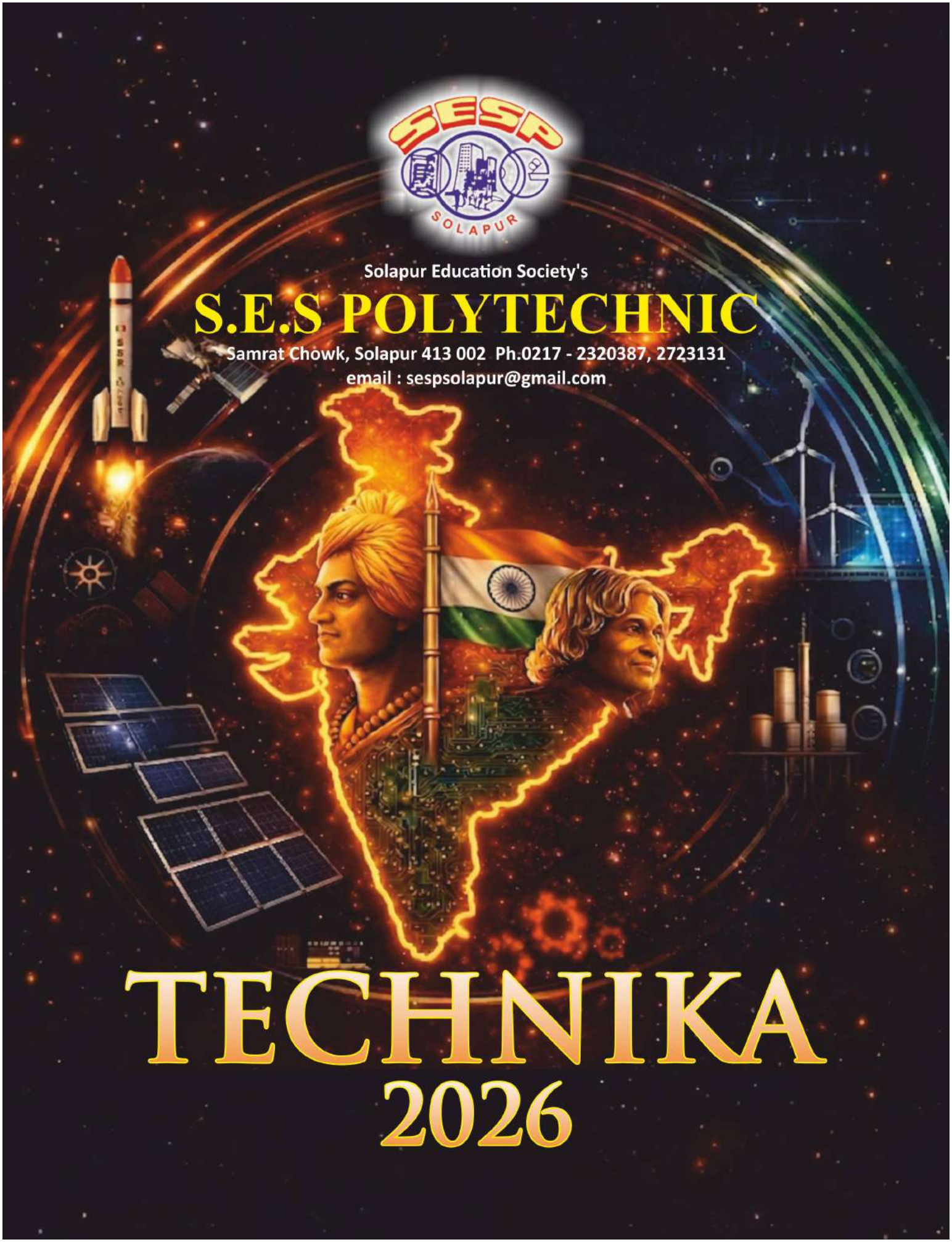

SESP
SOLAPUR
Solapur Education Society's
S.E.S POLYTECHNIC
Samrat Chowk, Solapur 413 002 Ph.0217 - 2320387, 2723131
email : sespsolapur@gmail.com
TECHNIKA
2026

Inauguration of Blood Donation camp & Hemoglobin Checkup For women Conducted in Institute 52 student donated Blood & 300 Students checked the Hemoglobin Camp organized by Dr.Hedgevar Rakpedhi & Bharat Vikas Parishad Solapur
Present Dignitaries & Staff

"Courtesy visit of Shri Sunil P. Date Sir, Assistant Director, Directorate of Technical Education, Regional Office Pune, to S.E.S. Polytechnic, Solapur."

"Felicitation of Mr. Kishor Chandak Institute Member for being honored as 'Utkrusht Tikit Sangrahak'.

"Miss Ovi Shinde secured Third Prize of 25000/- in National Level Krida Dnyan Examination."

Solapur Education Society's

S.E.S POLYTECHNIC

Samrat Chowk, Solapur 413 002
Ph.0217 - 2320387, 2723131
Email : sespsolapur@gmail.com

Technika - 2026

वार्षिकांक समिती

चेअरमन
श्री ए.ए.भावठनकर
(प्राचार्य)

मुख्य संपादक
श्री व्ही व्ही बायस
(वर्कशॉप अधिक्षक)

*** समिती सदस्य ***

प्रा.श्री.ओ.ए.विधाते	प्रा.एस.एन.सिध्दूल	प्रा.ए.एस.चंदनशिवे
प्रा.सौ.आर.आर.राजमाने	प्रा.मिस के एम शेख	प्रा.एस.बी.कपाळे
प्रा.सौ.एस.आर.हंचाटे	प्रा.एन.एन.येमूल	प्रा.एस.एस.घेराडे
प्रा.सौ.डी.जे.त्रिगुळे	प्रा.एस.आर.शिंदे	प्रा.सौ.आर.बी.कत्राबाद

Solapur Education Society's

S.E.S POLYTECHNIC

Samrat Chowk, Solapur 413 002
Ph.0217 - 2320387, 2723131
Email : sespsolapur@gmail.com

The Institute conducts three years Diploma Courses in Engineering & Technology is awarded by Maharshtra State Board of Technical Education Mumbai - 400 051

Sr.No.	Course	Course Code	Intake
01	Computer Technology	CM	120
02	Electronics & Telecommunication Engineering	EJ	60
03	Mechanical Engineering	ME	60
04	Civil Engineering	CE	60
05	Electrical Engineering	EE	60
	Total		360

Prof.A.A.Bhavtankar
Principal

Adv.V.B.Marathe
Secretary

CA Vijay Javalgekar
Vice Chairman

INDEX

INDEX

INDEX

।। भावपूर्ण श्रध्दांजली ।।

सोलापूर एज्युकेशनचे सोसायटीचे चेअरमन

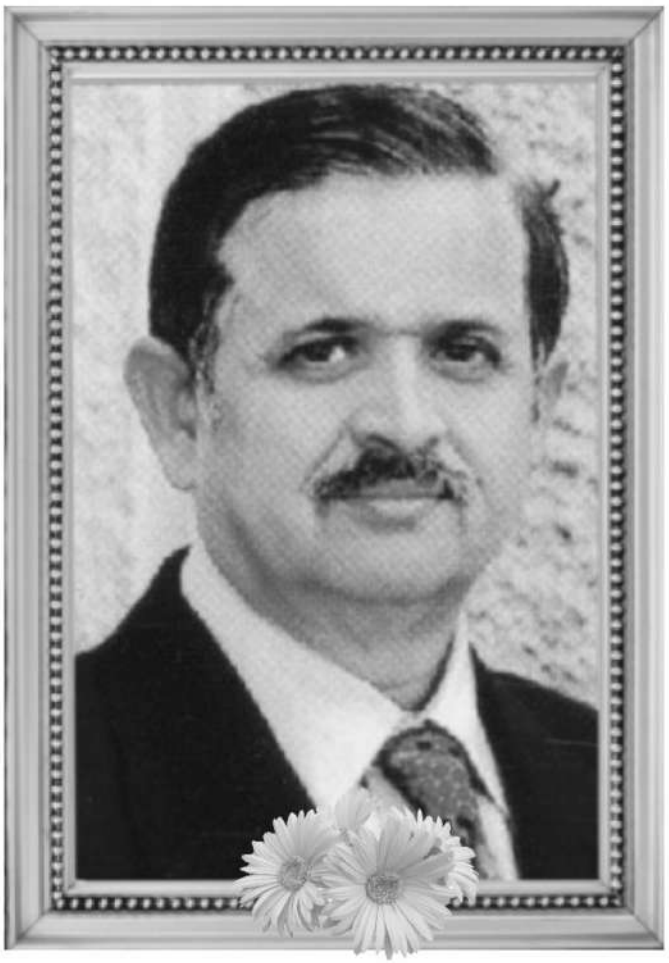
स्व.जयंत वासुदेव आराध्ये

यांना

एस.ई.एस.परिवारातर्फे

विनम्र अभिवादन

।। भावपूर्ण श्रद्धांजली ।।



सोलापूर एज्युकेशनचे सोसायटीचे उपाध्यक्ष

स्व.डॉ.सतीश वळसंगकर

यांना

एस.ई.एस.परिवारातर्फे

विनम्र अभिवादन

Institute Vision & Mission

VISION

- To provide quality technical education relevant to modern needs and to build overall character of student community.

MISSION

- To impart technical knowledge through modern teaching methodology and well equipped laboratories.
- To update knowledge of students by providing useful learning resources.
- To organize various training programs for the students to fulfill the needs of industry and society.
- To facilitate the development of student's attitude and behaviour through co-curricular and extracurricular activities.

Civil Engineering Department

VISION

- To impart quality education to make students technically sound in the field of Civil Engineering.

MISSION

- To develop awareness among students about latest trends and technologies and help them to prepare for the same.
- To impart practical skills by providing field exposure.
- To develop the personality of the students through co-curricular and extracurricular activities.

Computer Technology Department

VISION

- To nurture students with strong technical skills and ethics to become computer professionals so as to cope up with changing industry environment.

MISSION

- To develop awareness among students about latest trends and technologies and help them to prepare for the same.
- To motivate students by providing opportunities for developing entrepreneurial and leadership skills.
- To inculcate strong ethics, social awareness and responsibility in students to serve society and protect environment.
- To develop personality of students through co-curricular & extra-curricular activities.

Electrical Engineering Department

VISION

- To provide quality technical education to enhance the employability and entrepreneurial skill.

MISSION

- To impart theoretical knowledge to the students as per industry needs.
- To develop practical skills through continuous improvement of laboratories.
- To develop overall personality of students through extra-curricular activities and technical events.

Electronics & Telecommunication Department

VISION

- To provide quality technical education to enhance the employability and entrepreneurial skill.

MISSION

- To impart theoretical knowledge to the students as per industry needs.
- To develop practical skills through continuous improvement of laboratories.
- To develop overall personality of students through extra-curricular activities and technical events.

Mechanical Department

VISION

- To provide highly competent, efficient technocrat to meet the ever changing needs of Mechanical industry and society.

MISSION

- To provide technical knowledge for achieving academic excellence.
- To enhance various technical skills to fulfil needs of industry and society.
- To facilitate development of entrepreneurship skill in students Community.

सोलापूर एज्युकेशन सोसायटी संचलित

एस.ई.एस.पॉलिटेक्निक, सोलापूर

संचालक मंडळ

अध्यक्ष

श्री रणजितभाई देसाई

उपाध्यक्ष

डॉ.सतिश परशुरामी

व्हा.चेअरमन

श्री विजय जवळगेकर (सी.ए.)

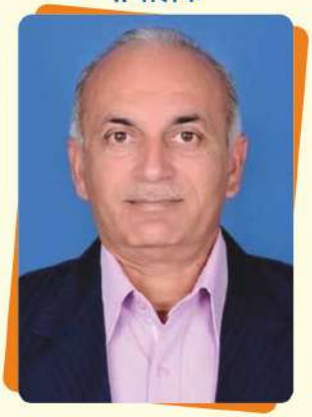
सेक्रेटरी

ॲड. विजय मराठे

संचालक

श्री प्रशांत देगावकर

संचालक



श्री राजीव देसाई

संचालक

श्री उमेश मराठे

संचालक

श्री मयुर करवा

चंडक ट्रस्ट प्रतिनीधी

श्री किशोर चंडक

निमंत्रित सदस्य

श्री दत्तात्रय सुरवसे

मनोगत

ॲड. विजय भा.मराठे
माननीय सचिव
सोलापूर एज्युकेशन सोसायटी,
सोलापूर

सी.ए.विजय जवळगेकर
माननीय व्हा.चेअरमन
सोलापूर एज्युकेशन सोसायटी,
सोलापूर

शैक्षणिक क्षेत्रात नावलौकिक मिळिवलेली सोलापूर एज्युकेशन सोसायटी ही एक जुनी व नावाजलेली संस्था आहे. या संस्थेमार्फत सध्या चालविलेल्या जाणाऱ्या प्राथमिक व माध्यमिक शाळा सोबतच कनिष्ठ महाविद्यालय, आर्किटेक्ट महाविद्यालय आणि एस. ई. एस तंत्रनिकेतनने अल्पावधीतच उत्तुंग भरारी घेतली आहे. औपचारिक शिक्षणाबरोबरच विद्यार्थ्यांना विविध क्षेत्रात कार्यकुशल आणि पारंगत करण्याचा आमचा मानस आहे. विद्यार्थ्यांना दर्जेदार आणि उत्तम शैक्षणिक सुविधा मिळाव्यात म्हणून संचालक मंडळ सतत प्रयत्नशील आहे. उत्तरोत्तर वाढत जाणारे संस्थेचे निकाल, औद्योगिक, शैक्षणिक, व सामाजिक क्षेत्रात आमच्या विद्यार्थ्यांनी दाखविलेली उच्च गुणवत्ता हे त्याचेच फलित आहे.

विद्यार्थ्यांच्या सर्वांगिण विकासासाठी संस्थेमार्फत विविध उपक्रम राबविले जातात. रक्तदान, वृक्षारोपण, अन्नदान, स्वच्छता अभियान, रस्ता सुरक्षा सप्ताह, विज्ञान प्रदर्शन या सारख्या उपक्रमातुन सामाजिक बांधिलकी जोपासण्याचा आमचा प्रयत्न आहे. अत्याधुनिक उपकरणे, नव-नवीन संगणक प्रणाली, शुद्ध पाणी पुरवठा, सुसज्ज ग्रंथालय, सी.सी.टी.व्ही कॅमेरे, विद्यार्थी वाहतुक व्यवस्था, इ. बाबींनी संस्थेचा परिसर समृद्ध झाला आहे.

आमच्या विद्यार्थ्यांनी प्रती वर्षाप्रमाणे परिक्षेत उज्वल यश संपादन केले आहे, विविध क्रिडा स्पर्धेत नैपुण्य मिळिवले आहे. संस्थेतील अनेक प्राध्यापकांनी राष्ट्रीय व आंतरराष्ट्रीय स्तरांवर संशोधनातील शोधनिबंध सादर केले आहेत. त्यासाठी संस्थेतील सर्व कर्मचारी कौतुकास पात्र आहेत. संचालक मंडळाचे सर्व सदस्य आणि कर्मचाऱ्यांच्या सहकार्यामुळेच संस्थेची ही गगनभरारी शक्य झालेली आहे. यासर्वांच्या सहकार्याने संस्था पुढील वाटचाल करीत आहे. विद्यार्थ्यांच्या भावी आयुष्यासाठी शुभेच्छा !

संचालक मंडळ
सोलापूर एज्युकेशन सोसायटी, सोलापूर

प्राचार्य मनोगत

सप्रेम नमस्कार,

विद्यार्थ्यांमध्ये दडलेल्या कलागुणांना वाव देण्यासाठी या वार्षिकांकाची निर्मिती केली आहे. आमच्या विद्यार्थ्यांची शैक्षणिक क्षेत्रातील प्रगती अतिशय उल्लेखनीय आहे. त्याचबरोबर आमचे विद्यार्थी शैक्षणिक व सामाजिक बांधिलकी म्हणून वृक्षारोपण, रक्तदान, स्वच्छता अभियान, अन्नदान आदी उपक्रमात सहभागी होतात. त्याचबरोबर विविध क्रिडा स्पर्धेत विद्यार्थ्यांनी उत्तुंग यश मिळिवलेले आहे. तांत्रिक क्षेत्र पादाक्रांत करतांना आपल्या मातीशी नाळ तुटू नये म्हणूनच विद्यार्थ्यांच्या सर्वांगिण विकासासाठी करीत असलेल्या अनेक प्रयत्नापैकी एक छोटासा प्रयत्न म्हणजेच हा वार्षिकांक....!

विद्यार्थ्यांच्या कला गुणांना वाव देण्यासाठी त्यांना एक व्यासपीठ मिळावे म्हणून आम्ही हा वार्षिकांक प्रतिवर्षाप्रमाणे आपल्या समोर आणत आहोत. या वार्षिकांकाच्या माध्यमातून विद्यार्थ्यांनी सादर केलेले शैक्षणिक व तांत्रिक लेख आपल्या कौतुकास पात्र ठरतील अशी मला आशा आहे.

प्राचार्य
श्री.अतुल भावटणकर
एस.ई.एस. तंत्रनिकेतन सोलापूर

उपप्राचार्य मनोगत

प्रिय विद्यार्थी मित्रांनो,

सहकारी अध्यापकवृंद व पालकहो,

आमच्या तांत्रिक वार्षिक मासिकाच्या या अंकाद्वारे आपल्याशी संवाद साधताना मला अतिशय आनंद व अभिमान वाटतो. हे मासिक केवळ लेखांचा संग्रह नसून आपल्या संस्थेतील तांत्रिक प्रगती, सर्जनशीलता आणि मूल्याधिष्ठित शिक्षण यांचे जिवंत प्रतिबिंब आहे. आजची औद्योगिक व तांत्रिक दुनिया झपाट्याने बदलत आहे आणि डिप्लोमा अभियांत्रिकी विद्यार्थ्यांवर कौशल्यसंपन्न व जबाबदार तंत्रज्ञ म्हणून समाजात योगदान देण्याची मोठी जबाबदारी आहे. अभ्यासक्रमासोबत प्रकल्प, इंटर्नशिप, स्टार्टअप उपक्रम, नवनवीन तांत्रिक स्पर्धा आणि सामाजिक बांधिलकीची कामे यामधून तुम्ही सर्व ज्या पद्धतीने सहभाग नोंदवत आहात, त्यातून तुमची जिज्ञासा, मेहनत आणि नवोन्मेषी वृत्ती स्पष्टपणे दिसून येते.

आपल्या विभागातील शिक्षकवृंद व तांत्रिक सहाय्यक सातत्याने मार्गदर्शन करून विद्यार्थ्यांना आधुनिक तंत्रज्ञान, उद्योगमानक सॉफ्टवेअर व साधनांचा वापर, तसेच नैतिक मूल्ये यांचा समतोल साधण्यास प्रोत्साहन देत आहेत. या माध्यमातून 'कौशल्य, चारित्र्य आणि समाजाभिमुख दृष्टीकोन' असलेला तंत्रज्ञ घडवण्याचा आमचा ध्यास आहे.

या वार्षिक तांत्रिक मासिकाच्या संपादक मंडळाचे, सर्व विभागप्रमुखांचे, तसेच लेखन, रेखाटन, डिझाईन, डेटा संकलन आणि संपादनात योगदान देणाऱ्या सर्व विद्यार्थी मित्रांचे मी मनःपूर्वक अभिनंदन करतो. आपण सर्वांच्या एकत्रित प्रयत्नांमुळेच हे मासिक दर्जेदार, समृद्ध आणि प्रेरणादायी स्वरूपात आपल्यासमोर येत आहे.

विद्यार्थी मित्रांनो, नेहमी लक्षात ठेवा – 'शिकण्याची प्रक्रिया कधीच थांबत नाही; ती आयुष्यभर चालणारी यात्रा आहे' तांत्रिक कौशल्याबरोबर संवादकौशल्य, संघभावना, समस्यांचे सुयोग्य निराकरण आणि सामाजिक जबाबदारी या गुणांचा सातत्याने विकास करा; भविष्यात तुम्ही केवळ चांगले अभियंता नव्हे, तर चांगले नागरिक आणि नेतृत्व करणारे व्यक्तिमत्त्व म्हणून देशाच्या प्रगतीत मोलाचे योगदान द्याल, असा मला ठाम विश्वास आहे.

आपल्या सर्वांना उज्ज्वल, समृद्ध आणि मूल्यसमृद्ध भविष्यासाठी हार्दिक शुभेच्छा.

उपप्राचार्य
श्री. महेश पाटील
एस.ई.एस. तंत्रनिकेतन सोलापूर

संपादकीय मनोगत...

प्रा. व्ही. व्ही. बायस
वर्कशॉप अधिक्षक
एस. ई. एस. तंत्रनिकेतन सोलापूर

सप्रेम नमस्कार,

एस. ई. एस तंत्रनिकेतनचा २३ वा वार्षिकांक टेक्नीका २०२६ आपल्या हाती सुपुर्द करतांना मनस्वी आनंद होत आहे. विद्यार्थ्यांमध्ये लेखन संस्कार रुजविण्यासाठी, त्यांची सृजनशिलता, संशोधन वृत्ती बुध्दिंगत करण्यासाठी आणि त्यांच्या कलागुणांना उत्तेजन देण्यासाठी सुरु केलेल्या या तांत्रिक उपक्रमाला विद्यार्थ्यांकडून अभूतपूर्व प्रतिसाद मिळाला आहे. आमच्या विद्यार्थी मित्रांनी सादर केलेल्या या प्रतिमेला आपण सर्व रसिक मनमुराद दाद द्याल. ह्या अपेक्षेने हा वार्षिकांक आपणांस सविनय सादर.

संस्थेचे व्हा.चेअरमन सी.ए. मा.श्री.विजय जवळगेकर, सचिव मा. ॲड. विजय मराठे, प्राचार्य श्री. ए. ए. भावटणकर, उपप्राचार्य श्री.एम.सी.पाटील या सर्वांची प्रेरणा व मार्गदर्शन हेच या अंक निर्मितीचे प्रमुख कारण आहे. माझे सर्व सहकारी, विभाग प्रमुख, विद्यार्थी प्रतिनिधी यांच्या सहकार्यामुळेच हे शिवधनुष्य पेलणे सोपे झाले. या सर्वांचा मी ऋणी आहे. हा अंक सर्वांग सुंदर करण्यासाठी वार्षिकांकाचे सर्व सदस्य, विभाग प्रमुख यांचे मोलाचे सहकार्य लाभले. या सर्वांच मनःपूर्वक आभार....।

संपादक
प्रा. व्ही. व्ही. बायस
वर्कशॉप अधिक्षक
एस. ई. एस. तंत्रनिकेतन सोलापूर

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Students Placed at various companies in Academic Year 2025-26 along with Principal, Vice Principal, HOD's and T&P Cell Members.

GE Aerospace, Bengaluru, Precision Camshafts Ltd., Solapur, TATA Motors Pvt. Ltd., Pune, K D Aher Building Systems Pvt. Ltd., Pune, KSPG Automotive Ltd, Pune, Johndeere India Pvt. Ltd, Pune, Epiroc Mining India Pvt. Ltd. Nashik, Bosch Chassis Systems India Pvt. Ltd., Pune and SPM Autocomp Systems Pvt. Ltd., Pune., Larsen & Toubro Ltd. Mumbai.

Rankers 2025

CIVIL ENGINEERING DEPARTMENT

1st YEAR

1st — Mr. Salunkhe Vinay M. — 77.94%

2nd — Mr. Kurapati Aditya V. — 76.34%

3rd — Mr. Balpure Vyankatraman D. — 76.17%

2nd YEAR

1st — Mr. Devraj Sidral P. — 83.25%

2nd — Mr. Sarangi Aditya K. — 75.71%

3rd — Mr. Vallal Pranay P. — 74.68%

3rd YEAR

1st — Mr. Manure Samarth C — 91.26%

2nd — Mr. Ansari MD S.H MD.M. — 88.63%

3rd — Mr. Raghavendra Gajjam — 86.15%

Rankers 2025

COMPUTER TECHNOLOGY DEPARTMENT

1st YEAR

1st — Habbu Shreeya Nagesh — 91.76%

2nd — Madagundi Asmita Dipak — 90.59%

3rd — Kota Laxmi Laxminarayan — 90.35%

2nd YEAR

1st — Subhedar Amina Abid — 92.53%

2nd — Kenchi Vaishnavi Rajesh — 92.06%

3rd — Hatte Kaushik Vijaykumar — 91.35%

3rd YEAR

1st — Kulkarni Aditi Vijay — 94.40%

2nd — Baodhankar Atharv Anant — 92.69%

3rd — Pawar Tanaya Pandurang — 90.00%

Rankers 2025

ELECTRICAL ENGINEERING DEPARTMENT

1st YEAR

1st — Shravani Ambadas Devsani — 75.70%

2nd — Ranjana Raju Amrutam — 74.35%

3rd — Ravishankar Andappa Mulage — 73.23%

2nd YEAR

1st — Mohit Babu Tati — 82.23%

2nd — Radha Prakash Mashale — 79.23%

3rd — Shirisha Govind Gundla — 77.76%

3rd YEAR

1st — Pradnya Anil Chandanshive — 88.22%

2nd — Bhagyashri Ambadas Kandul — 87.61%

3rd — Khushi Natwar Dayma — 85.50%

Rankers 2025

ELECTRONICS & TELECOMMUNICATION DEPARTMENT

1st YEAR

1st — Ms. Nandini Konda — 86.35%

2nd — Mr. Devendra Dantkale — 79.41%

3rd — Mr. Navnit Paskanti — 79.35%

2nd YEAR

1st — Ms. Potabatti Nayana — 84.66%

2nd — Ms. Yangaldas Suman — 84.27%

3rd — Ms. Ambekar Akanksha — 83.22%

3rd YEAR

1st — Mr. Suryawanshi Jay — 89.24%

2nd — Mr. Lokhande Sarthak — 86.47%

3rd — Ms. Vernekar Kavya — 83.12%

Rankers 2025

MECHANICAL DEPARTMENT

1st YEAR

1st — Miss. Janjiral Bhumika Shriniwas — 82.34%

2nd — Mr. Havgol Samarth Sunil — 77.75%

3rd — Mr. Ganapa Hariprasad Amarnath — 77.05%

2nd YEAR

1st — Mr. Hiroli Yogiraj Basavraj — 86.22%

2nd — Mr. Sutrave Gururaj Amol — 81.66%

3rd — Mr. Sarwade Prajwal Jeevan — 80.17%

3rd YEAR

1st — Mr. Yannam Chetan Nagesh — 85.94%

2nd — Mr. Bhawadhankar Suraj Prashant — 83.11%

3rd — Miss. Bansode Manisha Masa — 80.08%

Sustainable Energy : Powering the Future Responsibly

A Path Towards Environmental Protection, Energy Security & Sustainable Development

Mr. Sarangi Aditya K.
Civil Engineering 3rd Year

" The greatest threat to our planet is the belief that someone else will save it."

Introduction : Energy plays a fundamental role in the development of modern society. Every sector of human life—transportation, industries, agriculture, communication, and residential living—depends heavily on energy resources. For decades, the world has relied primarily on conventional sources of energy such as coal, petroleum, and natural gas. These fossil fuels have supported industrial growth and technological progress, but their excessive use has resulted in serious environmental and economic challenges.

In recent years, global energy demand has increased rapidly due to population growth, urbanization, and industrial expansion. At the same time, the harmful impacts of fossil fuels, including air pollution, global warming, and resource depletion, have become increasingly evident. These challenges highlight the urgent need for sustainable energy solutions.

Understanding Sustainable Energy : Sustainable energy refers to energy sources that are renewable, environmentally friendly, and capable of meeting present energy requirements without compromising the ability of future generations to meet their own needs. These sources are naturally replenished and produce minimal greenhouse gas emissions compared to conventional fossil fuels.

Major renewable energy sources include:

Solar Energy
Wind Energy
Hydropower
Biomass Energy
Geothermal Energy

Why Sustainable Energy is Important : One of the most significant benefits of sustainable energy is environmental protection. Renewable energy sources generate little or no greenhouse gas emissions, helping reduce climate change and air pollution.

Sustainable energy also improves energy security. Countries that rely heavily on imported fossil fuels can reduce economic risks by producing electricity locally through renewable sources.

The renewable energy sector also promotes economic growth by creating employment opportunities in engineering, manufacturing, installation, research, and maintenance.

Major Sources of Sustainable Energy

Solar Energy : Solar energy is one of the most abundant renewable energy sources. Solar panels convert sunlight into electricity using photovoltaic technology. Rooftop solar systems and solar farms are becoming increasingly popular worldwide.

Wind Energy: Wind turbines convert the kinetic energy of moving air into electricity. Large wind farms are commonly installed in coastal areas and open plains where wind speeds are high.

Hydropower : Hydropower generates electricity using the energy of flowing water. Large dams as well as small hydro projects contribute to renewable electricity production.

Biomass Energy : Biomass energy is produced from organic materials such as agricultural waste, wood, and animal waste. These materials can be converted into biofuels or used for heat and electricity generation.

Sustainable Energy in India : India has immense potential for renewable energy generation, particularly solar and wind energy. Government initiatives such as the National Solar Mission aim to increase the share of renewable energy in the country's electricity generation.

Large solar parks, wind farms, and rooftop solar systems are being developed across several states. These initiatives help reduce carbon emissions and promote sustainable development.

Challenges in Implementing Sustainable Energy : The initial installation cost of renewable energy systems can be high. Solar panels, wind turbines, and energy storage technologies require significant capital investment.

Another challenge is the intermittent nature of renewable energy sources. Solar energy depends on sunlight and wind energy depends on wind availability. Therefore, energy storage systems and smart grid technologies are essential for maintaining a stable electricity supply.

Role of Engineers and Students : Engineers play a crucial role in developing sustainable energy infrastructure. Civil engineers are involved in the construction of hydroelectric dams, wind turbine foundations, solar parks, and other renewable energy facilities.

Students and young innovators must actively participate in developing energy-efficient technologies and promoting environmental awareness. Educational institutions play a key role in shaping a sustainable future.

Conclusion : Sustainable energy is essential for ensuring a cleaner and more secure future. By reducing dependence on fossil fuels and promoting renewable energy sources, society can protect the environment while supporting economic development.

The transition to sustainable energy is not only an environmental necessity but also a responsibility towards future generations.

AI Revolution in Civil Engineering How Intelligent Technology is Transforming the Future of Infrastructure

Sidral Devraj Prakash
Civil Engineering 3rd Year

"Artificial Intelligence is not replacing engineers it is empowering them to build smarter and safer infrastructure."

Introduction : Imagine a bridge that can warn engineers before structural damage occurs, construction sites where intelligent systems monitor progress automatically, and buildings designed using advanced algorithms that optimize strength and efficiency. These innovations are no longer part of science fiction. They are becoming reality through the rapid development of Artificial Intelligence (AI).

Civil engineering has always played a vital role in shaping modern society. From roads and bridges to dams and high-rise buildings, civil engineers design and build the infrastructure that supports daily life. However, as cities expand and infrastructure demands grow, traditional engineering methods sometimes struggle to keep up with the increasing complexity of modern projects.

Artificial Intelligence is emerging as a powerful technology that can help engineers solve complex problems more efficiently. By analyzing large amounts of data, identifying patterns, and predicting outcomes, AI can assist engineers in designing better structures, managing construction projects, and maintaining infrastructure more effectively.

What is Artificial Intelligence?

Artificial Intelligence refers to computer systems that are capable of performing tasks that normally require human intelligence. These tasks include learning from data, recognizing patterns, making predictions, and solving problems.

In civil engineering, AI works alongside several modern technologies, including :

Machine Learning
Computer Vision
Data Analytics
Building Information Modeling (BIM)
Sensors and Internet of Things (IoT)

Machine learning algorithms allow computers to learn from past data and improve their performance over time. Computer vision enables machines to analyze images and videos, which is useful for monitoring construction sites. Data analytics helps engineers interpret large volumes of engineering data and make better decisions.

By combining these technologies, engineers can improve design accuracy, reduce construction risks, and enhance infrastructure management.

Applications of AI in Civil Engineering

Artificial Intelligence is transforming

many areas of civil engineering by introducing smarter and more efficient working methods.

1. Smart Structural Design : One of the most important applications of AI is in structural design. Engineers traditionally analyze different design options manually, which can take significant time and effort. AI-based software can analyze thousands of design alternatives within seconds and recommend the most efficient structural configuration.

This helps engineers optimize material usage, reduce construction costs, and improve structural safety. AI-assisted design tools are now being used in the design of modern bridges, skyscrapers, and large infrastructure projects.

2. Construction Project Management : Construction projects often face challenges such as delays, budget overruns, and inefficient resource management. Artificial Intelligence can analyze historical construction data to identify patterns and predict potential project risks.

AI-powered project management tools can help engineers schedule tasks more effectively, allocate resources efficiently, and monitor project progress in real time. These tools allow project managers to identify problems early and take corrective action before they affect the entire project.

3. Infrastructure Inspection and Maintenance : Maintaining infrastructure such as bridges, highways, and tunnels is essential for public safety. Traditional inspection methods often require manual checking, which can be time-consuming and sometimes dangerous.

AI technologies combined with drones and sensors can inspect infrastructure more efficiently. Computer vision systems can analyze images of structures and detect cracks, corrosion, or other structural defects.

This method is known as predictive maintenance, where potential problems are identified before they become serious failures. As a result, maintenance costs are reduced and infrastructure safety is improved.

4. Smart Cities and Urban Planning : Artificial Intelligence is also playing a major role in the development of smart cities. Urban planners can use AI to analyze data related to traffic patterns, population growth, environmental conditions, and transportation systems.

AI-based traffic management systems can reduce congestion, optimize traffic signals, and improve road safety. Smart infrastructure planning can also help cities become more energy-efficient and environmentally sustainable.

Real-World Industry Examples

Several global construction and technology companies are already using Artificial Intelligence to improve infrastructure development.

For example, Autodesk uses AI-powered design tools that help engineers automatically generate optimized structural models. These tools allow engineers to explore multiple design possibilities quickly and select the most efficient solution.

Another example is the use of AI-

based monitoring systems on construction sites. These systems use cameras and computer vision technology to track construction progress and ensure that work is being performed according to the project schedule.

Some construction companies are also experimenting with AI-powered construction equipment and robots that can perform repetitive tasks such as excavation and site monitoring.

Benefits of AI in Civil Engineering

Artificial Intelligence offers numerous advantages for civil engineering projects.

First, AI improves accuracy and efficiency by reducing human errors in engineering calculations and analysis. Complex structural calculations that once required several hours can now be completed within minutes.

Second, AI enhances construction safety by monitoring construction sites and identifying hazardous conditions. Intelligent systems can alert workers and supervisors when safety rules are not being followed.

Third, AI helps reduce construction costs and project delays. By optimizing schedules, managing resources efficiently, and predicting potential risks, AI improves overall project management.

Finally, AI supports sustainable infrastructure development by helping engineers design energy-efficient buildings and reduce material waste.

Future of Civil Engineering

The future of civil engineering will be closely connected with digital technologies and intelligent systems. Future engineers will not only work with concrete and steel but also with data, algorithms, and smart technologies.

Innovations such as digital twins, autonomous construction equipment, smart sensors, and AI-based design optimization will transform how infrastructure projects are planned, constructed, and maintained.

Civil engineering students must therefore develop knowledge of emerging technologies along with traditional engineering skills. Understanding AI and digital tools will help future engineers remain competitive in the evolving construction industry.

Conclusion

Artificial Intelligence is rapidly transforming the field of civil engineering by introducing smarter approaches to design, construction, and infrastructure management. By analyzing large amounts of data and automating complex tasks, AI enables engineers to work more efficiently and accurately.

The integration of AI with civil engineering practices will lead to safer structures, better infrastructure maintenance, and more sustainable urban development. As technology continues to advance, Artificial Intelligence will become an essential tool for engineers working to build the cities and infrastructure of the future.

The Role of Civil Engineering in Creating Sustainable, Smart, and Resilient Urban Spaces

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Civil Engineering 3rd Year

"Cities are not just built with concrete and steel they are shaped by vision, innovation, and the engineers who design them."

