

OCT'22 - DEC'22

NEWSLETTER

SARDAR VALLABHBHAI
NATIONAL INSTITUTE
OF TECHNOLOGY



DEPARTMENT OF ELECTRICAL ENGINEERING

Department of Electrical Engineering is one of the oldest departments in Sardar Vallabhbhai National Institute of Technology. The department actively conducts various academic and research activities throughout the year. This newsletter presents the brief about various activities carried out from October 2022 to December 2022.



☑ HIGHLIGHTS

- Research & Consultancy Projects - 04
- Research Publications
 - Journals -06
 - Conferences - 05
 - Book publications - 01

Department Vision

To be the leading department disseminating globally acceptable education, effective industrial consultancy and relevant research output.

Department Mission

To be a global centre of excellence in technical education and innovation producing competent professionals with integrity.

Programme Educational Objectives

- Graduates will be able to solve engineering / industrial problems by employing various learning resources and modern tools.
- Graduates will be able to design products to meet social, economic and environmental demand by innovative ideas.
- Graduates will be able to investigate complex problems and take up research and development work in the allied fields.
- Graduates will be able to communicate effectively through oral and written presentation of technical reports, adopting lifelong learning with integrity and ethics; and they will have interpersonal skills required to lead and nurture diverse teams.



PROF. A.K.PANCHAL

Head, DoEE
SVNIT, Surat

Welcome to the Department of Electrical Engineering at SVNIT! Our department is well-known for the student-focused teaching-learning, engineering and technology practice-oriented research and education. Nearly 40 faculties and staffs are dedicated to impart their high-quality education and research experiences to our students and scholars to become leaders of the next generation of technocrats with the highest professional achievements. The curricula and well-equipped laboratories are designed for preparing the workforce to overcome the present and emerging technological challenges of the century.

As a research-oriented department, our research activities are extended to the major areas of Electrical Engineering, including power and renewable energy systems, power electronics and drives, instrumentation and control. Our faculty research is funded by several national and state agencies (SERB-DST, MeitY, CSIR, INAE, MHRD, GUJCOST, etc.). Our research in cutting edge of technology is published in the national and international referred journals with the IEEE, IET, Taylor & Francis, Elsevier, Springer and other reputed publishers. Our department offers testing and consultancy services to the nearby industrial belt HAZIRA, Surat Municipal Corporation, power distribution companies, etc.

With nearly 500 UG, 150 PG and 100 PhD scholars, we are one of the largest and most prestigious departments within the Gujarat state. Our graduates place themselves in prestigious positions in the corporate, government and educational institutions. Many fresh B. Tech. and M. Tech. graduates opt for higher education in the reputed international and national institutions (IISc, IITs, IIMs and others). We are dedicated to bring our education and research programmes to higher recognition in national and international level. I invite you to visit our website for exploring the department faculties, research activities and exciting opportunities that await you here at DoEE.

I am happy to present the 11th issue of the Department quarterly newsletter. The major parts of this collection include, short term training programmes organised (in the virtual mode), activities of Electrical Engineering Society, research publications and projects. I acknowledge the efforts of the committee members Dr. J. Venkataramanaiah, Dr. G. Sushnigdha and Dr. Suresh Lakhimsetty in the editing this issue. I also thank Mr. Jaydev Kamani, Ms. Devanshee Tanti, Mr. Raghav Nuwal and Ms. Dhruva Wankhade for assisting the committee members.

“Quality means doing things right and in time when no one is looking at you.” Henry Ford said for the successful business, and we do believe and follow it.



WORKSHOPS & EXPERT TALKS

- One-Week Short-Term Training Program on Emerging Trends in Electric Vehicles (EVs) and Renewables (ETER- 2022), 12th December to 16th December 2022 (Sukanta Halder, Akanksha Shukla, Sabha Raj Arya, and Rakesh Maurya)
- Name of the conference: 2nd International Conference on Sustainable Development Goals & Gender Perspective (ICSDGAGP2022) (Online mode)
Dates: 15th and 16th December 2022
Faculty coordinators: Dr. Vasundhara Mahajan & Dr. Anandita Chowdhury, DoEE SVNIT Surat.
Organized by: Department of Electrical Engineering, Sardar Vallabhbhai National Institute of Technology (SVNIT), Surat, Gujarat – 395007, India.
- Guest lecture on “Electric Vehicles: Challenges & Opportunities” is given by Prof. Krishna Vasudevan from IIT Madras on 3/10/2022



RESEARCH PUBLICATIONS

Journals

Jyoti Gupta, Rakesh Maurya, and Sabha Raj Arya, "Enhanced Performance of On-board EV Battery Charger with Universal Power Supply," *Electric Power Components and Systems*, November 2022, DOI: 10.1080/15325008.2022.2141926.

