



# KCG

COLLEGE OF TECHNOLOGY

AFFILIATED TO ANNA UNIVERSITY | AUTONOMOUS



Department of  
Electrical and  
Electronics  
Engineering

# EnErgizE

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## VISION

KCG College of Technology aspires to become a globally recognized centre of excellence for science, technology & engineering education, committed to quality teaching, learning and research while ensuring for every student a unique educational experience which will promote leadership, job creation, social commitment and service to nation building.

## MISSION

- Disseminate knowledge in a rigorous and intellectually stimulating environment.
- Facilitate socially responsive research, innovation and entrepreneurship.
- Foster holistic development and professional competency.
- Nurture the virtue of service and an ethical value system in the young minds.

KCG College of Technology was founded in 1998 to fulfill the Founder-Chairman, Dr. KCG Verghese's vision of **"To Make Every Man a Success and No Man a Failure"**. It is a Christian minority institution, affiliated to Anna University (Autonomous), Chennai and approved by AICTE, New Delhi.

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# DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

## VISION

The Department of Electrical and Electronics Engineering aims to be a centre of excellence recognized for high quality teaching, learning and research, producing competent professionals to serve the nation and promote sustainability.

## MISSION

- Impart quality technical education in Electrical and Electronics Engineering domain
- Nurture industrial collaboration in research and development activities
- Maintain state-of-the-art facilities to provide opportunities for knowledge up-gradation
- Invoke the desire and ability of life-long learning in the students for a successful career

## EDITOR'S DESK

Welcome to the first issue of EnErgizE, the official newsletter of the Department of Electrical and Electronics Engineering at KCG College of Technology. This publication reflects our department's milestones, from academic achievements to innovative research contributions. It highlights the dynamic and industrious spirit of our faculty and students as they contribute to the world of technology.

Chief Editor	<b>Dr. T.Anuradha</b>
Editor	<b>Dr. R.Murugan</b>
Faculty coordinator	<b>Dr. B.BrindhaSakthi</b>
Students representatives	<b>1. Kanishq Harshini.P- III YEAR</b> <b>2. Abhiranjan Kumar- III YEAR</b> <b>3.Anamika Mohanan- III YEAR</b> <b>4.A.Afreen Sulthana-IV YEAR</b> <b>5.Alwin Tennyson.K-IV YEAR</b> <b>6.Priyadarshini.J-IV YEAR</b> <b>7.Arjun.S-IV YEAR</b>

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## RESEARCH ACTIVITIES

### Faculty Research Publications



#### Dr. L. Pattathu Rani

- IGEN ENVRIONTHON: Attended "AIR ELEMENT 1" and "space Element" programs. (Online, September 14-15, 2024 - 2 days each)

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#### Ms. A.V. Suganya

- SSN College of Engineering: Participated in "Design Methods of Inverters for EVs" program. (Online, October 19, 2024 - 1 day)
- NITTTR Chandigarh: Attended "Smart Grid and Renewable Energy Solutions" program. (Online, September 23-27, 2024 - 5 days)
- AICTE Training and Learning (ATAL): Participated in "Engineering Solutions for Sustainable" program. (Offline, November 4-9, 2024 - 6 days)



#### Ms. M. Ramya

- IGEN ENVRIONTHON: Participated in "Debate session on UN SDG Index report". (Online, July 18, 2024 - 2 days)

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#### Ms. Jitha Varghese

- IGEN ENVRIONTHON: Attended "EARTH ELEMENT" program. (Online, September 14-15, 2024 - 2 days)
- KCG COLLEGE OF TECHNOLOGY: Participated in "Generative AI" program. (Online, September 10, 2024 - 1 day)
- BHARATH INSTITUTE OF SCIENCE AND TECHNOLOGY: Participated in "POWERING THE FUTURE: INTEGRATING" program. (Online, August 27-31, 2024 - 5 days)



