SHRI SANT GAJANAN MAHARAJ COLLEGE OF ENGINEERING

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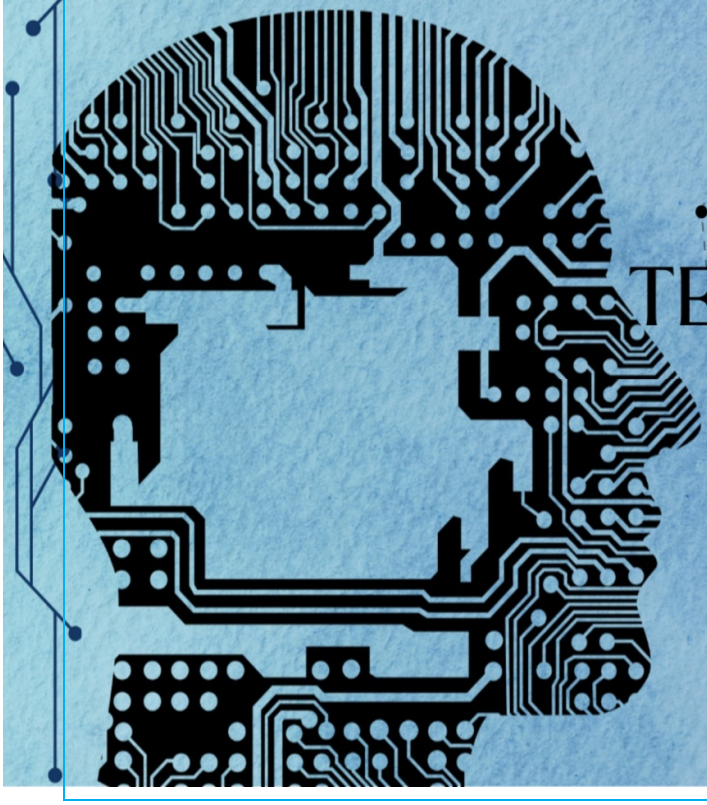
SHRI SANT GAJANAN MAHARAJ COLLEGE OF ENGINEERING

SRUJJAN

ANNUAL MAGAZINE 2024-25



DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING

DEPARTMENT VISION

To impart quality education and excel in Electronics and Telecommunication Engineering research to serve the global society.

DEPARTMENT MISSION

- To develop excellent learning centre through continuous interaction with Industries, R&D centres and Academia.
- To produce competent, entrepreneurial and committed Electronics and Telecommunication Engineers.
- To develop state-of-the -art infrastructure, centres of excellence and to pursue research of global and local relevance.
- To inculcate ethical, spiritual and human values to serve the global society.

PROGRAM EDUCATIONAL OBJECTIVES (PEOS)

1. To produce Electronics & Telecommunication engineers with a strong foundation of Mathematics, Science and Technology to full fill needs of society.

2. To enable students to innovate design, simulate, develop, analyse and test hardware and software components for offering solutions to real life situations using state-of-the-art infrastructure and R&D facilities.

3. To nurture students with professional attitude, leadership, entrepreneurship, effective communication, teamwork & multi-disciplinary approach to serve in national and multinational organizations.

4. To inculcate ethical, moral and environment friendly values in students.

FROM THE HOD'S DESK

"Excellence is not a skill, it's an attitude."

It gives me great pleasure to present the **2024–2025 edition of SRUJJAN**, the annual magazine of the **Electronics & Telecommunication Engineering Department**. This magazine is a reflection of our journey through academic growth, technical innovation, and the creative achievements of our students and faculty.

Over the past year, our department has continued to uphold its legacy of excellence. With a dedicated team of faculty members—many of whom hold Ph.D. degrees from premier institutions like IITs and NITs—we remain committed to nurturing the next generation of engineers and innovators.

We take pride in having achieved significant milestones this year:

✓**NAAC Accreditation with an A+ grade**

✓Continued **NBA Accreditation (2019–2025)**

✓Establishment of the **AI-ML Lab (Yogi Digi)** through alumni contribution

✓Hosting **10+ workshops, training programs, and guest lectures**

✓Participation in **Avishkar 2024**, with students securing top honours

✓ Internships and placements in reputed companies across the country

Our students have excelled in technical competitions, projects, research publications, and industry internships. The placement season has witnessed notable success, and our research culture continues to strengthen with active faculty involvement.

I take this opportunity to thank our **management**, **faculty**, **non-teaching staff**, and most importantly, our **students**, whose efforts and enthusiasm make every achievement possible. I also extend my appreciation to the editorial team of **SRUJJAN** for capturing the spirit and accomplishments of the department so beautifully.

Warm wishes to all.

Dr. D. D. Nawgaje
Head of the Department,
Electronics & Telecommunication Engineering

EDITORIAL MESSAGE

SRUJJAN Editorial Team,

We are delighted to present the **2024–2025 edition of SRUJJAN**, the annual magazine of the **Electronics & Telecommunication Engineering Department** at SSGMCE, Shegaon. This edition captures not just the academic and technical accomplishments of the year, but also the creative spirit and collective energy of our vibrant department.

The year 2024–25 has been a remarkable journey filled with **learning, innovation, and excellence**. From hosting workshops and webinars to excelling in competitions like **Avishkar**, from impactful student projects to new research publications, our department has shown what can be achieved through collaboration, dedication, and vision.

SRUJJAN is not just a magazine; it's a mirror of our values, our passion, and our journey together. We are deeply thankful to our **Head of Department, Dr. D. D. Nawgaje**, for his unwavering guidance, and to **Prof. Sanjay Satal**, our faculty coordinator, for his constant support and motivation. We also thank all contributors—students and faculty—whose work brings life to these pages.
We hope this edition inspires every reader to dream, design, and deliver with purpose.

Happy Reading!

