

OPERATING SYSTEMS

MASTER IN COMPUTER SCIENCE & BUSINESS TECHNOLOGY

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Github: https://github.com/operard/opsys_parallel/blob/master/mcsbt/README.md

https://github.com/operard/opsys_parallel/blob/master/mcsht/README.md



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opsys_parallel

Operating Systems & Parallel Computing

books Reference

A free online version of "Modern Operating Systems" can be downloaded from:

<https://github.com/gramasaurus/opsys/blob/master/Modern.Operating.Systems.3rd.Edition.pdf>

The "Parallel Programming for Multicore and Cluster Systems" book can be found here:

<https://www.springer.com/gp/book/9783642378003>

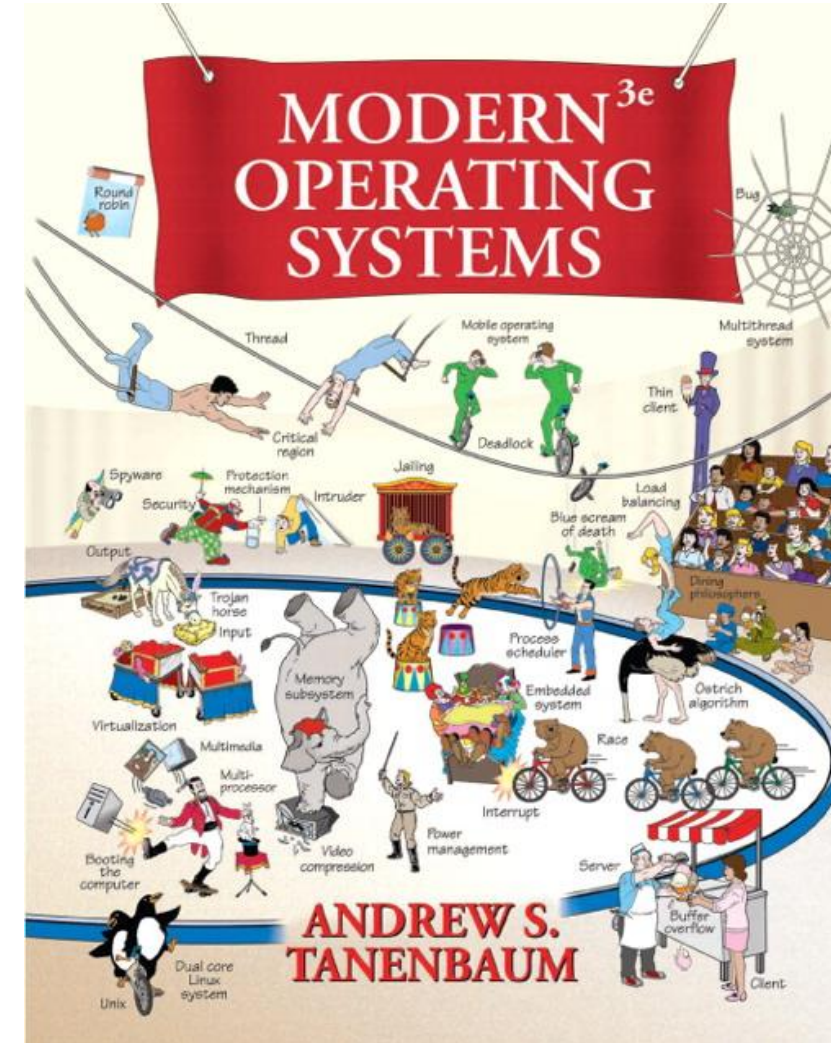
A free online version of "Parallel Programming for Multicore and Cluster Systems" can be downloaded from:

https://doc.lagout.org/science/0_Computer%20Science/5_Parallel%20and%20Distributed/Multicore%20Programming/Parallel%20Programming%20for%20Multicore%20and%20Cluster%20Systems.pdf