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#### Ms. Sahira Banu M

- IGEN ENVRIONTHON: Attended "AIR ELEMENT 1" (two instances), "WATER ELEMENT", and "SDE4EENERGY CONCLAVE" programs. (Online, September 14-15, 2024 - 2 days each)
- KCG COLLEGE OF TECHNOLOGY: Participated in "Generative AI" program. (Online, September 10, 2024 - 1 day)
- Vaag devi Engineering college: Participated in "Empowering education through E-learning" program. (Online, October 21-26, 2024 - 6 days)







### **Dr. R. Meena Devi**

- KCG COLLEGE OF TECHNOLOGY: Participated in "Generative AI" program. (Online, September 10, 2024 - 1 day)
  - NPTEL: Participated in "Teaching and Learning in General Pro" program. (Online, 4 weeks - 3 days)
  - Info Institute of Engineering: Participated in "Emerging Trends in Computing Technologies" program. (Online, November 18-22, 2024 - 5 days)
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### **Arvin Tony A**

- KCG college of Technology: Participated in "IoT and semiconductor" program. (Offline, July 8-12, 2024 - 5 days)



### **Ms. M. Ramya**

- IGEN ENVIRONMENTHON: Participated in "Debate session on UN SDG Index report". (Online, July 18, 2024 - 2 days)
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## **EVENTS**

### **Seminars and Workshops**

#### **Globalization and Intelligent Educational Technology (GIET-2024)**

#### **Analysis of the simulation Performance of CCM Zeta converter using PID controller:**

**Ms. Jitha Varghese** contributed research on optimizing the performance of a specific type of power converter using a PID controller. This work has implications for improving efficiency in power electronics applications. (Saheb Dange College of Engineering and Technology, Ashta, Maharashtra, September 13, 2024)

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### **IEEE conference IICCCSS**

#### **Seafull Algorithm for underwater sensor network localization:**

**Dr. L. Pattathu Rani** presented research on an innovative algorithm for enhancing underwater sensor network accuracy. This contribution addresses critical challenges in oceanographic data collection and monitoring. (Asansol Engineering College, West Bengal, September 20, 2024)

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## IEEE International Conference on Advances in Computing, Communication & Materials Detection and Classification of Pneumonia in Chest X-rays Using Transfer Learning with VGG16:

**Dr. L. Pattathu Rani** presented research on utilizing transfer learning techniques to develop an automated system for pneumonia detection from chest X-rays. This work showcases the potential of AI in medical diagnostics. (Tula's Institute, Dehradun, November 23, 2024)

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### Machine Learning and Deep Learning using MATLAB

A faculty development program focused on machine learning and deep learning using MATLAB, equipping participants with essential skills in these cutting-edge technologies. (July 15-16, 2024, Resource Person: Dr. Devapita Singa, MathWorks India, Convener: Dr. T. Anuradha, Coordinator: Arvin Tony A)

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### Modern Control Techniques for Special Electrical Machines

The Department of Electrical and Electronics Engineering, KCG College of Technology conducted a One Day Skill Development Program on "Modern Control Techniques for Special Electrical Machines" on 03.08.2024. The sessions were conducted in G10-MS Thacker Power System Simulation Laboratory for final year EEE students. The programme started at 9.30 am by Dr.Vivek Ashokan, Regional Manager- MathWorks, ARK Infosolutions Pvt. Ltd.

During the session the students were introduced to the diverse sectors where MATLAB is applied, providing a broad overview of its utility across various fields. Following this introduction, the applications related to special machines was discussed. Students gained a basic understanding of MATLAB toolsets and an outline of dimensional analysis, covering 1D, 2D, and 3D concepts. Students worked on simulink model involving a linear system analyzer, giving us initial hands-on experience in simulating special machines. Overall, the program served as a comprehensive introduction to MATLAB with a focus on special machines. The session enlightened the student with the the job opportunities available for MATLAB engineers, highlighting the demand in the market for those with these skills. The insights on both the technical aspects and career prospects made it an informative and valuable session for students.



