Operating System

Module name	Operating System	
Module level	Undergraduate	
Code	IF221110	
Courses (if applicable)	Operating System	
Semester	3	
Lecturer	Hendra Maulana, S.Kom, M.Kom. (PIC) Andreas Nugroho S, S.Kom, M.Kom. Muhammad Muharrom A.H, S.Kom., M.Kom. Pratama Wirya Atmaja, S.Kom, M.Kom.	
Language	Bahasa Indonesia and English	
Relation to curriculum	Undergraduate degree program; compulsory; 3rd semester	
Type of teaching, contact hours	Lectures, < 60 students	
Teaching Methods	Simulation, case study, collaborative learning, cooperative 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	Digital System	
Courses description	In this course, Operating systems have an important role in managing basic computing resources such as I/O and its peripheral, memory and processor. This course discusses the design and principles of the operating systems managing the computing resource in a computer.	
Learning outcomes and their corresponding PLOs	After completing this module, a student is expected to:	
	CO1 Students are able to understand and apply the basic concepts of operating systems and process life cycles and apply communication between processes.	PLO2,PLO3
	CO2 Students are able to understand and apply multi process and multithreaded synchronization mechanisms.	PLO2,PLO3
	CO3 Students are able to understand and apply the concept of memory management, several page replacement algorithms, paging/segmentation mechanisms and apply several process scheduling algorithms.	PLO2,PLO3
	CO4 Students are able to understand the connection between I/O hardware and I/O software and implement file systems.	PLO2,PLO3
Content	The basic concept of operating systems, process life cycle, interprocess communication. 2. Multiprocess synchronization mechanism and the multithread 3. Memory management, page replacement, paging and segmentation algorithm. 4. Process scheduling and its algorithm 5.	

	Relationship and connectivity between I/O hardwares and I/O softwares. 6. Potential attack types in the operating systems as well as its security measures
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	● Comer, Douglas, Operating System Design, 3th edition. CRC Press LLC, 2025. ● E. Laursen, The Operating System - An Anarchist Theory of the Modern State 1st Edition. AK Press, 2021. ● P. Chakraborty, Operating Systems. Evolutionary Concepts and Modern Design Principles. CRC Press, 2024. ● Zadeh, N. Nazar, Operating systems. Toronto Academic Press, 2024. ISBN: 9781774697603. [Online]. Available: https://portal.igpublish.com/iglibrary/obj/ARCLER0001563?searchid=1754985534518Wnhatqfah9zw2zB~EHO_~