Introduction : Cities are the centers of human activity, innovation, and economic growth. Over the past few decades, rapid urbanization has significantly increased the demand for better infrastructure, efficient transportation systems, sustainable buildings, and reliable public services. According to global estimates, more than half of the world's population now lives in urban areas, and this number is expected to continue rising in the coming decades.

This rapid growth presents both opportunities and challenges. Expanding populations place enormous pressure on infrastructure systems such as roads, water supply networks, drainage systems, transportation facilities, and housing. To address these challenges, cities must evolve into smart, sustainable, and resilient urban environments.

Civil engineers play a central role in shaping these future cities. Through innovative design, advanced technologies, and sustainable construction practices, civil engineers are developing infrastructure systems that support modern urban life while protecting the environment and improving the quality of life for citizens.

The Concept of Future Cities

Future cities, often referred to as smart cities, are urban areas that use technology, data, and sustainable infrastructure to improve efficiency and livability. These cities integrate advanced technologies with traditional infrastructure systems to manage resources more effectively.

Smart cities focus on improving:

Transportation systems
Energy management
Water supply and waste management
Environmental sustainability
Urban planning and infrastructure design

Civil engineers are responsible for designing the physical infrastructure that enables these technologies to function effectively.

Smart Infrastructure Development

One of the key responsibilities of civil

engineers in future cities is the development of smart infrastructure. Smart infrastructure uses sensors, monitoring systems, and digital technologies to improve efficiency and performance.

For example, intelligent transportation systems can monitor traffic flow and adjust signals automatically to reduce congestion. Smart bridges and buildings can be equipped with sensors that detect structural stress or damage and alert engineers before major failures occur.

These technologies allow infrastructure systems to operate more efficiently and safely.

Sustainable Urban Development

Future cities must also focus on sustainability. Civil engineers are incorporating environmentally friendly design strategies to reduce pollution, conserve natural resources, and improve energy efficiency.

Green building construction, renewable energy integration, and efficient water management systems are important components of sustainable urban development. Techniques such as rainwater harvesting, wastewater recycling, and solar power generation are becoming increasingly common in modern infrastructure projects.

By adopting these sustainable solutions, cities can reduce their environmental impact while supporting economic growth.

Advanced Transportation Systems

Transportation is one of the most critical components of urban infrastructure. Civil engineers are designing modern transportation systems that are efficient, safe, and environmentally friendly.

Future cities will feature advanced transportation networks such as metro systems, high-speed railways, smart highways, and electric vehicle infrastructure. Intelligent traffic management systems will help reduce congestion and improve road safety.

Civil engineers play a key role in planning, designing, and constructing these transportation systems.

Water Management and Urban Infrastructure

Proper water management is essential for sustainable cities. Civil engineers design water supply systems, stormwater drainage networks, sewage treatment plants, and flood control structures.

In future cities, advanced technologies will allow engineers to monitor water distribution systems in real time, detect leaks, and manage water resources more efficiently. Sustainable drainage systems and flood-resilient infrastructure will also become increasingly important as climate change leads to more extreme

weather events.

Role of Technology in Civil Engineering

Modern civil engineering increasingly relies on advanced technologies such as Building Information Modeling (BIM), Artificial Intelligence, Geographic Information Systems (GIS), and Internet of Things (IoT).

These technologies help engineers design complex infrastructure systems, simulate construction processes, and monitor infrastructure performance after completion. Digital tools allow engineers to visualize projects more accurately and make better decisions during planning and construction.

Technology is therefore becoming an essential component of modern civil engineering practice.

Challenges in Building Future Cities

Despite technological advancements, building future cities presents several challenges. Rapid population growth, limited land availability, environmental concerns, and infrastructure funding limitations can create difficulties in urban development.

Civil engineers must carefully balance economic, environmental, and social considerations while designing infrastructure systems. Proper planning, innovative engineering solutions, and effective policy implementation are necessary to overcome these challenges.

The Future Role of Civil Engineers

The role of civil engineers is expanding beyond traditional construction practices. Modern civil engineers must understand not only structural design and construction techniques but also digital technologies, sustainability principles, and urban planning strategies.

Future engineers will contribute to designing intelligent infrastructure systems, developing resilient cities, and ensuring sustainable development.

Educational institutions play an important role in preparing students with the technical knowledge and innovative thinking required to meet these future challenges.

Conclusion

Civil engineers are the architects of modern civilization. Their work shapes the infrastructure that supports urban life and economic development. As cities grow and technology advances, civil engineers will play an increasingly important role in designing smart, sustainable, and resilient urban environments.

By combining engineering expertise with technological innovation and environmental responsibility, civil engineers are building the cities of the future—cities that are efficient, sustainable, and capable of meeting the needs of generations to come.

Harnessing Neuroplasticity in Artificial Intelligence for Advanced Diagnostics and Clinical Intervention

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Abstract : The convergence of Artificial Intelligence (AI) and neuroscience is initiating a paradigm shift in healthcare engineering, redefining our approach to diagnostic intelligence. While modern AI systems excel at narrow tasks, they remain energy-intensive and prone to catastrophic forgetting. This paper proposes a neuroplasticity - inspired framework utilizing Spiking Neural Networks (SNNs) and Spike-Timing-Dependent Plasticity (STDP) to emulate the brain's ability to reorganize connections dynamically. By implementing a Tri-Memory architecture, incorporating Short-Term, Long-Term, and Permanent Memory modules, this study demonstrates a pathway to retain core diagnostic knowledge while adapting to novel clinical data. Such architectures enhance robustness and efficiency in processing high-dimensional data, such as Electroencephalography (EEG) and fMRI signals, providing a sustainable and trustworthy solution for personalized clinical intervention.

Keywords : Neuroplasticity, Spiking Neural Networks (SNNs), Healthcare Engineering, Catastrophic Forgetting, Tri-Memory System, STDP, Clinical Diagnostics, Dynamic Topology Optimization.

Introduction : Current AI models are built on static principles. Their neural connections are fixed, leading to computationally intensive, energy-hungry systems that suffer from a critical flaw known as "catastrophic forgetting" [1],[2], the destructive overwriting of previously learned knowledge. While popular models today are remarkable, their operational costs are immense. In stark contrast, the human brain operates as an incredibly powerful and efficient computer on a mere fraction of energy. It achieves this through neuroplasticity: the continuous, dynamic reorganization of synaptic connections to integrate new information without erasing the old.The central thesis of this paper is that developing the next generation of clinically effective AI demands that we move beyond scaling existing architectures and instead emulate the brain's core principles of adaptation and efficiency. By architecting systems inspired by neuroplasticity, we can create AI that is just more intelligent but critically, more sustainable, trustworthy, and scalable. This research aims to address the fundamental barriers that prevent AI from becoming an indispensable partner in clinical neuroscience by developing a novel, brain-inspired computational framework.

Problem Statement: The Limitations of Static AI in Clinical Neuroscience Overcoming the barriers to AI's integration

into clinical practice is a strategic imperative for advancing patient care. The challenges of trust, interpretability, and resource constraints are not merely technical hurdles; they are significant obstacles that limit the adoption of powerful new technologies in real-world diagnostic and therapeutic settings, present several fundamental problems that this research seeks to resolve.

Data Complexity and Quality : Neuroscience data presents a formidable challenge for AI algorithms. Datasets derived from neuroimaging, electrophysiology, and clinical studies are often noisy and inconsistent, plagued by variability from differing acquisition protocols [1]. A central challenge is the fusion of disparate, high-dimensional data types, such as functional MRI (fMRI), electroencephalography (EEG) and magnetoencephalography (MEG); which offer complementary spatial and temporal resolutions but require sophisticated models to integrate meaningfully. Furthermore,

accessibility remains a barrier. Many high-quality datasets are siloed within individual institutions, limiting the collaborative research necessary to train robust and generalizable models.

The "Black-Box" Problem : A critical concern for medical applications is the lack of transparency in many advanced AI models. These "Black- box" systems can produce highly accurate predictions, but their opaque internal logic makes it impossible for clinicians to understand the rationale driving their conclusions. This erodes trust, a non-negotiable requirement where a physician must verify the basis of a diagnostic assessment. While Explainable AI (XAI) frameworks like SHAP and integrated gradients exist, their integration is nascent; as one source notes, such tools "have yet to see widespread application in single-cell research", highlighting a significant gap between their theoretical potential and practical deployment in complex biological analysis [1],[6].

Computational and Economic Barriers : The technical requirements of modern AI impose significant economic and logistical constraints. Deep learning models demand high-performance Graphical Processing Units (GPUs) and extensive memory, resources that are prohibitively expensive for many clinics and research institutions. The time-consuming and costly process of training these models severely limits their scalability and accessibility. These computational demands create a barrier to widespread adoption, preventing many healthcare providers from leveraging AI to improve patient outcomes.

Proposed Methodology: A Neuroplastic AI Framework

This project will follow a multi-phase methodology designed to systematically build, train, and validate our proposed neuroplastic AI framework. The research plan progresses from theoretical architectural design to practical application and rigorous benchmarking on real-world clinical data, ensuring that each phase builds

directly upon the last.

Phase 1: Architectural Design - Emulating Biological Plasticity

The core of this project is the design of a novel AI architecture that emulates key principles of biological intelligence. This framework will synthesize multiple brain-inspired mechanisms into a cohesive system that overcomes the limitations of static models. Our approach directly addresses the "stability-plasticity dilemma" by integrating structural adaptation with local learning rules and a sophisticated memory system, all optimized for computational and energetic efficiency through neuromorphic principles.

The learning process will be governed by two synergistic forms of plasticity. At a high level, Structural Plasticity will simulate the growth and pruning of synaptic connections [2],[3], allowing the model to dynamically modulate its own architecture. By pruning redundant connections, the model reclaims capacity and creates a sparse, memory-efficient network. This design has direct hardware-level benefits,enabling efficient sparse matrix multiplication on resource- constrained edge devices. At a lower level, learning will be refined through local, biologically plausible learning rules like Spike-Timing-Dependent Plasticity (STDP), which fine- tunes synaptic weights based on the precise timing of neuronal spikes, enhancing decision-making in real time [7].

To solve the critical challenge of catastrophic forgetting, a problem now being actively addressed by leading labs like Google with its "Nested Learning" architecture; our framework will implement a Tri-Memory System [5],[6]. This system is comprised of:

Short-Term Memory (STM): A fast-learning buffer that rapidly adapts to novel information, allowing the model to incorporate new experiences on the fly.

Long-Term Memory (LTM): A more stable store that consolidates useful patterns identified through repeated exposure in the STM.

Permanent Memory (PM): A protected module for core, foundational knowledge that remains insulated from frequent updates.

Knowledge transfer between these modules will occur during a consolidation phase that mimics the brain's hippocampal-to-cortex transfer, allowing new skills to be integrated without overwriting stable, long-term knowledge. This entire process will be implemented using principles from neuromorphic computing. By leveraging Spiking Neural Networks (SNNs) and event-driven processing, our architecture will dramatically reduce power consumption, mirroring the efficiency of advanced hardware like Intel's Loihi 2 and Hala Point systems [4].

Fig.1. Tri-Memory system logic flow for continuous learning and knowledge consolidation.

Phase 2 : Data Acquisition and

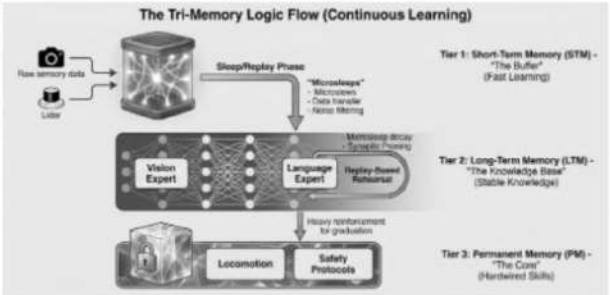

Figure 2. **The Tri-Memory Continual Learning System.** Information enters the high-plasticity STM for immediate use. During "microsleep" and consolidation phases, critical patterns are distilled into the stable LTM and eventually the invariant PM, effectively solving the Stability-Plasticity dilemma.

Preprocessing

To ensure the robustness and generalizability of our model, this research will leverage large-scale, multimodal public datasets. We will primarily utilize open-access resources such as the Human Connectome Project and OpenNeuro. The selection of these platforms is a strategic choice to combat the problem of "siloed" datasets, which hinders collaborative progress. To address the inherent challenges of data quality, we will implement standardized preprocessing pipelines to correct for noise, account for inconsistencies, and harmonize data from varying acquisition protocols.

The successful execution of these phases will lead to the development of a powerful and transformative AI framework for clinical neuroscience.

Fig.2. Multimodal data pipeline for the synchronization of high-temporal EEG and high-spatial MRI datasets.

Phase 3: Model Training and Validation

The model will be trained using a combination of supervised and unsupervised learning techniques on clinically relevant tasks. A primary use case will be the prediction of Alzheimer's disease progression by integrating structural MRI, functional MRI (fMRI), and PET scan data. To validate our approach, we will conduct a rigorous comparative analysis between our proposed neuroplastic model and a baseline conventional model, such as a standard Convolutional Neural Network (CNN), targeting ambitious, state-of-the-art performance benchmarks

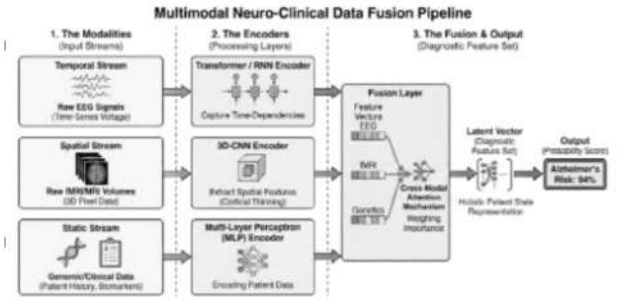

Figure 2. **Multimodal Neuro-Clinical Data Fusion Pipeline.** Distinct data streams (EEG, fMRI, Genetics) are processed by specialized encoders and then integrated via cross-modal attention into a unified diagnostic latent vector for risk prediction.

TABLE - I - Performance Evaluation Metrics and Benchmarking Targets

Relevance to Healthcare Engineering : Healthcare environments are inherently dynamic, characterized by evolving patient populations, changing diagnostic criteria, and heterogeneous data sources. AI systems deployed in such settings must adapt continuously to remain accurate and reliable. Neuroplasticity-inspired architectures offer a promising solution by enabling adaptive learning while preserving system stability.

In diagnostic applications, adaptive AI systems could adjust to new clinical patterns without requiring complete retraining [8],

reducing downtime and resource consumption. Furthermore, the modular nature of neuroplastic architectures supports improved interpretability, as changes in system behavior can be traced to specific adaptive components. These properties are essential for building trust in AI-assisted healthcare systems and ensuring their safe integration into clinical workflows.

Conclusions : This paper has explored the potential of neuroplasticity- inspired design principles as a pathway toward adaptive AI systems for healthcare engineering applications. By addressing key limitations of static AI architectures, such as catastrophic forgetting and lack of robustness, neuroplasticity-based approaches offer a promising direction for developing resilient, efficient, and trustworthy AI systems. Continued interdisciplinary research at the intersection of AI, neuroscience, and healthcare engineering is essential to realize this potential.

Our central vision is to pioneer a new class of AI systems inspired by laws of neuroplasticity. By developing a framework that can dynamically adapt its structure, learn continuously from new data, and operate with unparalleled efficiency, we will solve key technical problems while simultaneously aligning our technology more closely with biological reality.

Phase 4: Interpretability and Explainability

To address the critical "black-box" problem, we will integrate cutting-edge XAI tools directly into our framework. Specifically, we will utilize methods such as SHAP (Shapley Additive Explanations) and integrated gradients to discern the key biological features that drive the model's predictions. This will provide transparent, actionable insights for clinicians and researchers, building the trust necessary for real-world adoption

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Agentic AI
Powering Autonomous Systems

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Abstract : Agentic Artificial Intelligence (Agentic AI) is a new approach where AI systems work as autonomous agents that can observe their environment, plan tasks, and take actions with minimal human involvement. Unlike traditional AI, Agentic AI focuses on goal-oriented behavior, allowing systems to handle multi-step tasks, make decisions, and adapt using feedback. These agents often use large language models along with memory, planning, and tool-integration to operate in real-world systems. Agentic AI is useful in areas such as automation, customer support, IoT, and decision-making systems. However, challenges like safety, reliability, and control must be addressed before wide-scale adoption. This paper discusses the basics, applications, benefits, and challenges of Agentic AI.

Index Terms : Agentic AI, autonomous agents, multi-agent systems, large language models, tool use, goal-oriented AI, enterprise automation, intelligent IoT, real-time decision-making, challenges.

· **Introduction :** Agentic Artificial Intelligence (Agentic AI) refers to AI systems designed as autonomous agents that can interpret goals, plan sequences of actions, interact with tools and data sources, and adapt their behavior based on feedback without continuous human control. Unlike traditional AI, which primarily focuses on predictions or static responses to user prompts, Agentic AI emphasizes goal-driven operation, where agents actively decide what to do next in order to achieve an objective in complex, changing environments.

Modern Agentic AI systems typically build on large language models and other ML components, augmenting them with capabilities such as long-term memory, planning algorithms, external tool integration (APIs, databases, services), and sometimes collaboration among multiple specialized agents.

These systems can decompose high-level instructions into sub-tasks, call appropriate tools (for example, code execution, CRM systems, IoT controllers), and iteratively refine their actions based on intermediate results and user constraintsThe relevance of Agentic AI is rapidly increasing across domains such as software operations, business process automation, data engineering, customer support, smart manufacturing, and intelligent IoT, where tasks involve continuous monitoring, decision-making, and adaptation rather than one-shot predictions. Industry analyses predict that a significant share of enterprise software will embed agent-based AI and that a meaningful fraction of day-to-day operational decisions will be delegated to such agents, with potential benefits including cost reduction, faster response time, and improved resilience.

By integrating planning, reasoning, and action, Agentic AI establishes a paradigm in which AI systems move from being passive tools to active collaborators that can coordinate workflows, manage resources, and support human decision-makers at scale. This paper focuses on the conceptual foundations of Agentic AI, how these systems work, their future evolution, and their benefits for humans, mirroring a structured analysis similar to prior work on autonomous and M2M learning-based systems.

How Agentic AI Works : Agentic AI systems operate through a loop of perception, reasoning, action, and learning, enabling agents to continuously work toward goals in changing environments. A simplified breakdown of how a typical Agentic AI system works is as follows :

Goal and Context Acquisition : The agent receives a high-level task and gathers relevant context from system states, documents, knowledge bases, and stored memory.

Planning and Task Decomposition : The agent breaks the goal into smaller sub-tasks and generates an ordered execution plan using its reasoning and planning components.

Tool Selection and Action Execution: Appropriate tools and services such as APIs, databases, or cloud resources are selected and invoked to perform the planned actions.

State Observation and Memory Update : After execution, the agent observes system changes and records outputs in memory for continued reasoning.

Feedback and Adaptation : The agent evaluates outcomes against the goal and adapts its plan or strategy when required.

This continuous cycle allows Agentic AI systems to coordinate complex workflows, monitor systems, and autonomously optimize operations rather than performing isolated, one-off predictions.

Fig. 1: Working of Agentic AI

FUTURE OF AGENTIC AI: The future of Agentic AI is characterized by greater autonomy, richer collaboration, and deeper integration with enterprise platforms, cloud services, and intelligent devices. As organizations seek systems that can not only analyze data but also act on it at scale, Agentic AI is expected to become a core layer of digital infrastructure across industries. Key

trends include :

Highly Autonomous Decision-Making : Agentic systems will increasingly handle real-time, high-impact decisions such as pricing, infrastructure management, security response, and workflow optimization within defined governance limits, reducing manual effort and improving operational efficiency.

Multi-Agent and Collaborative Architectures : Future Agentic AI platforms will focus on collaboration among specialized agents to solve complex, cross-domain tasks, enabling coordination, task delegation, and reliable operation in large,

distributed systems.

Integration with Cloud, Edge, and Intelligent IoT : Closer integration with cloud, serverless, and edgeenvironments will enable agents to operate near data sources, improving latency, privacy, and resilience while coordinating local actions with cloud-level optimization.

Advanced Memory, Learning, and Personalization : Future Agentic AI systems will use advanced memory and learning mechanisms to retain long-term context, refine strategies, personalize interactions, and support end-to-end automation.

BENEFITS OF AGENTIC AI FOR HUMANS

Agentic AI is a critical advancement in autonomous intelligent systems that enhances how humans work, make decisions, and manage complex socio-technical environments. Similar to M2M learning but at a higher level of cognitive complexity, the most important aspects of Agentic AI—from a human-centric perspective—include autonomous decision-making, continuous learning, human– AI collaboration, and resource optimization. These aspects contribute to improved productivity, reduced operational friction, and more sustainable practices across domains.

Autonomous Decision-Making

Enhancement of Agentic AI Work: : Agentic systems can autonomously interpret goals, monitor conditions, and make decisions, reducing the need for human involvement in routine coordination and troubleshooting tasks. By leveraging real-time data and tool integrations, these agents can continuously optimize workflows such as incident resolution, ticket triage, infrastructure scaling, and process orchestration in enterprise environments.

Advantage for Human Development : By automating repetitive decisions and routine tasks, Agentic AI allows humans to focus on strategic planning, creativity, and complex judgment requiring expertise. For instance, in customer service, agents can handle common issues automatically while escalating complex cases to human staff, reducing workload and enabling greater focus on innovation and relationship-building.

Continuous Learning and Adaptation

Enhancement of Agentic AI : Agentic AI systems continuously learn from logs, user feedback, interactions, and performance data, improving strategies and policies over time. This allows agents to handle new edge cases, adapt to changing business rules, and respond to dynamic system states with greater accuracy and robustness.

Benefits for Humans: As agents become more capable, organizations gain faster response times, lower errors, and reduced operational costs. Individuals benefit from more reliable, personalized services. In fields like healthcare or education, Agentic AI can provide tailored recommendations and support, augmenting human professionals rather than replacing them.

Collaboration Between Agents and Humans

Enhancement of Agentic AI : Agentic AI acts as an intelligent collaborator, following human instructions, asking clarifying questions, proposing plans, and executing actions through tools. Agents

handle data collection, preliminary analysis, and routine tasks, while humans supervise, approve critical decisions, and refine policies to align with organizational goals.

· **Benefits for Humans:** This collaboration creates new roles such as "AI supervisors" or "agent orchestrators," allowing humans to focus on strategic oversight rather than low-level tasks.

Resource Optimization and Sustainability

Enhancement of Agentic AI : Agentic systems continuously monitor resource usage—such as compute, energy, network, inventory, and time— and dynamically adjust workflows or configurations to improve efficiency. For example, agents can scale cloud infrastructure, rebalance workloads, or fine- tune processes to reduce waste and enhance overall system performance.

Benefits for Humans : Optimized resource utilization leads to cost savings, reduced environmental impact, and more resilient infrastructure. In areas like smart buildings, energy management, logistics, and transportation, Agentic AI can optimize schedules, routes, and consumption patterns, helping organizations and cities achieve sustainability goals while maintaining service quality.

CONCLUSION : Agentic AI significantly enhances autonomy, adaptability, and resource optimization across digital and physical systems by enabling AI agents to perceive, reason, act, and learn in a goal-oriented manner. By combining large-scale models with planning, memory, and tool-use, these systems can autonomously coordinate complex workflows, support humandecision-makers, and operate continuously in dynamic environments. This shift from passive, reactive AI to active Agentic AI not only increases operational efficiency and reduces human error, but also allows humans to concentrate on higher-value activities, fostering innovation and improving overall quality of life. As Agentic AI technologies mature, their success will depend on robust architecture, safety and governance frameworks, and careful integration into socio-technical systems, ensuring that autonomous agents contribute to more efficient, secure, and sustainable futures for industry and society.

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Zero trust architecture in multi cloud environments

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Introduction : In today's cybersecurity environment, organizations cannot automatically trust users, devices, or applications — even inside their own network. This concept is called Zero Trust Security. Unlike traditional security models that depend mainly on firewalls and network boundaries, Zero Trust continuously verifies every access request.

The main principle of Zero Trust is "Never Trust, Always Verify." Every user, device, and application must be authenticated and monitored before accessing resources. This approach helps organizations protect sensitive data, especially in cloud and multi-cloud environments, where systems operate across multiple platforms.

Traditional security models are no longer enough to defend against ransomware, insider threats, and data breaches, which is why many organizations are adopting Zero Trust Architecture (ZTA).

Zero Trust Security Model

Zero Trust is a modern cybersecurity framework designed to protect systems from unauthorized access and cyberattacks. Instead of assuming users inside the network are safe, Zero Trust verifies identity and access continuously.

Key principles of Zero Trust

Never Trust, Always Verify — Every request must be authenticated.

Least Privilege Access — Users receive only the access they need.

Microsegmentation — Networks are divided into smaller secure sections.

Continuous Monitoring — Systems track user and device behavior.

Device Security — Only trusted devices can connect.

Multi-Factor Authentication (MFA) — Multiple identity verification methods are used.

Zero Trust vs Traditional Security

Traditional security models trust users once they enter the network through a firewall or VPN. This creates risk because attackers can move freely if they gain access.

Zero Trust works differently by verifying:

Every login

Every device

Every access request

This approach improves visibility, control, and data protection.

Core Elements of Zero Trust:

Zero Trust security focuses on three main elements:

Verify Every User

Continuous authentication using MFA and

identity verification.

Validate Every Device

Devices must meet security requirements before connecting.

Limit Access Intelligently

Access is controlled based on role, device, and usage.

Implementation of Zero Trust

Implementing Zero Trust involves several important steps:

Identify and classify sensitive data, systems, and applications.

Map the network to understand users, devices, and connections.

Segment the network into smaller protected zones.

Configure access control using RBAC and MFA.

Monitor system activity using security tools like IDS and SIEM.

Continuously update security policies to address new threats.

Zero Trust is not a one-time setup — it is a continuous security process.

Advantages of Zero Trust Security

Zero Trust provides several benefits for organizations:

Stronger data protection by preventing unauthorized access.

Reduced cybersecurity risks through continuous verification.

Regulatory compliance with standards like GDPR and NIST.

Secure remote work and cloud access without relying on VPNs.

Protection in multi-cloud environments where resources exist across different cloud platforms.

Real-World Examples

Many organizations have successfully implemented Zero Trust:

Google BeyondCorp verifies every user and device before allowing access to applications.

U.S. Government Zero Trust Initiative requires MFA, encryption, and continuous monitoring.

Netflix Cloud Security uses microsegmentation, API security, and behavior monitoring to protect user data.

Conclusion : Zero Trust Architecture is becoming a critical part of modern cybersecurity, especially in multi-cloud environments. As organizations adopt cloud computing and remote work models, traditional security methods are no longer sufficient.

Zero Trust improves:

Identity verification

Network security

Data protection

Threat detection

With technologies like AI-based monitoring, microsegmentation, and strong authentication, Zero Trust helps organizations stay protected from evolving cyber threats. It is expected that most organizations will adopt Zero Trust as a standard security model in the coming years.

Bridging On-chain and Off-chain Data : A Study of Oracle Networks

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Abstract : The core strength of blockchain technology lies in its isolation, which ensures security and immutability; however, this creates a "connectivity gap" where smart contracts cannot natively access external information. This article examines the mechanisms used to bridge on-chain and off-chain environments through the implementation of oracle networks. We explore how these networks verify and translate real-world data—such as financial market fluctuations and IoT sensor outputs—into a format compatible with decentralized ledgers. By analyzing the shift from centralized to decentralized oracle models, this study highlights how the integrity of data is maintained, ultimately enabling the practical application of blockchain in global industries.

Keywords : Blockchain, Decentralized Oracle Network (DON), Smart Contracts, Web3, Data Integrity.

Introduction : Blockchains are mathematically secure but functionally isolated. This isolation ensures that the network remains decentralized, but it prevents the "on-chain" environment from interacting with "off-chain" data, such as market prices or weather reports. This fundamental gap is known as the "Oracle Problem."

Decentralized Oracle Networks (DONs) : Unlike a centralized data feed, a DON uses a network of independent nodes to retrieve and verify data. This ensures that no single point of failure exists, maintaining the trustless nature of the blockchain.

Data Aggregation and Consensus : Before data is sent to a smart contract, the oracle nodes must reach a consensus. By comparing multiple sources, the network filters out inaccurate data or malicious actors.

Real-World Applications : The ability to bridge these two worlds enables a variety of modern use cases, with Chainlink serving as the primary decentralized infrastructure layer for these interactions. By utilizing a network of independent oracle nodes, Chainlink ensures that smart contracts can securely access "off-chain" data without creating a single point of failure.

Decentralized Finance (DeFi) :

Chainlink provides high-fidelity price feeds necessary for lending platforms and stablecoins to maintain accurate, tamper-proof market pricing.

Parametric Insurance : Smart contracts utilize Chainlink to fetch weather data or IoT sensor outputs, triggering automatic insurance payouts to farmers or businesses instantly when specific conditions are met.

Supply Chain Management : Oracles translate real-world logistics data into a format compatible with decentralized ledgers, ensuring the integrity of goods is maintained throughout the global industry

Conclusion : Oracle networks, specifically decentralized frameworks like Chainlink, represent the critical infrastructure required to transition blockchain technology from a theoretical digital ledger to a functional global utility. By solving the "Oracle Problem," these networks allow decentralized applications to react to the real world without sacrificing the security or transparency that defines blockchain. As the ecosystem matures, the ability to securely bridge on-chain and off-chain data will be the primary driver for the mass adoption of smart contracts in insurance, finance, and supply chain management.the primary driver for the mass adoption of smart contracts in insurance, finance, and supply chain management.

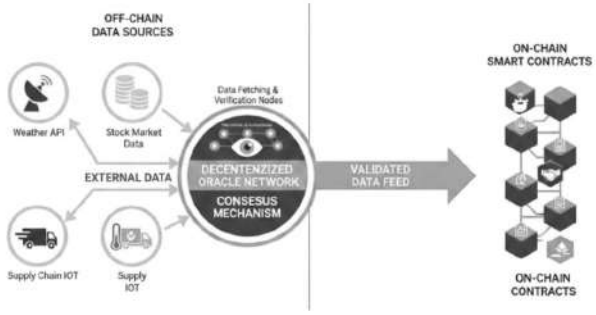

Figure :

Figure 1: Architectural overview of a Decentralized Oracle Network (DON) facilitating secure data transfer between off-chain APIs and on-chain smart contracts.

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Robotics & Automation

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CM4K

Introduction : Robotics and automation are among the most important technological developments of the modern era. They are changing the way industries operate and how people interact with machines in everyday life. Automation focuses on using technology to perform tasks automatically, while robotics involves creating programmable machines that can carry out complex physical operations. Together, these technologies help improve productivity, efficiency, and safety in many sectors.

In earlier times, most industrial and household tasks required manual labor. With the advancement of computers, sensors, and artificial intelligence, machines can now perform repetitive and complex tasks with high accuracy and speed. Robotics and automation are widely used in industries such as manufacturing, healthcare, transportation, agriculture, and space research. These technologies not only reduce human effort but also improve the quality and consistency of work.

As industries continue to adopt smart technologies, robotics and automation are becoming essential for economic growth and innovation. They are helping organizations save time, reduce operational costs, and improve overall performance.

Automation : Automation is the process of using machines, control systems, and software to perform tasks automatically without continuous human involvement. It is mainly used for repetitive, time-consuming, or complex tasks where accuracy and speed are important.

Automation can be found in many forms, such as mechanical automation, industrial automation, and software automation.

For example, machines in factories can assemble products automatically using programmed instructions. Similarly, software systems can process large amounts of data quickly and accurately.

The main goal of automation is to increase efficiency, reduce human errors, and improve productivity. Automation also helps organizations maintain consistent quality in production and services.

Examples and Applications of Automation : Automation is widely used in both daily life and industrial environments. Many common devices and systems around us work automatically using programmed instructions.

Examples of automation include:

Automatic washing machines : Automatic washing machines clean clothes using pre-programmed wash cycles without continuous human effort. Users only need to load clothes, add detergent, and select the washing mode.

Elevators and escalators :

Elevators and escalators use automated control systems to transport people between floors safely and efficiently. Sensors and motors help them operate smoothly with minimal human control.

ATM machines : ATM machines allow users to withdraw money, check account balances, and perform basic banking transactions automatically. They provide banking services anytime without needing a bank employee.

Automatic traffic signal systems : Automatic traffic signals control vehicle movement at road intersections using timers or sensors. They help maintain traffic flow and reduce congestion and accidents.

Smart home lighting systems : Smart lighting systems automatically turn lights on or off using sensors, timers, or mobile apps. They improve convenience and help save electricity.

Online ticket booking systems : Online ticket booking systems allow users to reserve travel or event tickets through websites or mobile apps. The process is automated and provides instant confirmation.

Applications of automation include:

Manufacturing: Automated assembly lines and packaging systems

Banking: Online transactions, ATMs, and digital payment systems

Healthcare: Patient monitoring systems and laboratory equipment

Agriculture: Automatic irrigation and greenhouse control systems

Transportation: Railway signaling systems and traffic management.

Robotics

Robotics is a branch of science and engineering that deals with the design, construction, and operation of robots. A robot is a machine that can be programmed to perform tasks automatically or with minimal human guidance. Robots can perform simple repetitive tasks as well as complex operations that require precision and intelligence.

Robotics combines several fields of technology, including mechanical engineering, electronics, computer programming, and artificial intelligence. Sensors allow robots to detect their surroundings, while software programs control their movements and actions.

Modern robots are becoming more intelligent and capable of working alongside humans in many environments. They can perform tasks that are dangerous, difficult, or impossible for humans to do safely.

Examples and Applications of Robotics

Robots are now used in many industries and areas of daily life. They help improve efficiency, safety, and precision in different types of work.

Examples of robotics include:

Industrial robotic arms used in car manufacturing : Industrial robotic arms are used in automobile factories to assemble parts, weld components, and paint vehicles with high precision. They help increase production speed and maintain consistent quality.

Surgical robots used in hospitals : Surgical robots assist doctors in performing complex medical procedures with greater accuracy and control. They help reduce

human error and support minimally invasive surgeries.

Drones used for surveillance and delivery : Drones are flying robots that can capture images, monitor areas, and deliver small packages. They are widely used in security monitoring, agriculture, and delivery services.

Robotic vacuum cleaners : Robotic vacuum cleaners automatically clean floors using sensors to detect obstacles and dirt. They move around rooms independently and help reduce household cleaning effort.

Humanoid robots used in research : Humanoid robots are designed to look and move like humans. They are mainly used in research to study human–robot interaction and artificial intelligence.

Applications of robotics include:

Manufacturing: Assembly, welding, and packaging

Healthcare: Robot-assisted surgery and rehabilitation

Space exploration: Planetary rovers and research robots

Defense: Bomb-disposal robots and surveillance robots

Logistics: Warehouse robots for sorting and moving goods

Benefits of Automation and Robotics : Automation and robotics offer many advantages in both industrial and everyday applications. They help organizations improve performance while reducing risks and costs.

Some major benefits include:

Increased productivity and efficiency : Automation and robots can perform tasks faster than humans and can work continuously without delays. This helps industries produce more output in less time and improves overall efficiency.

Improved accuracy and quality of work : Automated systems follow programmed instructions precisely, which reduces variation in production. This ensures consistent quality and more reliable results.

Reduction in human errors : Machines perform repetitive tasks with high precision, reducing mistakes that can occur due to fatigue or lack of concentration. This improves safety and reliability in operations.

Ability to work in dangerous environments : Robots can safely perform tasks in hazardous places such as mines, deep sea, space, or high-temperature industrial areas. This protects human workers from potential risks.

Continuous operation without fatigue : Unlike humans, machines and robots do not get tired and can work for long hours without breaks. This allows industries to operate 24/7 when needed.

Faster production processes : Automation speeds up manufacturing and service processes by reducing manual work. Tasks that normally take hours can be completed in minutes using automated systems.

Long-term cost savings : Although automation requires initial investment, it reduces labor costs, errors, and material waste over time. This leads to significant savings in the long run.

Better use of human skills for creative and decision-making tasks : When machines handle repetitive work, humans can focus on planning, innovation, and problem-solving.

This improves productivity and encourages creativity.

Types of Automation

Automation can be divided into different types depending on how it is used in industries.