Books References

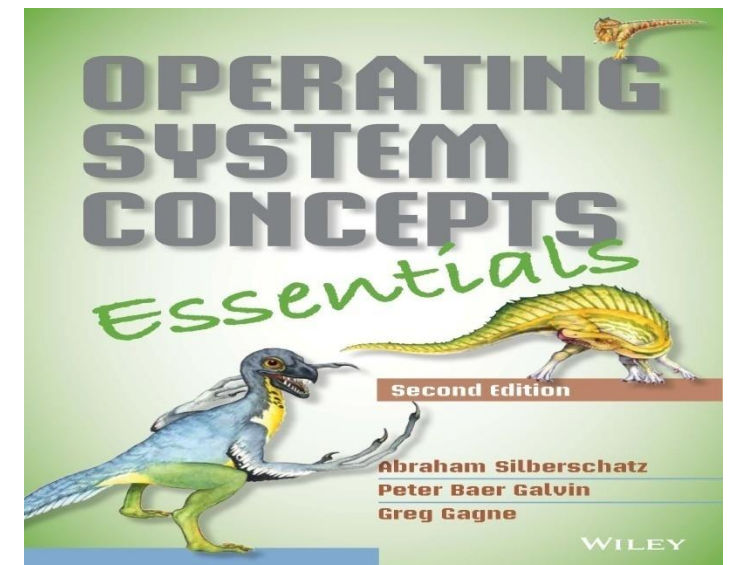
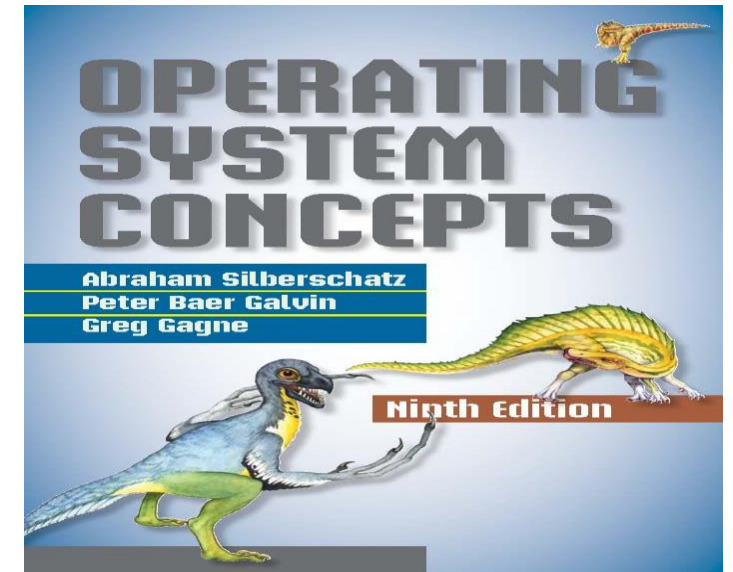
Operating Systems book

- A free online version of “Modern Operating Systems” can be downloaded from:
- <https://github.com/gramasauros/opsys/blob/master/Modern.Operating.Systems.3rd.Edition.pdf>
- https://github.com/gramasauros/opsys/blob/master/MOS_3e_SM.pdf