### Machine Learning and Deep Learning using MATLAB

A dedicated day exploring real-time applications using MATLAB and Simulink, showcasing the power of these tools in practical scenarios. (August 3, 2024, Resource Persons: Dr.Meena Devi, Mr.Balaji, A R Ragu Rajan (Managing Director, DEFT Industrial Automation), Convener: Dr. T. Anuradha)





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## Innovation And Integration of Electrical & Digital Controls into Industrial Automation

**Guest Lecture:** A guest lecture focusing on the innovation and integration of electrical and digital controls into industrial automation, providing insights into the latest trends in this critical field. (September 20, 2024, Resource Person: A R Ragu Rajan (Managing Director, DEFT Industrial Automation), Convener: Dr. T. Anuradha, Coordinator: Ms. Suganya)



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## IGEN ENVIRONTHON 2024

A webinar as part of the IGEN Environthon 2024, raising awareness and promoting discussion on environmental issues. (September 15, 2024, Convener: Dr. T. Anuradha, Coordinator: Ms. Sahira Banu)



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## FIELD TRIP-100 kW ROOF TOP SOLAR PV PLANT

**Energy Club:** A field trip organized by the Energy Club to a 100 kW roof top solar PV plant, providing a practical understanding of renewable energy generation. (September 14, 2024, Resource Person: Mr. Balaji S, Conveners: Dr. T. Anuradha, Ms. Jitha Varghse, Ms. Suganya)

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## POSTER PRESENTATION

**Energy Club:** A poster presentation event organized by the Energy Club, showcasing student research and projects related to energy. (September 28, 2024, Resource Person: Dr. R. Meena Devi, Conveners: Dr. T. Anuradha, Ms. Jitha Varghse, Ms. Suganya)

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## SEMINAR ON ENERGY CONSERVATION

**Energy Club:** A seminar on energy conservation organized by the Energy Club, emphasizing the importance of energy efficiency and sustainable practices. (November 9, 2024, Resource Person: Dr. K. Karthikeyan, Conveners: Dr. T. Anuradha, Ms. Jitha Varghse, Ms. Suganya)

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## KCG ENERGY CLUB: POSTER PRESENTATION

**Venue: FIST LAB**

**Date: 28 .9.24**

**Time: 1.00 to 3.00 pm**



In KCG energy club we organized Poster Presentation on topic RENEWABLE ENERGY: POWERING A SUSTAINABLE FUTURE. 10 teams participated. Each team has two to three participants. The poster was evaluated by Dr. Meenadevi / AP/EEE They explained the poster prepared by them. It mainly deal with renewable energy and how efficiently it can be utilized. Most of the team covers the fundamentals, importance, types, benefits, challenges, and future trends of renewable energy to provide a comprehensive understanding of its role in creating a sustainable future.

They explained renewable energy comes from natural sources that are constantly replenished, such as sunlight, wind, and water. Students discussed about renewable energy sources address environmental concerns, mitigate climate change, and provide long-term, sustainable solutions for growing energy demands.

Few teams represented electrical energy efficiency, in their poster they implemented about electrical energy saving as the practice of reducing electricity use through efficient technologies, practices, and behavioral changes.

In Poster they detailed about Electrical Energy-Saving Technologies and Tools, like Energy-Efficient Lighting (LEDs)- LEDs use significantly less electricity than traditional bulbs and have a longer lifespan, reducing the frequency of replacements.



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## SEMINAR ON ENERGY CONSERVATION

In KCG energy club we organized a seminar on energy conservation. 21 number of students participated. The resource person for the seminar is Dr. K. Karthikeyan/Asso Prof/EEE Dept. He started the session with Conservation of Energy in Physics, how to conserves energy in practical. He discussed about the Environmental and Economic Benefits. Detailed about Methods and Approaches for Energy Conservation- Technological Advancements in Energy Efficiency, Sustainable Building Practices, Renewable Energy Integration, Behavioral and Policy Changes.

