E-SANCHAR
2023-24

**Volume 4
Issue 1**
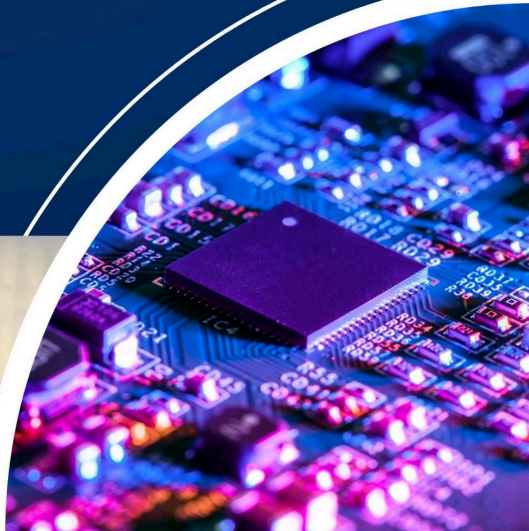
"Electronics and Telecommunication The Spark that Ignites the Future."

SIEM Sandip Foundation's

SANDIP INSTITUTE OF ENGINEERING AND MANAGEMENT

Approved by AICTE, New Delhi & Govt. of Maharashtra.
Affiliated to Savitribai Phule Pune University, Pune

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DEPARTMENT OF ELECTRONICS & TELECOMMUNICATION

•About SIEM•

Sandip Institute of Engineering and Management (SIEM) is located in the scenic, eco-friendly and conductive-to-study campus at an elevation off the Trimbak Road (Mahiravani, Nasik) leading to one of the twelve renowned pilgrimages of jyotirlingas known as Trimbakeshwar (abode of Lord Shiva) at the foot hills of Brahmagiri mountain ranges. SIEM is approved by All India Council for Technical Education, New Delhi Government of India and affiliated to Savitribai Phule University of Pune. SIEM is committed to imparting quality education in an atmosphere that will ensure that its students are confident, self motivated and industry-ready. Towards this goal, we are giving importance to qualified and experienced faculty for effective teaching-learning process, equipping our laboratories with best-in- class machines and instrument and developing overall personality of our students (with emphasis on strengthening the fundamentals of subjects, ability to work as a team and good communication skill). There is a well formulated regime with a blend of Theoretical learning and practical experience. This enables the faculty to guide the students to learn tomorrow, today.

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DEPARTMENT OF ELECTRONICS & TELECOMMUNICATION

•About Department•

Electronics & Telecommunication (E&TC) Engineering

The Electronics & Telecommunication (E&TC) Engineering Department at SIEM, affiliated with Savitribai Phule Pune University, Pune, sustains and strengthens its teaching and learning program by adopting a comprehensive student-centric approach. This approach is designed to add significant value to the learner in an integrated manner through conceptual and interactive teaching, active lab sessions, seminars, projects, and independent study. The department features state-of-the-art laboratories equipped with the latest technology and tools, allowing students to gain hands-on experience in various aspects of electronics and telecommunication engineering. Additionally, a strong emphasis is placed on research and development (R&D), encouraging students to explore new ideas, innovations, and technological advancements. Through various projects and research initiatives, students are nurtured to become future leaders in the field. The department also collaborates with leading companies and organizations in the electronics and telecommunication sectors to provide students with opportunities for internships, industrial visits, value added programs and guest lectures from industry experts. These interactions help students gain valuable insights into the industry and stay updated with the latest developments. Recognizing the importance of continuous growth and development, the department encourages its faculty members to attend workshops, seminars, conferences, and training programs for the continual upgrading of their knowledge and skills. The experienced faculty members are dedicated to nurturing the future technocrats of the nation, ensuring that students receive a well-rounded education that prepares them for the dynamic field of electronics and telecommunication engineering.

Editor-in-chief
Mr. Mosam K. Sangole

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Mr. Anuj Jayram Aher
Mr. Prashant Dattu Avhad

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DEPARTMENT OF ELECTRONICS & TELECOMMUNICATION

• Vision of the Institute •

We at SIEM aspire to be a globally recognized institute that delivers a world class education to outstanding intellectualsby nurturing and. grooming their interests, creative abilities and thrusts to acquire a life- long learning so as to imbibe values of their commitment towards society.

