

## Universitas Negeri Surabaya Faculty of Engineering, Undergraduate Study Program in Informatics Engineering

Document Code

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Courses				CODE				Cou	ırse Fa	amily		Cre	edit We	eight		SEMES	TER		Compilation Date
Platform	Base	d Programming	l	5520204	133							T=4	4 P=0	ECTS=6	6.36		3		July 18, 2024
AUTHOR	RIZAT	ION		SP Deve	loper						Cou	rse Cl	uster (	Coordinat	or	Study F	Program (	Coo	rdinator
																Aditya	. Prapanc	a, S	.T., M.Kom.
Learning model	I	Project Based L	_earnin	g															
Program Learning		PLO study pro	gram t	hat is ch	arged	to the	cours	se											
Outcom		Program Obje	ctives (	(PO)															
(PLO)		PLO-PO Matrix	K																
			P.O																
PO Matrix at the end of each learning stage (Sub-PO)																			
			P.	·				,	Week										
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Short		This course tead	ches pla	tform-bas	ed prog	grammi	ing con	ncepts	and te	chniqu	es. In t	eachir	ng this	concept, 1	the J	ava prog	ramming	lanç	guage will be
Course Descript	tion	used because Java uses the concepts of objects and classa Virtual Machine (JVM), objects, classes, methods AWT, Swing, applets and exceptions.																	
Reference	ces	Main:																	
		<ol> <li>Jaworsk</li> <li>Modul T</li> <li>Holmes,</li> <li>Bakker,</li> <li>Prapano</li> </ol>	ki, J. 199 Teori dan , B.J., Jo J. 2005 ca, 2022	D14. Java Network Programming, 4th edition. O'Reilly. 98. Java 2 Unleashed. Sams Publishing. In Student Activity Joice D.T. 2001. Object-Oriented Programming With Java, second edition. 5. Beginning Java Objects From Concepts to Code, second edition, Apress. PERIGUATAAN PEMASARAN POTENSI UMKM TAMAN JAYASTAMBA DESA PETAK, KECAMATAN BANGANJUK MENGGUNAKAN WEBSITE					N BAGOR										
	]	Supporters:																	
Support lecturer	Supporting lecturer Ronggo Alit, M.M., M.T Ervin Yohannes, S.Kor			., M.Kom., M.Sc., Ph.D.															
Week- each			Evaluation				Lea Stud	arning ent A	earnin methossignn ated ti	ods, nents,		ma	arning terials erences ]		Assessment Weight (%)				
	ub-PO)		Indicator			Criteria	ι & Foi	rm		fline ( fline )		Online	( online )	)	[ Reit	. ences ]			
(1)		(2)		(3)			(-	(4)			(5)			(6)			(7)	Ī	(8)

4	Ctudente	4	Quita-ui-	1.00	4. Otrodonto d	84-4	001
1	Students are able to understand the basics of Java programming	1.Identify the basics of Java programming 2.Identify Java literals, primitive data types, variable types, identifiers and operators in Java	Criteria:  1.Cognitive Value (C3, C4, C5, and C6) Score 1 - 100 2.Character/Attitude Score Score 1 - 100 3.Performance Value Score 1 - 100 Form of Assessment: Participatory Activities	1. Students observe the problems given by the lecturer, referring to the topics agreed upon during the lesson. In groups, students discuss to formulate hypotheses related to the problems they face.  2. Students begin to prepare the project that will be worked on to answer the hypothesis that has been prepared 3. Students prepare a schedule for completing the project that will be worked on 4. Students carry out the stages of the project according to the schedule that they have prepared (the lecturer observes each stage of the student's project being worked on) 5. Students make reports related to projects that have been carried out within the specified time period. 6. Students reveal the experiences that have been carried out by displaying the outcomes of projects that have been carried out by displaying the control of projects that have been carried out by displaying the control of projects that have been carried out by displaying the control of projects that have been carried out by displaying the control of projects that have been carried out by displaying the control of projects that have been carried out by displaying the control of projects that have been carried out by displaying the control of projects that have been carried out by displaying the control of projects that have been carried out by displaying the control of projects that have been carried out by displaying the control of projects that have been carried out by displaying the control of projects that have been carried out by displaying the control of projects that have been carried out by displaying the control of projects that have been carried out by displaying the control of projects that have been carried out by displaying the control of projects that have been carried out by displaying the control of projects that have been carried out by displaying the control of projects that have been carried out by displaying the control of projects that have been carried out by displaying the control of projects that have been carried out by displayi	1. Students observe the problems given by the lecturer, referring to the topics agreed upon during the lesson. In groups, students discuss to formulate hypotheses related to the problems they face.  2. Students begin to prepare the project that will be worked on to answer the hypothesis that has been prepared  3. Students prepare a schedule for completing the project that will be worked on 4. Students carry out the stages of the project according to the schedule that they have prepared (the lecturer observes each stage of the student's project being worked on)  5. Students make reports related to projects that have been carried out within the specified time period.  6. Students reveal the experiences that have been carried out by displaying the outcomes of projects that have been completed.  3 x 50	Material: Identifying the basics of Java programs, Java literals, primitive data types, variable types, identifiers and operators in Java Library: Harold, ER 2014. Java Network Programming, 4th edition. O'Reilly.	3%