**Venue: FIST LAB**

**Date: 9.11.2024**

**Time: 2.30 to 4.00 pm**



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## KCG ENERGY CLUB



He explained about the Economic and Environmental Benefits and Challenges to Effective Energy Conservation. Energy conservation is a multifaceted approach that plays a critical role in addressing environmental, economic, and resource-related challenges. It involves not only a scientific understanding of energy transformations but also technological innovations, behavioral adjustments, and policy measures. As global energy demands increase, adopting sustainable practices in energy conservation will become ever more essential. Through concerted efforts across sectors and communities, we can achieve a sustainable future marked by reduced emissions, economic stability, and preserved resources for future generations.

He gave an example with calculation for using renewable energy for home appliance and explained about the cost effectiveness for the use of energy from solar for a single house and compared with the TANGEDCO (Tamil Nadu Generation and Distribution Corporation).

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## Inter-School Science Expo, Eureka

The Inter-School Science Expo, Eureka, was conducted on 22nd November 2024, showcasing the innovative ideas and scientific temperament of students from various schools. The central theme for the expo revolved around Sustainable Development Goals (SDGs), emphasizing the importance of addressing global challenges through creativity and technology.

- The students demonstrated exceptional creativity and critical thinking in addressing global challenges.
- Most projects were aligned with SDGs such as Clean Water and Sanitation, No Poverty, Good Health and Well-being, and Sustainable Cities and Communities.
- Younger students excelled in simplicity and clarity, while senior students impressed with the depth and feasibility of their ideas.



The Eureka Science Expo was a resounding success, providing a platform for students to exhibit their innovative ideas and engage in problem-solving for real-world issues. By focusing on Sustainable Development Goals, the expo not only nurtured scientific curiosity but also instilled a sense of social responsibility among the participants.

As a jury member, Dr. K. Karthikeyan was inspired by the enthusiasm and ingenuity of these young minds, and I am confident that events like Eureka will play a pivotal role in shaping the leaders of tomorrow.

## Internship

Name of the Student with year (I/ II / III/ IV year)	Name of Institution/ Organization	Duration (in days)	Start Date	End Date
Anamika Mohanan (III year)	SCoE- MIT Summer Internship 2024, Siemens Centre of Excellence, Department of Instrumentation Engineering, NIT, Anna University, Chennai	21	24.06.2024	19.07.2024
Jerusha Evangelin N (III year)	SCoE- MIT Summer Internship 2024, Siemens Centre of Excellence, Department of Instrumentation Engineering, NIT, Anna University, Chennai	21	24.06.2024	19.07.2024
Samuel N Akilan S (III year)	NLC INDIA LIMITED, Neyveli	10	01.07.2024	10.07.2024
Jebadurai Yokesh Kiruthik Varman Vasudev Dilip Kumar ( III year)	Nano Technologies , Chennai	12	01.07.2024	12.07.2024
Newton Raja	IOIO-Software Development Intern, Navi Mumbai, Maharastra	90	16.12.2024	14.03.2025

# STUDENT ACHIEVEMENTS

## Students Conference

Sl. No.	Name of the Student	Name of the Conference	Date	Venue
1	Ameesh T, Ashwin D, Karthickraja C	International Conference on "Globalization and Intelligent Educational Technology (GIET -2024)	Sep 13 & 14, 2024	Dept. of EE, ADCET, Ashta, Maharashtra in association with <b>DST - Science and Engineering Research Board (SERB)</b>
2	Mathi Yuvarajan Ayush Pandey	Springer Conference	Nov 2024	Malaysia
3	Allen Thomas B, Dineshkumar R A, Ekalaivan V	International Conference on Recent Trends and Development in Electrical and Power Engineering (ICRTDEPE 2024)	December 12 & 13 , 2024	Department of EEE , Bharath Institute Of Higher Education and Research
4	M. Prem Kumar B. Ragul Raj Anirban Manna	International Conference on Recent Trends and Development in Electrical and Power Engineering (ICRTDEPE 2024)	December 12 & 13 , 2024	Department of EEE , Bharath Institute Of Higher Education and Research
5	Dinesh S, Sasikumar S, Kishorekumar A	International Conference on Recent Trends and Development in Electrical and Power Engineering (ICRTDEPE 2024)	December 12 & 13 , 2024	Department of EEE , Bharath Institute Of Higher Education and Research
6	Munnodi J, Tamilselvan B Vaishnavi D	International Conference on Recent Trends and Development in Electrical and Power Engineering (ICRTDEPE 2024)	December 12 & 13 , 2024	Department of EEE , Bharath Institute Of Higher Education and Research