• Mission of the Institute •

We at SIEM shall strive continuously,
• To inculcate and imbibe knowledge of cutting-edge technologies and its implementation for solving real life problems in a conducive environment.
• To collaborate with national and international institutes/industries/ universities of repute for sustainable growth through team work.
• To motivate and retain highly skilled and knowledgeable individuals, whose creativity and interest in teaching upholds to achieve desired goals.
• To provide a dedicated platform to cater the needs of individuals and Inspire them for their intellectual growth and character building.
To enable the students to achieve excellence in the chosen fields and to share the responsibilities of citizenship and service in a disciplined manner

• Vision of the Department •

To excel in the field of Electronics and Telecommunication Engineering so as to create competent professionals focusing on the needs of industry and society with professional ethics.

• Mission of the Department •

M1.: To empower competent graduates for applying knowledge and skill sets to face global challenges and societal needs by achieving excellence in innovation.
M2:. To provide a platform for budding graduates to apply and solve real life problems using cutting edge technologies through their creative abilities aimed at fulfilling the needs of society and industry.
M3: To cultivate ethical values in graduates for their Internationalization.

Sandip Foundation was established in 2005 with a vision of creating an education system from which the leaders of tomorrow emerge. Since our inception we have been aware of our strengths, motives and goals which we have set out to achieve. When we embarked on this journey, all we had was a dream and the tools of foresight and strategy. We combined these forces to pave a path of growth towards excellence and merit. Today it is our endeavor to be the most competitive institution in the country with emphasis on efficiency in everyday operations, reliability for students and thrust on discovery and development of new technologies. We are an organization that combines the latest developments in the field of education with our scientific and operational skills to create an environment which nurtures and encourages the aspirations of students. It is our aim that the combination of these factors along with the state of the art infrastructure and a dedicated teaching staff will provide an impetus to the Indian educational system as a whole. Our first campus is set up at Nashik,

Maharashtra where the college building is spread across a 200 acre area. Keeping pace with the times, the campus is Wi-Fi enabled. To ensure the complete educational experience, laboratories with the latest tools and machinery are provided along with a comprehensive library with RFID technology, a computer centre with complete internet connectivity a wholesome cafeteria, all set up in a green environment to give our students the most healthy and pleasant experience as they embark and pursue their professional goals.

What does an International quality Education system consist of? That is the question we asked ourselves when we set out to build this Foundation. India as a country has no problem with unemployment but there are institutions which churn out a large number of unemployable students. Should we consider ourselves an exception to this? The search for the answer has resulted in the faculty and staff to come up with innovative methods in teaching to construct new knowledge in the classroom. Our motto is to always give our students the best of what is happening in and around so that they are always at the cutting edge of academics the world over

The cultural aspect has always been a strong-point of our College as it has an acknowledged role in molding the personality, teaching soft-skills, developing leadership and management abilities and strengthening the EQ. Extra-curricular activities, participation in sports and other cultural activities has now become universal contributing to all-round formation which is much needed in the world today. Finally we look to create an Alumnus for inspiration and support so that our students have wonderful role models to emulate. Our faculty and students remain focused on a quality of education that is not just a college degree but a way of life.

Dr. Sandipkumar Jha,
Hon'ble Chairman,
Sandip Foundation

Principal Message

Dear Students,

On behalf of the Management, Faculty and Staff of SIEM, it is an honor to welcome you to this prestigious institution. We at SIEM are strongly committed to provide quality technical education to our students. Now what does quality consist of? Is it mere state-of-the-art laboratories and a well-furnished classroom? Or does it also involve the proactive participation of teachers and students alike? These are some of the questions we asked ourselves before embarking on this journey. In the ensuing years, our Faculty took up this task seriously, of trying to understand what international quality means and of taking the effort to make this a reality. Of course, we laid emphasis on educational infrastructure with laboratories, libraries and other resources for teaching. Nevertheless, the core of our efforts centered on applying innovative methods to our teaching-learning and evaluation, in spite of the large numbers we deal with. If our students do not pick up the skills of analysis and critical thinking, all the memorization and reproduction they may achieve in this Institution will be in vain in the global culture and

economy. It is our belief that every student has an unending storehouse of talent and when nurtured properly, we can help bring out the best in that individual.