Jayadeep Srikakolapu, Sabha Raj Arya, and Rakesh Maurya, "DSTATCOM using Model Predictive Control Associated with LMS Control," *International Journal of Electronics*, November 18, 2022, <https://doi.org/10.1080/00207217.2022.2164067> (Accepted).

Sourabh Ghosh, Asheesh K. Singh, Rambir Singh, Rakesh Maurya, S. N. Singh, and Guangya Yang, "Intelligent control of integrated on-board charger with improved power quality and reduced charging transients," in *ISA Transactions*, October, 2022, DOI: 10.1016/j.isatra.2022.10.005

Praveen Shankar, and Rakesh Maurya, "Integration of Solar Powered DC Homes to DC Micro grid Using Dual Active Bridge Converter," in *International Journal of Power Electronics*, 2022.

S. R. Arya, K. D. Mistry and P. Kumar, "A Hybrid Fuzzy Predictive DVR Model for Voltage Estimation Using Intelligent Learning," Accepted for Publication in *IEEE Transactions on Power Delivery*, (doi:10.1109/TPWRD.2022.3227216), Dec.2022.

Aeidapu Mahesh, Gangireddy Sushnigdha, "Optimal sizing of photovoltaic/wind/battery hybrid renewable energy system including electric vehicles using improved search space reduction algorithm", *Journal of Energy Storage*, Vol. 56, Part A, 2022, 105866, ISSN 2352-152X, <https://doi.org/10.1016/j.est.2022.105866>.



RESEARCH PUBLICATIONS

Conferences

1. Abid Mansuri, Rakesh Maurya, and Shaikh Mohammed Suhel, "Reduction of Common-Mode Voltage using H-14 Inverter in Dual Three-Phase Asymmetrical Induction Motor Drive," in proceeding of 10th IEEE International Conference on Power Electronics, Drives and Energy Systems (PEDES 2022) at Malaviya National Institute of Technology Jaipur, Rajasthan, India during Dec 14-17, 2022.

2. Karri V.V. Satyanarayana and Rakesh Maurya, "Power Converters for Integration of Electrical Sources to DC Microgrid," in proceeding of 10th IEEE International Conference on Power Electronics, Drives and Energy Systems (PEDES 2022) at Malaviya National Institute of Technology Jaipur, Rajasthan, India during Dec 14-17, 2022.

3. Nikunj Kumar Goswami and Rakesh Maurya, "Study of Isolated Single-stage Resonant AC-DC Converter," in proceeding of 10th IEEE International Conference on Power Electronics, Drives and Energy Systems (PEDES 2022) at Malaviya National Institute of Technology Jaipur, India during Dec 14-17, 2022.

4. Swapnil Srivastava, Deepak Mishra, Gangireddy Sushnigdha, "Fourier series and Search Space Reduction based Control profiles for Reentry Trajectory Optimization", presented in 22nd IFAC Symposium on Automatic Control in Aerospace, ACA 2022 held at IIT Bombay, 21-25 November, 2022.

5. Manny Shankar, Gangireddy Sushnigdha, "A Hybrid Path planning approach combining Artificial Potential Field and Particle Swarm Optimization for Mobile Robot", presented in 22nd IFAC Symposium on Automatic Control in Aerospace, ACA 2022 held at IIT Bombay, 21-25 November, 2022.

BOOK PUBLICATIONS

Book Publication 2020-2022 on “Distributed Energy System: Modelling and Control”, CRC Press, USA, (in Publication 30 Dec 2022), Number of chapters :12, author’s by Ashutosh K Giri, Government Engineering College Bharuch, Sabha Raj Arya, Sardar Vallabhbhai National Institute of Technology, Surat and Dmitri Vinnikov, Tallinn University of Technology, Estonia.



CONSULTANCY & RESEARCH PROJECTS GRANTED

The DST-FIST project (SR/FST/ET-I/2022/1067 dated 19/12/2022) was sanctioned to DoEE in December 2022.

