

# Introduction

Syllabus, Suggested book & Introduction

# Syllabus

- **Unit-I Introduction:** Operating System as a resource manager, operating systems services, system calls, operating system classifications, operating systems architectures.
- **Unit-II Processor Management:** Process overview, process states and state transition, multi-programming, multi-tasking, levels of schedulers and scheduling algorithms. Process Synchronization-Critical section and mutual exclusion problem, classical process synchronization problems, deadlock prevention. Multithreading.
- **Unit-III Memory Management:** absolute and relative code, address translation, memory management techniques- partition, paging, segmentation, virtual memory. Static and dynamic memory management.
- **Unit-IV Device Management:** Goals of I/O software, Design of device drivers-interrupt service routines, upper half of kernel software, lower half of kernel software.
- **Unit-V File Management:** Overview of file management system, disk space management, directory structures, file sharing and protection, access control lists, protection models.

# Suggested Books

- *Operating Systems concepts* by Silberschatz, Galvin, and Gagne, Wiley.
- Operating Systems in Depth by Thomas W. Doeppner, Wiley.
- *Modern Operating Systems* by Andrew S. Tanenbaum, Pearson.
- *Operating Systems: Internals and Design Principles* by William Stallings, Pearson.
- Your UNIX/Linux: The Ultimate Guide by Sumitabha Das, McGraw-Hill.
- The Design of the UNIX Operating System by Maurice J. Bach, Pearson.
- Operating Systems: A Concept-based Approach by Dhananjay M. Dhamdhere, McGraw-Hill.

# History

- BCPL (Basic Combined Programming Language)
- Implemented by Martin Richards, University of Cambridge in 1967.
- B (B was derived from BCPL)
- Developed Ken Thompson and Dennis Ritchie at Bell Labs in 1969 .
- C was developed by Dennis Ritchie at Bell Labs in 1972.
- Unix was developed by Ken Thompson, Dennis Ritchie, et. al. at Bell Labs in 1971. Development started in 1969.
- Unix was originally written in assembly language, but in 1973, Version 4 Unix was rewritten in C.
- POSIX (Portable Operating System Interface) is a family of standards specified by the IEEE Computer Society for maintaining compatibility between operating systems. Firstly released in 1988. ([POSIX](#))