Sri Venkateswara College of Engineering

Autonomous Institution, Affiliated to Anna University, Chennai
Approved by the AICTE, Accredited by NAAC

VIDYUT

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SRI VENKATESWARA COLLEGE OF ENGINEERING
विद्या परा देवता

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ELECTRICAL AND ELECTRONICS ENGINEERING

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III Year

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III Year

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ABOUT THE DEPARTMENT

Welcome to the Department of Electrical & Electronics Engineering (EEE)

Established in 1985, the department was created to address the curriculum requirements of Electrical engineering subjects within Electronics and Communication Engineering, Mechanical Engineering, and Computer Science Engineering. The Undergraduate program was started in 1994 with an intake of 60 students. Addressing the growing demand for EEE UG program, the intake was later increased to 120 students.

The department holds permanent affiliation with Anna University and has been accredited by the National Board of Accreditation (NBA) since 2002. Additionally, it offers a postgraduate program (M.E) in Power Electronics and Drives since 2002, with an intake capacity of 6 students. Equipped with state-of-the-art laboratories, the department is recognized as a nodal research center by Anna University. Its faculty and staff members are highly qualified and experienced, possessing proven abilities and skills.

Graduates of the department have been successfully placed in renowned companies, while a significant number pursue advanced studies abroad. The Department goes beyond the curriculum to nurture young minds by fostering technical clubs that promote technical events, community development, societal impact, and programs on universal values and ethics.

In line with this commitment, the Department of Electrical & Electronics Engineering has established the Institute of Electrical and Electronics Engineers (IEEE) and the Association of Electrical and Electronics Engineers (AEEE) to support students' innovations.

EEE – WE LIGHT THE WORLD

VISION AND MISSION OF THE INSTITUITION AND DEPARTMENT

Vision of the Institution

To gain acclaim as an institution of eminence on a national and global scale, through the contributions and accomplishments of the individuals, nurtured by the facilities and support.

Mission of the Institution

M1. To establish a motivational framework through provision of infrastructure and resources that actively engages the individuals in core activities of learning, education, research and innovation

M2. To advance the competency of the individuals to comprehend the requirements of the society and fulfill them, through honing of their skills and virtues.

M3. To leverage institutional experiential learning to address engineering and technological challenges on national and global scales.

Vision of the Department

To become a premier Department in Electrical and Electronics Engineering through quality education, research and innovation, to address contemporary societal challenges with cutting-edge technologies.

Mission of the Department

M1: To periodically upgrade the facilities and resources such that the students excel in Electrical and Electronics Engineering education.

M2: To equip students with a well-defined domain specific curriculum thereby achieve industry standards and sustainable development of the society.

M3: To promote a culture of research, innovation, and entrepreneurship through collaborative learning in the thrust and allied areas of Electrical and Electronics Engineering.

M4: To inculcate soft skills, foster ethical values and shape the total personality of the students.

PROGRAM EDUCATIONAL OBJECTIVES AND PROGRAM OUTCOMES – UG(EEE)

Program Educational Objectives (PEOs) UG-EEE

PEO1: Graduates will serve as engineering contributors in the emerging fields of Electrical, Electronics and Computer Engineering.

PEO2: Graduates will become entrepreneurs through human centered design thinking and innovation.

PEO3: Graduates will be successful in pursuing higher studies in engineering or management.

PEO4: Graduates will be effective and ethical team player in the field of green energy management and sustainability.

Program Outcomes (POs) for UG-EEE

1. Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
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.
3. Design/development of solutions: Design solutions for complex engineering problems and design system components processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
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.
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.

PROGRAM OUTCOMES AND PROGRAM SPECIFIC OUTCOMES – UG(EEE)

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.

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.

8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

9. Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

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.

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 lead.

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 Specific Outcomes (PSOs)

PSO1: The ability to build, implement, test and maintain analog and/or digital systems and implement electronic control of Drives for Industrial automation and Electric Vehicle.

PSO2: The ability to analyze Power System network encompassing stability, control and protection and interconnection of Renewable Energy Sources with Micro and smart grid.

PROGRAM EDUCATIONAL OBJECTIVES AND PROGRAM OUTCOMES – PG(EEE)

Program Educational Objectives for PG Program (PEOs)

I. Contribute professionally in fields of Power Electronic and related domains.

II. Manage and execute research and development projects leading to technological solutions that address industries and society.

III. Succeed in pursuing higher studies in engineering domains.

Program Outcomes (POs) for PG-PED

PO1: An ability to independently carry out research/investigation and development work to solve practical problems.

PO2: An ability to write and present a substantial technical report/ document.

PO3: Students should be able to demonstrate a degree of mastery over the area as per the specialization of the program. The mastery should be at a level higher than the requirements in the appropriate bachelor program.

Program Specific Outcomes (PSOs) for PG-PED

PSO1: The ability to design and analyze Power Electronic converters and control of Electric drives for Industrial applications.

PSO2: The ability to apply Power Electronic Circuits in Transmission and distribution network of Power System and interconnection of Renewable Energy.

Professional Society Activities

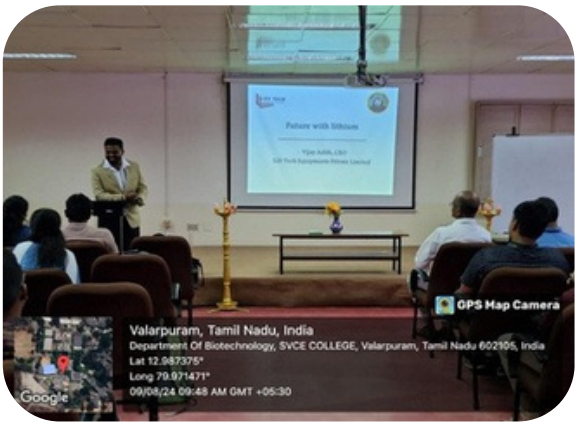
Association of Electrical and Electronics Engineering Valedictory Function (AY 2023-2024)

The Valedictory function of Association of Electrical and Electronic Engineers for the AY 2023-2024 was held on 9th August, 2024 at Biotechnology Conference Hall.

Dr.Sudhakar KB, AHOD/EEE delivered the valedictory address briefing on the AEEE activities since its inception motivating the student volunteers to actively participate in organising the technical events. **Dr.M.Sankar, ASP/EEE** and AEEE coordinator presented the valedictory report briefing on the events organised during AY 2023 – 2024 under AEEE. He also thanked the AY 2023 – 2024 AEEE volunteers for their contributions in organising the events fruitfull.

Dr.M.Sankar, ASP/EEE and AEEE coordinator presenting the valedictory report

Mr.Vijay Adith, Managing Partner, Lifttech Engineers, Chennai was the guest speaker of the day. He presented a guest lecture on "**Future with Lithium Ion battery**".