— Editorial Team, SRUJJAN
Prem Baraskar

TEAM SRUJJAN (2024-25)

POST	NAME
Chief Editor	Prem Baraskar (3U1)
Asso. Chief Editor	Deep Rathod (2U1)
Editor n Marathi	Chandan Karnani (3U1) Pratik Mapari (2U1)
Editor in Hindi	Om Dhage (3U1) Pranav Kawitkar (3U1)
Editor in English	Shivcharan Bodhkhe (3U1)
Graphics designer	Vivek Ughade (2U2) Shravani Kapse (2U1)
Layout Artist	Sayali Dambare (2U1) Shreeharsh Bhoyar (1U2)
Editor in Technical	Divya Mathariya (2U1)

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ACHIEVEMENT OF DEPARTMENT

OVERVIEW

The Electronics & Telecommunication Engineering Department at Shri Sant Gajanan Maharaj College of Engineering, Shegaon, is one of the institution's core academic departments. It is known for its highly qualified faculty, well-trained lab assistants, supportive staff, and disciplined student body.

The department offers B.E., M.E., and Ph.D. programs. It comprises:

- 23 faculty members (11 with Ph.D., 9 pursuing Ph.D., 3 with M.E./M.Tech.).
- 447 UG/PG students and 10 Ph.D. scholars.
- University-approved research laboratories.

The department is currently NBA-accredited (2019–2025) and has been awarded NAAC A+ accreditation in the current academic year.

ACADEMIC & RESEARCH ACHIEVEMENTS

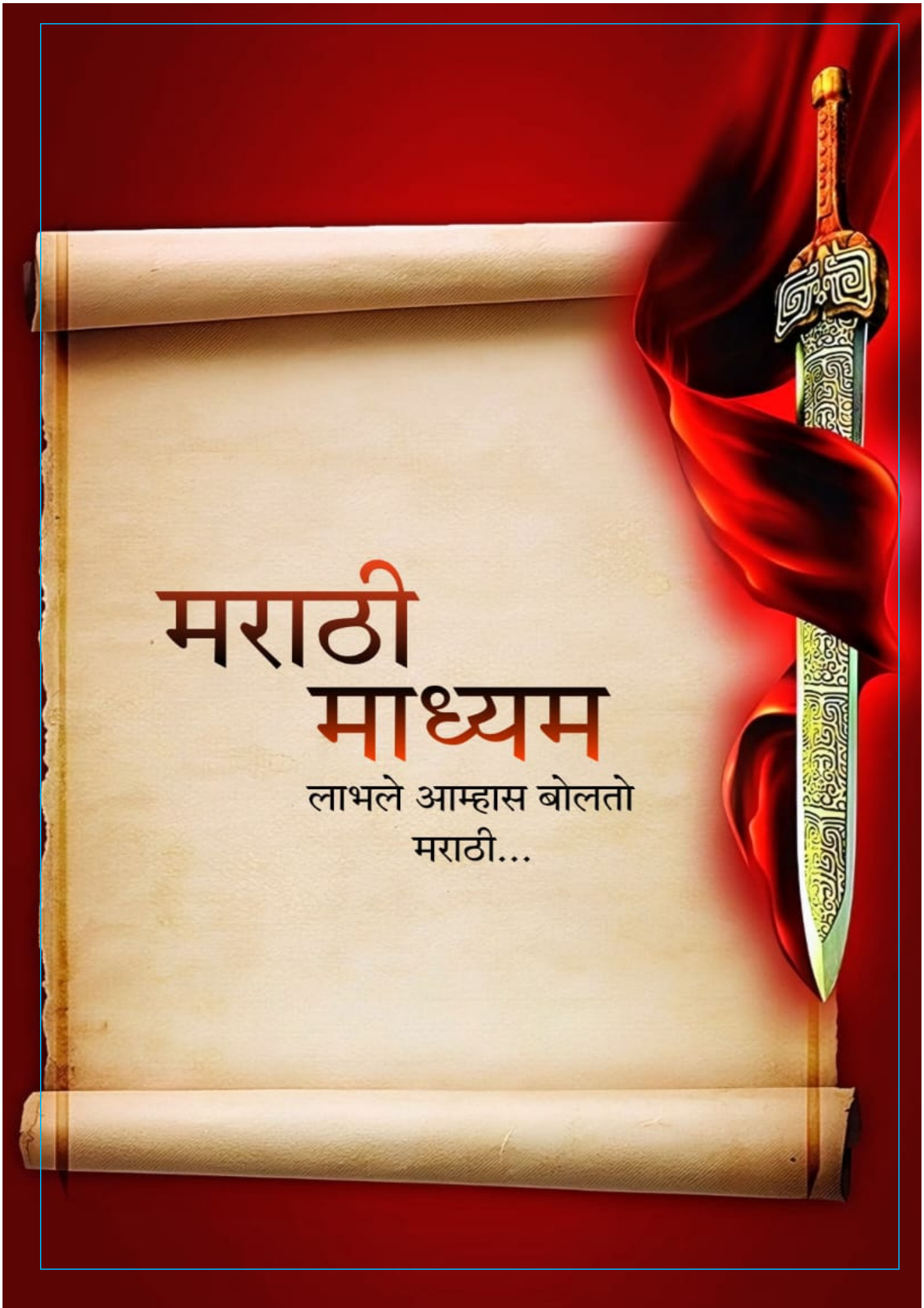
- Faculty Qualifications: 11 faculty members hold Ph.D. degrees from IITs, NITs, and reputed universities.
- Accreditations: NBA reaccreditation and NAAC A+ certification received.
- AI-ML Lab Contribution: Alumni donated ₹22.84 Lakhs for the creation of the Yogi Digi AI-ML Lab.
- Research Publications: Faculty and students published papers in national and international journals and conferences.

WORKSHOPS, TRAINING & INDUSTRIAL COLLABORATIONS

- Conducted 10+ workshops and training programs in both offline and online modes.
- Organized seminars, panel discussions, and hands-on skill development events.
- Sent funding proposals to AICTE and MSME.
- Senior faculty delivered expert lectures and served as reviewers and speakers in national and international conferences.
- Students participated in internships across multiple companies (total of 45 students).

PLACEMENTS & INDUSTRY LINKAGES

- 9 students placed in national and international companies in 2024–25 (ongoing placement process).
- Final-year students secured the 2nd prize in Avishkar 2024 (University Level) and were selected for the State-Level Project Exhibition.
- Final-year project work was completed under expert faculty guidance, focusing on innovation and interdisciplinary skills.
- 93.2% result achieved in final-year exams, with 8 students earning distinction.
- Emphasis on student readiness through industry projects, internships, and training.