The approach of the Institution is holistic. It has called for learning methods that are more demanding on both the professor and the student. It has led to a renewed emphasis on research for faculty and on initiating a taste for research among students. The monitoring of this process by the Heads of the Departments and by the Academic Administrators, in order to encourage good practices and to evaluate their effectiveness, gives hope of a renewal of academic culture on campus. I want to congratulate you and wish you the best on this journey. It is our assurance that at SIEM you will emerge as tomorrow's leader, today

Dr. D. P. Patil,
Principal,
Sandip Institute of Engineering and Management

HOD Message
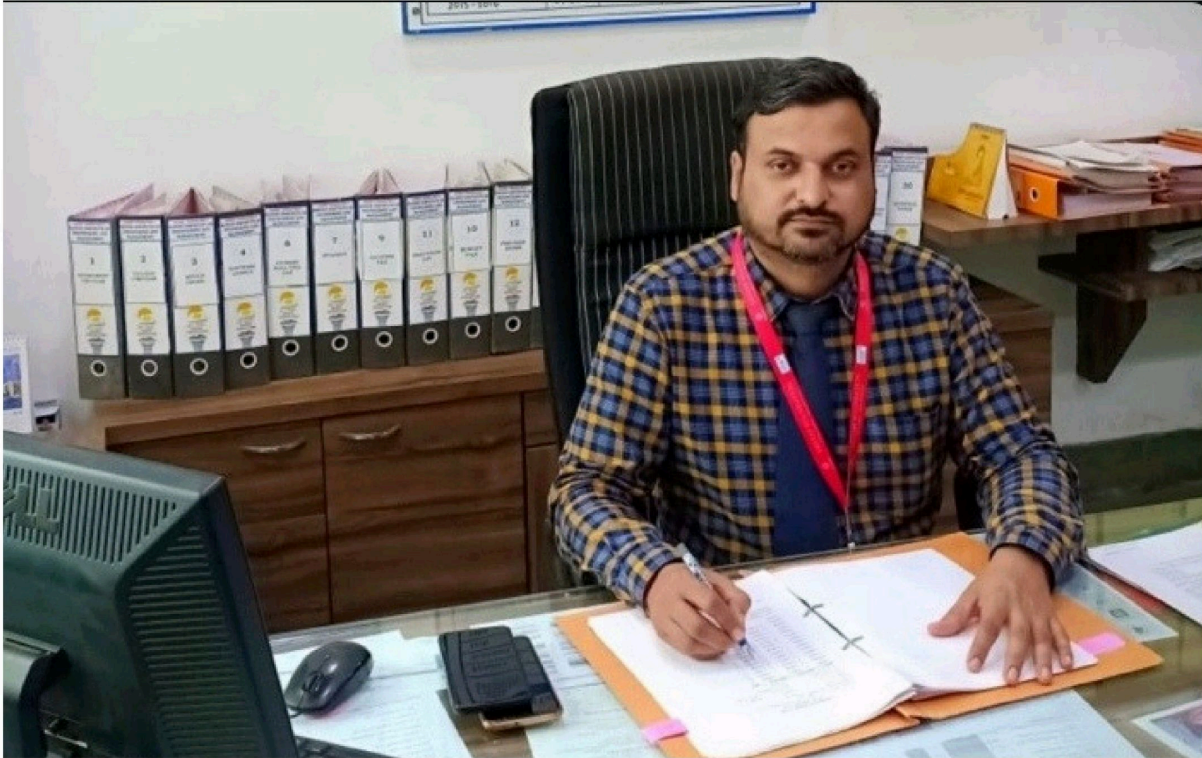
Electronics aims at making the life of human beings comfortable.Communication connects people and brings them together. The vast application of electronics and the rapid advancements in the field of communications makes the study of this branch a covered option. The department's teaching areas include network, microprocessor, communications, signal and image processing, pattern recognition, electronic circuits, system and control, electronics, VLSI, CAD, parallel and distributed processing and wireless communication. Keeping in line with fast changing technological developments, the department has well designed, laboratories with modern equipment like Spectrum Analyzer, Logic Analyzer, DSO and advanced software like Proteus, Cadence, to incorporate all advancements in existing and emerging technologies with state-of-the-art laboratories complement the high standards set by the competitive syllabus and nurture the inclination of the students towards research and development.

