

# CS343 Operating Systems

## Introduction and Course Overview



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# Few Important Information

- ❖ Instructor: **John Jose**, **Phrangboklang L. Thangkhiew**
  - ❖ Office Room: H-201, Second Floor, CSE department
  - ❖ Personal webpage: <http://www.iitg.ac.in/johnjose/>
  - ❖ Email: [johnjose@iitg.ac.in](mailto:johnjose@iitg.ac.in)
- ❖ Lead Teaching Assistants
  - ❖ Dr. Adil Hussain Seh ([adilseh@iitg.ac.in](mailto:adilseh@iitg.ac.in))
  - ❖ Ms. Rajeswari Suanee P.S. ([s.rajeshwari@iitg.ac.in](mailto:s.rajeshwari@iitg.ac.in))
  - ❖ Mr. Subham Chhetry ([s.chhetry@iitg.ac.in](mailto:s.chhetry@iitg.ac.in))
- ❖ Lecture Slots and Venue and Course Management
  - ❖ C1 slot: Mon (3 PM), Tue (2 PM), Thu (5 PM), Fri (4 PM) @ 5G2
  - ❖ MS Teams for course information, slides and updates

# Grading

❖ Quiz-1:	13.08.2025 (Wed)	[15%]
❖ Quiz-2:	23.10.2025 (Thu)	[15%]
❖ Video Assignment (group):	Due by 31.10.2025	[10%]
❖ Mid Semester Exam:	17.09.2025 (Wed)	[20%]
❖ End Semester Exam:	19.11.2025 (Wed)	[30%]
❖ Attendance and Class Participation [6+4]		[10%]

❖ Minimum mandatory attendance to avoid deregistration is 65%

# Reference Books

- ❖ Abraham Silberschatz, Peter Baer Galvin, Greg Gagne, **Operating System Concepts**. 8/e. Wiley, 2008.
- ❖ William Stallings, **Operating Systems: Internals and Design Principles**. 6/e. Pearson, 2008.
- ❖ Andrew S. Tanenbaum, **Modern Operating System**. 3/e. Pearson, 2007.
- ❖ Remzi H. Arpaci-Dusseau, Andrea C. Arpaci-Dusseau, **Operating Systems: Three Easy Pieces**
- ❖ Russ Cox, Frans Kaashoek, Robert Morris, **Xv6 – A simple, Unix-like teaching Operating System-** [link](#)

# General Policies

- ❖ 100% attendance is preferred.
- ❖ Once you miss the class you will lose the connectivity between topics.
- ❖ Be on time in attending lecture class.
- ❖ Introductory 5 minutes is very important for the day's discussion.
- ❖ Academic dishonesty cannot be tolerated.
- ❖ Everybody cannot score AA/AS. Do your best, Be sincere, Be open.
- ❖ It is not the marks but the effort that matters.
- ❖ I promise that you will enjoy this course.

# Applications and Devices

**Applications and hand-held devices are part of our day-to-day life**



**What are the role of a software interface in making these tasks do on a computing device?**

# Syllabus: Part A

- ❖ Process Management: process, thread, CPU scheduling
- ❖ Concurrency: mutual exclusion, critical sections, synchronization, semaphores, deadlocks
- ❖ Memory Management: allocation, protection, paging, segmentation
- ❖ Virtual Memory: demand paging, allocation, replacement, swapping, segmentation, TLBs

# Disclaimer

It is not the **destination** (final grade in the course),  
but the unique experience in the **journey**  
(discussions in lecture videos, tutorial sessions, deeper insights  
gained while solving lab assignments etc) that is important.

**So enjoy the ride !!!**



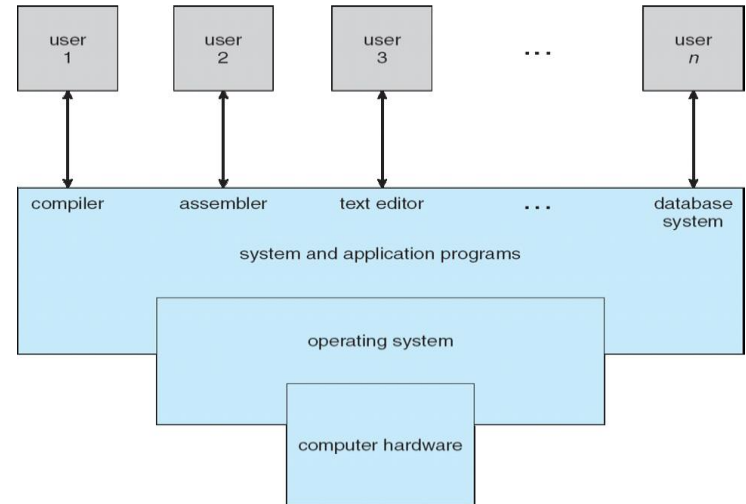
# What is an Operating System?

- ❖ A program that acts as an intermediary between a user of a computer and the computer hardware
- ❖ Operating system goals:
  - ❖ Execute user programs on hardware
  - ❖ Make the computer system convenient to use
  - ❖ Use the computer hardware in an efficient manner



# Computer System Structure

- ❖ Computer system can be divided into four components:
  - ❖ **Hardware** -- CPU, memory, I/O devices
  - ❖ **Operating system** -- Controls and coordinates hardware/software
  - ❖ **Application programs** -- Word processors, compilers, web browsers, database systems, video games, apps
  - ❖ **Users** -- People or devices



# Operating System Definition

- ❖ OS is a **resource allocator**
  - ❖ Manages all resources
  - ❖ Decides between conflicting requests for efficient and fair resource use
- ❖ OS is a **control program**
  - ❖ Controls execution of programs to prevent errors and improper use of the computer
  - ❖ The one program running at all times on the computer RAM is the **kernel of the OS**.



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