of classes and methods in input and produce of classes and methods in input and produce output and produce output in an interactive program  3. Explain misses are compared to classes and an interactive program  3. Explain misses are considered to classes and an interactive program  3. Explain misses are considered to classes and an interactive program  3. Explain misses are considered to classes and an interactive program  3. Explain misses are considered to classes and interactive program and produce of the classes and methods in input and methods in input and methods in final program, and methods in input program and pro	2	Students are able	1.Identify the types	Criteria:	1. Students	Students observe	Material: 1.	3%
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3	Students are able to understand	1.Explain the decision control	Criteria: 1.Cognitive Value	Students observe the	Students observe     the problems given by	Materials: 1. decision control	3%
	control structures	structure	(C3, C4, C5, and	problems	the lecturer, referring to	structures, 2.	
		2.Explain the	C6) Score 1 - 100	given by the	the topics agreed upon	repetition control	
		structure of	2.Character/Attitude	lecturer,	during the lesson. In	structures, and 3.	
		repetition control	Score Score 1 -	referring to	groups, students	branching	
		3.Explain branching	100	the topics agreed upon	discuss to formulate hypotheses related to	statements References:	
		statements	3.Performance Score	during the	the problems they face.	Holmes, BJ, Joice	
			Score 1 - 100	lesson. In	Students begin to	DT 2001. Object-	
			F	groups,	prepare the project that	Oriented	
			Forms of Assessment : Participatory Activities,	students	will be worked on to	Programming With	
			Project Results	discuss to	answer the hypothesis	Java, second	
			Assessment / Product	formulate	that has been prepared	edition.	
			Assessment, Practical	hypotheses related to	Students prepare a schedule for		
			Assessment	the	completing the project		
				problems	that will be worked on		
				they face.	4. Students carry out		
				2. Students	the stages of the		
				begin to prepare the	project according to the schedule that they		
				project that	have prepared (the		
				will be	lecturer observes each		
				worked on	stage of the student's		
				to answer	project being worked		
				the	on) 5 . Students make		
				hypothesis that has	reports related to		
				been	projects that have been		
				prepared	carried out within the		
				3. Students	specified time period.		
				prepare a	6. Students reveal the		
				schedule for completing	experiences that have been carried out by		
				the project	displaying the		
				that will be	outcomes of projects		
				worked on	that have been		
				4. Students	completed.		
				carry out the	3 x 50		
				stages of the project			
				according to			
				the			
				schedule			
				that they			
				have			
				prepared (the lecturer			
				observes			
				each stage			
				of the			
				student's project			
				being			
				worked on)			
				5 Students			
				make			
				reports related to			
				projects that			
				have been			
				carried out			
				within the			
				specified time period.			
				6. Students			
				reveal the			
				experiences			
				that have			
				been carried			
				out by displaying			
				the			
				outcomes of			
				projects that			
				have been			
				completed. 3 X 50			
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4	Students are able to understand the	1.Explain the definition of an	Criteria: 1.Cognitive Value	Students observe the	Students observe     the problems given by	Material: 1. Array Definition, 2.	3%
	concept of Java	array	(C3, C4, C5, and	problems	the lecturer, referring to	Declaration and	
	Arrays	2.Explain the	C6) Score 1 - 100	given by the	the topics agreed upon	use of 1-	
		declaration and	2.Character/Attitude	lecturer,	during the lesson. In	dimensional	
		use of 1-	Score Score 1 -	referring to the topics	groups, students discuss to formulate	arrays, 3. Elements in an	
		dimensional	100	agreed upon	hypotheses related to	array, 4.	
		arrays	3.Performance Value	during the	the problems they face.	Determining the	
		3.Describes the	Score 1 - 100	lesson. In	2. Students begin to	number of	
		elements in the array	Forms of Assessment :	groups,	prepare the project that	elements in an	
		4.Explains	Participatory Activities,	students discuss to	will be worked on to answer the hypothesis	array, and 4. Declaration and	
		determining the	Project Results	formulate	that has been prepared	use of	
		number of	Assessment / Product Assessment, Practical	hypotheses	3. Students prepare a	multidimensional	
		elements in an	Assessment	related to	schedule for	arrays	
		array		the problems	completing the project that will be worked on	<b>Library</b> : Theory Module and	
		5.Explains the declaration and		they face.	Students carry out	Student Activity	
		use of		2. Students	the stages of the	,	
		multidimensional		begin to	project according to the		
		arrays		prepare the project that	schedule that they have prepared (the		
				will be	lecturer observes each		
				worked on	stage of the student's		
				to answer	project being worked		
				the hypothesis	on) 5 . Students make		
				that has	reports related to		
				been	projects that have been		
				prepared 3. Students	carried out within the specified time period.		
				prepare a	6. Students reveal the		
				schedule for	experiences that have		
				completing	been carried out by		
				the project that will be	displaying the outcomes of projects		
				worked on	that have been		
				4. Students	completed.		
				carry out the	3 x 50		
				stages of the project			
				according to			
				the			
				schedule			
				that they have			
				prepared			
				(the lecturer			
				observes			
				each stage of the			
				student's			
				project			
				being worked on)			
				5 . Students			
				make			
				reports			
				related to projects that			
				have been			
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				within the specified			
				time period.			
				6. Students			
				reveal the			
				experiences that have			
				been carried			
				out by			
				displaying			
				the outcomes of			
				projects that			
				have been			
				completed.			
				3 X 50			

