Devrukh Shikshan Prasarak Mandal's

Nya. TATYASAHEB ATHALYE ARTS, Ved. S.R. SAPRE COMMERCE & Vid. DADASAHEB PITRE SCIENCE COLLEGE, DEVRUKH [AUTONOMOUS]

Syllabus for Semester –VI Program: B.Sc.

Course: Applied Component

Computer Science

Credit Based Semester and Grading System with the Effect from
Academic Year 2021-22

SEMESTER VI

Theory

USACCS601	Microcontroller programming and interfacing			No of Credits	Lectures / Week
Units	**I**	Introduction to 8051		**2**	**4**
	II	Architecture and instruction set of 8051			
	III	8051 Programming			
	IV	8051 Microcontroller Interfacing I			

Practicals

USACC6P1	8051 Microcontroller	**2**	**4**

<div align="center">**Semester - VI**</div>

Unit 1   **-15 lectures**

Chapter 1 - Introduction to Microcontrollers

Introduction, microprocessors vs microcontrollers, developments and present state of microcontrollers, 8051 block diagram microcontroller, basic concepts – embedded/external memory devices, CISC/RISC processors, Harvard /Von Neumann architectures.

Ref:- AVD – Ch. 1

Chapter 2 - 8051 Microcontrollers:

Introduction to MCS, architecture, registers, 8051 pin signals, memory organization.

Ref:- AVD – Ch. 2, 3 (omit ports)

Unit 2   **-15 lectures**

Structure and programming of ports, timers and interrupts, minimum working system circuit.

8051 Instruction set, addressing modes.

Ref:- AVD – Ch. 3.3, 4.1,4.2,4.3, Ch. 5, Ch. 6 (omit serial communication)

Unit 3   **-15 lectures**

Simple programs, stack, subroutines, delays, programs using interrupts, using "keil" software.

Ref:- MMM - Ch 5,6,7

Unit 4   **-15 lectures**

Interfacing LEDs, switches, relay, ADC, square wave generation using timers, etc

AVD – Ch. 12

References:-

AVD: Microcontrollers (Theory and Applications) by Ajay V Deshmukh, The Tata-McGraw-Hill Companies.

MMM - The 8051 Microcontroller & Embedded Systems by M.A. Mazidi, J.G. Mazidi and R.D.Mckinlay, Second Edition, Pearson

Practicals

Use of Keil and flash programmer – Demo

Interfacing

- Programming the 89c51 for reading switches and controlling LEDs
- Square wave generation
- Keyboard /LCD interfacing
- Using a relay