FACULTY DEVELOPMENT PROGRAM (FDP)

FDP of EC dept. with TI University Program:-

1. Linear Integrated Circuits – A systems Approach

Dates:-**Aug 31- Sept 02, 2015**
Link for Registration:- https://e2e.ti.com/group/universityprogram/c/e/354

2. Embedded System Design using TIVA Platform

Dates:-**Sept 3- Sept 05, 2015**
Link for Registration:- https://e2e.ti.com/group/universityprogram/c/e/353

(Only faculty of ECE, EE, EEx and EI Dept. are eligible to participate)

"Application to be sent via email before 27 August 2015 as well as the Registration Link written above."

Note: There is no Registration charges. Food during the FDP is free to all participants. The outstation participants will be provided accommodation in University guest house on twin sharing payment basis on availability of the rooms.

Program Details

1. TI University Program
   Texas Instrument University Program Link :-
   https://e2e.ti.com/group/universityprogram/c/e/354

Linear Integrated Circuits- a system approach

Aug 31, 2015 to Sep 2, 2015
Rajiv Gandhi Proudyogiki Vishwavidyalaya, Bhopal

About Workshop:

In order to bridge Industry-academia gap, RGPV has incorporated Texas Instrument technology in curricula of its affiliated colleges in core branches of engineering. This workshop will help them learn real world concepts and complement it with a unique hands-on experience in Analog domain.

Analog applications like Video signal processing, Portable battery-powered instruments, DSL/Cable modems, Distributed power systems, Industrial control, Telecom and other analog applications require general-purpose operational amplifiers, wide-bandwidth precision analog multipliers, parallel-input multiplying digital-to-analog converters, wide-input non-synchronous buck-type DC/DC controller, and a low dropout regulator. ASLK Pro kit is designed to support all the features to realize above applications and projects. During this workshop participants will be exposed to complete application-

building concept using ASLK Pro. The workshop will be designed to give hands-on experience so that every participant will get expertise in using ASLK Pro.

Workshop objectives

- To develop faculty mentors who will work with academic community in educating them and help in creating a team of experts around TI technology.
- Inculcate and learn application/project oriented teaching methodology in current academic framework.
- Understand systems approach for building applications around TI technologies.
- Empower faculties with necessary knowledge, skills and expose them to TI technologies and thereby bridging the gap between industry and academia.

Learning outcomes:

At the end of the workshop participant will be able to learn/understand

- Participants will be able to learn about the operational amplifiers and its characteristics as well as various types of op-amps.
- Participants will be able to analyze the operation of comparators, data convertors and implementation of the same using ASLK Pro.
- Participants will acquire the ability to design and test practical circuits for amplifiers, filters and oscillators.
- Participants will be able to learn the functioning of PLL, VCO, V-I, I-V converters, AGC, AVC and analog multipliers and implement them for suitable applications
- Prototype building concepts and its Implementation using ASLK Pro

Faculty mentors and their role

After participating and gaining expertise in TI technologies, the participants of this program will work as faculty mentors and helps college faculty/students to understand TI technology therefore bridging the academic – industry gap by following means

1. Faculty mentors will help their peer group to learn Embedded/Analog education around TI technologies.
2. He/She will actively engage in imparting trainings/workshops to faculty and students of associated colleges around TI technologies.
3. He/She will act as technical expert to students and help them to create/develop project prototypes around TI technology in embedded and analog domain.

Prerequisite:

Basic knowledge of bread-board based prototyping and testing

Must have knowledge about Circuits and Network theory

Contact Person Details:
Dr Rakesh Singhai
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Electronics and Communication Engg Department
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Agenda:

WORKSHOP AGENDA		
S. No.	**Day I**	**Time**
1	Introduction to Analog Curriculum: framework, concept map and role of faculty mentors	60 min
2	Typical Signal chain in an Electronic System	30 min
3	Introduction to ASLK pro and its various building blocks	60 min
4	Basic op-AMP concepts: Differential voltage, CMRR, Regenerative oscillator	60 min
5	Implementing Inverting and non-inverting amplifier using ASLK pro	60 min
6	Voltage Follower configuration Negative feedback amplifier	90 min
	Day Two	
7	Implementation of Integrator, Differentiator and comparator circuits	60 min
8	Applications of Comparator (LED, buzzer and potential driver circuit)	60 min
9	Load cell sensor application demonstration using Instrumentation amplifier	60 min
10	Theory of function generator Introduction to MULTISIM & simulation of Function Generator Circuit & Various filters (Low pass, high pass, band pass and band stop)	90 min
11	Implementation of Function Generator	90 min
	Day Three	
12	Introduction to Filters: Sallen Key vs UAF topology Hardware Implementation of second-order universal filter design	60 min
13	Applications of multipliers in Communication domain – AM, ASK implementation using multisim	60 min
14	Simulation of VCO using function generator FSK implementation using multisim	90 min
15	Mini-project discussions	60 min
16	Introduction to systems approach and its relevance in building Analog circuits	60 min
17	Feedback and Valedictory	90 min

2. TI University Program

Texas Instrument University Program Link :-

https://e2e.ti.com/group/universityprogram/c/e/353

Embedded System Design using TM4C - TIVA Microcontrollers

Sept 3, 2015 to Sep 5, 2015

- Rajiv Gandhi Proudyogiki Vishwavidyalaya, Bhopal

About Workshop:

In order to bridge Industry-academia gap, RGVP has incorporated Texas Instrument technology in curricula of its affiliated colleges in core branches of engineering. This workshop will help them learn real world concepts and complement it with a unique hands-on experience in Embedded MCU domain.

Embedded applications like automation and control, consumer electronics, test and measurement equipment's, HVAC and building control , remote monitoring and other embedded applications require Low power CPU's with more GPIO's, in-build ADC and dedicated Embedded protocols. MCU workshop is based upon Low power 16-bit TIVA series platforms. Participants will be exposed to complete application-building concept using 16-bit TIVA series MCUs. The workshop will be designed to give hands-on experience so that every participant will get expertise in using TIVA platform. From Standalone applications to Embedded Networking applications (Embedded Wi-Fi) will be covered with exposure to real world interfacing techniques.

Workshop objectives:

- To develop faculty mentors who will work with academic community in educating them and help in creating a team of experts around TI technology.
- Inculcate and learn application/project oriented teaching methodology in current academic framework.
- Understand systems approach for building applications around TI technologies.
- Empower faculties with necessary knowledge, skills and expose them to TI technologies and thereby bridging the gap between industry and academia.

Learning outcomes:

At the end of the workshop participant will be able to learn/understand

- Embedded C programming techniques for 16-bit platform
- Embedded protocols and its interfacing techniques
- Embedded Wireless networking concepts and its implementation with application oriented projects and case studies.

Faculty mentors and their role:

After participating and gaining expertise in TI technologies, the participants of this program will work as faculty mentors and helps college faculty/students to understand TI technology therefore bridging the academic – industry gap by following means

1. Faculty mentors will help their peer group to learn Embedded/Analog education around TI technologies.
2. He/She will actively engage in imparting trainings/workshops to faculty and students of associated colleges around TI technologies.
3. He/She will act as technical expert to students and help them to create/develop project prototypes around TI technology in embedded and analog domain.

Prerequisite:

Must have exposure to building embedded applications for 8-bit platforms

Basic knowledge of C language programming

Digital Electronics fundamentals

Contact Person Details:
Dr Rakesh Singhai
Deputy Registrar and Head
Electronics and Communication Engg Department
9406540888
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Agenda:

WORKSHOP AGENDA		
S. No.	**Day I**	**Time**
1	Introduction to Embedded Curriculum: framework, concept map and role of faculty mentors	30 min
2	Embedded Systems and role of TI platforms	30 min
3	Introduction to TIVA series platforms: scope, application and tools in Embedded ecosystem	30 min
4	Programming TIVA using CCS	30 min
5	Programmer's model of TIVA TM4C123G and building applications with Tivaware library	60 min
6	Various Configuration registers of in-build modules and their programming (GPIO, PWM, comparator, ADC) Clock tree structure and its role. GPIO programming using Tivaware. Interfacing potentiometer with TM4C123G.	90 min
7	Pulse Width Modulation technique and concepts Generation of Pulse Width Modulation Signal using TM4C123G PWM based Speed Control of Motor controlled by potentiometer using TM4C123G	90 min
	Day Two	
8	Enabling Low power modes using Interrupt based programming techniques.	60 min
9	Various Serial Communication Interfaces : UART / I2C / SPI	30 min
10	Basic Serial Communication and programming	120 min
11	Integrating IQmath library	30 min
12	Introduction to Digital Sensor Hub Booster Pack (BOOSTSENSHUB)	60 min
13	Interfacing an Accelerometer with TIVA using I2C	60 min
	Day Three	
14	Embedded Wi-Fi and Internet of things using CC3100 Booster Pack	60 min
15	Configuring of Static IP address for a wireless device	120 min
16	WLAN concepts and communication between Station and Access Point.	60 min
17	HTTP web server concepts on embedded devices.	60 min
18	Project case studies based upon TIVA MCU platform	60 min

Academic Staff College
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Email: academicstaffcollege@rgtu.net

APPLICATION FORM
EC-Faculty Development Program

Read the instructions given on next page carefully before applying for the course.

on_____ Date _____

Photo

(Part A: To be filled by the candidate)

1. Name (Block Letters)……
2. Designation and Office Address: ……..……..
   ……PIN Code : ……Phone No.: ....……...
3. Date of Birth……Gender: **M/F** Email……
5. Address for Correspondence : ……
   ……
   Phone: (Resi)…….. ……(Office)……..…..…..…..… .Mobile: …… ……
6. Academic Record: ***(Degree Onwards)***

S. No	Degree	Specialisation	University	Year	% or CGPA

8. Teaching Experience: : ……(years)……..….(months)
9. Details of Orientation/Refresher Courses attended so far:

S. No.	Course	Dates	ASC / Institution

10. Declaration: I certify that I fulfill the eligibility criteria for the above FDP and information provided above are true to the best of my knowledge and belief. If at any time, it is found that any of the above information is incorrect, then the university may take disciplinary action against me. Further, I accept to follow the rules and regulations of the Academic Staff College-RGPV.

Date:
Place:

Full signature of the Applicant

PART B (to be filled by Employer)

1. Dr./Mr./Mrs./Ms… …… a faculty in this College/University/institute, w.e.f……and having present designation as _____, is recommended to attend the Orientation Programme/ Refresher Course/FDP at ASC-RGPV, Bhopal. If selected, he/she will be fully relieved for the entire period of the programme/course.

Place :
Date :

Signature of the Registrar/Principal/Director
(With seal and Contact No.)

Contact Person Details:
Dr Rakesh Singhai
Deputy Registrar and Head
Electronics and Communication Engg Department
9406540888, email: **rksinghai@gmail.com**

Note:- *There is no Registration charges. Food during the FDP is free to all participants. Application to be sent via email before 27 August 2015 as well as the given Registration Link.*

TERMS AND CONDITION

1. **Accommodation** can be provided for outstation participants on twin sharing payment basis. On non-availability of the accommodation in the campus, ASC-RGPV shall provide necessary guidance and assistance in locating suitable accommodation for the participants.

General Instructions:

- Interested Participants are required to send the scanned copy of the duly filled application form through email before the prescribed last date of the programme/course.
- Fill the form completely .
- The **email** should be sent with the **subject : 'Title of the course'** and **'Course date'.**
- All participants must register themselves positively in advance for the course.
- The participants are required to attend all the sessions of the programme/course sincerely. No leave shall be granted during the course.
- Only those participants who will complete the course in all respects shall be eligible to receive the certificate of participation. In case of any default on the part of the applicant, the Academic Staff College, RGPV has all the rights to cancel the admission, withhold the certificate and/or take any disciplinary action .