KUMARAGURU Institutions

DEPARTMENT ASSOCIATION

December '24

MONTHLY MAGAZINE

BY ASSOCIATION OF ECE

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DEPARTMENT OF ECE

VISION

To be a centre of repute for learning and research with internationally accredited curriculum, state-of-the-art infrastructure and laboratories to enable the students to succeed in globally competitive environments in academics and industry.

MISSION

The Department is committed to:

- Motivate students to develop professional ethics, self confidence and leadership quality.
- Facilitate the students to acquire knowledge and skills innovatively to meet evolving global challenges and societal needs.
- Achieve excellence in academics, core engineering and research.

PROGRAMME SPECIFIC OUTCOMES (PSOs)

Graduates of the Electronics and Communication Engineering Programme will have the ability to:

PSO1: Analyze and Design, verify and validate VLSI Systems by selecting appropriate hardware and software tools.

PSO2: Design, develop and validate inter disciplinary products/ process by applying the knowledge and skills of Embedded Systems, Signal Processing, Electromagnetics and Communication Engineering.

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

The Programme Educational Objectives of Electronics and Communication Engineering Undergraduate Programme are:

PEO1: Graduates will be successful as Professionals, Researchers or Entrepreneurs in Electronics, Information and Communication Engineering disciplines.

PEO2: Graduates will continuously be updated with the state-of the art technology through formal and informal education to provide sustainable solutions.

PEO3: Graduates will demonstrate ethical and social responsibilities as an individual and in a team of diverse culture.

PROGRAMME OUTCOMES (POs)

PO1: The graduates would be able to apply the knowledge of mathematics, sciences, engineering fundamentals and skills to solve problems in electronics and communication.

PO2: The graduates would acquire skills to analyse complex problems in the domain of electronics and communication engineering.

PO3: The graduates would be able to design, develop and validate solutions for electronics and communication systems meeting the specifications vis-à-vis the society.

PO4: The graduates will have proficiency to acquire, analyse data and interpret results leading to relevant research.

PO5: The graduates would be able to use appropriate modern engineering/simulation tools including modelling and forecasting for complex technological entities.

PO6: The graduates would have awareness of and the need to uphold professional responsibilities and also be aware of health, safety, social and legal aspects of their work.

PO7: The graduates would have an understanding of the societal and human context in which their engineering contributions will provide sustainable development.

PO8: The graduates would carry out professional responsibilities adhering to ethical and standard norms of engineering practices.

PO9: The graduates would have ability to function effectively as an individual and as a member or leader in diverse teams and in multi-disciplinary environment.

PO10: The graduates would be capable of communicating effectively with the engineering community and society at large.

PO11: The graduates would demonstrate knowledge and understanding of engineering and management principles for technological and socially relevant projects.

PO12: The graduates would recognize the need for and also have ability to engage in continual, life-long learning.

