TIF21-31-41

Operating System

Sistem Operasi

BASIC INFORMATION

Course Credit	3 / 150 minutes per Week
Course Type	Required
Course Classification	Engineering Topics
Prerequisites	Microprocessor-based System; Computer Architectures

STUDENT AND LEARNING OUTCOMES

Covered Student Outcomes

Fundamental and Engineering Knowledge (a)

Modern Tools Utilization (e)

Learning Outcomes

LO1 Students are able to identify computer system structures.

LO2 Students are able to explain process management in operating systems.

LO3 Students are able to demonstrate memory management in operating systems.

LO4 Students are able to describe illustrate scheduling approach.

LO5 Students are able to compare file management and case study in operating systems.

COURSE DESCRIPTION

This course will describe the concepts and backgrounds of operating system including: basic structure of computer system, operating system structure, process, thread, SMP, microkernels, mutual exclusion synchronization, deadlock, starvation, memory management, virtual memory, single processor, process scheduling on multiprocessor, real-time process scheduling, I / O management, and file management.

TOPICS

1. Overview of Operating System
2. Basic Structure of Computer System
3. Operating System Structure
4. Process Description and Control
5. Threads, SMP, and Microkernel
6. Mutual Exclusion and Synchronization
7. Deadlock and Starvation
8. Memory Management
9. Virtual Memory
10. Uni Processor Scheduling
11. Multiprocessor and Real Time Scheduling
12. Disc Scheduling
13. File Management
14. Operating System Case Study

REFERENCES

[1] Andrew S. Tanenbaum, Herbert Bos, *Modern Operating Systems (4th edition)*, Pearson Education, 2015.

[2] Abraham Silberschatz, Greg Gagne, Peter B. Galvin, *Operating System Concepts (10th edition)*, John Wiley and Sons Inc, 2021.