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5	Students are able to understand the	1.Explain the	Criteria:	1. Students	Students observe     the problems given by	Material: 1. Object	3%
	classes available	concept of Object	1.Cognitive Value	observe the problems	the problems given by the lecturer, referring to	Oriented Programming	
	in the Java Class	Oriented	(C3, C4, C5, and C6) Score 1 - 100	given by the	the topics agreed upon	concepts, 2.	
	Library	Programming  2.Explain the	2.Character/Attitude	lecturer,	during the lesson. In	differences	
		difference	Score Score 1 -	referring to	groups, students	between objects	
		between objects	100	the topics	discuss to formulate	and classes, 3.	
		and classes	3.Performance Value	agreed upon	hypotheses related to	differences	
		3.Explain the	Score 1 - 100	during the lesson. In	the problems they face. 2. Students begin to	between instance variables/methods	
		difference		groups,	prepare the project that	and class (static)	
		between instance	Form of Assessment :	students	will be worked on to	variables/methods,	
		variables/methods	Participatory Activities, Practical Assessment	discuss to	answer the hypothesis	4. methods and	
		and class (static)	Fractical Assessment	formulate	that has been prepared	how to call and	
		variables/methods		hypotheses	3. Students prepare a	provide	
		4.Explains methods and how to call		related to the	schedule for completing the project	parameters to methods, 5.	
		and provide		problems	that will be worked on	Identifying the	
		parameters to		they face.	4. Students carry out	range of variables,	
		methods		2. Students	the stages of the	6. Casting	
		<ol><li>Identify the range</li></ol>		begin to	project according to the	primitive data	
		of variables		prepare the project that	schedule that they have prepared (the	types and objects, 7. Comparing	
		<ol><li>Casting primitive</li></ol>		will be	lecturer observes each	objects, and 8.	
		and object data		worked on	stage of the student's	Determining the	
		types		to answer	project being worked	class of an object.	
		7.Comparing objects		the	on)	Reference:	
		8.Determines the		hypothesis that has	5 . Students make reports related to	Holmes, BJ, Joice DT 2001. Object-	
		class of an object		been	projects that have been	Oriented	
				prepared	carried out within the	Programming With	
				3. Students	specified time period.	Java, second	
				prepare a	6. Students reveal the	edition.	
				schedule for completing	experiences that have been carried out by		
				the project	displaying the		
				that will be	outcomes of projects		
				worked on	that have been		
				4. Students	completed.		
				carry out the stages of	3 x 50		
				the project			
				according to			
				the			
				schedule			
				that they have			
				prepared			
				(the lecturer			
				observes			
				each stage			
				of the student's			
				project			
				being			
				worked on)			
				5 . Students make			
				reports			
				related to			
				projects that			
				have been			
				carried out within the			
				specified			
				time period.			
				6. Students			
				reveal the			
				experiences that have			
				that have been carried			
				out by			
				displaying			
				the			
				outcomes of			
				projects that have been			
				completed.			
				3 X 50		1	
				3 X 30			1

