





NEWSLETTER OCTOBER 2024-JANUARY 2025

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING INSTITUTE VISION

Producing globally competent and quality technocrats with human values for the holistic needs of industry and society.

INSTITUTE MISSION

- Creating an outstanding infrastructure and platform for enhancement of skills, knowledge and behaviour of students towards employment and higher studies.
- Providing a healthy environment for research, development and entrepreneurship, to meet the expectations of industry and society.
- Transforming the graduates to contribute to the socio-economic development and welfare of the society through value based education.

DEPARTMENT VISION

To be a center of excellence in imparting knowledge, skills and ethical values, while fostering innovation, sustainability and globally competent to make exemplary contributions to the field of Electrical and Electronics Engineering.

DEPARTMENT MISSION

- To impart technical education using state-of-the-art infrastructure, laboratories, and instructional methods, ensuring students acquire comprehensive knowledge and skills.
- To foster industry-oriented learning by facilitating internships, industrial visits, collaborative projects with industries.
- To create a congenial environment for higher education, employment, and entrepreneurship by delivering quality education, enhancing professional skills and promoting research and innovation.
- To promote societal commitment and ethical leadership by instilling moral values and encouraging responsible engineering practices among students.

PROGRAM EDUCATIONAL OBJECTIVES

- Graduates will possess a strong foundation in core and interdisciplinary areas of Electrical and Electronics Engineering along with analytical and computational skills, enabling them to tackle global challenges through innovative and critical problem-solving
- Graduates will actively engage in research, entrepreneurship, and innovation to address contemporary challenges in Electrical and Electronics Engineering while promoting sustainable and inclusive technological development for the betterment of society.
- Graduates will exhibit effective communication skills, collaborative abilities, and ethical values, preparing them for successful careers, higher education, and leadership roles in a rapidly evolving competitive environment.

PROGRAM SPECIFIC OUTCOMES

- responsible students. PSOI: Capable of design, develop, test, verify and implement electrical and electronics engineering systems and products.
 - PSO2: Succeed in national and international competitive examinations for successful higher studies and employment.

