

# NEWSLETTER

DEPARTMENT OF  
ELECTRICAL AND ELECTRONICS ENGINEERING

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR  
COLLEGE OF ENGINEERING, ANANTHAPURAMU – 515002,  
ANDHRA PRADESH, INDIA

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## About the Department



The Department of Electrical Engineering was established in 1946 offering B.Tech course (Electrical and Electronics Engineering) with an intake of 30 students, which was enhanced to 50 in the year 1995 and subsequently to 60 in the year 2009. In 1946 the college was established at Guindy, Chennai and was shifted to Anantapur in 1948. The Electrical Engineering Department offers various M.Tech programs. M.Tech, with specialization in “Electrical Power Systems” was started in the year 1971 with an intake of 25. “Power and Industrial Drives” was started in the year 2001 with an intake of 25. “Control Systems” started in the year 2001 with an intake of 25 and “Reliability Engineering” started in the year 2009 which is an interdisciplinary area with an intake of 18. The Department is having research facilities for Ph.D Programme in Electrical Engineering Discipline.

### **Institutional Vision**

- Committed to expanding the horizon and inspiring young minds towards academic excellence.
- Aims at scaling new heights through advanced research and innovative techniques to keep pace with the ever-changing needs of industry and society at large.

### **Institutional Mission**

- To identify and implement, proven, prevention-oriented, forward-looking solutions to critical, scientific and technological problems.
- To make technology a principal instrument of economic development of the country and to improve the quality of life of the people through technological education, innovation, research, training and consultancy.

### **Department Vision**

- Committed to expanding the horizon and inspiring young minds towards academic excellence.
- Aims at scaling new heights in Electrical and Electronics Engineering through advanced research and innovative technologies to keep pace with the changing needs of industry and society at large.

### **Department Mission**

- To identify and implement, proven, prevention oriented, forward looking solutions to critical, scientific and technological problems in Electrical and Electronics Engineering.
- To make technology a principal instrument of economic development of the country and to improve the quality of life of the people through technological education, innovation, research, training and consultancy.



## PROGRAM OUTCOMES

- PO 1: **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
- PO 2: **Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- PO 3: **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- PO 4: **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
- PO 5: **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
- PO 6: **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
- PO 7: **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
- PO 8: **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- PO 9: **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
- PO 10: **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
- PO 11: **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
- PO 12: **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

### **PROGRAM EDUCATIONAL OBJECTIVES**

- PEO 1: To excel in professional career and/or higher education by acquiring knowledge in mathematics and Basic sciences, Basic Electrical Sciences, Power Systems, Power Electronics and Electrical Drives.
- PEO 2: To identify the problems in society and design electrical systems appropriate to its solutions using latest technologies that are technically sound, economically feasible and socially acceptable.
- PEO 3: To exhibit professionalism, ethical attitude, communication skills, team work in their profession and adapt to current trends in technology by engaging in continuous professional development.

### **PROGRAM SPECIFIC OUTCOMES**

- PSO 1: The student can apply fundamental knowledge gained during the various courses of the program to analyse and solve the complex problems of Electrical Machines, Control Systems, Instrumentation System, Power Systems and Power Electronic systems.
- PSO 2: The student can design electrical, electronics and allied interdisciplinary projects to meet the demands of industry and to provide solutions to the current real time problems.
- PSO 3: The student can utilize the knowledge regarding recent techniques and sustainable technologies for developing the projects related to Control Engineering, Smart Grid, Power Quality and Advanced Power System protection to engage in lifelong learning

**One-Week Faculty Development Program on  
Renewable and Clean Energy Conversion Technologies and Materials  
(Under TEQIP-III)**

**(04-01-2021 to 08-01-2021)**

**Scope & Justification:**

In this modern era, our society faces a serious energy crisis due to increasing human population. Energy consumption starts from small-scale electronic gadgets to high power consuming electric vehicles. To supply power on demand, researchers focus on alternative renewable energy resources including solar energy, wind energy, hydropower, geothermal energy, and bio-energy. Effectively, energy conversion and storage technologies such as solar cells, fuel cells, secondary batteries, super capacitors, and other self-powered systems are under rigorous investigation. To meet the growing energy demands in a low-carbon economy, the development of new materials that improve the efficiency of energy conversion and storage systems is essential. The efficient energy conversion and storage performance of those technologies rely on material properties of their electrode, electrolyte, and other device components. This FDP is planned to address the importance of Renewable and clean energy conversion technologies and associated materials. Further, the fundamental material properties at macro and micro/nano levels will be discussed. The following Broad Areas/themes were discussed by eminent speakers of the workshop:

- Bio Mass Energy
- Fuel Cells
- Solar Energy
- Li ion Batteries
- Super Capacitors
- Photo-electrochemical Devices
- Smart Grid
- Research in Renewable Energy

Further, workshop is designed to give hands on session on battery testing, super capacitor testing and other sensor testing & instrumentation aspects. The chief patrons Prof. A. Ananda Rao, Hon'ble Vice Chancellor I/c, JNTUA, Anantapuramu and Prof. H. D. Charan, Hon'ble Vice Chancellor, BTU, Bikaner, Rajasthan were addressed the participants in inaugural session on 4<sup>th</sup> January 2021. Further, Patrons of the program Prof. K. Govinda Rajulu, Principal of the college & Prof. Y. N. Singh, Principal, UCET, BTU, Bikaner, Rajasthan were narrated the importance of Renewable energy on inaugural session. Program Coordinators Dr. K. Jitendra Gowd, Assistant Professor of EEE, JNTUA CEA & Mr. Janardan Kundu, Assistant Professor of EEE, UCET, BTU, Bikaner, Rajasthan have organized the event in successful completion. Participants from different parts of the country (academic institutes, industry and research centers) have registered and attended in online mode. After end of each session, attendance and feedback link is provided

in chat box. All sessions were recorded in Google meet platform and the same will be circulated to all participants. Many participants were given good about the resource persons presentation which was enclosed along with this report for information.

**Resource Persons:**

1. Dr. N. Siva Mohan Reddy, Dept of Chemical Engineering, IIT Roorkee, Uttarakand (UP).
2. Dr. Prashanth Kumar Gupta, Dept of Chemical Engineering, IIT Jodhpur, Rajasthan.
3. Dr. N. Rajalakshmi, Senior Scientist, Center for Fuel Cell Technology, ARCI, Chennai.
4. Prof. V. Sanakr, Dean, Examinations, SRIT, Anantapur, Anantapuramu, AP.
5. Dr. Manohar. K, Dept of Chemical Engineering, National Institute of Technology Warangal.
6. Mr. Anuj Awasthi, Director& Co-Founder, Kanopy Techno Solutions, c/o SIDBI Incubation Center, IIT Kanpur.
7. Dr. Gyan Prakash Sharma, Scientific Adviser, Kanopy Techno Solutions, c/o SIDBI Incubation Center, IIT Kanpur.



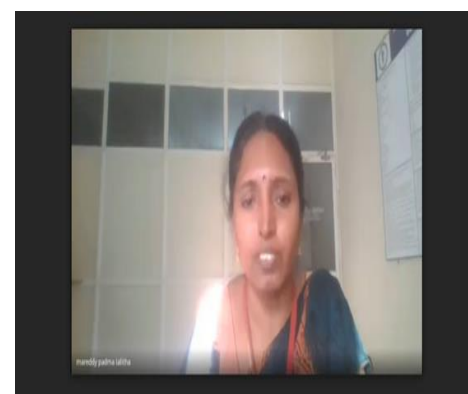
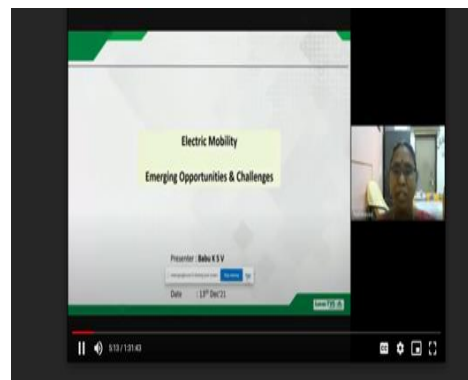
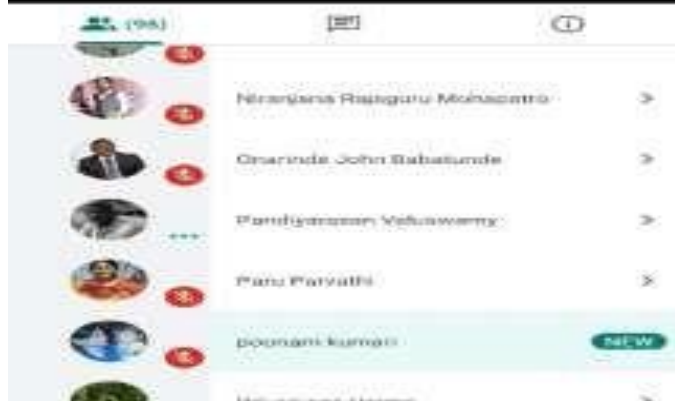
## Guest Lecture on “Design and Installation Aspects of PV Systems”

