UPES

Year: II (2022-2023)
Semester: III

1. **Name of the Faculty: Saroj Snehal Shivagunde** **Course Code: CSEG2007**
2. **Course : Operating Systems** **L: 3**
3. **Program : BTech** **T: 0**
4. **Target : Level-1** **P: 0**
C: 3

COURSE PLAN

1. Method of Evaluation

2 Class-tests (20%)
Class Participation (10%)
Mid Semester (20%)
End Semester (50%)

2. Passing Criteria

Out of 10-point scale	SGPA – "6.00" in each semester CGPA – "6.00" Min. Individual Course Grade – "C" Course Grade Point – "4.0"

*Passing marks are 35/100 in a paper

3. **Pedagogy:** Discussion-based Learning

4. References:

Textbooks	"Operating System Concepts", Silberschatz, Galvin (2010), 8E, Wiley India.
Reference books	1. "Modern Operating Systems", Andrew S. Tanenbaum, Prentice Hall. 2. "Operating Systems – A Modern perspective", Garry Nutt, Third Edition, Pearson Education. 3. "Design of UNIX Operating System", Bach, M.J., Prentice Hall.

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GUIDELINES TO STUDY THE SUBJECT

Instructions to Students:

1. Get your schedule and try to pace your studies as close to the timeline as possible.
2. Go through study material.
3. Check mails and announcements on blackboard.
4. Keep updated with the posts, assignments and examinations which shall be conducted on the blackboard.
5. Be regular, so that you do not suffer in any way.
6. **Cell Phones and other Electronic Communication Devices:** Cell phones and other electronic communication devices (such as Blackberries/Laptops) are not permitted in classes during Tests or the Mid/Final Examination. Such devices MUST be turned off in the classroom.
7. **E-Mail and online learning tool:** Each student in the class should have an e-mail id and a password to access the LMS system regularly. Regularly, important information – Date of conducting class tests, guest lectures, via online learning tool. The best way to arrange meetings with us or ask specific questions is by email and prior appointment.
8. **Attendance:** Students are required to have minimum attendance of 75% in each subject. Students with less than said percentage shall NOT be allowed to appear in the end semester examination.
9. **If students are not present in a scheduled class, the class will still be counted, and the syllabus planned for that class will be marked as covered.**

This much should be enough to get you organized and on your way to having a great semester! If you need us for anything, send your feedback through e-mail to saroj.shivagunde@ddn.upes.ac.in. **Please use an appropriate subject line to indicate your message details. The subject line must contain subject code CSEG2007.**

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BROAD PLAN OF COURSE COVERAGE

Course Activities:

Unit	Description	From	To	No. of Sessions
1	Introduction To Operating System	08-Aug-23	11-Aug-23	2+1
2	Process Management	12-Aug-23	29-Aug-23	7+2
3	Deadlock	02-Sep-23	19-Sep-23	8+2
4	Memory Management	22-Sep-23	17-Oct-23	8+2
5	I/O Management	27-Oct-23	10-Nov-23	6+2

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SESSION PLAN

Lec. No.	Topic No.	Activities / Topics to be Covered	Date
1	1.1	Course Plan, Exam Dates, Introduction to the Subject, Introduction to OS, Its need and operating system services.	08-Aug-23
2	1.2	Operating system Classification –Single user, Multiuser, Simple batch Processing, Multi programming, Multitasking, Parallel systems, Distributed system & Real time system(overview).	11-Aug-23
3	2.1	Process Scheduling & CPU Scheduling, FCFS, SJF, SRTF.	12-Aug-23
4	**-**	**No Lecture Due to Holiday**	**15-Aug-23**
5	2.2	Round Robin, Priority Scheduling, Multiple Queues, Guaranteed Scheduling, Two–level Scheduling.	18-Aug-23
6	2.3	Practice Examples of Scheduling Algorithms.	19-Aug-23
7	2.4	Process Concept, Inter process communication, Race conditions, Critical Sections, Mutual Exclusion.	22-Aug-23
8	2.5	Busy waiting, Sleep and Wakeup, Semaphores, Event counter, Monitors.	25-Aug-23
9	2.6	Message passing, Threads.	26-Aug-23
10	2.7	Revision	29-Aug-23
11	**-**	**Classtest-1 (Syllabus - Unit 1 & 2)**	**01-Sep-23**
12	3.1	Deadlock - Conditions for Deadlock.	02-Sep-23
13	3.2	Deadlock Detection and Recovery.	05-Sep-23
14	3.3	Deadlock Avoidance.	08-Sep-23
15	3.4	Revision.	09-Sep-23
16	3.5	Resource Trajectories, Safe and Unsafe States, Bankers Algorithm.	12-Sep-23
17	3.6	Bankers Algorithm.	15-Sep-23
18	3.7	Deadlock Prevention, Two-phase locking, Non-resource Deadlocks.	16-Sep-23
19	3.8	Starvation, Security Mechanism and Policy, Domain of Protection, Access Matrix.	19-Sep-23