	Charle 1		a :: ·	4.00	4 0 1 1 1		
6	Students are able to understand the	1.Explains how to create your own	Criteria: 1.Cognitive Value	Students observe the	Students observe     the problems given by	Material: Explains 1. creating your	3%
	concept of class	class	(C3, C4, C5, and	problems	the lecturer, referring to	own class, 2.	
	by designing their own classes	2.Explains the	C6) Score 1 - 100	given by the	the topics agreed upon	declaring	
	OWIT CIGSSCS	attribute and	2.Character/Attitude	lecturer,	during the lesson. In	attributes and	
		method	Score Score 1 -	referring to	groups, students	methods for a	
		declarations for	100	the topics	discuss to formulate	class, 3. reference	
		classes	<ol><li>Performance Value</li></ol>	agreed upon during the	hypotheses related to the problems they face.	this to access instance data, 4.	
		3.Explains	Score 1 - 100	lesson. In	Students begin to	creating and	
		reference this to		groups,	prepare the project that	calling method	
		access instance	Forms of Assessment : Participatory Activities,	students	will be worked on to	overloads, 5. how	
		data	Project Results	discuss to	answer the hypothesis	to import and	
		4.Explains the creation and	Assessment / Product	formulate hypotheses	that has been prepared 3. Students prepare a	create packages, and 6. using	
		calling of	Assessment, Practical	related to	schedule for	library access	
		overloaded	Assessment	the	completing the project	modifiers :	
		methods		problems	that will be worked on	Holmes, BJ, Joice	
		<ol><li>Explains how to</li></ol>		they face.	4. Students carry out	DT 2001. Object-	
		import and create		Students begin to	the stages of the project according to the	Oriented Programming With	
		packages		prepare the	schedule that they	Java, second	
		6.Explain the use of		project that	have prepared (the	edition.	
		access modifiers		will be	lecturer observes each		
				worked on	stage of the student's		
				to answer the	project being worked on)		
				hypothesis	5 . Students make		
				that has	reports related to		
				been .	projects that have been		
				prepared 3. Students	carried out within the specified time period.		
				prepare a	6. Students reveal the		
				schedule for	experiences that have		
				completing	been carried out by		
				the project	displaying the		
				that will be worked on	outcomes of projects that have been		
				4. Students	completed.		
				carry out the	3 x 50		
				stages of			
				the project			
				according to the			
				schedule			
				that they			
				have .			
				prepared (the lecturer			
				observes			
				each stage			
				of the			
				student's project			
				being			
				worked on)			
				5 . Students			
				make reports			
				related to			
				projects that			
				have been			
				carried out			
				within the specified			
				time period.			
				6. Students			
				reveal the			
				experiences that have			
				that have been carried			
				out by			
				displaying			
				the			
				outcomes of projects that			
				have been			
				completed.			
				3 X 50			
	<del></del>		·				

7	Students are able to understand the concepts of inheritance, polymorphism and interfaces	1.Describe superclasses and subclasses in inheritance 2.Explain overriding methods from superclasses 3.Explain final methods and final classes 4.Explaining polymorphism (abstract classes and interfaces)	Criteria:  1.Cognitive Value (C3, C4, C5, and C6) Score 1 - 100 2.Character/Attitude Score Score 1 - 100 3.Performance Value Score 1 - 100  Forms of Assessment: Participatory Activities, Project Results Assessment / Product Assessment Assessment	1. Students observe the problems given by the lecturer, referring to the topics agreed upon during the lesson. In groups, students discuss to formulate hypotheses related to the problems they face.  2. Students begin to prepare the project that will be worked on to answer the hypothesis that has been prepared 3. Students prepare a schedule for completing the project that will be worked on 4. Students prepare do 4. Students prepared 3. Students prepared 3. Students prepared 3. Students prepared 3. Students prepared 4. Students prepared 4. Students carry out the stages of the project according to the schedule that they have prepared (the lecturer observes each stage of the student's project being worked on) 5. Students make reports to projects that have been carried out within the specified	1. Students observe the problems given by the lecturer, referring to the topics agreed upon during the lesson. In groups, students discuss to formulate hypotheses related to the problems they face.  2. Students begin to prepare the project that will be worked on to answer the hypothesis that has been prepared  3. Students prepare a schedule for completing the project that will be worked on 4. Students carry out the stages of the project according to the schedule that they have prepared (the lecturer observes each stage of the student's project being worked on)  5. Students make reports related to projects that have been carried out within the specified time period.  6. Students reveal the experiences that have been carried out by displaying the outcomes of projects that have been completed.  3 x 50	Material: 1. Describe superclasses and subclasses in inheritance, 2. Explain overriding methods from superclasses, final methods and final classes, and polymorphism (abstract classes and interfaces) References: Holmes, BJ, Joice DT 2001. Object- Oriented Programming With Java, second edition.	3%
				make reports related to projects that have been carried out			
8	UTS (USS)	Cognitive Values, Character Values, and Psychomotor Values	Form of Assessment : Test	Offline Quiz 2 X 50	Online Quiz 2 x 50	Material: All material that has been taught Library: Theory Module and Student Activity  Material: All material that has been taught. Reference: Holmes, BJ, Joice DT 2001. Object-Oriented Programming With Java, second edition.	20%

