OPERATING SYSTEMS
CS 347M

Autumn 2025

CSE @ IIT Bombay

People

- Instructor
  - Puru (office: SIA 304, KR Bldg)
    www.cse.iitb.ac.in/~puru
  - office hours
    walk-in
    wed: 2.30 pm - 3.30 pm
- TAs
  - Ishan, Parth, …

Course Structure and Logistics

- **Slot 5** (Wed. and Fri. 9.30 am to 11 am)

  www.cse.iitb.ac.in/~puru/courses/autumn2025/

- Moodle for interactions/discussion forum
- Moodle for submissions

- **Open for non-CSE students and some CSE students (CS 219)**

Goals of course

- What is OS?
- Why OS?
- Design principles of an OS
- Be the OS

image source: https://www.nicepng.com/

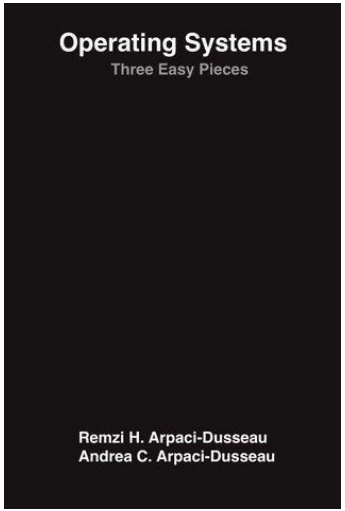
Syllabus & Course Text

- **CPU virtualization**
  - Limited direct execution
  - Processes and Process Management
  - CPU Scheduling
- **Memory virtualization**
  - Address spaces
  - Virtual memory
  - Address Translation
- **Concurrency**
  - Threads and thread scheduling.
  - Synchronization primitives
- **File systems**
  - Storage devices and disk scheduling.
  - iNodes
  - Journaling & Transactions
- **I/O (??)**
  - Network stacks
  - RPC
- **Security (??)**

Textbook

Operating Systems: Three Easy Pieces
by Remzi and Andrea Arpaci-Dusseau

available for online: http://pages.cs.wisc.edu/~remzi/OSTEP



Labs

- Linux based tools
- Programming in C
- xv6 — a simple Unix-like teaching operating system

Assessment

- 2-3 scheduled quizzes (~20%)

- Mid term exam (~30%)
- End term exam (~40%)

- 4 Lab quizzes (~30%)

Plagiarism policy

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Acceptable:

- Explaining a concept to someone in another group
- Discussing algorithms/testing strategies with other groups
- Helping debug someone else's code (in another group)
- Searching online for generic algorithms (e.g., hash table)

Unacceptable:
(will result in a report to DADAC + a zero on lab assignment/quiz/exam)

- Sharing code/answers
- Copying OR reading another's code/answers
- Copying online code or material from prior years OR from the Internet (even reading this and typing it yourself is not acceptable)

READY, SET, OS!