
UNIX & WINDOWS SYSTEM INTERNALS
(Elective-1)**Course code: 13CS2107****L P C**
4 0 3**Course outcomes**

At the end of the course, a student will be able to:

CO1: Explain the Kernel, its architecture, and functions and architecture of UNIX Operating System

CO2: Describe system processes and Inter-process communications, shared memory and Semaphores

CO3: Describe Socket Programming aspects of Network Communications

CO4: Explain various versions of Windows Operating System

CO5: Describe basic building blocks of Android and create applications of Android

UNIT-I

Introduction to Kernel - Architecture of the UNIX operating system, System concepts, Data structures. Buffer Cache: Buffer header, Structure of Buffer pool, Reading and writing disk blocks. Files INODES, Structure of a regular file, Directories, Super block, Inode assignment. System calls - OPEN, Read, Close, Write, Create, CHMOD, CHOWN, Pipes, Mounting and Unmounting

UNIT-II

Process - Layout the system memory, Context, Process control, process creation, signals, Process scheduling, time, clock. Inter-Process Communications - Process tracing, System V IPC, Shared Memory, Semaphores.

UNIT-III

Network Communications - Socket programming: Sockets, descriptors, Connections, Socket elements, Stream and Datagram Sockets.

UNIT-IV

Windows Operating system - versions, Concepts and tools, Windows internals, System Architecture, Requirements and design goals, Operating system model, Architecture overview.

Key system components. System mechanisms - Trap dispatching, object manager, Synchronization, System worker threads, Windows global flags, Local procedural calls, Kernel event tracing.

UNIT-V

what is android, basic building blocks – activities, services, broadcast receivers & content, ui components- views & notifications, components for communication -intents & intent filters, android api levels launching emulator editing emulator settings emulator shortcuts log cat usage, Applications of Android.

Text Books:

1. Maurice J. Bach: “The Design of the Unix Operating System”, Prentice Hall of India, 1991.
2. Mark E. Russinovich and David A. Solomon: “Microsoft® Windows® Internals”, 4th Edition, Microsoft Press, 2004.

References:

1. W. Stallings: “Operating Systems: Internals and Design Principles”, 5th Edition, Prentice Hall, 2005.
2. A.Tanenbaum, A. Woodhull: “Operating Systems Design and Implementation”, 3rd Edition, Prentice Hall, 2006.