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Lec. No.	Topic No.	Activities / Topics to be Covered	Date
20	4.1	Logical versus Physical Address Space, Swapping –Multiprogramming with Fixed and Variable Partitions.	22-Sep-23
21	4.2	Memory Management with Bit Maps, Linked List, Buddy System.	23-Sep-23
22	4.3	Revision.	26-Sep-23
23	4.4	Allocation of Swap Space, Virtual Memory, Paging and Segmentation, Page Tables, Associative Memory, Inverted Page Tables.	29-Sep-23
24	4.5	Allocation Algorithms.	30-Sep-23
25	**-**	**No Lecture Due to Mid-Semester Exams**	**03-Oct-23**
26	**-**	**No Lecture Due to Mid-Semester Exams**	**06-Oct-23**
27	**-**	**No Lecture Due to Mid-Semester Exams**	**07-Oct-23**
28	4.6	Allocation Algorithms.	10-Oct-23
29	**-**	**Midsemester Answer sheets to be Shown to Students.**	**13-Oct-23**
30	4.7	Page Replacement algorithm.	14-Oct-23
31	4.8	Page Replacement algorithm, Thrashing.	17-Oct-23
32	**-**	**No Lecture Due to University Fests**	**20-Oct-23**
33	**-**	**No Lecture Due to University Fests**	**21-Oct-23**
34	**-**	**No Lecture Due to Holiday**	**24-Oct-23**
35	5.1	File systems and I/O files, Directories, File System Implementation, Security and Protection Mechanisms.	27-Oct-23
36	5.2	Principles of I/O Hardware, I/O Devices, Device Controllers, DMA.	28-Oct-23
37	5.3	Principle of I/O Software, Interrupt Handles, Device Drivers, Disk Scheduling, Clock and Terminals.	31-Oct-23
38	**-**	**Classtest-2 (Syllabus - Unit 3 & 4)**	**03-Nov-23**
39	5.4	I/O Buffering, RAID, Disk Cache, Scheduling Algorithms (FCFS, SSTF).	04-Nov-23
40	5.5	Scheduling Algorithms (Revision of FCFS and SSTF, SCAN, C- SCAN), Selecting Disk Scheduling Algorithms.	07-Nov-23
41	5.6	Revision.	10-Nov-23

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42	-	Revision for End Semester (Unit-1)	11-Nov-23
43	**-**	**No Lecture Due to Diwali Break**	**14-Nov-23**
44	**-**	**No Lecture Due to Diwali Break**	**17-Nov-23**
45	**-**	**No Lecture Due to Diwali Break**	**18-Nov-23**
46	-	Revision for End Semester (Unit-2)	21-Nov-23
47	-	Revision for End Semester (Unit-2)	24-Nov-23
48	**-**	**No Lecture Due to Convocation**	**25-Nov-23**
49	-	Revision for End Semester (Unit-3)	28-Nov-23
50	-	Revision for End Semester (Unit-3)	01-Dec-23
51	-	Revision for End Semester (Unit-4)	02-Dec-23
52	-	Revision for End Semester (Unit-4)	05-Dec-23
53	-	Revision for End Semester (Unit-5)	08-Dec-23
54	-	Revision for End Semester (Unit-5)	09-Dec-23