Course: Advanced Embedded Systems
Level: Undergraduate/ Graduate
Course ID: AESC

Advanced Embedded Systems Course (AESC)

Total Time: 26 hours

Activity: Theoretical + Lab Sessions

Course Requirement:

1) PC or Laptop (windows OS)
2) Basic Embedded Systems Experience (BESC)
3) Embedded Systems HW Kit

Course Syllabus

- Review on Embedded Systems.
- Review on Digital/Analogue I/O in Arduino.
- Review on Serial Communication.
- Review on Serial Plot.
- Review the loops and conditional functions.
- Functions in Arduino IDE.
- Using 7 Segments Display.
- Review on PWM.
- Review on Mapping.
- I2C Communication Protocol
- LCD Screens and its programming.
- Introduction to Communication.
- Theory of Bluetooth.
- Interfacing Bluetooth to MCU.
- Introduction of Robotics.
- Theory of DC Motor.
- DC Motor driving techniques.
- Driving modules.
- Introduction to CNC & 3D Printing.
- Theory of Stepper Motor.
- Stepper Motor Driving.

- Controlling Stepper Motor
- Introduction to Smart Home.
- Flame Sensor.
- Temperature & Humidity Sensor.
- Interrupt Technique in MCU
- Hardware and Software Interrupts
- Building ISR function with Interrupts
- Theory of Keypad.
- Interfacing Keypad to Embedded System.
- Introduction to RFID Technology
- Interfacing RFID to Embedded System.
- Reading RFID Cards and Key fobs.
- Security System based RFID