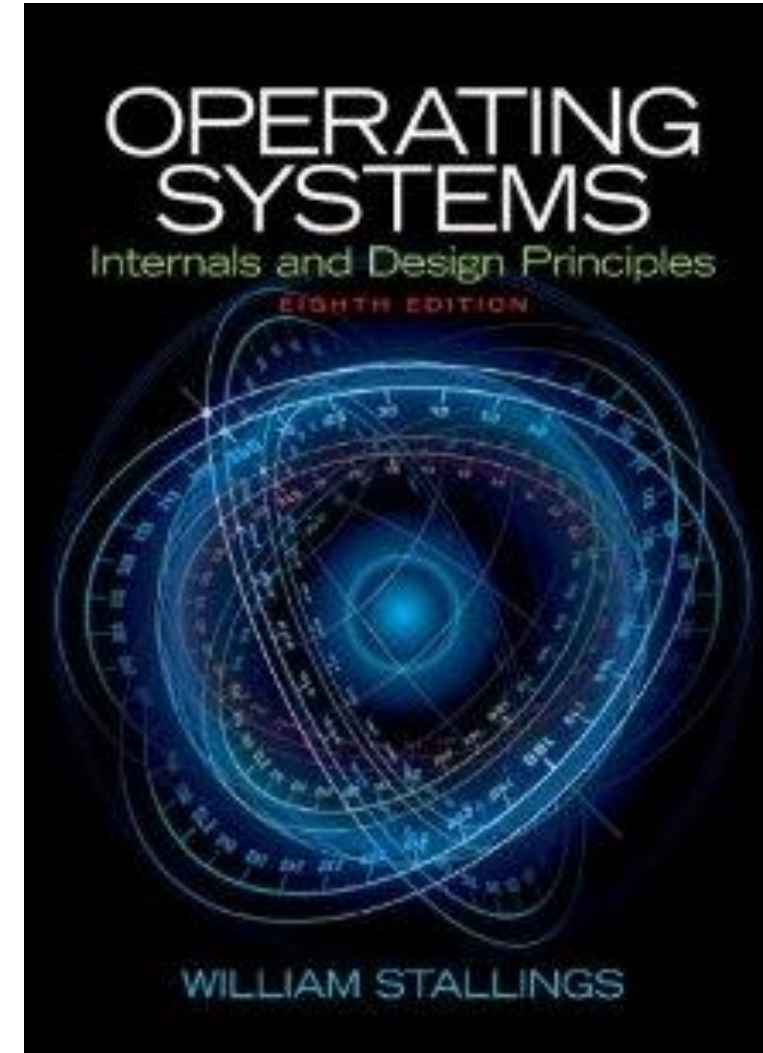
Other links (1)

- A. Silberschatz, P. B. Galvin, and G. Gagne, “Operating Systems Concepts (Essentials)”, 9th Edition, John Wiley & Sons, 2012.
- <http://codex.cs.yale.edu/avi/os-book/>
- <https://www.os-book.com/OSE2/index.html>
- <https://www.os-book.com/OS9/index.html>
- <https://www.os-book.com/OS10/index.html>



Other links (2)

- W. Stallings, “Operating Systems: Internals and Design Principles”, 8th ed, Pearson, 2015.
- <http://williamstallings.com/OperatingSystems/>



Current Syllabus

Syllabus

- **Session 1**

- What is an Operating System?
- History of Operating Systems
- Computer Hardware
- File System
- Operating Systems

- **Session 2**

- System Calls
- Monolithic Systems
- Virtual Machines
- Process Model
- Cloud Google Shell *Practice
- Process Life Cycle

Syllabus

- **Session 3**

- **Interprocess Communication**
- Producer-Consumer problem
- Deadlock
- Banker's Algorithm

- **Session 4**

- **Concurrency, synchronization and Scheduling**
- Read and Write problem
- Monitors
- Semaphores
- **Dining Philosophers Problem *Practice**

Syllabus

- **Session 5**
 - **Concurrency, synchronization and Scheduling**
 - Process Scheduler
 - Scheduler Algorithms: FCFS, SJF,
 - Python FCFS *practice
- **Session 6**
 - **Memory Management**
 - Address space
 - Dynamic address
 - Segmentation, Paging
 - Replacement policies: FIFO, LRU
 - **LRU python code *practice**

Syllabus

- **Session 7**

- **File systems**
- ownership and permissions
- changing and removing permissions
- Access modes
- file creation mask
- moving around the file system
- wild cards
- **File testing *practice**

- **Session 8**

- **Input Output I/O**
- overhead, latency, bandwidth
- Direct Memory Access DMA
- Sync and Async I/O
- **Redirection *practice**

Syllabus

- **Session 9**
 - **Multimedia**
 - Browser support
 - Multimedia formats
 - Multimedia operating systems
- **Session 10**
 - **Network**
 - TCP/IP Network model
 - **The routing table *practice**

Syllabus

- **Session 11**
 - **Security and Encryption**
 - Phishing
 - Trojan Horse
 - XSS Attacks
 - **my unsecure bank *practice**
- **Session 12**
 - **Exam**

