"5 Day Hands-on Workshop on Real Time Operating System (RTOS)"

Day 1

10:00 AM to 1:00 PM :- Theory Session on TIVA C series launchpad

Objective: Learning of Arm-cortexM4F Architecture.

- Introduction to ARM Boards and features of ARM.
- Introduction to Tiva C Series Launchpad.
- Introduction to Code composer studio and Energia IDE

2:00 PM to 5:00 PM:- Hands-On Session on TIVA C series launchpad using Code composer studio

Objective: Understanding basic concepts of RTOS

- Differences between General purpose operating system (GPOS) and RTOS
- Ti- RTOS Kernal Services
- Scheduling problem
- Creating new RTOS project
- Blinking on board led without RTOS

Day 2:

10:00 AM to 1:00 PM:-Hands-On Session on TIVA C series launchpad using Code composer studio

Objective: Understanding Threads and Scheduling in Ti-RTOS

- TI-RTOS Thread types
- Kernal API, Thread, Object creation and Handles
- Built in Debugging Tools for TI-RTOS.

02:00 PM to 5:00 PM:-Hands-On Session on TIVA C series launchpad using Code composer studio

Objective : Understanding Hardware Interrupt (HWI)

- ❖ Configuring HWI and Nesting.
- ❖ Benchmarks of HWI

Day 3:

10:00 AM to 1:00 PM:-Hands-On Session on TIVA C series launchpad using Code composer studio

Objective: Understanding the Thread type Software Interrupt (SWI)

- ❖ Hardware and software interrupt system
- ❖ Configuring SWI
- ❖ Scheduling rules of SWI

02:00 PM to 5:00 PM:-Hands-On Session on TIVA C series launchpad using Code composer studio

Objective: Understanding the TASK Threads

- ❖ Understanding TASK topology
- ❖ Configuring TASK Thread
- ❖ SWI vs Tasks

Day 4:

10:00 AM to 1:00 PM:-Hands-On Session on TIVA C series launchpad using Code composer studio

Objective: Understanding the Clock Module

- ❖ Configuring clock module
- ❖ Benchmarks of clock module

02:00 PM to 5:00 PM:-Hands-On Session on TIVA C series launchpad using Code composer studio

Objective: Understanding the PWM and UART

❖ Configuring PWM using TI-RTOS

❖ UART communication using TI-RTOS

Day 5:

10:00 AM to 1:00 PM:-Hands-On Session on TIVA C series launchpad using Code composer studio

Objective: Understanding Inter Thread Communication

❖ Resource sharing between Threads

❖ Producer – consumer model

❖ Concurrent access model

02:00 PM to 5:00 PM:-Hands-On Session on TIVA C series launchpad using Energia software / Code composer studio

Objective: Understanding the Inter Thread Communication

❖ Queue in Ti-RTOS

❖ Synchronizing queues

❖ Mailboxes