RESEARCH CONTRIBUTIONS

- 1.YATINDRA GOPAL, AKANKSHA KUMARI, KAIBALYA PRASAD PANDA, DHEERAJ KUMAR DHAKED, YOGENDRA ARYA, IMPLEMENTATION AND ANALYSIS OF SWITCHED-CAPACITOR MULTILEVEL INVERTERS IN SOLAR PHOTOVOLTAIC SYSTEM, SUSTAINABLE ENERGY TECHNOLOGIES AND ASSESSMENTS, VOLUME 75, 2025, 104227, ISSN 2213-1388, HTTPS://DOI.ORG/10.1016/J.SETA.2025.104227.
- 2.SHARMA, P.; PALWALIA, D.K.; SHARMA, A.K.; GOPAL, Y.; ROSAS-CARO, J.C. NOVEL CURRENT-FED BIDIRECTIONAL DC-DC CONVERTER FOR BATTERY CHARGING IN ELECTRIC VEHICLE APPLICATIONS WITH REDUCED SPIKES. ELECTRICITY 2024, 5, 1022-1048. HTTPS://DOI.ORG/10.3390/ELECTRICITY5040052
- 3.BUDUMA, PARUSHARAMULU, GOPAL, YATINDRA, KAMPARA, RAVISANKAR. "POWER COORDINATION AND CONTROL OF DC MICROGRID WITH PV AND HYBRID ENERGY STORAGE SYSTEM" INTERNATIONAL JOURNAL OF EMERGING ELECTRIC POWER SYSTEMS, 2024. HTTPS://DOI.ORG/10.1515/IJEEPS-2023-0328
- 4.KRISHNA KUMBA, PATRI UPENDER, PARUSHARAMULU BUDUMA, MITHU SARKAR, SISHAJ P. SIMON, VENKATESWARLU GUNDU, SOLAR TRACKING SYSTEMS: ADVANCEMENTS, CHALLENGES, AND FUTURE DIRECTIONS: A REVIEW, ENERGY REPORTS, VOLUME 12, 2024, PAGES 3566-3583, ISSN 2352-4847, HTTPS://DOI.ORG/10.1016/J.EGYR.2024.09.038.
- 5.TENTU PAPI NAIDU, GANAPATHY BALASUBRAMANIAN, VENKATESWARA RAO BATHINA "WEIGHTED SUM METHOD BASED MULTI-OBJECTIVE OPTIMAL POWER FLOW CONSIDERING VARIOUS OBJECTIVES: AN APPLICATION OF WHALE OPTIMIZATION ALGORITHM" IN "INTERNATIONAL JOURNAL OF APPLIED POWER ENGINEERING".VOL. 13, NO. 4, DECEMBER2024, PP. 963~972,ISSN 2252-8792,HTTP://DOI.ORG/10.11591/IJAPE.V13.I4.PP963-972.
- 6.HARIHARARAO MOJJADA, N GOPI CHAND, ASI LAKSHMIPRIYANKA,T.SRAVYA "THE EVOLUTION OF AI VIRTUAL TUTORS IN MODERN HIGHER EDUCATION" IN "INTERNATIONAL JOURNAL FOR INNOVATIVE RESEARCH IN TECHNOLOGY", VOLUME 11 ISSUE 7 | ISSN: 2349-6002, DECEMBER 2024.
- 7.MUGADA SRINU AND K.SUBBARAMAIAH, "PERFORMANCE ANALYSIS OF A MICROGRID FOR THE INTEGRATION OF WIND AND SOLAR ENERGY SOURCES" AT "INTERNATIONAL CONFERENCE ON RENEWABLE ENERGY RESOURCES AND APPLICATIONS (ICRERA-2024)" (PUBLISHER: EDP SCIENCES), ARTICLE NUMBER 03003, HTTPS://DOI.ORG/10.1051/E3SCONF/202459103003, NOVEMBER 2024.
- 8. VIJAYCHANDRA JODDUMAHANTHI HAS PRESENTED A PAPER WITH TITLE "OPTIMAL SWITCHING OF STEP-UP CONVERTER EMPLOYED IN DISTRIBUTIVE GRID USING BAYESIAN REGULARIZATION APPROACH" AT "6TH INTERNATIONAL CONFERENCE ONINNOVATIVE PRODUCT DESIGN AND INTELLIGENT MANUFACTURING SYSTEMS (IPDIMS-2024)" (PUBLISHER: SPRINGER)
- 9. VIJAYCHANDRA JODDUMAHANTHI, YATINDRA GOPAL, VANAJAKSHI BAMMIDI, BHASKARA RAO ANKAM HAVE PRESENTED A PAPER WITH TITLE "EXTRACTION OF MAXIMUM POWER OF A SOLAR PHOTOVOLTAIC ENERGY SYSTEMS USING CUCKOO SEARCH ALGORITHM" AT "TWO DAYS NATIONAL CONFERENCE ON INNOVATIONS IN SCIENCE & TECHNOLOGY (IST-2024) HELD AT NATIONAL INSTITUTE OF TECHNOLOGY SRINAGAR, J&K, INDIA FROM NOVEMBER 28-29, 2024." (PUBLISHER: SPRINGER)
- 10. VANAJAKSHI BAMMIDI, VIJAYCHANDRA JODDUMAHANTHI, VEDA PRAKASH KAKINADA, ANITHA KILARI, NAGAMANI KALYAMPUDI HAVE PRESENTED A PAPER WITH TITLE "PARAMETER ESTIMATION OF SOLAR PHOTOVOLTAIC MODULE USING AQUILA OPTIMIZATION ALGORITHM" AT "TWO DAYS NATIONAL CONFERENCE ON INNOVATIONS IN SCIENCE & TECHNOLOGY (IST-2024) HELD AT NATIONAL INSTITUTE OF TECHNOLOGY SRINAGAR, J&K, INDIA FROM NOVEMBER 28-29, 2024." (PUBLISHER: SPRINGER)
- 11. VIJAYCHANDRA JODDUMAHANTHI, VEDA PRAKASH KAKINADA, VANAJAKSHI BAMMIDI, BHASKARA RAO ANKAM, ANIL KUMAR ALAMANDA, HARIKA SHIVANI CHUKKA HAVE PRESENTED A PAPER WITH TITLE " SCALED CONJUGATE GRADIENT CONTROL MACHINE LEARNING ALGORITHM FOR SWITCHING OF BOOST CONVERTERS EMPLOYED IN A GRID TIED SOLAR PV SYSTEMS" AT "THE SECOND INTERNATIONAL CONFERENCE ON EMERGING TECHNOLOGIES AND APPLICATIONS IN ELECTRICAL ENGINEERING (ETAEEE-2024) HELD AT NATIONAL INSTITUTE OF TECHNOLOGY RAIPUR, INDIA FROM DECEMBER 18-19, 2024." (PUBLISHER: SPRINGER)