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9	Students are able to understand design with an object-oriented approach using UML notation	1.Explains how to design in Object Oriented Programming using UML 2.Explaining use case diagrams in object-oriented application design 3.Explaining class diagrams in object-oriented application design 4.Explaining activity diagrams in object-oriented application design 5.Explain sequence diagrams in object-oriented application design	Criteria:  1.Group Value (20%) 2.Individual Value (35 %) 3.Project Value (30 %) 4.Report Value (15 %) Forms of Assessment: Participatory Activities, Project Results Assessment / Product Assessment, Practical Assessment	1. Students observe the problems given by the lecturer, referring to the topics agreed upon during the lesson. In groups, students discuss to formulate hypotheses related to the problems they face.  2. Students begin to prepare the project that will be worked on to answer the hypothesis that has been prepared 3. Students prepare a schedule for completing the project that will be worked on 4. Students carry out the stages of the project according to the schedule that they have prepared (the lecturer observes each stage of the student's project being worked on) 5. Students make reports related to projects that have been carried out within the specified time period.  6. Students reveal the experiences that have been carried out by displaying the outcomes of projects that have been carried out by displaying the outcomes of projects that have been carried out by displaying the outcomes of projects that have been carried out by displaying the outcomes of projects that have been carried out by displaying the outcomes of projects that have been carried out by displaying the outcomes of projects that have been carried out by displaying the outcomes of projects that have been carried out by displaying the outcomes of projects that have been carried out by displaying the outcomes of projects that have been carried out by displaying the outcomes of projects that have been carried out by displaying the outcomes of projects that have been carried out by displaying the outcomes of projects that have been carried out by displaying the outcomes of projects that have been carried out by displaying the outcomes of projects that have been carried out by displaying the projects that have been carried out by displaying the projects that have been carried out by displaying the projects that have been carried out by displaying the projects that have been carried out by displaying the projects that have been carried out by displaying the projects that have been carried out by displaying the projects that have been carried out by displa	1. Students observe the problems given by the lecturer, referring to the topics agreed upon during the lesson. In groups, students discuss to formulate hypotheses related to the problems they face.  2. Students begin to prepare the project that will be worked on to answer the hypothesis that has been prepared 3. Students prepare a schedule for completing the project that will be worked on 4. Students carry out the stages of the project according to the schedule that they have prepared (the lecturer observes each stage of the student's project being worked on)  5. Students make reports related to projects that have been carried out within the specified time period.  6. Students reveal the experiences that have been carried out by displaying the outcomes of projects that have been completed.  3 x 50	Material: Explains 1. how to design in Object-Oriented Programming using UML, 2. use case diagrams in object-oriented application design, 3. class diagrams in object-oriented application design, 4. activity diagrams in object-oriented application design, and 5. sequence diagrams in object-oriented application design Bibliography: Holmes, BJ, Joice DT 2001. Object- Oriented Programming With Java, second edition.  Material: Explains 1. how to design in Object-Oriented Programming UML, 2. use case diagrams in object-oriented application design, 3. class diagrams in object-oriented application design, 4. activity diagrams in object-oriented application design, and 5. sequence diagrams in designing object- oriented applications Library: Theory and Student Activity Modules	9%

