Faculty Development Programme on

Next-generation Communication and Intelligent Systems

December 15 - 21, 2023

Sponsored by

Rashtriya Uchchatar Shiksha Abhiyan
Department of Higher Education
Government of India

Organized by

Department of Electronics
Cochin University of Science & Technology
Kochi-22, Kerala

About the Institution

Cochin University of Science & Technology (CUSAT) is a government-owned autonomous university in Kochi, Kerala. In its pursuit of international excellence, CUSAT has established academic links with various Universities abroad by exchanging students and research scholars. The University's motto **'Tejaswinavadhitamastu'** meaning 'may the wisdom accrued deify us both teacher and the taught and percolate to the universe in its totality' which is taken from the Vedas, the ancient scriptures of the land, well epitomizes the ideals and philosophy of the University.

About the Department

The University of Cochin instituted the Department of Electronics in the year 1975. The Department was envisaged as a postgraduate Department with Master's Degree and Doctoral programmes in frontier fields of Electronics assisted by UGC - SAP and DST - FIST. It has well equipped research laboratories that utilize state-of-the-art technology for carrying out cutting-edge research work at M.Tech. and Ph.D levels.

The Department has a well-established research and training laboratory in Microwave Electronics and Antennas with financial assistance from MHRD, UGC, DST (Govt. of India) and DoE. The Centre for Ocean Electronics at the department undertakes several R&D works including the development of new Under Water Transducers and Arrays for Sonar applications. Other research labs include Intelligent Machines and Systems Laboratory (IMSL), Audio and Image Research Lab (AIRL), Advanced Signal Processing & Instrumentation Research Lab (ASPIRE), and Microwave Materials Research Laboratory.

FDP Overview

The Faculty Development Programme introduces the participants about the tools and techniques to up-skill themselves on working with the latest technologies.

5G, with its unprecedented speed and low latency, serves as the backbone of next-gen communications, enabling lightning-fast data transfer and connectivity for various devices. It fuels the Internet of Things (IoT), facilitating connectivity and enabling innovations like autonomous vehicles and smart cities. Robotics, integrated with 5G, redefines industries by enhancing automation and remote operations.

The participants of the FDP are given hands-on training sessions using latest robot application tools. The participants also get an overview on SDR and hands-on training on setting up an end-to-end wireless communication system on USRPs and explore its applications for future wireless systems.

Resource Persons

Experts from both academia and industry including

- IIT Palakkad
- TRANSIOT
- Trident Technologies
- DoT
- DoE, CUSAT

Programme Schedule

Day 1

- 5G Overview
- 5G Use Cases

Day 2/3

- Introduction to ROS tools and ready-to-use frameworks in ROS like Navstack, Movelt, etc.
- Driving the Turtlesim with ROS commands
- Demo of ROS-based Mecanum wheel robot
- 3D model to URDF conversion for simulation in Gazebo
- Showcasing a fully finished Delivery robot- manufacturing & design process, building a GUI on top of ROS

Day 4/5

- Introduction to Software Defined Radio, GNU Radio software, installation
- Hands-on training with GNU Radio and USRP B210
- Overview on SDR setup for 5G applications
- Introduction and Overview of Labview Software
- Hands-on training with Labview and NI USRP

Sponsorship Certificate

Faculty Development Programme on Next Generation Communication & Intelligent Systems

December 15 - 21, 2023

Department of Electronics
Cochin University of Science & Technology
Kochi-22, Kerala

Certified that Dr./Mr./Ms..... is working as ..... in our Institution /Organization and is hereby sponsored to attend the Faculty Development Programme on **Next Generation Communication & Intelligent Systems** to be held at Department of Electronics, CUSAT, Kochi-22, Kerala, from December 15 - 21, 2023. He/She will be permitted to attend the entire programme, if selected.

a

Email ID:

Mobile No.

Signature and seal of

Sanctioning authority

Place:

Date:

Registration Fees

- No registration fees for students/faculty from CUSAT
- Rs 750/- for faculty and students from other AICTE/UGC-approved colleges
- Rs. 3000/- for participants from industries and others

The duly filled application form along with the course fee as DD, drawn in favour of Head, Department of Electronics, payable at SBI, CUSAT Campus branch should be sent to the coordinator on or before **10/12/2023**. Registration fees will not be refunded under any circumstances. However, the DD will be returned to the applicants who are not shortlisted.
N.B. Participants are shortlisted on a first come first serve basis

Contact Details of Co-ordinators

Dr. Deepti Das Krishna
Associate Professor & Head,
Department of Electronics, CUSAT
: 9846420928
hoddoe@cusat.ac.in

Mr. Arun A. Balakrishnan
Assistant Professor,
Department of Electronics, CUSAT
arunab@cusat.ac.in

Dr. Poornima S.
Assistant Professor,
Department of Electronics, CUSAT
poornimas@cusat.ac.in

Dr. Tripti S. Warrier
Assistant Professor,
Department of Electronics, CUSAT
tripti@cusat.ac.in