Fixed Automation: Fixed automation is used in large-scale production where machines are designed to perform one specific task repeatedly. It is highly efficient for mass production but not easy to modify. Example: car manufacturing assembly lines.

Programmable Automation : Programmable automation allows machines to be reprogrammed for different tasks or products. It is commonly used in batch production where product designs change occasionally. Example: CNC machines.

Flexible Automation : Flexible automation systems can quickly adapt to different products with minimal changes in setup. It is widely used in modern smart factories to improve efficiency and customization. Example: AI-based manufacturing systems.

Components of a Robot

A robot is made up of several important parts that allow it to function properly:

Sensors : Sensors help robots detect and understand their surroundings, such as light, temperature, distance, or movement. They provide important information that helps the robot respond correctly to its environment.

Controller : The controller acts like the brain of the robot, processing information received from sensors. It sends instructions to other parts of the robot to perform specific actions.

Actuators : Actuators are responsible for the physical movement of the robot. They convert electrical energy into motion, allowing the robot to move arms, wheels, or other parts.

Software / Programming : Software or programming gives instructions that control how the robot behaves and performs tasks. It helps the robot make decisions and complete actions accurately.All these components work together to make robots intelligent and efficient.

Future of Robotics and Automation

The future of robotics and automation is closely connected with Artificial Intelligence (AI), Machine Learning, and the Internet of Things (IoT).

In the coming years:

Robots will become more intelligent and interactive, Smart factories will become more common, Self-driving vehicles may become widely used, Robots may assist more in healthcare and education, Automation will increase in agriculture and service industries

Conclusion : Robotics and automation are transforming industries and everyday life by making processes faster, safer, and more efficient. They are playing a key role in the development of smart industries and advanced technologies. From automated machines in factories to intelligent robots in hospitals and space missions, these technologies are shaping the future of society.

Artificial Iintelligence in Electrical Engineering for Sustainable Innovation

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Abstract : Sustainable innovation in Electrical Engineering has become essential due to rising global energy consumption and environmental challenges. Artificial Intelligence (AI) is playing a transformative role in modern power systems by improving efficiency, reliability, and sustainability. AI techniques such as Machine Learning, Neural Network, and Data Analytics, IOT help optimize renewable energy systems, smart grids, and energy management systems. This integration supports reduced carbon emissions, improved energy utilization, and long-term sustainable development.

Introduction : Electrical Engineering is responsible for designing and managing systems that generate, transmit, and distribute electrical power. However, traditional energy systems face issues such as high transmission losses, fossil fuel dependency, equipment failures, and inefficient energy usage.

Artificial Intelligence refers to computer systems that can analyze data, learn patterns, and make intelligent .When AI is applied to electrical infrastructure, it enhances automation, predictive analysis, and system optimization. This leads to smarter and greener energy solutions.

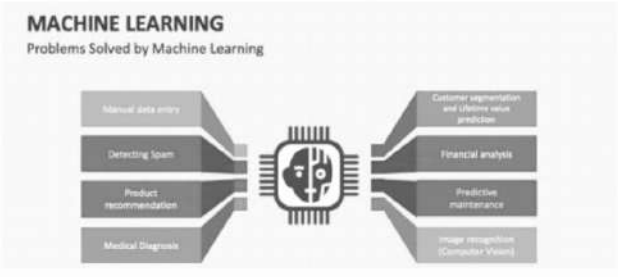
Need for Sustainable Innovation : Increasing global energy demand. Climate change and environmental pollution. Depletion of fossil fuels. Requirement for efficient power management. Growing renewable energy installations.

AI helps address these challenges by making electrical systems adaptive and intelligent.

Key AI Technologies Used

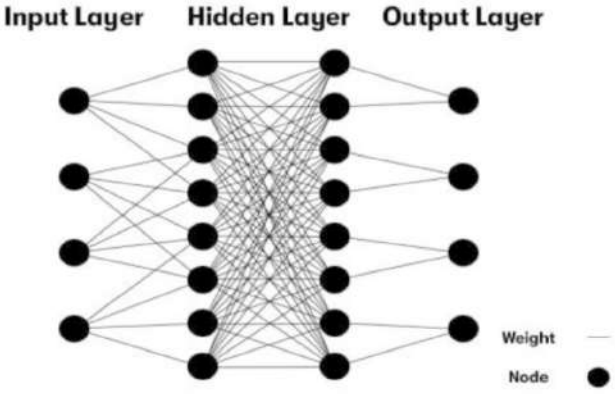
Machine Learning (ML): Used for load forecasting and demand prediction. Machine Learning is a branch of Artificial Intelligence (AI) that enables computers to learn from data and improve their performance without being explicitly programmed.

The concept was introduced by Arthur Samuel in 1959. Instead of following fixedrules, machine learning algorithms analyze patterns in data to make predictions



or decisions. It is widely used in applications such as healthcare, finance, recommendation systems, and smart technologies. With the growth of data and computing power, machine learning has become an essential technology driving innovation in many fields.

Neural Networks: Help in pattern recognition and renewable energy forecasting. Neural Networks are a type of machine learning model inspired by the structure and functioning of the human brain. They consist of interconnected layers of artificial neurons that process and transmit information. Neural networks learn from data by adjusting the connections (weights) between neurons to improve accuracy.



They are widely used in applications such as image recognition, speech processing, language translation, and medical diagnosis. Neural networks form the foundation of deep learning and play a crucial role in modern Artificial Intelligence systems.

Data Analytics : Data Analytics is the process of collecting, organizing, and analyzing raw data to discover useful information, patterns, and insights for better decision-making. It uses statistical methods, algorithms, and software tools to transform data into meaningful results. Data analytics is widely

used in business, healthcare, finance, education, and engineering to improve performance, predict trends, and solve complex problems.

There are four main types of data analytics:

Descriptive Analytics – Analyzes past data to understand what happened.

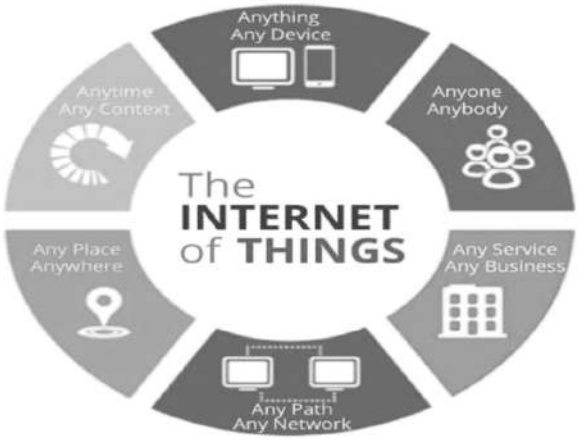
Diagnostic Analytics – Identifies why something happened.

Predictive Analytics – Forecasts future outcomes using models.

Prescriptive Analytics – Suggests actions to achieve desired results.

Internet of Things (IoT): Smart sensors collect real-time system data for AI processing. The Internet of Things (IoT) refers to a network of physical devices connected to the internet that can collect, share, and exchange data. These devices include sensors, smart appliances, wearable gadgets, vehicles, and industrial machines.

IoT enables real-time monitoring, automation, and smart decision-making in areas such as healthcare, agriculture, smart homes, and industrial systems. By



connecting everyday objects to the internet, IoT improves efficiency, convenience, and productivity in modern life.

Major Applications

a)Smart Grid TechnologyAI monitors real-time electricity consumption and balances supply and demand automatically. It reduces power outages and improves grid stability.

b) Renewable Energy Integration

AI predicts solar radiation and wind speed to optimize renewable power generation. It also manages hybrid systems combining solar, wind, and storage.

c) Energy Storage Optimization

AI improves battery charging and discharging cycles, increasing lifespan and efficiency.

d)Predictive Maintenance

AI detects abnormalities in transformers and generators before failure occurs, reducing downtime.

e)Smart Buildings and Industries

AI-based Energy Management Systems control lighting, HVAC systems, and machines to reduce unnecessary power consumption.

Environmental and Economic Benefits

1.Reduced carbon footprint

2.Lower operational costs

3.Increased energy efficiency

4.Better reliability and safety

5.Support for green technology development

Future Scope : The future of Electrical Engineering lies in intelligent automation and sustainable solutions. Smart cities, autonomous electric vehicles, microgrids, and AI-driven renewable plants will become more common. The integration of AI will continue to improve power quality, reduce losses, and ensure energy security. Students who develop skills in AI, programming, data analysis, and power systems will have excellent career opportunities in this field.

Conclusion : The integration of Artificial Intelligence with Electrical Engineering is a revolutionary step toward sustainable innovation. AI enhances efficiency, reliability, and environmental protection while supporting renewable energy growth. This powerful combination is shaping the future of smart and sustainable energy systems worldwide.

Inspirational Line

"The future of energy is not just electric — it is intelligent."

The Discovery Of Electromagnet : A Spark That Changed The World

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Abstract : In this Article, we will get the wisdom about one of the most fascinating discovery of Physical Science that is 'Electromagnet'.

Index Terms : discovery, construction , operation and significance of Electromagnet.

The Discovery of Electromagnetism: A Spark that Changed the World

Electricity and magnetism were once thought to be completely separate forces of nature. For centuries, scientists studied magnets that could attract iron and electricity that could produce sparks, but no one suspected that these two mysterious phenomena were deeply connected. The discovery of electromagnetism in the 19th century changed this understanding forever and became one of the most important breakthroughs in the history of science.

The story of electromagnetism begins in 1820 with a Danish scientist named Hans Christian Ørsted. During a lecture demonstration, Ørsted noticed something unexpected. While passing an electric current through a wire, he observed that a nearby compass needle moved. Normally, a compass aligns itself with Earth's magnetic field, but in this case the needle shifted direction whenever electricity flowed through the wire. This simple but astonishing observation revealed that electric current can produce a magnetic field.Ørsted's discovery immediately captured the attention of scientists across Europe. Among them was the French physicist André-Marie Ampère, who began studying the relationship between electricity and magnetism in detail. Ampère demonstrated that two current-carrying wires could attract or repel each other, much like magnets do. His work laid the foundation for the science of electrodynamics, and today the unit of electric current, the ampere, is named in his honor. Another major step came from the brilliant British scientist Michael Faraday. In 1831, Faraday discovered electromagnetic induction, the principle that a changing magnetic field can produce an electric current. This discovery was revolutionary because it showed that the relationship between electricity and magnetism worked both ways. Faraday's experiments led directly to the invention of electric generators, transformers, and many technologies that power modern society.

Later, the Scottish physicist James Clerk Maxwellunified these discoveries into a complete scientific theory. In the 1860s, Maxwell developed mathematical equations showing that electricity and magnetism are actually two aspects of a Single force known as the electromagnetic

force. His work also predicted the existence of electromagnetic waves, which include radio waves, microwaves, visible light, and X-rays.

Conclusion: In conclusion, the discovery of electromagnetism was not a single moment but a series of remarkable insights from scientists across different countries and decades. What began as a curious observation by Ørsted grewinto one of the most powerful scientific principles ever discovered. Today, electromagnetism forms the backbone of modern technology and continues to Inspire innovation in science and engineering.

The invisible connection between electricity and magnetism reminds us that even the smallest discoveries can illuminate entirely new forces of nature.

Did You Know?

The magnetic field around a current-carrying wire forms perfect circles around the wire.

Electromagnets can become stronger than natural magnets simply by increasing electric current or adding more coils.

The light we see, radio signals, Wi-Fi, and X-rays are all forms of electromagnetic waves.

Modern devices like motors, speakers, hard drives, and generators all depend on electromagnetism.

Discovery Timeline

1820 – Hans Christian Ørsted

Discovers that an electric current can move a compass needle, proving electricity creates a magnetic field.

1820 – André-Marie Ampère

Explains how electric currents interact and establishes the science of electrodynamics.

1831 – Michael Faraday

Discovers electromagnetic induction, making electric generators and transformers possible.

1860s – James Clerk Maxwell

Develops Maxwell's equations and proves electricity and magnetism are part of one unified force.

High Speed PM Motor with Hybrid Magnetic Bearing for Kinetic Energy Storage

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Abstract : This document summarizes the design of a high-speed Permanent Magnet (PM) motor with a hybrid magnetic bearing for kinetic energy storage. The system uses a Halbach array rotor configuration to produce a uniform magnetic field within the stator. Passive magnetic bearings and a vacuum-operated flywheel reduce friction losses and increase efficiency. The prototype achieved about 97% electrical-to-mechanical efficiency and was designed for approximately 150 Wh energy storage with a minimum power rating of 40 W and a maximum speed of 48,000 rpm. Such systems can be used in rural and isolated power systems by connecting multiple modules in parallel.

Introduction : Kinetic energy storage systems require high efficiency because energy passes through the system during both charging and discharging. Frictional losses must therefore be minimized. Air friction is reduced by operating the flywheel inside a vacuum chamber, while bearing losses are minimized using passive magnetic bearings combined with a dry lubricated journal bearing. Earlier designs were mainly developed for large industrial or vehicle applications and are often expensive. This work focuses on designing a low-cost system suitable for rural or stand-alone power applications.

Motor Design : The motor uses an outside rotor permanent magnet design based on a Halbach array. This configuration concentrates magnetic flux inside the stator and produces a nearly uniform magnetic field. A practical 8-magnet Halbach array was selected to balance performance and manufacturing cost. Rectangular NdFeB magnets embedded in a steel cylinder were used instead of custom magnet shapes. Experimental measurements confirmed a magnetic field strength of about 0.39 Tesla, matching theoretical calculations and simulations.

The stator consists of three-phase copper windings mounted on an iron-less core to eliminate iron losses. Motor torque depends on the magnetic flux density, current in the conductors, and distance from the rotational center. The motor operates as a brushless DC machine controlled by a three-phase full bridge converter using MOSFET or IGBT switches to provide the required switching sequence for the windings.

Flywheel Design : The flywheel stores

energy as rotational kinetic energy. Because the flywheel rotates at very high speeds, mechanical stresses such as hoop stress and radial stress must be carefully considered. An optimized disk shape can significantly improve the energy storage capacity. In this design a dual-rim flywheel was used to simplify construction while maintaining strength. The outer rim is made of filament-wound glass fiber epoxy composite for high strength, while the inner rim is constructed from short glass fiber composite. Rubber material connects the rims, allowing transmission of rotational forces while reducing radial stress. The final design has an outer diameter of 210 mm, length of 160 mm, operating speed of 48,000 rpm, total weight of about 6.2 kg, and energy storage capacity of approximately 157 Wh.

Hybrid Magnetic Bearing : The flywheel is supported by a hybrid magnetic bearing system consisting of two passive radial magnetic bearings and one axial journal bearing. The radial bearings use repelling permanent magnets arranged in ring and disk configurations to maintain radial stability. Two pairs of magnets increase stiffness and improve support for the rotating shaft.

Axial support is provided by a small hard ball resting on a flat plate. Materials such as sapphire, ruby, steel, or Teflon may be used to minimize friction. With very low friction, the theoretical run-down time of the flywheel can reach several months when no additional losses are present.

Mechanical Losses : Mechanical losses were evaluated using a run-down test inside a vacuum chamber. During operation the flywheel gradually slows due to friction. Large deceleration occurs near resonant frequencies where vibrations may cause contact between rotating and stationarycomponents. In other regions the speed reduction is nearly linear, showing that air friction becomes negligible under vacuum conditions.

System Overview : The flywheel energy storage system can be integrated with renewable energy sources such as solar arrays. The system includes a DC bus, a bidirectional DC–DC converter, and the flywheel motor- generator unit. When solar generation exceeds demand, excess electrical energy accelerates the flywheel and stores energy. When load demand increases, the flywheel slows down and returns energy to the DC bus.

Conclusion : The study demonstrates that a high- efficiency permanent magnet motor combined with a hybrid magnetic bearing system can effectively store energy in a flywheel. The prototype achieved high efficiency while using commercially available components and standard manufacturing techniques. Such systems offer a promising alternative to batteries for rural and isolated power application

Brain–Computer Interfaces : The Revolutionary Future of Electrical Engineering

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Introduction : When Thoughts Become Commands

Imagine controlling a computer without touching a keyboard. Imagine moving a robotic arm using only your thoughts. Imagine a paralyzed patient walking again through a prosthetic limb connected directly to the brain. What once seemed like science fiction is now becoming reality through Brain–Computer Interface (BCI) technology.

Brain–Computer Interfaces represent one of the most advanced and interdisciplinary innovations in modern engineering. At its core, BCI technology creates a direct communication link between the human brain and an external electronic device. It translates neural electrical signals into digital commands that machines can understand.

Electrical engineering plays a central role in this transformation. From signal acquisition and amplification to processing and control systems, BCIs are deeply rooted in electrical and electronic principles.

Understanding the Electrical Nature of the Brain : The human brain is an electrochemical organ. Every thought, movement, and emotion is produced by electrical impulses generated by billions of neurons communicating with each other. These impulses, known as neural signals, are extremely small — often measured in microvolts.

Capturing and interpreting these signals requires: High-precision sensors, Ultra-sensitive amplifiers, Noise filtering circuits, advanced signal processing algorithms.

This is where electrical engineers step in. Designing systems capable of detecting such weak signals without distortion is a major engineering challenge.

How Brain–Computer Interfaces Work : A typical Brain–Computer Interface system operates in four major stages:

1. Signal Acquisition : The first step is collecting electrical signals from the brain. This can be done using:

Non-invasive methods – such as Electroencephalography (EEG), where electrodes are placed on the scalp.

Invasive methods – where microelectrodes are surgically implanted inside the brain for more accurate signal capture.

Non-invasive BCIs are safer and more commonly used in research and assistive technology. Invasive BCIs provide higher precision but involve medical procedures.

2. Signal Amplification and Filtering: Brain signals are extremely weak and easily affected by noise from muscle movement, external electronics, and environmental interference. Electrical engineers design: Instrumentation amplifiers, Analog filters, Digital signal processors. These components remove unwanted noise and enhance the required signal.

3. Signal Processing and Machine Learning :Once signals are cleaned, advanced algorithms analyze patterns within them. Artificial intelligence plays a crucial role in identifying specific brain activity associated with actions like imagining movement or selecting a letter.

4. Device Control : Finally, the processed signal is converted into commands that control:

Robotic arms, Wheelchairs, Computer cursors, Prosthetic limbs, Smart home devices

All of this happens within milliseconds.

Real-World Innovations and Developments : Global research in Brain–Computer Interfaces has accelerated in recent years. Companies like Neural ink are developing implantable brain chips designed to communicate directly with neurons. Their aim is to help individuals with neurological disorders regain movement and communication abilities.

BCIs are also being explored in: Assistive communication systems for speech-impaired individuals, Rehabilitation therapy after strokes, Advanced prosthetics with sensory feedback, Gaming and virtual reality interaction, Military, and aerospace control systems. The rapid growth of this technology demonstrates how electrical engineering is expanding beyond traditional power systems into biomedical and human-machine interaction fields.

Role of Electrical Engineering in BCI Development : Brain–Computer Interface technology would not exist without electrical engineering. Some key contributions include:

1. Biomedical Instrumentation : Designing electrodes, sensors, and wearable devices requires precision electronics and circuit design.

2. Embedded Systems : Microcontrollers and processors interpret neural data and execute commands in real time.

3. Power Electronics : Implantable devices must operate with extremely low power consumption to ensure safety and longevity.

4. Signal Processing: Fourier transforms, digital filtering, and pattern recognition are essential to analyze brain signals accurately.

5. Wireless Communication : Modern BCIs transmit data wirelessly to external computers or cloud systems for analysis. For electrical engineering students, this field demonstrates how core subjects like network theory, analog electronics, control systems, and digital signal processing are

applied in cutting-edge innovation.

Challenges in Brain–Computer Interface Technology : Despite remarkable progress, BCI systems face several challenges:

Signal Noise and Accuracy: Brain signals are highly complex and variable. Separating meaningful signals from background noise remains difficult.

Safety and Ethics: Implantable BCIs raise concerns about long-term health effects and data privacy. Protecting neural data is becoming an important cyber security issue.

High Cost: Advanced BCI systems are currently expensive and not widely accessible.

Adaptability: Every human brain is unique. Systems must be customized and trained for individual users.

Future Scope of Brain–Computer Interfaces : The future of BCIs is incredibly promising. Researchers predict that within the next few decades, we may see: Thought-controlled smartphones, Brain-connected smart homes, advanced prosthetics with touch sensation, direct brain-to-brain communication systems, Integration of BCIs with artificial intelligence for enhanced cognitive abilities.

Some scientists even believe that BCIs may help treat mental health disorders, memory loss, and neurodegenerative diseases.

As artificial intelligence becomes more advanced, the combination of AI and neural interfaces could redefine how humans interact with technology.

Why This Topic Matters for Electrical Students :For students of the electrical department, Brain–Computer Interfaces represent a powerful reminder that engineering is not limited to wires and transformers. It extends to understanding the most complex electrical system in existence — the human brain.

This field combines: Electronics, Communication systems, Control engineering, Artificial intelligence, Biomedical engineering. It opens new career paths in research, healthcare technology, robotics, and advanced automation.

Conclusion: Engineering the Future of Human InteractionBrain–Computer Interfaces are not just an innovation — they are a revolution in human-machine interaction. By translating neural electrical signals into actionable commands, electrical engineers are bridging the gap between thought and technology.

As highlighted in IEEE research, BCIs demonstrate how electrical engineering continues to evolve and redefine its boundaries. From improving the lives of disabled individuals to shaping the future of intelligent systems, this technology stands at the frontier of scientific advancement.

The future of electrical engineering is no longer only about generating power — it is about empowering minds.

Solar Power EV Charging Station

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A solar powered electric vehicle charging station is an innovative and sustainable solution that combines renewable energy with modern transportation. As the number of electric vehicles (EVs) is increasing rapidly across the world, the need for clean and efficient charging infrastructure has become very important. Although electric vehicles reduce air pollution compared to petrol and diesel vehicles, the electricity used for charging them often comes from conventional power plants that burn fossil fuels. This reduces the overall environmental benefit. To solve this issue, solar powered EV charging stations use sunlight, which is a renewable and pollution-free source of energy, to generate electricity and charge electric vehicles.The basic working principle of a solar EV charging station is simple. Solar panels are installed in an open area where they can receive maximum sunlight. These panels absorb solar energy and convert it into electrical energy in the form of direct current (DC). This electricity is then either directly supplied to the electric vehicle for charging or stored in batteries for later use. In many systems, an inverter is used to convert DC into alternating current (AC), sdepending on the type of charging system. During the daytime, when sunlight is available, the system generates electricity continuously. If excess power is produced, it can be stored in battery storage systems or supplied to the main grid in grid-connected systems. This ensures efficient utilization of solar energy.

Solar powered EV charging stations offer many advantages. First and most importantly, they are environmentally friendly because they do not produce harmful emissions during electricity generation. They help reduce carbon footprint a And support the global effort to fight climate change.

Secondly, solar energy is freely available and renewable, which reduces dependence on non-renewable energy sources like coal and petroleum. These stations can be installed in various locations such as colleges, shopping malls, highways, parking areas, and even in rural regions where grid electricity may be limited. This makes them highly flexible and useful in both urban and rural areas.

However, there are some challenges associated with solar powered EV charging stations. The efficiency of power generation depends on weather conditions and availability of sunlight. Additionally, a large space is required to install sufficient solar panels to generate adequate power. Despite these challenges, continuous advancements

in solar technology and battery storage systems are making these stations more efficient and affordable.

In conclusion, solar powered EV charging stations represent a major step towards sustainabldevelopment and green transportation. By using clean solar energy to charge electric vehicles, we can reduce pollution, conserve fossil fuels, and create a healthier environment for future generations. With growing awareness and government support for renewable energy, solar EV charging stations are expected to play a significant role in shaping te future of transportation and energy systems.

Technologies in Electrical Engineering

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Abstract : Electrical engineering is rapidly evolving due to technological advancements and increasing energy demands. Modern and emerging technologies such as smart grids, electric vehicles, wireless power transfer, and the Internet of Things (IoT) are transforming the traditional electrical systems into intelligent and efficient systems. These technologies improve energy efficiency, reliability, automation, and sustainability. This article discusses the concept of modern electrical technologies, their applications, advantages, and their impact on the future of power systems and electrical engineering.

Introduction : Electrical engineering has experienced significant technological development over the past few decades. Traditional power systems are gradually being replaced by intelligent systems that use digital technologies and automation. Modern electrical technologies aim to improve energy efficiency, reduce power losses, and integrate renewable energy sources into the power grid.

Emerging technologies in electrical engineering play a major role in solving global problems such as energy crisis, environmental pollution, and increasing electricity demand. Technologies such as smart grids, electric vehicles, artificial intelligence in power systems, and wireless energy transfer are shaping the future of electrical engineering.

These innovations allow better monitoring, control, and management of electrical systems while improving reliability and sustainability.

Applications : Smart Grids Smart grids use digital communication technology to monitor and manage electricity supply and demand efficiently. They help reduce power losses and improve reliability of the power system.

Solar Powered Electric Vehicle Charging Station

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Abstract : The rapid growth of electric vehicles (EVs) has increased the demand for sustainable and clean charging infrastructure. Traditional EV charging stations rely on grid electricity, which may still be generated from fossil fuels. Solar powered EV charging stations provide an eco-friendly solution by utilizing renewable solar energy to charge electric vehicles. These systems integrate solar photovoltaic (PV) panels, energy storage systems, and smart charging infrastructure to provide reliable and sustainable energy. Solar EV charging stations help reduce greenhouse gas emissions, decrease dependency on fossil fuels, and promote clean transportation. This article discusses the concept, working principle, components, advantages, and key technologies involved in solar powered EV charging stations.

Keywords:- Solar energy, electric vehicle charging, renewable energy, photovoltaic system, energy storage system, sustainable transportation

Introductionhe increasing demand for transportation and growing environmental concerns have led to the development of electric vehicles as an alternative to conventional fuel vehicles. Electric vehicles help reduce air pollution and carbon emissions. However, the source of electricity used for charging EVs plays an important role in determining their environmental impact.

Solar energy is one of the most abundant and clean sources of renewable energy available on Earth. A solar powered EV charging station uses photovoltaic (PV) panels to convert sunlight into electricity, which is then used to charge electric vehicles. This system can operate independently or in combination with the electrical grid, making it a sustainable and efficient solution for EV infrastructure.

Solar Powered EV Charging Station : A solar powered EV charging station is a system that uses solar panels to generate electricity for charging electric vehicles. The solar panels capture sunlight and convert it into direct current (DC) electricity using photovoltaic technology. This electricity can either be directly used to charge EVs or stored in batteries for later use.

The charging station typically consists of: solar panels installed on rooftops or open spaces, an inverter to convert DC electricity into alternating current (AC), a battery storage system, and EV charging equipment. During daytime, solar panels generate electricity which can directly charge vehicles or be stored in batteries.

At night or during cloudy conditions, the stored energy in batteries or electricity from the grid can be used to charge vehicles. Solar EV charging stations are especially

useful in parking lots, highways, residential areas, commercial complexes, and public charging points. They promote green mobility and reduce dependency on conventional electricity sources.

Working Principle : The working of a solar powered EV charging station involves several steps: Solar Energy Collection Solar panels capture sunlight and convert it into DC electricity through photovoltaic cells.

Energy Conversion : The generated DC electricity is passed through an inverter which converts it into AC power suitable for charging systems.

Energy Storage

Excess electricity produced during peak sunlight hours is stored in batteries for later use The charging unit supplies electricity to the electric vehicle through a charging connector.

Smart Energy Management : Control systems monitor energy production, storage levels, and charging demand to ensure efficient operation.

Advantages of Solar Ev Charging Stations : Solar powered EV charging stations provide several benefits:

Use of clean and renewable energy source
Reduction in greenhouse gas emissions
Lower operating and electricity costs
Reduced load on the conventional power grid

Key Technologies

1) Solar Photovoltaic Panels : Solar PV panels are the main component responsible for converting sunlight into electrical energy. High-efficiency photovoltaic cells are used to maximize energy generation.

2) Energy Storage System : Battery storage systems store excess solar energy generated during the day. This stored energy can be used during nighttime or when sunlight is not available.

3) Inverter System: The inverter converts DC electricity produced by solar panels into AC electricity required for EV charging equipment and other electrical systems.

Conclusion : Solar powered EV charging stations represent an important step toward sustainable transportation and clean energy utilization. By integrating solar energy with electric vehicle infrastructure, it is possible to reduce carbon emissions, decrease reliance on fossil fuels, and support the global transition to renewable energy. With continuous technological advancements and increasing adoption of electric vehicles, solar EV charging stations will play a vital role in building environmentally friendly and energy-efficient transportation systems.

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Thermal Modeling for High Power Charging (HPC) of Electric Vehicles

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Abstract : High Power Charging (HPC) enables fast charging of electric vehicles but produces significant heat in battery systems. Thermal modeling helps analyze temperature rise and design effective cooling methods to ensure battery safety, efficiency, and longer lifespan.

Keywords : Electric Vehicles (EVs), High Power Charging (HPC), Thermal Modeling, Battery Thermal Management, Lithium-ion Battery, Heat Transfer, Battery Management System (BMS).

Introduction : The automotive industry is changing rapidly due to electrification, automation, and new mobility systems. Electric Vehicles (EVs) are becoming popular because they reduce fossil fuel consumption and greenhouse gas emissions. However, one major concern for EV users is charging time and driving range.

High Power Charging (HPC) using Direct Current (DC) technology is a solution to this problem. Future charging systems aim to deliver up to 350 kW of power. With this high power, an EV can gain about 300 km range in nearly 10 minutes. This makes charging almost as convenient as refueling a petrol or diesel vehicle.

However, such high charging power creates serious thermal and electrical challenges. Managing heat generation safely and efficiently becomes extremely important.

Importance of High Power Charging (HPC) : Earlier, more focus was given to improving vehicle driving performance rather than charging speed. But fast charging is essential for:

Reducing range anxiety

Supporting long-distance travel

Making autonomous vehicles profitable

Reducing waiting time at charging stations At 350 kW charging power, currents can reach up to 500 amperes. Such high current produces significant heat due to electrical resistance in cables, connectors, and other components.

Challenges of HPC

High Power Charging creates a peak load condition in the vehicle's electrical system. During charging, the energy flow is constant and very high. This is different from normal driving, where current changes dynamically.

Major challenges include :

Heat Generation – Electrical resistance converts electrical energy into heat.

Large Cable Size – Higher current requires thicker cables (e.g., 50 mm^2 vs 95 mm^2).

Weight and Space Issues – Bigger cables increase vehicle weight and cost.

Voltage Upgrade – Some manufacturers are moving from 400V systems to 800V systems to reduce current while maintaining power.

Cooling Limitations – During charging, the vehicle is stationary, so there is less air cooling.However, HPC requires a more dynamic and realistic design approach.

Importance of Thermal Simulation : Whenever current flows through a conductor, heat is produced due to resistance (measured in Ohms).

The amount of heat depends on:

Current level

Voltage

Temperature

Material properties

As temperature increases, resistance also increases. This creates a cycle of more heat generation.

Thermal simulation helps engineers to : Predict temperature rise Identify overheating points (hot spots) Understand heat flow paths Improve component design Reduce unnecessary over-dimensioning Without simulation, systems may be designed too large for safety reasons, increasing cost and weight.

Systemic Thermal Simulation Method : A new simulation method is based on Kirchhoff's Circuit Laws, which state: The sum of currents at a point is zero The sum of voltages in a loop is zero Energy is conserved -Heat transfer occurs in three ways :

Conduction – Through materials

Convection – Through air or coolant

Radiation – Heat emitted as energy

By using this model, engineers can simulate : Connectors Cables

Complete high-voltage paths Real-time charging conditions

The advantage is that this method requires very low computing power and can even run in real time inside the vehicle's control unit.

Safety and Design Benefits : Thermal simulation provides major advantages:

Identifies thermal bottlenecks

Predicts aging effects of components

Improves reliability and durability

Reduces testing time

Since EVs are expected to last 15 years or 300,000 km, components must handle both driving loads and thousands of charging cycles.

Simulation ensures that components can safely handle 10-minute high-power charging sessions repeatedly throughout their service life.

Conclusion : High Power DC Charging at 350 kW creates an extreme load condition for Electric Vehicles. It produces high currents and significant heat along the entire high- voltage path.

Traditional static design methods are not suitable for HPC systems. Instead, dynamic systemic thermal simulation is required to: Predict real-world temperature behavior Avoid overheating

In the future, thermal simulation will play a key role in making EV charging faster, safer, and more efficient.

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Advancements in Electrical Engineering : Shaping the Future of Technology

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Introduction : Electrical engineering stands as a pioneering field that has played a significant role in shaping the course of modern technology (Sugawara H, 2003). From the advent of electricity to the complex systems we rely on today, electrical engineers have been at the forefront of innovation, revolutionizing the way we live, work, and interact with our world. As we venture further into the 21st century, the field of electrical engineering continues to evolve at astounding pace, driving ground-breaking advancements that hold the potential to transform industries and propel us into the future. In this article, we will delve into some of the recent advancements in electrical engineering and explore their far-reaching implications (Oinn T, 2004). These advancements span diverse areas, including power electronics and renewable energy, the Internet of Things (IoT), artificial intelligence (AI) and machine learning, robotics and automation, as well as integrated circuit (IC) design and nanotechnology (Hoon S, 2005). Each of these areas represents a technological frontier, pushing the boundaries of what is possible and paving the way for unprecedented advancements in various sectors. Power electronics and renewable energy have become increasingly vital as the demand for clean and sustainable energy sources continues to surge (Fisher P, 2007). Electrical engineers are spearheading the development of efficient power conversion systems, allowing for the integration of renewable sources such as solar and wind into the power grid. This not only ensures a reliable and stable power supply but also reduces the environmental impact associated with traditional energy generation (Wilkinson MD, 2002). The Internet of Things (IoT) has emerged as a transformative force, connecting countless devices and systems through networks of sensors and actuators. Electrical engineers are actively engaged in designing and implementing efficient communication protocols, energy efficient devices, and robust security systems to facilitate seamless IoT integration. The applications of IoT are vast and diverse, ranging from smart homes and cities to industrial automation, healthcare monitoring, and transportation systems (Smedley D, 2009). Artificial intelligence (AI) and machine learning are reshaping the landscape of electrical engineering by enabling advanced control systems, autonomous vehicles, intelligent energy management solutions, and predictive maintenance systems. These technologies empower electrical engineers

to analyze immense volumes of real-time data, make informed decisions, and optimize complex processes, thereby enhancing efficiency, reliability, and performance (Vaquero LM, 2009). Robotics and automation are experiencing remarkable advancements, thanks to electrical engineering innovations. Engineers are leveraging cutting-edge control systems, sensor integration, and machine vision to create highly capable robotic systems that can perform intricate tasks with precision. This revolution in robotics has broad implications, ranging from industrial settings and healthcare to agriculture and disaster response scenarios (Kottmann R, 2008). Furthermore, integrated circuit (IC) design and nanotechnology are pushing the limits of miniaturization and performance. Electrical engineers are exploring novel techniques such as nanofabrication, quantum computing, and emerging materials to develop smaller, faster, and more energy-efficient ICs. These advancements are paving the way for transformative developments in computing, communications, and sensor technologies. In conclusion, electrical engineering stands at the forefront of transformative advancements that are shaping the future of technology (Lapins M, 2008). Through advancements in power electronics, renewable energy, IoT, AI, robotics, and nanotechnology, electrical engineers are redefining the boundaries of what is possible. As they continue to push the envelope, the future promises a world driven by sustainable energy, intelligent systems, and interconnected devices, holding profound implications for our quality of life and addressing global challenges such as climate change and automation.

Abstract : Electrical engineering is developing rapidly in the 21st century and plays a major role in shaping modern technology. From the discovery of electricity to today's advanced computer systems, this field has continuously supported human progress.

Recent advancements such as renewable energy systems, power electronics, Internet of Things (IoT), Artificial Intelligence (AI), robotics, and integrated circuits are transforming industries and everyday life.

These technologies help in improving energy production, enhancing communication, automating systems, and developing smaller, faster, and more efficient electronic devices.

In the future, electrical engineering will contribute to sustainable energy solutions, intelligent systems, and interconnected devices. It will also help solve global challenges like climate change and improve the overall quality of life.