scoeption is a advanced programming advanced programming and service in the control of the programming and pro	10	Students are able to understand the basics of	1.Explain exceptions 2.Explains	Criteria: 1.Group Value (20%) 2.Individual Value (35	1. Students observe the problems	1. Students observe the problems given by the lecturer, referring to	Material: Explains 1. Exceptions, 2. handling	10%
simple try-cards family block. 3. Explain recursive programming 4. Explain abstract programming 5. Explaining algorithms in programming 6. Salessment Product Assessment Product Product Product Product Product Product Produ			exception	%)	given by the	the topics agreed upon	exceptions using a	
finally block sport value (15 %)  3. Explain requires the programming of sport value (15 %)  4. Explain a sport value (15 %)  4. Explain a sport value (15 %)  4. Explain a sport value (15 %)  5. Explaining algorithms in programming algorithms in progra		advanced		,	referring to	groups, students	finally block, 3.	
Abstragation recursive programming adjorithms in programming and program		programming	finally block					
A Explain abstract data types in programming algorithms in programming 5. Explaining algorithms in programming algorithms in programming algorithms in programming algorithms in programming for the programming algorithms in programming and will be worked on the state of the programming and programming and will be worked on the programming and seasons and the programming and seasons are all the programming and programming and programming and programming and seasons are all the programming and progra			•	<del>%</del> )				
S. Explaining algorithms in programming of several programming algorithms in programming algorithms algo			4.Explain abstract		groups,	prepare the project that	programming, and	
SEX-planing algorithms in programming  Assessment Producted Assessment in programming assessment			, i	Project Results				
reisted to the propher problems or propher in the proper that will be worked on the proper that will be well be the proper that will be well be the proper that will be well be the proper that will be the proper that the proper tha					formulate	that has been prepared	Library: Theory	
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outcomes of projects that have been completed.					displaying			
have been completed.								
completed.								
3 X 50					completed.			
					3 X 50			

Students are able to enterface using the Alcenter (AMT) and Swifing (AMT) and Swifin	to understand the User Interface using the Abstract Windowing Toolkit (AWT) and Swing  2. Explain the AWT components in program creation 3. Explain the components of Layout Managers in program creation 4. Explain the components of Layout managers in program creation 4. Explain the components of Capyonents of	10%
	Assessment creating programs  Assess	

	User Interface handling using User Interface Handling	definition and use of the delegation event model 2. Identify event classes 3. Explaining event listeners in programming 4. Explain event handling techniques in application creation 5. Explaining adapter classes in programming 6. Explaining inner classes and anonymous inner classes in programming	1.Group Value (20%) 2.Individual Value (35 %) 3.Project Value (30 %) 4.Report Value (15 %) Forms of Assessment : Participatory Activities, Project Results Assessment / Product Assessment, Practical Assessment	observe the problems given by the lecturer, referring to the topics agreed upon during the lesson. In groups, students discuss to formulate hypotheses related to the problems they face. 2. Students begin to prepare the project that will be worked on to answer the hypothesis that has been prepared 3. Students prepare a schedule for completing the project that will be worked on 4. Students prepare a schedule for completing the project that will be worked on 4. Students carry out the stages of the stages of the project according to the schedule that they have prepared (the lecturer observes each stage of the student's project being worked on) 5. Students make reports related to projects that have been carried out within the specified time period. 6. Students reveal the experiences that have been carried out by displaying the outcomes of projects that have been carried out by displaying the council projects that have been carried out by displaying the council projects that have been carried out by displaying the council projects that have been carried out by displaying the council projects that have been carried out by displaying the council projects that have been completed. 3 x 50	the problems given by the lecturer, referring to the topics agreed upon during the lesson. In groups, students discuss to formulate hypotheses related to the problems they face.  2. Students begin to prepare the project that will be worked on to answer the hypothesis that has been prepared  3. Students prepare a schedule for completing the project that will be worked on  4. Students carry out the stages of the project according to the schedule that they have prepared (the lecturer observes each stage of the student's project being worked on)  5. Students make reports related to projects that have been carried out within the specified time period.  6. Students reveal the experiences that have been carried out by displaying the outcomes of projects that have been completed.  3 x 50	use of the delegation event model, 2. event listeners in programming, 3. event handling techniques in creating applications, 4. adapter classes in programming, 5. inner classes and anonymous inner classes in programming, and identifying classesclass event Library: Theory and Student Activity Modules  Material: Explains 1. Definition and use of the delegation event model, 2. event listeners in programming, 3. event handling techniques in creating applications, 4. adapter classes in programming, 5. inner classes and anonymous inner classes in programming, and identifying classesclass event Bibliography: Holmes, BJ, Joice DT 2001. Object-Oriented Programming With Java, second edition.	
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40	Ctudents on 11	4	ما الما الما الما الما الما الما الما ا	1.0/ 1.	1.00	Market 1 F 1 1	F0.
13	Students are able to understand	1.Explain the definition of	Criteria: 1.Cognitive Value	Students observe the	Students observe     the problems given by	Material: Explains 1. definition of	5%
	threads in	thread	(C3, C4, C5, and	problems	the lecturer, referring to	thread, 2. basics of	
	programming	2.Explains the	C6) Score 1 - 100	given by the	the topics agreed upon	threads, 3. thread	
		basics of threads	2.Character/Attitude	lecturer,	during the lesson. In	classes in	
		3.Explaining thread	Score Score 1 -	referring to	groups, students	programming, 4.	
		classes in	100	the topics agreed upon	discuss to formulate hypotheses related to	threads, 5. synchronization, 6.	
		programming	3.Performance Value	during the	the problems they face.	communication	
		4.Explaining the	Score 1 - 100	lesson. In	Students begin to	methods between	
		thread	Forms of Assessment :	groups,	prepare the project that	threads	
		5.Explains	Participatory Activities,	students	will be worked on to	(interthread), and	
		synchronization 6.Explains	Project Results	discuss to	answer the hypothesis that has been prepared	7. concurrency capabilities	
		communication	Assessment / Product	formulate hypotheses	3. Students prepare a	Reader: Holmes,	
		methods between	Assessment, Practical	related to	schedule for	BJ , Joice DT	
		threads	Assessment	the	completing the project	2001. Object-	
		(interthread)		problems	that will be worked on	Oriented	
		7.Explain		they face.	4. Students carry out	Programming With	
		concurrency		Students begin to	the stages of the project according to the	Java, second edition.	
		capabilities		prepare the	schedule that they	cuition.	
				project that	have prepared (the		
				will be	lecturer observes each		
				worked on	stage of the student's		
				to answer the	project being worked on)		
				hypothesis	5 . Students make		
				that has	reports related to		
				been	projects that have been		
				prepared	carried out within the		
				3. Students prepare a	specified time period. 6. Students reveal the		
				schedule for	experiences that have		
				completing	been carried out by		
				the project	displaying the		
				that will be	outcomes of projects		
				worked on 4. Students	that have been completed.		
				carry out the	2 x 50		
				stages of	2 x 30		
				the project			
				according to			
				the schedule			
				that they			
				have			
				prepared			
				(the lecturer			
				observes each stage			
				of the			
				student's			
				project			
				being			
				worked on) 5 . Students			
				make			
				reports			
				related to			
				projects that			
				have been carried out			
				within the			
				specified			
				time period.			
				6. Students			
				reveal the experiences			
				that have			
				been carried			
				out by			
				displaying			
				the outcomes of			
				projects that			
				have been			
	1		I	completed.	1	1	
	l l			3 X 50			

