	Universitas Negeri Surabaya Faculty of Education, Bachelor of Primary School Teacher Education Study Program	Document Code

SEMESTER LEARNING PLAN

Courses	CODE	Course Family	Credit Weight			SEMESTER	Compilation Date
Basic Concepts of Advanced Science	8620603209		T=3	P=0	ECTS=4.77	1	July 16, 2024

AUTHORIZATION	SP Developer	Course Cluster Coordinator	Study Program Coordinator
	.....	.....	Putri Rachmadyanti, S.Pd., M.Pd.

Learning model	**Project Based Learning**
Program Learning Outcomes (PLO)	**PLO study program that is charged to the course**
	Program Objectives (PO)
	PLO-PO Matrix

	P.O

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

Short Course Description	This course provides the ability to understand the characteristics, collect, analyze data, and report on optical, electrical, magnetic and IPBA characteristics through various relevant techniques, linking phenomena that occur in everyday life, including the ability to use scientific methods using various relevant techniques. Achievement of competency can be tested through written tests, observations and practical report assignments.
References	**Main :**

1. Giancoli, D.C. 2001. Fisika jilid 1 . New Jersey: Prentice Hall.
2. Halliday, D., Resnick, R. 2001. Físika Universitas jilid 1 , terjemahan: Pantur Silaban dan Edwin Sucipto. Jakarta: Erlangga
3. McLaughlin, Charles W & Thompson, Marilyn. 1997. Physics Science . New York: Glencoe/ McGraw-Hill
4. Suryanti, dkk. 2003. Konsep Dasar IPA –Fisika SD . Surabaya: Unipress
5. Julianto. 2018. Hand Out Konsep IPA Lanjut. Surabaya

	Supporters:
Supporting lecturer	Prof. Dr. Suryanti, M.Pd. Drs. Mintohari, M.Pd. Dr. Julianto, S.Pd., M.Pd. Farida Istianah, 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	Demonstrate scientific behavior (honesty, thoroughness, and curiosity) in making observations and making reports on the results of observations on cell structure, the diversity of living creatures, and the anatomical and morphological structure of invertebrates.	1. Cognitive Identify the characteristics of porifera 2. Describe the body structure of porifera 3. Describe the processes that occur in porifera 4. Explain the classification of porifera 5. Identify the characteristics of colenterates 6. Describe the body structure of colenterates 7. Describe the processes that occur in colenterata 8. Explain the classification of colenterata 9. Identify the characteristics of vermes 10. Describe the body structure of vermes 11. Describe the processes that occur in vermes 12. Attitude Social skills a. Collaborating Characters a. Think critically in designing experiments	**Criteria:** answer key and assessment rubric	scientific approach, PBL 4 X 50 model			0%
2	Understand the morphological structure and anatomy and physiology of invertebrate animals	1. KnowledgeDescribe the body structure of molluscs 2. Describe the processes that occur in molluscs 3. Describe the classification of molluscs 4. Identify the characteristics of arthropods 5. Describe the body structure of arthropods 6. Describe the processes in arthropods 7. Explain the classification of arthropods 8. Identify the characteristics of echinoderms 9. Describe the body structure of echinoderms 10. Describe processes in echinoderms 11. Explain the classification of echinoderms 12. Affective Developing an attitude of curiosity, thoroughness and cooperation Psychomotor Drawing the anatomical structure of invertebrate animals	**Criteria:** answer key and assessment rubric	scientific approach, PBL 4 X 50 model			0%

3	Understand the morphological structure and anatomy of vertebrate animals	Knowledge 1. Identify the general characteristics of vertebrate animals 2. Describe the general structure of vertebrates 3. Identify the morphological characteristics of pisces 4. Identify the anatomical structure of pisces 5. Describe the processes that occur in pisces 6. Describe the classification of pisces 7. Identify the morphological characteristics of amphibians 8. Identify anatomical structure of amphibians 9. Describe the processes that occur in amphibians 10. Describe the classification of amphibians 11. Identify the morphological characteristics of reptiles 12. Identify the anatomical structure of reptiles 13. Describe the processes that occur in reptiles 14. Describe the classification of reptiles Skills a. Demonstrate a simple experimental design regarding electrical phenomena. Attitudes. Social skills a. Mutual respect between groups b. Collaboration c. Character Questions and Answers a. Critical thinking b. Be honest in conducting experiments c. Never give up	**Criteria:** answer key and report assessment rubric	model: PBL method: lecture, question and answer, discussion, experiment, presentation 4 X 50			0%
4	Understand the morphological structure and anatomy of vertebrate animals	Knowledge 1. Identify the morphological characteristics of aves 2. Identify the anatomical structure of aves 3. Describe the processes that occur in Aves 4. Describe the classification of Aves 5. Identify the morphological characteristics of mammals 6. Identify the anatomical structure of mammals 7. Describe the processes that occur in mammals 8. Describe the classification mammals Skills a. Demonstrate a simple experimental design regarding electrical phenomena. Attitudes. Social skills a. Mutual respect between groups b. Collaboration c. Character Questions and Answers a. Critical thinking b. Be honest in conducting experiments c. Never give up	**Criteria:** answer key and report assessment rubric	model: PBL method: lecture, question and answer, discussion, experiment, presentation 4 X 50			0%