Mr.Vijay Adith, Managing Partner, Lifttech Engineers, delivering the Guest Lecture

Institute of Engineers India(IEI)

One Week Online Lecture Series (12.08.2024 to 17.08.2024)

Recent Research in Power systems Engineering

Sri Venkateswara College of Engineering

IEI (India) - SVCE EEE Student Chapter

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

EXPERT SPEAKERS

Dr.K.Manickavasagam,
Professor,
National Institute of Technical Teachers Training and Research - Bhopal

Dr.P.Raja,
Associate Professor,
National Institute of Technology, Trichy

Dr.S.Sivasubramani
Associate Professor,
Indian Institute of Technology - Patna

Dr.D.Maharajan,
Senior Project Engineer,
Hitachi Energy (Formerly ABB)

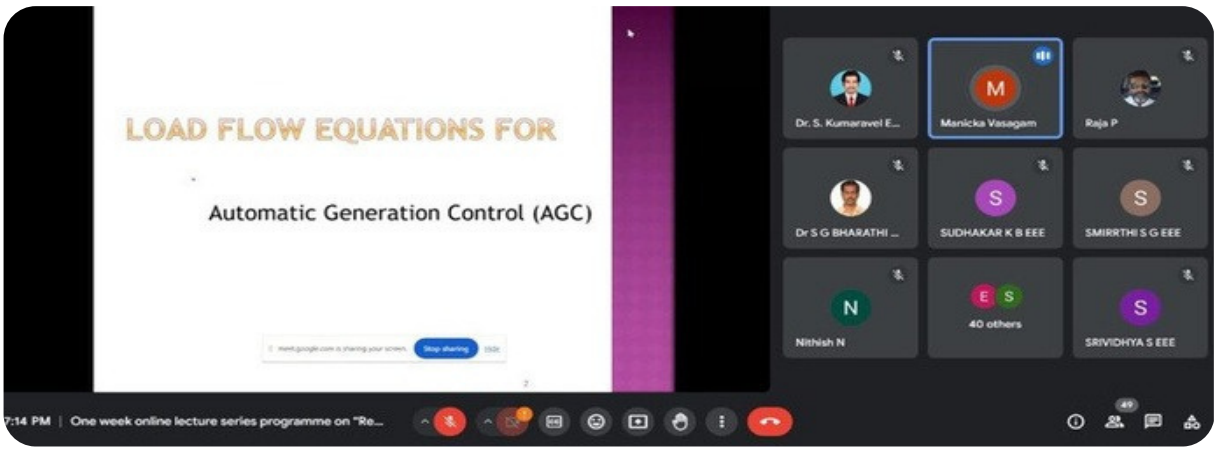
Dr.S.Kumaravel,
Associate Professor,
National Institute of Technology - Calicut

TOPICS

- *Aug 12th:* ***Load flow equations for state estimation of power system and automatic generation control***
- *Aug 13th:* ***A simplified method for Low voltage DC Microgrid Protection***
- *Aug 14th:* ***Smart Grids - Two Way Flow of Electricity***
- *Aug 16th:* ***Software tools for Power System Analysis (steady state and dynamic state)***
- *Aug 17th:* ***Stability improvement of Microgrid***

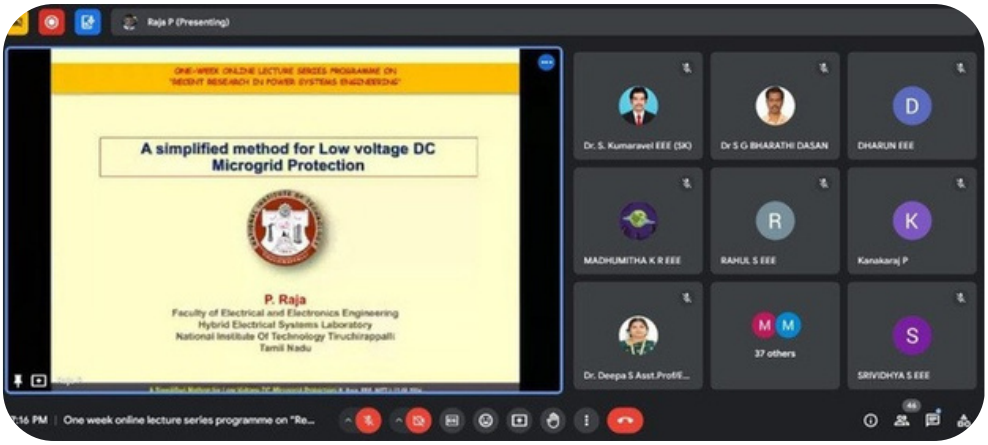
One Week Online Lecture Series (12.08.2024 to 17.08.2024)
Recent Research in Power systems Engineering

Day 1(12.08.2024): The inaugural address was delivered by assistant HOD Dr. Sudhakar Bharatan . He spoke about the importance of IEI and recent activities of IEI and wished the coordinators for the success of the event. Introduction of the session speaker, **Dr.K.Manickavasagam, Professor, Department of EEE**, **National Institute of technical teachers training and research, Bhopal** was introduced by **Dr. S.G Bharathidasan, Professor/EEE coordinator of IEI Student Chapter EEE**. **Dr.K.Manickavasagam** dellivered the lecture on the topic **"Load flow equations for state estimation of power system and automatic generation control".** He presented how the steady state load flow equations are deployed to study the dynamic change that is automatic generation control and state estimation. He concluded the session by validating the ACE & ANN methodology with benchmark systems. The session was then open for discussions with the participants. The SVCE final year Student Srinivasan actively participated in the discussion. The vote of thanks was delivered by **Dr. S. Kumaravel, Associate Professor/EEE.**



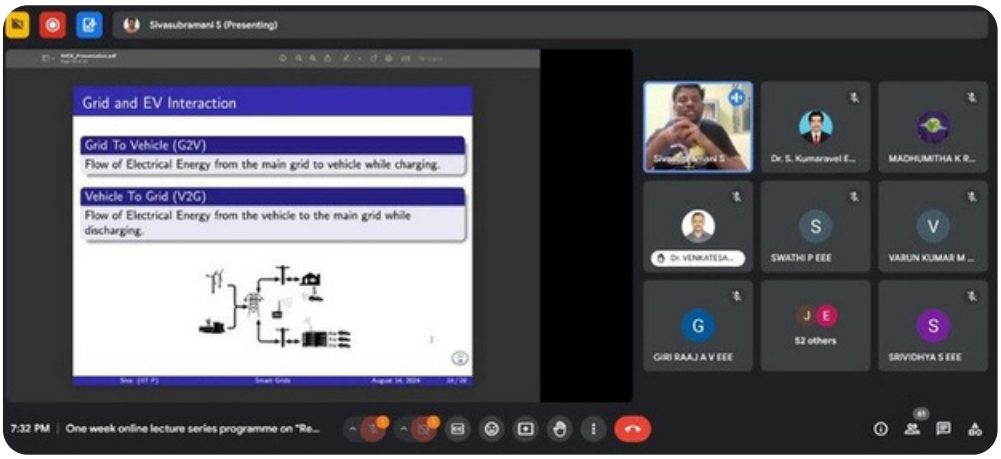
Snapshot of Dr.K.Manickavasagam's Presentation