Project fund: 88 Lakh INR

Project team



Dr A K Panchal



Dr Mahesh Aeidapu



Dr Sanjay Tolani



Dr Sushnigdha Gangireddy



Dr Suresh Lakihmsetty

CONSULTANCY & RESEARCH PROJECTS GRANTED

Project Title: USBL Tracking and Passive Localization of Targets using Correntropy and Moving Horizon Estimates

Project Team: Dr. Rahul Radhakrishnan (PI), Assistant Professor, Department of Electrical Engineering

Dr. S.N. Sharma (Co-PI), Professor, Department of Electrical Engineering

Sanctioned Amount: 12, 76, 505 INR

Funding Agency: Naval Physical & Oceanographic Laboratory (NPOL), Cochin, DRDO

Project Start Date: 02 December 2022



Dr. Rahul Radhakrishnan
(PI)



Dr. S.N. Sharma
(Co-PI)

Project Title: Design and Development of Smart BMS with Cell Surface Temperature Estimation

Project Team: Dr. M. A. Mulla (PI), Associate Professor, Department of Electrical Engineering

Dr. Sanjay Tolani (Co-PI), Assistant Professor, Department of Electrical Engineering

Funding Amount: 65, 66, 000 INR

Funding Agency: Core Research Grant, SERB

Approval Date: 22 October 2022



Dr. M. A. Mulla
(PI)



Dr. Sanjay Tolani
(Co-PI)

CONSULTANCY & RESEARCH PROJECTS GRANTED

Project Title: Development of Advanced Non-linear Non-Gaussian State Estimators with Application to Real-life Problems

Project Team: Dr. Rahul Radhakrishnan (PI), Assistant Professor, Department of Electrical Engineering

Dr. G. Sushnigdha (Co-PI), Assistant Professor, Department of Electrical Engineering

Dr. S.N. Sharma (Co-PI), Professor, Department of Electrical Engineering

Sanctioned Amount: 21, 29, 718 INR

Funding Agency: Core Research Grant, SERB

Project Start Date: 26 December 2022



**Dr. Rahul Radhakrishnan
(PI)**



**Dr Sushnigdha Gangireddy
(Co-PI)**



**Dr. S.N. Sharma
(Co-PI)**



ACHIEVEMENTS

Faculty Achievements

Session Chair for PEDES 2022.

Dr. Rakesh Maurya Acted as session chair for the 10th IEEE International Conference on Power Electronics, Drives and Energy Systems (PEDES 2022) at Malaviya National Institute of Technology Jaipur, Rajasthan, India during Dec 14-17, 2022.

Student Achievements

The following M Tech (Power System) student (passed out in July 2022) has been awarded POSOCO Power Systems Award (PPSA)-2023 by Grid India and Foundation for Innovation and Technology (FITT) New Delhi.

Kheelesh Kumar Dewangan, M Tech Thesis title "Power flow analysis using advance algorithms: Successive Approximation, Adomian Decomposition and Homotopy Perturbation"

