DSE-1C	BCS-E501A	OPERATING SYSTEMS	L	C	CIA	ESE	Time for ESE
			4	4	30	70	3Hrs.
PREREQUISITES		:	Knowledge of computer architecture and assembly language				
COURSE OBJECTIVES/ LEARNING OUTCOMES		:	After successfully completing this course, students should be able to: • understand key mechanisms in design of operating systems modules • understand process management, concurrent processes and threads, memory management, virtual memory concepts, deadlocks • compare performance of processor scheduling algorithms • produce algorithmic solutions to process synchronization problems				
NOTE: The question paper shall consist of three sections (Sec.-A, Sec.-B and Sec.-C). **Sec.-A** shall contain 10 objective type questions of one mark each and student shall be required to attempt all questions. **Sec.-B** shall contain 10 short answer type questions of four marks each and student shall be required to attempt any five questions. **Sec.-C** shall contain 8 descriptive type questions of ten marks each and student shall be required to attempt any four questions. Questions shall be uniformly distributed from the entire syllabus. The previous year paper/model paper can be used as a guideline and the following syllabus should be strictly followed while setting the question paper.								

Introduction: Operating System as a resource manager, operating system classification, system calls, traps, architectures for operating systems. **6L**

Device Management: Goals of I/O software, Design of device drivers. **4L**

Processor Management: Process overview, process states and state transition, multiprogramming, multi-tasking, levels of schedulers and scheduling algorithms. **10L**

Process Synchronization - Critical section and mutual exclusion problem, classical synchronization problems, deadlock prevention. **14L**

Multithreading Memory Management: Classical memory management techniques, paging, segmentation, virtual memory. **12L**

File Management: Overview of file management system, disk space management, directory structures. **8L**

Protection domains, access control lists, protection models. **6L**

BOOKS RECOMMENDED :

1 A.S. Tanenbaum, Modern Operating Systems, 3rd Ed., Prentice-Hall of India, 2008.

2 William Stallings, Operating Systems: Internals and Design Principles, 5th Ed., Prentice-Hall of India, 2006.

3 Gary Nutt, Operating Systems: A Modern Approach, 3rd Ed., Addison Wesley, 2004.

4 D.M. Dhamdhere, Operating Systems: A Concept Based Approach, 2nd Ed., Tata McGraw-Hill, 2007.