			1		I	1	
14	Students are able to understand the concept of network-based programming and applets in making programs	1.Explain the basic concepts of networking 2.Identify the types of Java network packages 3.Explain the definition of Applet 4.Explain how to use Applets 5.Explain the Applet method in programming	Criteria: 1.Group Value (30%) 2.Individual Value (25%) 3.Project Value (30%) 4.Report Value (15%) Forms of Assessment: Participatory Activities, Project Results Assessment / Product Assessment, Practical Assessment	1. Students observe the problems given by the lecturer, referring to the topics agreed upon during the lesson. In groups, students discuss to formulate hypotheses related to the problems they face. 2. Students begin to prepare the project that will be worked on to answer the hypothesis that has been prepared 3. Students prepare a schedule for completing the project that will be worked on 4. Students carry out the stages of the project according to the schedule that they have prepared (the lecturer observes each stage of the student's project being worked on) 5. Students make reports related to projects that have been carried out within the specified time period. 6. Students reveal the experiences that have been carried out by displaying the outcomes of projects that have been carried out out one of projects that have been carried out by displaying the outcomes of projects that have been carried out projects that have been carried out by displaying the outcomes of projects that have been carried out by displaying the outcomes of projects that have been carried out projects that have been carried out by displaying the outcomes of projects that have been carried out by displaying the outcomes of projects that have been carried out by displaying the outcomes of projects that have been carried out by displaying the outcomes of projects that have been carried out by displaying the outcomes of projects that have been carried out by displaying the outcomes of projects that have been carried out by displaying the outcomes of projects that have been carried out by displaying the outcomes of projects that have been carried out by displaying the outcomes of projects that have been carried out by displaying the outcomes of projects that have been carried out by displaying the outcomes of projects that have been carried out by displaying the outcomes of projects that have been carried out by displaying the outcomes of projects that have been carried out by displaying the outcomes of projects that have been carried out by dis	1. Students observe the problems given by the lecturer, referring to the topics agreed upon during the lesson. In groups, students discuss to formulate hypotheses related to the problems they face.  2. Students begin to prepare the project that will be worked on to answer the hypothesis that has been prepared  3. Students prepare a schedule for completing the project that will be worked on  4. Students carry out the stages of the project according to the schedule that they have prepared (the lecturer observes each stage of the student's project being worked on)  5. Students make reports related to projects that have been carried out within the specified time period.  6. Students reveal the experiences that have been carried out by displaying the outcomes of projects that have been completed.  2 x 50	Material: Explains 1. basic networking concepts, 2. Applet definition, 3. How to use Applets, 4. Applet methods in programming, and Identifying types of Java network packages Library: Theory and Student Activity Modules	5%