(Prof. Yogesh R. Risodkar)
Head (E&TC)

DEPARTMENT OF ELECTRONICS & TELECOMMUNICATION

TABLE CONTENT

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DEPARTMENT OF ELECTRONICS & TELECOMMUNICATION

Topic : **Embedded system**

~Anuj Aher (BE E & TC)

Embedded systems are specialized computing devices designed to perform specific tasks and are embedded in a variety of applications such as household appliances, automobiles, medical devices, and industrial machinery. Unlike general-purpose computers, embedded systems are optimized for a dedicated function and often operate under real-time constraints. These systems combine hardware, typically in the form of microcontrollers or microprocessors, with software (firmware) to execute specific tasks. Key characteristics of embedded systems include dedicated functionality, real-time operations, resource constraints (in terms of processing power, memory, and storage), reliability, and low power consumption, making them ideal for battery-powered devices.

The architecture of embedded systems comprises both hardware and software components. The hardware includes microcontrollers (MCUs), which combine the CPU, memory, and I/O interfaces, as well as various memory types (ROM, RAM, flash) for storing code and data. Peripherals such as sensors and actuators interact with the system, while communication interfaces like UART, SPI, and I2C enable external connectivity. On the software side, embedded systems typically run firmware, a low-level software that controls hardware directly, often with the support of a Real-Time Operating System (RTOS) for task management and real-time scheduling. Application software provides high-level functionality, and device drivers facilitate communication between hardware and software components.

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Topic : Internet of Things
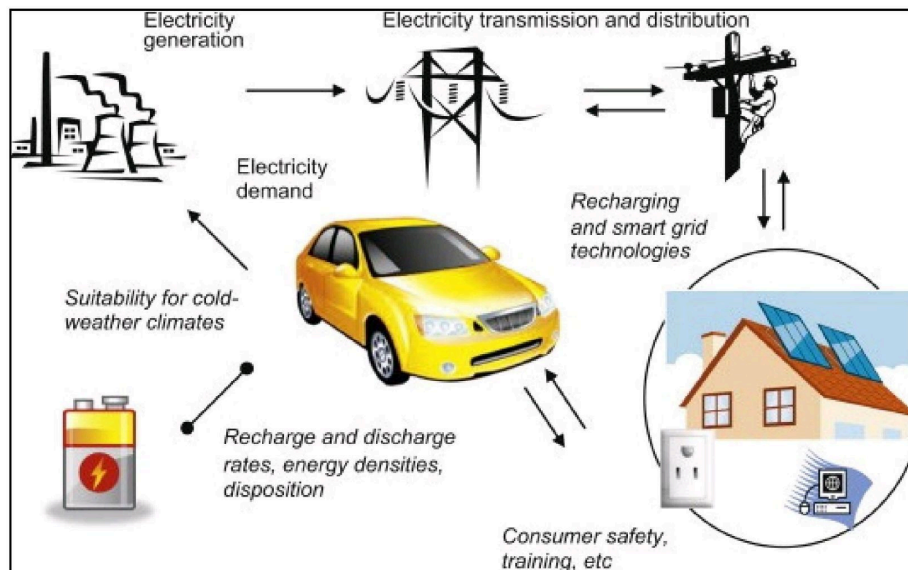
Pranav Chopade (BE E & TC)

The Internet of Things (IoT) is revolutionizing the way we interact with the world by connecting everyday objects to the internet, enabling them to collect, share, and act on data. IoT encompasses a vast range of applications, from smart homes where devices like thermostats, lighting, and security systems communicate to optimize energy use and enhance convenience, to industrial environments where IoT sensors monitor equipment performance and predict maintenance needs, improving efficiency and reducing downtime. At its core, IoT combines embedded systems, wireless communication, and cloud computing to create intelligent ecosystems where devices can operate autonomously or with minimal human intervention.

