Subject Code : RCCSCA9

CORE COURSE XIV - OPERATING SYSTEMS

UNIT I

Distributed Computing Systems: Evolution - models - distributed operating system - issues in designing DOS- distributed computing environment. Communication in distributed system: Protocols - features of a good message passing system - issues in IPC by message passing - synchronization - buffering - process addressing - failure handling - group communication.

UNIT II.'

Synchronization: Clock synchronization - event ordering - mutual exclusion deadlock-clection algorithms. Process management: process migration - threads.

UNIT III

Security: Potential attacks to computer systems - cryptography - authentication - access control- digital signatures design principles.

UNIT IV.

File System Structure History - system structure - user perspective. .Internal representation of files: inodes - structure of a regular file - directories - conversion of a path to an inode - super block - inode assignment to a new file - allocation of disk blocks. System calls for the file system:open - read - write - close - file creation - creation of special files - change directory, root, owner and mode - stat and stat - pipes - dup - mounting and unmounting file systems - link and unlink. .

UNIT V

Interprocess communication: Process tracing - system V IPC - sockets. Multiprocessor systcms: Problem of multiprocessor systems - solution with master and slave processors - solution with semaphores.

BOOKS FOR STUDY:

Units I, II, III

1. "Distributed Operating Systems Concepts and Design", Pradcep K.Sinha, PHI, 1998. Chapters: 1.2,1.3,1.5-1.7,2.5,3.2-3.5,3.8-3.10,6,8,11.

Units IV, V

2. "The Dcsign of the UNIX Operating System", Maurice J.Bach, PHI, 1995.
Chapters: 1.1-1.3,4.1-4.7,5.1-5.16,11.1,'11.2,11.4,12.1-12.3,13.1-13.4.

Books,.for reference:

1. "Distributed Operating System", Andrew S.Tanenbaum, Addison Wesleylongman, (Singapore) Private Limited.
2. "UNIX Network Programming"; W.Richard Stevens, _I-lI, 1993 Private Limited.