Webinar/Workshops attended by students				
Sl. No	Name of the Student	Name of the Training	Date	Venue
1	Afreen Sulthana, Priyadarshini, Joan	KEP on IoT and Semiconductors -Synergies and Future	08.07.2024 to 12.07.2024	KCG College of Technology
2	Suganthi,Priyadarshini,Afreen Sulthana, Muthu Abinaya, Joan, Rahul, Mahendran (IV year) Praneel,Saravanan, Gugan (III year)	Inaugural function of Institution of Engineers (India)(IEI) - National Environment Climate Change Forum( NECCF) and panel discussions on the theme “SDG Goals - Role of Engineers in achieving Carbon Neutrality”	13.07.24	Centre of University - Industry Collaboration , CEG Campus, Guindy , Anna University.
3	Sriman . Kishore,Rahul, Priyadarshini,Afreen Sulthana, Suganthi, Muthu Abinaya, Joan , Shaik Althaf ( IV year)	IGEN debate series 01 Topic:” UN SDG INDEX REPORT 2024”	18.07.2024	Online
4	II year EEE	MATLAB DAY - Hands -on Training Ms. Suganya, Mr. Afsal S., and Mr. Gowtham Rajmohan	03.08.2024	KCG College of Technology
5	IV year EEE	Skill Development Program on "Modern Control Techniques for Special Electrical Machines" Dr.Vivek Ashokan, Regional Manager - MathWorks, ARK Infosolutions Pvt. Ltd.	03.08.2024	KCG College of Technology
6	Sriram, K Ruvan Athityiyaa V, Santhosh Kumar II year EEE	Workshop on Empowering Nex -Den Industry: IntelligentIoT with Edge - Enabled Embedded Systems	03.09.2024	Dept. of EEE CEG campus, Anna University, Chennai



7	II year & III year EEE	<p>PALS INDUSTRY ASSISTED DEEP LEARNING SERIES ON INDUSTRIAL ENERGY EFFICIENCY AND ITS ASSESSMENT METHODOLOGY series</p> <p>Topic: INDUSTRIAL ENERGY EFFICIENCY AND ITS ASSESSMENT METHODOLOGY</p> <p>Resource Partner: THE ENERGY CONSORTIUM, IIT MADRAS</p> <p>Resource Person: Mr. Dhipan kumar K</p> <p>Sr. Manager IEAC</p>	12.09.2024	Online
8	II year & III year EEE	<p>PALS INDUSTRY ASSISTED DEEP LEARNING SERIES ON INDUSTRIAL ENERGY EFFICIENCY AND ITS ASSESSMENT METHODOLOGY series</p> <p>Session 2 Topic : Energy Assessment on Electrical Utilities</p> <p>Time : 10.30 AM - 12.30 PM</p> <p>Speaker : Mr. Sai Ramana &amp; Mr. Jeyaprakash (Energy Assessment Engr, IEAC)</p>	14.09.2024	Online
9	<p>K Ruvan Athityiyaa (II year)</p> <p>Rishivarman (III year)</p>	<p>Panel Discussion on Graphene Applications in Aerospace and Defence by Sri Andre Konstantin Geim , Regius Professor and Royal Society Research Professor , University of Manchester, UK</p> <p>Nobel Prize Phsics 2010</p>	14.09.2024	HITS, Chennai
10	<p>Abhiranjan, Alwin,Akilan ,Amarnath,Anamika, Khaif,Rajkumar, Dilip, Kanishq Harshini, Praneel, Kuganesh, Matti Israel, Vasudev (III year)</p>	<p>IGEN Envirnthon 24 Inaugration</p> <p>Thiru. Siva. V. Meyyanathan. Hon.Minister of Tamilnadu Dept. of environment and climat e change</p>	14.09.2024	IEI TNSC, Chepauk