The Department of Electrical and Electronics Engineering has organized an Online Guest Lecture on “Design and Installation Aspects of PV Systems”, which was held on 03/02/2021. The guest lecture has been organized to provide knowledge on PV arrays, must be mounted on a stable, durable structure that can support the array and withstand wind, rain, hail, and corrosion over decades. The speaker of the guest lecture was Dr. M. Padmalalitha, Professor & Head of the Electrical and Electronics Engineering Department, AITS, Rajempet.

All the students of IV and III B.Tech of Electrical and Electronics Engineering Department have attended the lecture. The lecture began with the introduction and welcome address by Dr. N. Visali, Professor & Head of the Electrical and Electronics Engineering Department, JNTUA Ananthapuramu.

The session was then continued by Dr. M. Padma Lalitha, who began with an introduction to the PV systems and importance of it going to be in near future. Following this, she shed light on the various types of PV arrays and their design. Further she discussed about the installation and structures of PV arrays at a fixed angle determined by the local latitude, orientation of the structure, and electrical load requirements.

The session ended with hearty thanks by Smt. Y. Manasa, Assistant Professor (Adhoc), in appreciation for taking the time out to educate and enlighten the students. The session was concluded by Ms. D. Kalyani, Assistant Professor (Adhoc), with a vote of thanks.



## FACULTY ACTIVITIES

### Papers Published:

- J Balakrishna, Teegala Bramhananda Reddy and M Vijaya Kumar, “**Implementation of Random Pulse Width Modulation Techniques for the Open-End Winding Five-Phase Motor Drives to Reduce Acoustic Noise and Harmonic Distortion**”, Advances in Signal and Data Processing Proceedings of ICSDP, Vol. 703, pp. 429 - 457, Jan. 2021.
- V Vijaya Kumar Naik, Dr. G Jayakrishna and Dr. N Visali, “**A Robust control Approach for Multi-Utilitarian Grid Interactive Inverter to Ameliorate the Power Quality of a Distributed Power System**”, Journal of Advanced in Dynamical & Control Systems, Vol. 12, Issue 02, March 2020.
- B Hariprasad, P Bharath Kumar, P Sujatha and G Sreenivasan “**A Novel Adaptive Rule-Based Islanding Detection Technique for Voltage Dource Inverter-Based Distribution Generation**”, Journal of Green Engineering, Vol. 11, Issue 1, pp. 511-529, Jan. 2021.
- P Bhaskara Prasad, M Padma Lalitha and P Sujatha “**Improved Dynamic Performance using Fuzzy Logic controlled Cirrent Mode Cascaded Re-Boost 7 Level Inverter Fed Induction Motor System**”, Journal of Green Engineering, Vol. 11, Issue 2, Feb. 2021.
- E Ramakrishna, P Bharath Kumar, G Jaya Krishna and P Sujatha “**A Modular Multilevel Converter with Fuzzy Logic Based Phase Disposition PWM for Grid-Connected Photovoltaic Systems**”, Journal of Green Engineering, Vol. 11, Issue 2, Feb. 2021.
- Mummidi Niveditha, K. Jithendra Gowd, “**ANFIS based PMSG- Wind Turbine for Providing Frequency Regulation Services**”, International Journal of PENSEE, Vol. 51, Issue 3, pp. 1757-1768, Feb. 2021.
- Chilla Nirmala, K. Jithendra Gowd, “**ANFIS based SVC for Wind – Integrated Power System to Improve Power Quality Issues**”, International Journal of PENSEE, Vol. 51, Issue 3, pp. 1769-1783, Feb. 2021.
- Gandham Kenvilkumar, K. Jithendra Gowd, “**Integration of Micro Grid with Utility grid using ANFIS Controlled Converter**”, International Journal of Analytical and Experimental Modal Analysis, Vol. XIII, Issue III, pp. 1526-1531, March 2021.
- Kotla Harini, K. Jithendra Gowd, “**An Enhancement in Voltage Profile of PV Systems Distribution Network with Communication Delays**”, International Journal of Analytical and Experimental Modal Analysis, Vol. XIII, Issue III, pp. 1550-1559, March 2021.
- Punnepalli Harikrishna, S. Sridhar and K. Jithendra Gowd, “**Nonlinear Control of IPMSM Drive using Multilevel Inverter and Third Harmonic Injection**”, International Conference on Science, Technology, Engineering and Management (ICSTEM), Goa, India, Jan. 2021.