मराठी
माध्यम
लाभले आम्हास बोलतो
मराठी...

कविता

स्वप्नांची दिशा

स्वप्नांची एक नवी दिशा,
मनात येते रोज नवा प्रकाश।
पराभवाने न सांडावी आशा,
प्रयत्नातच दडलेली विजयाची भाषा।
जग जिंकलं तर काय झालं?
स्वतःला जिंकलं तर सारं झालं।
थांबू नकोस, चालत राहा,
प्रत्येक पावलाने भवितव्य घडवताना पाहा।

डिजिटल युगाचं मंतरलेलं पाऊल

मोबाईल हातात, जग मुठीत,
UPI, कोड्स, डिजिटल गतीत।
नेटवर चालतं आजचं शिक्षण,
यंत्राचं झालं मानवीकरण।
चॅटबॉट्स, एआय, रोबोटिक्सची भाषा,
डिजिटल क्रांतीची हे नवे वळ्गिषा।
ज्ञानही आता 'क्लिक'च्या अंतरावर,
माणूस बनतो तंत्रज्ञानावर अवलंबून वरवर।

लेख

आत्मनिर्भर भारत – एक नवी वाटचाल

भारत ही जगातील सर्वात मोठी लोकशाही आणि प्राचीन संस्कृती असलेली राष्ट्र आहे. परंतु आजचा भारत केवळ इतिहासात गुंतून राहिलेला नाही, तर *नवीन विचार, नवीन शोध,* आणि *आधुनिक विकासाच्या* दिशेने मोठ्या आत्मविश्वासाने वाटचाल करत आहे. त्याच प्रवासाचा महत्त्वपूर्ण टप्पा म्हणजे – **आत्मनिर्भर भारत** ही संकल्पना.

- **आत्मनिर्भरतेचा अर्थ:**

  'आत्मनिर्भर' म्हणजे स्वयंपूर्ण, स्वावलंबी. भारताने अनेक दशके विविध देशांवर तांत्रिक, औद्योगिक व आर्थिक बाबतीत अवलंबून राहण्याचा अनुभव घेतला. परंतु, कोरोना महामारीनंतरच्या काळात देशाने **स्वतःच्या क्षमतेवर विश्वास ठेवणे आणि उत्पादनात स्वयंपूर्ण होणे** या गोष्टी अधिक गांभीर्याने घेतल्या.

- **आत्मनिर्भर भारत मोहिमेची सुरुवात:**

  २०२० साली पंतप्रधान नरेंद्र मोदी यांनी *"आत्मनिर्भर भारत अभियान"* सुरू केले. या मोहिमेअंतर्गत पाच स्तंभ निश्चित करण्यात आले:

1. अर्थव्यवस्था
2. पायाभूत सुविधा
3. तंत्रज्ञानयुक्त प्रणाली
4. लोकसंख्या (लोकसहभाग
5. मागणी आणि पुरवठा

- **विद्यार्थ्यांची भूमिका:**

  विद्यार्थ्यांनी आत्मनिर्भर भारताच्या प्रवासात मोठी भूमिका निभावावी लागेल.

तंत्रज्ञान, स्टार्टअप्स, संशोधन, नवउद्यम — या सर्व क्षेत्रांत भारतीय तरुणांनी उत्तम योगदान द्यायला सुरुवात केली आहे. कॉलेजच्या काळातच **"मेड इन इंडिया"** विचार अंगीकारणे, स्वतः संशोधन करणे, छोटे प्रकल्प, नवनवीन कल्पना प्रत्यक्षात आणणे हे या वाटचालीचे पहिले पाऊल आहे.

- **यशाची उदाहरणे:**
  - कोविड महामारीदरम्यान **कोव्हॅक्सिन आणि कोविशिल्ड** या भारतीय लसींचे यश हे आत्मनिर्भरतेचं प्रतिक ठरलं.
  - *ISRO, DRDO, HAL, Bharat Electronics Ltd.* यांसारख्या संस्थांनी भारताची तांत्रिक प्रगती अधिक दृढ केली आहे.
  - आज भारत *मोबाईल उत्पादन, EV तंत्रज्ञान, स्टार्टअप्स, सॉफ्टवेअर निर्यात*, आणि *डिजिटल व्यवहार* यामध्ये जगात आघाडीवर आहे.

पर्यावरण रक्षण – आपली जबाबदारी

२१व्या शतकात मानवी जीवनात प्रगती झपाट्याने होत असली, तरी त्या प्रगतीच्या बदल्यात आपण **निसर्गाचा समतोल** बिघडवत आहोत. वाढते औद्योगीकरण, लोकसंख्या, जंगलतोड, वाहनांच्या संख्येत वाढ, प्लास्टिकचा वापर आणि सांडपाण्याची अयोग्य विल्हेवाट या गोष्टींमुळे पर्यावरणाचे प्रदूषण दिवसेंदिवस गंभीर स्वरूप धारण करत आहे.

🌍 पर्यावरणाचे महत्त्व

पर्यावरण म्हणजे आपल्याला लाभलेली सर्व नैसर्गिक संसाधने – झाडे, पाणी, हवा, माती, पशुपक्षी आणि सजीवसृष्टी. याच पर्यावरणामुळे आपले अस्तित्व सुरक्षित आहे. जर हेच पर्यावरण दूषित झाले, तर मानवी जीवनही संकटात येईल. त्यामुळे त्याचे संरक्षण करणे ही प्रत्येकाची **नैतिक आणि सामाजिक जबाबदारी** आहे.

🌿 आजच्या काळातील गंभीर समस्या

- **ग्लोबल वॉर्मिंग (जागतिक तापमानवाढ** – पिघळणारे हिमनग, वाढती उष्णता
- **जलप्रदूषण आणि वायुप्रदूषण** – जलस्रोतांवर प्लास्टिक व रासायनिक कचऱ्याचा परिणाम
- **जंगलतोड** – जैवविविधतेवर व हवामानावर विपरीत परिणाम
- **प्लास्टिकचा अतिवापर** – शेकडो वर्ष न नष्ट होणारा कचरा
- **इकोसिस्टममध्ये असंतुलन** – निसर्गाचा चक्रबद्ध प्रवाह खंडित होणे

🧠 विद्यार्थ्यांची भूमिका

आजचा विद्यार्थी उद्याचा शिल्पकार आहे. म्हणून पर्यावरण रक्षणात विद्यार्थ्यांनी पुढाकार घ्यायला हवा.

