



**M. C. E. Society's**

**Abeda Inamdar Senior College**

Of Arts, Science and Commerce, Camp, Pune-1

(Autonomous) Affiliated to Savitribai Phule Pune University

NAAC accredited 'A' Grade

## **B.C.A. (Science) (Minor) as per NEP**

**2023-24 (CBCS – Autonomy 23 Pattern)**

<b>Course Offered as</b>	Minor Practical
<b>Course/ Paper Title</b>	Laboratory: 8051 Microcontroller and Programming
<b>Course Code</b>	<b>23SBCA42MNB</b>
<b>Semester</b>	IV
<b>No. of Credits</b>	2
<b>No of Hours</b>	30

### **Aims & Objectives of the Course:**

<b>Sr. No.</b>	<b>Objectives</b>
1	To get hands on training of Embedded C
2	To study experimentally interfacing of 8051 microcontroller
3	To design, build and test modulator and demodulators of digital communication
4	To build and test experimentally various techniques of wired communication

### **Expected Course Specific Learning Outcome :**

<b>Sr. No.</b>	<b>Learning Outcome</b>
1.	To design and build his/her own microcontroller based projects
2.	To acquire skills of Embedded C programming
3.	To know multiplexing and modulation techniques useful in developing wireless application
4.	Do build and test own network and do settings.

The practical course consists of 10 experiments. After studying the theory and practical student can

design and develop working models using 8051 Microcontroller

- The practical course consists of 10 experiments out of which ONE (Compulsory) will be working model using 8051 Microcontroller.
- These will be evaluated in an oral examination for 15% marks at internal and external semester examination.
- Each Practical batch will have maximum 12 students.
- **List of Major Equipment/ Instrument with Broad Specifications**
  - i) Microcontroller 8051 trainer Kit
  - ii) 8051 Simulator software (Free downloadable )
  - iii) Computer System(p-IV and latest version)
  - iv) Peripheral Interfacing Trainer kits

**List of Practical**

Sr. No.	Title of Experiment
<b>Group-A</b>	
1	Assembly language programs for <ul style="list-style-type: none"><li>i) Addition of two 8-bit numbers (Using Registers &amp; Memory)</li><li>ii) Subtraction of two 8-bit numbers. (Using Registers &amp; Memory)</li></ul>
2	Assembly language programs for <ul style="list-style-type: none"><li>i) Multiplication of two 8-bit numbers using MUL instruction.</li><li>ii) Division of two 8-bit numbers using DIV instruction.</li></ul>
3	Assembly language programs for Code Conversion <ul style="list-style-type: none"><li>i) Transfer block of data from one memory locations to another memory locations</li><li>ii) Sum of two arrays.</li></ul>
4	Assembly language programs for Transfer block of data from one memory locations to another memory locations
5	Assembly language programs for Sum of two arrays.
6	Traffic light controller using 8051 microcontrollers
7	Interfacing LCD to 8051Microcontroller
8	Interfacing 7 segment Display to 8051Microcontroller
9	Speed Control of stepper motor using 8051 microcontrollers
10	Speed Control of DC motor using 8051 microcontrollers
11	Interfacing Servo Motor to 8051Microcontroller
12	Interfacing DAC to 8051Microcontroller
13	Interfacing ADC to 8051Microcontroller
14	Interfacing IR sensor to 8051Microcontroller

15	Interfacing PIR sensor to 8051Microcontroller
16	Interfacing temperature sensor to 8051Microcontroller
17	Develop a 4 bit binary counter with 8051 and display out put on LCD