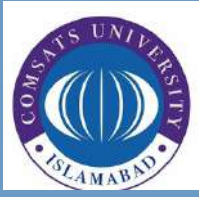


SPRING 2024



NEWSLETTER

ELECTRICAL AND COMPUTER ENGINEERING DEPARTMENT

What's inside this issue:

- INDUSTRIAL ADVISORY BOARD
- DEPARTMENTAL SEMINARS AND EVENTS
- RECRUITMENT DRIVE
- ACHIEVEMENTS
- MS GRADUATE STUDENTS
- PHD GRADUATE STUDENTS
- DEPARTMENTAL GET TOGETHER



MESSAGE FROM THE DIRECTOR

I welcome you on behalf of the faculty and staff. These are exciting times for electrical and computer engineers as the discipline is now widely recognized as an essential source of tools and techniques for advancements in nearly all spheres of human endeavor. Our students get competitive skills in effective development and application of modern technology. We see our students as excellent engineers, outstanding researchers, extra ordinary analysts, and innovative designers. We are aware of everyday breakthroughs in modern technology and committed to equip our students with advanced competencies required to manage the growing needs of sciences and technology; in almost every professional field today. Research activities have been given high priority within the department resulting in a high quality of research publications. The Department of Electrical and Computer Engineering offers competitive degrees in rapidly expanding areas of study. Our qualified faculty and excellent facilities ensure that students have a solid technical grasp on different subjects to apply this knowledge in practical work settings. Our prolific linkages with the Higher Education Commission, Ministry of Science and Technology and leading universities of the world help us keep up-to-date with new policy initiatives and market driven incentives being unrolled by the government and private sectors.

Prof. Dr. Syed Asad Hussain

Director CUI, Lahore



MESSAGE FROM THE HEAD OF DEPARTMENT

I am delighted to extend a warm welcome to all of you as part of the vibrant community within the Department of Electrical and Computer Engineering (ECE) at COMSATS University Islamabad, Lahore Campus. Our department is proudly recognized both nationally and internationally, consistently ranked among the top ECE departments globally. At ECE, we are dedicated to excellence in education and research, offering a range of programs designed to equip our students with the necessary theoretical knowledge and practical skills to thrive in today's fast-evolving technological world. We currently offer two bachelor's programs (BSEE & BSCE), three master's programs (MSEE, MSCE & MSESE), and two doctoral programs (PEE & PCE), each designed with an emphasis on innovation, industry relevance, and cutting-edge research.

Our faculty members, who are highly qualified and deeply engaged in groundbreaking research, are at the forefront of fields such as renewable energy, artificial intelligence, internet of things (IoT), smart grids, machine learning, cyber security, system-on-chip (SoC) design, control, robotics, communications and industrial automation. We take pride in offering state-of-the-art laboratory facilities that provide our students with invaluable hands-on learning experiences, ensuring that they are well-prepared to meet the demands of industry.

We believe in fostering a well-rounded education that goes beyond the classroom. Our department used to participate in a variety of activities including technical workshops, project exhibitions, sports competitions, and cultural events. These activities are designed to encourage personal growth, teamwork, and leadership skills among our students. Additionally, our students had the opportunity to participate in industrial visits, giving them firsthand exposure to real-world engineering challenges and solutions. These trips provided valuable insights into industry practices and allowed students to engage with professionals in their field, further strengthening our commitment to bridging the gap between academia and industry.

Our focus on Outcome-Based Education (OBE) ensures that the quality of learning is measured by the real-world outcomes of our students. This approach shifts the focus from simply covering course content to ensuring that students achieve key competencies by the end of their studies. All of our undergraduate programs are accredited at level-II by the Pakistan Engineering Council (PEC), a testament to our high standards in education.

We are also committed to continuous improvement in education by integrating the latest industry trends into our curriculum. Regular seminars, guest lectures, and workshops are held to keep students up-to-date with the rapidly changing technological landscape.

