Lecture Plan

Name of the college: Government College of Arts, Science and Commerce, Sanquelim- Goa

Name of Faculty: Amar R. Naik	**Subject: Computer Science**	
Paper code: CSC-208: Computer Organization and Operating System	**Program:** SYBSc	**Division: -**
Academic year: 2025 - 2026	**Semester: IV**	**Total Lectures: 60**

Course Objectives:

1. Conceptualize the basics of Computer Organizational and Architectural issues and classify the computers based on performance and machine instructions.
2. Learn various data transfer techniques and the I/O interfaces.
3. To understand the fundamental concepts of operating systems.
4. To understand process management, synchronization techniques, memory management techniques and file management

Course Outcomes: After the completion of the course, the students will be able to:

CO1. Understand the fundamental concepts of logic gates, Boolean algebra, and data representation techniques including number systems, signed and floating-point numbers.

CO2. Understand and analyze the organization of computer systems, including instruction cycles, memory hierarchy, and input-output mechanisms such as DMA and interrupts.

CO3. Analyze and apply combinational circuits, Karnaugh Maps, and algorithms like Booth's for performing binary arithmetic operations.

CO4. Apply and analyze core operating system concepts such as process scheduling, memory management, file systems, and security mechanisms across different types of operating systems.

Month	Lecture From	Lecture To	No. of lectures allotted	Topic, Subtopic to be covered	Exercise/ Assignment	ICT Tools	Reference books
December 2025	01-12-2025	06-12-2025	4	Logic Gates, Boolean Algebra, Combinational Circuits		PPT, LCD Projector	M. Morris Mano & Rajib Mall, Computer System Architecture, Revised 3rd Edition, Pearson Education; Carl Hamacher,

							Zvonko Vranesic, Safwat Zaky, Computer Organization, 5th Edition, McGraw Hill
	08-12-2025	13-12-2025	4	Karnaugh Maps, Boolean Simplification	Discussion	PPT, LCD Projector	M. Morris Mano & Rajib Mall, Computer System Architecture, Revised 3rd Edition, Pearson Education
	15-12-2025	20-12-2025	3	Data Representation, Number Systems, Signed Numbers		PPT, LCD Projector	Carl Hamacher, Zvonko Vranesic, Safwat Zaky, Computer Organization, 5th Edition, McGraw Hill; William Stallings, Computer Organization and Architecture: Designing for Performance, 9th Edition, PHI
	22-12-2025	23-12-2025	2	Fixed and Floating Point Representation, Arithmetic Operations	Quiz	PPT, LCD Projector	M. Morris Mano & Rajib Mall, Computer System Architecture, Revised 3rd Edition, Pearson Education
January 2026	02-01-2026	03-01-2026	1	Basic Computer Organization Overview		PPT, LCD Projector	Carl Hamacher, Zvonko Vranesic, Safwat Zaky, Computer Organization, 5th Edition, McGraw Hill
	05-01-2026	10-01-2026	4	Computer Registers, Bus System, Instruction Cycle	Discussion	PPT, LCD Projector	M. Morris Mano & Rajib Mall, Computer System Architecture, Revised 3rd Edition, Pearson Education
	12-01-2026	17-01-2026	4	Instruction Formats, Addressing Modes, Instruction Codes Intra Semester Assessment I (Assignment)	Problems	PPT, LCD Projector	Carl Hamacher, Zvonko Vranesic, Safwat Zaky, Computer Organization, 5th Edition, McGraw Hill
	19-01-2026	24-01-2026	4	RISC and CISC Architectures, Pipelining		PPT, LCD Projector	William Stallings, Computer Organization and Architecture: Designing for Performance, 9th Edition, PHI
	26-01-2026	31-01-2026	3	Input–Output Organization, Interrupts and DMA		PPT, LCD Projector	M. Morris Mano & Rajib Mall, Computer System Architecture, Revised 3rd Edition, Pearson Education
February 2026	02-02-2026	07-02-2026	4	Introduction to Operating Systems, Types of Operating Systems	Discussion	PPT, LCD Projector	Abraham Silberschatz, Peter B. Galvin, Greg Gagne, Operating System Concepts, International Student Version, Wiley
	09-02-2026	14-02-2026	4	Operating System Organization, System Calls, Kernels	Assignment	PPT, LCD Projector	Abraham Silberschatz, Peter B. Galvin, Greg Gagne, Operating System Concepts,

				Intra Semester Assessment II (Written Test)			International Student Version, Wiley
	16-02-2026	21-02-2026	4	Process Concept and Scheduling Algorithms	Numericals	PPT, LCD Projector	Abraham Silberschatz, Peter B. Galvin, Greg Gagne, Operating System Concepts, International Student Version, Wiley;
	23-02-2026	28-02-2026	4	Concurrent Processes and Deadlocks		PPT, LCD Projector	Abraham Silberschatz, Peter B. Galvin, Greg Gagne, Operating System Concepts, International Student Version, Wiley
March 2026	02-03-2026	07-03-2026	4	Memory Management – Physical and Virtual Address Space, Paging	Quiz	PPT, LCD Projector	Abraham Silberschatz, Peter B. Galvin, Greg Gagne, Operating System Concepts, International Student Version, Wiley
	09-03-2026	14-03-2026	4	Segmentation, Virtual Memory, Cache Memory Intra Semester Assessment III Quiz	Problems	PPT, LCD Projector	Abraham Silberschatz, Peter B. Galvin, Greg Gagne, Operating System Concepts, International Student Version, Wiley
	16-03-2026	21-03-2026	4	File Management, I/O Management, Protection and Security	Assignment	PPT, LCD Projector	Andrew S. Tanenbaum & Herbert Bos, Modern Operating Systems, 4th Edition, Pearson Education
	23-03-2026	28-03-2026	4	Revision – All Units	Revision and doubt clearing	PPT, LCD Projector	
	30-03-2026	31-03-2026	2	Revision and past QP solving			

* Assessment Rubrics

Component	Max Marks
ISA 1	10
ISA 2	10
ISA 3	10
Best 2 ISAs	
Semester End Examination	80