"Change begins with you" – म्हणून छोट्या कृतीतून मोठा फरक पडतो.

- **पेपरलेस शिक्षण** – शक्य तिथे डिजिटल नोट्सचा वापर
- **पुनर्वापर** – पाण्याचे, कागदाचे, वीजेचे पुनर्वापर
- **वृक्षारोपण** – एक विद्यार्थी, एक वृक्ष

- **ई-कचऱ्याचे व्यवस्थापन** – मोबाईल, बॅटरी, लॅपटॉप योग्य प्रकारे टाकणे
- **प्रकल्प आणि पोस्टर स्पर्धा** – पर्यावरण विषयक जनजागृती

🛠️ **सरकार व संस्था काय करत आहेत?**

- **स्मार्ट सिटी योजना**
- **स्वच्छ भारत अभियान**
- **हरित भारत मिशन**
- **प्लास्टिक प्रतिबंध कायदे**
- **CSR (Corporate Social Responsibility अंतर्गत वृक्षारोपण उपक्रम**

हे सर्व कार्यक्रम यशस्वी होण्यासाठी नागरिकांचा, विशेषतः तरुणांचा सक्रीय सहभाग गरजेचा आहे.

हिंदी विभाग

कविताएँ

चलो कुछ नया करें

चलो कुछ ऐसा काम करें,
जिससे नाम रोशन हो हर ओर।
सोच को दे परवाज़ नई,
हर मंज़िल लगे फिर और।
हार को भी अपनाओ यारों,
सीख है उसमें हर बार।
जहाँ न पहुँचे कोई राह,
वहीं बनाओ अपना संसार।

तकनीक की दुनिया

चिप में बसी है अब कहानी,
हर पल की अपनी रवानी।
मोबाइल, लैपटॉप, इंटरनेट की चाल,
तकनीक बना रही जीवन खुशहाल।
सर्किट में बहती उम्मीदों की रेखा,
AI, रोबोट बन गए अब लेखा।
बटन दबाओ, दुनिया घूमें,
नवाचार से सपने झूमें।

लेख

डिजिटल इंडिया की दिशा में युवा शक्ति

आज का युग तकनीक और सूचना का है। भारत भी इस परिवर्तनशील दौर में कदम से कदम मिलाकर आगे बढ़ रहा है। **डिजिटल इंडिया** की कल्पना अब एक वास्तविकता बन चुकी है, और इस परिवर्तन का सबसे सशक्त माध्यम हैं – **भारत के युवा**।

डिजिटल इंडिया अभियान की शुरुआत वर्ष 2015 में हुई थी, जिसका उद्देश्य था देश को एक **डिजिटली सशक्त समाज** और **ज्ञान आधारित अर्थव्यवस्था** में बदलना। इस पहल ने न केवल सरकारी सेवाओं को आम नागरिक तक ऑनलाइन पहुंचाया, बल्कि युवाओं को नए अवसर और संभावनाएँ भी प्रदान कीं।

आज हर छात्र के हाथ में स्मार्टफोन है, क्लासरूम स्मार्ट हो चुके हैं, और पढ़ाई से लेकर प्रोजेक्ट तक सब डिजिटल प्लेटफॉर्म्स पर हो रहा है। **ऑनलाइन शिक्षा, डिजिटल भुगतान, स्टार्टअप कल्चर, और आर्टिफिशियल इंटेलिजेंस** जैसे क्षेत्रों में युवा तेजी से आगे बढ़ रहे हैं|

- **युवा क्या कर सकते हैं?**
  - **नई तकनीकों का अध्ययन** करें जैसे IoT, AI, Cybersecurity
  - **स्वदेशी ऐप और सॉफ्टवेयर** बनाएं

- **ऑनलाइन सुरक्षा और डिजिटल साक्षरता** फैलाएं

◆ **निष्कर्ष:**

डिजिटल इंडिया केवल तकनीक से नहीं, बल्कि **युवाओं के योगदान** से सशक्त बनेगा। आने वाले वर्षों में भारत एक वैश्विक डिजिटल लीडर तभी बन सकता है जब हमारे युवा **नवाचार, नेतृत्व और डिजिटल नैतिकता** के साथ आगे आएं।

युवाओं को अब केवल तकनीक के उपभोक्ता नहीं, बल्कि इसके निर्माता बनना होगा।

कॉलेजचा पहिला प्रोजेक्ट: शिकण्याची खरी कहाणी

कॉलेजमध्ये पहिला दिवस म्हणजे प्रत्येक विद्यार्थ्याच्या आयुष्यात एक खास आठवण असते. माझ्यासाठी तो दिवस थोडासा भितीभूत पण तितकाच उत्सुकतेने भरलेला होता. आम्हाला पहिला **इलेक्ट्रॉनिक्स प्रोजेक्ट** बनवण्याची जबाबदारी देण्यात आली होती.

सुरुवात: गोंधळ आणि धैर्य:

सुरुवातीला सगळं काही गोंधळात गेलं. सर्किट कसे तयार करावे, वायरिंग कशी करावी, आणि कोडिंगमध्ये एखादी छोटीशी चूक ही संपूर्ण प्रोजेक्ट फेल करू शकते — हे लक्षात येताच मनात थोडा भय आणि असमर्थतेची भावना आली. काही मित्र लगेच हार मानत होते, काही चुकीच्या मार्गाने प्रयत्न करत होते, आणि मी स्वतःलाही थोडा धीर हरवला.

पण मी आणि माझ्या टीमने हार मानली नाही. प्रत्येक चुकीपासून शिकत, प्रयत्न करत आणि रात्री उशिरापर्यंत प्रयोग करत, आम्ही हळूहळू प्रोजेक्टला आकार देत गेलो.