Day 2 (13.08.2024): The Guest speaker **Dr. P. Raja, Associate Professor, Department of EEE , National Institute of technology, Tiruchirappalli,** delivered lecture on **"Simplified method for Low Voltage DC Microgrid Protection".** The vote of thanks is delivered by **Dr. S. Srividhya, AP/EEE.**



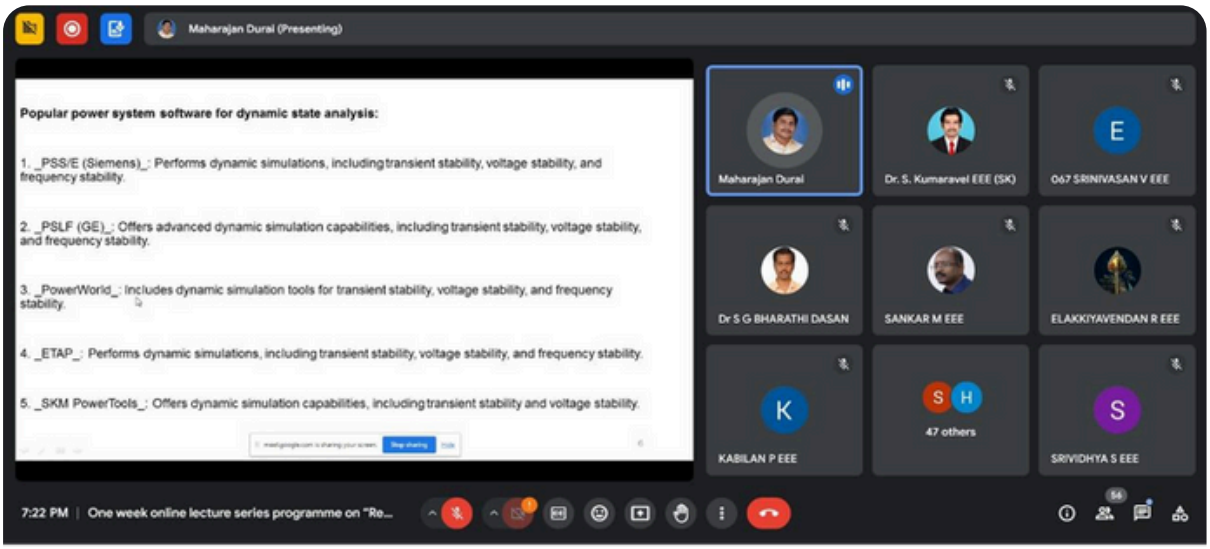
Snapshot of Dr. P.Raja's Presentation

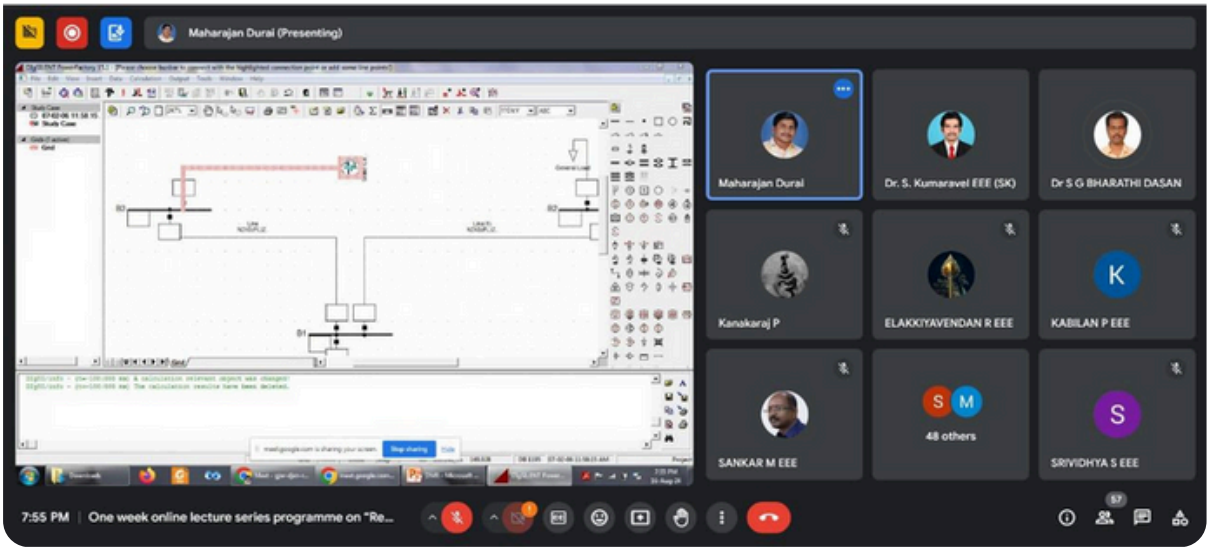
Day 3(14.08.2024): The lecture was delivered by **Dr. S. Sivasubramani, Associate Professor, Department of EE, Indian Institute of Technology (IIT), Patna. Dr.S.Kumaravel, Associate Professor/EEE** welcomed the speaker to speak on the topic **"Smart Grids - Two Way Flow of Electricity".** The need for renewable energy generation, importance of microgrids and the need to modernise the grid, two components of smart grids, microgrid and Electric vehicle and the challenges posed in V2G were discussed. The vote of thanks was delivered by **Dr. S. Kumaravel .**