The key to IoT's success lies in its ability to gather real-time data through sensors and transmit it via protocols such as Wi-Fi, Bluetooth, Zigbee, and cellular networks. This data is then analyzed, often in the cloud, to derive insights that can trigger automated actions or provide users with valuable information. For instance, in agriculture, IoT sensors can monitor soil moisture levels and weather conditions, helping farmers optimize irrigation schedules. In healthcare, IoT-enabled devices like wearable fitness trackers or remote patient monitoring systems allow healthcare providers to gather data on a patient's condition, enabling better diagnosis and personalized care.

Despite its many benefits, IoT also presents significant challenges. Security is a major concern, as the increased connectivity of devices opens up new avenues for cyber-attacks. Protecting IoT networks from unauthorized access and data breaches is critical. Additionally, scalability is an issue, as the number of connected devices grows exponentially, placing greater demands on network infrastructure and data management.

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Topic : The Role of Electronics in the Electric Vehicle Revolution

~Mrs. Gauri Mishra (BE E & TC)

Electronics play a pivotal role in driving the electric vehicle (EV) revolution, enabling advancements in efficiency, performance, and sustainability. At the core of every EV is its battery management system (BMS), which relies on sophisticated electronics to monitor and optimize the performance of lithium-ion batteries, ensuring longer life cycles and safer operations. The powertrain, another essential electronic component, includes electric motors and inverters that convert electrical energy into motion, offering greater efficiency than traditional internal combustion engines. Additionally, electronics are responsible for the regenerative braking system, which captures and stores energy during braking to recharge the battery, further improving energy efficiency. Charging systems are also powered by electronics, with fast-charging technologies and wireless charging pads enhancing convenience and accessibility for EV owners. On a broader scale, smart electronics in EVs integrate connectivity features like real-time navigation, route optimization, and vehicle diagnostics, helping drivers manage battery life and find nearby charging stations. Moreover, electronics enable the integration of autonomous driving systems, with sensors, cameras, and AI-driven software working together to enhance safety and driving experiences.

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NEWSLETTER
September To November 2023

September 2023

5 September 2023
Teacher's Day

15 September 2023
Engineers Day

Teachers Day celebrated on 5th September 2023 to mark the birthday of the country's former president, scholar, philosopher and Bharat Ratna awarded Dr Sarvapalli radhakrishnan. During this event prof. Yogesh Risodkar Head of department addresses the students along with all the staff of Electronics and Telecommunications.

In the memory of sir Mokshagundam Visvesvaraya and contribution of Engineer's. In their field an Engineers Day in the Sandip Institute of Engineering and Management Department of electronics and Telecommunication on 15 September 2023. Heads of all Departments and teaching staff of E & TC

INDUSTRIAL VISIT

21 st Sept. 2023

Industrial Visit at ESMART ENERGY Solutions Ltd. Nashik

25 th Sept. 2023

Industrial Visit At Namatronics Nashik

Nashik, Maharashtra, India
XPWH+QJ7, MIDC, Satpur Colony, Nashik, Maharashtra 422007
Lat 19.997001°

An Industrial Visit of Final year E & TC students organized at ESMART ENERGY Solutions Pvt. Ltd. Nashik objective of this visit was to get practical exposure of different LED lights manufacturing techniques and assembly process.Students of Finall year E & TC learned about the process of LED lights manufacturing and assembly

Student can learn detailed manufacturing process of Flood light, Street Light, LED Drives, LED Lighting street Lamps etc.Student can get knowledge about a voltage and current Controlled. Student get understand that how to start sole proprietorship based firm. To get importance of practical explore and real word Industries.

15-09-2023

Name of Event: Industrial Visit at Siddhi Equipment's Nasik
Date -15-09-2023 Time 10:30 AM to 3.00 PM

Students of Second Year E & TC have visited at Siddhi Equipment's Nasik. They have learned about Various Security Appliances Such as Metal Detector, Security Gate etc.total Number of students: 49 with two staff members.