11	II year & III year EEE	<p>PALS INDUSTRY ASSISTED DEEP LEARNING SERIES ON INDUSTRIAL ENERGY EFFICIENCY AND ITS ASSESSMENT METHODOLOGY</p> <p>Session 3 Topic: Energy Assessment on Mechanical Utilities</p> <p>Speakers : Mr. Harish &amp; Mr. Setheeshwar (Energy Assessment Engr, IEAC)</p> <p>Date : Thursday, 19th September 2024</p>	19.09.2024	online
12	<p>Dilip Kumar, Anamika, Alwin , Vasudev, Abhiranjan, Jerusha, Kanishq, Inbarasan(III year EEE) ,Shamili (M.E. PED)</p>	<p>MATLAB and Simulink Circuit Series.</p> <p>From Classroom to Cloud - Navigating the World of IoT Development using Model -Based Design</p> <p>Enhance your IoT development skills with model -based design techniques.</p>	21.09.2024	Online
13	II year & III year EEE	<p>ALS INDUSTRY ASSISTED DEEP LEARNING SERIES ON INDUSTRIAL ENERGY EFFICIENCY AND ITS ASSESSMENT METHODOLOGY</p> <p>Session 4 Topic: Energy Assessment on Thermal Utilities</p> <p>Speakers : Mr. Kartheeswaran &amp; Mr. Selvaganesh (Sr. Energy Assessment Engr, IEAC)</p>	21.09.2024	Online
14	II year & III year EEE	<p>PALS INDUSTRY ASSISTED DEEP LEARNING SERIES ON INDUSTRIAL ENERGY EFFICIENCY AND ITS ASSESSMENT METHODOLOGY</p> <p>Session 5 Topic: Introduction to GHG emissions and assessment of Scope 1, 2 &amp; 3 emissions</p> <p>Speaker: Mr. Dhipankumar. K (Sr. Manager, IEAC)</p> <p>Time: 10.30 AM - 12.30 PM</p>	28.10.2024	Online
15	IIInd year and III year students	<p>Final Quiz for INDUSTRIAL ENERGY EFFICIENCY AND ITS ASSESSMENT METHODOLOGY</p>	03.10.2024	Online

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## AWARDS RECEIVED BY FACULTY & DEPARTMENT

### Dr. Anuradha

**IGEN Green Volunteer Award 2024:** Awarded by IGEN Environthon 2024 for her commitment to environmental sustainability. (September 14, 2024)

### M. Sahira Banu

**World Book Record:** Recognized by IGEN Environthon 2024 for her exceptional contributions. (September 14, 2024)

### M. Ramya

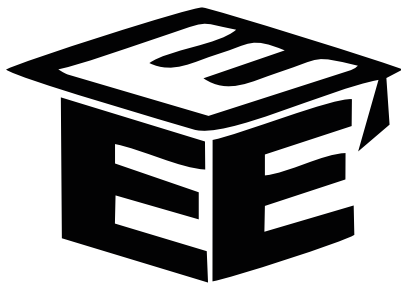
**IGEN SDG Membership Award 2024:** Awarded by IGEN 2024 for her dedication to the UN Sustainable Development Goals. (July 2024)

**10 Year Dedicated Service:** Recognized by KCG College for her long-standing commitment and service. (October 30, 2024)

### Dr. K. Karthikeyan

**Innovative Faculty:** Honored with the Chairman's Award for his innovative teaching practices and contributions to the college. (October 30, 2024)

**Empower Dream Engineer Realities:** Recognized by KCG College for his dedication to empowering aspiring engineers. (October 30, 2024)



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