



**Universitas Negeri Surabaya  
Vocational Faculty,  
D4 Informatics Management Study Program**

Document Code

**SEMESTER LEARNING PLAN**

Courses	CODE	Course Family	Credit Weight			SEMESTER	Compilation Date																																																											
Prac. Object Oriented Programming	5730101152		T=0	P=1	ECTS=1.59	3	July 17, 2024																																																											
AUTHORIZATION	SP Developer		Course Cluster Coordinator			Study Program Coordinator																																																												
	.....		.....			Dodik Arwin Dermawan, S.ST., S.T., M.T.																																																												
Learning model	Project Based Learning																																																																	
Program Learning Outcomes (PLO)	PLO study program which is charged to the course																																																																	
	Program Objectives (PO)																																																																	
	PLO-PO Matrix																																																																	
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PO Matrix at the end of each learning stage (Sub-PO)																																																																		
		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2" style="width: 5%;">P.O</th> <th colspan="16">Week</th> </tr> <tr> <th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th><th>7</th><th>8</th><th>9</th><th>10</th><th>11</th><th>12</th><th>13</th><th>14</th><th>15</th><th>16</th> </tr> </thead> <tbody> <tr> <td style="height: 20px;"></td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </tbody> </table>																P.O	Week																1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16																
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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	<b>Main :</b>																																																																	
	<ol style="list-style-type: none"> <li>1. Harold, E.R. 2014. Java Network Programming, 4th edition. O'Reilly.</li> <li>2. Jaworski, J. 1998. Java 2 Unleashed. Sams Publishing.</li> <li>3. Modul Teori dan Student Activity</li> <li>4. Holmes, B.J., Joice D.T. 2001. Object-Oriented Programming With Java, second edition.</li> <li>5. Bakker, J. 2005. Beginning Java Objects From Concepts to Code, second edition, Apress.</li> </ol>																																																																	
	<b>Supporters:</b>																																																																	
Supporting lecturer	Andi Iwan Nurhidayat, S.Kom., M.T. Bonda Sisepahputra, M. Kom. I Gde Agung Sri Sidhimantra, S.Kom., 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 understand the basics of Java programming	- Identify the basics of Java programs - Identify Java literals, primitive data types, variable types, identifiers and operators in Java	<b>Criteria:</b> 1. Cognitive Value (C3, C4, C5, and C6) Score 1 - 100 2. Character/Attitude Score 1 - 100 3. Performance Value Score 1 - 100	Approach: Scientific Model: Project Based Learning (PjBL) Method: Discussion, Presentation 2 X 50			0%																																																											

2	Students are able to understand classes and methods in Java to receive input and produce output	- Identify types of classes and methods in input and output - Explain classes and methods in input and output in an interactive program - Explain the use of packages and their relationship with classes	<b>Criteria:</b> 1.Cognitive Value (C3, C4, C5, and C6) Score 1 - 100 2.Character/Attitude Score Score 1 - 100 3.Performance Value Score 1 - 100	Approach: ScientificModel: Project Based Learning (PjBL)Method: Discussion, Presentation 2 X 50			0%
3	Students are able to understand control structures	1.Explain the decision control structure 2.Explain the structure of repetition control 3.Explain branching statements	<b>Criteria:</b> 1.Cognitive Value (C3, C4, C5, and C6) Score 1 - 100 2.Character/Attitude Score Score 1 - 100 3.Performance Value Score 1 - 100	Approach: ScientificModel: Project Based Learning (PjBL)Method: Discussion, Presentation 2 X 50			0%
4	Students are able to understand the concept of Java Arrays	1.Explain the definition of an array 2.Explain the declaration and use of 1-dimensional arrays 3.Describes the elements in the array 4.Explains determining the number of elements in an array 5.Explains the declaration and use of multidimensional arrays	<b>Criteria:</b> 1.Cognitive Value (C3, C4, C5, and C6) Score 1 - 100 2.Character/Attitude Score Score 1 - 100 3.Performance Value Score 1 - 100	Approach: ScientificModel: Project Based Learning (PjBL)Method: Discussion, Presentation 2 X 50			0%
5	Students are able to understand the classes available in the Java Class Library	1.Explain the concept of Object Oriented Programming 2.Explain the difference between objects and classes 3.Explain the difference between instance variables/methods and class (static) variables/methods 4.Explains methods and how to call and provide parameters to methods 5.Identify the range of variables 6.Casting primitive and object data types 7.Comparing objects 8.Determines the class of an object	<b>Criteria:</b> 1.Cognitive Value (C3, C4, C5, and C6) Score 1 - 100 2.Character/Attitude Score Score 1 - 100 3.Performance Value Score 1 - 100	Approach: ScientificModel: Project Based Learning (PjBL)Method: Discussion, Presentation 2 X 50			0%