Snapshot of Dr. S. Sivasubramani's presentation

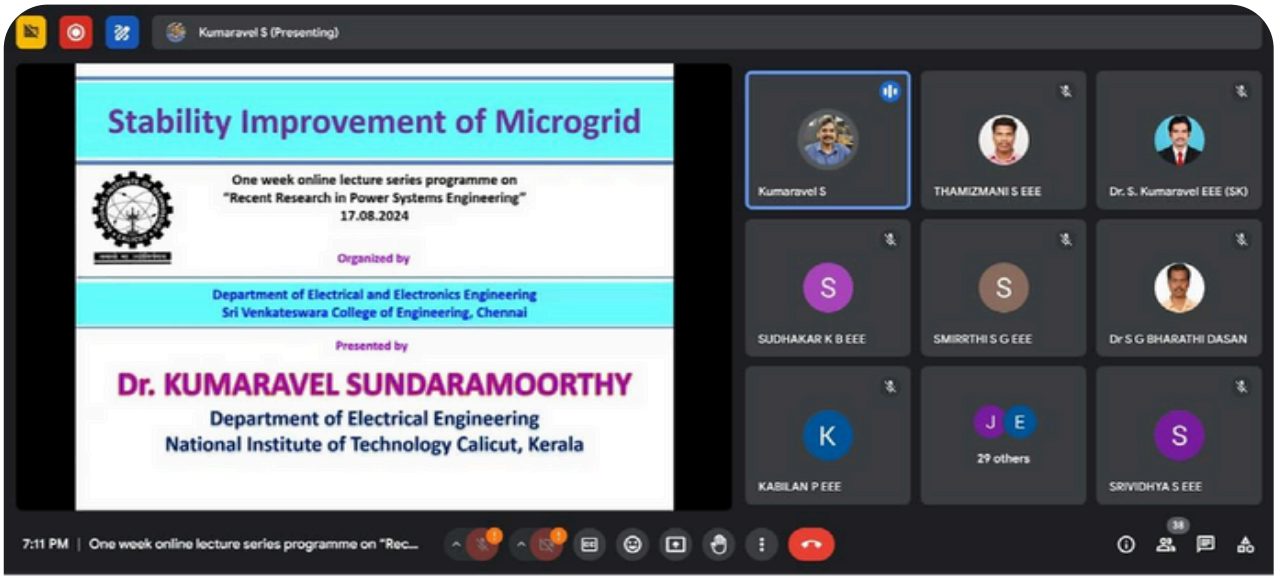
Day 4(16.08.2024): Dr. M. Sankar, Associate Professor/EEE warmly introduced the speaker **Dr. D.Maharajan, Senior Project Engineer, Hitachi Energy India Ltd.** to deliver a lecture on "**Software tools for Power System Analysis (Steady state and Dynamic state)**". He presented an exhaustive list of software for the participants to work on. He shared his experience of using DigSILENT power factory software for power system studies. In the lecture, the software tools specific to analyse grid tied Solar PV and Electric vehicles are presented and concluded with the demonstration. The vote of thanks was delivered by **Dr. M.Sankar.**

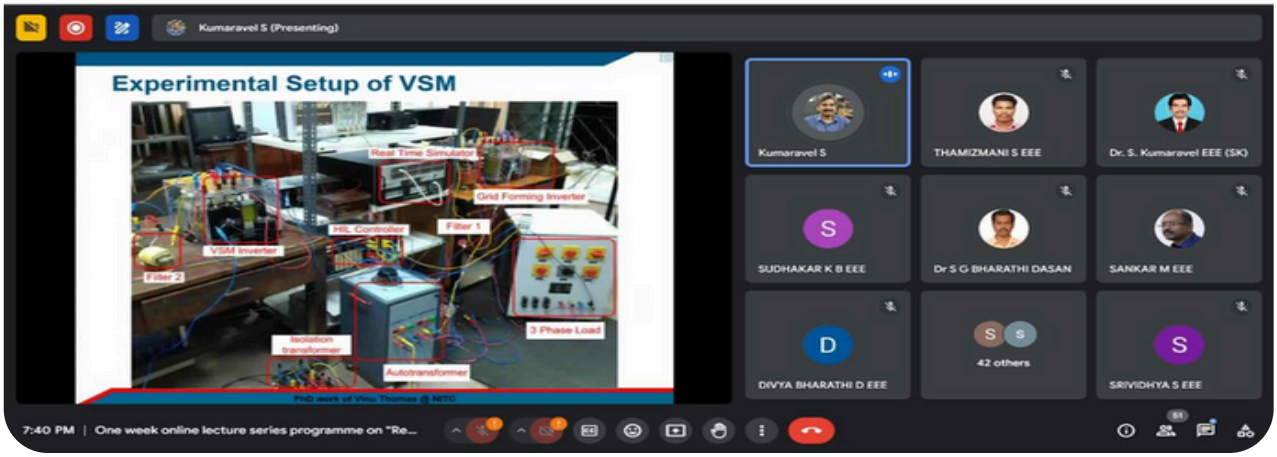




Snapshots of Dr. D. Maharajan's lecture

Valedictory session (17.08.2024): The valedictory address was delivered by **Dr.Sudhakar K Bharatan, Assistant HOD/ EEE**. He welcomed the chief guest **Dr.S.Kumaravel, Associate Professor, Department of EEE, National Institute of Technology(NIT), Calicut.** The chief guest **Dr.S.Kumaravel** delivered the lecture on the topic **"Stability improvement of Microgrid".** The challenges posed in inertia less grid was briefly discussed in the lecture. Employing Virtual Synchronous Machine to mimic the high inertia synchronous machines was proposed by him and his team and the methodology was presented in detail in the lecture.





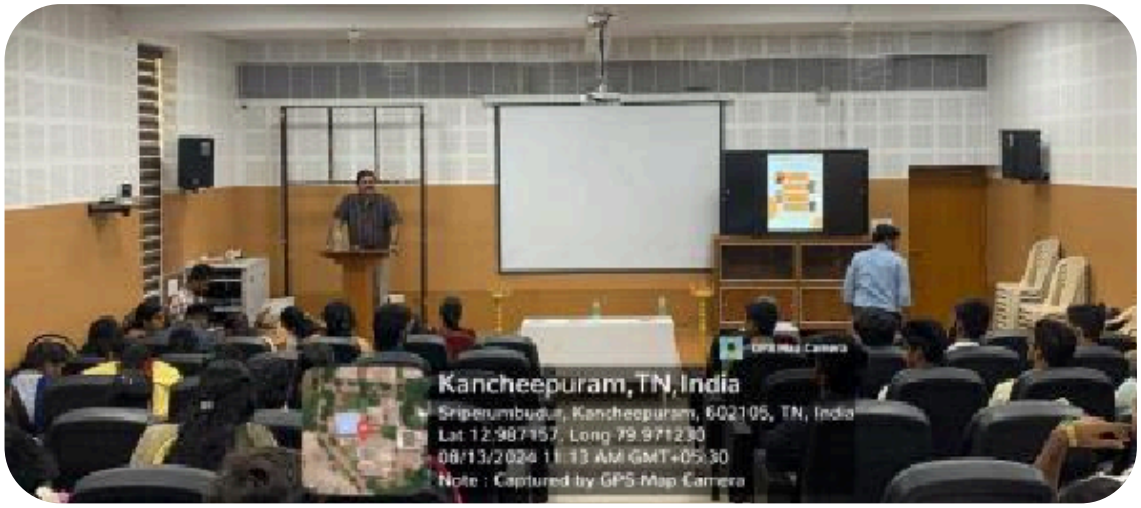
ISTD Student Chapter Inauguration (2024-25)

The ISTD Student Chapter at Sri Venkateswara College of Engineering inaugurated its activities for the academic year 2024-2025 on August 13, 2024, in a grand ceremony held at the Library Seminar Hall. The objective of the event was to introduce the students of SVCE to the Indian Society for Training and Development (ISTD) and to formally present the newly elected office bearers of the ISTD Student Chapter.