Participants Students of 2nd year E&TC Engineering, SIEM
Name of Faculty Coordinator: Prof. Amit Mishra and Mr Sagar Shirude
Learning Objectives: Participants will get exposure about Various Security Appliances Such as Metal Detector, Security Gate
etc.

Project Achievements

September 2023

KPIT Sparkle 2023

Engineers Day project nd Start-up

KPIT SPARKLE 2023 :

Organized By : KPIT Technologies, Pune.

Project Title : E-Hydra

Project Mentor : Prof. Y.R.Risodkar, Prof. M.K.Sangole, Prof. B.D.Deore and Industry

Mentors from KPIT, Pune

Description : A Hybrid Auto Rickshaw as a prototype Developed with a hybrid system of battery and Hydrogen Fuel Cell. The HHO kit is additionally implemented for improving the system performance. The MATLAB based Simulation for Fuel Cell and complete system validation done under the guidance of Mentor Prof. Y.R. Risodkar and Industry Mentors from KPIT.

Engineers day Project and startup Comp.

Date: September 2023

Event Name:- Engineers day

Organized by :- Pune university

Prize:- Special Prize in Project

Avishkar 2024

AVISHKAR 2024

Organized by : SPPU, Pune

Project Title : E Vaidya, E Hydra

Project Mentor : Prof. Y.R.Risodkar

Description : E&TC Students participated in AVISHKAR 2024, a competition organized by SPPU Pune. Students had submitted the innovative concept of utilizing wheel chairs with PSA systems and sensors to help the patients in pandemic. The system has features of sensing the patient's data for ecg, O2 level measurement, etc and uplading the same on cloud with IoT system.

Outcome :

1. Qualified at zonal Level Round and got selected in the final round at SPPU campus for statee Level presentation.

2. Appreciated by various Jury members and SPPU VC, Pro-VC for providing a quality solution with social impact.

3. NGOs and Doctors discussed the project details and offered possible help in more

YI- IDS 2023

YI IDS
Organized by : Young Indians
Innovation
Project Title : E Vaidya
Prize: Rs. 1,00,000/-

Laghu Udyog Bharati

23 Sept 2023
Laghu Udyog Bharati
Organized by : Laghu Udyog Bharti, Nashik
Project Title : E Vaidya
Prize: RS.5000/-

NEP 2020- Akhil Bhatiya Shiksha Samagam, Pragati Maidan
Organized By: Ministry of Education, New Dekhi.
Project Title: E-Vaidya
Description: The opportunity was provided for the students to showcase the
innovative cncepts in NEP 2020- Akhil Bhatiya Shiksha Samagam, at
Pragati Maidan, New Delhi.
Outcome:
1. Students witnessed the various innovative project Concepts at the event.
2. The financial grant received for Too and Fro Airfare and Logistic
expenses.

KPIT Sparkle 2024

Organized By : KPIT Technologies, Pune.
Project Title : Zero Hydrogen Fuel Cell Bike: Reimagine Cycling with the innovation of
Fuel Cell Tech Team Name: ZERO
Project Mentor : Prof. Y.R.Risodkar, Dr. D.P.Patil and Industry Mentors from KPIT,
Description : Riding a Hydrogen Fuel Cell bike is the best way to stand out from the
crowd and getnoticed. Zero is a futuristic looking electric bicycle powered by hydrogen. The MATLAB based Simulation for Fuel Cell and complete system validation done
under the guidance of Mentor Prof. Y.R. Risodkar and Industry Mentors from KPIT.
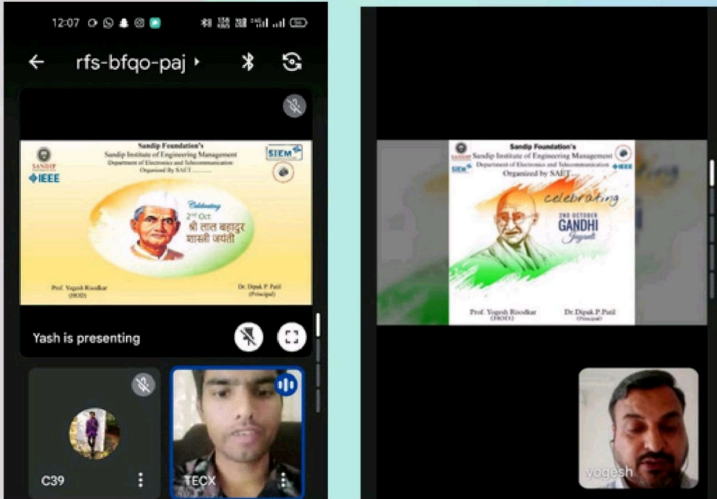
Outcome :

