SRI VENKATESWARA COLLEGE OF ENGINEERING

VIDYUT

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DEPARTMENT OF
ELECTRICAL AND ELECTRONICS ENGINEERING

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ELECTRICAL AND ELECTRONICS ENGINEERING

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ABOUT THE DEPARTMENT

Welcome to the Department of Electrical & Electronics Engineering (EEE) at Sri Venkateswara College of Engineering (SVCE) in Sriperumbudur.

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. Initially admitting 60 students, the department now accommodates 120 students, reflecting the growing demand for its programs.

The department holds permanent affiliation with Anna University and has been accredited by the National Board of Accreditation (NBA) for five consecutive years. 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

Vision of the Institution

To be a leader in Higher Technical Education and Research by providing the state-of-the-art facilities to transform the learners into global contributors and achievers.

Mission of the Institution

To develop SVCE as a "CENTRE OF EXCELLENCE" offering Engineering Education to men and women at undergraduate and postgraduate degree levels, bringing out their total personality, emphasizing ethical values and preparing them to meet the growing challenges of the industry and diverse societal needs of our nation.

Vision of the Department

The vision of Electrical and Electronics Engineering Department is to provide a high standard of education in Electrical and Electronics Engineering so as to meet the industry standards through domain.

Mission of the Department

M1: To create state of the art facilities such that the students excel in Electrical and Electronics Engineering education.

M2: To equip students with a well-defined curriculum to meet the requirements of Industries and society.

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

M4: To inculcate soft skills and foster ethical values and shape the total personality of the student

PROGRAM EDUCATIONAL OBJECTIVES AND PROGRAM OUTCOMES – UG(EEE)

Program Educational Objectives (PEOs) UG-EEE

PEOI: Graduates of EEE transformed to engineering contributors in the fields of Electrical, Electronics and Computer Engineering.

PEO2: Succeed in becoming entrepreneurs through human centered design thinking and innovation.

PEO3: Become eligible to pursue higher studies in their chosen areas of engineering or management

PEO4: Effective, conscious 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.

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 0context 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

EXPERT VISIT TO iNRC

6th February 2024

Dr.Mohan Venkatramana CEO and Director, Experteeze & Syntonix Semiconductors, USA visits the Interdisciplinary Nano Research Centre (iNRC) to engage with students and discuss ongoing projects

DEPARTMENT ACTIVITIES

INDUSTRIAL TRAINING

14th February 2024

A demonstration on **Siemens HMI** programming conducted by an engineer from Siemens Ltd took place in the Industrial Automation Laboratory-EEE.

Association of Electrical and Electronics Engineering

AEEE ACTIVITIES

SENSOR GUIDED ROBOTICS - HANDS-ON TRAINING

15th & 16th February 2024

Inauguration

The two-days "Sensor Guided Robotics – Hands-on Training" program was organized by the Association of Electrical and Electronics Engineers (AEEE), Department of Electrical and Electronics Engineering in association with The Institution of Engineers India (IEI) and IEEE Student Branch SVCE from 15.02.2024 to 16.02.2024 for the II year EEE students.

DAY 1 : Inauguration and Guest Lecture

The inauguration of the training program was held on 15/2/2024 in the Video Hall of the college premises from 9.30 AM to 10.00 AM. **Dr.KR.Santha, Vice-Principal, Professor and HOD/EEE** lighted the Kuthuvilakku and delivered the inaugural address encompassing on two days session details, robotic sensors, signal conditioning circuits, controllers, actuators and applications of robotics in medical field. Dr.Sudhakar K Bharatan, Assistant HOD and Professor/EEE was also present and graced the occasion.

AEEE ACTIVITIES

Guest lecture

Dr. Ramya S Moorthy, **Founder, Nimaya Robotics** delivered a guest lecture on the topic "To infinity and Beyond – Social Robotics for Disability" through online mode from Manipal Institute of Technology, Manipal. The presentation dwelled around the application of robotics in facilitating the children with psychomotor disabilities to accelerate their learning rate. The presentation featured videos of real-time application of robotics in helping children overcome their disabilities and their parent's/trainers feedback. The presentation motivated the students to sincerely learn the concepts of robotics and its application for societal need and concern.

Association of Electrical and Electronics Engineering

AEEE ACTIVITIES

DAY 1 : Interfacing with Arduino

Introduction to Arduino, raspberry pi, NodeMCU, classification of sensors, Gyro sensor, Micro gear motor, Motor driver circuit, Hands-on interfacing sensors with Arduino and related coding session was completed. The students experientially learnt to develop sensor interfacing with controllers.