6	Students are able to understand the concept of class by designing their own classes	<ol style="list-style-type: none"> <li>1.Explains how to create your own class</li> <li>2.Explains the attribute and method declarations for classes</li> <li>3.Explains reference this to access instance data</li> <li>4.Explains the creation and calling of overloaded methods</li> <li>5.Explains how to import and create packages</li> <li>6.Explain the use of access modifiers</li> </ol>	<b>Criteria:</b> <ol style="list-style-type: none"> <li>1.Cognitive Value (C3, C4, C5, and C6) Score 1 - 100</li> <li>2.Character/Attitude Score Score 1 - 100</li> <li>3.Performance Value Score 1 - 100</li> </ol>	Approach: ScientificModel: Project Based Learning (PjBL)Method: Discussion, Presentation 2 X 50			0%
7	Students are able to understand the concepts of inheritance, polymorphism and interfaces	<ol style="list-style-type: none"> <li>1.Describe superclasses and subclasses in inheritance</li> <li>2.Explain overriding methods from superclasses</li> <li>3.Explain final methods and final classes</li> <li>4.Explaining polymorphism (abstract classes and interfaces)</li> </ol>	<b>Criteria:</b> <ol style="list-style-type: none"> <li>1.Cognitive Value (C3, C4, C5, and C6) Score 1 - 100</li> <li>2.Character/Attitude Score Score 1 - 100</li> <li>3.Performance Value Score 1 - 100</li> </ol>	Approach: ScientificModel: Project Based Learning (PjBL)Method: Discussion, Presentation 2 X 50			0%
8	UTS (USS)			2 X 50			0%
9	Students are able to understand design with an object-oriented approach using UML notation	<ol style="list-style-type: none"> <li>1.Explains how to design in Object Oriented Programming using UML</li> <li>2.Explaining use case diagrams in object-oriented application design</li> <li>3.Explaining class diagrams in object-oriented application design</li> <li>4.Explaining activity diagrams in object-oriented application design</li> <li>5.Explain sequence diagrams in object-oriented application design</li> </ol>	<b>Criteria:</b> <ol style="list-style-type: none"> <li>1.Cognitive Value (C3, C4, C5, and C6) Score 1 - 100</li> <li>2.Character/Attitude Score Score 1 - 100</li> <li>3.Performance Value Score 1 - 100</li> </ol>	Approach: ScientificModel: Project Based Learning (PjBL)Method: Discussion, Presentation 2 X 50			0%
10	Students are able to understand the basics of exception handling and assertions in advanced programming	<ol style="list-style-type: none"> <li>1.Explain exceptions</li> <li>2.Explains exception handling using a simple try-catch-finally block</li> <li>3.Explain recursive programming</li> <li>4.Explain abstract data types in programming</li> <li>5.Explaining algorithms in programming</li> </ol>	<b>Criteria:</b> <ol style="list-style-type: none"> <li>1.Cognitive Value (C3, C4, C5, and C6) Score 1 - 100</li> <li>2.Character/Attitude Score Score 1 - 100</li> <li>3.Performance Value Score 1 - 100</li> </ol>	Approach: ScientificModel: Project Based Learning (PjBL)Method: Discussion, Presentation 2 X 50			0%

