KAMARAJ
COLLEGE OF ENGINEERING & TECHNOLOGY
(An Autonomous Institution - AFFILIATED TO ANNA UNIVERSITY, CHENNAI)
S.P.G.Chidambara Nadar - C.Nagammal Campus
S.P.G.C. Nagar, K.Vellakulam – 625 701 (Near VIRUDHUNAGAR).

Department of Electrical and Electronics Engineering

(Accrediated by NBA, New Delhi)

in Association with

manfree™
TECHNOLOGIES

Six Days Value Added Course on "Embedded Systems and PCB Designing"

20.01.2025 to 25.01.2025

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Department of MTRE and EEE

Cordially invite you all to the Valedictory Function of Value Added Courses

Internet of Things (IoT)

Embedded Systems and PCB Designing

PROGRAM AGENDA

Feedback by Participants

Felicitation

Vote of Thanks

DATE & TIME

25 Jan 2025

3.00 to 4.00 pm

VENUE

IT Conference Hall

manfree™
TECHNOLOGIES

Embedded Systems Syllabus (18 Hrs)

- **C Programming (4 Hrs)**
  1. C Basics, Loops, Functions
  2. Data Types, Pointers, Arrays
  3. Strings, Structure, Unions
  4. Preprocessor, Memory Management
- **Micro controllers (10 Hrs)**
  1. **PIC Micro controllers**
  2. Micro Controller Architecture
  3. Embedded C Programming
  4. LEDs, Seven Segment, LCD, Buttons, Sensors
  5. Relay Switching and Transistor Switching
  6. Timers, Counters, Interrupt and ADC
- **Communication Protocols & IoT (4 Hrs)**
  7. UART, I2C, SPI , CAN Protocols
  8. GSM, Bluetooth Modules
  9. RTC, PWM, Memory Management
  10. Internet of Things (IoT)
  11. Project Development

Requirements:

- ✓ Windows Environment Systems / Laptop for each students
- ✓ 230 V AC Power Supply
- ✓ Projector and Screen, Whiteboard
- ✓ Software Applications - MPLAB IDE, Proteus

manfree™
TECHNOLOGIES

PCB Designing (18 Hrs)

- **Introduction to PCB (1 Hrs)**
  1. Fabrication process and Etching process
  2. Through hole technology, Surface mount technology and Different type of layers.
  3. Different type of IC Package.
- **Basic Electronics (2 Hrs)**
  4. Passive and Active Components
  5. Voltage and Current requirement Calculations
  6. Circuit Designing, Components Selection
  7. Assembling, Soldering Procedures, Testing
  8. Designing Power supply and Relay driver circuits
- **PCB Designing (9 Hrs)**
  9. Components arrangement in PCB and Introduction to KICAD software.
  10. Draw the different type of circuit in schematics.
  11. Hands on work with schematics.
  12. New part creation and building multiple page schematics.
  13. Introduction To Layout and Preparing The Design For Layout
  14. Introduction to auto routing. Introduction to manual routing and Hands on work with layout.
  15. Assigning Specific Text to Design and Hands on work with layout.
  16. Introduction to top layer and Preparing the Design For Layout
  17. Hands on work with top and bottom layer in layout.
  18. Printing PCB Board
- **Soldering & Testing (6 Hrs)**
  19. Components arrangement and soldering.
  20. Test the PCB board.

Requirements:

- ✓ Windows Environment Systems / Laptop for each students
- ✓ 230 V AC Power Supply
- ✓ Projector and Screen, Whiteboard
- ✓ Software Applications - KiCAD PCB Software