I invite you all to explore the vast opportunities within our department. Whether you are a prospective student or an industry partner, we are here to support you in every step of your academic or professional journey. Our goal is to create an inclusive and nurturing environment where students can excel and reach their full potential.

Dr. Muhammad Naeem Awais
Head of Department
Electrical and Computer Engineering
COMSATS University Islamabad, Lahore Campus.



INDUSTRIAL ADVISORY BOARD

A meeting of the 5th Industrial Advisory Board was held on Wednesday, May 22, 2024 at 09:30 am in the conference room, D-block, CUI Lahore campus. The CEOs, HR managers and experts from industry attended this meeting. As per PEC guidelines, the major purposes of this meeting are mentioned below,

- To obtain expert review on Program Educational Objectives (PEOs) and Curriculum
- To keep track of new trends and transformational changes that are taking place, or expected to take place, in industry
- To explore opportunities for collaboration and identify potential employers
- To promote institute outreach in the Industrial community



DEPARTMENTAL SEMINARS AND EVENTS

SEMINAR ON CAREER ESSENTIALS FOR GEN-Z

A seminar was held on Tuesday April 30, 2024 by IEEE CUI Lahore. The workshop was specially designed for final year students of COMSATS University Islamabad, Lahore Campus who are eager to learn about professional career. It was open to all. The students took keen interest by showing up in numbers on the day.

The event was hosted by chairperson of IEEE CUI Lahore Mr. Muhammad Fahad Mehmood and chairperson of WIE IEEE CUI Lahore Ms. Muqadas Imtiaz.



SEMINAR ON HEALTH SAFETY AND AIR QUALITY INDEX

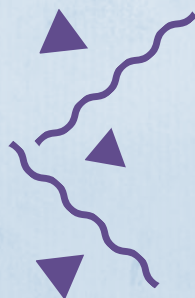
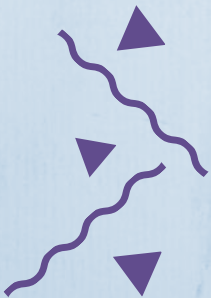
The Collaboration and Outreach Committee of the department of Electrical and Computer Engineering (ECE) organized a "health safety activity" on February 14, 2024. The 8th semester students of FA20-BCE students participated in the activity.

Dr. Mahnoor Rashid at the Health Care Center briefed students about the facility available at the health care center. In addition, she emphasized the importance of first aid training. It equips the students with necessary skills to handle situations that may arise in the workplace. Maintaining good air quality is essential for public health and well-being.



SEMINAR OBE TRAINING AND LEARNING SCIENCES

COC committee arranged a seminar for faculty and students on OBE training and Learning Sciences on Jan 18, 2024



TREE PLANTATION ACTIVITY

The Collaboration and Outreach Committee of department of Electrical and Computer Engineering (ECE) organized a "tree planting activity on March 21, 2024, outside student service center. The 8th semester students of FA20-BEE-Power & Telecommunications students participated in the activity.

The staff member of horticulture department briefed and emphasized the importance of tree plantation which can be beneficial for the environment.



ALUMNI DINNER

An amazing alumni gathering was arranged by ECE Department with special efforts of Mr. Muhammad Usman, Mr. Hassan Assam, alumni, students and faculty members of the department who were involved in successfully arranging this Alumni gathering. The dinner was held on the Fountain Lawn between A and B Blocks at COMSATS Islamabad, Lahore Campus on Saturday, May 25, 2024, at 6:00 PM.



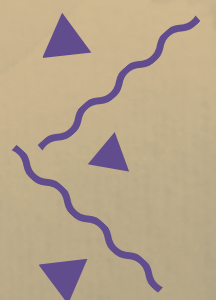
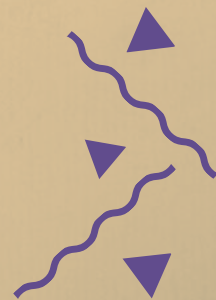
SAFE EVACUATION IN EMERGENCY DRILL

A drill on "Safe Evacuation from a Building in case of an Emergency" was arranged by the Health and Safety Committee of CUI Lahore Campus on May 23, 2024. The faculty and students from the department of electrical and computer engineering (ECE) participated in this drill. The event was supervised by the Security and Safety Department of CUI Lahore Campus. Purpose of this drill was to make students, staff and faculty aware about making a safe exit from a building/workplace in case of an earthquake, fire or any other calamity. Students, staff and faculty physically participated in this drill and strictly followed the procedure and guidelines mentioned in the relevant SOP. In-charge Security, Col. Shahzad Anwar and his team supervised this drill, and he rated the exercise as "satisfactory".