Following the welcome address by **Dr. S G Bharathidasan, Professor, EEE,** Annual Report for the academic year 2023-24, was presented by Swetha A, the President of ISTD Student Chapter SVCE. The introduction of the keynote speaker, **Ms. S. Rajalakshmi, Chairperson of the ISTD Chennai Chapter**, was made by **Suruthigha S K, General Secretary of ISTD SC** . The speaker emphasized the importance of quality management in professional growth and offered valuable insights from her extensive experience in HR and organizational development.

The event successfully communicated the benefits and opportunities awaiting the students, emphasizing the enhancement of their management skills and preparing them for future challenges in their careers.

The ISTD SC SVCE organized an expert Lecture on "Quality Management for Budding Engineers,". by **Mr. T. Arumugam, General Manager** at Kone Elevators India Private Limited. He emphasized the importance of technology on the shop floor, focusing on automating the manufacturing process and the advantages of Manufacturing Execution Systems (MES). Arumugam clarified that technology enhances job roles rather than causing unemployment and advised students to concentrate on the interview process rather than the results, fostering a mindset of continuous improvement and adaptability.



Dr. S. Gopinath, Dean (IQAC) at SVCE, then spoke on "Quality Management in Engineering Education." He highlighted the significance of quality education in preparing students for industry standards, discussed key principles of quality management such as accreditation and quality assurance. **Dr. Gopinath** introduced the 5S methodology—Sort, Set in Order, Shine, Standardize, and Sustain—as a tool for creating an efficient and organized educational environment. .

The last session, led by **Dr. S G Bharathidasan,** focused on "Self Management Skills," highlighting their importance as a critical soft skill for effective personal and professional growth. He outlined six key skills: stress management, time management, organizational skills, self-motivation, accountability, and adaptability.

ISTD Program on Building and Leveraging a Personal Network with Workplace Etiquette

Session –I by Ms. Sagaya Malar Vizhi

The event was organized by ISTD SC –SVCE on "Building and Leveraging a Personal Network with Workplace Etiquette " provided valuable insights into personal development and networking, empowering participants to enhance their professional profiles on 29th August 2024. The invited expert **Ms. Sagaya Malar Vizhi,** known for her passion and dedication in helping individuals and organizations to reach their goals, was introduced to the audience. Her contributions and achievements were highlighted, emphasizing her role as a mentor and guide. She also briefly discussed the significance of personal networking, highlighting how building and maintaining strong professional relationships can open doors to new opportunities and help individuals achieve their career goals.

Session-II by Mr.Subash Chandra Bose Anuradha,final year student Mechanical Engineering

Mr.Subash delivered an insightful talk on the importance of creating and enhancing a LinkedIn profile. He provided valuable tips on how to optimize profiles to attract potential employers and build a professional network. The session was very useful for building student's networking skills in LinkedIn platform along with he guided the student from the scratch of building LinkedIn Account. A heartfelt vote of thanks was extended to all the speakers, organizers, and participants, acknowledging their contributions to the success of the event.

ISTD Chennai Chapter August Monthly Meeting

Monthly meeting for the month of August 2024 was organized at Hotel Savera on 29th august at 6.30 – 8.30 pm. The objective of ISTD monthly meeting is to facilitate knowledge sharing and professional development among members, promote networking and collaboration, and discuss strategic initiatives to enhance the society impact in the training and development field. On behalf of SVCE ISTD SC, **Dr.Bharathidasan**, Co- ordinator, and students attended the meeting. **Ms Rajalakshmi** ,Chair person of ISTD introduced the new office bearers of ISTD Chennai.

Mr.Madhu Ragunath guest speaker ,Chief Operating Officer and Group Head - HR and Organizational Culture at TVS Mobility Pvt. Limited,shared his experience in human resources and corporate management, Madhu is known for his strategic leadership in aligning HR practices with business objectives. His contributions to fostering a people-centric culture and driving organizational growth were highlighted, making him a respected figure in the industry.

Bureau of Indian Standards(BIS)

Annual convention of Electrical Engineering Discipline with BIS MoU partner institutes

Bureau of Indian standards (BIS) organized the Annual convention of Electrical Engineering Discipline with the Deans and HoDs of BIS MoU partner institutes at Crown Plaza Hotel, Kochi on 30-31 Aug 2024. **Shri Pramod Kumar Tiwari, Director General, and Shri Rajeev Sharma, Deputy Director General, BIS**, inaugurated the convention and addressed the delegates.

SVCE being one of the 92 MoU partners with BIS was invited to participate in the convention. Assistant Head of the Department, **Dr.Sudhakar Bharatan**, attended the convention representing the Department of EEE. The convention emphasized the importance of implementing a new course on **"Indian standards for Electrical Engineers"** in Undergraduate curriculum that would benefit the community at large.

Bureau of Indian Standards (BIS) -
Industry Visit to Asahi India glass Ltd

The Bureau of Indian Standards (BIS), Chennai Branch Office organized an Exposure Visit to Asahi India Glass Ltd. (AIS), Sipcot, Irungattukottai on 29.08.2024. **Dr.C. Venkatasan, ASP,** along with 22 members of the Standards Club of EEE took part in the event .