ACHIEVEMENT

Mrs. T. Sravya, Assistant Professor,EEE has been awarded Topper Grade in "Design Thinking-A Primer from NPTEL, IIT Madras.

EDUSKILLS TECHCAMP

Department of Electrical and Electronics Engineering, LIET(A) has organized a TECHCAMP on "ANSYS ELECTROMAGNETIC ANALYSIS" from 28-30 October 2024. Mr.T.Papinaidu, Associate Professor, EEE has been acted as the SPOC coordinator for this event. Prabhupada Samal, Assistant Manager Learning and Development, Eduskills has been acted as the Resource person.



ANSYS Electromagnetic Analysis is a simulation tool used to model and analyze electromagnetic fields, wave propagation, and related phenomena in electrical and electronic systems. It helps engineers design and optimize components like antennas, motors, transformers, PCBs, and wireless communication systems. Key solvers include ANSYS Maxwell (for low-frequency applications like electric machines), ANSYS HFSS (for high-frequency applications like RF and microwave components), and ANSYS Icepak (for thermal management in electronics). This software enables accurate predictions of electromagnetic performance, reducing prototyping costs and improving efficiency.



STUDENT PARTICIPATIONS



P.VENKATA LAKSHMI FROM IV EEE-B has presented a paper with title "Extraction of Maximum Power of a Solar Photovoltaic Energy Systems Using Cuckoo Search Algorithm" at "Two Days National Conference on Innovations in Science & Technology (IST-2024) Held at National Institute of Technology Srinagar, J&K, India, from November 28-29, 2024." (PUBLISHER: SPRINGER).

This paper presents the extraction of maximum power from the solar photovoltaic (PV) energy systems using maximum power point control technique assisted by metaheuristic algorithms. Accepting the fact that the fossil fuels are getting depleted in the future and the release of carbon monoxide gases from the traditional power plants is increasing, and hence the individuals are looking for other energy sources which meet the end user demand. The perfect energy sources are renewable energy sources (RESs) and are being treated as the world's best alternative source of generating electricity. Owing to the fact that, sunlight availability is abundant in nature and considering other advantages over other types of RESs, solar energy system was considered in this study. Metaheuristic algorithms play a vital role in solving many problems with high complexity and hence here Cuckoo Search Algorithm (CSA) was considered for maximum power point tracking (MPPT) control. The proposed system was connected to a linear load and the performance was analysed.



P.VENKATA LAKSHMI FROM IV EEE-B has presented a paper with title "Scaled Conjugate Gradient Control Machine learning algorithm for switching of boost converters employed in gridtied solar PV systems" at "The second international conference on Emerging Technologies and Applications in Electrical Engineering (ETAEEE-2024) held at National Institute of Technology, Raipur, India, from December 18-19, 2024." (PUBLISHER: SPRINGER)