THE LAUGH LAB

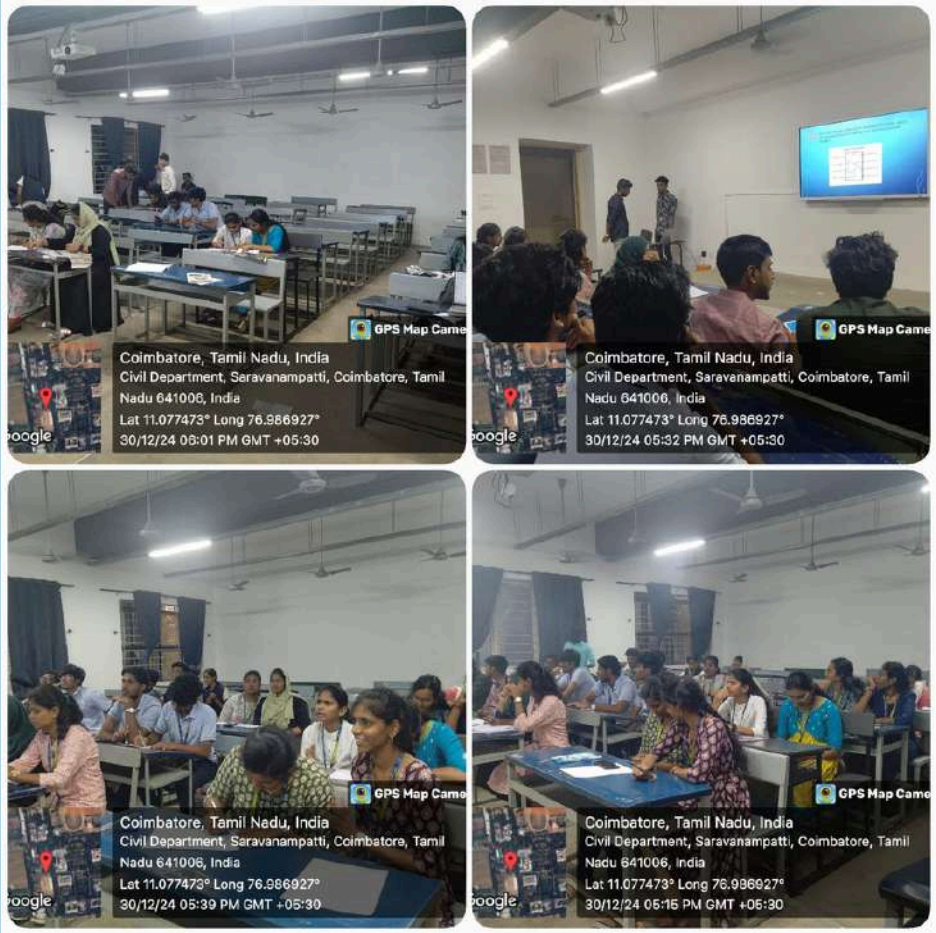
DESCRIPTION:

The Laugh Lab was a dynamic and entertaining event designed to bring people together through laughter, creativity, and engaging activities. It provided a perfect opportunity for participants to take a break from their routine, connect with others, and enjoy an evening filled with fun challenges and joyful interactions. With a focus on fostering camaraderie and sparking creativity, the event created a lively atmosphere where participants could unwind, collaborate, and create lasting memories.

ORGANIZED BY:
Aruna KR - 22BEC016
Sriharini J - 22BEC166

EVENT MODE : Offline
DATE : 20.12.2024
TIME : 5.00 P.M to 6.30 P.M
VENUE : Near KVB (Backside of C Block)

CIRCUIT QUEST: CRACK & UNLOCK



DESCRIPTION:

Circuit Quest: Crack & Unlock was an engaging and interactive event designed to challenge participants' analytical thinking, creativity, and teamwork. The event provided a platform for players to collaborate, solve intriguing puzzles, and identify circuit errors, fostering both learning and fun. Through a series of exciting rounds, participants navigated challenges such as circuit Sudoku and logic-based problem-solving, all while racing against the clock. With a lively and competitive atmosphere, the event encouraged camaraderie, quick decision-making, and out-of-the-box thinking, leaving participants with an enriching and memorable experience.

ORGANIZED BY:

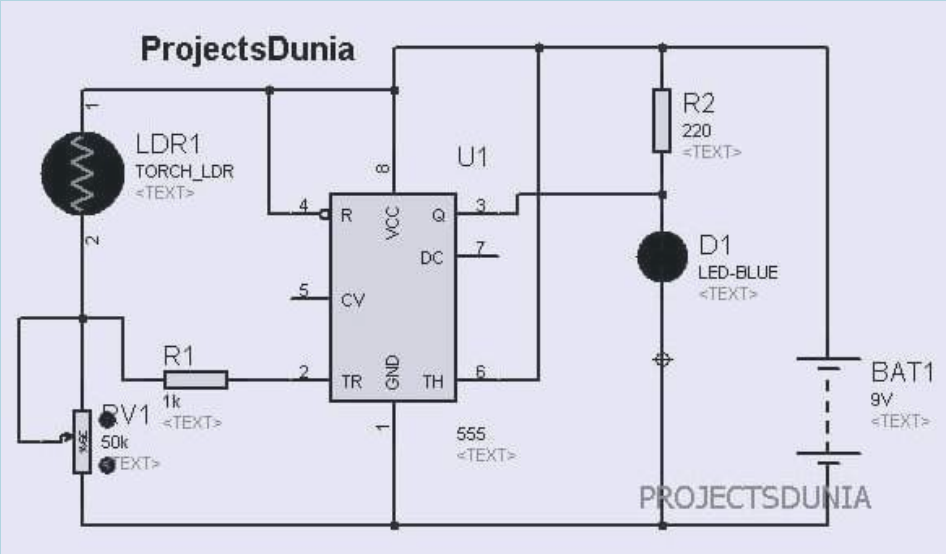
Yazhini S - 22BEC206
Divakar LG - 23BEC052

EVENT MODE : Offline
DATE : 30.12.2024
TIME : 5.00 P.M to 6.30 P.M
VENUE : C-208 (ECE dept)

AUTOMATIC STREET LIGHT CONTROLLER

COMPONENTS

- Light Dependent Resistor (LDR)
- 555 Timer IC
- Relay Module
- Resistors (1 kΩ, 220 Ω)
- Variable Resistor (50 kΩ Potentiometer)
- Capacitors
- Diode
- LED
- Battery (9V)



WORKING

The Automatic Street Light Controller automates the process of turning street lights on and off based on ambient light levels, eliminating the need for manual operation. It is designed to conserve energy by ensuring lights are only on during low-light conditions, such as at dusk or during overcast weather, and off during the day.

The system utilizes an LDR (Light Dependent Resistor) to detect the intensity of surrounding light. During daylight, the LDR's low resistance causes the voltage across it to drop, signaling the 555 Timer IC to keep the LED off. As night approaches or ambient light decreases, the LDR's resistance increases, causing the voltage across it to rise. This change is detected by the 555 Timer IC, which acts as a comparator.

When the voltage across the LDR exceeds a preset threshold, the 555 Timer triggers its output pin (pin 3) to supply power to the LED, simulating a street light turning on. Conversely, during daylight, when the voltage drops below the threshold, the 555 Timer disables the output, turning the LED off. Resistors and capacitors are used to stabilize the circuit, and a diode is included to protect the LED.

This system ensures efficient energy use by automating street lighting, reducing electricity wastage, and offering a reliable and low-maintenance solution suitable for various environments.

QUIZ

1. A 4-bit synchronous counter operates at a clock frequency of 16 MHz. What is the output frequency of the MSB (most significant bit)?

A. 8 MHZ
B. 4 MHZ
C. 2 MHZ
D. 1 MHZ

2. A signal is sampled at 600 Hz. What is the reconstructed frequency if the Nyquist criterion is not satisfied?

A. 100Hz
B. 500 Hz
C. 600 Hz
D. 50 Hz

3. A Zener diode has a breakdown voltage of 5.6 V. If the series resistor connected to it is 1 kΩ, and the input voltage is 12 V, what is the current through the Zener diode?

A. 7.2 mA
B. 5.6 mA
C. 6.4 mA
D. 10 mA

4. A PN junction diode operates in the forward bias region. If the saturation current is and the thermal voltage () is 26 mV, calculate the current through the diode when the forward bias voltage is 0.7 V.

A. 15.4 mA
B. 25.5 mA
C. 5.6 mA
D. More than one of the above

5. A plane wave propagating in free space has an electric field given by . What is the wavelength () of this wave?

A. 0.15 m
B. 0.75 m
C. 0.30 m
D. 3.00 m

Editor:
Hrithick MG - 23BEC068