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:

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- 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

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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Faculty	Anitha Menon		
Subject Expert (Outside SPPU)	Dr.Sangeeta Kale, Professor		
Subject Expert (Outside SPPU)	Dr. Rajshree Jain -		
VC Nominee (SPPU)	Dr. Pravin Yawale –		
Industry Expert	Dr. Umesh N. Hivarkar		
Alumni	Ms. Prerna Polekar -		

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