

M.S.RAMIAH INSTITUTE OF TECHNOLOGY, BANGALORE-560054**Lesson Plan**Department: **MCA**Semester: **IV**Subject Code and Subject: **MCA44-Operating Systems**Prepared by: **Manish Kumar**Preparation Date: **07.02.2009**Reviewed by: **Madhu Bhan**Review Date: **09.02.2009**Credits: **4:0:0**Contact Hours: **4 Hour/Week**No. of Hours/Session Requires: **56**Max Final Exam Mark: **50**Duration of Final Exam: **3 hrs**Max Internal Assessment Mark: **50**

Lesson / Session No	Topic	Duration in Minutes
1	What operating system do, Computer System organization	55
2	Computer System Architecture	55
3	Operating System Structure, Operating System Operations	55
4	Process Management	55
5	Memory Management, Storage Management	55
6	Protection and Security, Distributed System	55
7	Special –Purpose Systems, Computing Environments	55
8	Operating System Services; user operating System Interface; System calls;	55
9	Types of System Calls; System Programs;	55
10	Operating System Design and Implementation;	55
11	Operating System Structure; Virtual Machines	55
12	Operating System Generation; System Boot	55
13	Process Concept; Process Scheduling; Operation on Processes	55
14	Inter-process communication	55
15	Multi Threaded Programming Overview	55
16	Multithreaded models; Thread Libraries	55
17	Threading Issues. Process Scheduling: Basic Concepts	55
18	Scheduling Criteria; Scheduling Algorithms	55
19	Multiple-Processor Scheduling; Threaded Scheduling	55
20	Synchronization: The Critical Section Problem	55
21	Peterson’s Solution, Synchronization Hardware	55
22	Semaphores; Classical problems of synchronization,	55
23	Monitors, Atomic Transactions	55
24	Deadlocks: System model, Deadlock Characterization	55
25	Methods for handling deadlocks, Deadlock prevention	55
26	Deadlock avoidance, Deadlock detection and recovery from deadlock	55
27	Memory Management Strategies: Background	55
28	Swapping; Continuous Memory Allocation	55
29	Paging: Structure of page table	55

30	Paging: Structure of page table continued	55
31	Segmentation	55
32	Virtual Memory Management: Background	55
33	Demand Paging	55
34	Copy-on-write; Page replacement	55
35	Allocation of frames; Thrashing	55
36	File System: File concept; Access methods	55
37	Directory Structure; File system mounting	55
38	File sharing; Protection	55
39	Implementing File System: File System Structure	55
40	File System Implementation; Directory Implementation	55
41	Allocation Methods; Free Space Management	55
42	Mass storage structures	55
43	Disk structure; Disk attachment	55
44	Disk Scheduling; Disk Management	55
45	Swap space management	55
46	Protection: Goals of protection.	55
47	Principles of protection	55
48	Domain of protection	55
49	Access matrix, Implementation of Access matrix	55
50	Access control, Revocation of access rights,	55
51	Capability-Based systems	55
52	Windows XP Case Study-History	55
53	Design Principles	55
54	System Concepts, Environmental Subsystems	55
55	File System, Networking	55
56	Programmer Interface	55

Internal Assessment Details:

Average of two internal tests (Maximum marks of each test is 50)

Text Books:

1. Operating System Principles, Abraham Silberschatz, Peter Baer Galvin, Greg Gagne, 7th Edition, Wiley-India, 2006

Reference Book:

1. Operating Systems- A Concept based Approach, D.M.Dhamdhere, 2nd Edition, Tata McGraw-Hill,2002
2. Operating Systems, P.C.P Bhatt, 2nd Edition, Pearson Education.,2006
3. Operating Systems, Harvey M Deital, 3rd Edition, Addison Wesley,1990

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