मेहनत रंगू लागली:

आखिरकार, आमच्या प्रोजेक्टचा महत्त्वाचा भाग — **LED लाइट आणि सेन्सरवर आधारित स्मार्ट डिव्हाइस** — काम करण्यास सुरुवात केली. जेव्हा पहिल्यांदा LED बिंबल्यावर आणि सेन्सरने प्रतिक्रिया दिली, तेव्हा सगळ्यांचे चेहरे आनंदाने चमकले. त्या क्षणी जसे आनंदाचे वारे माझ्यावर आले, तशी भावना शब्दात सांगता येत नाही.

शिकवण चुकांमधून:

हा अनुभव मला शिकवतो की, **चुकांमध्येच खरी शिकवण आहे**. एकही प्रगती सहज मिळत नाही. पण टीमवर्क, चिकाटी, प्रयत्न आणि एकमेकांना मार्गदर्शन यांचा संगम असल्यास कोणतीही अडचण पार करता येते.

अनुभवाचे महत्व:

आज जेव्हा मी नवीन विद्यार्थ्यांना माझा अनुभव सांगतो, तेव्हा मी फक्त प्रोजेक्ट्स किंवा तंत्रज्ञानाची गोष्ट सांगत नाही. मी त्यांना सांगतो की, **कॉलेजमध्ये खरे शिका-लेखन प्रोजेक्ट्समध्ये नाही, तर प्रयत्न आणि धैर्यात आहे**.

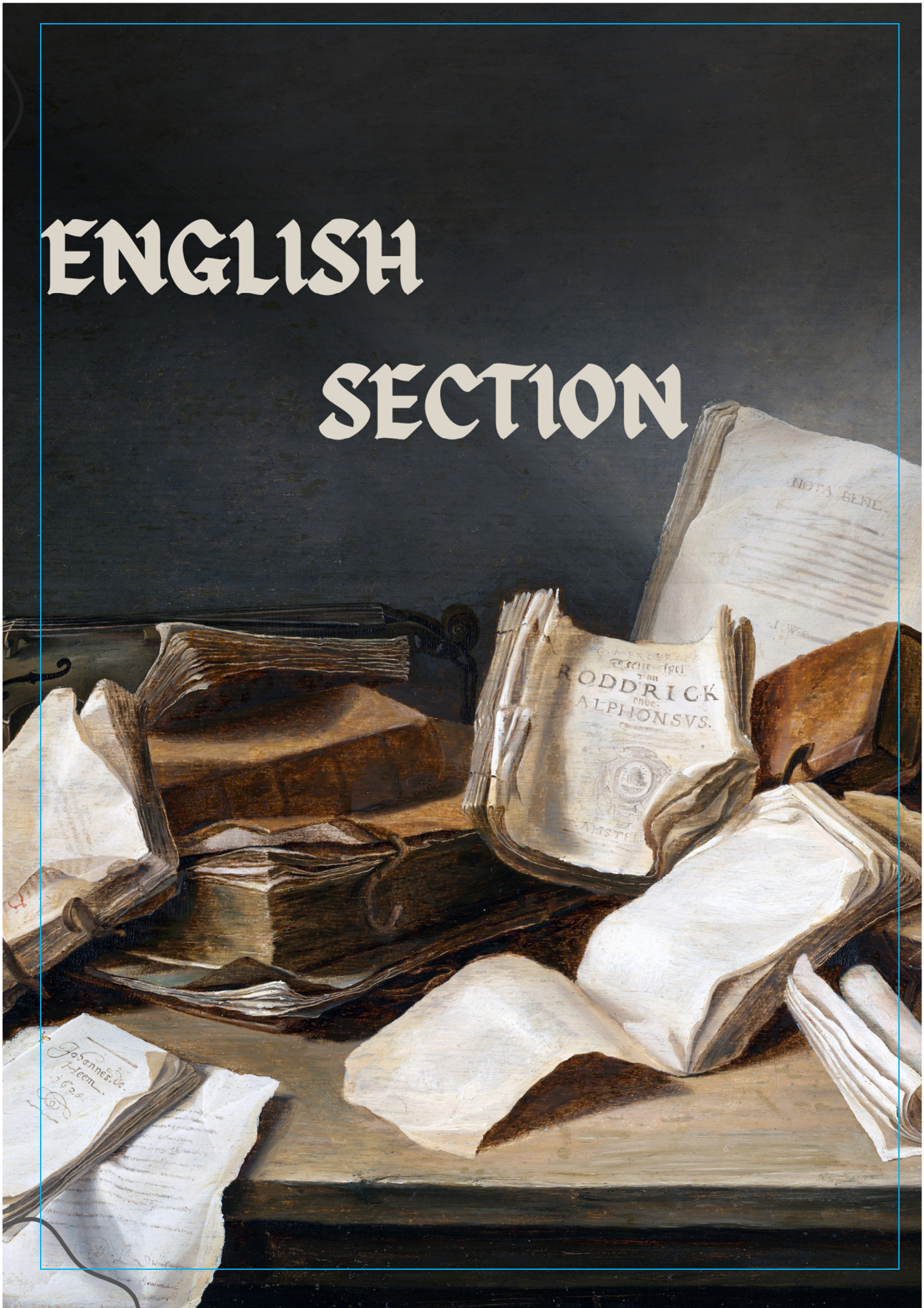
हा प्रोजेक्ट केवळ तांत्रिक ज्ञान नाही, तर धैर्य, संयम आणि चिकाटी शिकवणारा अनुभव होता. त्यातून मी शिकलो की, प्रत्येक अडचण ही संधी आहे — स्वतःला सुधारण्यासाठी, नवीन कौशल्ये शिकण्यासाठी आणि टीममध्ये काम करण्याची क्षमता वाढवण्यासाठी.

शेवटी:

पहिला प्रोजेक्ट केवळ प्रोजेक्ट नव्हता. तो एक प्रवास होता — भीतीतून धैर्याकडे, गोंधळातून आत्मविश्वासाकडे आणि प्रयत्नातून यशाकडे. त्या दिवसाची आठवण आजही मला प्रेरणा देते — की जर मनोबळ, मेहनत आणि चिकाटी असेल, तर कोणतीही गोष्ट अशक्य नाही.