DAY 2 : Hands-on Training

Introduction to Infrared sensor & DC motor drives, Line Following Robot – briefing & Hands-on session was completed. The students were trained to develop 'line following robots' and 'obstacle avoiding robots'

DEPARTMENT ACTIVITIES

External Academic and Administrative Audit -EAAA

16th February 2024

The IQAC-EAAA audit to verify the NAAC criteria parameters was held on 16th February 2024 by an external expert

DEPARTMENT ACTIVITIES

First ISO Version 21001:2018 Audit

26th February 2024

The first internal audit with new **ISO Version 21001:2018 (EOMS)** is scheduled on 26.2.2024 and 27.2.2024 **,** ISO 21001 is a quality management system that aims to standardise education management to ensure it meets learners need

VISIT TO HL Mando

Interaction for Industry Supported Laboratory

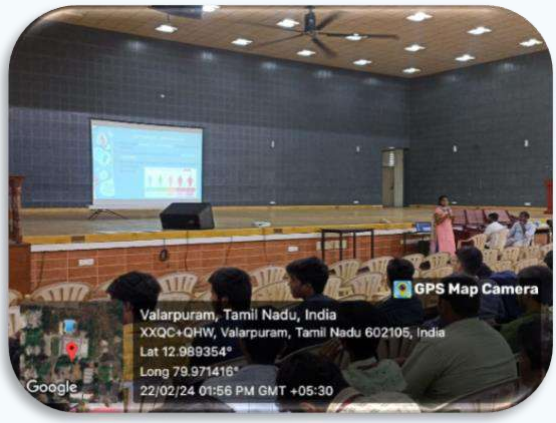
The proposed Industry Supported Laboratory aims to revolutionize engineering education by offering part-time Bachelor of Engineering programs in Electrical and Electronics Engineering and Mechanical Engineering, enabling students to balance academics with industry experience. During the sixth semester, students will immerse themselves in industrial settings, gaining firsthand knowledge. Internships during the sixth-semester vacation will further enhance practical skills. By the eighth semester, students will undertake industry projects, applying theoretical knowledge to real-world problems. Consultancy and innovation projects will foster entrepreneurial endeavors. These initiatives bridge the academia-industry gap, providing comprehensive training for successful engineering career.

STUDENT PARTICIPATION

HEALTH AWARENESS PROGRAM

by Apollo shine foundation

22nd February 2024



Health talk for First year students by Apollo shine foundation is scheduled on 22.02.2024 from 1.15 PM to 3.15PM in the Multi Purpose Hall. Apollo's specialists from different areas of Medicine relevant to campus health will do the awareness talk

STUDENT PARTICIPATION

"Youth for clean India"
NSS – National Service Scheme camp

Our beloved vice principal & Head of the Department Dr KR Santha and Head Mistress of st. Anne's High school, Sister Treesa inaugurated the event.

The students from EEE 1st and 2nd years Laksita D, Ashvatha.R , Logashri. R, Kaviya. R, Esreen P, V Harini, Palanikumar S, and Vinodha sree.G.R , Sri Raja Rajeshwari S, Surya.B, Praveen G U, Jai Kishore D, Abirami .RM, S.Srinivasan, Udith Mouleeshwar K actively participated in NSS activities.

Major activities done by students during camp

- The volunteers cleaned the school (st. Anne's High School) & Agathiyar temple, Valarpuram.
- Planted 35+ Samplings around the school and temples.
- The volunteers went on a ralley to create awareness on “Environmental Sustainability” that emphasized “Save Water”, “Avoid Plastics” and “Waste Management”.
- Volunteers educated the school students about Road safety.
- An awareness Program was conducted on personal hygiene for girl students of class 9 and 10.

