

CS343 - Operating Systems

Introduction & Course Overview



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Few Important Information

❖ Instructors:

- ❖ John Jose [johnjose@iitg.ac.in]
- ❖ T. Venkatesh [t.venkat@iitg.ac.in]

❖ Teaching Assistants

- ❖ Amit Puri, Sivakumar S., Syam Sankar, [Ph.D Scholars]
- ❖ Ruchika Gupta [Post Doc Fellow]
- ❖ N.N. Sivakumar Reddy, Utkarsh Khati, Few more .. [M.Tech students]

❖ Interaction Platform

- ❖ Microsoft Teams [Live lectures/Live streaming, Q&A]
- ❖ C1 slot [Tue, Wed, Thu – 3:00 to 3:55 PM]

Grading

❖ Grading Scheme

❖ 4 Short quizzes [5% weightage each]	- 20%
❖ Term paper assignment	- 10%
❖ Proctored Mid Sem Exam [22.09.21]	- 30%
❖ Proctored End Sem Exam [22.11.21]	- 40%

There might be slight changes in the weightage in unavoidable cases.

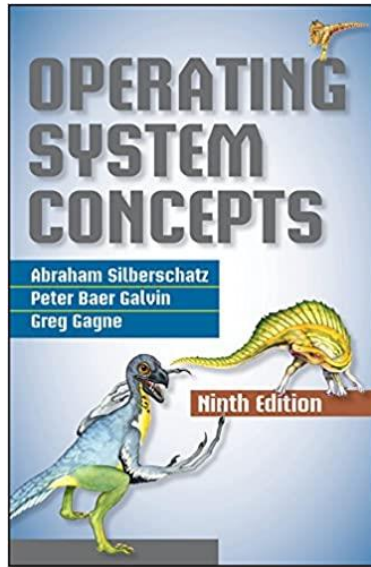
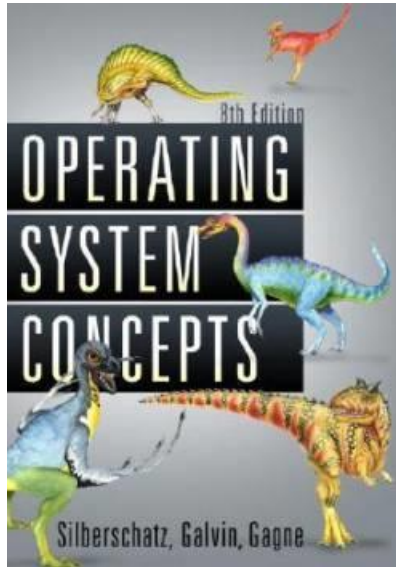
Institute prescribed attendance policy is mandatory.

Login information from MS Teams is used for attendance calculation.

Reference Books

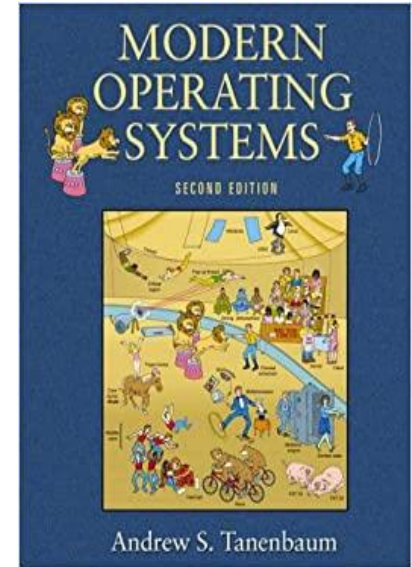
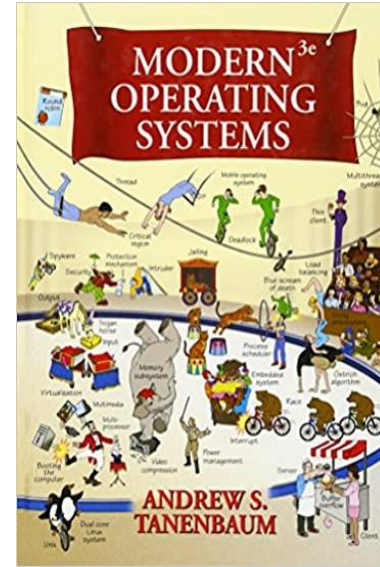
Operating System Concepts (6th to 9th edition)

Abraham Silberschatz, Peter Baer Galvin,
Greg Gagne,



Modern Operating Systems (2nd / 3rd edition)

Andrew S. Tanenbaum,



Lecture Plan – August 2021

- ❖ Elementary computer architecture and introduction to operating systems. Types of OS, abstract view of OS and its functional structure.
- ❖ Process management, process states, CPU scheduling, scheduling criteria and scheduling algorithms.
- ❖ Process vs threads, multithreading model, thread libraries.

Quiz-1

Lecture Plan – September 2021

- ❖ Operations on processes, inter process communication, process synchronization
-critical sections, semaphores, monitors
- ❖ Classical synchronization problems, deadlock characterization, prevention, avoidance, detection and recovery techniques.
- ❖ Introduction to memory management, partitions & allocation technique, free space management, address mapping, segmentation and paging, page tables.

Quiz-2, Mid Sem Exam

Lecture Plan – October 2021

- ❖ Virtual memory concepts, page replacement strategies, working set schemes, frame allocation techniques and thrashing.
- ❖ Storage Management: Hard disk structure, disk management, swap space management, disk scheduling, RAID structure.
- ❖ File management; access and control methods, directory structure, file system structure, file system and directory implementation. Allocation methods and free space management.
- ❖ I/O subsystem, structure and organization, polled vs interrupt-driven I/O, DMA . Classification of I/O devices, buffering, caching, scheduling, spooling.

Quiz-3

Lecture Plan – November 2021

- ❖ Protection; design principles, authentication schemes, access matrix, ACLs and capabilities, covert channels. Security and user authentication, system and network threats, security defenses and firewalls.
- ❖ Introduction to distributed operating systems, design issues, distributed file systems, distributed synchronization.

Quiz-4, Term paper assignment, End Sem Exam

How can you master this course? Few tips

- ❖ Regularly attend classes (120-140 minutes) per week.
- ❖ If needed go through difficult concepts multiple times.
- ❖ Make use of Q&A session, as and when organized.
- ❖ Do not depend only on slides/videos, read sections from the text book.
- ❖ Solve questions given at end of each chapter in the text book.
- ❖ Start your preparation for quiz and exams well in advance.
- ❖ Value knowledge above marks. Enhance conceptual clarity.
- ❖ I promise that you will enjoy this course.

Thank you

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