EMBEDDED SYSTEM LABORATORY

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The Department of Instrumentation Engineering, MIT Campus has a well-equipped Embedded systems laboratory which is equipped with state of art facilities to understand the concept of the embedded hardware, application software and RTOS.

The students are trained to apply the acquired technical skills in embedded programming and use it to develop microcontroller based closed loop control system for a typical process.

The students are explored to understand the interfacing of real-world peripherals using respective communication protocols.

The embedded work benches are equipped with Integrated Development Environment (IDE) for developing and debugging the target processor specific embedded software.

The students are also explored to identify, formulate and apply embedded control strategies for industrial embedded applications.
EMBEDDED SYSTEM LABORATORY

Wireless Applications

- CORTEX M4 for PID CONTROLLER
- FPGA Kits
- STM32 ARM
- PIC18F45K22
- IoT Module in ThingSpeak with LM35
- GPS
- Licensed PROTEUS Software
**PROTEUS SOFTWARE with 10 USERS LICENSE (₹36.1L)**

**EMBEDDED TRAINER KITS FOR IOT APPLICATIONS (₹1.65L)**

**EMBEDDED TRAINER KITS - PIC & ARM based with Industrial standard compiler (₹1.65L)**

**STM32 Based ARM Development Board (₹1L)**

**IoT GATEWAYS (₹1L)**

**RASPBERRY PI BASED GATEWAY**
- Broadcom BCM2837 Processor
- Third Generation Raspberry Pi with an operating frequency of 1.2 GHz, 1 GB Internal RAM
- 2.4 GHz, 802.11 wireless module
- Bluetooth 4.1 classic, BLE module

**BEAGLEBONE BASED GATEWAY**
- AM335x processor based Gateway
- ARM cortex A8 with an operating frequency of 1 GHz
- 2.4 GHz, 802.11b/g/n compliant Wi-Fi module
- Bluetooth 4.1 BLE module

**PIC PROCESSOR BASED TRAINER KITS**
- EasyPIC v7 is all about connectivity
- Four different connectors for each port
- Powerful on-board mikroProg programmer and In-Circuit debugger which can program and debug over 387 microcontrollers
- GLCD 128x64 and LCD 2x16 character display
- Two mikroBUS™ sockets which provide additional functionality to the board with small hardware adjustments

**ARM PROCESSOR BASED TRAINER KITS**
- Two different connectors for each port, which can connect accessory boards, sensors and custom electronics
- Powerful on-board mikroProg™ programmer and hardware debugger that can program and debug over 180 STM32 devices
- Multimedia peripherals - TFT 320x240 with touch panel, stereo mp3 codec, audio input and output
- MCU STM32F107VCT6 card is included in the package with the board
- Two mikroBUS™ sockets

**STM32 BASED ARM DEVELOPMENT BOARD**
- STM32F103C8T6 Microcontroller with 64KB of on-chip memory
- 72 MHz, 90 DMIPS with 1.25 DMIPS
- ESP32 based WiFi Module
- FCC based 20x4 Character Alphanumeric LCD Module
- Driver for Stepper motor and DC motor Interface
- On-board Temperature Sensor (LM35)
- USB to UART Module
- RS485 Converter Module
- ZigBee Interface Module