- V Narasimhulu and **K. Jithendra Gowd**, “**Performance Analysis of Single-Stage PV connected Three-Phase Grid System under Steady State and Dynamic Conditions**”, Cybernetics, Congnition and Machine Learning Applications, pp. 39-46, March 2021.
- **M Anka Rao**, M Sreekanth, **M Vijaya Kumar** and **J Sreenivasulu**, “**Sensorless Predictive Control of AFE Rectifier using Fuzzy Controller with Robust Adaptive Inductance Estimation**”, Academicsera International Conference, Goa, India, Jan. 2021.
- Alluri Raju, **J Sreenivasulu**, A Anil Kumar and V Sankar, “**Reliability Analysis of Radio Frequency Synchronising Unit using Macrocosmic and Microcosmic Approaches**”, Third International Conference on Intelligent Communication Technologies and Virtual Mobile Networks (ICICV), pp. 668-675, Feb. 2021.
- **Sridhar Savarapu**, Yadaiah Narri, “**High performance of brain emotional intelligent controller for DTC-SVM based sensorless induction motor drive**”, The Journal of Supercomputing, Jan. 2021.
- Murari Hari Prasad, **Y Manasa**, “**ANFIS based weak Grid Inter-tie WEGS with Hybrid Generalized Integrator for Power Quality Improvement**”, International Journal of Analytical and Experimental Model Analysis, Vol. XIII, Issue III, March 2021.

## STUDENT ACTIVITIES

### GATE Score:

- **Mohammed Imran** (Admn. No.: 17001A0248) bearing Registration No.: IN21S11101016 has secured a score of 427 in GATE 2021.
- **L Venkata Suchi Manasa** (Admn. No.: 18001A0206) bearing Registration No.: EE21S231103057 has secured a score of 502 in GATE 2021.
- **Supraja Daggolu** (Admn. No.: 17001A0244) bearing Registration No.: EE21S37113025 has secured a score of 558 in GATE 2021.

## Ph.D. DISSERTATION

S. No.	Name & Admn. No. of the Research Scholar	Title of the Research	Name of the Supervisor and Co- Supervisor	Viva-Voce held on
1.	Mrs. Y. Krishnapriya 12Ph0209	Switch Faults Diagnosis and Mitigation in Neutral Point Clamped Multilevel Inverter Feeding Induction Motor Drive	. Dr. M. Vijaya Kumar	11.02.2021
2.	G. Sreenivasa Reddy 13Ph0210	Performance Improvement of Grid Connected PV System	i. Dr. T. Bramhananda Reddy ii. Dr. M. Vijaya Kumar	23.02.2021
3.	Mr. G. Mahesh Kumar 11Ph0211	Application of Congestion Management in Liberalized Electricity Markets	i. Dr. P. Sujatha ii. Dr. M. Sydulu	24.03.2021

# EDITORIAL TEAM

1. T S Galeeb
2. O Nanda Kishore
3. B Vinod
4. Y Siva Sree
5. P Rachana

## COMPILED BY

1. Sri. P. Rizwan, Asst. Professor (Contract)
2. Smt. Y. Manasa, Asst. Professor (Contract)



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