STUDENT PARTICIPATION

The process of initialization for the plantation of saplings

A yoga practice session was conducted for the SVCE volunteers by

Dr.Nalin Kant Mohanty, Professor of EEE department, SVCE

STUDENT PARTICIPATION

Intercollegiate Technical event

Icube 3.0

Viruthika.s, Srivathi y, Vaishali B, Subash A **Chlorine Titans team** of First year students participated with a prototype for

"Analysis of chlorine in drinking water"

R.Shreya **Lab Rats** of First year student participated with a prototype for

"Soil analysis and seed determination"

Antony Xavio Immanuel, Deepthi MG **Themis – team** of First year students Created an app to aid the public to understand the workings and procedures of the indian court

"Lex Magna"

Janelle Rebecca J **Zumwalt** of First year students participated in an

"Electricity production from ocean wave project"

JOURNAL PUBLICATION

Journal published in Springer - of analog integrated circuit and Signal processing by

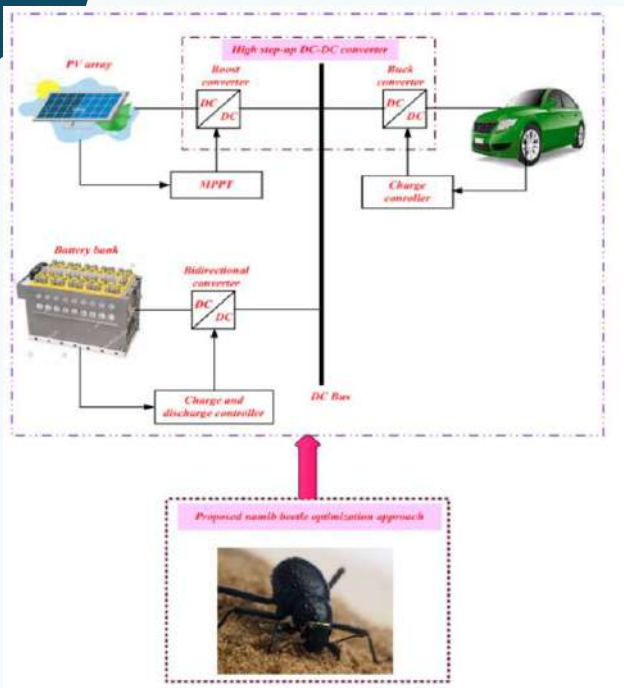
Dr.R.J.Venkatesh, Assistant Professor

An optimization approach control of EV solar charging system with step-up DC–DC converter

Link : https://link.springer.com/article/10.1007/s10470-024-02253-4

An optimization technique for the control of a photovoltaic (PV)-fed electric vehicle (EV) solar charging station with a high gain of step-up dc-to-dc converter. An optimization approach is the Namib beetle optimization (NBOA) approach. This approach is used to control the EV solar charging station. Also, the principles of a switched capacitor and a coupled inductor are integrated into the interleaved structure of the NBOA converter to produce low-current, high-efficiency, and high-voltage gain. However, the major contribution is to minimize the total harmonic distortion (THD) and to control the EV solar Charging Station.

The bi-directional DC-to-DC converter in an energy-storage-system has the advantages of high efficiency and fast response speed. By then, the NBOA technique is done in MATLAB software, and the performance is evaluated with the existing techniques. The NBOA system has low THD and high efficiency, which is compared with the existing ant-lion optimizer, wild horse optimizer, and salp-swarm algorithm, methods. From the analysis, the NBOA method provides a better outcome than the existing one.



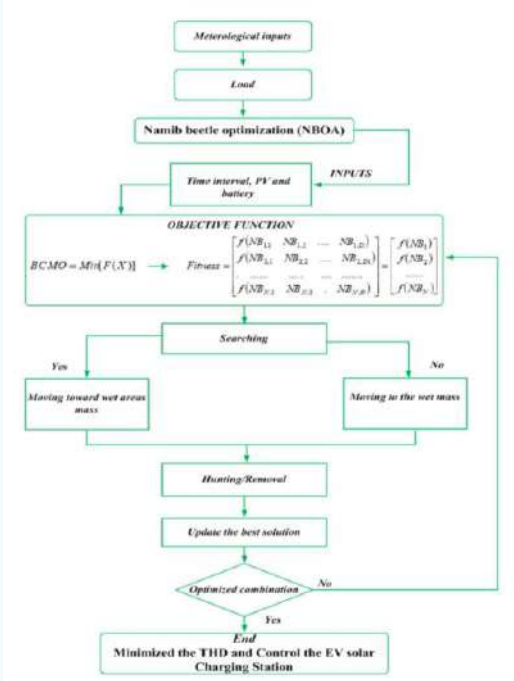


Fig.1: **Structure of PV fed EVCS** **Fig.2: Flowchart of NBOA approach**

This manuscript proposes an optimization approach control of EV solar charging system with step-up dc to dc converter. The optimization approach is a NBOA approach is utilized to regulate the PV fed EVCS. The NBOA technique performance is performed in the MATLAB platform and comparing to other existing methods such as WSO, SSA and ALO.

