Course Description Format

TITLE : Operating Systems and Networks
Course Code : CS2.201

CREDITS : 3
TYPE-WHEN : Third semester
FACULTY NAME : P. Krishna Reddy

PRE-REQUISITE :
OBJECTIVE :
Man is a tool making animal. For every tool, there is a "machine part" and "operating part". The operating part abstracts the machine part in terms of simple services by hiding the details of the machine. A computer is also a tool that contains "machine part" and "operating part". The operating part of a computer is called as "operating system". The operating system abstracts the machine part of computer system in terms of simple services by hiding the details of the machine (hardware). The objectives of this course is to learn the important concepts which have been evolved for building modern operating systems and networking protocols.

COURSE TOPICS :
(please list the order in which they will be covered)

Introduction (1 week); Process and thread management (2 weeks); CPU Scheduling (1 week), Process Synchronization (2 weeks); Deadlocks (1 week); Memory management (1.5 weeks), Virtual Memory (1.5 weeks), File Systems (1 week); Protection and Security (1 week), Networking (3 weeks)

PREFERRED TEXT BOOKS: Text book:

1. Silberschatz, A, Galvin, P, Gagne, G. Operating system concepts, Addison-Wesley (latest edition)
2. Computer Networks (5th Edition) Andrew S. Tanenbaum, David J. Wetherall Prentice Hall.

*REFERENCE BOOKS:

1. Wlliam Stallings, Operating Systems, Prentice-Hall, (latest edition).
2. Charles Crowley, Operating systems: A design oriented approach, Tata McGraw-Hill (latest edition)
3. Tanenbaum, A., Modern Operating Systems, Prentice-Hall, Second Edition (latest edition.

***PROJECT:**

Experiments will be on the exposing the working of several system calls of LINUX OS: Installation: reversing a file; Shell writing ; Process communication: Bounded buffer, semaphores, shared memory, threads; Replace "ls" with lookup; Command line for /proc; Memory management, networking

GRADING PLA

Type of Evaluation	Weightage (in %)
Quizes (about 10)	40
End Sem Exam	30%
Assignments (programming)	30%

OUTCOME:

After completing the course, the students will understand (i) fundamental concepts of several computer operating systems (SOLARIS, LINUX, WINDOWS, MAC, Adroid,…) and network based services (Skype, Google Hangouts,..) (ii) the solutions/options to interesting problems which have been encountered by the designers of the preceding operating systems and networking protocols, and (iii) the critical role of the operation system in designing several computer and network based systems like database systems, expert systems, web based information systems, multi-media systems, embedded systems, internet services and so on.

REMARKS: The lab is intensive