

**GOPALAN COLLEGE OF ENGINEERING AND MANAGEMENT**

**OPERATING SYSTEMS**

Subject Code: **10EC65**

No. of Lecture Hrs/Week : 04

Total no. of Lecture Hrs. : 52

IA Marks: 25

Exam Hours : 03

Exam Marks : 100

**UNIT - 1**

**INTRODUCTION AND OVERVIEW OF OPERATING SYSTEMS:**

Operating system, Goals of an O.S, Operation of an O.S, Resource allocation and related functions, User interface related functions, Classes of operating systems, O.S and the computer system, Batch processing system, Multi programming systems, Time sharing systems, Real time operating systems, distributed operating systems.

**UNIT - 2**

**STRUCTURE OF THE OPERATING SYSTEMS:** Operation of an O.S, Structure of the supervisor, Configuring and installing of the supervisor, Operating system with monolithic structure, layered design, Virtual machine operating systems, Kernel based operating systems, and Microkernel based operating systems.

**UNIT - 3**

**PROCESS MANAGEMENT:** Process concept, Programmer view of processes, OS view of processes, Interacting processes, Threads, Processes in UNIX, Threads in Solaris.

**UNIT - 4**

**MEMORY MANAGEMENT:** Memory allocation to programs, Memory allocation preliminaries, Contiguous and noncontiguous allocation to programs, Memory allocation for program controlled data, kernel memory allocation.

## **UNIT - 5**

**VIRTUAL MEMORY:** Virtual memory basics, Virtual memory using paging, Demand paging, Page replacement, Page replacement policies, Memory allocation to programs, Page sharing, UNIX virtual memory.

## **UNIT - 6**

**FILE SYSTEMS:** File system and IOCS, Files and directories, Overview of I/O organization, Fundamental file organizations, Interface between file system and IOCS, Allocation of disk space, Implementing file access, UNIX file system.

## **UNIT - 7**

**SCHEDULING:** Fundamentals of scheduling, Long-term scheduling, Medium and short term scheduling, Real time scheduling, Process scheduling in UNIX.

## **UNIT - 8**

**MESSAGE PASSING:** Implementing message passing, Mailboxes, Inter process communication in UNIX.

## **TEXT BOOK:**

1. **“Operating Systems - A Concept based Approach”**, D. M. Dhamdhare, TMH, 2nd Ed, 2006.

## **REFERENCE BOOK:**

1. **Operating Systems Concepts**, Silberschatz and Galvin, John Wiley, 5th Edition, 2001.

2. **Operating System – Internals and Design Systems**, Willaim Stalling, Pearson Education, 4th Ed, 2006.

**GOPALAN COLLEGE OF ENGINEERING AND MANAGEMENT**

Department of Electronics and Communication

Academic Year: **2016-17**Semester: **EVEN****COURSE PLAN**Semester: **V**Subject Code & Name: **10EC65 & Operating Systems**Name of Subject Teacher: **Kavitha M V**Name of Subject Expert (Reviewer): **Thejaswini**

For the Period: From: 13-02-17 to 02-06-17

**Details of Book to be referred:**

<b>Text Books</b>	1. <b>“Operating Systems - A Concept based Approach”</b> , D. M. Dhamdhare, TMH, 2nd Ed, 2006.
<b>Reference Books</b>	1. <b>Operating Systems Concepts</b> , Silberschatz and Galvin, John Wiley, 5th Edition, 2001. 2. <b>Operating System – Internals and Design Systems</b> , Willaim Stalling, Pearson Education, 4th Ed, 2006.

<b>Lecture NO</b>	<b>Topic Planned</b>	<b>Practical Applications &amp; Brief objectives</b>	<b>Book referred with Pg No.</b>	<b>Planned Date</b>	<b>Executed Date</b>	<b>Deviation Reasons thereof</b>	<b>How Made Good / Reciproca</b>	<b>Remarks by HOD</b>
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1.	<b>UNIT 1 : INTRO DUCTION AND OVERVIEW OF OPERATING SYSTEMS:</b> Introduction on OS	<b>Objectives:</b> To understand the concept of OS, to learn classes of OS , knowing about batch processing, multi programming and time sharing, RTOS and distributed systems <b>Applications:.</b> Computers watches, medical equipments , washing machine etc <b>Outcomes:</b> Analyze the purpose, structure and functions of operating systems.	T1 & T2	6.2.17					
2.	Operating system, Goals of an O.S, Operation of an O.S		T1:5-7	7.2.17					
3.	Classes of operating system		T1:31-51	8.2.17					
4.	Batch processing system, Multi programming systems		T1:52-69	9.2.17					
5.	Batch processing system, Multi programming systems		T1:52-69	10.2.17					
6.	Time sharing systems		T1:70-72	13.2.17					
7.	Real time operating systems		T1:73-74	14.2.17					
8.	distributed operating systems		T1:75-80	15.2.17					
9.	<b>UNIT 2:</b> Operation of an O.S, Structure of the supervisor	<b>Objectives:</b> .To study operation of	T1:599- 602	16.2.17					