RECRUITMENT DRIVE BY DREAMBIG SEMICONDUCTOR

Dream Big Semiconductor is an emerging semiconductor startup that is dedicated to providing comprehensive low cost, low latency and high throughput solutions for AI, Datacenters, 5G and Automotive Markets. Headquarter in San Jose, CA, USA, Dream Big Semiconductor has offices in different regions across the world for R&D cost optimization. The higher management of DreamBig Semiconductor visited the Electrical and Computer Engineering Dept, COMSATS University Islamabad (CUI), Lahore campus on May 08, 2024 for its recruitment drive to hire software and hardware Engineers from the final year students (Fall20 batches) of BS Electrical Engineering and Computer Engineering programs. The event started with the orientation session in the N-LAB (B-02), B-Block. Under the umbrella of the Collaboration and Outreach Committee (CoC), Electrical and Computer Engineering Department, Dr. Aamer Bilal Asghar (Assistant Professor) led the arrangements for the conduction of tests for the recruitment drive of Dream Big Semiconductor. The students of both Electrical Engineering and Computer Engineering Programs were very enthusiastic to interact with the resource persons from the DreamBig Semiconductor and they actively participated in the test.



ACHIEVEMENTS

BS Project supervised by Dr. Jahangir Arshad has been selected for the IGNITE Project Competition, 2023-2024. (May 31, 2024)

Title: Intelligent Cattle Health Monitoring System Using Federated Learning, Body Area Sensors and IoT Platform

This cattle health monitoring system provides monitoring of cattle health to ensure the minimum human intervention. A system has been designed and developed to aid the intelligent cattle health monitoring system by using machine learning techniques. The system includes multiple sensor nodes, each having a body area sensor that is connected to the IoT platform through a controller. As novelty, the prototype has been trained and evaluated using a federated learning technique. The system warns the owner about specific diseases such as fever, mastitis, foot and mouth disease, and ketosis. The presented results validate the proposal as it diagnoses the prescribed viral diseases precisely.



ACHIEVEMENTS

1. ECE Department Lahore Campus Won the 4 FYDP worth of Rs.100,000/-

The ECE Department Lahore Campus Won the 4 FYDP worth of Rs.100,000 / each project under 2nd Phase of Financing of Final Year Design Projects (2023-24) by the Pakistan Engineering Council. The details are mentioned below:

Sr.	Name of Project	Supervisor	Student	Project Cost (PKR)
1.	Drowziness Detection in Drivers using IoT and machine learning	Dr Aamer Bilal Asghar	Junaid Zafar, Abdullah Waheed, Bisma Rubab	100,000/ -
2.	Smart Glasses for Blind using IoT and Machine Learning	Dr. Aamer Bilal Asghar	Hafiza Fatima Nasir, Minahil Mehmood, Wahiba Batool	100,000/ -
3.	Crop disease detection using deep learning and Machine Learning	Dr. Aamer Bilal Asqhar	Danish Azhar, Dua sanaullah, Ali hamza	100,000/ -
4.	Empowering Learning: Development of humanoid robot for revolutionizing STEM and AI education in schools	Dr. Mujtaba Jaffrey	Sameen Yaser & Saliha Asif Mughal	100,000/ -

ACHIEVEMENTS

1. Mr. Sajid Sarwar successfully defended his PhD thesis on March 22, 2024.

Mr. Sajid Sarwar (CIIT/FA17-PEE-01/LHR)

Title of Thesis: Maximum Energy Harvesting Using Optimum Control Techniques for Photovoltaic Based Micro grid System.

