FACULTY OF COMPUTER APPLICATIONS
Bachelor of Computer Applications

- **Semester** : 1
- **Subject Code** : 05BC1102
- **Subject** : Computer Organization and Architecture
- **Course Objectives** :

1. To understand basic organization of digital computer.
2. To understand various digital circuits and components.
3. To understand basics of CPU.
4. To understand basics of IO.
5. To understand basics of Memory.

- **Prerequisites** : Basics of Computer.

Unit No	Topics Covered	No of lectures required
1	**Digital Logic Circuits:** Digital Computers, Logic Gates, Boolean Algebra, Map Simplification, Combinational Circuits, Flip-Flops and Sequential circuits.	12
2	**Digital Components:** Integrated Circuits, Decoders, Multiplexers, Registers, Shift Registers and Binary Counters.	08
3	**Basic Computer Organization and Design:** Instruction Codes, Computer Registers, Computer Instructions, Memory reference Instructions and Input – Output Instructions.	10
4	**Central Processing Unit:** General Register Organization, Stack Organization, Instruction Formats and Addressing Modes.	08
5	**Input – Output and Memory Organization:** Peripheral Devices, Input – Output Interface, Asynchronous Data Transfer, Modes of Transfer, Memory Hierarchy, Main Memory, Auxiliary Memory and Cache Memory.	12

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Course Outcomes:

1. Outline the organization of a computer system in terms of its main components.
2. Understand the digital representation of data and differentiate between number systems and codes.
3. Describe laws of Boolean Algebra and their usage and understand functions of logic gates.
4. Understand the concept of sequential logic and combinational circuit.
5. Understand the concept of system memory hierarchy.

Text Book :

1. “Computer System Architecture”, M. Morris Mano, Pearson Publication, Third Edition.

Reference Books :

1. "Computer System Architecture", John. P. Hayes, McGraw Hill Education, Third Edition.
2. "Computer Architecture and parallel processing", Hwang K. Briggs, McGraw Hill Education, First Edition.
3. "Computer Organization and Architecture", Ikvinderpal Singh, Baljinder Singh, Khanna Publishers, First Edition.
4. "Fundamentals of Digital Circuits", A. Anand Kumar, PHI Publishers, Second Edition.

Web References:

1. https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=2ahUKEwjezrrhmOrgAhUNk3AKHb9vAJYQFjAAegQICRAC&url=https%3A%2F%2Ffaculty.psau.edu.sa%2Ffiledownload%2Fdoc-10-pdf-d171a71acbe44cd5cd2f78a40570a069-original.pdf&usg=AOvVaw1AkKILXxtjpEJAV74qSEqv

App References:

1. https://play.google.com/store/apps/details?id=com.faadooengineers.free_computerorganizationarch&hl=en
2. https://play.google.com/store/apps/details?id=com.cdac.csa&hl=en_US

Marwadi University

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Syllabus Coverage from text /reference book & web/app reference:

Unit No	Chapter Numbers
1	Text Book, Ch.1: [1.1 to 1.7]
2	Text Book, Ch.2: [2.1 to 2.6]
3	Text Book, Ch.5: [5.1 to 5.3, 5.6, 5.7]
4	Text Book, Ch.8: [8.2 to 8.5]
5	Text Book, Ch.11,12: [11.1 to 11.4, 11.6, 12.1 to 12.3, 12.5]