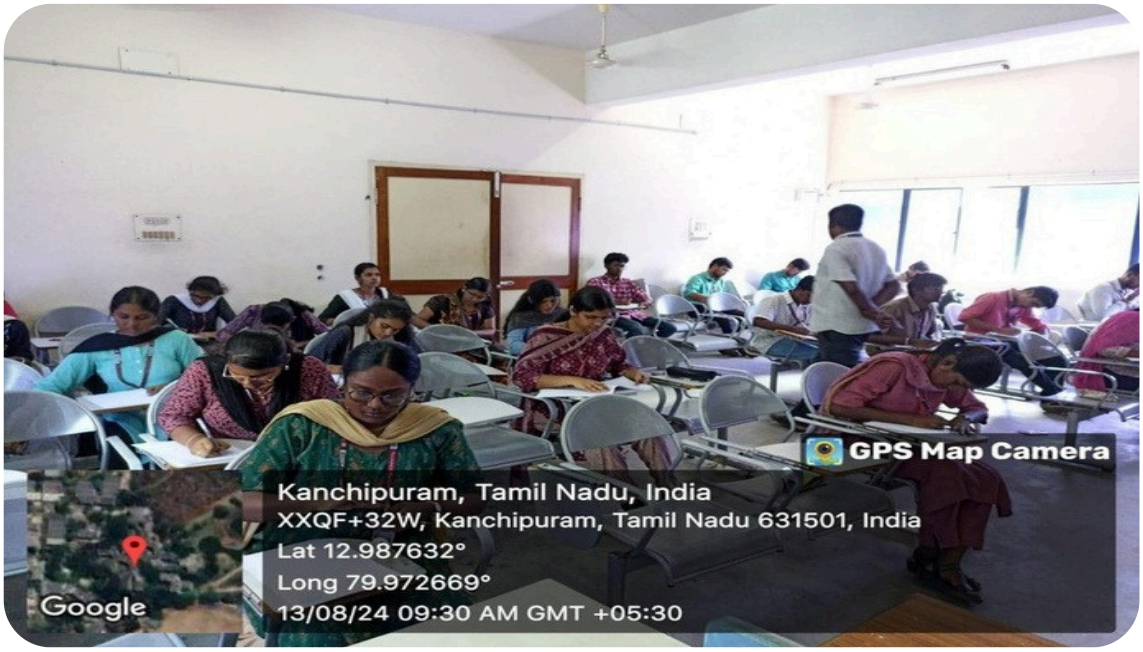
Unnat Bharat Abhiyan (UBA)-
Tree Plantation

Unnat Bharat Abhiyan (UBA) is a program that aims to help rural India by identifying development challenges and working with higher educational institutions to create solutions. **Dr.C.Gopinath, Professor**, participated in the tree plantation under the scheme UBA on 16 th August 2024 near Sriperumbudur.

Institution Innovation Cell Activity

Essay Writing Competition

The **Institution Innovation Council (IC20180371-IIC SVCE Sriperambadur)** organized an essay writing competition for the commemorating 78 years of independence on **Innovations Driving Sustainable Developement India : A VISION FOR NEXT 25 YEARS** on **13th August 2024,** at QMC hall, SVCE .



Journal Publications

Dr.C.Gopinath, Professor, Published a paper "Enhancing Underwater Object Detection and Classification Using Advanced Imaging Techniques:A Novel Approach with Diffusion Models", Volume 16, Issue 17, 2024, 7488; with an impact factor of 3.3.in Sustainable Development Goal (SDG) 14 – Life below water.

https://doi.org/10.3390/su16177488

Article

Enhancing Underwater Object Detection and Classification Using Advanced Imaging Techniques: A Novel Approach with Diffusion Models

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Abstract: Underwater object detection and classification pose significant challenges due to environmental factors such as water turbidity and variable lighting conditions. This research proposes a novel approach that integrates advanced imaging techniques with diffusion models to address these challenges effectively, aligning with Sustainable Development Goal (SDG) 14: Life Below Water. The methodology leverages the Convolutional Block Attention Module (CBAM), Modified Swin Transformer Block (MSTB), and Diffusion model to enhance the quality of underwater images, thereby improving the accuracy of object detection and classification tasks. This study utilizes the TrashCan dataset, comprising diverse underwater scenes and objects, to validate the proposed method's efficacy. This study proposes an advanced imaging technique YOLO (you only look once) network (AIT-YOLOv7) for detecting objects in underwater images. This network uses a modified U-Net, which focuses on informative features using a convolutional block channel and spatial attentions for color correction and a modified swin transformer block for resolution enhancement. A novel diffusion model proposed using modified U-Net with ResNet understands the intricate structures in images with underwater objects, which enhances detection capabilities under challenging visual conditions. Thus, AIT-YOLOv7 net precisely detects and classifies different classes of objects present in this dataset. These improvements are crucial for applications in marine ecology research, underwater archeology, and environmental monitoring, where precise identification of marine debris, biological organisms, and submerged artifacts is essential. The proposed framework advances underwater imaging technology and supports the sustainable management of marine resources and conservation efforts. The experimental results demonstrate that state-of-the-art object detection methods, namely SSD, YOLOv3, YOLOv4, and YOLOTrashCan, achieve mean accuracies (mAP@0.5) of 57.19%, 58.12%, 59.78%, and 65.01%, respectively, whereas the proposed AIT-YOLOv7 net reaches a mean accuracy (mAP@0.5) of 81.4% on the TrashCan dataset, showing a 16.39% improvement. Due to this improvement in the accuracy and efficiency of underwater object detection, this research contributes to broader marine science and technology efforts, promoting the better understanding and management of aquatic ecosystems and helping to prevent and reduce the marine pollution, as emphasized in SDG 14.

Citation: Prabhavathy P.; Chidambaram, G.; Jahid, A.; Alsharif, M.H. Enhancing Underwater Object Detection and Classification Using Advanced Imaging Techniques: A Novel Approach with Diffusion Models. *Sustainability* **2024**, *16*, 7488. https://doi.org/10.3390/su16177488

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Dr.R.Kannadasan, Assistant Professor, published a paper in the Alexandria Engineering Journal - Elsevier titled "The feasibility analysis of load based resource optimization algorithm for cooperative communication in 5G wireless ad-hoc networks'', Volume 104, 2024, Pages 529-550;

Alexandria Engineering Journal 104 (2024) 529–550

Contents lists available at ScienceDirect

Alexandria Engineering Journal

journal homepage: www.elsevier.com/locate/aej

The feasibility analysis of load based resource optimization algorithm for cooperative communication in 5G wireless ad-hoc networks

J. Logeshwaran [a], R. Kannadasan [b], P.M. Benson Mansingh [c], A. Mutharasan [d], N. Yuvaraj [e], S. Venkatasubramanian [f], Mohammed H. Alsharif [g], Peerapong Uthansakul [h,*], Monthippa Uthansakul [h]

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ARTICLE INFO

Keywords:
Bandwidth
Optimization
Wireless
Ad-Hoc
Networks
Spectrum
Cooperative Communication
Topology

ABSTRACT

Efficient allocation of resources is crucial in wireless ad hoc networks (WANETs) as spectrum assets are costly. Cooperative communications were introduced as a solution to the problem of limited spectrum availability. In this approach, numerous nodes share their resources and increase the bandwidth available to end-users. This research investigates the practicality of a new algorithm that optimizes resources based on load for Cooperative Communications in 5 G WANETs. The algorithm consists of two components. Initially, a distributed algorithm for forming a topology is suggested. This algorithm employs a load-based approach to explore network conditions and efficiently choose the most suitable topology. An optimization algorithm that relies on a greedy strategy is suggested. In this approach, the chosen nodes send their bits to the receiver to maximize the attainable system throughput. A thorough simulation study is conducted to evaluate the overall performance of the proposed algorithm in assessing existing methods. The proposed model obtained 94.72 % energy efficiency, 91.69 % network throughput, 94.72 % spectrum utilization, 27.47 % network delay, 24.08 % packet loss rate, 94.38 % signal-to-noise ratio, 93.91 % data transfer rate, 95.87 % error detection rate, and 94.28 % link reliability rate. The results demonstrate that the suggested algorithm significantly enhances the system and the overall network performance compared to existing approaches. The proposed approach is feasible and environmentally friendly for optimizing bandwidth in 5 G wireless ad hoc Networks.

