TI Innovation Lab

- **Establishment**
- **Objective**
- **Expected Outcomes**
- **Commercials**
- **Contribution**
- **Proposed Roadmap (Tentative)**

Establishment

- An **MoU** was singed between **TI-India** and **K.L.N. College of Engineering** via. **STEPS Knowledge Services**, Coimbatore, Authorized Training partners of TI-India on 23.12.2015.
- Since then numerous workshops, training programs and guest lectures were given to the students of KLNCE and other colleges around Madurai on free and paid basis.
- Many project kits are provided by TI on donation basis, which would cost around ~**3 Lakhs**. Few donated items are mentioned below.
  - MSP 430
  - ALSK Pro
  - Development Board
  - Innovation Lab Board, Wall brochures, Pedagogies, Lab Manuals etc.
- The state of art **TI Innovation lab** is established in our institution on August 2017 with a budget of Rs.5.8/- Lakhs.

Objectives

- *The main objective is to facilitate the students to have the hands on experience on the current technology in the domain of Electronics by using the following Platforms.*
  - Analog System Design & Power Management for Electronics Circuits
  - 16 bit energy efficient Microcontroller MSP 430
  - 32 bit Real Time Controller C2000
  - 32 bit ARM Cortex-M4
  - IoT Application Lab

Expected Outcomes

- *Following are the core objectives of the proposed Innovation Lab*
  - To provide an Opportunity to the student to work on the current technology used in the industry
  - Students to showcase their innovations in terms of projects which can be engineered as product
  - Designing a solutions to the industry problems
  - Research activities in this domain
  - Develop IoT applications

Commercials

Sl. No	LAB	Description	Qty	Amount
01	Power Management Lab using PMLK PRO	PMLK LDO, PMLK BUCK, PMLK BOOST (3kits as 1 set)	2	42000
02	Microcontroller LAB using MSP430 16bit µC	MSP 430 EXP G2 Launch Pad	30	1,65,100
		Wi-Fi® Booster Pack CC110L	12	
		STEPS Experimenter Pack for MSP 430	10	
		MSP430F5529 USB LP Evaluation Kit	10	
		MSP430FR4133 LP Development Kit	10	
		CC3100BOOST	6	
		430BOOST-SHARP96	5	
		BOOST-DAC8568	5	
		MSP430FR6989 LAB KIT	10	
03	Real Time controller LAB using C2000 32bit µC	C2000 Piccolo LAUNCHXL-F28027F	30	90040
		BOOSTERPACK, DRV8301	2	
		C2000 LED Booster Pack	2	
		STEPS Experimenter Pack for C2000	10	
04	Advanced Embedded System LAB using ARM Cortex M4	TIVA Launch pad EK-TM4C123GXL	30	124700
		Sensor Hub Booster Pack for Tiva™ C	3	
		STEPS Experimenter Pack for TIVA	10	
		MSP432P401R Launch Pad	15	
		Wi-Fi® Booster Pack CC3120	6	
		Kentec QVGA Display BoosterPack	6	
05	IoT Application Lab	CC3200 Simple Link Wi-Fi Launch Pad	30	166550
		CC3220SF-LAUNCHXL	10	
		CC2650 Sensor Tag (BLE)	5	
		EK-TM4C129EXL	3	
		LAUNCHXL-CC1350	6	
			Sub Total	**5,88,390**
			VAT @5%	**29,420**
			Total	**6,17,810**

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Contribution (Donation from STEPS and TI)

Sl.No.	Category	Description	Qty	Amount
1	Proposed to supply on donated basis	ASLKPRO	3	**2,06,278**
		MSP430F5529 Experimenter Board	2	
		DRV8312-69M-KIT Motor Control kit	1	
		TMDSDCDC2KIT Digital Power Kit	1	
		DK-TM4C129X Development board	1	
		DK-TM4C123G Development board	1	
		BOOSTXL-EDUMKII	5	
		Sensor Module Kit (37 sensors)	2	
		OEM Boards Grove Base Booster Pack	8	
		ARM Grove Starter Kit for Launch Pad	2	

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Proposed Roadmap

- Following is the proposed Learning Roadmap for UG students of Engineering.
- Innovation lab and the training provided by STEPS shall be utilized by UG, PG Students and Research Scholars of Engineering.
- We even have track record of Arts and Science college students participating in our national level training sessions.

Training Program	3rd Semester	4th Semester	5th Semester	6th Semester	7th Semester	8th Semester
Embedded C Programming	√					
Analog System Design / Power		√	√	√	√	√
Microcontroller MSP 430			√	√	√	√
Real Time Controller / DSP C2000			√	√	√	√
ARM Cortex-M4 / IoT Application				√	√	√

Glimpses of Workshops Organized

- WEBENCH
- Hands on Workshop on MSP 430 Launch Pad Kits. - Faculties
- Training Program on “MSP430 Energy Efficient Microcontroller” – Students
- Hands on Workshop on “Analog and Digital System Design”
- Hands on Workshop on “Embedded Systems and IoT applications” etc.