		Document Code
	Universitas Negeri Surabaya **Faculty of Engineering,** **Bachelor of Information Systems Study Program**	

SEMESTER LEARNING PLAN

Courses	CODE	Course Family	Credit Weight			SEMESTER	Compilation Date
Object Oriented Programming	5720103033		**T=3**	**P=0**	**ECTS=4.77**	3	July 17, 2024

AUTHORIZATION	SP Developer	Course Cluster Coordinator	Study Program Coordinator
	....	....	I Kadek Dwi Nuryana, S.T., M.Kom.

Learning model	**Project Based Learning**

Program Learning Outcomes (PLO)	**PLO study program that is charged to the course**	
	PLO-29	Able to apply knowledge in the fields of computing, computer networks and programming in accordance with scientific disciplines;
	Program Objectives (PO)	
	PO - 1	Students can design object-oriented applications
	PO - 2	Students can explain the concept of object-oriented programming in making programs
	PO - 3	Students can design and handle user interfaces in an application
	PLO-PO Matrix	

P.O	PLO-29
PO-1	
PO-2	
PO-3	

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																

Short Course Description	This course teaches object-oriented programming concepts and techniques. In teaching the PBO concept, the Java programming language will be used because Java uses the concepts of objects and classes in making programs. Teaching materials include an introduction to OOP concepts, Java Virtual Machine (JVM), objects, classes, methods, constructors, I/O, inheritance, encapsulation, polymorphism, overloading, UML, files, Swing, applets and exceptions.

References	**Main :**
	1. Harold, E.R. 2014. Java Network Programming, 4th edition. O'Reilly. 2. Jaworski, J. 1998. Java 2 Unleashed. Sams Publishing. 3. Modul Teori dan Student Activity 4. Holmes, B.J., Joice D.T. 2001. Object-Oriented Programming With Java, second edition. 5. Bakker, J. 2005. Beginning Java Objects From Concepts to Code, second edition, Apress.
	Supporters:

Supporting lecturer	Asmunin, S.Kom., M.Kom. Bonda Sisephaputra, M. Kom.

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 apply the use of Alice 3	1.Apply control statements to Alice 3 2.Implemented function creation in Alice 3 3.Implement IF program structures and While control structures in Alice 3 4.Implementing types of expressions in Alice 3 5.Implemented the use of variables in Alice 3 6.Implemented the use of keyboard controls in Alice 3 7.Implement procedure declarations on Alice 3		Scientific approach, lectures, discussions, questions and answers, problem-based learning and giving 3 X 50 assignments			0%
2	Students are able to apply the use of Greenfoot	1.Implementing the creation of methods, variables and parameters in Greenfoot 2.Implementing source code creation and documentation in Greenfoot 3.Implemented the use of voice and keyboard controls in Greenfoot 4.Implemented the use of variables in Greenfoot 5.Implementing the use of abstractions in Greenfoot 6.Implemented the use of loops and arrays in Greenfoot		Scientific approach, lectures, discussions, questions and answers, problem-based learning and giving 3 X 50 assignments			0%
3	Students are able to apply the basics of Java programming	1.Implementing the use of objects and driver classes in Java 2.Implement the use of data types and operators in Java 3.Implementing the use of Strings in Java		Scientific approach, lectures, discussions, questions and answers, problem-based learning and giving 3 X 50 assignments			0%

4	Students are able to apply Java program structures	1. Implementing the use of scanners and conditional statements in Java 2. Implementing the use of control statement programs in Java		Scientific approach, lectures, discussions, questions and answers, problem-based learning and giving 3 X 50 assignments			0%
5	Students are able to apply arrays and exceptions in Java	1. Implementing the use of arrays in Java 2. Implemented error handling in Java		Scientific approach, lectures, discussions, questions and answers, problem-based learning and giving 3 X 50 assignments			0%
6	Students are able to apply the concept of Java Classes	1. Applying the use of classes, objects, and methods in Java 2. Implement parameter creation and method overloading techniques 3. Implement static modifiers and nested classes 4. Applying the concept of inheritance 5. Applying the concept of polymorphism		Scientific approach, lectures, discussions, questions and answers, problem-based learning and giving 6 X 50 assignments			0%
7							0%
8	Subsummative Exam / Midterm Exam	Subsummative Exam / Midterm Exam	**Criteria:** Subsummative Exam / Midterm Exam	Subsummative Exam / Midterm Exam 3 X 50			0%
9	Students are able to apply design with an object-oriented approach using Unified Modeling Language (UML) notation	1. Applying design methods in Object Oriented Programming using UML 2. Applying use case diagram creation in object-oriented application design 3. Applying class diagram creation in object-oriented application design 4. Applying activity diagram creation in object-oriented application design 5. Applying sequence diagram creation in object-oriented application design		Scientific approach, lectures, discussions, questions and answers, problem-based learning and giving 3 X 50 assignments			0%

10	Students are able to apply basic exception handling and assertions in advanced programming	1.Explain the definition of exception 2.Implement exception handling using a simple try-catch-finally block 3.Implementing recursiveness in programming 4.Applying abstract data types in programming 5.Applying algorithms in programming		Scientific approach, lectures, discussions, questions and answers, problem-based learning and giving 3 X 50 assignments			0%
11	Students are able to implement a User Interface using the Abstract Windowing Toolkit (AWT) and Swing	1.Explain the definitions of AWT and Swing 2.Applying AWT components in program creation 3.Applying Layout Managers components in program creation 4.Implementing Swing GUI components in program creation		Scientific approach, lectures, discussions, questions and answers, problem-based learning and giving 3 X 50 assignments			0%
12	Students are able to apply User Interface handling using User Interface Handling	1.Explain the definition and use of the delegation event model 2.Identify event classes 3.Implementing event listeners in programming 4.Apply event handling techniques in application creation 5.Implementing adapter classes in programming 6.Applying inner classes and anonymous inner classes in programming		Scientific approach, lectures, discussions, questions and answers, problem-based learning and giving 3 X 50 assignments			0%
13	Students are able to apply threads in programming	1.Explain the definition of thread 2.Apply thread basics 3.Implementing thread classes in programming 4.Implement threads 5.Explains synchronization 6.Implementing communication methods between threads (interthread) 7.Explain concurrency capabilities		Scientific approach, lectures, discussions, questions and answers, problem-based learning and giving 3 X 50 assignments			0%

No	Sub-PO	Indicators	Assessment Criteria / Form	Learning Methods			Weight
14	Students are able to apply I/O Stream in managing files	1. Applying general stream types 2. Implementing Reader classes 3. Implementing Writer classes 4. Implementing InputStream classes 5. Implementing OutputStream classes 6. Explain serialization and decentralization		Scientific approach, lectures, discussions, questions and answers, problem-based learning and giving 3 X 50 assignments			0%
15	Students are able to apply Generic concepts (classes and methods) in programming	1. Declare a Generic class. 2. Implementing a constrained Generic (Constrained Generic). 3. Declaring a Generic method .		Scientific approach, lectures, discussions, questions and answers, problem-based learning and giving 3 X 50 assignments			0%
16	Summative Exam / Final Semester Exam	Summative Exam / Final Semester Exam	**Criteria:** Summative Exam / Final Semester Exam **Form of Assessment** : Project Results Assessment / Product Assessment	Summative Exam / Final Exam Semester 3 X 50			0%

<u>**Evaluation Percentage Recap: Project Based Learning**</u>

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.