



Name of the Department: Electronics Communication and Instrumentation Engineering
Name of the Department Research and Education Centre (DREC):

<u>Research & Education Centre</u> Embedded Systems	<u>Room No.</u> B-I-201
--	--

About the DREC:	The Embedded Systems Research & Education Centre aims to provide a strong foundation to the students on microcontroller architecture and its programming. The main aim of this Research & Education Centre is to provide hands-on training to interface different I/O devices like switches, LEDs, LCD displays, sensors and motors to 8051 microcontroller and ARM Cortex-M4 microcontroller using latest microcontroller hardware and software platforms. The skills acquired through the experiments conducted in this Centre help the students to do their project works and enhance their knowledge on the latest embedded technologies. This Centre provides all facilities for the students to make them industry ready in the field of embedded systems.
------------------------	---

Primary functions of the DREC:	To provide strong foundation in programming microcontrollers using Assembly and C-languages.
	To help the students to do their project works.
	Provides all facilities for the students to make them industry ready in the field of embedded systems.

Major equipment available in DREC:

Sl. No.	Name of the Major Equipment	Description of equipment	Cost
1	Desktop Systems	Intel Core I5-12400 12 th Gen., 8GB RAM/512GB SSD/19.5 LED Monitor	19,08,000.00
2	Easy 8051 V6_development systems	The Easy8051 v6 is a versatile development system designed for Atmel 8051 microcontrollers. The board comes with an AT89S8253 microcontroller, USB 2.0 Programmer. It includes several peripherals, such as a port expander, MENU interface, a 4x4 keypad and LCD display.	1,90,800.00
3	Tiva C series TM4C123G Launch pad Evaluation board (EK-TM4C123GXL)	The Tiva C Series TM4C123G Launchpad Evaluation Board is a low-cost evaluation platform for ARM Cortex-M4F based microcontrollers. The Tiva C Series Launchpad consists of TM4C123GH6PM microcontroller, In-circuit Debugger, programmable user buttons and an RGB LED for developing custom embedded applications.	23,364.00
4	Interfacing Components	Analog to Digital Converters, Digital to Analog Converters, Stepper Motors, DC motors, Temperature Sensors, Matrix keypads, LCD displays	1,45,000.00



Picture of DREC

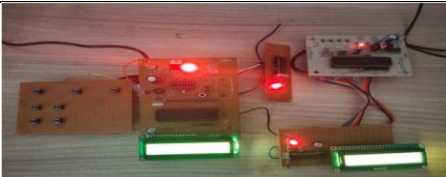
**Software available in DREC:**

Sl. No.	Name of the Software	Purpose of Software	Cost (in Rs.)
1.	Keil_μVision	Keil_μVision is the IDE from Keil Software, combines Project Management, Source Code Editing, and Program Debugging in one powerful environment. It provides Project Setup for the Make and Build Process, Editor facilities for Modifying and Correcting Source Code, Program Debugging and Additional Test Utilities	2,39,998.00


Types of Projects / Research carried out with description:

Sl. No.	Name of the Project / Research carried out in the DREC	Outcome of Project / Research carried out
1.	Heart rate monitoring	A device to measure heart rate using pulse sensor is developed
2.	Vehicle tracking system	An Intelligent system for vehicles which will monitor location of vehicle in-between constant time period and will send this data to the base unit is developed.
3.	Patient monitoring system	A Continuous recording of patient data at regular intervals of time, Low cost and portable device is developed.

Photographs of working models / application software developed with description:

Sl. No.	Name of the Working model developed in the DREC	Details of working model developed
1	Automatic food ordering system	

Details of Faculty in-charge for Research and Education Centre: (Photo, Contact details)

Name of the Faculty In-charge, DREC	Contact details
	Phone No: 8985421261 Mail ID: ksc.eie@kitsw.ac.in

M. Raghu Ram

HoD-EIE & Programme Head-ECI
(Dr. M. Raghu Ram)