

Operating Systems

CS 333/347

Autumn 2023

People

- Instructors

- Puru (office: SIA 404, KR Bldg)

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

- office hours

walk-in

wed: 2.30 pm - 3.30 pm

- TAs

- ashwin, debo, nadesh, anshul, anubhav, lakshya, abhishek
- kanishka, parth, manoj, parth, bhuvan, sandeep

Course Structure and Logistics

- Theory
 - Slot 6 (Wed. and Fri. 11 am to 12.30 pm)
- Lab
 - Thursday: 2pm - 5pm
- Moodle/Piazza for interactions/discussion forum
- Moodle for lab submissions
- Open for 3rd-year UG CSE students
- **Not open for non-CSE students**

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

- Theory (CS347)
 - 2-3 scheduled quizzes (20%)
 - In-class *surprise* SAFE quizzes (5%)
 - Mid term exam (30%)
 - End term exam (40%)
- Lab (CS333)
 - 4 lab quizzes adding to 100% of the grade

**KEEP
CALM
AND
SAY NO TO
PLAGIARISM**

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)

image source: <https://www.royalcontentresearch.co.in/>

Ready, Set, OS!