Object Oriented Programming

Module name	Object Oriented Programming	
Module level	Undergraduate	
Code	IF221119	
Courses (if applicable)	Object Oriented Programming	
Semester	4	
Lecturer	Yisti Vita Via, S.ST, M.Kom (PIC) Andreas Nugroho S, S.Kom, M.Kom Fawwaz Ali Akbar, S.Kom, M.Kom Wahyu Syaifullah J S, S.kom, M.Kom Sugiarto, S.Kom, M.Kom	
Language	Bahasa Indonesia and English	
Relation to curriculum	Undergraduate degree program; compulsory; 4th semester	
Type of teaching, contact hours	Lectures, < 60 students,	
Teaching Methods	Simulation, cooperative learning, project-based learning, problem-based learning	
Workload	1. Lectures: 3 sks x 50 = 150 minutes (2 hours 30 minutes) per week. 2. Exercises and Assignments: 3 x 60 = 180 minutes (3 hours) per week. 3. Private study: 3 x 60 = 180 minutes (3 hours) per week	
Credit points	3 credit points (sks)	
Requirements according to the examination regulations	A student must have attended at least 80% of the lectures to sit in the exams.	
Mandatory prerequisites	Advanced Programming	
Courses description	This course covers problem modeling using object-oriented programming concepts (classes, inheritance, overriding, overloading, polymorphism, abstract class), the object's lifecycle in computer memory, testing and debugging techniques, standard libraries in object-oriented programming languages (collections, iterators, GUI). Approaching the end of the course, students will be able to design and implement computational algorithms that ensure information resilience customized for societal needs and sustainable development of technology. The Object-Oriented Programming course is integrated into the Case-Based Method Learning approach.	
Learning outcomes and their corresponding PLOs	After completing this module, a student is expected to:	
	CO1 Students are able to distinguish the concept of object-oriented programming and procedural programming. (C2, A2)	PLO3, PLO5, PLO8
	CO2 Students are able to address issues through an object-oriented approach. (C3, P4)	PLO3, PLO5, PLO8
	CO3 Students are able to build object-oriented applications with simple GUIs (Graphical User Interfaces). (C5, P3)	PLO3, PLO5, PLO8
Content	The study materials covered in this course include: class and object concepts, data design (data members), functions (member functions) within a class,	

	class design in Raptor, design of arrays of objects in Raptor, inheritance concepts, subclasses, overriding, overloading, polymorphism, abstract classes, techniques for testing and debugging, pointer and virtual function concepts in object-oriented programming, collections, iterators, and standard libraries in object-oriented programming languages.
Media employed	LCD, whiteboard, websites, books (as references), online meeting, etc.
Assessments and Evaluation	One written Midterm assessment (60 minutes) and one final oral exam (30 minutes), two short computer-based quizzes, takehome written assignments
Study and examination requirements and forms of examination	The final grade in the module is composed of: • Two short computer-based quizzes: 15% x 2 = 30% • Take-home written assignments: 15% • Written Midterm assessment: 25% • Final oral exam: 30% Students must have a final grade of 55.6% or higher to pass.
Reading List	● B. M. V. Horn, Real-World Implementation of C# Design Patterns: Overcome daily programming challenges using elements of reusable object-oriented software. Packt Publishing, 2022. ● D. R. Kirk, Demystifying Object-Oriented Programming with C++: Implement proven object-oriented design principles to write better code and create robust software. Packt Publishing, 2021. ● V. Silva, Java Programming for Beginners: Improve your Software Engineering Skills by Learning to Code using an Object-Oriented Program. Learn about the Virtual Machine, Javascript, and Machine Code. Ulrich Duerr, 2022. ● R. Dorothy, Kirk, Deciphering Object-Oriented Programming with C++, Packt Publishing Pvt Ltd, 2022. ISBN: 9781804611081. [Online]. Available: https://portal.igpublish.com/iglibrary/obj/PACKT0006459?searchid=1754974423725w~zS9T2DrbaGv4xQnZEnQ ● M. Bruce, V. Horn, Real-World Implementation of C# Design Patterns: Overcome daily programming challenges using elements of reusable object-oriented software. Packt Publishing, 2022. ISBN: 9781803242736. [Online]. Available: https://portal.igpublish.com/iglibrary/obj/PACKT0006440?searchid=1754974513449DEKBmIiZNWNoeLoYG9JqP ● Oluyide, Motopeda, Object oriented programming. Toronto Academic Press, 2024. ISBN: 9781774697597. [Online]. Available: https://portal.igpublish.com/iglibrary/obj/ARCLER0001562?searchid=1754976953739~QPMNoLRXj_86rQg_9y89 ● Bouras, S. Aristides, Java and algorithmic thinking for the complete beginner: from basics to advanced techniques: master java and algorithms for a robust programming foundation, 3rd revised edition. Packt Publishing, 2024. ISBN: 9781836200123. [Online]. Available: https://portal.igpublish.com/iglibrary/obj/PACKT0007266?searchid=1754977239171kY0ND42V_HAlGWLgGwDo7