Material And Methods : Power electronics and renewable energy The increasing demand for clean and sustainable energy sources has propelled the field of power electronics to new heights (Steinbeck C, 2003). Electrical engineers are developing efficient power conversion systems, enabling the integration of renewable energy sources like solar and wind into the power grid.

Advanced power electronics devices, such as inverters and converters, are being designed to optimize energy production and storage, ensuring a reliable and stable power supply while reducing environmental impact.

Internet of things (IoT) : The Internet of Things has gained tremendous momentum in recent years, connecting various devices and systems through a network of sensors and actuators. Electrical engineers are at the forefront of IoT development, working on designing and implementing efficient communication protocols, energy-efficient devices, and robust security systems. IoT applications are diverse, ranging from smart homes and cities to industrial automation, healthcare monitoring, and transportation systems.

Artificial intelligence (AI) and machine learning

Srevolutionizing many aspects of electrical engineering. Engineers are leveraging these technologies to develop advanced control systems, autonomous vehicles, intelligent energy management systems, and predictive maintenance solutions. AI-powered algorithms analyze vast amounts of data in real-time, making informed decisions and optimizing complex processes, thereby enhancing efficiency and reliability.

Robotics and automation

Electrical engineers are contributing to the field of robotics and automation, enabling the development of advanced robotic systems that can perform complex tasks with precision. Through advancements in control systems, sensor integration, and machine vision, robots are becoming more versatile, agile, and capable of working alongside humans in industrial settings, healthcare, agriculture, and disaster response scenarios.

Integrated circuit (IC) design and Nanotechnology Integrated circuits form the foundation of modern electronics, and electrical engineers continue to push the limits of miniaturization and performance. With the advent of nanotechnology, engineers are designing smaller, faster, and more energy-efficient ICs. Techniques like nanofabrication, quantum computing, and emerging materials are being explored to unlock new possibilities in computing, communications, and sensor technologies.

Conclusion : The field of electrical engineering is witnessing an era of unprecedented growth and innovation. Advancements in power electronics, renewable energy, IoT, AI, robotics, and nanotechnology are transforming various industries, improving our quality of life, and addressing global challenges such as climate change and automation. As electrical engineers continue to push the boundaries of technology, the future holds great promise for a world driven by sustainable energy, intelligent systems, and interconnected devices. It is an exciting time to be a part of the electrical engineering community, as we shape the future of technology and pave the way for a more technologically advanced and sustainable world.

Winner in State Level Paper Presentation SESTech 2026

VLSI Design Challenges In Nanotechnology

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Abstract : Very Large Scale Integration (VLSI) technology is used to design integrated circuits by combining millions or billions of transistors on a single chip. With the advancement of nanotechnology, the size of transistors has reduced to nanometer scale. This miniaturization improves performance, speed, and power efficiency. However, designing circuits at the nanometer level also introduces several challenges such as short channel effects, leakage power, heat dissipation, and manufacturing difficulties. This article discussesthe major challenges faced in VLSI design due to nanotechnology and possible solutions to overcome them.

Introduction : VLSI technology plays an important role in modern electronic systems such as computers, smartphones and communication devices. Earlier, integrated circuits contained only a few thousand transistors, but today they contain billions of transistors on a single chip.

Nanotechnology allows engineers to design extremely small electronic components, typically measured in nanometers (nm). While this scaling improves circuit density and performance, it also creates many technical challenges in the design and manufacturing of VLSI circuits.

Role of Nanotechnology in VLSI : Nanotechnology helps reduce the size of transistors and other components in integrated circuits. Smaller devices allow more transistors to be placed on a chip, which increases computational power and reduces power consumption.

Major Challenges in VLSI Design with Nanotechnology

Short Channel Effects : As transistor size decreases, the channel length becomes very small.

Leakage Power : At nanometer scale, transistors may allow small amounts of current to flow even when they are turned off.

Heat Dissipation : With billions of transistors working simultaneously on a chip, a large amount of heat is generated.

Process Variations : Manufacturing components at the nanometer scale is extremely difficult.

Interconnect Delay : As chips become more complex, the wires connecting transistors become longer and thinner.

Methods to Overcome the challenges : Several techniques are used to reduce these challenges:

Use of new transistor structures such as FinFET to control leakage current.

Low-power design techniques to reduce energy consumption.

Advanced cooling systems to manage heat dissipation.

These solutions help improve the reliability and performance of modern VLSI circuits.

Conclusion : Nanotechnology has greatly improved the performance and density of VLSI circuits. However, scaling devices to nanometer dimensions introduces several challenges such as leakage power, heat

dissipation, short channel effects, and manufacturing variations. Researchers and engineers continue to develop new technologies and design techniques to overcome these challenges. With ongoing advancements, nanotechnology will continue to play a key role in the future development of VLSI systems

Cybersecurity Challenges In The Age of Iot: Securing A Connetcted World

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Abstract : The Internet of Things (IoT) has dramatically transformed the way we interact with technology, offering a myriad of benefits across industries and everyday life. However, the rapid proliferation of IoT devices has introduced significant cybersecurity challenges. This article highlights four key issues: insecure devices and lack of timely updates, privacy risks associated with data collection, weak authentication and device impersonation, and the growing threat of IoT-driven botnets and DDoS attacks. To address these challenges, it is crucial for manufacturers to implement stronger security protocols, such as automatic updates, robust encryption, and multi-factor authentication. Additionally, both consumers and industry stakeholders must work together to ensure secure device usage and foster a secure IoT ecosystem. By prioritizing cybersecurity, we can harness the full potential of IoT while minimizing associated risks.

Introduction : The rise of the Internet of Things (IoT) has transformed everyday life, with millions of connected devices across homes, workplaces, and industries. However, this vast network of interconnected devices introduces significant cybersecurity risks. In this article, we'll explore four major cybersecurity challenges posed by IoT and potential solutions to tackle these issues.

Insecure Devices and Lack of Updates : Many IoT devices come with weak security out-of- the-box. Often, they ship with default passwords that are easy for hackers to exploit. In addition, many devices cannot receive timely software updates, leaving them vulnerable to known threats for extended periods. To combat this, manufacturers must implement automatic updates and ensure that devices come with strong, unique credentials from the start.

Privacy Risks and Data Protection : IoT devices collect vast amounts of personal data, from health metrics to home activity logs. If not properly secured, this data can be intercepted or stolen. Encryption is essential to protect this sensitive information during transmission and while stored on devices. Consumers should also be aware of the data their devices collect and ensure they use privacy- focused tools when possible.

Conclusion : While IoT presents numerous benefits, it also introduces significant cybersecurity risks. To protect against these threats, manufacturers, consumers, and governments must work together to improve device security, ensure regular updates, and strengthen authentication mechanisms.

Energy Monitoring and Distribution of Renewable Source Througt IoT

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Abstract : Renewable Energy Systems, Particularly Solar Photovoltaic Installations, Are Increasingly Adopted To Meet Rising Electricity Demand And Reduce Environmental Impact. However, Many Small-scale Solar Systems Lack Real-time Monitoring, Intelligent Load Control, And Proper Battery Protection Mechanisms. This Article Presents An Overview Of An Iot-based Energy Monitoring And Distribution System Using A 20 W Solar Panel, Arduino Uno, Li-ion Battery, And Multiple Sensors. The System Measures Voltage, Current, Temperature, Power, And Energy Consumption While Ensuring Safe Distribution Through Relay-based Control And Protection Devices. The Paper Discusses System Components, Working Principles, Applications, Advantages, Limitations And Future Scope, Highlighting Its Importance In Modern Smart Energy Management Systems.

Introduction : The Increasing Demand For Electricity And The Depletion Of Fossil Fuel Resources Have Accelerated The Development Of Renewable Energy Technologies. Solar Energy Has Emerged As One Of The Most Reliable And Sustainable Energy Sources. However, Conventional Small-scale Solar Systems Often Operate Without Real Time Monitoring Or Intelligent Control, Leading To Inefficient Energy Utilization And Battery Damage.

Basic Components Of The System :

Solar Panel : The Solar Panel Converts Sunlight Into Direct Current (dc) Electrical Energy. In This System, A 20 W Panel Operating At Approximately 18–21 Vis Used To Generate Renewable Power.

Battery : A12 V, 6 Ahli-ion Battery Stores The Generated Energy. The Battery Provides Backup Power To Loads During Low Sunlight Conditions And Ensures Continuous Supply.

Sensors Enable Real-time Monitoring Of System Parameters. Common Sensors Used Include:

Voltage Sensor, Current Sensor, Temperature Sensor These Sensors Allow The System To Calculate Power And Energy Consumption While Maintaining Battery Safety.

Controller The Arduino Uno Acts As The Central Controller Of The System. It Processes Sensor Data, Performs Power Calculations, And Controls Relay Switching Operations. It Serves As The Brain Of The Energy Monitoring System.

Relay And Protection Devices : Relay

Modules Act As Electronic Switches For Load Control. Adc Mcb Provides Protection Against Overload And Short-circuit Conditions.

Working of the System : The system operates in a closed-loop control manner. First, the solar panel generates DC power from sunlight. The charge controller regulates battery charging and prevents overcharging or deep discharge. Sensors continuously measure voltage, current, and temperature. The Arduino processes this data and calculates:

Power = Voltage × Current

Energy = Power × Time

Based on battery voltage and safety conditions, the controller activates or deactivates relays to manage load distribution. If temperature exceeds the safe limit, the system disconnects the load to protect the battery.

Applications of the System

1.Home Solar Systems: Provides monitoring and intelligent energy control.

2.Educational Laboratories: Useful for renewable energy experiments and demonstrations.

3.Rural and Off-Grid Electrification: Suitable for low-power remote applications.

4.Smart Micro-Grids: Can be integrated into distributed renewable systems.

5.Industrial Energy Auditing: Enables load-wise monitoring and analysis.

Advantages Of The System (new Section) : The system offers real-time monitoring, improved battery safety, and efficient load distribution. It is renewable and eco-friendly, reduces operating cost, and provides modular scalability. The design is suitable for educational and research applications.

Challenges And Limitations (new Section) : Despite its advantages, the system has certain limitations. The 20 W panel restricts output power, making it suitable only for small loads. Performance depends on weather conditions. The base version does not include cloud storage or advanced analytics.

Future Scope : Future enhancements may include integration with IoT cloud platforms, mobile application monitoring, implementation of MPPT charge controllers, use of higher wattage panels, AI-based energy prediction, and smart grid compatibility. These improvements can transform the system into a fully intelligent renewable energy management solution.

Conclusion : The IoT-based energy monitoring and distribution system provides a compact and efficient approach to renewable energy management. By integrating sensing, control, and protection mechanisms, the system improves energy utilization, reliability, and battery safety. With further technological advancements, such systems will play a crucial role in smart and sustainable energy infrastructure

Brain Computer Interface (Future of Human - Machine Interaction)

Akshata Sanga
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Introduction : BCI uses the brain's electrical signals tocontrol devices without physical movement. It is especially useful for people withdisabilities and combines electronics, neuroscience, and signal processing, makingit an important and emerging field forElectronics & Telecommunication students.

How Does It Work?

A Brain–Computer Interface works by capturing brain signals using EEGelectrodes, amplifying and filtering them, processing the signals to extract useful information, and converting them into commands that control external devices such as computers or robotic systems.

Abstract: Brain Computer Interface (BCI) is atechnology that enables direct communication between the human brain and machines by converting brain signals into control commands, mainly for medical, assistive, and automation applications.

Key components include:

EEG electrodes to capture brain signals, a signal amplifier to strengthen weak signals, a signal processing unit to filter and analyse data, a micro controller or computer to generate control commands, and an output device such as a robot, wheelchair, or computer system.

Applications: BCI technology is used in assistive devices for physically disabled individuals, medical rehabilitation, control of robotic arms and wheelchairs, gaming and virtual reality systems, and neuroscience research

Challenges : BCI systems face issues like weak and noisy brain signals, high cost, limited accuracy, and the need for user training.

Future Possibilities : With advancements in AI and wireless technology, BCIs may become more accurate, affordable, and widely used in healthcare, automation, and assistive applications.

Career paths:

a) Biomedical Engineer
b) Embedded Systems Engineer
c) Research Scientist
d) Robotics and AI Specialist

Conclusion : Brain Computer Interface enables direct communication between the brain and machines. With advancements in technology, it has strong future potential in healthcare, automation, and assistive applications.

AI-Driven 6G Networks : Towards Intelligent and Autonomous Communication Systems

Prajwal Chandanshive
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Abstract : While 5G was about connecting people and things, 6G is designed to be the "Intelligent Network of Everything." This article discusses the transition from human-managed networks to fully autonomous systems. We explore how AI serves as the backbone of 6G, enabling features like self-healing, "AI-as-aService," and seamless communication between machines, paving the way for a hyper-connected, smart world by 2030.

Introduction : The leap from 5G to 6G is more than just a speed boost; it's a shift in "thinking." In 2026, we are already seeing the limits of manual network management. As billions of IoT devices, autonomous cars, and smart city sensors come online, human engineers can no longer keep up with the complexity. 6G solves this by making Artificial Intelligence (AI) a native part of the network, creating a system that manages itself.

The Shift to Autonomous Networks: The "Brain" Inside the Machine : In earlier generations like 4G and even early 5G, the network was a "passive pipe." It simply moved data from one place to another. If something went wrong—like a cable cutting or too many people trying to use it at once—it usually stayed broken until a person intervened.

6G changes everything because the network becomes an active participant. It doesn't just move data; it understands it.

II. A. Self-Healing: The Network That Fixes Itself Imagine a major network tower in Solapur suddenly stops working due to a storm. In the old days, everyone in that area would lose signal until a technician drove out to fix it.

In an AI-driven 6G world, the network has "reflexes":

Instant Detection : The AI "feels" the failure in milliseconds.

Automatic Rerouting : It immediately instructs nearby 6G drones, high-altitude satellites, or even other users' devices to act as temporary mini-towers.

Zero Downtime : You stay on your call or keep your game running. The network heal the gap while the technician is still packing their tools.

Key Enabling Technologies :- These three breakthroughs are what actually make 6G "smart."

"renting a brain." Your phone won't need an expensive processor to run heavy apps; the 6G network does the hard work in the cloud and sends the results back instantly. This makes even cheap devices feel like supercomputers.

Integrated Sensing (ISAC): This gives the network "eyes." 6G radio waves act like high-tech radar. The network can "see" objects, people, and movement without needing cameras, helping autonomous cars stay safe and smart cities stay organized.

Challenges for the Next Decade :- Building a "thinking network" isn't easy.

Energy Efficiency : AI requires massive computing power. Engineers are working on "Green AI" to ensure 6G doesn't harm the environment.

Data Privacy : If the network is "sensing" everything, how do we keep that data private? New techniques like Federated Learning are being developed so the AI can learn without ever "seeing" your personal data.

Final thought's : 6G + AI is more than speed; it's a network with a brain. It moves from "dumb" signals to a smart system that fixes itself and predicts your needs. It turns every device into a powerhouse, making the internet feel invisible and effortless.

"5G connected our phones, but 6G will connect our world with a brain of its own"

Robotics : Basics, Applications and Future Scope

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Abstract : Robotics is a rapidly growing field that combines mechanical engineering, electronics, computer science, and artificial intelligence to design intelligent machines capable of performing tasks autonomously or semi-autonomously. Robotics systems are increasingly used in industrial automation, healthcare, agriculture, space exploration, and service applications. This article presents an overview of robotics, its core components, working principles, applications, advantages, challenges, and future scope, highlighting its importance in modern technological development.

Introduction : Robotics integrates multiple disciplines such as mechanical engineering, electronics, computer science, and control systems to create efficient and intelligent machines. The increasing demand for automation has significantly accelerated research and development in robotic technologies. Robots are capable of performing repetitive, complex, and hazardous tasks with high precision, reducing human effort and risk. Today, robotics is not limited to industries but is also widely used in healthcare, agriculture, education, and domestic applications. As technology continues to advance, robotics is expected to become an integral part of everyday life.

Basic Components of Robotics

A. Sensors : Sensors enable robots to gather information from their surroundings. Common sensors include temperature sensors, proximity sensors, vision sensors, and force sensors. These sensors help robots perceive the environment and make informed decisions..

B. Actuators : Actuators are devices that convert electrical signals into physical motion. Motors, hydraulic cylinders, and pneumatic systems are commonly used actuators in robotic systems. They are responsible for controlling the speed, direction and force of robotic movements. The selection of actuators directly affects the efficiency and accuracy of the robot.

C. Controller : The controller acts as the brain of the robot. It processes input from sensors, executes programmed instructions, and sends commands to actuators. Microcontrollers and embedded processors are widely used as robotic controllers.

Working Of A Robotic System (new Section) : A robotic system works in a closed-loop manner. First, sensors collect environmental data. This data is processed by the controller, which determines the appropriate action. The actuators then execute the required movement. Feedback
from sensors allows the robot to correct errors and improve performance.

Applications of Robotics

1. Industrial Automation : Robots are used for welding, assembly, painting, and packaging in manufacturing industries.

2. Healthcare: Surgical robots assist doctors in performing precise and minimally invasive operations.

3. Agriculture (NEW POINT) : Robots are used for planting, harvesting, and monitoring crop health.

4. Space Exploration : Robots explore hazardous environments where human presence is difficult or impossible.

Advantages of Robotics (new Section) : Robotics offers high precision, increased productivity, reduced human effort, and improved safety. Robots can work continuously without fatigue and perform tasks in dangerous environments.

Challenges And Limitations (new Section) : Despite its benefits, robotics faces challenges such as high initial cost, complexity in programming, maintenance requirements, and ethical concerns related to job displacement.

Future Scope of Robotics : The future of robotics includes intelligent humanoid robots, collaborative robots (cobots) and integration with artificial intelligence and machine learning. Robotics is expected to play a major role in smart cities, autonomous transportation, and personalized healthcare.

Conclusion : Robotics is transforming the way humans work and interact with machines. By combining automation and
intelligence, robotics enhances productivity, safety, and innovation. With continuous research and development, robotics will remain a key technology shaping the future.

Quantum Communication

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Introduction : Communication uses the principles of quantum physics to transmit information securely using quantum particles such as photons. It provides extremely secure data transmission and combines electronics, quantum physics, and communication technology, making it an important and emerging field for Electronics & Telecommunication students.

How Does It Work? : A Quantum Communication system works by encoding information into quantum states of particles such as photons, transmitting them through optical fiber or free space channels, detecting the quantum signals using special detectors, processing the received data, and converting it into secure communication between devices or networks.

Abstract : Quantum Communication is a technology that enables highly secure information transfer using quantum mechanics principles such as quantum entanglement and quantum key distribution, mainly for secure communication, data protection and advanced networking applications.

Key components include :A photon source generates photons, an encoder encodes information into their states, an optical channel transmits them, a detector receives them, and a computer processes the data for secure communication.

Application : Quantum Communication technology is used in secure data transmission, quantum key distribution for encryption, secure banking and military communication, satellite communication networks, and advanced scientific research.

Challenges : Quantum Communication systems face issues like signal loss over long distances, expensive equipment, complex technology, and difficulties in maintaining stable quantum states during transmission.

Future Possibilities : With advancements in quantum technology and satellite communication, quantum communication may become more secure, faster and widely used in global networks, cybersecurity, and advanced communication systems.

Career paths:

a) Quantum Communication Engineer
b) Quantum Research Scientist
c) Photonics Engineer
d) Quantum Computing .

Conclusion : Quantum Communication enables secure information transfer using quantum principles and has strong future potential in cybersecurity and communication networks.

Artificial Intelligence in Semiconductor Industry.

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Introduction : Artificial Intelligence in the Semiconductor Industry uses advanced algorithms to improve chip design, manufacturing and testing processes. It helps in faster data analysis and efficient system optimization and combines electronics, semiconductor technology, and artificial intelligence, making it an important and emerging field for Electronics & Telecommunication students.

How Does It Work? : An AI-based semiconductor system works by collecting large amounts of chip design and manufacturing data, analyzing it using machine learning algorithms, detecting patterns and defects, optimizing chip performance, and assisting engineers in improving semiconductor design and production processes.

Abstract : AI in the Semiconductor Industry is a technology that uses artificial intelligence and machine learning to improve chip design, fault detection, manufacturing efficiency, and performance optimization in modern electronic and computing systems.

Key components include : A data collection system gathers semiconductor manufacturing data, an AI model analyzes patterns and predicts faults, a high-performance processor processes large datasets, a software platform manages AI algorithms, and engineers use the results to improve chip design and production.

Applications : AI in the Semiconductor Industry is used in chip design automation, defect detection during wafer manufacturing, performance optimization of processors, smart electronics development, and advanced computing systems.

Challenges :AI-based semiconductor systems face issues like high development cost, large data requirements, complex algorithms, and the need for powerful computing resources for accurate analysis and reliable results.

Future Possibilities : With advancements in artificial intelligence and semiconductor technology, AI-driven chip design may become faster, more efficient, and widely used in electronics, computing, and automation industries.

Career paths:

a) Semiconductor Design Engineer
b) AI Hardware Engineer
c) Chip Design Research Scientist

Conclusion : AI in the Semiconductor Industry improves chip design and manufacturing using artificial intelligence and has strong future potential in electronics, computing, and smart technology development.

CYBER SECURITY

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Introduction : Cybersecurity is all about protecting computers, networks, and data from digital attacks, unauthorized access, and damage. As our lives become more connected through the internet banking online, using social media, shopping, working, and studying keeping information safe has become a critical priority. Cybersecurity focuses on defending systems against threats like hacking, malware, phishing, ransomware and data breaches.

WHAT IS CYBER SECURITY? : Cybersecurity is the practice of protecting digital devices, networks, and sensitive data from threats like hacking, malware, and phishing. Also known as Information Security (INFOSEC), Information Assurance (IA), or System Security.

Protects systems, networks, and personal informationUses security tools, policies, and safe online practicesPrevents data theft, system damage, and unauthorized access

Types Of Cyber Security

There are seven types of cyber security :

1. Network Security
2. Applications Security
3. Information or Data Security
4. Cloud Security
5. Endpoint Security
6. Operational Security
7. Internet of Things (IoT) Security

Major Cyber Security Threats & Attacks : Hackers use advanced techniques to find weaknesses in systems, steal or change data, and break into networks without permission. Below are the most common cybersecurity threats that target businesses, cloud storage, and personal devices:

1. Malware Type : Malware is malicious software created to harm computers or steal data.

Example : A user installs a free game from an untrusted website. The game contains a virus that deletes files and slows down the system.

2. Phishing : Phishing is a cyberattack where attackers trickusers into revealing sensitive information by pretending to be trustworthy sources.

Example : A fake email claims to be from a bank and asks the users to click a link and enter their ATM PIN.

3.Man-in-the-middle (mitm) Attack : In this attack, hackers secretly intercept communication between two parties.

Example : On public Wi-Fi, an attacker captures login details when a user signs into email.

4. Password Attacks : These attacks attempt to guess or steal passwords using automated tools.

Example : An attacker tries thousands of common passwords until they successfully log into an account.

5. Insider Threats : Insider threats occur when trusted individuals misuse their access.

Example : An employee downloads confidential company files and leaks them to outsiders.

How To Stay Safe? : There are several steps you can take to protect yourself from cyber threats, including:

Use strong passwords : Use unique and complex passwords for all of your accounts, and consider using a password manager to store and manage your passwords.

Keep your software up to date : Keep your operating system, software applications and security software up to date with the latest security patches and updates.

Enable two-factor authentication : Enable two-factor authentication on all of your accounts to add an extra layer of security.

Be aware of suspicious emails : Be cautious of unsolicited emails, particularly those that ask for personal or financial information or contain suspicious links or attachments.

Educate yourself : Stay informed about the latest cybersecurity threats and best practices by reading cybersecurity blogs and attending cybersecurity training programs.

4D Printing : The Future of Smart Manufacturing

Miss Yogita Gaddam
ME6K

Introduction : Technology is continuously evolving, and modern innovations are transforming the way products are designed and manufactured. One of the most exciting developments in advanced manufacturing is 4D printing technology. While 3D printing allows the creation of three-dimensional objects layer by layer, 4D printing adds a new dimension time. This means that objects printed using this technology can change their shape, properties, or functionality after printing when exposed to external conditions.

4D printing is considered the next step in additive manufacturing. It combines the power of 3D printing with smart materials that can respond to environmental stimuli. This technology has attracted the attention of scientists, engineers, and researchers around the world because of its potential to create adaptive and intelligent products. As research continues, 4D printing may significantly transform industries such as healthcare, aerospace, construction, and robotics.

Concept of 4D Printing : The term "4D printing" refers to the process of creating objects that can transform themselves over time. The fourth dimension in this technology represents time because the printed object can change its shape or behavior after it is produced.

In simple words, 4D printing is a combination of additive manufacturing and programmable materials. Engineers design the object in such a way that certain parts respond to environmental changes. When the object is exposed to heat, moisture, light, or other stimuli, the material reacts and causes the structure to change automatically.

For example, a flat printed sheet may fold into a complex three-dimensional structure when placed in water or exposed to heat. This ability makes 4D printing very useful in situations where manual assembly is difficult or impossible.

Materials Used in 4D Printing : The success of 4D printing mainly depends on the use of smart materials. These materials are specially designed to react to external stimuli and change their structure. Some commonly used materials include:

1. Shape Memory Polymers – These

materials can remember their original shape and return to it when heated.

2. Hydrogels – These materials expand or shrink when exposed to water or moisture.

3.Smart Composites – These are combinations of different materials that respond to environmental conditions.

4. Programmable Carbon Fiber – Used in advanced engineering applications where controlled shape transformation is required. These materials allow engineers to program the behavior of a printed object during the design stage. Once the object is printed, it can perform automatic transformations when the required conditions are present.

Working Principle of 4D Printing : The working principle of 4D printing involves three main steps: design, printing, and activation.

First, engineers design the object using computer software and determine how the structure should transform under specific conditions. Next, the object is printed using a 3D printer with smart materials. During the printing process, the arrangement of materials is carefully controlled so that different sections react differently to environmental changes.

Finally, when the printed object is exposed to stimuli such as heat, water, light, or pressure, the programmed materials react and cause the object to change its shape. This transformation may include bending, folding, twisting, or expansion.

Applications of 4D Printing : 4D printing has a wide range of potential applications in different industries.

In the medical field, 4D printing can be used to create smart implants and medical devices that adapt to the human body. For example, stents used in blood vessels could expand automatically after being placed inside the body.

In the aerospace industry, aircraft components can change their shape depending on environmental conditions. This could improve fuel efficiency and performance.

In construction, engineers are exploring materials that can repair small cracks automatically. This may increase the lifespan of buildings and infrastructure.

The textile industry may also benefit from this technology. Clothes could adapt to temperature changes, becoming thicker in cold environments and lighter in warm conditions.

In robotics, 4D printing can help create self-assembling robots that can change their shape according to the task they need to perform.

Advantages of 4D Printing

4D printing offers several advantages

over traditional manufacturing methods.

- It allows the creation of self-transforming structures.
- It reduces the need for manual assembly.
- It enables the development of smart and adaptive products.
- It can reduce maintenance costs because some materials are capable of self-repair.
- It opens new possibilities for innovative product design.

These benefits make 4D printing an exciting area of research and development.

Challenges and Limitations : Despite its advantages, 4D printing still faces several challenges. The technology is relatively new, and many of its processes are still being developed.

The cost of smart materials is currently high, which makes large-scale production difficult. The design process is also complex because engineers must carefully program how the material will react to different conditions. In addition, there are limitations in the types of materials available for 4D printing.

Researchers are working to overcome these challenges by developing new materials and improving printing techniques.

Future Scope

The future of 4D printing looks very promising. As technology advances, scientists expect the development of more intelligent materials that can perform complex transformations.

In the coming years, we may see self-assembling furniture, adaptive buildings, smart medical devices, and even clothing that adjusts automatically to environmental conditions. These innovations could significantly improve efficiency and sustainability in many industries.

With continuous research and innovation, 4D printing has the potential to become one of the most revolutionary technologies of the 21st century.

Conclusion : 4D printing represents an important advancement in modern manufacturing. By combining 3D printing technology with smart materials, it allows the creation of objects that can change and adapt over time. Although the technology is still developing, its potential applications are vast and exciting.

As research continues, 4D printing may transform the way products are designed, manufactured, and used in everyday life. It is a powerful example of how innovation can shape the future of engineering and technology

Heat Transfer Enhancement Techniques

Miss Sakshi Katkar
ME6K

Introduction : Heat transfer is an important process in many engineering applications such as heat exchangers, refrigeration systems, power plants, automobiles, and electronic cooling. In many situations, natural heat transfer is not sufficient to meet performance requirements. Therefore, heat transfer enhancement techniques are used to improve the rate of heat transfer without significantly increasing energy consumption or system size.

What is Heat Transfer Enhancement? Heat transfer enhancement refers to methods used to increase the heat transfer rate by improving convection, conduction, or radiation. These techniques help in:

Reducing equipment size
Saving energy
Improving system efficiency
Lowering operational cost

Classification of Heat Transfer Enhancement Techniques : Heat transfer enhancement techniques are mainly classified into three types:

1.Passive Techniques : Passive techniques do not require any external power input. They rely on surface modification or flow disturbance.

Examples : Extended surfaces (Fins): Increase surface area for better heat transfer.

Rough surfaces: Create turbulence to enhance convection.

Twisted tapes: Inserted inside tubes to improve mixing of fluid.

Use of additives: Adding nanoparticles (nanofluids) to base fluids increases thermal conductivity.

Advantages: Simple design, Low maintenance, No additional energy required

Active Techniques : Active techniques require external energy to enhance heat transfer.

Examples: Mechanical vibration: Improves fluid mixing, Electrostatic fields: Increase heat transfer in fluids, Jet impingement : High-velocity fluid jets strike the surface, Surface vibration or rotation.

Advantages : High heat transfer rate, Better control over heat transfer, Disadvantages, Higher energy consumption, Increased system complexity

Compound Techniques : Compound techniques are a combination of passive and active methods to achieve better performance.

Example : Using twisted tape (passive) along with fluid vibration (active)

Advantages : Maximum heat transfer enhancement, Suitable for high-performance applications, Applications of Heat Transfer Enhancement, Heat exchangers, Solar thermal systems, Refrigeration and air-conditioning,

Automotive cooling systems, Electronic device cooling, Power plants,

Advantages of Heat Transfer Enhancement, Improved thermal efficiency, Reduced equipment size, Energy savings, Cost-effective operation

Conclusion : Heat transfer enhancement techniques play a crucial role in modern thermal engineering applications. By selecting suitable passive, active, or compound methods, engineers can significantly improve system performance and energy efficiency. These techniques are essential for designing compact, efficient, and sustainable thermal systems

Green Technology in Automobile

Miss. Bhoomika Dhondale
ME6K

Green technology in automobiles focuses on reducing environmental pollution, saving fuel, and making transportation more sustainable. As the number of vehicles on the road increases every year, air pollution and fuel consumption have become serious global issues. To overcome these problems, the automobile industry is adopting eco-friendly technologies that are safe for both humans and the environment.

One of the most important developments in green automobile technology is the electric vehicle (EV). EVs operate using electric power stored in batteries and do not release harmful exhaust gases. Hybrid vehicles use a combination of an internal combustion engine and an electric motor, which improves fuel efficiency and reduces emissions. Another useful technology is regenerative braking, where energy lost during braking is converted into electrical energy and stored for later use.

Automobile manufacturers also use lightweight materials such as aluminum and composites to reduce vehicle weight, which helps improve mileage. Advanced engine technologies and improved fuel injection systems ensure better combustion and less fuel wastage.

The use of alternative fuels like CNG, biofuels, and hydrogen further reduces dependence on petrol and diesel. Green technology in automobiles provides many benefits, including cleaner air, reduced fuel costs, and lower carbon emissions. It also supports energy conservation and promotes sustainable development. Governments across the world are encouraging green vehicles through strict emission norms and incentives.

In conclusion, green technology in automobiles is not just an innovation but a necessity. It plays a vital role in creating a cleaner environment and ensures a better future for coming generations.

Innovations in Robotics and Automation

Miss Sneha Betkar
ME6K

Robotics and automation are changing the way we live and work. Robots are machines designed to perform tasks automatically, while automation uses technology to reduce human effort in repetitive work. Today, new innovations in this field are helping industries, homes, healthcare, and even education.

One major innovation is Artificial Intelligence (AI) in robots. Modern robots can think, learn, and make decisions using AI. They can recognize objects, understand voice commands, and improve their performance over time. AI-powered robots are widely used in factories, customer service, and medical diagnosis.

Another important development is collaborative robots (cobots). Unlike traditional industrial robots, cobots can work safely alongside humans. They are used in small industries for assembling, packaging, and testing products. Cobots increase productivity while reducing worker fatigue.

Automation in manufacturing has also advanced greatly. Smart machines and robotic arms are now used for welding, painting, and material handling. Automated systems improve product quality, reduce errors, and save time and cost.

In the healthcare field, medical robots are making surgeries safer and more accurate. Robotic systems assist doctors in complex operations, rehabilitation, and patient care. Robots are also used to deliver medicines and monitor patients.

Another exciting innovation is autonomous robots and vehicles. Self-driving cars, delivery robots, and drones can move without human control using sensors and cameras. These technologies help in transportation, agriculture, and disaster management.

In conclusion, innovations in robotics and automation are shaping the future. They make work easier, safer, and more efficient. For students, learning about robotics opens many career opportunities in engineering, technology, and research. Robotics and automation will continue to play a key role in the development of society.

Self Healing Material

Mr. Pravin Namaji
ME6K

Self-healing material = a smart material that can repair damage (like cracks or scratches) by itself, just like human skin heals after a cut.

What it means : When these materials get damaged, they automatically restore their strength or shape without human repair.

How self-healing works

There are a few common mechanisms: Microcapsule-based healingTiny capsules filled with healing liquid break when a crack forms → liquid flows → hardens and seals the crack., Shape memory effect, Material returns to its original shape when heat or light is applied, Chemical bonding, Broken molecular bonds reconnect automatically. Biological healing (in concrete) Bacteria produce limestone to fill cracks when water enters.

Examples

Self-healing concrete (bridges, buildings)

Self-healing polymers (phone screens, coatings)

Self-healing rubber (tires)

Self-healing coatings & paints (cars, aircraft)

Advantages

Longer service life, Reduced maintenance cost, Improved safety, Eco-friendly

Applications:-

Aerospace structures

Automotive components

Civil structures

Biomedical implants

Electronics & smart devices.

1. What exactly are Self-Healing Materials?

Self-healing materials are advanced smart materials that can detect damage and repair it autonomously or with minimal external help, restoring.

Mechanical strength, Structural integrity, Functional performance

This makes them very important in modern mechanical, civil, and aerospace engineering.

2. Healing Efficiency

Healing efficiency is defined as:Some advanced polymers show 80–100% recovery.

3. Factors Affecting Self-Healing

Temperature, Crack size, Healing time, Type of bonding, Environmental conditions

4. Limitations

High initial cost

Limited healing cycles (extrinsic)

Slow healing in some materials

Not suitable for very large cracks

5. Future Scope

AI-assisted smart materials

Space & defence applications

Fully autonomous self-repairing structures

Sustainable & eco-friendly infrastructure

The Hydrogen Revolution

Mr. Kishore kumar Yellapu
ME6K

What is a Hydrogen Fuel Cell Engine?

A Hydrogen Fuel Cell vehicle is an electric vehicle, but instead of relying solely on a large, heavy battery, it generates electricity on board. Using a process called reverse electrolysis, hydrogen from a tank combines with oxygen from the air to produce electrical energy. This power then drives the mechanical motor. The only exhaust produced by this entire mechanical process is pure water vapor (H_2O).

How do they work?

The core of the system is the Fuel Cell Stack.

Anode and Cathode: Hydrogen gas is passed through the anode, where it is stripped of its electrons.

Energy Conversion: These electrons create an electrical current that powers the motor.

The Reaction: The hydrogen ions then pass through a membrane to combine with oxygen, creating water.