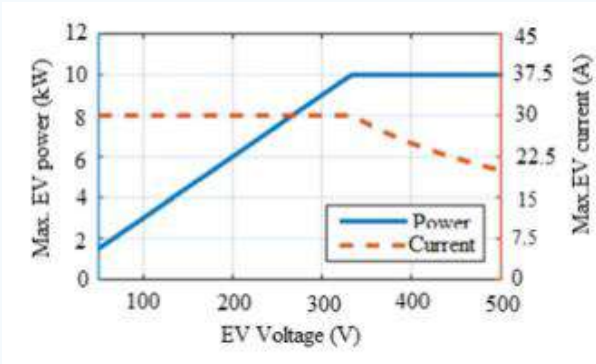


Fig 3. Experimental result of EV Current, power and voltage

The THD of the proposed, WSO, SSA, and ALO, approaches are 3.4%, 5%, 6.1%, and 7.3% respectively. The efficiency of the WHO, SSA, ALO, and proposed approach are 32%, 45%, 68%, and 95%, respectively. The NBOA method is low THD and the effectiveness is high, when comparing to other existing approaches

FACULTY PARTICIPATION

BIS MENTORS TRAINING ATTENDED

Dr.C.Venkatesn , Assistant Professor/EEE attended the Mentors Training Programme Organized by the Bureau of Indian Standards (BIS), a statutory body functioning under the aegis of Ministry of Consumer Affairs, Food and Public Distribution, Government of India during 15th and 16th February, 2024 at Savera Hotel, Chennai.

FACULTY PARTICIPATION

IEI - Local Chapter Meeting (Tiruvallur)

16th February 2024

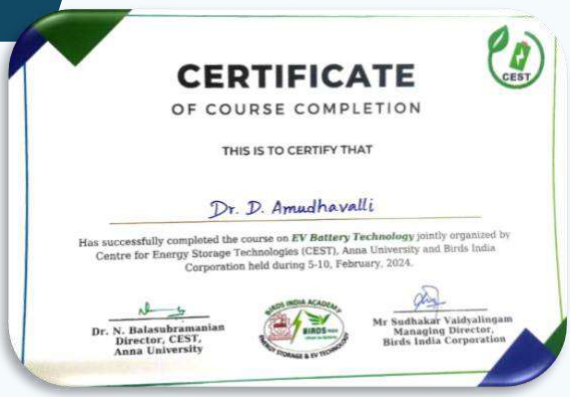
Dr.Sudhakar K Bharatan ,Professor attended IEI (Institution of Engineers India) Local chapter meeting at Tiruvallur.

FACULTY PARTICIPATION

Faculty Development Program
on
EV Battery Technology
5th – 10th February 2024

Dr.D.Amudhavalli, Associate Professor, Dr.M.Sankar, Associate Professor, Mr.D.S.Purshothaman, Assistant professor attended a course on EV Battery Technolgy jointly organized by Centre for Energy Storage Technologies(CEST), Anna University and Birds India Corporation.

FACULTY PARTICIPATION


CERTIFICATE
OF COURSE COMPLETION
THIS IS TO CERTIFY THAT
Dr. D. Amudhavalli
Has successfully completed the course on *EV Battery Technology* jointly organized by Centre for Energy Storage Technologies (CEST), Anna University and Birds India Corporation held during 5-10, February, 2024.
Dr. N. Balasubramanian, Director, CEST, Anna University
Mr Sudhakar Vaidyalingam, Managing Director, Birds India Corporation

CERTIFICATE
OF COURSE COMPLETION
THIS IS TO CERTIFY THAT
M. Sankar
Has successfully completed the course on *EV Battery Technology* jointly organized by Centre for Energy Storage Technologies (CEST), Anna University and Birds India Corporation held during 5-10, February, 2024.
Dr. N. Balasubramanian, Director, CEST, Anna University
Mr Sudhakar Vaidyalingam, Managing Director, Birds India Corporation

CERTIFICATE
OF COURSE COMPLETION
THIS IS TO CERTIFY THAT
D. S. Purushothaman
Has successfully completed the course on *EV Battery Technology* jointly organized by Centre for Energy Storage Technologies (CEST), Anna University and Birds India Corporation held during 5-10, February, 2024.
Dr. N. Balasubramanian, Director, CEST, Anna University
Mr Sudhakar Vaidyalingam, Managing Director, Birds India Corporation

Mr.M.Ranjith Kumar, Assistant professor and Mrs.S.Sinthamani, Assistant professor participated in a Faculty Development program entitled "Emerging Technology in Artificial Intelligence" conducted by IT department, Jeppaiaar Institute of Technology from 19th – 24th February 2024.