In this paper, Scaled conjugate gradient (SCG) optimization algorithm tuned artificial neural network (ANN) for grid interconnected solar PV system applications was presented. In consequence of the fact that fossil fuels will inevitably run out, researchers are searching for better, more sustainable ways to supply every individual's energy needs. The globe has turned its focus to renewable energy sources (RESs) as RESs have great potential to solve the issue of fulfilling global power demand. Proper switching is needed to the power converter circuitry at the dc link side to make the system reliable. As the traditional approaches failed in addressing the issues of accuracy and convergence criterions, to overcome this drawback, ANNs have been emerged as the best alternative. When encountering ANNs, one of the most significant aspects is training or learning. The ANN was trained using the SCG optimization technique. Bayesian Regularization (BR) approach was adopted to compare the proposed algorithm with MATLAB/Simulink software, which was used to simulate the proposed system. The proposed system was simulated, and the outcomes stated that the SCG -based ANN controller performed better than the BR technique, making it more accurate.

STUDENT PARTICIPATIONS



P.PRATHAP FROM IV EEE-B has presented a paper with title "Parameter Estimation of Solar Photovoltaic Module using Aquila Optimization Algorithm" at "Two Days National Conference on Innovations in Science & Technology (IST-2024) held at National Institute of Technology Srinagar, J&K, India from November 28-29, 2024." (PUBLISHER: SPRINGER).

This paper presents the extraction of equivalent circuit parameters of solar photovoltaic (PV) module using Aquila optimization algorithm. The proposed technique is carried out on single diode equivalent model of solar PV cell. By alleviating the sum of the squares of the errors at the short-circuit, open-circuit, and maximum power stages, the algorithm is implemented. To examine the nature of the obtained parameters and the V-I characteristics of the PV panels in the matter, various runs are carried out. The parameters derived from the suggested methodology had the least amount of error over successive executions, reflecting that it should be used more effectively in this case. The modelling and simulation were carried out using MATLAB/Simulink software.



CH.PRAVEEN, K.LATHIKA AND B. RAMU FROM II EEE-A have presented a model on "GPS based Vehicle tracker" and been awarded first prize.

A Vehicle Tracker is a system that uses GPS, GSM, and other technologies to monitor and track the real-time location of vehicles. It is commonly used for fleet management, theft prevention, and personal vehicle tracking. The system typically consists of a GPS device installed in the vehicle, which sends location data to a central server via cellular networks. Users can access this information through mobile apps or web platforms to view live tracking, route history, speed monitoring, and geofencing alerts. Advanced trackers may also provide engine diagnostics, fuel monitoring, and remote immobilization features.

Light Emitting Technology (LIET): Revolutionizing Energy Conservation



A GROUP OF ENTHUSIASTIC STUDENTS FROM III EEE HAS COME FORWARD WITH AN INNOVATIVE PROPOSAL TO MANUFACTURE ENERGY-EFFICIENT LED BULBS AND LIGHTING SYSTEMS. THEIR INITIATIVE FOCUSES ON AFFORDABLE, SUSTAINABLE, AND HIGH-PERFORMANCE LIGHTING SOLUTIONS THAT CATER TO RESIDENTIAL, COMMERCIAL, AND INDUSTRIAL NEEDS.THE STUDENTS PLAN TO DEVELOP COST-EFFECTIVE LED BULBS USING HIGH-LUMEN, LOW-POWER-CONSUMING COMPONENTS.THEIR DESIGN AIMS TO REDUCE POWER CONSUMPTION BY UP TO 80% COMPARED TO TRADITIONAL INCANDESCENT BULBS.FOCUS ON RECYCLABLE MATERIALS AND LONG-LASTING LEDS TO MINIMIZE ENVIRONMENTAL IMPACT.FFORDABLE LED LIGHTING CAN BENEFIT RURAL ELECTRIFICATION PROJECTS, SMART CITY INITIATIVES, AND HOUSEHOLDS LOOKING FOR SUSTAINABLE ALTERNATIVES.



Mr.B.Ram Vara Prasad, Assistant Professor, EEE has been acted as the co-ordinator

Team of Students:

N. Vishnu Vardhan, M.Sai Sumanth, P.Shanmukh, P.Sai Kiran, P.Sri Mahalakshmi, U.Tejaswini, and M. Geetanjali **III EEE, LIET(A)**