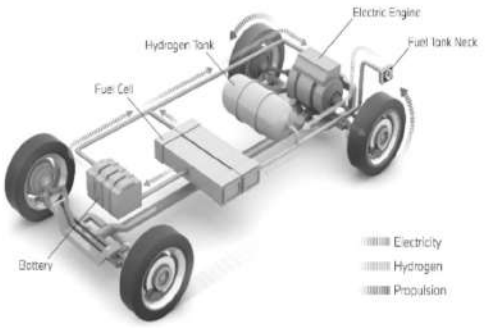
Unlike traditional Internal Combustion Engines (ICE), there is no combustion, no noise, and zero CO_2 emissions.

Mechanical Advantages of Hydrogen : For mechanical engineers, hydrogen offers a superior power-to-weight ratio compared to lithium-ion batteries:

Rapid Refuelling : A hydrogen tank can be filled in 3 to 5 minutes, similar to petrol, whereas large batteries take hours to charge.

Long Range : Because hydrogen is highly energy-dense, these engines are ideal for heavy-duty trucks, ships, and even aircraft where battery weight would be too restrictive.

Sustainability : By using "Green Hydrogen" (produced via solar or wind power), we can achieve a truly 100% ecological mobility cycle.



Market Outlook for 2026 : As of 2026, the global shift toward decarbonization has made hydrogen a key pillar of the automotive industry. Major manufacturers are now moving from prototypes to mass production. According to recent industry reports, the commercial vehicle sector is expected to see a 25% increase in hydrogen adoption this year, marking a move toward a truly sustainable mechanical future.

Wireless Charging for Electric Vehicles

Miss Sakshi Pawar
ME6K

Introduction : Electric vehicles (EVs) are becoming increasingly popular as the world moves toward cleaner and more sustainable transportation. One of the important technologies supporting the growth of EVs is wireless charging. Wireless charging allows electric vehicles to charge their batteries without using physical cables or plugs. Instead, energy is transferred through electromagnetic fields between a charging pad on the ground and a receiver installed in the vehicle. This technology offers convenience, safety, and efficiency, making it an attractive solution for the future of electric mobility.

Traditional EV charging requires drivers to connect a charging cable between the charging station and the vehicle. Although this method works well, it can sometimes be inconvenient, especially in bad weather or crowded parking areas. Wireless charging eliminates the need for cables and allows automatic charging simply by parking the vehicle over a charging pad. As EV adoption increases worldwide, wireless charging systems are being researched and developed to improve the charging experience for users.

Working Principle of Wireless EV Charging : Wireless charging for electric vehicles mainly works on the principle of electromagnetic induction. The system consists of two main components: a transmitter coil placed on the ground and a receiver coil installed underneath the vehicle. When alternating current flows through the transmitter coil, it creates a magnetic field. This magnetic field transfers energy to the receiver coil, which converts it back into electrical energy to charge the battery.

The charging pad is connected to a power supply and is usually installed in parking spaces, garages, or dedicated charging stations. When the vehicle is positioned correctly over the pad, the transmitter coil and receiver coil align with each other. This alignment allows efficient transfer of power. Power electronics inside the system regulate voltage and current to ensure safe charging of the battery.

Advanced wireless charging systems also use resonant inductive coupling. This method improves efficiency by allowing energy transfer even if the alignment between coils is not perfect. The system also includes communication between the vehicle and the charging pad to monitor

battery level, charging status, and safety conditions.

Components of Wireless Charging System : A wireless EV charging system consists of several important components. The power supply unit converts electrical power from the grid into the required form for transmission. The transmitter pad or primary coil is placed on the ground and generates the magnetic field required for energy transfer.

The receiver pad or secondary coil is mounted on the underside of the electric vehicle. This coil receives the magnetic energy and converts it back into electrical power. A power control unit manages the charging process and ensures proper power flow to the battery. The battery management system of the vehicle also communicates with the charger to control charging speed and prevent overcharging.

In addition, safety and communication systems are included in wireless charging setups. These systems detect foreign objects, control temperature, and ensure that charging occurs only when the vehicle is properly aligned with the charging pad. Such features improve reliability and safety for users.

Advantages of Wireless Charging for EVs : Wireless charging offers many advantages compared to traditional plug-in charging. One major advantage is convenience. Drivers do not need to handle heavy charging cables; they simply park their vehicles over a charging

Wireless charging can also support automatic and smart charging systems. For example, autonomous vehicles can charge themselves without human assistance. Dynamic wireless charging technology is also being developed, where vehicles can charge while driving on special roads equipped with charging coils.

Limitations and Future Scope

Despite its advantages, wireless EV charging also has some limitations. The cost of installation is currently higher than conventional charging stations. Infrastructure such as charging pads and specialized vehicle receivers must be installed, which increases the overall system cost.

Another challenge is energy efficiency. Although modern wireless systems are highly efficient, they may still lose slightly more energy compared to wired charging systems. Proper alignment between transmitter and receiver coils is also necessary to achieve maximum efficiency.

However, ongoing research and technological advancements are expected to reduce these limitations. Engineers are working to improve efficiency, reduce cost, and increase charging power. In the future, wireless charging could become common in homes, parking lots, highways, and public transport systems.

वर्तमान पत्रातून एस.ई.एस.तंत्रनिकेतन...!

सुराज्य

epaper.surajyadigital.com
26 Aug 2025 - Page 7

एसईएस तंत्रनिकेतन येथे प्राध्यापक विकास कार्यक्रमाचे उद्घाटन

प्राध्यापक विकास कार्यक्रमाचे उद्घाटन करताना डॉ. बी. के. सोनने, निलेश एखंडे यांच्यासह मान्यवर दिसत आहेत.

एस ई एस पॉलीटेक्नीक येथे रक्तदान व हिमोग्लोबिन तपासणी शिबीर संपन्न

सिद्धेश्वर नगरी

नव्या तंत्रज्ञानाच्या दिशेने महत्त्वपूर्ण पाऊल ; प्राध्यापक विकास कार्यक्रमाचे उद्घाटन उत्साहात

Solapur Edition 03 Sep 2025 - Page 3

सुराज्य

epaper.surajyadigital.com
21 Feb 2026 - Page 5

एसईएस पॉलिटेक्नीक येथील शिबिरात ५२ जणांचे रक्तदान

सिद्धेश्वर नगरी

तरुण भारत

एस.ई.एस.तंत्रनिकेतनमध्ये एसईएसपी टेक स्पर्धा उत्साहात

पुण्यनगरी

एसईएस पॉलिटेक्निकमध्ये हिमोग्लोबिन तपासणी शिबीर

सोलापूर / प्रतिनिधी

येथील एस.ई.एस. पॉलिटेक्निकमध्ये भारत विकास परिषद व डॉ. हेडगेवार रक्तपेढी यांच्या संयुक्त विद्यमाने रक्तदान व हिमोग्लोबिन तपासणी शिबीर पार पडले. याप्रसंगी ५२ रक्तदात्यांनी रक्तदान केले तर ३०० मुलींचे हिमोग्लोबिन तपासणी करण्यात आली.

या कार्यक्रमाचे उद्घाटन सोलापूर एज्युकेशन सोसायटीचे सचिव ॲड. विजय मराठे, भारत विकास परिषदेचे अध्यक्ष महादेव न्हावकर, सचिव महेश देशपांडे, किशोरी भट, रघुनाथ क्षीरसागर, चंद्रकांत पवार, लक्ष्मीकांत कुर्डी, रमेश हेडगेवार रक्तपेढीचे सहकारी सुनील हलरे, डॉ. आनंद वैद्य, तंत्रनिकेतनचे प्राचार्य अतुल भालटनकर, उपप्राचार्य एम.सी.पाटील, विक्रमसिंह यादव यांच्या प्रमुख उपस्थितीत दीपप्रज्वलन करून करण्यात आले.

या कार्यक्रमासाठी रक्तपेढीच्या अनुजा शिंदे, मंगल कुंभार, सुभाष रिड्डी, रवी कोटा, राहुल मालके, डिप्लोमा कुलकर्णी तर तंत्रनिकेतनचे निलेश एखंडे यांचे मार्गदर्शन लाभले. तर एनएसएस व सुरक्षा चे कर्मचारी जनु, गायकवाड, शिंदे, कोरे, जोशी, कदमगावकर, नवनर, शिंदे, शिरगावे, खवले, गायकवाड यांनी परिश्रम घेतले. या कार्यक्रमाचे प्रास्ताविक रितेश मंडे यांनी केले तर आभार प्रदर्शन सोनाली कुलकर्णी यांनी केले.

Feb.24,2026 Page no.4

तरुण भारत संवाद

एस.ई.एस पॉलिटेक्निकच्या शिबिरात ५२ जणांचे रक्तदान

- हिमोग्लोबिन तपासणी शिबिरात ३०० मुलींचा सहभाग

प्रतिनिधी
सोलापूर

सोलापूर : एस.ई.एस पॉलिटेक्निकच्या शिबिरप्रसंगी ॲड विजय मराठे, महादेव न्हावकर, महेश देशपांडे, किशोरी भट, रघुनाथ क्षीरसागर, चंद्रकांत पवार, लक्ष्मीकांत कुर्डी आदी.

सिद्धेश्वर नगरी

सोलापूर ० वर्ष : ३ ० अंक : ६० ० पाने : ४ ० मंगळवार १७ मार्च २०२६ RNI NO : MAHMAR52944

'जेव्हा मुलींची प्रगती होते, तेव्हा राष्ट्राचा उत्कर्ष होतो' सौ. कनन बाहेती

तरुण भारत संवाद

मुख्यमंत्री समृद्ध अभियानांतर्गत 'एसईएस'चा अभ्यासदौरा

तालुका प्रतिनिधी
दक्षिण सोलापूर

कासेगाव : गावाच्या विकासाबद्दल माहिती देताना यशवंत वाडकर, यावेळी तंत्रनिकेतनचे विद्यार्थी.

पुण्यनगरी

रणजित देसाई यांची अध्यक्षपदी निवड

सोलापूर / प्रतिनिधी

सोलापूर एज्युकेशन सोसायटीची त्रैवार्षिक निवडणूक सर्वसाधारण सभा रणजित देसाई यांच्या अध्यक्षतेखाली झाली. यामध्ये सन २०२५ ते २०२८ पर्यंतच्या कालावधीसाठी कार्यकारिणी निवडण्यात आली. यामध्ये अध्यक्ष रणजित देसाई, उपाध्यक्ष डॉ. सतिश परशुरामी, चेअरमन जयंत आराध्ये, व्हाईस चेअरमन मोर विजय जवळेकर, सेक्रेटरी ॲड. विजय मराठे तर सदस्यपदी रातीव वैद्य, प्रशांत रेणके, मयुर यान्वा, ॲड. उमेश मराठे यांची बिनविरोध निवड करण्यात आली.

Solapur Edition
Oct 20, 2025 Page No. 07
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तरुण भारत

प्रतीक्षा कोळी, आर्या करंटे, इशिता साठे यांची बाजी

- शिवस्मारकतर्फे जिल्हास्तरीय वक्तृत्व स्पर्धा उत्साहात
- विहिंपचे प्रदेशाध्यक्ष प्राचार्य धरणे यांच्या हस्ते वितरण

CHANGE IN NAME

दैनिक जनसत्य

नि:पक्ष नजर... नि:पक्ष खबर...

समृद्ध पंचायत राज अभियानांतर्गत कासेगावमध्ये उपक्रम

जनसत्य, प्रतिनिधी

सोलापूर : एस. ई. एस. तंत्रनिकेतन सोलापूर या कासेगाव या ठिकाणी राष्ट्रीय सेवा योजना व उन्नत महाराष्ट्र अभियान योजनेच्या माध्यमातून १०० विद्यार्थी वर्गाची भेट आयोजित करण्यात आली

एसईएस तंत्रनिकेतनच्या माजी विद्यार्थ्यांचा स्नेहमेळावा

तब्बल पंचवीस वर्षानंतर आले एकत्र; जुन्या आठवणींना दिला उजाळा

वर्तमान पत्रातून एस.ई.एस.तंत्रनिकेतन...!

सुराज्य

'एमएसबीटीई'त एसईएस तंत्रनिकेतनचे यश

सिद्धेश्वर नगरी

एस ई एस तंत्रनिकेतन सोलापूर येथील सर्व विभागातील विद्यार्थीनीसाठी महिला सुरक्षा तसेच इतर विविध विषयवर व्याख्यानाचे आयोजन

Solapur Edition 04 Sep 2025 - Page 3

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सुराज्य

जय हिंद फूड बँकेच्या एक मुठ्ठी अन्नदान उपक्रमाला विद्यार्थ्यांकडून ५०० किलो धान्य

दिव्य मराठी सोलापूर सिटी 23-07-2025

कॅम्पस अपडेट

एस.ई.एस. तंत्रनिकेतनमध्ये माजी विद्यार्थ्यांचा स्नेहमेळावा उत्साहात

पुण्य नगरी

'एसईएस' मध्ये प्राध्यापक विकास कार्यक्रमाचे उद्घाटन

Solapur Edition

Aug 22, 2025 Page No. 02

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पुण्य नगरी

एस.ई.एस.च्या विद्यार्थ्यांचे एमएसबीटीई परीक्षेत यश

सोलापूर / प्रतिनिधी

महाराष्ट्र राज्य तंत्रशिक्षण मंडळ, मुंबई यांच्यामार्फत घेण्यात आलेल्या उन्हाळी परीक्षा २०२५ मध्ये एस.ई.एस. तंत्रनिकेतनच्या विद्यार्थ्यांनी उज्ज्वल यश संपादन केले.

परीक्षेसाठी बसलेल्या एकूण ८६६ विद्यार्थ्यांपैकी ३०३ विद्यार्थ्यांनी डिस्टिंक्शन मिळवले, तर २८४ विद्यार्थ्यांनी प्रथम श्रेणी मिळवली. विशेष म्हणजे १० विद्यार्थ्यांनी गणित विषयात १०० पैकी १०० गुण मिळवले आहेत. तृतीय वर्ष प्रथम क्रमांक प्राप्त विद्यार्थी- सिव्हील विभाग: समर्थ मनुरे (९१.२६ टक्के), कंप्युटर टेक्नोलॉजी: अदिती कुलकर्णी (९४.४ टक्के), इलेक्ट्रिकल विभाग- प्रज्ञा चंदनशिवे (८८.२२ टक्के), ई.एंड टी.सी. विभाग: जय सूर्यवंशी (८९.२४ टक्के), मेकॅनिकल विभाग: चेतन वन्नम (८५.९४ टक्के), गणितात १०० पैकी १०० गुण प्राप्त विद्यार्थी: नंदिनी कोंडा, लक्ष्मी कोटा, श्रेया हव्वू, अस्मिता मदगुंडी, श्रुतिका दोड्डी, अक्षता डोंगरे, दिया मादास, अथर्व कोलुरे, कृतिका व्यवहारे, सिद्धांत मेथे. सर्व यशस्वी विद्यार्थ्यांचे प्राचार्य अतुल भावठणकर, संस्थेचे सेक्रेटरी अॅड. विजय मराठे, चेअरमन जयंतराव आराध्ये, व्हाईस चेअरमन सी.ए. विजय जवळेकर यांनी अभिनंदन केले. यावेळी उपप्राचार्य एम. सी. पाटील, विभागप्रमुख पी. आर. नागणसुरे, ए.एस. पाटील, एन.ए.एखंडे, व्ही.एन. कोंगारी, जक्कन एल. एल. आदी मान्यवर उपस्थित होते. कार्यक्रमाचे सूत्रसंचालन प्रा. विक्रमसिंह बायस यांनी केले तर आभार प्रदर्शन व्ही. एस. बिराजदार यांनी केले.

Solapur Edition

Jul 11, 2025 Page No. 02

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तरुण भारत संवाद

उन्हाळी परीक्षेत एसईएस तंत्रनिकेतनच्या विद्यार्थ्यांचे यश

सुराज्य

epaper.surajyadigital.com 17 Oct 2025 - Page 5

सोलापूर एज्युकेशन सोसायटीची सर्वसाधारण सभा खेळीमेळीत

राज्यस्तरीय एसईएसपी टेक स्पर्धा एसईएस तंत्रनिकेतनमध्ये उत्साहात

लोकमत

पारंपरिक वाद्यांच्या गजरात शिवजयंतीच्या मिरवणुका

दिव्य मराठी सोलापूर सिटी 12-07-2025

तरुण भारत संवाद

एस. ई. एस. तंत्रनिकेतनमध्ये माजी विद्यार्थ्यांचा मेळावा उत्साहा[त]

तरुण भारत संवाद

शिस्त आणि प्रामाणिकपणाच यशाचा खरा मा[र्ग]

संचार

एसईएस तंत्रनिकेतनच्या विद्यार्थ्यांनी गाव कारभाराची घेतली माहिती

कॅम्पस अपडेट

एस.ई.एस. तंत्रनिकेतनच्या विद्यार्थ्यांचे मएसबीटीई परीक्षेत घवघवीत यश

[सो]लापूर । महाराष्ट्र राज्य तंत्रशिक्षण मंडळ, मुंबई [(M]SBTE) यांच्यामार्फत घेण्यात आलेल्या उन्हाळी [परी]क्षेत एस.ई.एस. तंत्रनिकेतनच्या विद्यार्थ्यांनी यश [मि]ळवले. परीक्षेसाठी बसलेल्या एकूण ८६६ विद्यार्थ्यांपैकी [३०]३ विद्यार्थ्यांनी डिस्टिंक्शन मिळवले, तर २८४ विद्यार्थ्यांनी [प्र]थम श्रेणी मिळवून संस्थेची गुणवत्ता सिद्ध केली. विशेष [म्ह]णजे १० विद्यार्थ्यांनी गणित विषयात १०० पैकी १०० गुण [मि]ळवून उत्कृष्टता सिद्ध केली. प्राचार्य अतुल भावठणकर, [सं]स्थेचे सेक्रेटरी अॅड. विजय मराठे, अध्यक्ष जयंतराव [आ]राध्ये, व्हाईस चेअरमन सी.ए. विजय जवळेकर यांनी [यश]स्वी विद्यार्थ्यांचे विशेष अभिनंदन केले आहे.

वर्तमान पत्रातून एस.ई.एस.तंत्रनिकेतन...!

पुण्य नगरी

अन् संधीचे सोने केले व्यंकटेश चौबे

जिद्द, चिकाटी आणि प्रयत्नांची पराकाष्ठा करून इंजिनिअरची पदवी मिळविली. नोकरीच्या शोधात मुंबई येथे मायानगरीत ... सोलापूर महापालिकेत इंजिनिअर पदावर ... व्यंकटेश चौबे यांनी ...

Solapur Edition
Jun 18, 2025 Page No. 13
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पुण्य नगरी

एसईएस तंत्रनिकेतनचे कासेगाव येथे रासेयो शिबीर

कासेगाव / प्रतिनिधी

सोलापूर येथील एसईएस तंत्रनिकेतनच्या विद्यार्थ्यांचे राष्ट्रीय सेवा योजना शिबीर व उन्नत महाराष्ट्र अभियान योजनेच्या माध्यमातून १०० विद्यार्थ्यांच्या अभ्यास दौऱ्याचे आयोजन कासेगाव येथे करण्यात आले होते.

मुख्यमंत्री समृद्ध पंचायत राज अभियानच्या माध्यमातून कासेगाव या ठिकाणी विविध उपक्रम राबविण्यात आले. गावाच्या चावडी जवळ प्रारंभी स्वच्छता या विषयावर तंत्रनिकेतनच्या विद्यार्थी वर्गाकडून पथनाट्य सादर करण्यात आले. स्वच्छता, वृक्षारोपण, संवर्धन, शिक्षण, आरोग्य या विविध विषयावर गाव फेरीचे आयोजन यावेळी करण्यात आले होते. गावातील जिल्हा परिषद शाळेत स्वच्छता करण्यात आली. २० विद्यार्थ्यांना शैक्षणिक साहित्याचे वाटप करण्यात आले.

यावेळी कासेगावचे सरपंच यशपाल वाडकर यांनी गावाच्या विकासाबद्दल माहिती दिली. ग्रामपंचायतीच्या माध्यमातून राबविल्या जाणाऱ्या विविध योजना तसेच नागरिकांच्या सोयीसाठी विविध उपक्रमांची माहिती याप्रसंगी दिली.

यावेळी प्राचार्य अतुल बावटणकर, उपप्राचार्य एम. सी. पाटील, विक्रमसिंह बायस, ग्रामपंचायत सदस्य शहाजान शेख, राम पाटोळे, जालींदर गायकवाड, प्रकाश हेडे, सोमनाथ भक्ते, मोहन जाधव, चंद्रकांत गायकवाड, पुरषोत्तम वाडकर, लक्ष्मण हुडकर हे उपस्थित होते.

Solapur Edition
Feb 19, 2026 Page No.
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सकाळ

एस. ई. एस. तंत्रनिकेतनमध्ये माजी विद्यार्थी मेळावा उत्साहात

सकाळ वृत्तसेवा

सोलापूर, ता. २२ : येथील एस. ई. एस. तंत्रनिकेतनच्या इलेक्ट्रॉनिक्स विभागातील माजी विद्यार्थ्यांचा मेळावा उत्साहात पार पडला. ...

सोलापूर : मेळाव्यात उपस्थित माजी विद्यार्थी व मान्यवर.

एस.ई.एस. तंत्रनिकेतनचे नव्या तंत्रज्ञानाकडे वाटचाल

संचार प्रतिनिधी

▶ सोलापूर,दि. २२-

एस.ई.एस. तंत्रनिकेतन येथे आर्टीफिशियल इंटेलिजिन्स इन सिव्हिल इंजिनीअरिंग विथ बीआयएम टेक्नॉलॉजी या विषयावर आठवडाभर चालणाऱ्या प्राध्यापक विकास कार्यक्रमाचे उद्घाटन उत्साहात पार पडले.

स्थापत्य अभियांत्रिकी व महाराष्ट्र तंत्रशिक्षण महामंडळ यांच्या संयुक्त विद्यमाने हा उपक्रम राबवून डिजिटल तंत्रज्ञान व शिक्षण यांचा समन्वय साधण्याचा अभिनव प्रयत्न केला. यावेळी प्रास्ताविक स्थापत्य विभागाचे विभागप्रमुख नीलेश एखंडे यांनी या उपक्रमाचा उद्देश स्पष्ट केला. कार्यक्रमाचे उद्घाटन प्रमुख पाहुणे प्राचार्य डॉ. बी.के. सोनगे यांच्या हस्ते झाले. त्यावेळी ते बोलताना म्हणाले, कृत्रिम बुध्दिमत्ता आणि बिल्डिंग इन्फर्मेशन मॉडेलिंग या तंत्रज्ञानाची उपयुक्तता स्पष्ट केली. अध्यक्षस्थानी संस्थेचे उपाध्यक्ष विजय जवळगेकर होते. संस्थेचे प्राचार्य अतुल भावटणकर यांनी आपल्या प्रेरणादायी भाषणातून शिक्षकांसाठी अशा कार्यक्रमांचे महत्त्व अधोरेखित केले. यावेळी उपप्राचार्य व संगणक विभागप्रमुख एम.सी. पाटील, ए. एस. नागणसुरे, पी. आर. जक्कन, एस.जी. कन्नूरकर, ए. एस. चंदनशिव आदी उपस्थित होते. सूत्रसंचालन बी.एस. बिराजदार यांनी केले तर आभारप्रदर्शन डॉ. विजय कोल्हे यांनी केले.

लोक उध्दार

गुरुवार दि. २४ जुलै ते ३०

एस. ई. एस. तंत्रनिकेतन मध्ये माजी विद्यार्थ्यांचा स्नेहमेळावा उत्साहात संपन्न

सुराज्य

epaper.surajyadigital.com
04 Sep 2025 - Page 8

एसईएस तंत्रनिकेतनमध्ये व्याख्यान

महिला सुरक्षा तसेच स्त्री सशक्तीकरण काळाची गरज : मोरे

सोलापूर/प्रतिनिधी

महिला सुरक्षा तसेच स्त्री सशक्तीकरण काळाची गरज, असे प्रतिपादन जोडभावी पेठ पोलीस स्टेशनच्या महिला पोलीस अंमलदार अनिता मोरे यांनी केले.

एसईएस तंत्रनिकेतन सोलापूर येथील सर्व विभागातील विद्यार्थिनींसाठी महिला सुरक्षा तसेच इतर विविध विषयावर व्याख्यानाचे आयोजन युवन सेल मार्फत करण्यात आले होते, त्या कार्यक्रमात मोरे बोलत होत्या. आपल्या व्याख्यानात त्यांनी सर्व विद्यार्थिनींना अडचणीच्या प्रसंगी तात्काळ आपले पालक ,शिक्षक तसेच आम्हाला कळवावे, असे आवाहन केले.आई ...

एसईएस तंत्रनिकेतनच्या माजी विद्यार्थांचा स्नेहमेळावा

तब्बल पंचवीस वर्षानंतर आले एकत्र; जुन्या आठवणींना दिला उजाळा

शहर संचार

▶ सोलापूर, दि.२४-

सोलापूर एज्युकेशन सोसायटी पॉलिटेक्निक सोलापूर अंतर्गत एसईएस तंत्रनिकेतन येथे इलेक्ट्रॉनिक्स ॲण्ड टेलिकम्युनिकेशन विभागातील १९९६ ते २००० या वर्षात प्रवेश घेतलेल्या माजी विद्यार्थ्यांचा स्नेहमेळावा उत्साहात संपन्न झाला. ...

Institute Level Activity

"One minute of silence observed in tribute to the martyrs of the nation."

"Tree plantation drive organized to promote environmental awareness and sustainability."

"Flag hoisting ceremony on the occasion of Independence Day, 15 August 2025, by the Institute Management."

."Guest lecture by Mrs. Anita More, Solapur Police, on 'Drug Awareness and Pratibandh Mohim'."

"Felicitation on the occasion of the successful completion of 9 years of 95 My FM."

"Around 300 students from the institute participated in the 'Samuhik Vande Mataram Geetgayan' at Hom Maidan, Solapur."

Guest Lecture organized on " Role of Hemoglobin on Women's health & Diet plan to improve it.
Guest Speaker :- Dr. Gayatri Deshpande

"Republic Day (26 January 2026) celebrated with flag hoisting in the presence of the College Management."

"DIPEX 2025-26 poster opening ceremony conducted at S.E.S. Polytechnic, Solapur."

"First-Year Welcome Program inaugurated in the presence of Principal, Faculty & Student."

"Tree plantation carried out on the occasion of the First-Year Welcome Inauguration Function."

Khandenavmi Puja at workshop

Guest lecture on Personality Development for First year Student by Dr. S. B. Kshirsagar

Institute Workshop Superintendent Received "Best Teacher Award 2025-2026" by Lions Club of Solapur Midtown

Student from Institute Participated in Maharashtra Sahitya Parishad,Pune Kavita Spardha –Shravadhara

Inter Engineering Diploma Student Sports Association (IEDSSA) Maharashtra State Mr.Sanga Kunal Ganesh achieved Winner Prize in Weight Lifting zone c

Student Participated in Maharashtra Rajya marathi Ekankika Spardha 2026 at Pune

Mr.Satyam Dudhankar Expert in Fire & Safety Conducted Guest lecture on Fire & Safety for First Year Student

Heartiest congratulations to Mr. Vinil N. Kongari for achieving best teachers award from Mechanical Engineering Department on the occasion of Teachers day 2025

Chatrapati Pujan On the Occasion of Chatrapati Shivaji Maharaj Jayanti at Institute

Student From institute Participated in District level SAN-ISPE 2K25 organized by Sangmeshwar College Solapur

Staff from Institute visited Various School from District under School Connect Campaign for year 2026-2027 about Technical Education awareness & future Opportunity after engineering

Celebration of Sankaranti Festival in Institute by Faculty

Institute of Indian Foundrymen (IIF) Meeting was successfully conducted on 24th December 2025 at 2:30 PM at S.E.S. Polytechnic, Solapur.

IEI-SLC sponsored two days offline FDP on "Intelligent Cloud-IoT fusion" was inaugurated by Chief Guest & expert from " Arnav Infotek"

Food donation Drive under Social Activity by institute and Jai Hind Food Bank , Solapur

Educational Help to Needy Bright Student in SMC Solapur by Civil Engineering Branch.

Mr.Suraj Dalvi from Third Year Electrical Department received Appreciation for Technika 2025 Magezine Cover Page Design.

Celebration of
Yoga Day in institute

Students received various prizes in
Campus Reel video Competition

Guest Lecture By Kanan Prasad Miniyar on
Womens Day Celebration On topic
"Strong Girls Create Strong Nation"

Students achieved meritorious ranks in
the MSBTE summer 2025 Examination

Students achieved meritorious ranks
in the
MSBTE Winter 2025 Examination

Guest lecture on Road Safety Week &
Traffic Rules by Solapur Traffic Police Dept.
On 07-10-2025 Students appeared
All Students of 3rd year

Student Participated in Rally on
Chatrapati Shivaji Maharaj Jayanti

Heartiest Congratulations

Mr. Vinil N. Kongari, Training & Placement Officer for Mechanical Division & Mrs. Padmavati R. Nagansure, HoD ENTC for ENTC Division being elected as a Committee Member of The Institution of Engineers (India), Solapur Local Centre for the period of 2025–2027.

Department Activity

CE Dept.welcomed the Batch of 2025 by planting and "adopting" indigenous Trees

Mr. Adinath Palase bridged the gap between theory and practice For CE Dept. Students

CE Dept. Students gained practical insights into structural stability and fabrication

CE Dept. Students performed a comprehensive Traffic Volume Survey at Boramani Naka

Parent-Teacher Meet in CE Department

Donation drive to provide food & hygiene essentials to flood-affected families in Madha & Mohol by CE Dept.

Annual Sports Day celebrated in CE Dept.

Annual Cultural Day celebrated CE Dept.

Civil Engineering students visit to the Degaon Sewage Treatment

CE Dept. Students visit to the Biomedical Waste Incineration Plant at Gulvanchi

Second Parent-Teacher Meet in CE Department

CE Dept. Celebrated Shiv Jayanti

CE Dept. Participated in Blood Donation and Hemoglobin Checkup Camp

CE Dept. Students technical visit to Solapur's Municipal Solid Waste Treatment Plant.

Guest Lect. by Mr. Rehan Shaikh For CE Dept. Students roadmap for structural accuracy, focusing on the site application of Development Length & Reinforcement

Guest Lect. by Mr. Dev Goski on Art of Living

Civil Engineering Department hosted a State-Level Paper Presentation Competition

CM S.Y. Students Visit to "Water Purification Plant, Bhavani Peth, Solapur

CM S.Y. Students Visit to "ERP Section of Ashwini Sahakari Rugnalaya,Solapur"

CM S.Y. & T.Y.Students Guest Lecture by Saumya Nashikkar on "Job opportunities in cloud computing"

CM Second Year Students Visit to "NAS Net 10G,Solapur"

CM TY Students Visit to "Karate Informetics,Solapur "

CM TY Students Visit to "Eywa Solutions Pvt.Ltd "

CM TY Students Guest Lecture by Madhusudan Ladda on "IoT Fundamentals and Career Roadmap"

CM TY Students Guest Lecture on topic "Capstone Project Development" by Onkar Arvind Huchche

CM TY Students Guest Lecture on “Robotics process Automation" by Bapu Arkas

CM TY Students Guest Lecture on topic “Cybersecurity" by Vyankatesh Uyyala

CM SY & TY Students Students Guest Lecture on topic "Soft skills" by Sneha Waghmare

CM SY & TY Students Guest Lecture on Advance java script technologies” by Pratiksha Javanjal

State Level Paper Presentation Competition at Computer Department.

CM TY Students Lecture on “Cyber security by shekhar adgale from MKCL”

Traditional Day in CM Department

EJ Dept. Guest lecture IOT application and scope in future By Mr. Santosh Bhandarkawathe

EJ Dept. Guest Lecture on Fraud Awareness By Faculty of cybercrime department solapur

EJ Dept.Guest Lecture On Recent trends in Electronics By Mr. Vishwas V. Patange.

Traditional day in EJ Department

Technical Quiz Competition Techtronics -2k25 on Engineers Day

EJ Dept. Guest lecture on Awareness of E-waste By Mr. Himanshu Lele

EJ Sept.Guest lecture on Fundamental of Robotics and IOT By Mr. Shantnu S. Maske

EJ Dept. Two Days F.D.P. Conducted By Dr.Vaibhav Bacchuwar

EJ Dept. Parent Teacher Meeting for all years

EJ Dept. Visit to Shreevidya Infotech, Solapur. For TY Students

EJ Dept. SY Studebts Visit to "95 My FM" SOLAPUR

EJ Dept. SY Students Visit to Water Purification Plant at Bhavani Peth, Solapur

EJ Dept. FY Studebts Visit Solar Power Generation

SES TECH State Level Paper Presentation 2025-26

EJ Dept. FY Students Visit to Srujan Foods

EJ Dept. TY Students Visit to Sathe Engineering Company

Paper presentation in techtronics - 2k25 on Engineers Day

Ishita Sathe Secured First Prize in Vakrutva Spardha at Shiv smarak Solapur

Aishwarya Patil and Savri Shinde Secured 6th Rank Vidyavardhini Institute of Technology, Kolhapur

Winner of the "Quiz Competition" organized by the Electrical Department on the occasion of Engineer's Day.

Winner of the "Project Model Making Competition" in EE Dept.

A Glimpse of Traditional Day Celebration in Electrical Department

Runner-up of the "Project Model Making Competition" in EE Dept.

Industrial Visit to Manu alloys & Castings Pvt. Ltd., Solapur under the FDP

Runner-up of the "State level Paper Presentation Competition" in EE Dept.

Industrial visit of SY & TY EE students to Laxmi Drucken Komponents Pvt.Ltd

A Guest Lecture on "Introduction to AUTOCAD for FY, SY & TY EE Sudents by Mr. Mahesh Yannam

A Guest Lecture on "Electrical Safety Awareness For FY, SY & TY EE Students by Mr.R.G.Waydande

A Guest Lecture on Engineers Day for FY, SY & TY EE Students on by Mr. Akash Rathod

Industrial Visit of For SY & TY EE Students to Srujan Foods Pvt. Ltd, (Parle-G) solapur

A Guest Lecture on "Introduction to Solar System" was organized for TY EE Electrical students By Amit Kondewar

Visit of TY EE students to the 40 kW Solar System at S.E.S. Polytechnic,Solapur

Industrial Visit of TY EE Students to the PLC & SCADA Section at MSEDCL, Urban Division, Solapur

Under the guidence of Mr. Vinil Kongari Students published paper in (JETIR)

Visit of TY EE students Visit to Meter Testing Filter unit and DTC Network Maintenance

Mr. Mallikarjun Unki (ME4K) got Runner-up in the CAD RACE event of at SVIT Solapur.

Mr.Om Kundur & Urgonda Nagchaitnya (ME4K) got Runner-up in Quiz Competition event at MAP Solapur.

Mr. Gururaj Sutrave (ME6K) got 2nd Prize in State level Technical Event at A.G.P.Solapur

Mr. Gururaj Sutrave & Mr. Shreyas Rangrej (ME6K) got 2nd Prize in State level Technical Paper Presentation at Institute

Gururaj Sutrave & Prajwal Sarwade (ME6K) got 1st Prize in State level Paper Presentation at SPM, Solapur

Prof. Vinil Kongari has been awarded as Best Teacher in Mechanical Department

Gururaj Sutrave & Prajwal Sarwade (ME6K) got 2nd Prize in State level Project Idea Event BMIT, Solapur

Expert Lecture by Mr. Shriniwas Bhandari on Essence of Indian Constitution for ME3K Students.

Expert Lect.by Mr. Vidyadhar Kulkarni from Techknowledge analytics Pvt. Ltd. on Mycareeernext - AI/ML

Expert Lecture by Pooja Talekar from EduCADD on Design Engg. SY & TY ME Students.

3 Days workshop on Yoga & Meditation by Heartfulness Team for ME Students & faculty

State level Technical Event Innostart 2025 organized by ME Dept.

Teachers Day in Mechanical Department

Parent Meet in Mechanical Department

State level Technical Paper Presentation Competition SESTech-2026 in ME Department

Tree Plantation by First Year Mechanical Students

Traditional Day in Mechanical Department

3 Days FDP on Recent Trends in Foundry Technology in association with IIF, Pune Chapter

Inauguration of The Institute of Indian Foundrymen (IIF), Student Chapter in ME Dept.