Supervisor: Dr Ashish K Panchal, Prof DoEE



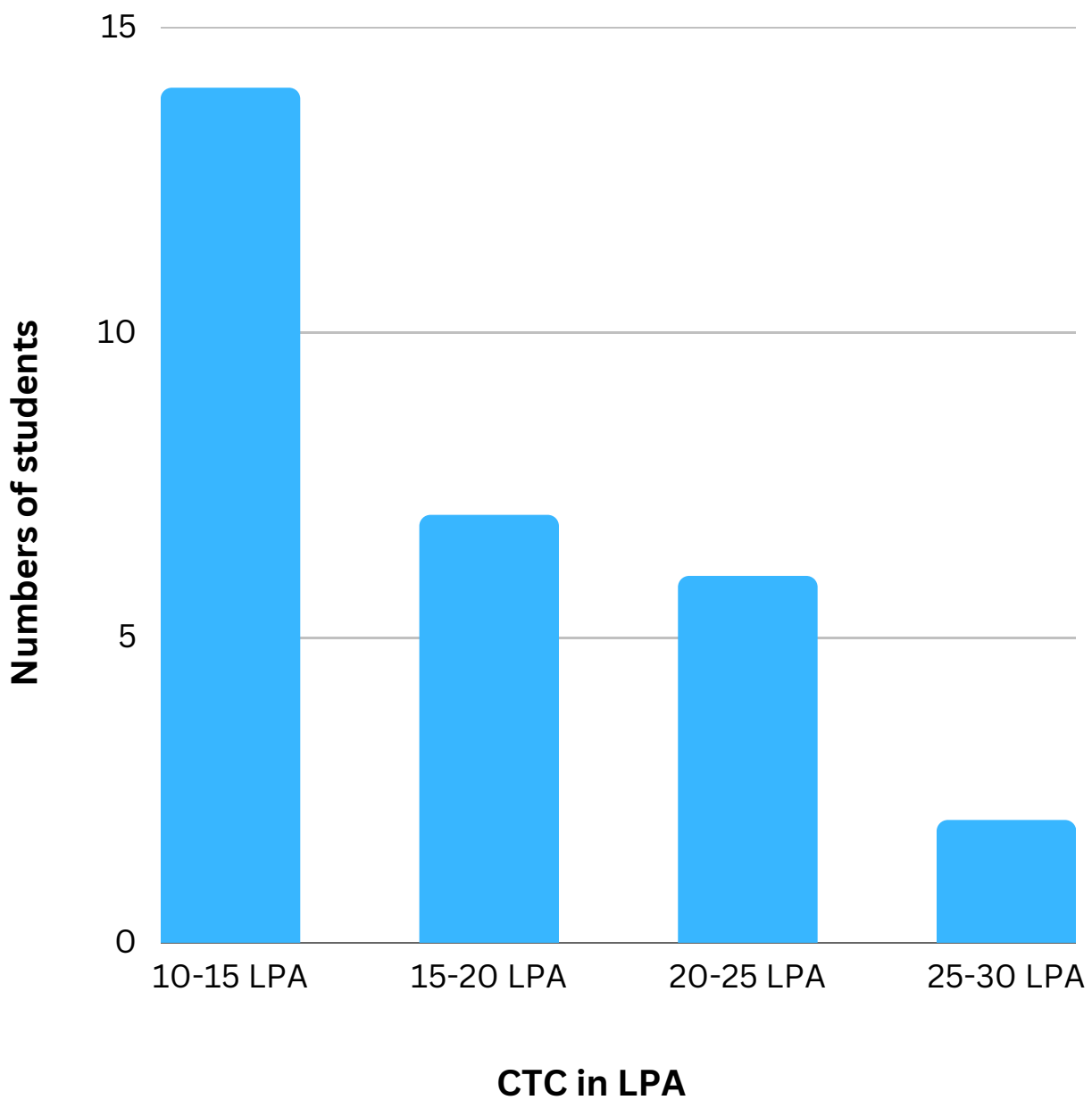
STUDENT ACHIEVEMENT

PLACEMENTS

ROLL NO.	NAME	COMPANY	CTC(LPA)	COMPANY PROFILE
U19EE043	AKANKSHA CHAURASIA	VISA	28.5	SOFTWARE ENGINEER
U19EE060	DEEPAM SINHA	TEXAS INSTRUMENTS	25	ANALOG ENGINEER
U19EE065	RAJ SINHA	MATHWORKS	24.19	SOFTWARE COMPANY
U19EE089	NAVEEN RAWAT	WELLSFARGO	24	FINANCIAL SERVICES.
U19EE077	RUDRA PUJARA	WELLSFARGO	24	IT
U19EE014	HARIOM VYAS	WELLSFARGO	24	FIN TECH
U19EE032	SITANSHU YADAV	SAMSUNG	20	DEVELOPER
U19EE015	AVNI AGARWAL	MATHSWORKS	20	ENGINEERING DEVELOPMENT GROUP
U19EE018	RAVI SINGH	NATION WITH NAMO	19	POLITICAL CONSULTANCY
U19EE061	ANUJ CHHIROLYA	ORACLE	17.97	SOFTWARE
U19EE085	NISHA PRAKASH	JP MORGAN	17.75	SDE
U19EE107	PRANAYA NADIPALLY	BARCLAYS	17.5	GRADUATE ANALYST
U19EE006	JAYDEV KAMANI	GE HEALTHCARE	15.11	HEALTHCARE TECHNOLOGIES
U19EE088	RITURAJ YADAV	KMK CONSULTING INC.	15	DATA ANALYST

STUDENT ACHIEVEMENT

PLACEMENTS



ALUMNI SECTION



Vishwa Pal Singh
Research Scholar
IIT Roorkee

1. What are the things you fondly remember about our department?

A : Everything like well-equipped laboratories, supportive faculties, and space for Research scholars and Mtech students for doing their research work or project work.