Patent Publication

Dr Nalin Kant Mohanty, received a grant of Design patent from IPR. The Patent filed on 25/7/2024 and granted on 30/8/2024 with grant No.424748-001.

INTELLECTUAL PROPERTY INDIA

ORIGINAL

पेटेंट कार्यालय, भारत सरकार — The Patent Office, Government Of India

डिजाइन के पंजीकरण का प्रमाण पत्र | Certificate of Registration of Design

डिजाइन सं. / Design No. : 424748-001

तारीख / Date : 25/07/2024

पारस्परिकता तारीख / Reciprocity Date* :

देश / Country :

प्रमाणित किया जाता है कि संलग्न प्रति में वर्णित डिजाइन जो *IOT BASED SOLAR POWERED PLANT HEALTH MONITORING DEVICE* से संबंधित है, का पंजीकरण, श्रेणी 15-03 में 1.Dr. Ashwin Kumar Sahoo 2. Dr. Nalin Kant Mohanty 3.Dr. Pramod Kumar Gouda 4.Dr. C Kamal के नाम में उपर्युक्त संख्या और तारीख में कर लिया गया है।

Certified that the design of which a copy is annexed hereto has been registered as of the number and date given above in class 15-03 in respect of the application of such design to *IOT BASED SOLAR POWERED PLANT HEALTH MONITORING DEVICE* in the name of 1.Dr. Ashwin Kumar Sahoo 2. Dr. Nalin Kant Mohanty 3.Dr. Pramod Kumar Gouda 4.Dr. C Kamal.

डिजाइन अधिनियम, 2000 तथा डिजाइन नियम, 2001 के अध्यधीन प्रावधानों के अनुसरण में।
In pursuance of and subject to the provisions of the Designs Act, 2000 and the Designs Rules, 2001.

Date of Issue : 30/08/2024

Controller General of Patents, Designs and Trade Marks

*The reciprocity date (if any) which has been allowed and the name of the country. Copyright in the design will subsist for ten years from the date of Registration, and may under the terms of the Act and Rules, be extended for a further period of five years. This Certificate is not for use in legal proceedings or for obtaining registration abroad.

INUP USER MEET 2024 at IIT Bombay

SVCE as a Partner Institution

Nanoelectronics Users' Programme - Idea to Innovation (INUP-i2i) was held in association with **MeitY at IIT Bombay** on **10th August 2024**. This event brought together dignitaries, INUP users and faculty members from collaborating and partner institutes, including IIT Kharagpur, IIT Delhi, IISc Bangalore, IIT Madras, and IIT Guwahati. This event was presided by **Shri.S. Krishnan, Secretary, MeitY,** who in his keynote address, emphasized the role of INUP in advancing nanoelectronics research in India. **Dr. R. Chidambaram, former Principal Scientific Advisor to the Government of India**, as a Guest of Honor, said INUP represents a model for national collaboration in science and technology.

DST FIST sponsored Nano Research group at SVCE is an active user of **INUP** program at **IIT Madras.** Representing SVCE under IITM INUP-i2i program, **Dr.Sudhakar Bharatan**, was invited to present his group's work on Fabrication of Nanodevices such as Thin film solar cell, Thin film transistors and Photodetectors.

Faculty and Student Participation in PALS Lecture Series

Making Co2 Capture and Sequestration - One of the Most Sustainable Paths for a Net Zero World theory to practical lecture by the Energy Consortium of IIT Madras on **31st August 2024** at the IIT Madras was attended by **Dr.S.Kumaravel,ASP** along with SVCE students.

PALS 2024 - 2025

THE ENERGY CONSORTIUM IIT MADRAS

CERTIFICATE OF PARTICIPATION

This certificate is awarded to

Dr. KUMARAVEL S

ASSOCIATE PROFESSOR of ELECTRICAL AND ELECTRONICS ENGINEERING
SRI VENKATESWARA COLLEGE OF ENGINEERING, a Partner institute of PALS 2024-25.

The participant attended a Theory to Practice lectures on **MAKING CO2 CAPTURE AND SEQUESTRATION - ONE OF THE MOST SUSTAINABLE PATHS FOR A NET ZERO WORLD** conducted by The Energy Consortium of IIT Madras on 31st August 2024 at the IIT Madras Campus. The lectures were followed by guided lab visit to Gas Hydrates Lab, Industry Interface Lab, CCUS Lab and Mobile CO_2 Capture Demonstration Unit.

Anuradha Ramanujam	Dr. Nikhil Tambe	C N CHANDRASEKARAN
PALS Champion	*CEO, The Energy Consortium, IITM*	*Chairman, PALS*

PALS an initiative of volunteers from Alumni fraternity of IIT's, focused on augmenting engineering education. Details in www.palspgm.com

on 4th September 2024. PALS_T2P_1_105

Faculty Participation

Dr. S Arulmozhi, Associate Professor, attended 14 days national level faculty development program on "**Innovative Teaching Strategies and Tools in the Digital Age**" from August 12 - 25, 2024, organized by Scrollwell and Institution Innovation Council, Gulzar Group of Institutes Ludhiana (Punjab).

Certificate of Completion

ARULMOZHI S

from

SRI VENKATESWARA COLLEGE OF ENGINEERING

has completed

16 DAYS NATIONAL LEVEL FACULTY DEVELOPMENT PROGRAMME ON "INNOVATIVE TEACHING STRATEGIES AND TOOLS IN THE DIGITAL AGE"

This online Faculty Development Programme helped to discover modern productivity strategies with hands-on practical implementation with the pace of growing trends in education with interesting facts, trends, and insights.

