

Electronics & ICT Academy

(Under Ministry of Electronics and Information Technology (MeitY), Govt. of India)

Indian Institute of Technology Guwahati, Guwahati, Assam, Pin 781039

Phone: +91-361-2583182/3009, +91-7086502139.

Email: eictacad@iitg.ac.in, eictacad@gmail.com

Faculty Development Programme

on

“IOT & Embedded System Design”

Venue: Seminar Hall, 2nd Floor, GSSSIETW, Mysuru
 GSSS INSTITUTE OF ENGINEERING AND TECHNOLOGY FOR WOMEN
 (24 Sept – 28 Sept, 2018)

Date	Time	Topic
Day-1 24-09-2018	08:30 AM - 09:15 AM	Registration and Reporting
	09:15 AM - 09:45 AM	Inauguration
	09:45 AM - 10:00 AM	Tea Break
	10:00 AM-01:00 PM	Theory Session on TIVA C series TM4C123GXL Launchpad Objective: Learning of Arm-cortexM4F Architecture. <ul style="list-style-type: none"> • Introduction to ARM Boards and features of ARM. • Introduction to Tiva C Series Launchpad.
	01:00 PM - 01:30 PM	Lunch Break
	01:30 PM - 05:00 PM	Hands-On Session on TIVA C series TM4C123GXL launchpad using Energia software / code composer studio 6.1. Objective: Understanding the configuration of GPIO pins and power consumption reduction using hibernation in TIVA. <ul style="list-style-type: none"> • Blinking LED with TIVA GPIO. • Interrupt Programming with GPIO. • Hibernation and Wakeup on an RTC Interrupt. • Interfacing Potentiometer with TIVA GPIO.
	04:00 PM - 4:15 PM	Tea Break
	05:00 PM - 05:30 PM	Assessment
Day-2 25-09-2018	09:30 AM - 11:00 AM	Hands-On Session on TIVA C series TM4C123GXL launchpad using Energia software / code composer studio 6.1.

		<p>Objective: Generating PWM waveforms and motion control.</p> <ul style="list-style-type: none"> • PWM Generation. • PWM based Speed Control of DC Motor using Potentiometer.
	11:00 AM - 11:15 AM	Tea Break
	11:15 PM - 01:00 PM	Session Continues
	1:00 PM - 01:30 PM	Lunch Break
	01:30 PM - 04:00 PM	<p>Hands-On Session on TIVA C series TM4C123GXL launchpad using Energia software / code composer studio 6.1.</p> <p>Objective: Explore of Tiva Serial communication with Laptop/PC using UART and HTTP Server configuration of Tiva-cc3100.</p> <ul style="list-style-type: none"> • UART - ECHO!. • Getting Started with WLAN-Station. • Setting Up CC3100 as a HTTP Server.
	04:00 PM - 04:15 PM	Tea Break
	04:15 PM - 05:00 PM	Session Continues
	05:00 PM - 05:30 PM	Assessment
<p>Day-3 26-09-2018</p>	09:30 AM - 11:00 AM	<p>Theory Session on IoT MSP430 and Wi-Fi cc3100 boards.</p> <p>Objective: Understanding the Internet of Things Opportunities & Challenges and controlling on board LED using smart phone.</p> <ul style="list-style-type: none"> • TI Internet of Things Overview. □ <ul style="list-style-type: none"> ○ Application Areas for the Internet of Things. ○ Featured IoT Products from TI. ○ Cloud Solutions supporting TI solutions. ○ Challenges in the Internet of Things • Controlling on board Led using smart phone.
	11:00 AM - 11:15 AM	Tea Break
	11:15 PM - 01:00 PM	Session Continues
	1:00 PM - 01:30 PM	Lunch Break
	01:30 PM - 04:00 PM	<p>Hands-On using Wi-Fi boards (MSP430 and CC3100) through Energia.</p> <p>Objective : Implementation of weather forecast, sending Email and Wi-fi chat applications using MSP and cc3100.</p> <ul style="list-style-type: none"> ○ Getting whether report of location using CC3100 and MSP430F5529 . □ ○ Sending email using CC3100 . □

		<ul style="list-style-type: none"> ○ Implementing chatting application between MSP430 and smart phone using TELNET app.
	04:00 PM - 04:15 PM	Tea Break
	04:15 PM - 05:00 PM	Session Continues
	05:00 PM - 05:30 PM	Assessment
Day-4 27-09-2018	09:30 AM - 11:00 AM	<p>Hands-On Session on TIVA C series TM4C123GXL launchpad using Energia software / code composer studio 6.1.</p> <p>Objective: Interfacing, reading and displaying the external sensor readings.</p> <ul style="list-style-type: none"> • Photoresistor (Light Sensor). □ • Spin the Motor (Transistor). □ • Temperature (Thermistor and Temp Sensor). □ • 7 Segment Display (Digital Display). □ • Playing Music - (Buzzer). □ • Control the Electric - (Relays). □ • Display- (4-Digital Display). □ • Potentiometer - (Rotary Angle Sensor). □
	11:00 AM - 11:15 AM	Tea Break
	11:15 AM - 01:00 PM	Session Continues
	1:00 PM - 01:30 PM	Lunch Break
	01:30 PM - 04:00 PM	<p>Hands-On Session on TIVA C series TM4C123GXL launchpad using Energia software / code composer studio 6.1.</p> <p>Objective: Interfacing, reading and displaying the external sensor readings.</p> <ul style="list-style-type: none"> • Sensing the Light - (Light Sensor). • Hearing - (Sound Sensor). • Is anybody there- (PIR Sensor). • Taking care of your plants- (Moisture Sensor). • Sensing the Distance - (Ultrasonic Ranger Sensor).

		<p>Feeling the Environments - (Temperature Humidity Sensor) .</p> <ul style="list-style-type: none"> • Mqtt client . • Generating Moisture call using Temboo Cloud Service.
	04:00 PM - 04:15 PM	Tea Break
	04:15 PM - 05:00 PM	Session Continues
	05:00 PM - 05:30 PM	Assessment
<p>.Day-5 28-09-2018</p>	09:30 AM - 11:00 AM	<p>Hands-On Session on TIVA C series TM4C123GXL launchpad using Energia software / code composer studio 6.1.</p> <p>Objective: Understanding the Ecosystem of cloud partners to enable easy integration.</p> <ul style="list-style-type: none"> • Discussing Pubnub and Freeboard Creating account on PubNub and Freeboard . • Publishing Sensor Readings to PUBNUB.
	11:00 AM - 11:15 AM	Tea Break
	11:15 PM - 01:00 PM	Session Continues
	1:00 PM - 01:30 PM	Lunch Break
	01:30 PM - 04:00 PM	<p>Hands-On Session on TIVA C series TM4C123GXL launchpad using Energia software / code composer studio 6.1.</p> <p>Objective: Understanding the concept of sensor data posting to cloud using IoT.</p> <ul style="list-style-type: none"> • Subscribing a Sensor Readings from PUBNUB. • Visualization of Sensor Readings using Free-Board. • Controlling On board LED through BLYNK application using CC3200 launchpad using Energia.
	04:00 PM - 04:15 PM	Tea Break
	04:15 PM - 05:00 PM	Session Continues
	05:00 PM - 05:30 PM	Assessment