Supervisor: Dr. Mujtaba Hussain Jaffery (Tenured Associate Professor, ECE-CUI Lhr)

Co-Supervisor: Dr. Muhammad Yaqoob Javed (Assistant Professor, ECE-CUI Lhr)

External Examiners:

• Professor Dr. Muhammad Kamran (MNUSET, Multan)

• Professor Dr. Tahir Izhar (UET)



MS Graduate Students

FALL 2023

Sr. No.	Research Supervisor	Student Name	Thesis Title
1	Dr. Muhammad Naeem Awais	Rumman	Engineering Application of Machine Learning for In-door Floor Layout Planning
2	Dr. Aamer Bilal Asghar	ANISA SHARIF	Diagnosis of Doubly Fed Induction Generator Inter-Turn Faults (ITS) in Wind Energy Conversion System

SPRING 2024

Sr. No.	Research Supervisor	Student Name	Thesis Title
1	Dr. Sobia Baig	Muhammad Shaharyar Haider	Power Potential Assessment of Wave Energy and Integration with other Renewable Energy Resources for Coastal Area
2	Dr. Mirza Tariq Hamayun	Muhammad Salik Bilal	Output Observer-based Sensor Fault Detection in Twin Rotor Multiple Input Multiple Output System
3	Dr. Muhammad Yaqoob Javed	Zain Rasool	An efficient fault detection method for grid connected solar photovoltaic system
4		Aqsam Raza	Optimizing PV performance in shaded area with distributed modular level power electronics (MLPE) Systems
5	Dr. M. Farooq-i-Azam	Mohammad Mazan	Landslide Monitoring Using State of the Art Machine Learning Techniques with Image Processing of Space Borne Remote Sensing Imagery Data
6		Malka Arooj	Landslide Monitoring using Solar Energy Powered Wireless Sensor Network and Machine Learning Techniques
7	Dr. Fawad Azeem	Muhammad Afzaal	Design and Development of an Intelligent Control System for Multifunctional Agricultural Simulator

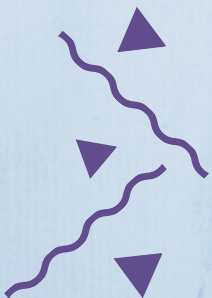
PhD Graduate Students

FALL 2023

Sr. No.	Research Supervisor	Student Name	Thesis Title
1	Dr. Muhammad Naeem Awais	Mubeen Zafar	A Versatile Modeling of Memristor for Digital Design Applications

SPRING 2024

Sr. No.	Research Supervisor	Student Name	Thesis Title
1	Dr. Mujtaba Hussain Jaffery	Sohaib Aslam	Attitude Control of Satellite Combined Energy and Attitude Control System using Soft Computing Techniques
2	Dr. Mujtaba Hussain Jaffery	Sajid Sarwar	Maximum Energy Harvesting Using Optimum Control Techniques for Photovoltaic Based Microgrid System
3	Dr. Mujtaba Hussain Jaffery	Neelam Mughees	Demand Response for Industrial Micro-Grids by Managing the Uncertainties of Renewable Energy Sources



DEPARTMENTAL GET TOGETHERS



The Department of Electrical and Computer Engineering, COMSATS University Islamabad, Lahore Campus held a long-awaited faculty get-together on the evening of May 22nd, 2024, at Al Khan Restaurant. Taking some time off from their busy schedules, the faculty enjoyed a relaxing evening and the opportunity to connect with colleagues outside the classroom. The department also took this opportunity to bid farewell to Mr. Hassan Aslam. Mr. Hassan Aslam resigned from COMSATS and is moving abroad for future endeavors. We wish him the very best in his next chapters.



NEWSLETTER COMMITTEE



**DR. YAQOOB
JAVED**



**DR. AAMER BILAL
ASGHAR**



**DR. ZAID
AHMED**



**MS. AMNA
ARIF**



**MS. WAJEEHA
KHAN**



**MS. TABASSUM NAWAZ
BAJWA**