कॉलेजचा पहिला प्रोजेक्ट म्हणजे फक्त तंत्रज्ञान नव्हे, तर जीवन शिकण्याची पहिली खरी कहाणी.

ENGLISH SECTION



Poems

The Spark Within

In every heart, a spark does gleam,
A silent whisper, a mighty dream.

Though storms may rise and nights fall deep,
The soul's fire never goes to sleep.

Failures come, and doubts may grow,
But strength lies in the will to show.

That every fall, every silent cry,
Builds the wings on which we fly.

So, rise again, with courage bright,
And turn your darkness into light.

The spark within will find its flame,
And you shall rise beyond all name.

Whispers of Time

Through corridors of silent years,
Echoes linger, soft as tears.
Moments like petals drift away,
Carried gently by the day.

Old clocks murmur forgotten tales,
Of fleeting joys and fragile sails.
Every shadow, every light,
Marks the dance of day and night.

A photograph, a faded song,
Reminds us where our hearts belong.
Memories bloom like autumn leaves,
Whispering stories no one believes.

Time may fade the brightest hue,
Yet every ending births something new.
In laughter, in sorrow, in quiet rhyme,
We find our place within time.

So hold the now, embrace its shine,
For life is brief, yet purely divine.
Every heartbeat, every chime,
A gift, a tale, a whisper of time.

Articles

Mukta's Journey – From Quiet Sparks to a Shining CEO

Headline:
From Small-Town Dreams to Big-City Heights: The Story of Mukta Hiwale

Sub-headline:
Once a quiet girl from Pandharpur, Mukta turned her inner spark into a beacon for innovation, resilience, and leadership — becoming a role model for India's youth.

Main Story:

In the narrow, sunlit lanes of **Pandharpur, Maharashtra**, a young girl would sit by her window, quietly sketching ideas on scraps of paper. Her mind buzzed with questions about how the world worked — and more importantly, how it could be made better. That girl was **Mukta Hiwale**.

Life wasn't always easy. There were moments of doubt, days when her voice felt too small to matter, and times when the world seemed to expect her to blend into the background. But Mukta had a secret — a *quiet spark* that refused to go out.

Her journey took a defining turn when she entered **engineering**, majoring in Electronics and Telecommunications. Here, Mukta wasn't just studying circuits and algorithms; she was designing solutions to real-world problems — from smart irrigation for farmers to assistive glasses for the visually impaired. Her ideas weren't just technically sound; they carried heart, empathy, and a deep sense of responsibility toward her community.

What set Mukta apart was her refusal to be boxed in. While others chased grades, she chased **impact**. She learned to blend technology with social good, envisioning products that could bridge the gap between innovation and accessibility.

The girl who once hesitated to speak in class now stood on conference stages, presenting projects to rooms full of industry leaders. She went from questioning herself to questioning *how she could make a difference*.
Today, Mukta's name is spoken with admiration in entrepreneurial circles.

She leads her own company — a hub for **affordable, life-changing technology** — and mentors young innovators who, like her, have big dreams but small beginnings.

Her message is simple yet powerful: *"Don't wait for the perfect moment. Start with what you have, where you are, and let your spark light the way."*

📌 **Sidebar – Quick Facts About Mukta:**

- **Hometown:** Pandharpur, Maharashtra
- **Known for:** Affordable smart tech for social good
- **Passion projects:** Smart irrigation systems, AI-powered assistive glasses
- **Leadership mantra:** "Innovation means nothing without empathy."

Closing Line:
Mukta's story isn't just about reaching the top — it's about showing others the path and walking beside them until they shine too.

By Mukta Hiwale,
2U1

India's Digital Transformation – The Youth as Catalysts

In the 21st century, **India is evolving into a digital powerhouse**. From rural villages to urban metros, smartphones, internet connectivity, and online platforms have transformed the way we live, learn, and lead. At the centre of this revolution is a force that's agile, ambitious, and adaptive – **India's youth**.

The **Digital India** initiative, launched in 2015, was more than a government campaign. It was a visionary leap toward creating a connected, empowered, and transparent society. Today, digital services like **UPI, Digi Locker, BHIM, Aadhaar, e-Governance portals**, and countless educational platforms have made public resources accessible at the click of a button. But none of this would have been successful without the enthusiastic response and innovation-driven mindset of the country's young minds.

- **Youth: From Users to Innovators**

Gone are the days when students were passive consumers of technology. Today's generation is building apps, writing code, designing websites, and launching **startups** from college campuses. Domains like **AI, Machine Learning, Cybersecurity, Blockchain, Robotics, and IoT** are no longer reserved for researchers – they're open playgrounds for students with ideas and courage.
Digital India has created a new form of literacy – **digital literacy**. And with that, a new form of responsibility. As the **torchbearers of tomorrow**, students must not only consume technology but use it for creating value – socially, academically, and economically.

- **Colleges as Innovation Hubs**

Academic institutions are no longer just centres for rote learning. They're evolving into **incubators of innovation**, with projects, hackathons, and collaborative learning at the forefront. Through platforms like **Smart India Hackathon, Atal Innovation Mission**, and university-level tech events, students are solving real-life problems – from farming automation to disaster alerts and energy conservation.

Colleges, especially in fields like **Electronics and Telecommunication Engineering**, have a unique opportunity to equip students with not only technical knowledge but also **entrepreneurial thinking**.

- **Challenges Ahead**

Despite the progress, challenges persist. **Digital divide, misinformation, cybersecurity threats**, and online distraction are real issues that must be addressed. Youth must navigate this digital era with **critical thinking, ethical responsibility**, and **a problem-solving attitude**.