5	Describe the digestive structure, chemical and mechanical digestive processes in humans. Understand the organs that make up the transportation system and the transportation process in humans	1. Knowledge Identification of digestive organs in humans 2. Explain the function of each digestive organ 3. Demonstrate mechanical and chemical digestion processes 4. Identify various digestive diseases 5. Identify the organs that make up the transportation system 6. Identify the tissues that make up the various organs of the transport system 7. Explain the function of each organ in the transportation system 8. Explain the process of blood circulation that occurs in humans 9. Identification of various disorders and diseases of the circulatory system 10. Affective Developing attitudes of honesty, responsibility, critical thinking and thoroughness Psychomotor Creating a blood circulation scheme in humans	**Criteria:** answer key and experimental report assessment rubric	model: PBL method: lecture, discussion, assignment, question and answer, presentation 4 X 50			0%

6	Understand the organs that make up the respiratory system and the respiratory process in humans. Understand describing the excretory system in humans	1. Knowledge Identify the organs that make up the respiratory system 2. Identify the tissues that make up the various organs of the respiratory system 3. Explain the function of each organ in the respiratory system 4. Explain the respiratory process that occurs in humans 5. Explain the process of respiration that occurs in cells 6. Identification of various disorders and diseases of the respiratory system 7. Carry out experiments to determine the substances released during the respiratory process 8. Carrying out experiments to measure the vital capacity of the lungs 9. Identify the organs that make up the excretory system 10. Identify the structure of the kidney 11. Explain the function of each part of the kidney 12. Explain the process of urine formation 13. Identification of various disorders and diseases of the excretory system 14. Affective Developing an attitude of respecting other people's opinions and thinking critically Psychomotor Carrying out breathing experiments with the right steps	**Criteria:** answer key and experimental report assessment rubric	model: PBL method: discussion, presentation, question and answer, experiment 4 X 50			0%

7	Understand the structure and physiological processes of the movement system in humans. Understand the structure, physiological and chemical processes of various receptors and coordination systems in humans	1. Knowledge Identification of active locomotion and passive locomotion in humans 2. Identify the bones that make up the human skeleton 3. Explain the process of bone development 4. Describe the structure of muscle organization 5. Explain the physiology and chemistry of muscle contraction 6. Describes abnormalities in muscles and bones 7. Identify the sense organs in humans 8. Identify the structure of the human sense organs 9. Describe the function of receptors 10. Explain the structure of various receptors that humans have 11. Explains the working process of receptors until sensory occurs or provides certain responses to incoming stimuli 12. Affective Developing a conscientious attitude, working together and respecting other people's opinions Psychomotor Creating concept maps about movement systems, sensory organs and coordination systems	**Criteria:** answer key and experimental report assessment rubric	model: PBL method: discussion, presentation, question and answer, experiment 4 X 50			0%
8	Describe the structure and reproductive processes in humans UTS	1. Identify male and female reproductive organs 2. Explain the structure of male and female reproductive organs 3. Explain the process of formation of male sex cells and female sex cells 4. Explain the process of menstruation 5. Explain the process of zygote formation and its development until birth a baby 6. Explain disorders in the reproductive system Affective Develop an attitude of respecting other people's opinions and working together Psychomotor Make a picture of the UTS spermatogenesis and oogenesis chart	**Criteria:** answer key	independent work 4 X 50			0%