1. Qualified in Round 1, Round 2 and listed in final Top 24 Projects.
2. Opportunity to participate in the Finale scheduled in the month of March 24.
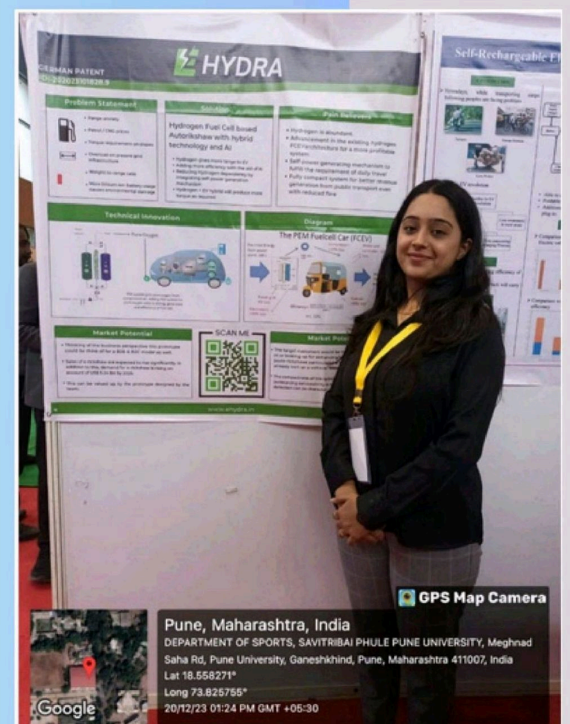
Events

Gandhi Jayanti

2 October 2023

The Department of Electronics and Telecommunications and the SAET Committee organised the celebrated on 2nd October, commemorates the birthday of Mahatma Gandhi, a leader in India's independence movement. The day is significant for honoring Gandhi's life and principles, promoting his ideals of non-violence and civil disobedience, and advocating for peaceful resistance. In that we conducted a online Google meet of students and we also take the quiz competition and distribute the prizes to winners.& We are also celebrated the birth anniversary of lal bahadur shastri and students give speechesin front of all students nd staff

Ganesh murti saklan

28 September 2023

Collecting Ganesh murtis allows individuals to appreciate and celebrate Hindu culture and traditions associated with the deity.Proper storage protects the murti from dust, moisture, and damage, preserving its integrity and aesthetics It demonstrates reverence towards the deity by ensuring the murti is kept in a clean and sacred space when not in use.Thats why the committee members and college students are collecting the ganesh murti properly.

Cloth Donation Camp

We all know that By donating old clothes instead of throwing them away, they help conserve the earth's resources and prevent adding unnecessary carbon dioxide to the atmosphere. Plus, many charitable organizations recycle a lot of used clothing items, too, so they can use it again to create new clothing pieces. So our department nss students decided that we can arrange cloth donation camp every year this camp is arranged to help the poor peoples

Republic Day

India is commemorating its 75th Republic Day on 26 January 2024. Being the 75th anniversary of Republic Day, it is going to be an additional special day. The occasions are deliberate, and the issues are based upon a promise to be a grand celebration of the country's progress, democracy, and rich cultural background on the occasion of republic day we are organising a poster competition and the topic is india future in 2047.

DEPARTMENT OF ELECTRONICS & TELECOMMUNICATION

• Team Newsletter •

Editor And Incharge of E-News letter

(Prof. Yogesh R. Risodkar)
Head (E&TC)

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Mr.Karan Uagle
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