Industrial Visit to Precision Camshaft Limited, Solapur under the FDP

Industrial Visit to Linit Exports Pvt. Ltd., Solapur under the FDP

Social & Life Skill Activity

All first-year students attended the guest lecture on 'Road Safety and Traffic Rules, 'organized by the National Service Scheme (NSS) module team

The Food Donation program was successfully conducted by the National Service Scheme with the cooperation of the Principal, HODs, faculty members and all the students of the NSS module

The Blood Donation Camp organized by the National Service Scheme at S.E.S. Polytechnic, Solapur

An educational visit to Ule Kasegaon village was organized by the National Service Scheme team.

On the occasion of Chhatrapati Shivaji Maharaj's birth anniversary, S.E.S. Polytechnic, Solapur organized and participated in the 'Mera Yuva Bharat – Mega Padayatra' under National Service Scheme (NSS) on 19th February 2026

To Celebrate "National Mathematics Day" a Guest Lecture on "Short Tricks In Mathematics " was organized by the Science Department for the first-year students with Dr. Kisan Shinde as the speaker

The 'Marathi Bhasha Pandharvada' was organized by the Science Department. Mrs. Bulbule S.P., Ms. Kalamankar V.K. and Ms. Arkal A.R. supervised the Nibandha Spardha.

Students delivering speeches during the Vaktrutva Spardha which was also organized by Science Department under Rashriya Yuvak Saptah

This is the gift From the students of S.E.S. polytechnic under Unnat Maharashtra Abhiyan to Lolk mangal foundation

At visit to village Ule-Kasegaon under Unnat Maharashtra Abhiyan ,93 students visited the village

A Cleanliness Drive was also conducted by Science Department as part of Rashtriya Yuvak Saptah

As part of the Social and Life Skills initiative, stationery materials were provided to the students of S.R. Chandak High School.

A Visit to "Rotary Redcross Swagti School" Organized under Universal Human Values (Module No III) of Social and life skill.

Guest Lecture Conducted for students of third module Universal Human Values on topic of "Power of Habits" by Mr. Sujay Pujari sir

Guest Leture Conducted for students of third module Universal Human Values on topic of "importance of human values" by Dr. Jagdish Patil sir.

)Induction Program of Universal Human Values (Module No III) of Social and Life Skill conducted for first year students

A Visit to "Apulki Beghar Nivara Kendra" under Universal Human Values Third Module Social and Life Skills.

Guest Lecture Conducted for first year students of Fifth Module of Social & Life Skills "Financial Literacy" on Topic of "Importance and Types of Investment" by Mr. Amol Arvind Kshirsagar, CMA & Vice Chairman of the Institute of cost accounts of India-Solapur Chapter

A guest lecture on topic "changes in rural life due to new technology" organized under Unnat Maharashatra abhiyan module first with dr. Reshma Jadhav guided students on the topic

A Visit to "Solapur Janata Sahakari Bank Ltd., 139 Railway Line, Solapur" is organized under "Financial Literacy" Fifth Module of Social & Life Skills.

Rally was conducted under unnat maharashtra abhiyan

Students of Unnat Maharashtra Abhiyan conducted Pathanatya in village

Students writing during the Hastakshar Spardha

Swami Vivekanand Jayanti was celebrated by the Science Department as part of Rashtriya Yuvak Saptah

Unnat Maharashtra Abhiyan conducted Hemoglobin checkup for female students

Students of Unnat Maharashtra Abhiyan visited the Lok mangal foundation Unpurna yojna

Swachhata Abhiyan Drive Conducted at KAsegaon Zilha Parishad School from Social & life Skill Subject

Induction program of unnat Maharashtra abhiyan the first module conducted for all first year student

Guest Lecture Conducted for first year students of Fifth Module "Financial Literacy" on Topic of "SMARTs Investor Awareness Program (SEBI)" by
Dr. Prof. Kamal Parshuram Galani
(Sangameshwar College, Solapur)

Under Unnat maharashtra Abhiyan Module stationery materials were provided to the students of Z. P School at kasegaon

A Survey Conducted by Students of Unnat Maharashtra Abhiyan in Village Ule-Kasegaon under Teacher guidance on Topic "changes in rural life due to new technology"

Induction Program of "Financial Literacy" Fifth Module of Social & Life Skills conducted for First Year Students

Library Activity

1.Gurupornima Puja 10/7/2025 Librarian Mrs N.N.Kularni ,
Asstt Lib-Mrs R.A.Swanne & E&Tc student

Library Introductio 22/8/2025
Librarian-Mrs N.N.Kularni ,
Asstt Lib-Mrs R.A.Swanne &
newly admitted student all branch

Granthdin Essay Competition 8/8/2025

Inauguration Granthdin Essay Competition
8/8/2025
Principal-A.A.Bhawtankar,
Librarian-Mrs N.N.Kulkarni,
Mrs R.A.Swanne,Mrs S.P.Jannu,
Vinil Kongari,Vikramsingh Bayas

Guest Lecture on Librarian Day 12-8-2025
Guest-Dr S.B.Kshirsagar Principal of
D.P.B.Dayanand College of Edu.
All HOD & Principal A.A.Bhawtankar

Book Exhibition on
12-8-2025 Guest-Dr S.B.Kshirsagar,
all Rotarians & Science dept staff

1.DELNET Digital Library Software
Introduction all 1st yr.

Tree Plantation on Engineers day
by Shri A.A.Bhawatnkar,Shri M.C.Patil,
Shri S.G.Kannurkar Mrs P.R.Nagansure
Mrs N.N.Kulkarni & Mrs R.A.Swanne

Navaratri Haladikunku for SES Campus Cleaning Women from Library Department.30/9/2025

Library Khandenawami puja 1/10/2025
Library & Office staff

Vachak Prerana din Library Principal Sir
Library staff & student 15/10/2025

Open access day in the library
for all dept student

Training & Placement Cell

Expert Session on Build Your first Professional CV for third year Students on 08/01/2026 by Mr. Rahul Upadhyay

Expert Session on Communication Skills and Presentation Skills for First year Students on 12/01/2026 and 13/01/2026 by Mr. Nagesh Pathrut

Expert Session on The art and Science of Interview for third year Students on 09/01/2026 by Mr. M.D. Kanade

The Memorandum of Understanding (MoU) Signing Ceremony between S.E.S. Polytechnic, Solapur and the Board of Apprenticeship Training (Western Region), an autonomous body under the Ministry of Education, Government of India, was successfully conducted on 13th March 2026

Expert Session on Personality Development for First year Students on 12/01/2026 and 13/01/2026 by Mr. M.D. Kanade

Placement Drive by Precision Camshafts Ltd., Solapur for Third year Mechanical Engineering Department Students on 25th February 2026 at S.E.S. Polytechnic, Solapur

Placement Drive by K D Aher Building Systems Pvt. Ltd., Pune for Third year Civil Engineering Department Students on 28th February 2026 at S.E.S. Polytechnic, Solapur

Placement Drive by Epiroc Mining India Pvt. Ltd., Nashik for Third year Mechanical, Electrical and E&TC Engineering Department Students on 9th March 2026 at S.E.S. Polytechnic, Solapur

A Memorandum of Understanding (MoU) was signed between S. E. S. Polytechnic, Solapur and Arnav Infotech, Solapur. The agreement was executed to establish a collaborative relationship aimed at enhancing technical education and industry interaction.

Entrepreneurship Awareness Camp Organized In Association with Institution of Engineers India (IEI), SLC on 26th, 29th & 30th September 2025 The program commenced with an Inauguration Session by Dr. M. S. Deshpande, Chairman, IEI Solapur Local Centre

Mastering Entrepreneurial Communication", delivered by Dr. M. S. Deshpande, where students learned about effective communication skills, leadership and professional behaviour. Session on "Introduction to Entrepreneurship, Business Model & Planning" was conducted by Mr. M. D. Kanade, CEO, Kanade Group of Training, Solapur.

The session on "Marketing & Branding for Startups" by Mr. Rajshekhar Shinde, Project Officer, MCED, Solapur. He discussed branding strategies, digital marketing tools, and market positioning for startups.

The Expert Session on "Financial Literacy & Funding Opportunities, Government Support & Policies" was conducted by Mr. Robert Gouder, Managing Director, Origin Enterprise, Solapur

Exi-Met '26, a State Level Technical Event organized by IEI (SLC) at S.E.S. Polytechnic, Solapur Sponsored by Manu Alloys & Castings Pvt. Ltd., Dhanman Precicast Pvt. Ltd. & P.P. Patel and Co., the event brought together budding engineers fostering innovation, technical excellence and meaningful industry interaction among students.

A State Level Technical Paper Presentation Competition "SES-Tech-2026" on 27th February 2026. Formal inauguration ceremony, marked by the lighting of the lamp & the ceremony was graced by Chief Guest Mr. Bahubali Kandale, whose presence added prestige to the occasion.

The "National Maritime Day" was celebrated on 6th April 2026 by IEI Solapur Local Centre at S.E.S Polytechnic Auditorium Solapur. The theme of the technical lecture was "Maritime India- Empowering progress"

Civil Engineering Department

Mr. N.A.Ekhande
Head of Department

Following matter should be Included serially in Your Dept Report

1) Dept Information

Year of Starting : 1986

Department Vision

To impart quality education to make students technically sound in the field of Civil Engineering.

Department Mission

M1-To develop awareness among students about latest trends and technologies and help them to prepare for the same.

M2- To impart practical skills by providing field exposure.

M3- To develop the personality of the students through co- curricular and extracurricular activities.

Involvement of staff & student in sport : Mr. Kanuurkar S.G. ,Mr. Madane R.R. , Miss. Birajdar V.S. was the sports committee member for Boys and Girls. Totally 19 no of boys and 08 no of girls participated in IDS sports 2025-26.

MOU:

1. K D Aher Building System Pvt. Ltd.
2. JagaNand Structural consultants
3. Gayatri Builders & Developers

Industrial training : Industrial training for Final year students by Sai Vishva Developers, Vishva Structural Consultancy, Vinay Constructions Solapur.

Total Intake

Sr No.	Year	Intake
1	First Year	60
2	Second Year	60
3	Third Year	60

2) Staff in Dept during 2025-2026

Sr. No.	Full Name of Staff	Qualification	Designation	Experience in years	Professional Society Membership
1	Mr. N. A. Ekhande	M.E. (WRE)	HOD	19	I.S.T.E. Life time membership
2	Mr. S. G. Kannurkar	M.E. (WRE)*	Lecturer	6	I.S.T.E. Life time membership
3	Mr. A. S. Chandanshive	Ph.D. in Civil Engineering*	Lecturer	4	I.S.T.E. Life time membership
4	Mr. R. R. Madane	M.E. (WRE)*	Lecturer	3	I.S.T.E. Life time membership

Sr. No.	Full Name of Staff	Qualification	Designation	Experience in years	Professional Society Membership
5	Ms. N. R. Vadavrao	M. Tech. (GT)	Lecturer	3	I.S.T.E. Life time membership
6	Mr. S. S. Gherade	M.E. (WRE)*	Lecturer	2	I.S.T.E. Life time membership
7	Ms. V. S. Birajdar	M.E. (Structure)*	Lecturer	2	I.S.T.E. Life time membership
8	Mr. A. V. Yamoure	M.E. (Structure)*	Lecturer	1	I.S.T.E. Life time membership
9	Mrs V.V.Samarth	B. E. (Civil)*	T.L.A.	17	
10	Mr Yash Chavan	B.A.*	Peon	1	

3) Carpet area for Department

Sr. No.	Room No.	Purpose (Class room/Lab/HOD Cabin/Dept Store/Staff Room /Toilet/Boys & Girls Room	Carpet Area in m2	Remark Smart class Room/ Cost of equipment
1	18	Engineering Mechanics Lab	126.76	
2	18A	Gents Toilet	10.385	
3	18B	Ladies Toilet	6.517	
4	19	Mechanics of Structures Lab/Strength of Material Lab	92.52	
5	20	HOD Cabin	10.09	
6	20A	Dept Store	18.97	
7	21	Concrete Technology Lab/Geotechnical Engineering Lab	71.71	
8	22	Staff Room	36.87	
9	23	Surveying & Advanced Surveying Lab	71.71	
10	24	Survey Store	37.57	
		Corridors of Civil Wing	97.7228	
		Stair of Civil Wing	20	
11	115	Classroom	92.42	
12	116A	Gents Toilet	17.17	
13	116B	Ladies Toilet	13.736	
14	117	Tutorial room	70.20	
15	118	Public Health Engineering Lab	60.40	
16	119	Classroom	112.92	Smart class Room
17	120	Classroom	110.70	Smart class Room
18	121	Boys Common Room	17.63	
19		Corridors of Civil Wing	78.2068	
20		Stair of Civil Wing	20	
21	215	Drawing Hall	72.22	
22	217	Hydraulics Lab	111.10	

4) Details of Laboratory

Sr. No.	Name of Lab	Room No	Cost of Equipment in Lab
1	Engineering Mechanics Lab	18	199941/-
2	Mechanics of Structures Lab/Strength of Material Lab	19	644925/-
3	Concrete Technology Lab/Geotechnical Engineering Lab	21	81570.00/-
4	Surveying & Advanced Surveying Lab	23	1472168/-
5	Public Health Engineering Lab	118	369970.00/-
6	Construction Material	115A	11090.00/-
7	Highway Engineering Lab	115A	1,61,200.00/-
8	Hydraulics Lab	217	175400.00/-

5) Current admission in Dept

Sr No.	Year	Student on Roll	Male	Female
1	First Year	65	43	22
2	Second Year	51	35	16
3	Third Year	28	21	7

6) Guest lectures conducted in Dept

Sr. No.	Name of Expert	Topic Covered	Year & Course	CO	PO	PSO	No. of Beneficiaries
1	Mr Adinath Palase	Advanced Civil Engineering technics and Management	CE1K, CE3K, CE5K		PO4, PO5, PO6, PO7	PSO 1	98
2	Mr. Satish Aaware	Road drainage and Maintenance	CE3K	CO5	PO1, PO2, PO3, PO4, PO5	PSO 1 PSO 2	39
3	Mr. Gaurav Walunj	GPS and GIS Technology	CE3K	CO4			37
4	Miss Archana Aland Mr. Raju Junja Mr. Dev Goski	Meditation & Stress Management	CE2K, CE4K, CE6K				94
5	Mr. Rehan Shaikh	Construction site case study in RCC Structure	CE6K	CO1 CO2 CO3 CO4 CO5	PO1, PO2,	PSO 1 PSO 2	20

7) Industrial Visit conducted in dept

Sr. No.	Visit Name	Purpose	Year & Course	CO	PO Attended	PSO Attended	No. of Beneficiaries
1	Center of Excellence by Ultratech	Understand the concept of Cement and Concrete and new engineering products	CE3K	CT CO1,CO2, CO3,CO4, CO5	PO1, PO6, PO7	PSO1	34
2	Steel Trusses	Simple trusses structure and all concepts	CE5K	TOS CO5	PO6, PO7	PSO1, PSO2	22
3	RMC Plant	Various Stages & processes in Ready Mix Concrete Plant	CE3K	CTE CO4	PO1, PO4, PO6	PSO1, PSO2	40
4	Brick Masonry	Various construction activities in Brick Masonry	CE2K	BMC CO3	PO1, PO4, PO5	PSO1	46
5	Fondation work	Various construction activities in Foundation	CE2K	BMC CO3	PO1, PO4, PO5	POS1, PSO2	53
6	Pastering & Pointing	Various construction activities in plastering & pointing	CE2K	BMC CO3	PO1, PO4, PO5	POS1, PSO2	48
7	Roofing & truss work	Various construction activities in Roofing & truss work	CE2K	BMC CO5	PO1, PO4, PO5	PSO1	53
8	Rigid Road Pavement	Various construction activities in P.C.C.Road construction	CE2K	BMC CO4	PO1, PO4, PO5	PSO2	44
9	Water treatment Plant	Various activities in Water treatment process	CE4K	WWE CO2	PO1, PO3, PO5, PO7		41
10	Waste Water treatment Plant	Various activities in waste Water treatment process	CE4K	WWE CO5	PO1, PO3, PO5, PO7		41
11	Sewage treatment plant	Various activities in Sewage treatment process	CE6K	SWM CO1, CO2, CO3	PO1, PO3, PO5, PO7		
12	Bio -Medical waste treatment plant	Various activities in Bio Medical waste treatment process	CE6K	SWM CO1, CO2, CO4	PO1, PO3, PO5, PO7		19
13	Solid Waste treatment plant	Various activities in Solid waste treatment process	CE6K	SWM CO1, CO2, CO3	PO1, PO3, PO5, PO7		23

8) Participation or Achievement by students in seminar/Workshop etc

Sr. No.	Name of Student	Name of Activity	Activity conducted by (Name of college)	Prize-Participtation /Winner/Runner
1	Shubham Kshirsagar	Poster Presentation	A. G. Patil Polytechnic college, Solapur	Participation
2	Pragati Shinde	Poster Presentation	A. G. Patil Polytechnic college, Solapur	Participation
3	Shubhada Rajguru	Poster Presentation	A. G. Patil Polytechnic college, Solapur	Participation
4	Ruturaj Mokashi	Poster Presentation	A. G. Patil Polytechnic college, Solapur	Participation
5	Vaishnavi Tatipamul	Poster Presentation	A. G. Patil Polytechnic college, Solapur	Participation
6	Vedant Upadhya	Poster Presentation	A. G. Patil Polytechnic college, Solapur	Participation
7	Saikrishna Nandal	Poster Presentation	A. G. Patil Polytechnic college, Solapur	Participation
8	Suyesh Mhetre	Poster Presentation	A. G. Patil Polytechnic college, Solapur	Participation
9	Yatiraj Survase	Poster Presentation	A. G. Patil Polytechnic college, Solapur	Participation
10	Shivam Nishandar	Poster Presentation	A. G. Patil Polytechnic college, Solapur	Participation
11	Ritesh Chiman	Poster Presentation	A. G. Patil Polytechnic college, Solapur	Participation
12	Vedant Kshirsagar	Poster Presentation	A. G. Patil Polytechnic college, Solapur	Participation
13	Akshya Bhatlonde	Poster Presentation	A. G. Patil Polytechnic college, Solapur	Participation
14	Aditya Sarangi	Truss Making	Bharat-Ratna Indira Gandhi College of Engineering, Solapur	Participation
15	Devraj Sidral	Truss Making	Bharat-Ratna Indira Gandhi College of Engineering, Solapur	Participation
16	Kartik Adam	Truss Making	Bharat-Ratna Indira Gandhi College of Engineering, Solapur	Participation
17	Pranay Vallal	Truss Making	Bharat-Ratna Indira Gandhi College of Engineering, Solapur	Participation
18	Durga Shinde	Paper Presentation	S.E.S. Polytechnic Solapur	1st Winner
19	Vinay Salunkhe	Paper Presentation	S.E.S. Polytechnic Solapur	1st Winner
20	Suyash Mhetre	Paper Presentation	S.E.S. Polytechnic Solapur	Participation
21	Sai Krushna Nandal	Paper Presentation	S.E.S. Polytechnic Solapur	Participation
22	Akash Shantmallapa	Paper Presentation	S.E.S. Polytechnic Solapur	Participation
23	Bipin Mandkal	Paper Presentation	S.E.S. Polytechnic Solapur	Participation
24	Niraj Pendkar	Paper Presentation	S.E.S. Polytechnic Solapur	Participation
25	Bhargav Kyatam	Paper Presentation	S.E.S. Polytechnic Solapur	Participation

9) Faculty achievement

Sr. No.	Name of Faculty	Name of Activity (Seminar/FDP/Training etc)	Activity conducted by (Name of college)
1	Mr. N. A. Ekhande	3rd Series of Advancement in Concrete Technology	Ballari Institute of Technology & Management, Ballari
		How to publish research paper in scopus indexed journal	Vidya Pratishthan's Polytechnic College, Indapur
2	Mr. S. G. Kannurkar	How to publish research paper in scopus indexed journal	Vidya Pratishthan's Polytechnic College, Indapur
		Application of Dron Survey in Civil Engineering	Brahmdevdada Mane Polytechnic, Belati, Solapur
3	Mr. A. S. Chandanshive	Artificial Intelligence in Civil Engineering with BIM technology	S.E.S. Polytechnic, Solapur Under MSBTE
		Application of Dron Survey in Civil Engineering	Brahmdevdada Mane Polytechnic, Belati, Solapur
4	Mr. R. R. Madane	Writing Skils and Plagiarism checking	Bharat-Ratna Indira Gandhi College of Engineering, Solapur
		Application of Dron Survey in Civil Engineering	Brahmdevdada Mane Polytechnic, Belati, Solapur
5	Mr. S. S. Gherade	Artificial Intelligence in Civil Engineering with BIM technology	S.E.S. Polytechnic, Solapur Under MSBTE
		Application of Dron Survey in Civil Engineering	Brahmdevdada Mane Polytechnic, Belati, Solapur
6	Ms. Vaishnavi Birajdar	Application of Dron Survey in Civil Engineering	Brahmdevdada Mane Polytechnic, Belati, Solapur

10) Result Analysis of Dept (W-25)

Sr. No.	Year & Course	Appeared	Distinction	I st Class	II nd Class & Pass Class	ATKT	% Passing Result
1	I st Year	65	14	28	1	20	96.92%
2	II nd Year	50	9	20	03	12	64%
3	Iii rd Year	28	22	05	00	1	96.43

11) Involvement of department Staff in MSBTE work

Sr. No.	Name of Faculty	Work (Controller/External Squad/ Paper setting/Observer/MHCIT Exam	Place
1	Mr. Nilesh A. Ekhande	DEC In charge, Paper Setting EGM, Academic Co-ordinator	SESP, Solapur
2	Mr. A. S. Chandanshive	MHCIT Exam	Solapur
3	Mr. R. R. Madane	MHCIT Exam	Solapur

12) Social activities / Cultural activities conducted by Dept

a. 15 October 2025 Flood Relief Donation in Solapur
b. 20 Feb 2026 Blood Donation & Haemoglobin Check

c. 24 Jan 2026 Cultural Activity
d. 19 Feb 2026 Shiv Jayanti Celebration

13) Details about Alumni (Min 10)

Sr. No.	Name of Alumni	Passing Year	Current Status	Contribution in Dept
1	Mr. Narendra Kale	1996	Councillor	
2	Ms. Shweta Bolabatti	2009	IT Job	
3	Ms. Aditi Deshmukh	2016	British Petroleum Pvt. Ltd.	
4	Mr. Atul Chandanshive	2016	S. E. S. P. Solapur	
5	Mr. Shubham Sawant	2017	Business	
6	Mr. Indrakumar Bhingare	2018	Contractor	
7	Mr. Dinesh Ghorpade	2019	Job	
8	Mr. Suraj Dhavale	2019	JE in SMC	
9	Mr. Abhijeet Sonkamble	2019	Business	
10	Mr. Prajwal Bansode	2019	Business	
11	Mr. Abhijeet Athavale	2019	Business	
12	Mr. Manik Athavale	2019	Business	
13	Mr. Parth Potdar	2023	Education	
14	Mr Pratap Gaikwad	2023	Education	
15	Mr. Aken Vighneshwer	2023	Education	
16	Mr. Nilesh Falmari	2023	Education	
17	Mr. Ravi Kapure	2023	Job	
18	Mr. Aditya Shinde	2023	Education	
19	Mr. Lakhan Chilweri	2023	Education	
20	Mr. Udayshankar Jindam	2023	Education	
21	Mr. Rakesh Kumar	2024	Education	
22	Mr. Kusho Kumar	2024	Job	
23	Mr. Sunil Kumar	2024	Job	
24	Mr. Abhishek Kumar	2024	Education	
25	Mr. Bittu Kumar	2024	Education	
26	Mr. Vishal Singh Rajput	2024	Job	
27	Mr. Raghavendra Gajjam	2025	Education	
28	Mr. Jagdish Pattipaka	2025	Education	
29	Mr. Prithviraj Inde	2025	Education	
30	Mr. Harshal Koli	2025	Education	
31	Mr. Kishan Kalburgi	2025	Education	
32	Mr. Sanket Pawar	2025	Education	
33	Mr. Rajat Myana	2025	Education	
34	Mr. Mahesh Rapelli	2025	Education	
35	Ms. Vaishanavi Kalwadi	2025	Education	
36	Ms. Anjali Alkunte	2025	Education	
37	Ms. Sushma Gajdhane	2025	Education	
38	Ms. Aditi Dalvi	2025	Education	

14) Resource Generation (If any)

1. Consultancy of Material Testing

Computer Technology

Mr. M.C.Patil
Head of Department

1) Department Information

Year of Starting :- 2001
Current Intake :- 120

2) Staff in Department During 2025-26

Sr. No.	Full Name of Staff	Qualification	Designation	Experience in years
1	Mr. M. C. Patil	M. Tech (CSE)	HOD	32
2	Mr. A. R. Kawathe	B.E. (Computer)	Sr. Lecturer	32
3	Mrs. S.S. Rajmane	M. E. (CSE)	Sr. Lecturer	21
4	Ms. G.K. Ghodke	B.E. (Computer)	Sr. Lecturer	20
5	Mrs. D.J. Trigule	M. E. (CSE)	Sr. Lecturer	19
6	Mrs. S. M. Katke	M. E. (CSE)	Lecturer	6
7	Ms. V.C. Zadbuke	B.E. (CSE)	Lecturer	4
8	Mrs. H.Dandage	B.E.(CSE)	Lecturer	3
9	Mr. M.G.Swami	B.E.(CSE)	Lecturer	3
10	Mr. S.N.Siddhul	B.E.(IT)	Lecturer	1
11	Ms. S.G.Jadhav	B.E.(CSE)	Lecturer	5
11	Ms. M.S.Dussa	B.E(CSE)	Lecturer	4
13	Ms. K.A.Kavle	B.E.(CSE)	Lecturer	1
14	Mr A.P. Gavandi	B.E.(IT)	Lecturer	3
15	Mrs L.A.Bhandari	B.E.(CSE)	Lecturer	4
16	Mrs S.S.Kore	B.E.(CSE)	Lecturer	6 months
17	Mr. N .V. Homkar	D.E.T.E.	T.L.A.	26
18	Mr. V.S.Waichal	D.E.T.E	T.L.A	11
19	Mr. B. K. Kharade	B. Com.	L.A.	18

3) Carpet area for Department

Sr. No.	Room No.	Purpose (Class room/Lab/HOD Cabin/Dept Store/Staff Room /Toilet/Boys & Girls Room	Carpet Area in m2
1	308	HOD Cabin	13.50
2	308 A	Department Store	20.25
3	308 B	Project Lab-2	61.50
4	308 C	Project Lab-1	61.50
5	309 A	Programming Lab -3	64.00
6	309 B	Database & Software Testing Lab	64.50
7	309 C	Programming Lab -2	87.25
8	309 D	Programming Lab -1	87.25
9	220	Hardware & Networking Lab	64 .00
10	221	Microprocessor Lab	60.00
11	309 E	Staff Room	53.71
12	310	Class Room	91.10
13	311	Class Room	91.10
14	312	Class Room	60.40
15	313	Boys Common Room	29
16	314	Girls Common Room	45

4) Details of Laboratory

Sr. No.	Name of Lab	Room No	Cost of Equipment in Lab
1	Programming Lab -1	309 D	1770681
2	Programming Lab -2	309 C	1590270
3	Database & Software Testing Lab	309 B	1762304
4	Programming Lab -3	309 A	1439125
5	Project Lab-2	308 B	1487005
6	Project Lab-1	308 C	2412296
7	Hardware & Networking Lab	220	1417925
8	Microprocessor Lab	221	1075474

5) Admission in Department for A.Y 2025-26:-

Sr No.	Year	Student on Roll	Male	Female
1	First Year	137	79	56
2	Second Year	138	77	61
3	Third Year	106	65	41

5) Guest lectures conducted in Dept

Sr. No.	Name of Expert	Topic Covered	Class	PO	No. of Beneficiaries
1	Mr Vyenkatesh Uyyala Cyber Security analyst at Gradient Cyber Security	Cybersecurity	CM 4K	PO 7	90
2	Mr. Bapu Arkas Pro Azure Software Solutions Pvt Ltd Pune	Robotics Process Automation Using AI	CM 6K	PO 6	50
3	Mr. Omkar Huchche Operations Optimisation enablement Specialist at World at Work Pvt Ltd	Capstone Project Development Bridging Academic Learning with real time industry practices	CM 6K	PO 6 PO 7	100
4	Mr. Vinay Ligade Enterprise Cloud Architect Development Manager at WorldPay Pvt. Ltd	Emerging Trends and technology	CM 5K	PO 4	90
5	Mr Asif Iqbal Satkhed Senior Technical Project Manager at Global Payments WorldPay Pune	Carrier Opportunities and skill sets required in Industry	CM 5K	PO 7	95
6	Ms. Anita More Mahila Police Amaldar	Drug Awareness	Girls of All year	PO 7	100
7	Dr. Bahubali Kandale MD, Technowings IT Solutions	Global Certification Programs required in IT Industry	CM6K	PO 7	125
8	Mr. Sheryash Jadhav Sr. Developer ,Technowings IT Solutions	Recent Trends in in Software Project Development	CM4K	PO 6 PO 7	100
9	Sujay Pujari Engineering lead, Persistent Systems	Mind Programming Techniques	CM2K	PO7	100
10	Pratiksha Javanjal Software Engineer Walt Disney Company, Connecticut, US	Advanced Javascript Technologies	CM 4K CM 6K	PO 6 PO 7	150
11	Saumya Nashikkar Cloud Engineer, LTI Mindtree, Hyderabad	Job opportunities related to Cloud Computing in IT industry	CM 3K CM 5K	PO 7	150
12	Sneha Waghmare Digital Marketing Specialist, Intellectt Inc, Hyderabad	Soft skill requirement as a professional in Industry	CM 3K CM 5K	PO 6	150
13	Madhusudan Ladda CO-founder Servana One Pune.	IOT Fundamentals & Carrier road map from Diploma to Engineering.	CM 6K	PO 7	90
14	Mr. Shekhar N. Adgale MKCL Exceutive	Cybersecurity	CM 6K	PO7	90

7) Industrial Visit conducted in department

Sr. No.	Name of Visit	Purpose	Class	PO	No. of Beneficiaries
1	Water Purification Plant, Bhavani Peth,Solapur	Water Purification	CM4K	PO 7	85
2	ERP Section of Ashwini Sahakari Rugnalaya,Solapur	ERP Software	CM4K	PO 6 PO 7	80
3	10 G Telecom Pvt Ltd Venkatesh CHS Near Prism Diagnostic center,VIP Road,Solapur	Practical exposure to routing and switching,Network security.	CM4K	PO 7	90
4	Karate Informetics, Solapur	Real time project development process in industry	CM 6K	PO 6 PO 7	80
5	Eywa Solutions Pvt.Ltd	Different types of project development tools	CM 6K	PO 6 PO 7	85

8) Participation or Achievement by students in seminar/Workshop etc

Sr. No.	Name of Student	Name of Activity	Activity conducted by	Prize won
1	Arushi Kamble, Pratiksha Shivsharan Shrushti Dudde Asmita Jadhav	National level Hackathon competition 2026	Bharat-Ratna Indira Gandhi College of Engineering Solapur.	First prize
2	Alisha Shaikh Sayali Tambe	State level Technical competition 2026 Nirmaan Poster competition	A.G.Patil Polytechnic Solapur.	3rd prize
3	Shubham Masali Krishna Rohra	State Level Technical Paper Presentation	SES Polytechnic Solapur & ISTE Approved	2nd Prize
4	Singdha Kandikatla Pranjali Sidral	National Level Poster Presentation	Sangameshwar College, Solapur.	1st Prize
5	Vedant Vallal	Code and Craft Competition	KP Mangalvedhekar Solapur.	3rd Prize
6	Shubham Masali Krishna Rohra	State Level Technical Paper Presentation	MSBTE	2nd Prize

Sr. No.	Name of Student	Name of Activity	Activity conducted by	Prize won
7	Manik Barad	IDEATHON 2K26	VVP IDEATHON 2K26	2nd Prize
	Vedant Vallal			
	Tanishq Shivsharan			
	Yash Jawanjal			
8	Sandhya Pawar	Paper Presentation	Maulana Azad Polytechnic Solapur.	1st prize
	Gayatri Jadhav			
9	Yash Javanjal	Build and beyond (Web Innovation Challenge 2026)	Abhijit Kadam Institute of Management and Social Sciences, Solapur.	2nd Prize
	Tanishq Shivsharan			
10	Vedant Vallal	Website Designing Competition	Soni College Solapur.	1st prize
11	Abhinav Mallade	National Level event TECH TANTRA 1.0	SVERI's College of Engineering, Pandharpur.	Runner up
	Prashant Sherala			
	Silam Katave			
	Rahul Samal			
12	Asmita Jadhav	Poster Presentation	Maulana Azad Polytechnic Solapur .	2nd Prize
	Arushi Kamble			
13	Snigdha Kandikatala	Poster Presentation Competition	SONI College Solapur.	1st prize
	Pranjali Sidral			
14	Manik Barad	C Programming Competition	SONI College Solapur.	1st prize

9) Faculty achievement

Sr. No.	Name of Faculty	Name of Activity (Seminar/FDP/Training etc)	Activity conducted by (Name of college)
1	Mr. M.C. Patil	AI Tools and its Applications	D.K.T.E's, Yashawantrao Chavan Polytechnic, Ichalkaranji
		Empowering Educators with AI Tools	SPM Polytechnic Kumathe,Solapur
		How to Publish Research paper in Scopus Indexed Journal	Vidya Prathisthan's Polytechnic College, Indapur

Sr. No.	Name of Faculty	Name of Activity (Seminar/FDP/Training etc)	Activity conducted by (Name of college)
2	Mr. A.R. Kawathe	Various Initiatives of AICTE FOR Better Development of Institutions Faculty and Students	S.P.I.T.Polytechnic Kurud
		Cloud Computing	Atma Malik Institute of Research and Technology in Collaboration with ExcelR Edtech Pvt. Ltd.
		Data Analytics Using Power BI	Atria Institute of Technology (AIT), Autonomous, Bangalore,Karnataka & Annasaheb Dange College of Engineering & Technology, Ashta, Maharashtra in Collaboration with ExcelR Edtech Pvt. Ltd.
3	Mrs. S. S. Rajmane	Data Analytics Using Power BI	Atria Institute of Technology (AIT), Autonomous, Bangalore,Karnataka & Annasaheb Dange College of Engineering & Technology, Ashta, Maharashtra in Collaboration with ExcelR Edtech Pvt. Ltd.
		Empowering Educators with AI Tools	SPM Polytechnic Kumathe,Solapur
		Data Analytics	SPM Polytechnic Kumathe,Solapur
		Various Initiatives of AICTE FOR Better Development of Institutions Faculty & Students	S.P.I.T.Polytechnic Kurud
4	Ms. G. K. Ghodke	Fundamentals of Deep Learning	D.K.T.E's, Yashawantrao Chavan Polytechnic, Ichalkaranji

Sr. No.	Name of Faculty	Name of Activity (Seminar/FDP/Training etc)	Activity conducted by (Name of college)
		AI Tools and its Applications	Atria Institute of Technology (AIT), Autonomous, Bangalore,Karnataka & Annasaheb Dange College of Engineering & Technology, Ashta, Maharashtra in Collaboration with ExcelR Edtech Pvt. Ltd.
		Data Analytics Using Power BI	VVP Solapur
5	Mrs. D.J. Trigule	AI Tools and its Applications	D.K.T.E's, Yashawantrao Chavan Polytechnic, Ichalkaranji
		Data Analytics Using Power BI	Atria Institute of Technology (AIT), Autonomous, Bangalore,Karnataka & Annasaheb Dange College of Engineering & Technology, Ashta, Maharashtra in Collaboration with ExcelR Edtech Pvt. Ltd.
		Data Analytics	SPM Polytechnic Kumathe,Solapur
		Empowering Educators with AI Tools	SPM Polytechnic Kumathe,Solapur
6	Mrs. S. M. katke	AI Tools and its Applications	D.K.T.E's, Yashawantrao Chavan Polytechnic, Ichalkaranji
		Data Analytics	SPM Polytechnic Kumathe,Solapur
7	Ms. V. C. Zadbuke	AI Tools and its Applications	D.K.T.E's, Yashawantrao Chavan Polytechnic, Ichalkaranji

Sr. No.	Name of Faculty	Name of Activity (Seminar/FDP/Training etc)	Activity conducted by (Name of college)
8	Mrs. H. S. Dandage	AI Tools and its Applications	D.K.T.E's, Yashawantrao Chavan Polytechnic, Ichalkaranji
		Gen AI for Teaching, Research and Academic Productivity	A.G.Patil Institute of Technology ,solapur
		Emerging Trend in AI and Data Science	SVERI Polytechnic Pandharpur
9	Mrs. M.S. Dussa	Research idea to Published Paper	AGPIT Solapur
		Educate the Educator on Generative AI	Capable from Elite Techno Groups
10	Ms. S.G. Jadhav	AI in Power System	BMIT Solapur
		Educate the Educator on Generative AI	Capable from Elite Techno Groups
		AI Tools and its Applications	D.K.T.E's, Yashawantrao Chavan Polytechnic, Ichalkaranji
11	Mr. S. N. Siddhul	Ethical Hacker : Risk Assessment	Infosys Springboard
		Introduction to Weapon Technology	MSBTE and L&T skill Trainers Academy, Madh jetty Mumbai
		Augmented Reality / Virtual Reality (AR/VR)	C V Raman Polytechnic Bhubaneswarin Collaboration with ExcelR Edtech Pvt. Ltd.
		Computer Hardware and Software	University of California, Irvine and offered through Coursera
		Faculty Enablement Program (FEP) on Cyber Security	Infosys Springboard
		Inculating Universal Human Values in Technical Education	AICTE & D.Y.Patil College of engineering pune.

