	Universitas Negeri Surabaya **Faculty of Mathematics and Natural Sciences** **Bachelor of Mathematics Education Study Program**	**Document Code**

SEMESTER LEARNING PLAN

Courses	CODE	Course Family	Credit Weight			SEMESTER	Compilation Date
Programming language	8420203029		T=3	P=0	ECTS=4.77	3	July 18, 2024

AUTHORIZATION	SP Developer	Course Cluster Coordinator	Study Program Coordinator
	.....	.....	Dr. Endah Budi Rahaju, M.Pd.

Learning model	**Case Studies**
Program Learning Outcomes (PLO)	**PLO study program which 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	Studying basic concepts and techniques for creating computer programs using the object-oriented paradigm, history of programming languages and the evolution of programming languages, teaching basic programming concepts, understanding flow cart algorithms, and pseudo code, and object-oriented programming. Material includes data types, introduction to Objects and Classes, Inheritance, GUI, getting to know function types, I/O Stream, and creating object-oriented programming projects through task-based learning and presentations.
References	**Main :**
	1. Lewis, J.& Loftus, W. 2009. Java Software Solutions: Foundations of Program Design. 6th Edition. Addison-Wesley. 2. Cay S. Horstmann. 2010.Big Java 4th Edition. John Wiley & Sons.
	Supporters:
Supporting lecturer	Dr. Atik Wintarti, M.Kom. Dr. Elly Matul Imah, M.Kom. Dimas Avian Maulana, S.Si., 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	Students are able to describe and explain the origins of programming languages from the parent language to its derivatives. Students are able and apply to understand the basic concepts of programming using the Java programming language and are able to practice the use of variables, statements and operators in programming.	1. Students can explain the origins of programming languages from the parent language to its derivatives. 2. Students can explain the basics of programming and can create simple programs using the Java programming language and use variables, statements and operators in programming.		Scientific Approach: observing, asking, exploring. Methods: lecture, discussion, question and answer, giving assignments Learning Strategy: accentuation of information processing (cognitive) 3 X 50			0%
2	Students are able to describe and explain the origins of programming languages from the parent language to its derivatives. Students are able and apply to understand the basic concepts of programming using the Java programming language and are able to practice the use of variables, statements and operators in programming.	1. Students can explain the origins of programming languages from the parent language to its derivatives. 2. Students can explain the basics of programming and can create simple programs using the Java programming language and use variables, statements and operators in programming.		Scientific Approach: observing, asking, exploring. Methods: lecture, discussion, question and answer, giving assignments Learning Strategy: accentuation of information processing (cognitive) 3 X 50			0%
3	Students are able to integrate selection program control (statement conditions) and repetition (looping) to solve a case.	1. Students are able to define and implement the following things in Java programming: if syntax for selecting a condition 2. switch case with conditions of integer data type 3. switch case with conditions of character data type. 4. for and while do loops to solve loop cases		Scientific Approach: observing, asking, exploring. Methods: lecture, discussion, question and answer, giving assignments. Learning Strategy: accentuation of information processing (cognitive) 3 X 50			0%

4	Students are able to integrate selection program control (statement conditions) and repetition (looping) to solve a case.	1. Students are able to define and implement the following things in Java programming: if syntax for selecting a condition 2. switch case with conditions of integer data type 3. switch case with conditions of character data type. 4. for and while do loops to solve loop cases		Scientific Approach: observing, asking, exploring. Methods: lecture, discussion, question and answer, giving assignments. Learning Strategy: accentuation of information processing (cognitive) 3 X 50			0%
5	Students are able to use strings that suit the programming problems required	1. Defines and uses string constants 2. Defining string variables and using string variables 3. Defines and uses standard string functions		Scientific Approach: observing, asking, exploring Methods: lecture, discussion, question and answer, practice, giving assignments. Learning Strategy: accentuation of information processing (cognitive) 3 X 50			0%
6	Understand and explain and use arrays	1. defining arrays and creating programs involving arrays 2. can differentiate when to use an array and not		Scientific Approach: observing, asking, exploring Methods: lecture, discussion, question and answer, practice, and giving assignments Learning Strategy: accentuation of information processing (cognitive) 3 X 50			0%

7	Using functions to group a number of instructions that can be generalized and frequently used	1. define function 2. using a function that does not return a value 3. explain the role of the return statement 4. define function arguments 5. defines a function with a return value 6. using a function with a return value 7. explain the scope of the variable 8. declare global variables 9. declare the variable auto 10. declare external variables		Scientific Approach: observing, asking, exploring Methods: lecture, discussion, question and answer, practice, giving assignments Learning Strategy: accentuation of information processing (cognitive) 3 X 50			0%
8	Understand the material and implement it in making programs	Able to complete UTS properly and correctly and on time		3 X 50			0%
9	Able to understand and create simple classes and objects in Java programming	1. Explain the concept of abstraction 2. Explain the concept of encapsulation 3. Explain the concept of inheritance 4. Explain the concept of polymorphism 5. Explain the concept of aggregation 6. Explain classes and objects 7. Declare a class 8. Declaring a variable in the form of an object 9. Using objects in programs 10. Explain the method 11. Declaring methods in a class 12. Using methods on objects		Scientific Approach: observing, asking, exploring Methods: lecture, discussion, question and answer, practice, giving assignments Learning Strategy: accentuation of information processing (cognitive) 3 X 50			0%

10	Able to understand and create simple classes and objects in Java programming	1. Explain the concept of abstraction 2. Explain the concept of encapsulation 3. Explain the concept of inheritance 4. Explain the concept of polymorphism 5. Explain the concept of aggregation 6. Explain classes and objects 7. Declare a class 8. Declaring a variable in the form of an object 9. Using objects in programs 10. Explain the method 11. Declaring methods in a class 12. Using methods on objects		Scientific Approach: observing, asking, exploring Methods: lecture, discussion, question and answer, practice, giving assignments Learning Strategy: accentuation of information processing (cognitive) 3 X 50			0%
11							0%
12							0%
13							0%
14							0%
15							0%
16							0%

Evaluation Percentage Recap: Case Study

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** 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.