9	Analyze the properties of magnets and their uses in everyday life	Knowledge a. Explain the meaning of magnet b. Explain magnetic and non-magnetic materials c. Grouping magnetic and non-magnetic objects d. Discover the properties of magnets e. Determine the magnetic poles f. Explain the use of magnets in everyday life Skills a. Designing an experiment on magnets Attitudes Social skills a. Mutual respect for other people's opinions b. Collaboration c. Character Questions and Answers a. Be careful in designing the experimental design b. Be careful in choosing tools and materials	**Criteria:** answer key and experimental report assessment rubric	model: PBL method: discussion, question and answer, assignment, experiment 4 X 50			0%
10	Analyze the properties of magnets and their uses in everyday life	Knowledge a. Explain the meaning of magnet b. Explain magnetic and non-magnetic materials c. Grouping magnetic and non-magnetic objects d. Discover the properties of magnets e. Determine the magnetic poles f. Explain the use of magnets in everyday life Skills a. Designing an experiment on magnets Attitudes Social skills a. Mutual respect for other people's opinions b. Collaboration c. Character Questions and Answers a. Be careful in designing the experimental design b. Be careful in choosing tools and materials	**Criteria:** answer key and experimental report assessment rubric	model: PBL method: discussion, question and answer, assignment, experiment 4 X 50			0%
11	Understand the characteristics and scope of IPBA.		**Criteria:** answer key and assessment rubric	Model: PBLMethod: discussion, question and answer, presentation, experiment 4 X 50			0%
12	Understand the Earth's rotation and revolution events and their impacts.	1. Knowledge Explain the meaning of rotation and revolution of the earth 2. Explain the effects of the earth's rotation and revolution 3. Explain the benefits of the earth's rotation and revolution on daily activities 4. Skills 1. Designing an experiment on the impact of the earth's rotation Attitude Social skills a. Respect each other's opinions b. Collaboration c. Character Questions and Answers a. Be careful in designing the experimental design b. Be careful in choosing tools and materials	**Criteria:** answer key and experimental report assessment rubric	Model: PBLMethod: discussion, question and answer, presentation, experiment 4 X 50			0%

13	Understand the structure of the Earth and its impacts	1.Knowledge Explain the meaning of the lithosphere 2.2. Explain the parts of the lithosphere layer 3. Group rocks according to their processes 4. Explain the meaning of the hydrosphere 5. Explain the parts of the hydrosphere layer 6. Explain the impact of the lithosphere and hydrosphere layers on daily activities Skills 1. Design experiments on the lithosphere and hydrosphere Attitude Social skills a. Respect each other's opinions b. Collaboration c. Character Questions and Answers a. Be careful in designing the experimental design b. Be careful in choosing tools and materials	**Criteria:** answer key and assessment rubric	Model: PBLMethod: discussion, question and answer, presentation, experiment 4 X 50			0%
14	Understanding the Earth's Atmosphere and its role in human life.	1.Knowledge Explain the meaning of atmosphere 2.2. Explain the layers of the atmosphere 3. Explain the benefits of the atmosphere in everyday life Skills 1. Design an experiment about magnetism Attitude Social skills a. Respect each other's opinions b. Collaboration c. Character Questions and Answers a. Careful in designing experimental designs Careful in selecting tools and materials	**Criteria:** answer key and experimental report assessment rubric	Model: PBLMethod: discussion, question and answer, presentation, experiment 4 X 50			0%

15	Understand the solar system and galaxy and their dynamics	1.Knowledge Explains the meaning of the solar system 2.2. Explain the members of the solar system 3. Group the division of planets according to certain limits 4. Explain the meaning of galaxy 5. Explain the members of the galaxy 6. Explain the relationship between the solar system and the galaxy Skills 1. Design an experiment about planetary orbits Attitude Social skills a. Respect each other's opinions b. Collaboration c. Character Questions and Answers a. Be careful in designing the experimental design b. Be careful in choosing tools and materials	**Criteria:** answer key and assessment rubric	Model: PBLMethod: discussion, question and answer, experiment, presentation 4 X 50			0%
16	Understand the solar system and galaxy and their dynamics	1.Knowledge Explains the meaning of the solar system 2.2. Explain the members of the solar system 3. Group the division of planets according to certain limits 4. Explain the meaning of galaxy 5. Explain the members of the galaxy 6. Explain the relationship between the solar system and the galaxy Skills 1. Design an experiment about planetary orbits Attitude Social skills a. Respect each other's opinions b. Collaboration c. Character Questions and Answers a. Be careful in designing the experimental design b. Be careful in choosing tools and materials	**Criteria:** answer key and assessment rubric	Model: PBLMethod: discussion, question and answer, experiment, presentation 4 X 50			0%

Evaluation Percentage Recap: Project Based Learning

No	Evaluation	Percentage
		0%

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.