Course: OE
Fundamentals of Computer Organization

Semester: II	Credits: 2	Subject Code:OE2-22309	Lectures: 30

Course Outcomes:

At the end of this course, the learner will be able to:

- CO1 - Construct the combinational and sequential logic circuit.
- CO2-Classify different semiconductor memories; recognise the principal memory technologies from a hierarchical viewpoint with emphasis on cache memory.
- CO3 - Identify and explain different parts of CPU and I/O devices, and organize them according to their function
- CO4- Compare microprocessors and relate them to Pentium Processors

Unit 1:Introduction to Computer Architecture	15
• Concepts of Adder circuits, Multiplexers and Demultiplexers. Sequential logic (only concepts)-S-R latch, D Flip-flop. • CPU - Block diagram, Concept of buses and stack organization, I/O organization, Concept of DMA • Concept of RISC and CISC, Difference between Von-Neumann and Harvard Architecture. • Memory - Classification, hierarchy, Cache Memory • Class Test	

Unit 2: Microprocessors	15
• Introduction to microprocessors, Evolution of microprocessors • Concept of pipelining • Functional description of Pentium Processor, Concept of real and protected mode, Software model of the Pentium Processor • Assignment	

Reference Books:

- Ata Elahi, Computer Systems-*Digital Design, Fundamentals of Computer Architecture Assembly Language*, Springer,
- Barry Brey, *The Intel Microprocessors*, 8th Edition, Pearson, Prentice Hall
- Floyd T.M, *Digital Fundamentals*, tenth edition, Pearson
- James Antonakos, *The Pentium Microprocessor*, Prentice Hall
- M. Morris Mano, *Computer System Architecture*, Pearson Education
- Malvino, Leach, *Digital Principles and Applications*, Tata McGraw-Hill.
- M. Morris Mano, *"Digital Design"*, 3rdEdition, PHI, New Delhi
- S. Salivahanan S. Arivazhagan-*Digital Circuits and Design*
- William Stallings, *Computer Organization and Architecture*, Prentice Hall India

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Websites:

- https://www.csun.edu/~rd436460/DigitalElectronics/Chapter%205.pdf
- https://computer.howstuffworks.com/computer-memory2.htm
- https://en.wikipedia.org/wiki/Memory_address
- https://www.geeksforgeeks.org/introduction-of-general-register-based-cpu-organization
- NPTEL lecture series- Electronics-Digital Circuits and Systems by Prof. S. Srinivasan IIT Madras, - 16 to 26 on YouTube
- https://www.youtube.com/watch?v=m1QBxTeVaNs Difference between FF & latch

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Subject Expert (Outside SPPU)	Dr.Sangeeta Kale		23/3/24
Subject Expert (Outside SPPU)	Dr. Rajshree Jain	23/3/24	
VC Nominee (SPPU)	Dr. Pravin Yawale	23/3/24	
Industry Expert	Dr. Umesh N. Hivarkar	23/3/	
Alumni	Ms. Prerna Polekar	23/3/2	

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