10.	Operating system with monolithic structure	OS and designing of OS. <b>Applications:</b> Computers watches, medical equipments , washing machine etc <b>Outcomes:</b> Having successfully completed the course, the student will be able to demonstrate knowledge and Design of operating systems .	T1:603	20.2.17				
11.	layered design		T1:604-606	21.2.17				
12.	Virtual machine operating systems		T1:607-609	22.2.17				
13.	Kernel based operating systems		T1:610-611	23.2.17				
14.	Microkernel based operating systems.		T1:612—614	27.2.17				
15.	Case studies		T1:615-618-	1.3.17				
16.	<b>Revision &amp;UNIT test for 1&amp; 2</b>			2.3.17				
17.	<b>UNIT 3: PROCESS MANAGEMENT</b> Process concept		T1:84	3.3.17				
18.	Programmer view of processes		T1:84-87	4.3.17				
19.	Implementing process		T1:87-91	6.3.17				
20.	OS view of processes		T1:92-105	7.3.17				

21.	Interacting processes		T1:130-138	8.3.17				
22.	Interacting processes		T1:130-138	13.3.17				
23.	Threads, Processes in UNIX		T1:106-114	14.3.17				
24.	Threads, Processes in UNIX		T1:106-114	15.3.17				
25.	Threads in Solaris		T1:115	16.3.17				
26.	<b>UNIT 5: VIRTUAL MEMORY:</b> Virtual memory basics	<b>Objectives:</b> to study about virtual memory ,page replacement, memory allocation, page sharing	T1:237-239	17.3.17				
27.	Virtual memory using paging, Demand paging ,		T1:240-263	20.3.17				
28.	Page replacement, Page replacement policies	<b>Applications:</b> Computers , medical equipments , robotics etc <b>Outcomes:</b> student should be able to understand the concept of virtual memory	T1:266-274	21.3.17				
29.	Page replacement policies		T1:266-274	22.3.17				
30.	Memory allocation to programs		T1:275-278	23.3.17				
31.	Controlling memory allocation to a process		T1:275-278	27.3.17				
32.	UNIX virtual memory		T1:289	28.3.17				

33.	UNIT test for 3 & 5			30.3.17				
34.	<b>UNIT - 6</b> <b>FILE SYSTEMS: :</b> File system and IOCS	<b>Objectives:</b> to know about how to create and interface files and allocation of disk space file <b>Applications:</b> computers, video games etc <b>Outcomes:</b> student should know about file handling system	T1:302-303	31.3.17				
35.	Files and File operations		T1:304-305	3.4.17				
36.	Fundamental file organizations		T1:306	4.4.17				
37.	Files and directories		T1:307-310	5.4.17				
38.	Allocation of disk space		T1:322-325	6.4.17				
39.	Interface between file system and IOCS		T1:319-321	8.4.17				
40.	UNIX file system.		T1:343-347	9.4.17				
41.	<b>UNIT - 7</b> <b>SCHEDULING:</b> Fundamentals of scheduling	<b>Objectives:</b> to know about different types of scheduling <b>Application:</b> computers, medical equipments ,robotics etc <b>Outcome:</b> students should be able to Compare performance of processor	T1:143	10.4.17				
42.	FCFS scheduling		T1:148-156	11.4.17				
43.	Long ,Medium and short term scheduling		T1:148-156	12.4.17				
44.	Medium and short term scheduling		T1:148-156	13.4.17				
45.	Real time scheduling		T1:156-167	20.4.17				

46.	Real time scheduling	scheduling algorithms.	T1:156-167	21.4.17				
47.	Process scheduling in UNIX.	<b>Objectives:</b> to learn about message passing and inter process communication.	T1:175-177	24.4.17				
48.	Process scheduling in UNIX.		T1:175-177	25.4.17				
49.	UNIT test on 6 & 7			26.4.17				
50.	<b>UNIT – 8 MESSAGE PASSING:</b> Over view of message passing	<b>Applications:</b> computers ,robotics etc	T1:466-469	27.4.17				
51.	Implementing message passing	<b>Outcomes:</b> students should be able to explain message passing and inter process communication and Practice with operating system concepts such as System security, networked processes and Produce algorithmic solutions to process synchronization problems	T1:470-473	28.4.17				
52.	Implementing message passing		T1:470-473	2.5.17				
53.	Mailboxes		T1:474-475	3.5.17				
54.	Mailboxes		T1:476-479	4.5.17				
55.	Inter process communication in UNIX.		T1:480-482	5.5.17				
56.	Inter process communication in UNIX.		T1:480-482	8.5.17				
57.	<b>UNIT - 4 MEMORY MANAGEMENT:</b> Memory allocation to	<b>Objectives:</b> to know about memory management	T1:191-192	9.5.17				



	programs	<b>Applications:</b> computers ,robotics etc  <b>Outcomes:</b> students should know about and memory management.						
58.	Memory allocation preliminaries		T1:193-195	10.5.17				
59.	Memory allocation preliminaries		T1:193-195	11.5.17				
60.	Heap memory		T1:202-210	12.5.17				
61.	Contiguous memory allocation		T1:211-212	18.5.17				
62.	Contiguous memory allocation		T1:211-212	19.5.17				
63.	Noncontiguous memory allocation	T1:213-216	22.5.17					
64.	Paging, segmentation, kernel memory allocation	T1:219-220	23.5.19					
65.	Revision and QP solving		24.5.17					
66.	Revision and QP solving		25.5.17					
67.	Revision and QP solving		26.5.17					
68.	Revision and QP solving		29.5.17					
69.	Revision and QP solving		30.5.17					
70.	Revision and QP solving		31.5.17					

71.	Revision and QP solving			1.6.17				
72.	Revision and QP solving			2.6.17				

Prepared By:  
(Faculty)  
Date & Sign

Kavitha M V

Reviewed by: \_\_\_\_\_  
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