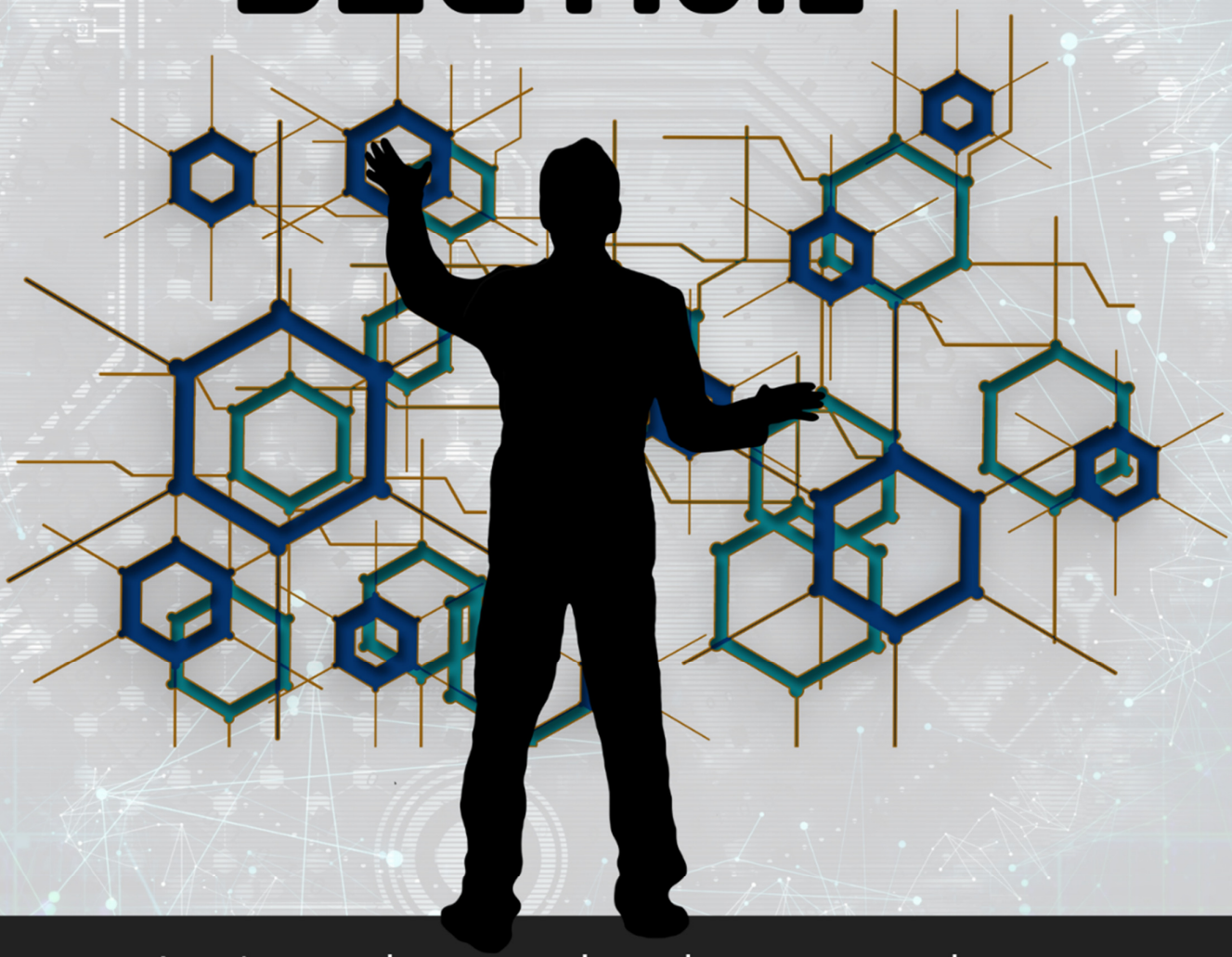
- **Conclusion**

The **Digital India dream** cannot be fulfilled without the active participation of the youth. They are not just the future – they are the **present innovators**, capable of turning challenges into opportunities. Whether through code or creativity, research or resilience, India's youth must rise to lead this digital revolution with vision and integrity.

"The keyboard is mightier than the sword – when guided by purpose."

Let us build, not just for ourselves, but for a **smarter, stronger, and self-reliant India**.

TECHNICAL SECTION



Let's explore technology together
to live in the future

The Future of Wireless Communication

"If 5G is the highway for data, 6G will be the hyperloop." – Emerging Technology Think Tank

Introduction

The journey of wireless communication has progressed from **1G (analog voice)** to **5G (ultra-fast data and low latency)**. Now, **6G**—the sixth generation of wireless networks—is set to push the boundaries further, promising futuristic applications like **holographic calls**, **brain-computer interfaces**, and **digital twins**.

5G vs 6G: A Quick Comparison

Feature	5G	6G (Expected)
Peak Data Rate	10 Gbps	1 Tbps (1000 Gbps)
Latency	~1 ms	~0.1 ms
Frequency Spectrum	Up to 100 GHz (mmWave)	Up to 1 THz (Terahertz)
AI Integration	Partial	Fully integrated
Coverage	Ground	Ground + Sky (Satellites)

🧠 Key Technologies Behind 6G

1. Terahertz (THz) Communication

- **Frequency range**: 100 GHz to 10 THz
- **Advantage**: Unimaginable speeds
- **Challenge**: High attenuation, requires ultra-dense base stations

2. Artificial Intelligence and Machine Learning

- 6G will be the first **AI-native network**.
- Use in:
  - Real-time network optimization
  - Predictive maintenance
  - Autonomous connectivity

3. Reconfigurable Intelligent Surfaces (RIS)

- Smart surfaces (walls, windows) that **reflect and focus signals**.
- Helps in environments with heavy obstacles.

4. Satellite-Integrated Networks

- Non-Terrestrial Networks (NTN): High-altitude platforms, LEO satellites
- Use: Global coverage in remote areas, oceans, aircrafts

5. Quantum Communication

- Ultra-secure encryption using **quantum key distribution (QKD)**
- Possible future enhancement in military and financial sectors

🛠 Applications of 6G

1. **Holographic Telepresence**
   - Real-time 3D holograms for education, medical, and remote work.
   - Requires massive data throughput and ultra-low latency.
2. **Digital Twins**
   - Real-time digital replication of physical systems (like an engine or a human body).
   - Used in smart factories, remote surgeries, and disaster prediction.
3. **Extended Reality (XR)**
   - Blending of AR, VR, and MR with real-world latency.
   - 6G enables wireless headsets with minimal lag.
4. **Brain-Computer Interfaces (BCI)**
   - Communication directly between the brain and digital devices.
   - Use: Disability support, gaming, and hands-free control systems.

