

### **About WRIC :**

The Western Regional Instrumentation Centre (WRIC), Mumbai, is one of the four National Facility Centres established by the University Grants Commission (UGC) in India.

WRIC was established as a part of UGC'S comprehensive programme of establishing University Science Instrumentation Centres (USICs) in various universities in the Country. Regional Instrumentation Centres (RICs) were envisaged to act as resource Centres supporting USICs in the University system and to promote research in instrumentation. However, only the Western & the Southern RICs were established and at present WRIC is the only UGC institution in India, which is helping universities, colleges, USICs and research institutes all over the country.

#### **• Course Faculty •**

Mr. S.B. Bhosale  
Mr. A.K. Pansare  
Mrs. Hema Shah  
Mrs. Sarita Thopte

**Western Regional Instrumentation Centre, Mumbai**  
(A National Facility Centre of University Grants Commission,  
New Delhi)

University of Mumbai



University Grants Commission



# **WRIC**

*organizes*

## **Training Programme**

**on**

## **Embedded System Design**

**with**

## ***8051 Microcontroller***

(December 15–20, 2008)

Time : 10.00 a.m. to 5.00 p.m.

#### **• Venue •**

**Western Regional Instrumentation Centre (WRIC), Mumbai**  
University of Mumbai, Vidyanagari Campus  
Kalina, Santacruz (East), Mumbai – 400 098

**Objectives:**

When the participants complete this course, they would have learned:

1. What is an embedded system and what are its requirements
2. How to design hardware and software for use in an embedded environment.
3. Programming and interfacing the 8051 family of microcontrollers.
4. Basic concepts of Analog to Digital and Digital to Analog conversion.
5. Basic concepts of serial communication.

**Topics to be covered:**

- Definition of an Embedded System
- Introduction to the 8051 hardware
- 8051 instruction set and addressing modes
- 8051 Special function registers, I/O Ports
- 8051 Timers/Counters
- 8051 Serial port interface, RS-232 communication standard
- 8051 Interrupts
- 8051 Parallel port interface
- Switches and relays
- Switch de-bouncing
- Interfacing 8051 to a keyboard/LCD
- Analog to Digital Conversion (ADC) and Digital to Analog Conversion (DAC)

**Eligibility:**

Teachers and students from science colleges / educational institutions / university departments with Electronics and Microprocessors background. The participants will be given certificate at the valedictory function on the last day of the course subject to fulfillment of attendance and other requirements.

**Registration Fee:**

A registration fee of Rs.2000/- for teachers & Rs.1500/- for students will be charged. This covers course materials, working lunch and tea. Intending **participant should fill in the registration form and send it to the Director, WRIC before 8<sup>th</sup> of December 2008 along with the course fee** in the form of D.D. drawn in favour of Western Regional Instrumentation Centre, Mumbai.

Maximum number of participants will be limited to 20.

**Course Coordinator**

S.B. Bhosale  
 Technical Officer III  
 Head - R & D Division  
 Western Regional Instrumentation Centre  
 University of Mumbai  
 Vidyanageri Campus, Kalina  
 Santacruz (East), Mumbai – 4000098  
 Tel. : 022-26526373 / 141 / 277  
 Telefax : 022-26528415  
 E-mail : sbb@wric.mu.ac.in

**Registration Form**

**Training Programme on  
 Embedded System Design with  
 8051 Microcontroller**

**(December 15–20, 2008)**

**10.00 a.m. to 5.00 p.m.**

**Name & Designation of the Delegate :**

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**Name & Address of the College/Institution/Dept.:**

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\_\_\_\_\_

\_\_\_\_\_

**Tel. :** \_\_\_\_\_ **Fax :** \_\_\_\_\_

**Mobile :** \_\_\_\_\_

**E-mail :** \_\_\_\_\_

**Registration Fee :**

Rs.2000/- for teachers & Rs.1500/- for students

Payment should be made by D.D. drawn in favour of Western Regional Instrumentation Centre, Mumbai.

**D.D. No.** \_\_\_\_\_ **dtd.** \_\_\_\_\_

**for Rs.** \_\_\_\_\_ **Drawn on** \_\_\_\_\_

\_\_\_\_\_

The above mentioned person/s is/are permitted to attend the training programme.

**Principal / Director / Head of  
 College / Institution / Dept.**