

Course Code	TKIT161204													
Course Name	Object Oriented Programming													
Course Instructors	Ridi Ferdiana; Bimo Sunarfi Hantono													
Course Type	Required													
Course Classification	Engineering Topics													
Credit / Contact Hour per Week	3 / 150 minutes per Week													
Course Description	This course will discuss object oriented programming that applicable to solve complex program in engineering.													
Prerequisites Courses	Fundamentals of Programming (TKIE161103)													
Covered Student Outcome	Fundamental Engineering Knowledge (a) Development of Engineering Solution (b) Engineering Design (c) Modern Tools Utilization (e)													
Learning Outcome														
		Study Program Student Outcome												
No	Learning Outcome	SO (a) – SO (k)												
1.	Students are able to <u>analyse</u> the pillars of object-oriented programming in modern computing development platform	Fundamental Engineering Knowledge (a)												
2.	Students able to <u>apply</u> the concepts in solving complex objects in programming	Development of Engineering Solution (b)												
3.	Students are able to <u>develop</u> object-based oriented software.	Engineering Design (c)												
4.	Students are able to <u>evaluate</u> the various modern tools that can increase the productivity of the object-based software development	Modern Tools Utilization (e)												
Topic	<ol style="list-style-type: none"> 1. Overview of Object-Oriented Programming 2. Designing OOP Solutions: Identifying the Class Structure 3. Designing OOP Solutions: Modeling the Object Interaction 4. Creating Classes 5. Implementing Object Collaboration 6. Encapsulation of Data 7. Engineering Design Assignment – Creating Proof of Concept 8. Inheritance and Specialization 9. Interfaces, Multiple Inheritance, and Composition 10. Implementing the Data Access Layer 11. Organization of Object-Oriented Code 12. Foundations of adaptive code 13. SOLID code 14. Engineering Design Assignment – Presenting the Solution 													
Direct Assessment	<table border="1"> <thead> <tr> <th>Direct Assessment Plan</th> <th>Measured Learning Outcome</th> </tr> </thead> <tbody> <tr> <td>Engineering Design Assignment – Creating Proof of Concept</td> <td>LO2, LO4</td> </tr> <tr> <td>Engineering Design Assignment – Presenting the complete solution</td> <td>LO3</td> </tr> <tr> <td>Mid Exam</td> <td>LO1, LO4</td> </tr> <tr> <td>Final Exam</td> <td>LO1, LO2</td> </tr> <tr> <td></td> <td></td> </tr> </tbody> </table>		Direct Assessment Plan	Measured Learning Outcome	Engineering Design Assignment – Creating Proof of Concept	LO2, LO4	Engineering Design Assignment – Presenting the complete solution	LO3	Mid Exam	LO1, LO4	Final Exam	LO1, LO2		
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Mid Exam	LO1, LO4													
Final Exam	LO1, LO2													
Indirect Assesment	Questionnaire (EDOM)													
References	<ol style="list-style-type: none"> [1] G. M. Hall, Adaptive Code via C#: Agile coding with design patterns and SOLID principles. Microsoft Press, 2014. [2] D. Clark, Beginning C# Object-Oriented Programming, Second Edition. APress, 2013. 													

	[3] G. C. Hillar, Learning object-oriented programming: explore and crack the OOP code in Python, JavaScript, and C#. Packt Publishing, 2015.
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