



Embedded System

## DESIGN

with IoT

SUMMER TRAINING 2025



## COURSE OBJECTIVE

This course provides a comprehensive exploration of Embedded System Design using STM32 and different sensor, IoT.Student will learn the different interfacing modes and utilizing different resources to design a IoT based Systems.

- CERTIFICATES ON COMPLETION
- HYBRID MODE TRAINING
- **20 HOURS | 40+ PROJECT**

## COURSE OUTCOME







#### STM32 Design

Students will successfully develop and design an Embedded System based on STM32 based Microcontrollers.

#### **Embedded Proficiency**

Students will
demonstrate
proficiency in
Embedded C coding
to interface different
sensors a need to
complete an IoT
based System.

#### Peripheral Integration

Students will be able to integrate different peripherals as well as communicating with different HW using HW- Communication or Wirelessly.

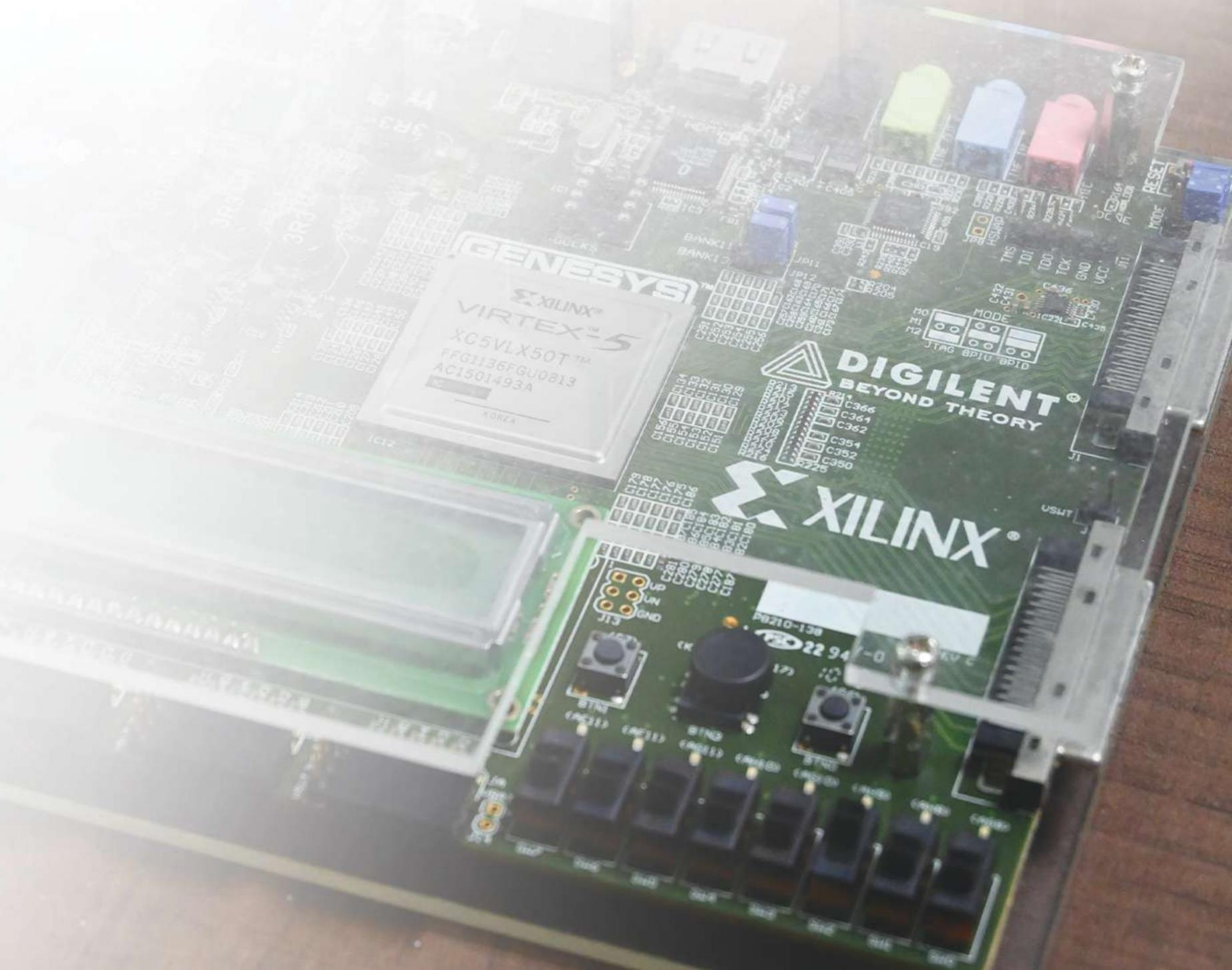
# COURSE

| KIIT Affiliation  | Rs. 4000/-* |
|-------------------|-------------|
| Other Affiliation | Rs 5000/-*  |

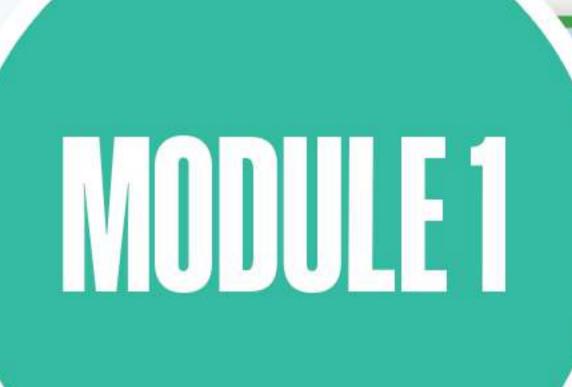
\*No Fooding & Lodging

## INSTRUCTORS

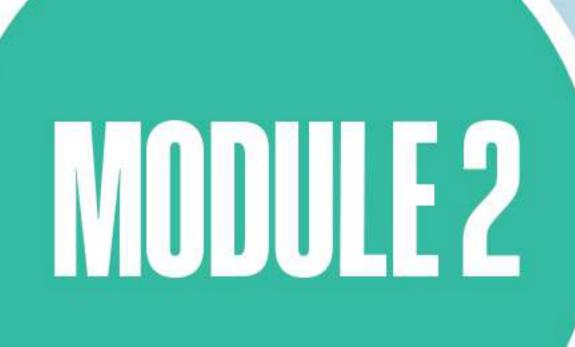
- Prof. Sarita Nanda
- Prof. J. K. Das
- Prof. A. K. Pati



### MODULE DESCRIPTOR FOR THE COURSE



- Introduction to STM2 ARM Architecture and its Features
- STM32 HAL Drivers and Clocking Circuits
- Timers and DMAs



- Programming the GPIO with and without Interrupt
- Programming UART and 1 wire communication
- Programming I2C and SPI
- Programming ADC with and without DMA
- Programming the timer: PWM, Capture and encoding mode

MODULE 3

- Interfacing WiFl and Bluetooth with STM32
- Interfacing DC, Stepper and BLDC motor with STM32
- DAC interface with STM32 and waveform Generation
- Communication between 2 STM32 using I2C/SPI/Wireless

MODULE 4

- Debugging the STM32
- Building a small Embedded System Project