15	Students are able to understand I/O Stream in managing files	1.Explain the types of streams in general 2.Explaining Reader classes 3.Explaining Writer classes 4.Explain the InputStream classes 5.Explain the OutputStream classes 6.Explain serialization and deserialization	Criteria: 1.Group Value (30%) 2.Individual Value (25%) 3.Project Value (30%) 4.Report Value (15%) Forms of Assessment: Participatory Activities, Project Results Assessment / Product Assessment Assessment	1. Students observe the problems given by the lecturer, referring to the topics agreed upon during the lesson. In groups, students discuss to formulate hypotheses related to the problems they face.  2. Students begin to prepare the project that will be worked on to answer the hypothesis that has been prepared 3. Students prepare a schedule for completing the project that will be worked on 4. Students prepare a schedule for completing the project that they have prepared (the lecturer observes each stage of the student's project being worked on) 5. Students make reports related to projects that have been carried out the specified time period.  6. Students make reports related to projects that have been carried out by displaying the outcomes of projects that nave been carried out by displaying the outcomes of projects that nave been carried out by displaying the outcomes of projects that nave been carried out by displaying the outcomes of projects that nave been carried out by displaying the outcomes of projects that nave been carried out by displaying the outcomes of projects that nave been carried out by displaying the outcomes of projects that nave been carried out by displaying the outcomes of projects that nave been carried out by displaying the outcomes of projects that nave been carried out by displaying the outcomes of projects that nave been carried out by displaying the outcomes of projects that nave been carried out by displaying the outcomes of projects that nave been carried out by displaying the outcomes of projects that nave been carried out by displaying the outcomes of projects that nave been carried out by displaying the outcomes of projects that nave been carried out by displaying the outcomes of projects that nave been carried out by displaying the outcomes of projects that nave been carried out by displaying the outcomes of projects that nave been carried out by displaying the outcomes of projects that nave been carried out by displaying the outcomes of projects that nave been carried out by d	1. Students observe the problems given by the lecturer, referring to the topics agreed upon during the lesson. In groups, students discuss to formulate hypotheses related to the problems they face. 2. Students begin to prepare the project that will be worked on to answer the hypothesis that has been prepared 3. Students prepare a schedule for completing the project that will be worked on 4. Students carry out the stages of the project according to the schedule that they have prepared (the lecturer observes each stage of the student's project being worked on) 5. Students make reports related to projects that have been carried out within the specified time period. 6. Students reveal the experiences that have been carried out by displaying the outcomes of projects that have been completed. 3 x 50	Material: Students can explain 1. types of streams in general, 2. Reader classes, 3. Writer classes, 4. InputStream classes, 5. OutputStream classes, and 6. serialization and deserialization Library: Theory and Student Activity Modules	10%
16	Students are able to understand generic concepts (classes and methods) in programming	1.Visual Design (15 %) 2.At least 2 algorithms involved (Sorting and Searching) (25%) 3.Program complexity (20 %) 4.Functionality and Originality (15 %) 5.Packaging (10 %) 6.Databases (15 %)	Criteria:  1.Group Value (25 %) 2.Individual Value (25 %) 3.Project Value (40 %) 4.Report Value (10 %)  Forms of Assessment : Project Results Assessment / Product Assessment, Portfolio Assessment, Practice / Performance, Tests	End of Course Project Presentation for each group 3 X 50	End of Course Project Presentation for each group	Material: Accumulated competency during one semester which is implemented in the form of a Final Project for Library Courses : Theory Module and Student Activity	0%

**Evaluation Percentage Recap: Project Based Learning** 

No	Evaluation	Percentage				
1.	Participatory Activities	29.16%				
2.	Project Results Assessment / Product Assessment	24.66%				
3.	Practical Assessment	26.16%				
4.	Test	20%				
		99 98%				

## 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.
- 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.
- Forms of assessment: test and non-test.
- 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 subtopics.
- 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.