JEPPIAAR INSTITUTE OF TECHNOLOGY
"Self Belief || Self Discipline || Self Respect"
(An Autonomous Institution)
CERTIFICATE
OF PARTICIPATION
This is to certify that
S Sinthamani
of Sri venkateswara college of engineering has participated in the Faculty Development Program entitled "Emerging Technology in Artificial Intelligence" conducted by Department of Information Technology, Jeppiaar Institute of Technology from 19 feb to 24 feb 2024.
Dr. N.Marie wilson B.Tech,MBA,Ph.D, Managing Director
Dr.G.R.Suresh ME,Ph.D, Principal

JEPPIAAR INSTITUTE OF TECHNOLOGY
"Self Belief || Self Discipline || Self Respect"
(An Autonomous Institution)
CERTIFICATE
OF PARTICIPATION
This is to certify that
M Ranjithkumar
of Sri venkateswara college of engineering has participated in the Faculty Development Program entitled "Emerging Technology in Artificial Intelligence" conducted by Department of Information Technology, Jeppiaar Institute of Technology from 19 feb to 24 feb 2024.
Dr. N.Marie wilson B.Tech,MBA,Ph.D, Managing Director
Dr.G.R.Suresh ME,Ph.D, Principal

FACULTY PARTICIPATION

Startup TamilNadu Summit

29th February 2024

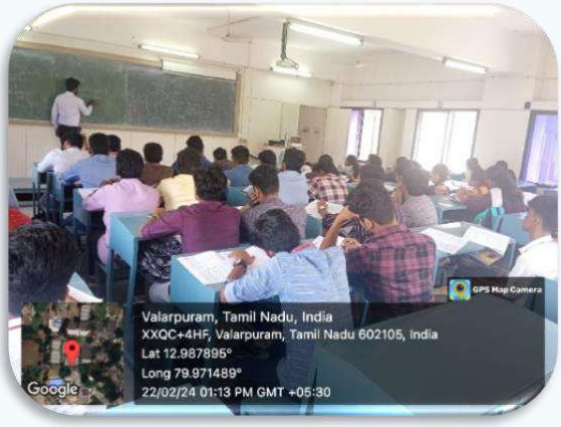
Startup Tamilnadu organized a summit on 29th Feb 2024, bringing together all the incubators across the state of TamilNadu. The event was presided by Mr.T.Anbarasu, Honourable Minister for MSME, Government of TamilNadu.

On behalf of SVCE, **Dr.Sudhakar K Bharathan,Professor /EEE**, Dr.S.Illaiyavel ,Associate professor, Mr.V.Senthilvelan, Assistant professor / MEC , Dr.S.Stanly , Professor/ACH and Dr.C.Amudha Charu Sheela,Assistant professor/HSS attended the meeting. The team had interaction with Sivarajah Ramanathan, CEO and Mission Director, StartupTamilNadu, regarding the student and faculty startup in the college.
SVCE received Smartcard from the Mission Director, which can be utilized by the incubatees in SVCE to access the infrastructure and expertise available in the incubators across the state

PLACEMENT ACTIVITIES

Employability training for 1st year students

19th-24th February 2024



The placement Cell at SVCE organized a Soft skill (Employability) training program for six days for all the first year students to enhance the student's aptitude, verbal and logical reasoning skills in order to improve their chance of clearing the aptitude test during placements.

M/s Springboards conducted the training program for the batch. Students from the department of EEE actively participated in the training session.

PLACEMENT ACTIVITIES

Lecture on Sustainable development and energy from NUS

29th February 2024

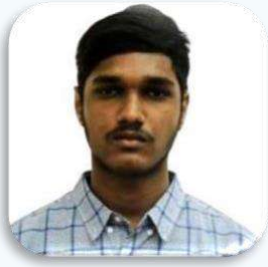
Faculty members from the National University of Singapore delivered a lecture to third-year students on the subject of "Sustainable development and energy" in higher education within Singapore.

PLACEMENT ACTIVITIES

The following final year students were placed
in the campus drive during the month of February 2024.

IMC ltd

JAGANATHAN K



SARAN PRASAANT T

RAGHUL

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