Sr. No.	Name of Faculty	Name of Activity (Seminar/FDP/Training etc)	Activity conducted by (Name of college)
		Data Analytics Using Power BI	Atria Institute of Technology (AIT), Autonomous, Bangalore,Karnataka & Annasaheb Dange College of Engineering & Technology, Ashta, Maharashtra in Collaboration with ExcelR Edtech Pvt. Ltd.
12	Mr. M.G. Swami	Cloud Computing	Atma Malik Institute of Research & Technology in Collaboration with ExcelR Edtech Pvt. Ltd.
		Data Analytics Using Power BI	Atria Institute of Technology (AIT), Autonomous, Bangalore,Karnataka & Annasaheb Dange College of Engineering & Technology, Ashta, Maharashtra in Collaboration with ExcelR Edtech Pvt. Ltd.
		Applied AI & ML Tools for educators	VVP Polytechnic Solapur & Shreevidya infotechnologies Solapur
		Augmented Reality / Virtual Reality (AR/VR)	C V Raman Polytechnic Bhubaneswarin Collaboration with ExcelR Edtech Pvt. Ltd.
13	Ms.K. A. Kavle	"AI in Power System"	BMIT Solapur
		Educate the Educator on Generative AI	Capable from Elite Techno Groups
		Agentic AI	Orchid College of Engineering,Solapur
		AI Tools and its Applications	D.K.T.E's, Yashawantrao Chavan Polytechnic, Ichalkaranji

Sr. No.	Name of Faculty	Name of Activity (Seminar/FDP/Training etc)	Activity conducted by (Name of college)
14	Mr. A. P. Gavandi	AI Tools and its Applications	D.K.T.E's, Yashawantrao Chavan Polytechnic, Ichalkaranji
		Introduction to Weapon Technology	MSBTE and L&T skill Trainers Academy, Madh jetty Mumbai
15	Ms. L. S. Kaljate	AI Tools and its Applications	D.K.T.E's, Yashawantrao Chavan Polytechnic, Ichalkaranji
		Various Initiatives of AICTE FOR Better Development of Institutions Faculty and Students	S.P.I.T.Polytechnic,Kurud

10) Result Analysis of Dept (S-25)

Sr. No.	Year & Course	Appeared	Distinction	I st Class	II nd Class & Pass Class	ATKT	% Passing Result
1	I st Year	134	70	41	0	22	97.01%
2	II nd Year	116	77	28	0	2	93.97%
3	III rd Year	64	46	15	0	0	95.31%

11) Involvement of department Staff in MSBTE work

Sr. No.	Name of Faculty	Work (Controller/External Squad/ Paper setting/Observer/MHCIT Exam	Place
1	Mr M.C.Patil	MSCIT Exam	Solapur
2	Mr S.N. Siddhul	MSCIT Exam	Solapur
3	Mr M.G.Swami	MSCIT Exam	Solapur
4	Mrs S.S. Rajmane	MSBTE Question Paper setting	Solapur
5	Mrs D.J.Trigule	MSBTE Model Answer preparation	S.S.W.P, Solapur
6	Mrs G.K. Ghodke	External Squad Theory Exam	Solapur,Barshi

12) Social activities / Cultural activities conducted by Dept

A) Social Activity:

i) Ek Mutthi Anndan to Jai Hind Food Bank
ii) Tree Plantation
iii) Blood Donation

B) Cultural Activity:

i) Engineers Day Celebration
ii) Traditional Day Celebration

13) Details about Alumini

Sr. No.	Name of Alumni	Passing Year	Current Status	Contribution in Dept
1	Ashish R. Masam	2008	Director - Zero One Data Labs	Judge
2	Onkar Gakargi	2008	Owner of Ultima Security and Technology, Solapur.	Discussion Session
3	Shrivinay N Siddhul	2012	Momentive Software, Pune Senior QA Engineer	Guest Lecture
4	Nitin V Maykal	2013	Co-Founder, Brave Soft Advisory, Solapur	Workshop & Judge
5	Pravin Hangandi	2016	Sr. Software Engineer Pune	Judge Paper Presentation
6	Amruta Kullkarni	2016	Sr. Software Engineer, Accenture Solutions Pvt. Ltd.	Guest Lecture
7	Onkar Huchche	2017	Senior Software Tester and Application Support Specialist at Globalstep Solutions Pvt. Ltd.,Pune.	Guest Lecture
8	Hrishikesh Mhatre	2019	Back end Front end developer emtec.inc.in Pune	Guest Lecture
9	Priyanka Tondse	2020	Product Engineer, Beacon Health-care Systems Private Ltd,Pune	Guest Lecture
10	Pratiksha Javanjal	2016	Software Engineer, Walt Disney Company, Connecticut, US	Student Guidance
11	Saumya Nashikkar	2016	Cloud Engineer, LTIMindtree, Hyderabad	Student Guidance
12	Sneha Waghmare	2016	Digital Marketing Specialist, Intellectt Inc, Hyderabad	Student Guidance

Electronics & Telecommunication

Mrs. P.R.Nagansure
Head of Department

1) Department Information:-

Electronics and Telecommunication Engg.

Year of Starting-----1987

Department vision :-

To provide quality technical education to enhance the employability and entrepreneurial skills.

Department Mission:-

M1: To impart theoretical knowledge to the students as per industry needs.

M2: To develop practical skills through continuous improvement of laboratories.

M3: To develop overall personality of students through extra-curricular activities and technical events.

Department PSO:-

1) To develop skills to solve problems in Electronics and Communication Engineering using Mathematical techniques and Scientific Knowledge.

2) Students should be able to employ necessary techniques, hardware and software tools for Engineering applications.

2) Staff in Department During 2025-26

Sr. No.	Full Name of Staff	Qualification	Designation	Experience in years
01	Mrs P R Nagansure	M.Tech Electronics Technology	Head of Dept.	30 yrs
02	Mr S. M. Tipe	DETE, TTTI	Sr.Lecturer	30 yrs
03	Mr. V. A. Kulkarni	ME Computer	Sr.Lecturer	23 yrs
04	Mrs. D.A. Shinde	ME DECS	Sr.Lecturer	18 yrs
05	Mr. N.S. Surwase	B.E. E & TC	Sr.Lecturer	20 yrs
06	Mrs. R.R.Rajmane	M.E. E & TC pursuing	Lecturer	4.5 yrs.
07	Mrs. S.R.Hanchate	M.E. Electronics	Lecturer	2.5 yrs
08	Mrs. M.U. Koli	M.E. E & TC pursuing	Lecturer	9 yrs.
09	Mrs. M.S. Chitkul	B.E. E &TC	Lecturer	1 yrs.
10	Miss.B.P. Kasabe	D.E.E. E & TC	TLA	3 yrs
11	Mr. S.B.Gund	S.S.C	Peon	35yrs

3) Carpet area for Department

Sr. No.	Room No.	Purpose (Class room/Lab/HOD Cabin/Dept Store/Staff Room /Toilet/Boys & Girls Room	Carpet Area in m2
1	203	Class Room---1st Year	72.77 sq.m
2	204	Class Room----3rd Year	73.56 sq.m
3	205	Class Room----2nd Year	74.65 sq.m
4	108	Tutorial Room	60 sq.m
5	206	Electronics workshop	60 sq.m
6	207	Analog Electronics Lab	59 sq.m
7	209	Advance Communication Lab	52.20 sq.m
8	301	Digital & Microcontroller Lab	78 sq.m
9	302	Communication lab	60 sq.m
	306	Measurement and control Lab	103 sq.m
10	208	HOD Cabin	12.90 sq.m
11	210	Staff Room	48.50 sq.m
12	307	Staff Room	13.92 sq. m
13	208A	Dept Store	16.35 sq.m
	209A	Electronics maintenance room	16.51 sq. m

4) Admission in Department for A.Y 2025-26:-

Sr No.	Year	Student on Roll	Male	Female
1	First Year	68	35	33
2	Second Year	75	37	38
3	Third Year	30	12	18

5) Guest lectures conducted in Dept

Sr. No.	Name of Expert	Topic Covered	Class	No. of Beneficiaries
1	Mr.Santosh Bhandarkawathe	IOT application and scope in future	EJ5K	30
2	Faculty of cybercrime	Faculty of cybercrime	EJ5K	30
3	Mr. Vishwas V. Patange	Recent trends in Electronics	EJ3K	75

Sr. No.	Name of Expert	Topic Covered	Class	No. of Beneficiaries
4	Mr.Satyam Dudhankar	Fire Safety and Fire Extinguisher	EJ1K	69
5	Mrs.Anita More	Guest lecture on Women Empowerment	All Dept. Girls	
6	Mr.Shantanu S. Maske	Guest lecture on Fundamental of Robotics and IOT	2K, 4K,6K	174
7	Mr. Himanshu Lele	Awareness of E-waste	2K, 4K,6K	174
8	Mr. Vidyadhar Kulkarni	Guest lecture on Guidance and information on Cybersecurity	6K	30
9	Mr.Vijay Kundan Jadhav	Recent trends in AI and ML	EJ4K, EJ6K	105
10	Mrs.Swati Laxman Patil	Social media Addiction in youth and Preventive measures	EJ2K, EJ4K, EJ6K	174

6)Industrial Visit conducted in Department A.Y.2025-26:-

Sr. No.	Name of Visit	Purpose	Class	No. of Beneficiaries
1	Shreevidya Infotech	Regarding implementation of MQTT protocol with NODE MCU	6K	30
2	Visit to 95 My FM	To understand the FM system under (CEL)	EJ4K	70
3	Water Purification	To understand the process of water purification under Envioremental Studies (EES)	EJ4K	70
4	Solar Power Generation	Working of solar Generation system under (EMC)	EJ2K	60
5	Srujan Foods	Working of machine automisation (MAA & CEL)	EJ2K	60
6	Industry visit to Sathe Industry	Getting the information about (CEL & BPE)	EJ2K	60

7) Achievements by students in seminars/workshop /Activities A.Y.2025-26

Sr. No.	Name of Student	Name of Activity	Activity conducted by	Prize won
1	Miss. Nishant Korbu	PPT presentation	Maulana Azad Polytechnic,Solapur	Participated
2	Miss. Nayana Potabatti			
3	Miss. Vaishnavi Waghmare			
4	Miss. Nishant Korbu	State Level Quiz Competition	Maulana Azad Polytechnic,Solapur	Participated
5	Miss. Nayana Potabatti			
6	Miss. Vaishnavi Waghmare			
7	Miss. Akanksha Ambekar	State Level PPT presentation	S.E.S. Polytechnic, Solapur	2nd Prize
8	Miss. Nayana Potabatti			
9	Miss. Akanksha Ambekar	National Level PPT presentation	A.G.Patil Institue Polytechnic,Solapur	2nd Prize
10	Miss. Shreya Tarake			
11	Miss. Vaishnavi Waghmare	State Level Quiz Competition	A.G.Patil Institue Polytechnic,Solapur	Participated
12	Miss. Ovi Shinde	Krida Gyan Pariksha	Krida Gyan Pariksha Organisation.	2nd Prize
13	Miss. Ishita Sathe	Vakrutva Spardha	Shivsmarak Solapur	1nd Prize
14	Miss. Savri Shinde	State Level Technical Quiz Competition, Kolhapur	Vidyavardhini Institute of Technology, Kolhapur	6 th Rank

8) Participation or Achievement by students in seminar/Workshop etc:-

A. Student Participation in Technical Event

Sr. No.	Name of Student	Name of Activity	Activity conducted by (Name of college)	Prize-Participation/ Winner/Runner
1	Mr.Dantkale Devendra	Technical Paper Presentation	Techtronic 2025 S.E.S Polytechnic Solapur	Winner
2	Mr.Ganapa Hariprasad			
3	Miss.Dudgikar Anjali	Technical Paper Presentation	Techtronic 2025 S.E.S Polytechnic Solapur	1st Runner
4	Miss. Telsang Roshni			
5	Miss.Sathe Ishita	Technical Paper Presentation	Techtronic 2025 S.E.S Polytechnic Solapur	2nd Runner
6	Miss.Gangji Radhika			
7	Miss.Potabatti Nayana	Technical Quiz	Techtronic 2025 S.E.S Polytechnic Solapur	Winner
8	Miss.Jadhav Alisha			
9	Mr.Paskanti Navnit			
10	Mr.Ramganur Rohan			

Sr. No.	Name of Student	Name of Activity	Activity conducted by (Name of college)	Prize-Participation/ Winner/Runner
11	Mr.Karpe Ashutosh	Technical Quiz	Techtronic 2025 S.E.S Polytechnic Solapur	Runner
12	Mr.Komti Aditya			
13	Miss. Bhosale Gargi			
14	Mr.Waychal Devang			
15	Miss.Yemul Harshita	Tech Reel	Techtronic 2025 S.E.S Polytechnic Solapur	Winner
16	Miss. Lakapati Pradnya			
17	Mr.Bembalgi Chanayya	Tech Reel	Techtronic 2025 S.E.S Polytechnic Solapur	Runner

B.Student Paricipation in Sports Event

Sr. No.	Name of Student	Event Name	Name of Activity	Activity conducted by (Name of college)	Prize-Participation/ Winner/Runner
1	Mr. Digvijay Patil	I.E.D.S.S.A.	Badminton	SVERI Pandharpur	Participated
2	Mr.Navnit Paskanti	I.E.D.S.S.A.	Carrom	SSWP Solapur	Participated
3	Mr.Nandan Alkunte	I.E.D.S.S.A.	Volley Ball	BMP Solapur	Participated
4	Mr.Parth Satalgoan				
5	Mr.Sarth Sonawane	I.E.D.S.S.A.	Cricket	SVERI Pandharpur	Participated
6	Mr.Akhil Bijja	I.E.D.S.S.A.	Foot Ball	SVERI Pandharpur	Participated
7	Mr.Yaseen Belief MD				
8	Mr.Rushikesh Malge	I.E.D.S.S.A.	Kabaddi	Shivaji Polytechnic Sangola	Participated
9	Mr.Aditya Pise				
10	Mr.Harsh Kharat				
11	Ms.Sakshi Kolhapure	I.E.D.S.S.A	Badminton	SVERI Pandharpur	Participated
12	Ms.Maheshwari Madgundi				
13	Ms.Anushka Kamble	I.E.D.S.S.A	Kho-Kho	SVIT Solapur	Participated
14	Ms.Gouri Jadhav				
15	Ms.Gargi Bhosale				

C. Placements of Students A.Y.2025-26

Sr. No.	Name of Student	Name of Industry	Salary Offered
01	Miss. Shreya pravin Tarake	Tata Motors Ltd Pune.	16000/- (Per Month)
02	Miss. Suman Ramesh Yangaldas		
03	Miss.Amruta Rajendra Devkate.S		
04	Miss. Shraddha Satish Kharat.		
05	Miss. Suman Ramesh Yangaldas	John Deere India Pvt Ltd Pune	18000/-(Per Month)
06	Khansa Abdul hasib Kalyani	Bajaj Auto Ltd., Pune.	17500/-(Per Month)

9) FDP/ Seminars/Training attended by Faculties A.Y 2025-26

Sr. No.	Name of Faculty	Name of Activity (Seminar/FDP/Training etc)	Activity conducted by (Name of college)
1	Mrs.P R Nagansure I/c HOD	Secure IOT Application Development and cloud integration	W.I.T,Solapur
		Research Idea to publish Paper	A.G Patil Institute of technology, Solapur
		Concept of Commercialization	B.M.I.T,Solapur
		Research paper writing and Publishing in UGC,SCOPUS and WOS indexed journals	B.M.P ,Solapur
		Renewable energy Technology	B.M.P,Solapur
2	Mr. S. M. Tipe Senior Lecturer	Network and cyber security API for web development	Maulana Azad polytechnic ,Solapur
		Secure IOT Application Development and cloud integration using GIT and AWS IOT core	Shreevidya Infotechnologies
		Interdisciplinary advances in electronics and Technology.	Siddeshwar womens polytechnic ,Solapur
3	Mr. V. A. Kulkarni Senior Lecturer	Engineering in Future Mobility 5.0	N.B.N Navle Sinhgad college of Engineering , Solapur
		AI and IOT - Enabling sensing and decision making System .	B.M.I.T,Solapur
		Secure IOT application development and cloud integration	W.I.T,Solapur
		Network and Cyber Security API for web development.	Maulana Azad polytechnic ,Solapur
4	Mrs. D.A.Shinde Senior Lecturer	Research Idea to Publish Paper	A.G Patil Institute of technology, Solapur
		Advancements Sustainable Practices in Power plant engineering	S.P.M polytechnic ,Solapur
		AI and IOT - Enabling Sensing and Decision making System .	B.M.I.T ,Solapur
		Network and Cyber Security API for web development.	Maulana Azad polytechnic ,Solapur
		Agentic AI	N.K.O.C.E.T,Solapur

Sr. No.	Name of Faculty	Name of Activity (Seminar/FDP/Training etc)	Activity conducted by (Name of college)
5	Mr. N.S. Surwase	Interdisciplinary advances in electronics and technology	Siddeshwar womens polytechnic ,Solapur
		AI and IOT - Enabling sensing and decision making system .	B.M.I.T ,Solapur
		Research Idea to Publish Paper	A.G Patil Institute of technology, Solapur
		Secure IOT Application development and cloud integration using GIT & AWS IOT core	Shreevidya Infotechnologies
		Secure IOT application development and cloud integration	W.I.T ,Solapur
6	Mrs. R.R.Rajmane	AI and IOT - Enabling sensing and decision making system .	B.M.I.T ,Solapur
		Secure IOT Application development and cloud integration using Git and AWS IOT core	Shreevidya Infotechnologies
		Automation Robotics and Mechanotrics for modern manufacturing in mechanical engineering	Dattakala Group of Institutions ,Pune
		Exploring AI data and data analytics tools	W.I.T ,Solapur
		Secure IOT application development and cloud integration	W.I.T ,Solapur
		Research Idea to Publish Paper	A.G Patil Institute of technology, Solapur
		Cloud integration embedded systems	A.G Patil Institute of technology, Solapur
7	Mrs. S.R.Hanchate	Secure IOT application development and cloud integration	W.I.T. ,Solapur
		Intelligent cloud fusion -IOT	S.E.S Polytechnic,Solapur
8	Mrs M.U.Koli	Interdisciplinary advances in electronics and technology	Siddeshwar Womens polytechnic ,Solapur
		Secure IOT application development and cloud integration	W.I.T ,Solapur

10) Result Analysis of Department A.Y.2024-25

Sr. No.	Year & Course	% Result
1	First year (EJ1K & EJ2K) (2024-2025)	1st in Total--- Miss Nandini Konda -----86.35% 2nd in Total--- Mr Devendra Dantakale -----79.41% 3rd inTotal----Mr Navnit Paskanti----------79.35%
2	Second Year (EJ3K& EJ4K) (2024-25)	1st in Total---Ms. Nayana Potabatti -------84.66% 2nd in Total—Miss.Suman Yangaldas-------84.27% 3rd inTotal ---Miss.Akanksha Ambekar ----83.22%
3	Third Year (EJ5I & EJ6I) (2024-25)	1st in Total---Mr.Jay Suryawanshi --------89.24% 2nd in Total--Mr.Sarthak Lokhande --------86.47% 3rd inTotal---Miss.Kavya Vernekar ---83.12 %

11) Involvement of department Staff in MSBTE work

Sr. No.	Name of Faculty	Work (Controller/External Squad/ Paper setting/Observer/MHCIT Exam	Place
1	Mrs. P.R.Nagansure	Controller	DC 1226
2	Mrs. P.R.Nagansure	External Squad	Solapur
3	Mr. S. M. Tipe	Controller	DC 1226

12) Social activities / Cultural activities conducted by Dept

A . Social activities

Sr. No.	Name of student	Name of Activity	Name of Department
1	Mr.Ashutosh Karpe	Blood Donation	Electronics & Telecommunication Engineering
2	Mr.Parth Satalagoan	Blood Donation	Electronics & Telecommunication Engineering
3	Mr. Bhalekar Aditya	Blood Donation	Electronics & Telecommunication Engineering
4	All First Year Students	Tree Plantation	Electronics & Telecommunication Engineering
5	Food Donation	Jai Hind Food Bank	All Students & staff members of E & TC Department

B. Cultural Activity

Sr. No.	Name of student	Name of Activity	Winner/Runner/ Participated	Name of Department
1	Mr.Bembalgi Channayya &Group	Comedy Dance	First Prize	Electronics & Telecommunication Engineering
2	Miss.Nayana Potabatti & Group (10 Students)	Dance Competition	Second Prize	Electronics & Telecommunication Engineering
3	Miss.Manyata Tawaskar	Solo Dance	Second Prize	Electronics & Telecommunication Engineering
4	Miss. Ishita Sathe	Best Costume	First Prize	Electronics & Telecommunication Engineering
5	Mr. Pravin Pobatti	Best Costume	Second Prize	Electronics & Telecommunication Engineering
6	Mr. Pravin Pobatti	Ramp Walk	First Prize	Electronics & Telecommunication Engineering

13) Details about Alumini

Sr. No.	Name of Alumni	Passing Year	Current Status	Contribution in Dept
1	Dr.Pradeep Dhage	2004	COO/Head STPI Next i ntiatives Bengaluru	Conducted Guest Lecture for our students
2	Mrs.Neha Ayush Mangal	2004	Director at Prachi Trading &	
3	Mr.Kiran Doijode	2006	Investment Pvt.Ltd.,Bhosari,Pune AMELIA AN IP SOFT Company	
4	Mr.Gunjan Tipe	2013	Software Engineer,Actalent, Bengluru.	Conducted Guest Lecture for our student
5	Mr.Shailesh Hajare	2006	Software Engineer-Machine Learning,Cleareye. ai,Trivandrum,India	Conducted Guest Lecture for our student
6	Ms.Shrikanti Nilange	2004	Director of Chetak Energy	
7	Dr.Mrinal Bachute	1997	Professor at Symbiosis Institute Pune	
8	Dr.Shivanand Jadhav	1998	Vice President Meritech solutions	Conducted Guest Lecture for our student
9	Mr.Yogendra Deshmukh	1999	Lieutenant colonel Indian army	
10	Dr.Mahesh Navale	1997	Director Nilkey Enterprises	Conducted Guest Lecture for our student

Department of Electrical Engineering

Ms. L.L.Jakkan
Head of Department

1) Department Information

Year of Starting:- 2020-2021
Current Intake - 60

It gives me great pleasure to present overall annual Department Report of Electrical Engineering for academic year 2025-2026.

2) Staff in Dept during 2025-2026

Sr. No.	Full Name of Staff	Qualification	Designation	Experience in years
01	Ms. Laxmi Laxminarayan Jakkan	M. Tech Electrical Power System	HOD	4 Years
02	Mr. Siddhaya Basavraj Kapale	B. E. Electrical	Lecturer	6 Years
03	Ms. Priyanka Yallapa Dhulam	B. Tech Electrical	Lecturer	2 Year
04	Mrs. Kanchan Pruthviraj Vardole	B. E. Electrical	Lecturer	4 Years
05	Mrs. Renuka Basalingappa Katrabad	B.E. Electrical	Lecturer	2 Years
06	Mrs. Shravani Nagesh Boda	B. E. Electrical	Lecturer	2 Years
07	Ms. Nikita Ravindra Burla	B. Tech Electrical	Lecturer	1 Year
08	Ms. Priyanka Yadgiri Gajarla	B. Tech Electrical	Lecturer	1 Year
09	Mr. Vaibhav Manohar Salunke	I.T.I. Electrician	Lab Assi.	6 Months
10	Mr. Bharat Ganapat Salunkhe		Peon	39 Years

3) Carpet area for Department

Sr. No.	Room No.	Purpose (Class room/Lab/HOD Cabin/Dept Store/Staff Room/Toilet/Boys & Girls Room	Carpet Area in m2
1	223	Class Room	66 sq.m
2	224	Class Room	66 sq.m
3	225	Class Room	66 sq.m
4	226	Tutorial Room	66 sq.m
5	211	Electrical Circuit Lab	121 sq.m
6	222 A	Electrical Measurement Lab	60 sq.m
7	222 B	Power Electronics Lab	60 sq.m
8	222 C	Switchgear & Protection Lab	62 sq.m
9	222 D	Electrical Machine Lab	88 sq.m
10	227	HOD Cabin	10 sq.m
11	228	Staff Room	45 sq.m
12	227 A	Dept Store	20 sq.m

4) Details of Laboratory

Sr. No.	Name of Lab	Room No	Cost of Equipment in Lab
1	Electric Circuit Lab	211	104836/-
2	Electrical Measurement Lab	222-A	310348/-
3	Power Electronics Lab	222-B	145793/-
4	Switchgear and Protection Lab	222-C	334011/-
5	Electrical Machine Lab	222-D	1131974/-

5) Current admission in Dept

Sr No.	Year	Student on Roll	Male	Female
1	First Year	59	32	27
2	Second Year	52	38	14
3	Third Year	36	29	07

6) Guest lectures conducted in Dept

Sr. No.	Name of Industry Person/Educationlist	Topic	Class	No. of Beneficiaries
1	Mr.R.G.Waydande, Executive Engineer, Regional training Center, Mahavitaran, Sangli.	"Electrical Safety Awareness Program"	EE2K, EE4K, EE6K	140
2	Mr.Mahesh Ramesh Yannam, Architectural Draftman from mandar Institute, solapur	"Introduction to AUTOCAD in electrical"	EE2K, EE4k, EE6K	140
3	Mr. Akash Devidas Rathod, Junior Engineer, Oil and Natural Gas Corporation Limited, Mumbai.	"Engineers Day Program"	EE1K, EE3K, EE5K	140
4	Senior Police Inspector from Solapur City Cyber Police Station.	"Fraud Awareness"	EE5K	35
5	Prof. Amit sanjeev Kondewar, CEO at Namdeo Distributor and Assistant Professor at MITCON Consultancy, Solapur.	"Introduction to Solar System"	EE5K	35
6	Mrs. Anita Sundarlal More, Mahila Police Amaldar (Bakkal no.1676), Jodbhavi Peth Police Station, Solapur.	"Women's Empowerment"	EE1K, EE3K, EE5K	46
7	Prof. Satyam Dudhankar Principal ikon college of fire engineering & safety Management, solapur.	"Fire Safety and Fire Extinguisher Awareness"	EE1K	57

7) Industrial Visit conducted in dept

Sr. No.	Visit Name	Purpose	Class	No. of Beneficiaries
1	Industrial Visit of Third Year Electrical students to the Meter Testing, Filter unit and DTC Network Maintenance Section at MSEDCL, Urban Division,Solapur.	To understand the working of transformer and energy meter.	EE6K	35
2	Industrial Visit of Third year Electrical students to the PLC & SCADA Section at MSEDCL, Urban Division, Solapur	To apply the programming language in electrical field	EE6K	35
3	Visit of Third Year Electrical students to the 40 kW Solar System at S.E.S. Polytechnic, Solapur (within the college campus)	To understand the practical knowledge of solar system	EE6K	35
4	Industrial visit of Second and Third Year Electrical students was organized at Laxmi Drucken Komponents Pvt.Ltd, Pune Highway MIDC Chincholi, Solapur.	To understand the manufacturing of induction motor.	EE6K	35
5	Industrial Visit of Second and Third Year Electrical students to Srujan Foods Pvt. Ltd, (Parle-G) solapur.	To analyze the equipment's of food processing unit	EE6K	35

8) Participation or Achievement by students in seminar/Workshop etc

Sr. No.	Name of Student	Name of Activity	Activity conducted by (Name of college)	Prize-Participtation /Winner/Runner
1	Gauri Inamdar	"Quiz Competition"	S.E.S.Polytechnic, Solapur.	Participate
2	Shreya Ambure			Participate
3	Ravishankar Mulge			Participate
4	Rohit Bali			Participate
5	Amulya Goshki			Participate
6	Shravani Devsani			Participate
7	Shruti Sonavane			Participate
8	Akshara Kshirsagar			Participate
9	Ranjana Amrutam			Participate
10	Shranaya Jakkoju			Participate
11	Lavanya Arkal			Participate
12	Pranali Gaddam			Participate

Sr. No.	Name of Student	Name of Activity	Activity conducted by (Name of college)	Prize-Participtation /Winner/Runner
13	Prashant Gadlinge	"Quiz Competition"	S.E.S.Polytechnic, Solapur.	Participate
14	Harshal Relekar			Participate
15	Darshan Harne			Runner
16	Pratik Jagtap			Participate
17	Praful Tapdiya			Participate
18	Uday Kadikhau			Participate
19	Krishna Chintanpalli			Participate
20	Karan Tambhare			Winner
21	Vishwajeet Mali			Winner
22	Rohit Yakkaldevi			Participate
23	Mohit Tati			Participate
24	Ritesh Pawar			Participate
25	Vaibhav Belle			Participate
26	Poonam Gore			Participate
27	Radha Mashale			Participate
28	Shirisha Gundla			Participate
29	Akshaya Yele			Participate
30	Omkar Gadage			Participate
31	Aniket Mane			Participate
32	Shubham Rathod			Participate
33	Ajinkya Gaikwad			Participate
34	Sudam Devkate			Participate
35	Rishikesh Burngule			Participate
36	Aniket Mane			Participate
37	Deep Sutar			Participate
38	Sanket Kshirsagar			Participate

Sr. No.	Name of Student	Name of Activity	Activity conducted by (Name of college)	Prize-Participtation /Winner/Runner
1	Atharva Kale	"Electro – Puzzle"	S.E.S.Polytechnic, Solapur.	Participate
2	Anil Birajdar			Participate
3	Manasi Potabatti			Runner Up
4	Arya Adake			Runner Up
5	Dhruva Kulkarni			Participate
6	Viraj Tumma			Participate
7	Akshaya Raccha			Participate
8	Meghana Katta			Participate
9	Shreya Aadam			Participate
10	Pradnya Gurram			Participate
11	Shruti Mhetre			Participate
12	Shreya Bhingare			Participate
13	Dnyaneshwar Ganji			Participate
14	Somesh Bahirwad			Participate
15	Harish Aland			Participate
16	Prathamesh Gurram			Participate
17	Sonesh Bidri			Participate
18	Shreyash Dhuttarage			Participate
19	Onkar Kulkarni			Participate
20	Omkar Shinde			Participate
21	Divya Koli			Participate
22	Sneha Gurav			Participate
23	Gayatri Gore			Participate
24	Prajkta Lambture			Participate
25	Aryan Nirgunkar			Winner
26	Om Gaikwad			Winner
27	Gauri Inamdar			Participate
28	Shreya Ambure			Participate

Sr. No.	Name of Student	Name of Activity	Activity conducted by (Name of college)	Prize-Participtation /Winner/Runner
1	Shruti Kanade	"State Level Paper Presentation"	S.E.S. Polytechnic, Solapur.	Participate
2	Shreya Swami			Participate
3	Phutane Nirmiti Khanderao			Winner
4	Shaikh Adiba Salim			Winner
5	Rushikesh Bhimrao Chatake			Participate
6	Aditya Vaibhav Jadhav			Participate
7	Bhumika R Wali			Participate
8	Rajeshri S Menthe			Participate
9	Sushant Prabhakar Pawar			Participate
10	Salman Ilyas Ahmed Shaikh			Participate
11	Swapnil Dattatray Koli			Participate
12	Pooja Hotkar			Participate
13	Varsha Makne			Participate
14	Sarfraj Tamboli			Participate
15	Atharv Koli			Participate
16	Sayali Malhari Sonawane			Participate
17	Snehal Anil Shingade			Participate
18	Punam Vikas Gore			Participate
19	Radha Prakash Mashale			Participate
20	Harshal Vinayak Relekar			Participate
21	Prashant Siddharam Gadlinge			Participate
22	Darshan Dayanand Harne			Participate
23	Shweta Shrinivas Gaddam			Participate
24	Umera Mohsin Inamdar			Participate
25	Priyanka Yelshetti			Participate
26	Uday Kadikhau			Participate
27	Gauri Inamdar			Runner
28	Shravani Nerurkar			Runner
29	Sakshi Dulange			Participate
30	Sanjana Bura			Participate
31	Ankita Ittap			Participate
32	Rutuja Khed			Participate
33	Anita Karli			Participate
34	Shriveni Kankurti			Participate

Sr. No.	Name of Student	Name of Activity	Activity conducted by (Name of college)	Prize-Participtation /Winner/Runner
1	Shridevi Kanade	"Project Model Making"	S.E.S.Polytechnic, Solapur.	Participate
2	Sakshi Shinde			Participate
3	Gauri Inamdar			Runner
4	Shreya Ambure			Runner
5	Priyanka Kaki			Participate
6	Shweta Mhetre			Participate
7	Harshal Relekar			Winner
8	Prashant Gadlinge			Winner
9	Darshan Harne			Participate

9) Participation or Achievement by students in sports etc.