11	Students are able to understand the User Interface using the Abstract Windowing Toolkit (AWT) and Swing	<ol style="list-style-type: none"> <li>1.Explain the definitions of AWT and Swing</li> <li>2.Explain the AWT components in program creation</li> <li>3.Explain the components of Layout Managers in program creation</li> <li>4.Explain the components of Swing GUI in making programs</li> </ol>	<b>Criteria:</b> <ol style="list-style-type: none"> <li>1.Cognitive Value (C3, C4, C5, and C6) Score 1 - 100</li> <li>2.Character/Attitude Score Score 1 - 100</li> <li>3.Performance Value Score 1 - 100</li> </ol>	<b>Approach:</b> ScientificModel: Project Based Learning (PjBL)Method: Discussion, Presentation 2 X 50			0%
12	Students are able to understand User Interface handling using User Interface Handling	<ol style="list-style-type: none"> <li>1.Explain the definition and use of the delegation event model</li> <li>2.Identify event classes</li> <li>3.Explaining event listeners in programming</li> <li>4.Explain event handling techniques in application creation</li> <li>5.Explaining adapter classes in programming</li> <li>6.Explaining inner classes and anonymous inner classes in programming</li> </ol>	<b>Criteria:</b> <ol style="list-style-type: none"> <li>1.Cognitive Value (C3, C4, C5, and C6) Score 1 - 100</li> <li>2.Character/Attitude Score Score 1 - 100</li> <li>3.Performance Value Score 1 - 100</li> </ol>	<b>Approach:</b> ScientificModel: Project Based Learning (PjBL)Method: Discussion, Presentation 2 X 50			0%
13	Students are able to understand threads in programming	<ol style="list-style-type: none"> <li>1.Explain the definition of thread</li> <li>2.Explains the basics of threads</li> <li>3.Explaining thread classes in programming</li> <li>4.Explaining the thread</li> <li>5.Explains synchronization</li> <li>6.Explains communication methods between threads (interthread)</li> <li>7.Explain concurrency capabilities</li> </ol>	<b>Criteria:</b> <ol style="list-style-type: none"> <li>1.Cognitive Value (C3, C4, C5, and C6) Score 1 - 100</li> <li>2.Character/Attitude Score Score 1 - 100</li> <li>3.Performance Value Score 1 - 100</li> </ol>	<b>Approach:</b> ScientificModel: Project Based Learning (PjBL)Method: Discussion, Presentation 2 X 50			0%
14	Students are able to understand the concept of network-based programming and applets in making programs	<ol style="list-style-type: none"> <li>1.Explain the basic concepts of networking</li> <li>2.Identify the types of Java network packages</li> <li>3.Explain the definition of Applet</li> <li>4.Explain how to use Applets</li> <li>5.Explain the Applet method in programming</li> </ol>	<b>Criteria:</b> <ol style="list-style-type: none"> <li>1.Cognitive Value (C3, C4, C5, and C6) Score 1 - 100</li> <li>2.Character/Attitude Score Score 1 - 100</li> <li>3.Performance Value Score 1 - 100</li> </ol>	<b>Approach:</b> ScientificModel: Project Based Learning (PjBL)Method: Discussion, Presentation 2 X 50			0%

15	Students are able to understand I/O Stream in managing files	<ol style="list-style-type: none"> <li>1.Explain the types of streams in general</li> <li>2.Explaining Reader classes</li> <li>3.Explaining Writer classes</li> <li>4.Explain the InputStream classes</li> <li>5.Explain the OutputStream classes</li> <li>6.Explain serialization and deserialization</li> </ol>	<b>Criteria:</b> <ol style="list-style-type: none"> <li>1.Cognitive Value (C3, C4, C5, and C6) Score 1 - 100</li> <li>2.Character/Attitude Score Score 1 - 100</li> <li>3.Performance Value Score 1 - 100</li> </ol>	<b>Approach:</b> ScientificModel: Project Based Learning (PjBL)Method: Discussion, Presentation 2 X 50			0%
16	Students are able to understand generic concepts (classes and methods) in programming	<ol style="list-style-type: none"> <li>1.Declare a Generic class</li> <li>2.Explaining a constrained Generic (Constrained Generic)</li> <li>3.Declare a Generic method</li> </ol>	<b>Criteria:</b> <ol style="list-style-type: none"> <li>1.Cognitive Value (C3, C4, C5, and C6) Score 1 - 100</li> <li>2.Character/Attitude Score Score 1 - 100</li> <li>3.Performance Value Score 1 - 100</li> </ol>	<b>Approach:</b> ScientificModel: Project Based Learning (PjBL)Method: Discussion, Presentation 2 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** 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.