CLASS: B. Sc (Information technology)		Semester – II
SUBJECT: Microprocessor and microcontrollers (USIT203)		
Periods per week	Lectures – 5	3 Credits

Unit – I	Logic Devices: Tristate devices, buffers, encoder, decoder, latches. Types of memories, memory organization, concept of control lines such as read/write, chip enable.	**8 Lect.**
Unit-II	Introduction to 8085 microprocessor: - Organization of Microprocessor based system, 8085 µp Architecture, Concept of Address line and Memory interfacing, Address Decoding and Memory Interfacing,	**8 Lect.**
Unit-III	8085 Programming Model, Instruction Classification, Instruction Format, 8085 Instruction Set	**8 Lect.**
Unit-IV	Introduction to Modern day Computer Systems: - Organization and Architecture, Structure and function. System Buses: - Computer Components, Computer function, PCI: - Features of PCI bus, Why PCI bus is needed? Concept of PCI Arbitration. Internal Memory: - Concept of Cache Memory, Methods of Cache Mapping, Concept and need for Cache coherency. External Memory: - RAID.	**8 Lect.**
Unit-V	The 8051 Microcontroller: Introduction and overview of 8051 family, 8051 Assembly Language Programming, Jumps, Loops and call instructions.	**8 Lect.**
Unit-VI	8051 I/O port programming, Addressing Modes, Arithmetic and Logical instructions.	**8 Lect.**

References

William Stallings, “Computer Organisation and Architecture” (4th Edition) - PHI, 1998.
Andrew C. Tanenbaum, “Structured Computer Organisation” (3rd Edition) -, PHI.
Computer System Architecture - M. Morris Memo, PHI, 1998.
John P Hayes, “Computer Architecture and Organisation” - McGraw Hill, 1998.
Digital Computer Fundamentals, Malvino
Microprocessor Architecture and Programming and Applications with the 8085, R.S. Gaonkar, PRI (3rd Edition)
Digital Computer Fundamentals, Thomas C Bartee, TMG
The 8051 Microcontroller and Embedded systems by M. A. Mazidi, J. G. Mazidi and R. D. McKinlay, Pearson Education**.**

Term Work for USIT203

- **i)** Assignments: Should contain at least 2 assignments covering the Syllabus.
- **ii)** Class Tests: One. Also Known as Unit Test or In-Semester Examinations
- **iii)** Tutorial : Minimum Three tutorials covering the syllabus

Practicals (USIT2P3):

Journal Practical	**3 Lectures per Week (1 Credit)**
8085 programs for 1. Simple 8-bit and 16-bit addition and subtraction 2. Transfer a block of data from one location to another. 3. Find the largest/smallest of the numbers stored at one location. 4. Addition of 10 numbers. 5. Multiplication of 8-bit and 16-bit numbers. 6. Sorting of numbers. 7. BCD addition 8. Division 9. Find GCD and LCM of two numbers 10. Swapping a block of data	
8051 programs for: 1. To search a number from a given set of numbers. The end of the data is indicated by 00. 2. Finding the average of signed numbers. 3. Multiplication of signed numbers. 4. Convert the BCD 0111 0101 number to two binary numbers and transfer this number to registers. 5. To find y where $y = x^2 + 2x + 5$ and x is between 0 and 9. 6. Write a program to show the use of the BIT directive. 7. Write a program to find the number of zeros in register R2 8. Write a program to check if the accumulator is divisible by 8. 9. To check whether a character string is a palindrome or not. 10. To check the number is prime or not.	