



PRABODHAN SHIKSHAN PRASARAK SANSTHA'S (Regd.No. E-697 Ratnagiri)  
**RAJENDRA MANE COLLEGE OF ENGINEERING AND TECHNOLOGY**

Recognised by AICTE, Affiliated to Mumbai University

Office : At & Po – Ambav (Devrukh)- 415804 Tal: Sangmeshwar, Dist: Ratnagiri, (Maharastra)

☎ : (02354) 260992 • Fax: (02354) 261501 • Email: info@rmcet.com • Website :

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**Department of Electronics and Telecommunication Engineering**

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## **Report on Embedded technology Workshop Academic Year 2016-17**

**Resource person:** Mr. Ragase Rajesh, Mr. Ganesh Oza,  
Prolific system Private Limited

**Co-ordinator** : Mr. Shikalgar I. A. (Assistant Professor, RM CET)

### **About workshop:**

The six day intensive workshop on embedded systems conducted by Prolific system Private Limited to involve students in a cohesive drive with the academia and industry towards excellence in embedded systems technology. This workshop is an attempt to cover material relevant to giving students necessary knowledge and skill set to appreciate the rapid changing scenario in embedded systems and take advantage of this in furthering their career. Practical/laboratory sessions are held, which will supplement the knowledge disseminated during the lecture sessions with adequate hands on experience.

Workshop is instructor-led, lab-intensive courses focused on the practical application of technologies through the facilitation of a project-related lab. Most parts of workshop are designed around 80% lab-time.

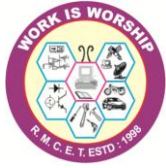
### **Duration**

It's a six day workshop. (From 23 January to 28 January 2017) In this 6-day course, student gained valuable hands-on experience.

### **How many students have attended this workshop?**

**Ans:** 53 students of TE EXTC

**Software Tools:** Keil IDE  
Flash Magic



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### **Skills Gained**

After completing this workshop, students are able to:

- Target and optimize 8 bit microcontrollers by using Embedded C and assembly language Target and optimize 8 bit PIC by using Embedded C
- Target and optimize 32 bit ARM by using Embedded C
- Use internal peripherals of a microcontroller/ARM such as Timers, Interrupts and UART /RTC.
- Create and manage designs by using the Keil software design environment Interface external peripherals such as motor driver, keypad, LCD etc

### **Course content:**

#### **Micro-controller design using C:**

- 1) Pin Diagram, Block Diagram 8051, Timing and Clock, Reset circuit
- 2) Memory Architecture
- 3) Addressing Modes
- 4) LED interfacing, Multiplexing 7-segment Display
- 5) Keypad Scanning without interrupt
- 6) Timer, Counter and serial communication
- 7) LCD interfacing,
- 8) UART and RS232 Interfacing



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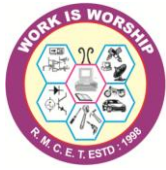
#### **ARM [Advanced Risk Machine]**

- 1) Features in RISC Architecture: - From hardware Point of view.
- 2) ARM Processor architecture
- 3) ARM Organization and implementation,
- 4) 3-Stage Pipeline, ARM Organization, Memory format, Memory Management,
- 5) Use of ARM based IDE Project creation, Compilation, Debugging,
- 6) Downloading code hex file into the ARM based Philips microcontrollers
- 7) Use of port and serial interface provided into the chip
- 8) ARM processor core ARM7TDMI
- 9) Instruction set, Interfacing of LED
- 10) Interfacing LCD, Timer, serial communication, RTC, Interrupt



**Figure 1: Hands-on with Experience**





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**Figure 2: Workshop Participants**



**Figure 3: Principal Address during closing session**