JYOTI NIVAS COLLEGE AUTONOMOUS
SYLLABUS FOR 2018 BATCH AND THEREAFTER

Programme: B.C.A **Semester: V**

COMPUTER ARCHITECTURE

Course Code: 18BCAVT2 **No. of Hours: 60**

COURSE OBJECTIVES:

- It deals with the basic model of a computer with concepts on processor design
- It deals with the concepts of memory design including characteristics and features of different types of memories

LEARNING OUTCOMES:

- Understand the basic model of a computer, various instructions and instruction code
- Analyse the different instruction formats, addressing modes, peripheral devices
- Analyse memory management system

UNIT - I **12 HRS**

Digital Logic Circuits

Digital Computers, Logic Gates, Boolean Algebra, Map Simplification, Combinational Circuits, Flip-Flops, Sequential Circuits

Digital Components

Integrated Circuits, Decoders, Multiplexers, Registers, Shift Registers

UNIT - II **12 HRS**

Basic Computer Organization and Design

Instruction Codes, Computer Registers, Computer Instructions, Timing and Control, Instruction Cycle, Memory –Reference Instructions, Input-Output and Interrupt, Complete Computer Description, Design of Basic Computer, Design of Accumulator Logic

UNIT - III **12 HRS**

Central Processing Unit

Introduction, General Register Organization,StackOrganization,Instruction Formats, Addressing Modes, Data Transfer and Manipulation, Program Control, Reduced Instruction Set Computer(RISC)

UNIT - IV **12 HRS**

Input-Output Organization

Peripheral Devices, Input-Output Interface, Asynchronous Data Transfer, Modes of Transfer-Programmed I/O, Interrupt Initiated I/O, Priority Interrupt – Daisy Chaining Priority, Parallel Priority Interrupt, Priority Encoder, Interrupt Cycle, Direct Memory Access(DMA)

UNIT - V **12 HRS**

Memory Organization

Memory Hierarchy, Main Memory, Auxiliary Memory, Associative Memory,Cache Memory, Virtual Memory

REFERENCES:

1. M. Morris Mano, Computer System Architecture, PHI, 3rd edition, 2018
2. J. P Hayes, Computer System Architecture & Organization, McGraw-Hill Education, 3RD edition, 2017
3. V. Carl Hamacher, Computer Organization, McGraw Hill, 5th edition, 2002