Sr. No.	Name of Student	Event Name	Name of Activity	Activity conducted by (Name of college)	Prize-Participation/ Winner/Runner
1	Devdas Harsh	I.E.D.S.S.A.	Volley Ball	BMIT,solapur	Participate
2	Tambare Karan	I.E.D.S.S.A.	Volley Ball	BMIT,solapur	Participate
3	Anil Birajdar	I.E.D.S.S.A.	Volley Ball	BMIT,solapur	Participate
4	Dhruva Kulkarni	I.E.D.S.S.A.	Volley Ball	BMIT,solapur	Participate

10) Faculty Achievement

Sr. No.	Name of Faculty	Name of Activity (Seminar/FDP/Training etc)	Activity conducted by (Name of college)
1	Mrs. R. B. Katrabad	1)Intelligent Cloud –IoT fusion 2) Industrial automation and mechatronics	S.E.S.Polytechnic,Solapur B.M.Polytechnic solapur
2	Ms. P. Y. Gajrla	1)Intelligent Cloud –IoT fusion 2)Industrial automation and mechatronics	S.E.S.Polytechnic,Solapur B.M.Polytechnic solapur
3	Mr. S. B. Kapale	1)AI in Electrical engineering 2)Machine Vision for Detaset analysis.	Modern College of Engg. Modern College of Engg.
4	Ms. N. R. Burla	1)AI in Electrical engineering 2) Advance manufacturing Process	DKTE Society textile and Engg Institute Ichalkaranji maharashtra Sandip Institute of Technology and Research

Sr. No.	Name of Faculty	Name of Activity (Seminar/FDP/Training etc)	Activity conducted by (Name of college)
5	Ms. L. L. Jakkan	1)AI in Power System 2) Machine Vision for Detaset analysis.	BMIT , Solapur Modern College of Engg.
6	Mrs. K. P. Vardole	1) AI in Power System 2) IPR from Idea to ownership understanding intellectual property Right	BMIT , Solapur Mungasaji maharaj mahavidyalaya, Darwha, Dist.Yavatmal
7	Mrs. S. N. Boda	1)AI in Electrical engineering 2)AI in Power System	DKTE Society textile and Engg Institute Ichalkaranji maharashtra BMIT , Solapur
8	Ms. P. Y. Dhulam	1)Advancement and sustainable practice in power plant Engineering 2)Clean Energy technology for sustainable development	SPM Polytechnic, solapur Loknete gopinathji munde institute of Engg

11) Result Analysis of Department (2023-2024)

Sr. No.	Year & Course	% Passing Result
1	EE1K (2025-26)	91.23 %
2	EE3K (2025-26)	73.08 %
3	EE5K (2025-26)	100 %

12) Social activities /Cultural activities conducted by department

Blood donation camp :

Sr. No.	Name of student	Name of Activity	Name of Department
1	Mr. Tejas Dhange	Blood Donation	Electrical Engg
2	Mr. Rohit Bali	Blood Donation	Electrical Engg
3	Mr. Karan Tambare	Blood Donation	Electrical Engg
4	Mr. Ritesh Pawar	Blood Donation	Electrical Engg
5	Mr. Vishwajit Mali	Blood Donation	Electrical Engg
6	Mr. Netaji Chavan	Blood Donation	Electrical Engg
7	Mr. Om Birajdar	Blood Donation	Electrical Engg

Mechanical Department

Mr. A.S.Patil
Head of Department

1) Department Information:-

Our Mechanical Engineering department has started in the year 1985 intake of 60 students.
In the year 2003, we have increased intake capacity from 60 to 90.
In the year 2010, we have increased intake capacity from 90 to 120.
In the year 2019, The intake capacity has decreased from 120 to 90.
In the year 2020, The intake capacity has decreased from 90 to 60.
Our department has first NBA Accrediated from 2019 to 2022

2) Staff in Department During 2025-26

Sr. No.	Full Name of Staff	Qualification	Designation	Experience in years
01	Mr.A. S. Patil	M.E. (Heat Power)	H. O. D.	30 Years
02	Mr.L. B. Diwakar	M.E. (Heat Power)	Senior Lecturer	29 Years
03	Mr.V. V. Sadafule	M.E. (Design)	Senior Lecturer	19 Years
04	Mr.G. P. Hulsure	M.E. (Appearing)	Lecturer	12 Years
05	Mr.N. N. Yemul	M.E. (Manufacturing)	Lecturer	15 Years
06	Mr.V. N. Kongari	M.E. (Design)	T.P.O.	16 Years
07	Mr.V. V. Bayas	M.E. (Appearing)	W/S	15 Years
08	Mr.S. R. Shinde	B.E. (Mechanical)	Lecturer	03 Years

3) Carpet area for Department

Sr. No.	Room No.	Purpose (Class room/Lab/HOD Cabin/Dept Store/Staff Room/Toilet/Boys & Girls Room	Carpet Area in m2
1	123	Class Room	61.80
2	124	RAC Lab	90.50
3	125	TOM Lab	92.30
4	126	Thermal Lab	83.80
5	127	IHP Lab	91.10
6	128	Staff Room	60.40
7	129	Class Room	60.40
8	130	Class Room	60.40

3) Carpet area for Department

Sr. No.	Room No.	Purpose (Class room/Lab/HOD Cabin/Dept Store/Staff Room /Toilet/Boys & Girls Room	Carpet Area in m2
9	131	Class Room	60.40
10	132	HOD Cabin	10.50
11	103	Drawing Hall	73.85
12	104	Drawing Hall	71.28

4) Details of Laboratory

Sr. No.	Name of Lab	Room No	Cost of Equipment in Lab
1	Theory of Machine	125	1,10,860/-
2	Mechanical Measurement & Control	127	4,46,406/-
3	Metrology & Quality Control	125	4,77,133/-
4	Fluid Mechanics & Machinery	2	4,08,154/-
5	Industrial Hydraulics & Pneumatics	27	2,51,544/-
6	Refrigeration & Air Conditioning	124	3,11,256/-
7	Auto Engines Lab.	4	12,01,968/-
8	Thermal Engineering	126	1,92,467/-

5) Current admission in Dept

Sr No.	Year	Student on Roll	Male	Female
1	First Year	63	55	8
2	Second Year	52	43	9
3	Third Year	41	32	9

6) Guest lectures conducted in Dept

Sr. No.	Name of Expert	Topic Covered	Class	No. of Beneficiaries
1	Miss Pooja Talekar	Opportunities in Design Engg.	ME4K	50
2	Dr. K. J. Shinde	Short Tricks in Mathematics	ME4K	50
3	Prof. Satyam Dudhankar	Fire Safety	ME2K,4K,6K	130
4	Prof. Shrinivas Bhandare	The Essence of Constitution of India	ME4K	41
5	Mrs Anita More	Mahila Sakshamikaran	ME 2K,4K,6K	15

7) Industrial Visit conducted in dept

Sr. No.	Name of Visit	Purpose	Class	No. of Beneficiaries
1	B. B. Knitting Pvt Ltd.	Boiler Study	ME 3K	30
2	Minar Tread Fast	Tyre Remoulding	ME5K	28
3	Rudrali Hitech Tools Pvt Ltd.	CNC Machines	ME4K	49
4	Leena Engg. Works	CNC Machines	ME4K	30

8) Participation or Achievement By Students In Seminar/workshop Etc

Sr. No.	Name of Student	Name of Activity	Activity conducted by	Prize won
1	Mallikarjun Unki	CAD Race	SVIT, Solapur	Winner
2	Gururaj Sutrave	State Level Paper Presentation	SPM Polytechnic, Solapur	Winner
3	Prajwal Sarwade	State Level Paper Presentation	SPM Polytechnic, Solapur	Winner
4	Gururaj Sutrave	Paper Published	Int. journal JETIR	Paper Published
5	Prajwal Sarwade			
6	Shreyas Rangrej			
7	Shreyas Pukale			
8	Taksh Asapure			

9) Faculty achievement

Sr. No.	Name of Faculty	Name of Activity (Seminar/FDP/Training Offline/Online/ Paper Presentation/ Book Published etc)	Activity conducted by (Name of college)
1	Mr A. S. Patil,	Industry Orientation	Manu Alloys & Castings Pvt Ltd. Solapur
	Mr L. B. Diwakar		
	Mr V. V. Sadafule		
	Mr G. P Hulsure		
	Mr N. N. Yenul		
	Mr V. N. Kongari		
	Mr S. R. Shinde		
2	Mr A. S. Patil	Faculty Development Program	S.E.S P./ BMP / Manu Alloys & Castings Pvt Ltd, Solapur
	Mr L. B. Diwakar		
	Mr V. V. Sadafule		
	Mr G. P Hulsure		
	Mr N. N. Yenul		
	Mr V. N. Kongari		
	Mr S. R. Shinde		

3	Mr N. N. Yemul	ISTE Approved FDP on Automation, Robotics & Mechatronics for Mfg. in Mech. Engg.	Dattakala Shikshan Sanshtha, Daund, Pune
4	G. P. Hulsure	FDP on Applied AI & ML Tools for Educators	VVP Polytechnic, Solapur
5	G. P. Hulsure	FDP on Industry 4.0 Oriented PLC Based smart Automation	SSWCOE, Solapur
6	Mr N. N. Yemul	FDP on Research Idea to Publish Paper	A.G. Patil Polytechnic, Solapur
7	Mr V. N. Kongari	FDP on Mastering Ansys CFD	UDEMY
8	Mr V. N. Kongari	FDP on Advanced Internal Combustion Engine Analysis & Design	UDEMY
9	Mr V. N. Kongari	FDP Inspection & Quality Control in Manufacturing	NPTEL – IIT, Roorkee
10	Mr V. N. Kongari Mr N. N. Yemul	Impact Analysis on Composite Materials Simulation Based Study using Ansys	Int. journal JETIR
11	Mr A. S. Patil	FDP on Trouble Shooting of Vehicle & Room Air Conditioning	NITTR, Bhopal
12	Mr V. N. Kongari	A Review on Nature Inspired frog Jumping Mechanisms for Robotic locomotion & Clamping Application	Int. journal JETIR

10) Result Analysis of Dept (W-25)

Sr. No.	Year & Course	Appeared	Distinction	I st Class	II nd Class & Pass Class	ATKT	% Passing Result
1	I st Year	41	12	16	1	5	82.92
2	II nd Year	51	5	20	1	6	68.00
3	Iii rd Year	61	7	25	1	15	78.69

11) Involvement of department Staff in MSBTE work

Sr. No.	Name of Faculty	Work (Controller/External Squad/ Paper setting/Observer/MHCIT Exam	Place
1	Mr A. S. Patil	Controller	
2	Mr G. P. Hulsure	External Squad, MSCIT Exam	
3	Mr L. B. Diwakar	Controller	
4	Mr N. N. Yemul	MSCIT Exam	
5	Mr V. V. Sadafule	MSCIT Exam	

12) Social activities / Cultural activities conducted by Dept

1. Teachers Day.
2. Engineers Day.
3. Traditional Day.
4. Tree Plantation.

13) Details about Alumini

Sr. No.	Name of Alumni	Passing Year	Current Status	Contribution in Dept
1	Mr Rajesh Mogali	2004	Manager, at KFIL, Solapur	External Examiner, Review Member of Vision Mission Statement of Dept.
2	Mr Niranjan Patil	2003	Manager, at KFIL, Solapur	External Examiner, Review Member of Vision Mission Statement of Dept. Expert Lecturer
3	Mr Daidipya Wadapurkar	2003	Manager, at KFIL, Solapur	Expert Lecturer, External Examiner
4	Mr Sudhakar Kulkarni	2006	Plant Head, Linit Exports, Solapur	Arranged Industrial Visit for the Students.
5	Mr Pradeep Dasari	2003	Proprietor, Laxmipathi Automobiles, Solapur	Arranged Workshop Visit for the Students.
6	Mr Bhagyesh Deshmukh	2000	HOD at WIT, Solapur	FDP & NBA Work
7	Mr Shivaji Kale	2001	HOD at Orchid Engg.College, Solapur	FDP & Workshop for Students
8	Mr Sandip Dhobale	2001	Associate Professor at Orchid Engg. College, Solapur	FDP & Workshop for Students

General Science

Mrs. S.P.Jannu
Head of Department

With great pride and deep satisfaction, we present the Annual Report of the General Science Department for the academic year 2025–2026. This year has been distinguished by exceptional academic achievements, as our students have once again exhibited outstanding performance in their semester examinations. Their success stands as a testament to the relentless dedication, scholarly excellence and pedagogical expertise of our respected faculty members.

Our department is fortified with modern laboratories furnished with advanced equipment and contemporary infrastructure. These facilities create a stimulating academic environment that nurtures intellectual curiosity, analytical thinking and a spirit of innovation among students.

Faculty Members (2025–2026)

The cornerstone of our department's success lies in its accomplished and committed educators. Our faculty comprises highly qualified professionals whose expertise spans English, Mathematics, Chemistry and Physics. Their vast experience, academic proficiency and unwavering enthusiasm significantly contribute to fostering a dynamic and student-centered learning ecosystem.

Sr. No.	Full Name of Staff	Qualification	Designation	Experience in years
01	Mrs. S.P. Jannu	M.A., B.Ed.	Lecturer in English	21 years
02	Mrs. M.S. Gaikwad	M.Sc., M.Ed.	Lecturer in Mathematics	10 years
03	Mrs. S.P. Bulbule	M.Sc., B.Ed (Pursuing)	Lecturer in Physics	3 years
04	Miss V.K. Kalamankar	M.Sc., B.Ed., M.Ed. (Pursuing)	Lecturer in Mathematics	6 years
05	Miss K.M. Shaikh	M.Sc.	Lecturer in Chemistry	3 years
06	Miss M.S.Kore	M.Sc.	Lecturer in Physics	2 years
07	Mr. O.A.Vidhate	M.Sc. , M.B.A (Pursuing)	Lecturer in Chemistry	1 Year
08	Mr. L.B. Jigneni	B.Sc., B.Ed.	Lab Assistant	26 years
09	Mrs. R.R. Raikar	B.Sc.	Lab Assistant	3 years

Guest Lectures : Enriching Academic Perspectives

In pursuit of holistic academic development, the department organized a series of enlightening guest lectures delivered by eminent academicians and industry experts. These sessions provided students with exposure to contemporary developments, practical insights and interdisciplinary knowledge beyond the conventional curriculum.

The lectures served as an intellectual platform, bridging theoretical understanding with real-world applications. Students benefited immensely from discussions on emerging scientific topics, personal development, universal values and advanced mathematical techniques.

Sr. No.	Name of Industry Person/Educator	Topic	Class	No. of Beneficiaries
01	Mr. M.D.Kanade	Personality Development & Communication Skills	First Year	390
02	Mr. Vijay Poul (Hawaldar)	Road Safety and Traffic Rules	First Year (NSS)	105
03	Dr. Kisan Shinde	Short Tricks in Mathematics	First Year	390
04	Dr. Jagdish Patil	Universal Human Values	First Year (UHV)	80
05	Mr. Sujay Pujari	Power Of Habits	First Year (UHV)	90
06	Dr. Kamal Galani	SMARTs Investor Awareness	First Year (Financial Literacy)	390
07	Mr. Amol Kshirsagar	Importance of Insurance	First Year (Financial Literacy)	95
08	Mrs. Reshma Jadhav	Changes in Rural Areas Due to Modern Technology	First Year (Unnat Maharashtra Abhiyan)	95

Industrial Visits : Integrating Theory with Experiential Learning

Recognizing the importance of experiential education, the department facilitated purposeful industrial and community visits. These visits enabled students to observe practical implementations of classroom concepts, thereby enhancing their comprehension and professional awareness.

From understanding rural community dynamics and healthcare challenges to exploring financial institutions and scientific exhibits, students gained valuable first-hand exposure. These engagements significantly strengthened their analytical abilities, social responsibility, and practical understanding.

Sr. No.	Name of Visit	Purpose	Class	No. of Beneficiaries
01	Ule Kasegaon	To provide students with practical exposure to rural life and community service	All First Year Students of National Service Scheme (Module II)	105
02	Old Age Home (Apulki Beghar Nivara Kendra)	To develop kindness, empathy, and social responsibility in students.	First Year Students (CE, ME, EE) Module No (III) (UHV)	50
03	Rotary Redcross Swagti School	To understand the life and challenges of special children.	First Year Students (CM, EJ) Module No (III) (UHV)	80

Sr. No.	Name of Visit	Purpose	Class	No. of Beneficiaries
4	Celebration of 150yrs. For National Song (Vande Mataram) at Home Ground, Solapur	To develop respect for national values and unity among students.	All First Year Students.	50
5	Solapur Janata Sahakari Bank Ltd, Solapur	To gain practical knowledge about banking services, financial products and types of loan and process.	First Year Students \(CE, CM, ME, EE, EJ) module No. (V)(Financial Literacy)	45
6	Ule Kasegaon	To provide students with practical exposure to rural life and community service	All First Year Students of Unnat Maharashtra Abhiyan (Module I)	95
7	Lokmangal Annapurna Foundation	To provide food to homeless people	All First Year Students of Unnat Maharashtra Abhiyan (Module I)	95

Faculty Achievements: Commitment to Continuous Professional Development

Our faculty members have consistently demonstrated a commendable commitment to lifelong learning and academic advancement. Throughout the year, they actively participated in national conferences, faculty development programs (FDPs), workshops, and training sessions organized by reputed institutions.

Their involvement in programs focusing on Artificial Intelligence, advanced materials, interdisciplinary research, sustainable technologies, innovative pedagogy, and NEP 2020 reforms reflects their proactive approach toward academic excellence and modernization.

Such professional endeavours not only enhance their individual competencies but also elevate the overall academic standards of the department.

Sr. No.	Name of Faculty	Name of Activity (Seminar/FDP/Training etc)	Activity conducted by (Name of college)
1	Mrs. S.P. Jannu	Two Weeks State Level FDP on "Role of AI in Next Generation Applications"	Vidyalankar Polytechnic, Vidyalankar College Marg, Wadala(E), Mumbai
		Three days National Level FDP on "Research Idea To Published Paper"	A.G.P.Institute of Technology, Solapur.
2	Mrs .M.S. Gaikwad	Two Days National level FDP on "Empowering Educators with AI Tools"	SPM Polytechnic Kumathe, Solapur
		National Conference on Mathematical and Statistical Computing	School of Computational Sciences (PAHSU), Solapur(M.S.)

Sr. No.	Name of Faculty	Name of Activity (Seminar/FDP/Training etc)	Activity conducted by (Name of college)
3	Mrs. S.P.Bulbule	Three days National Level FDP on "Research Idea To Published Paper"	A.G.P.Institute of Technology, Solapur.
4	Miss V.K. Kalamankar	Three days National Level Online FDP on "Research Idea to published paper"	A.G.P.Institute of Technology, Solapur.
		Three days (Offline) FDP on "Cloud Integrated Embedded System".	A.G.P. Institute of technoloty, Solapur In collaboration with T he Institition of Engineers (India) – Solapur Local Center.
		National Conference on "Role & Future of Artificial Intelligence (AI), Advance Technologies in Secondary & Higher Education."	Kasurbai College of Education, (IQAC) Solapur In collaboration with Punyashlok Ahilyadevi Holkar Solapur University, Solapur.
5	Miss K.M. Shaikh	Three days National Level FDP on "Research Idea To Published Paper"	A.G.P.Institute of Technology, Solapur.
6	Miss M.S.Kore	Six days Faculty development program on "Advancements in Semiconductor Technology: Trends, Applications and Future Prospects"	Shivnagar Vidya Prasarak Collage of Engineering Malegaon (BK)

Conclusion :

In conclusion, the academic year 2025–2026 has been a remarkable one for the General Science Department at S.E.S. Polytechnic, Solapur. The relentless pursuit of academic excellence, coupled with the commitment of our dedicated faculty members, has ensured that our students continue to thrive and excel in their academic and extracurricular endeavours. The integration of theoretical knowledge with practical learning, through guest lectures, industrial visits, and faculty development programs, has enriched the student experience and enhanced their overall development.

Training & Placement and Entrepreneurship Cell Report

Mr. Vinil N.Kongari
Head of Department

It is great pleasure to put forward Training and Placement Cell and Entrepreneurship Cell report of 2025-26 of S.E.S. Polytechnic, Solapur. It is not enough to tend a garden; the plants must be encouraged to bloom and emit fragrance. In the very same way, it is not enough to educate students to make them knowledgeable, it is necessary to ensure that they are put on the right path for becoming valuable citizens of the world. This is exactly what the Training and Placement Cell of S.E.S. Polytechnic has the privilege of doing for the students. We consider it to be an honor and opportunity to present to you a group of young, dynamic individuals who have been groomed to face challenges that lie ahead for them in the industry and corporate world as a whole. A meticulous academic procedure has equipped students with the proficient and special skills to do extremely well in various demanding situations with ease and confidence. Interaction with the industry is done on a regular basis as many speakers from well-known companies share their expertise with our students. Placement being the ultimate objective of education, we concentrate on it right from the first year itself. Aptitude Tests, Personal Interviews and Personality Development Workshop give students exposure to various requirements of industries and train them in every aspect. The department ensures that each and every student of the Institution gets an opportunity to be selected for placement in some of the best companies of the nation. They are trained and groomed to face the ordeals arising out of selection exams and grilling interviews. It is our constant endeavor, to provide knowledge based technological services to satisfy the needs of the society and the industry and thus help in building our national potentiality in technology and research for the development of the country. We aim at creating a complete personality in our students, professionally, socially and morally. We assure that the industries will be benefited from these young and lively minds. We have a sanguine hope that the students will be well received by the industry. We wish the students grand success in their endeavors and feel confident that they will make significant contributions to the industry in the course of their work.

As a result of effort taken by T&P team the following companies have been part of our Training & Placement activities for last year. We hope that many more would add in the near future. S.E.S. Polytechnic has an impeccable campus placement record during last year. It gives us immeasurable pleasure to report that around 90 percentage students who had enrolled in placements have been selected during campus interviews in different Industries & rest have perused higher studies even before they have appeared for their final semester exams. The names of some of the eminent companies are GE Aerospace, Bengaluru, Precision Camshafts Ltd., Solapur, TATA Motors Pvt. Ltd., Pune, Piaggio Vehicles Pvt. Ltd.,

Baramati, K D Aher Building Systems Pvt. Ltd., Pune, KSPG Automotive Ltd, Pune, Johndeere India Pvt. Ltd, Pune, Cummins India, Pune, Dana Anand India Pvt. Ltd., Pune, Force Motors, Pune, Triveni Turbines, Bangalore, GE Aviation, Pune, Epiroc Mining India Pvt. Ltd. Nashik, Bosch Chassis Systems India Pvt. Ltd., Pune and SPM Autocomp Systems Pvt. Ltd., Pune, Larsen & Toubro Ltd. Mumbai.

Training and Placement Cell and ED Cell has been constituted with the following members

Sr. No.	Name of faculty	Department	Designation	Mail Id
01	Mr. V.N. Kongari	T.P.O.	T.P.O.	tposespsolapur@gmail.com
02	Mr. S. G. Kannurkar	CE	Member	k.sanskar2009@gmail.com
03	Mrs. H. S. Dandage	CM	Member	Salunkheharshada62@gmail.com
04	Mr. S.B. Kapale	EE	Member	sidkapale@gmail.com
05	Mr. N.S. Surwase	EJ	Member	neet.surwase@gmail.com
06	Mr. S. R. Shinde	ME	Member	srshinde.27@gmail.com
07	Mrs. S.P. Jannu	Gen. Science	Member	shrilatajannu@gmail.com

Activities of Training and Placement Cell:

- Placements
- Guest Lectures from Industry and academics for career guidance
- Industrial training
- Industrial visits to give exposure to faculties and students
- Industry related projects

Summary of Placement Activities in 2025-26

12 Weeks Industrial Training 2025

Sr. No.	Name of Industry	Department	Count
1	Technowings IT Solutions	CM	46
2	Skill Guru Infotech	CM	71
3	Vijayraj Builders	CE	3
4	Nihal V. Gullapalli	CE	9
5	PP Developers	CE	8
6	Kalp Engineering	CE	2
7	AVS Construction	CE	10
8	Akriti Construction	CE	4
9	Ajinkya Bhosale	CE	11
10	Valiant Engineering Design Solutions	EE	76
11	Valiant Engineering Design Solutions	EJ	38
12	Shams Energy	ME	2
13	Valiant Engineering Design Solutions	ME	54
	TOTAL		**334**

Summary of Guest Lectures in 2025-26 till date

Sr. No.	Date	Topic	Speaker Name	Target Students
01	08/01/2026	Build Your first Professional CV	Mr.Rahul Upadhyay	TY All
02	09/01/2026	The art and Science of Interview	Mr.M.D. Kanade	TY All
03	12/01/2026	Communication Skills and Presentation Skills	Mr.Nagesh Pathruth	FY-EE, CM, EJ
04	12/01/2026	Personality Development	Mr.M.D. Kanade	FY-ME, CE
05	13/01/2026	Communication Skills and Presentation Skills	Mr.Nagesh Pathruth	FY-ME, CE
06	13/01/2026	Personality Development	Mr.M.D. Kanade	FY-EE, CM, EJ

Summary of Placement drives in 2025-26 till date

Sr. No.	Topic	Date	No. of Students Placed	Package
1	KSPG Automotive Ltd, Pune	19-01-2026	03	2.91 LPA
2	Bajaj Auto Ltd., Chakan	22-01-2026	25	2.1 LPA
3	GE Aerospace, Bengaluru	05-02-2026	09	2.8 LPA
4	Johndeere India Pvt. Ltd., Pune	11-02-2026	01	2.2 LPA
5	SPM Autocomp Systems Pvt. Ltd. Pune	13-02-2026	31	2.42 LPA
6	Precision Camshafts Ltd., Solapur	25-02-2026	16	3.01 LPA
7	K D Aher Building Systems Pvt. Ltd., Pune / Mumbai	28-02-2026	03	3.89 LPA
8	Tata Motors Ltd. Pune	05-03-2025	04	2.0 LPA
9	Epiroc Mining India Pvt. Ltd. Nashik	09-03-2026	03	2.88 LPA
10	Larsen & Toubro Limited	02-04-2026	01	2.98 LPA
	Total Students Placed (Till Date)		**96**	

Entrepreneurship Cell

It is the firm principle of Entrepreneurship Cell that innovative thoughts and fundamental ideas take shape in young minds. Students are the greatest natural resource and the Cell intends to nurture them, provide them with opportunities for excellence.
The objectives of the Entrepreneurship Cell are:

- To motivate and inspire students to take up the challenge of entrepreneurship.
- To equip them with necessary skills and provide all possible assistance.
- To promote creative thinking and an entrepreneurial mindset among the students.
- To promote innovations and help convert them into market accepted Products

In order to create the Entrepreneurship Awareness, 03 days workshops are arranged every year in association with various professional bodies in which students get chance to interact with the successful entrepreneurs.

Three days Entrepreneurship development Program for third year students at S.E.S. Polytechnic, Solapur from February 26th, 29th and 30th September 2025 in Collaboration with Institution of Engineers (India) Solapur Local Centre. The program aimed to cultivate entrepreneurial skills among students, fostering a culture of innovation and self-reliance.

Institute – Industry Interaction

The purpose of MoU is to have mutual intentions to jointly work on projects required for industries and research needs, with learned faculty of good industrial experience and promising students, jointly agree to exchange their expertise for mutual benefit and growth, on the areas specified below:

- Industrial Visits
- Guest Lectures
- Studies & Survey
- In-plant Training
- Problem Solving
- Placements

Summary of MOUs done till date

Sr. No.	MoUs signed with Industry/Organisation	Date
1	Shree Markendey Solapur Sahakari Rugnalya and Research Centre, Solapur	12-03-2025
2	Applets Skills India	10-03-2025
3	Origin Enterprise, Solapur	06-08-2024
4	Shreevidya Info-technologies, Solapur	05-08-2024
5	Advert Digital Mantra Marketing Pvt. Ltd., Solapur	11-07-2024
6	Valiant Engineering Design Solutions, Solapur	01-06-2024
7	Board of Apprentice Training (WR) Mumbai	13-03-2026
8	Arnav Infotech, Solapur.	07-04-2026
9	M/s. K D Aher Building Systems Pvt. Ltd., Pune	22-02-2025
10	Y Jinde Structural Consultants	16-04-2025
11	Gayatri Builders and Developers, Solapur	16-04-2025
12	M.N. Thambkar & Associates	16-02-2026
13	Raghvendra Kota	06-01-2025
14	Panchakshar Technology	01-03-2025
15	Katare Informatics	01-03-2025
16	Data Flair webservices Pvt. Ltd. Indore	12-01-2024
17	Technowings IT Solutions	22-02-2025
18	R.B. Tech Services	29-08-2024
19	BaveSoft Advisory	14-10-2023
20	PMS Robotics Research Center, Pune	01-07-2022
21	PMS Robotics Research Center, Pune	01-07-2022
22	Aakash Fabrication, Solapur	06-03-2024
23	Techsense Engineering Services, Pune	10-01-2024
24	Piaggio Vehicles Pvt. Ltd., Baramati	28-12-2023
25	Manu Alloys and Castings Pvt Ltd. Solapur	22-02-2022

Sports Department

Mr. B.D.Kshirsagar
Head of Department

On behalf of Inter Engineering Diploma Students Sports Association, Maharashtra State (C Zone) like every year, this year also various sports competition was organized for diploma students in January 2026 like every year , this year also our students of polytechnic, participated enthusiastically. The venue of the game was Solapur district and outside the district. However the boys and girls of our Polytechnic participated enthusiastically in every sport. Sports were organized at various places like Solapur , Pandharpur, Akluj, Korti.

A weight lifting sport was organized by IEDSSA "C" ZONE at Shri Sahakar Maharshi Shankar Rao Mohite Patil polytechnic in Akluj. In this competition, our student of Polytechnic Ch. Kunal Ganesh Sanga (CE4K) bagged the first prize in 69 kg weight Lifting category .Weight Lifting team was guided by Shri S. P. khayde .

I am happy to say that a special note is a total 23 girl Students participated in the various Event and they were Guided by Prof. Mrs. K.P. Vardole , Prof. Mrs. R.R. Rajmane, Prof. Mrs.V. Zadbuke, Prof. Ms. V.S. Biradar, Prof. Ms. K.M.Shaikh, Prof. Ms. S. Kore and Prof. Mrs.A.R.Arkal. The number of participating Boys is also significant and 69 Boys participated in the Various Event and they were Guided by the Prof. G.P. Hulsure, Prof. N.N. Yamul, Prof.S.G. Kannurkar, Prof. R.R. Madane, Prof. S.R. Shinde, Prof.O.A. Vidhate, Mr.G.S. Vibhute, Mr. V.S. Waychal, Mr S.P. Khayde, Mr. J.R. Korbu, Mr. M.M. Sawant.

The director of the institute, Principal Prof. Bhavtankar Sir, Vice Principal Prof. M.C. Patil sir provided ground for sports practice, supply of sports material and Dress kit for every student. So I Prof. B. D. Kshirsagar, as the head of sports, Specially thanks to the Vice Chairman Hon. Mr. V. R. Jawalgekar , Secretary Hon. Mr. Vijay Marathe Sir, Principal Prof. A.A. Bhavtankar, Vice Principal Prof. M.C. Patil sir. Also, I am thankful to everyone for the successful completion of IEDSSA-2026 sports with the cooperation of the Head of Departments and the Sports Committee.

S.E.S. POLYTECHNIC, SOLAPUR
IEDSSA-2025-26 (C ZONE)
LIST OF STUDENTS PARTICIPATED IN IEDSSA-2025-26 ARE AS BELOW

BOYS

SR NO.	NAME OF EVENTS	CE	CM	EE	EJ	ME	Total No of students	Place of event	Status of Event
1	BADMINTON	2			1	2	5	SVERI, Pandharpur	
2	CHESS	0	3	0	1	1	5	S.W.P. Solapur	
3	CARROM	1	2	0	1	1	5	S.W.P. Solapur	
4	WEIGHT LIFTING	1	0	0	0	0	1	Sahakar Maharshi poly, Akluj	Winner
5	VOLLEY BALL	3	2	4	2	1	12	BMIT, Solapur	
6	CRICKET	10	2	0	1	1	14	SVERI, Pandharpur	
7	FOOT BALL	1	11	0	2	0	14	SVERI, Pandharpur	
8	KABADDI	1	4	0	3	4	12	Shivaji Polytechnic, Sangola	
9	ATHLETICS	0	1	0	0	0	1	KARMYOGI POLYTECHNIC, SHELVE	
	Total branch wise students	19	25	4	11	10	69		

GIRLS

SR NO.	NAME OF EVENTS	CE	CM	EE	EJ	ME	Total No of students	Place of event	Status of Event
1	CARROM	2	0	0	0	3	5	S.W.P., SOLAPUR	
2	BADMINTON	2	1	0	2	0	5	SVERI, Pandharpur	
3	KHO KHO	4	6	0	3	0	13	S.V.I.T.M SOLAPUR	
	Total branch wise students	8	7	0	5	3	23		

WINNERS LIST 2025-26

Sr. No.	Name of Event	Name of students	year/course	status	place of event	Date
2	Weight Lifting (69 Kg)	Mr. Kunal Ganesh Sanga	CE4K	WINNER	Sahakar Maharshi Polytechnic, Akluj	21-Jan-26

Library Report & Event

Mrs. Niyati N.kulkarni
Librarian

Library is the heart of our Institute. We are pleased to present the Library Report for the Academic year2025.The college has a very well established Library. Students & all staff members are making best use of the library. We have purchased "e-Lib software" For Library Automation.

We have developed our library fully automation in a very advance manner. In the academic year 2025 there were about 1000 students enrolled in the college & 90 staff members who are making use of the library. The library working hour is 10:00 a.m.- 5:15 p.m.

The total Books collection of Volumes-45,283 worth Rs.92,97,381/- which includes Reference & Text books .The no of titles- 7286.

We have subscribed technical journals titles-18 & volumes-37 for various department amount of 58,500/- There are 04-newspaper & Non book material (CD)-646

LIBRARY FACILITIES / SERVICES OFFERED:

Library Introduction: For the First Year students we arrange our Library Visit. In this Visit We Introduce the Library Information & Rules to the Students.

Home Issue: The students are getting the benefit of the Books for one week at a Home Issue. Students are also facilitating the Book-Bank scheme.

Book- bank Scheme : Individual Book-Bank facility for the students:- The Book- bank scheme is given to the Regular students. As per the scheme Each individual have get set of the books issue to home for the whole Semester.

Book-Bank facility for Topper Students:- Book-Bank facility is given to the first Two Ranker Students from each Branch.

Reading Section : There is separate reading section for boys, girls & staff. This section seating capacity is 100 No. of students & 10 No. of staff. In the Reading section many students are using the Ref-Books, Journal, News-paper and Non-book Material on I-Card in Library.

Display of New Arrivals

Library activities on special occasion like Book Exhibition, competition & Delnet introduction.

Current Awareness (Journals & News Papers) Service Digital Library -The students & staff members are the best use of the Non - book Material.

and Internet facility is there in the Digital Library. Also we have "DELNET" software for E - Library.

OPAC System (Online Public Access Catalogue) – Our Library has fully computerized These systems are useful for the students & Staff to Search the Books. They can search by author, title, subject or accession nowise in this System.

Department wise Titles & Volumes Till Dt

Sr. No.	Department Name	Titles	Volumes	Cost	Journals	Cost
01	CE	1002	6285	10,54,714 /-	03	10000
02	CM	1540	9701	25,19,235 /-	06	18500
03	EJ	1730	9844	19,63,127 /-	03	9500
04	ME	2416	17251	31,52,858 /-	03	10000
05	EE	164	1567	4,90,055 /-	03	10500
06	SCIENCE	149	244	66,459 /-	---	-----
07	GENERAL	285	391	50,933 /-	---	-----
	All Total	**7286**	**45,283**	**92,97,381 /-**	**18**	**58,500/-**

Library Area :- Library Carpet Area:- **308.1 sq.m.**
Reading Hall Area :- **226.09 sq.m.**
Total Area:- **534.19 sqm**

Total Seating Capacity In The Library :- 110
A- For Students = 100
B- For Staff = 10

Library Working Hours :- 10:00 am to 5:15 pm

Library Staff :- Mrs.Renuka A.Swanne, Mr.Mahesh H. Pawar

Library Details

Sr. No.	Particulars	Qty
01	Number of Volumes	45,283
02	Number of Titles	7,286
03	Total Investment of Books	92,97,381 /-
04	Total Journals & Investment	No. of Jrnls -18 Rs. 58,500/-
05	Bound Volume	85
06	Newspaper	04
07	Non-Book Materials(DVD/CD)	646
08	Library Software	e-Lib, Hubali
09	Membership	DELNET, NDLI & NPTEL
10	Library Area	Library Carpet Area-308.1 sq.m. Reading Hall Area-226.09 sq.m. Total Area-534.19 sqm
11	Library Staff	03
12	Library Timing	10 - 5:15 pm

Famous Marathi Film Industry Actor Mr.Amir Tadwalkar visited Institute for guidance Maharashtra Rajya Marathi Ekankika Spardha Pune for Students.

ISTE sponsored state level Paper presentation "SESTech26 " organized for all departments.

Alumni Meet arranged in Civil Engineering Department Present guest & Alumina

Alumni Meet of Electronics & Telecommunication Department Batch 1998 to 2001 Batch

Solapur Education Society's

S.E.S POLYTECHNIC

Samrat Chowk, Solapur 413 002 Ph.0217 - 2320387, 2723131
Email : sespsolapur@gmail.com

Technika - 2026

The Institute conducts three years Diploma Courses in Engineering & Technology is awarded by Maharshtra State Board of Technical Education Mumbai - 400 051

Sr.No.	Course	Course Code	Intake
01	Computer Technology	CM	120
02	Electronics & Telecommunication Engineering	EJ	60
03	Mechanical Engineering	ME	60
04	Civil Engineering	CE	60
05	Electrical Engineering	EE	60
	Total		360

Prof.A.A.Bhavtankar
Principal

Adv.V.B.Marathe
Secretary

CA V.R.Javalgekar
Vice Chairman