FDP Duration: 14 Day (Two Week)
Date: August 12 - 25, 2024

In Collaboration

Ministry of Education's
Institution Innovation Council (IIC GGI Ludhiana)
Gulzar Group of Institutes Ludhiana (Punjab)

Roshan Kumar
Founder and CEO
Scrollwell

Ashish Kumar Bhateja
Convenor
IIC GGI Ludhiana

Certificate ID: SWCERT20241803
Date of Issue: August 25, 2024

Mr.S.Bharadwaj, AP/EEE attended a Certificate course on **"EV Technology and Public Charging System"** organised by **National Institute of Electronics and Information Technology (NIELIT)** from 5th of August 2024 to 9th of August 2024.

रा.इ.सू.प्रौ.सं
NIELIT

राष्ट्रीय इलेक्ट्रॉनिकी एवं सूचना प्रौद्योगिकी संस्थान, कालीकट

NATIONAL INSTITUTE OF ELECTRONICS AND INFORMATION TECHNOLOGY, CALICUT

(An Autonomous Scientific Society of Ministry of Electronics and Information Technology, Government of India)

NIT Campus P O, Calicut, Kerala – 673601

सहभागिता का प्रमाणपत्र

Certificate of Participation

यह प्रमाणित किया जाता है कि / This is to certify that

BHARADWAJ S

नाइलिट कालीकट द्वारा आयोजित निम्नलिखित पाठ्यक्रम में भाग लिया है

has participated in the below mentioned course organized by NIELIT Calicut

EV Technology and Public Charging Station

पाठ्यक्रम की अवधि / Course Duration : 5th to 9th August 2024 (5 Days/5 Hours)

तरीका / Mode : Online

Digitally Signed by Saritha S
Date:2024.08.13 13:33:19 IST

प्रमाणपत्र संख्या /Certificate No. OLC 20852

दिनांक / Date 13th August 2024

This is a computer generated digitally signed certificate

प्रशिक्षण अधिकारी
Training Officer

Student Participation

Ms.M Shree Nivedita, II year student, participated in the Panel Discussion on **"Innovation and Startup Ecosystem"** organized by the Institution Innovation Council (IC201810371 - IIC, SVCE Chennai), Sri Venkateswara College of Engineering, Sriperumbudur on 10th August 2024.

ATAL FDP- Advanced Semiconductor Devices and AI Chips - Research Opportunities and Challenges December 16 - 21, 2024

Six Days

Faculty Development Program

on

"Advanced Semiconductor Devices and AI Chips - Research Opportunities and Challenges"

16 - 21 December 2024

Supported By

AICTE Training And Learning (ATAL) Academy

ATAL

Convener

Dr.KR.Santha,

Vice Principal, Professor & Head / EEE

Organized by

Department of Electrical and Electronics Engineering

SVCE | Sri Venkateswara College of Engineering

(An Autonomous Institution-Affiliated to Anna University,Chennai)

Pennalur, Sriperumbudur-602 117

Tamil Nadu,

Phone No: 044-27152000, Extn-251

www.svce.ac.in

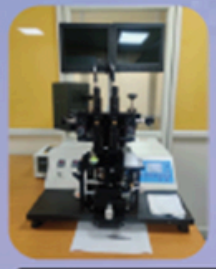
DST-FIST Sponsored Laboratory:

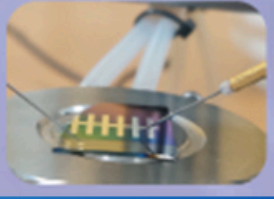
SVCE received Fund for Improvement of S&T Infrastructure from Department of Science & Technology (DST), Government of India, under the FIST 2018 program amounting to Rs 80.00 lakhs for promoting interdisciplinary nano research. The vision of the centre is "To Enhance the knowledge of the graduates in the fields of nanoengineering and nanotechnology, thereby transforming learners into global contributors and achievers." Some of the major equipment housed in the centre are

- Photolithography
- RF and DC sputtering
- Thermal Evaporation
- Dynamic light scattering
- DC Electrical probe station
- Spin coating and wet bench







ATAL FDP- Advanced Semiconductor Devices and AI Chips - Research Opportunities and Challenges December 16 - 21, 2024

Objectives of the FDP :

The current challenges faced by the world and more importantly by India are Energy, Clean Water, Healthcare, Pollution and Sustainability. Last five decades, various Integrated Device Manufacturers (IDMs) in Semiconductor domain have designed and developed solutions addressing the above challenges. With the advent of Artificial intelligence, IDMs face new challenges in catering to the needs of various sectors ranging from consumer electronics, automotive, defence, energy, and industry at large. It is upto the semiconductor manufacturers to speed up the production of AI chips, which provides faster, high performance yet cost effective alternatives over general purpose chips. Key features such as smaller transistors, consumes less power and speeds up the memory access are necessary for executing AI algorithm in a single chip

This faculty development program (FDP) will help in Understanding of the design and processing of semiconductor chips and the implications of AI on the production of reconfigurable processors. Additionally, the FDP will provide hands-on training in the fabrication of thin film transistors, photodetectors and solar cells in the DST FIST sponsored Interdisciplinary Nano research centre facility at SVCE.

Outcomes of the FDP :

- Participants will gain an in-depth knowledge on the manufacturing standards of semiconductor chips
- Exposure to cleanroom facilities which are mandatory for IC fabrication
- Hands-on training on the micro-fabrication of devices such as thin film transistor, photodetectors and solar cells
- Characterization of nano devices using DC electrical probe station
- Design and simulation of nano devices and circuits using electronic design automation (EDA) tool
- Introduced to the industrial trends and roadmap in realizing potential of Artificial intelligence.
- Participants will learn the design challenges faced by the fabless and IDM semiconductor industries in realizing AI chips.
- Participants will also learn the process level fabrication challenges faced by the semiconductor foundries in realizing AI chips.

Resource Persons :

- Dr. S. Sundar Kumar Iyer, Professor , IIT Kanpur
- Dr.Somnath Chanda Roy,Proffesor, IIT Madras.
- Dr. Pushpashree Mishra, Scientist, Solid State Physics Laboratory, DRDO, New Delhi.
- Mr. Prabhakar B, Process Engineer, Micron Technology Inc, USA.
- Mr. Harish Gopalakrishnan, Technical Lead, Intel Corporation, Bengaluru, India
- Dr. S. Moorthy Babu , Professor & Director, Crystal Growth Centre, Anna University.
- Dr. Ashok Kumar Reddy , Assistant Professor , IIITDM Kanchipuram.
- Dr. Pandiyarasan Veluswamy , Assistant Professor , IIITDM Kanchipuram.
- Mr. Prasanna Venkatesan, Art of Living, Capacity Building
- Dr. KR. Santha, Prof & Head / EEE.
- Dr. Sudhakar K Bharatan , Professor, EEE.

Important Dates :

Last date of Registration: 01 .12.2024

For Registration: