Independent Assignment 100		30%

Evaluation Percentage Recap: Project Based Learning

No	Evaluation	Percentage
1.	Participatory Activities	40%
2.	Project Results Assessment / Product Assessment	60%
		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.