2. What is your current position and how did our college prepare you for your career?

A : I am a Research scholar in Electrical Engineering Department at IIT Roorkee. I get excellent support from faculties specially from my supervisor Dr. Gangireddy Sushnigdha.

3. What skills or knowledge did you learn throughout the program that you found most useful in your career?

A : The courses I learned in 1st year of my MTech were very useful for my Ph.D. entrance interviews. During my 2nd year, I took laboratory practicals that improve my teaching capabilities and boost my confidence for higher studies.

4. What are you most proud of from your college experience?

A : I am happy and proud that I choose Instrumentation and Control engineering for my MTech Course. It gives me everything that I have right know.

ALUMNI SECTION



Ravi Khandelwal
Research Scholar
IISc Bangalore

"First of all, Thank you, Ma'am for giving me this opportunity to share my experience for the department newsletter. These are answers to the questions of your mail"

1. Even though I was a part of the first batch of MTech Instrumentation and Control branch of Electrical engineering department, the guidance and support that I received from my department never made me feel uncomfortable despite of covid period. One of the things that I would never forget is that how easy it was to communicate with all my teaching faculties. I also made new friends from different cultures. This made me realise that I have an entirely new family which is very different from the one I already have but still the same.

2. I am currently pursuing my PhD from IISc Bangalore in Control and Guidance area at the department of Aerospace engineering. In the beginning of my second year, I was not sure of whether I want to be a part of a company or get a PhD position for research. I am grateful that I am a part of this institute where I got a chance to explore both ways. I got enough opportunities to get placement in some core companies and received hands-on experience in research work under my guide. After which, I made a decision to continue in the field of research. To reach this goal in life, it is not only the technical skills that I needed but also the spirit and confidence in myself. The technical courses

which I attended during my MTech tenure did help me get this position but also the constant support and guidance from my Supervisor Dr. Rahul Radhakrishnan and Dr. Sushnigdha Gangireddy. They also guided how I am supposed to prepare for interviews and written test.

3. The technical courses, skills to write a technical paper, report, programming, and coding skills piqued my interest in research work and this definitely helped me land a PhD position. But during the second year of MTech degree, I also learned that teamwork is equally important for research. Working as a team with my guide and my fellow batchmate made this task a bit easier. This made me realise that not all people in my team will be like me and this meant that I must learn how to be patient and listen to what others are saying. I have learnt that being a part of teams means that sometimes I will have to follow and be a good listener.

4. I am most proud of my faculties and friends. Experience like discussing the problems on Sunday at the department with my guide, celebrating friend birthday till 3 am in the hostel and so many things. At last, I would like to say that I don't know what my future entails, but I know this for sure that from here and now wherever I go and whatever I achieve in life, it is because of my teachers, friends, and parents that I am successful.

ELECTRICAL ENGINEERING SOCIETY (EES)

THE BIG BRAIN

Enclosed within the hollow hardened skull, in a cushion of fluid, lies in deep slumber, one of the powerful and complicated organs of the human body- the brain. Well, what percentage of us actually put it to good use is what is questionable? The brain requires not just memes, formulas, and humourous imaginative dreams, but also a sumptuous load of practical knowledge and curiosity to keep it alive.

With this vision, the Electrical Engineering Society organized 'THE BIG BRAIN' event having curiosity and public confidence as its core concepts. The event was in two stages where the participating teams pitched their start-up or business idea with their research and analysis to the judges. The second round consisted of a group discussion between the teams. Two teams were finalized and a group discussion was conducted that was instrumental in the declaration of the final winner.

The event was organized as a means to encourage students to accentuate their creativity and develop an entrepreneurship mindset. The pitching round played a role in developing presentation, speaking, and teamwork skills. Additionally, the group discussion imparts bilateral thinking in individuals and public speaking skills that imbibe confidence.



Post event photo



Idea pitching

TEAM



GANGIREDDY SUSHNIGDHA
ASSISTANT PROFESSOR
DOEE SVNIT SURAT



J.VENKATARAMANAIAH
ASSISTANT PROFESSOR
DOEE SVNIT SURAT



SURESH LAKHIMSETTY
ASSISTANT PROFESSOR
DOEE SVNIT SURAT



RAGHAV NUWAL
U20EE107
3RD YEAR B,TECH



DHRUVA WANKHADE
U20EE012
3RD YEAR B.TECH.



AASTHA V. BASUNDE
U21EE006
2ND YEAR B,TECH



UTKARSH ADE
U21EE075
2ND YEAR B.TECH.