🌟 Real-World Initiatives

📌 Global Research Highlights:

- **China**: Sent a 6G test satellite into orbit (2020).
- **South Korea**: Plans 6G commercial launch by 2028.
- **USA**: "Next G Alliance" formed to lead in 6G R&D.
- **India**: Bharat 6G Vision document released by DoT (2023) to promote local development.

🔬 Challenges Ahead

Challenge	Description
Terahertz Transmission	High path loss, sensitive to moisture and obstacles
Energy Consumption	Massive power requirements for high-speed processing and base stations
Security Concerns	More devices = higher risk of breaches; quantum-safe encryption required
Standardization	Harmonizing global tech standards by 2030 is a huge task

Timeline to 6G Rollout

- **2023-2025**: Research & standardization begins
- **2026-2028**: Prototype testing, early deployment
- **2028-2030**: Commercial launch in select areas
- **2030+**: Widespread adoption

STUDENT INNOVATION AND PROJECTS

Projects

Sr. No	Name of Student	Name of Guide	Project Titles Assigned
1.	Pranav Ravindra Kheldar Ku. Srushti Sanjay Babhulkar Ku.Akanksh Vishwas Tale	Dr. M. N. Tibdewal	Land Mine Detector Rover
2.	Ku. Vaishnavi Santosh Awate Ku. Nikita Vijay Warade Ku. Tejaswi Anil Deshmukh Sachin Laxmanrao Satpute Aniruddha Jagadish Tayade	Dr. K.B. Khanchandani	Diagnostic system for breast cancer classification
3.	Ku. Dolly Ravikumar Israni Ku. Maithili Umesh Raut Aadesh Sanjay Abhyankar	Mr. V. M. Umale	Smart infant Incubator
4.	Ku. Ashwini Ramkrushna Pohare Ku. Dipali Nandesh Thokal Ku. Nisha Sunil Pimple Ku. Anuja Sunil Lande	Dr. Neerja Dharmale	Cotton Plant Disease Predictor using AI & ML
5.	Swapnil Vinod Tathe Vishad Jitendra Pandav Mayur Narendra Borle Vishal Rajesh Deshmukh Swapnil Vinod Tathe	Dr. Neerja Dharmale	Automated Malaria Disease Detection using Deep Learning
6.	Ku. Bhakti Surendra Ingle Ku. Divya Devendrarao Somvanshi Ku. Rashmi Ganesh Untwal Ku. Ravina Prakash Wahane	Mr. S. G. Nemane	To design a system for rotten onion detection and sorting
7.	Ku. Vaishnavi Vasant Gaikwad Ku. Sakshi Pramod Nagalkar	Mr. S. P. Badar	Water level detection and monitoring for domestic use

	Ku. Shreya Ramkrishna Ghayal Ku. Shruti Dasharath Aote Ku. Vaishnavi Vasant Gaikwad		
8.	Sojwal Vinay Borale Aditya Rajmohan Pandav Vivek Sandip Narkhede Amit Gajanan Risodkar	Dr. K. T. Kahar	Face Detection and Recognition Student Attendance System
10.	Ku. Tatheer fateema Ashfaque ali Jafri Ku. Dnyaneshwari Tejrao Nile Ku. Mayuri Janrao Mahale Ku. Sakshi Anand Oza Ku. Tatheer fateema Ashfaque ali Jafri	Mr. V. M. Umale	IOT Based Blood Bank System
11.	Samrat Bhairulal Rathi Ku. Niharika Nikhil Dagaonkar Ku. Shradha Santosh Gawande Ashutosh Kailash Deshmukh	Dr. D. D. Nawgaje	Application based Home Automation system
12.	Chandrakant Vishnudas Jedge Pranil Dilip Bodade Gajanan Bharatrao Dudhate Aditya Vinod Tak	Dr. Ms. B. P. Harne	Wireless EV charging vehicle station with QR Code for live charging status

STUDENT ACTIVITIES

1)The Electronics and Telecommunication Engineering Department, SSGMCE, organized a Skill Development Program on Automation and Robotics on 29th–30th August 2024 and 26th–27th September 2024. The sessions were conducted under the guidance of Dr. R. S. Mahamune, who served as the workshop facilitator. The program focused on providing students with practical insights into automation technologies, robotics applications, and control systems. Through demonstrations and hands-on sessions, participants gained valuable technical knowledge and improved their understanding of real-world industrial automation concepts.

Figure 1

2) A workshop on "Electronics Component Testing and Verification" was organized on 22nd August 2024 in association with the ISTE Student Chapter, SSGMCE. The session was facilitated by Mr. H. B. Patil and Mr. S. P. Satal, who provided practical insights into testing and verifying various electronic components. The workshop offered students valuable hands-on experience in using instruments, analyzing circuits, and performing real-time troubleshooting, helping them strengthen their practical understanding of electronics.

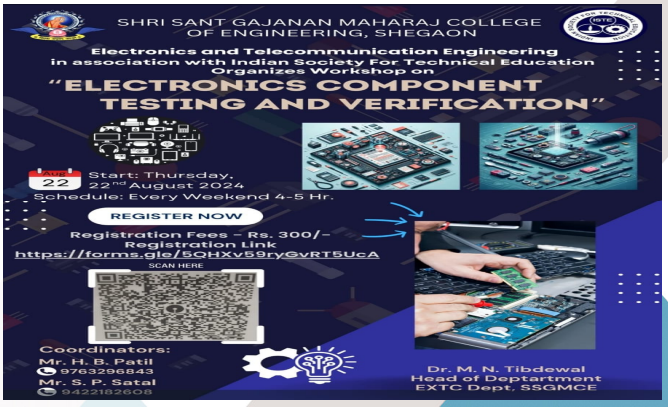


Figure 2

3) A session on "Placement Strategies and Career Opportunities" was organized on 3rd August 2024 by the ISTE Student Chapter, SSGMCE. The session was conducted by Mrs. A. A. Deshmukh and was attended by 46 students. The workshop focused on enhancing students' awareness of effective placement preparation techniques, resume building, interview skills, and career planning. It provided valuable guidance to help participants align their academic learning with industry expectations and future career goals.

Figure 3

4) A workshop on "Canva" was organized on 3rd August 2024 by the IEEE Student Chapter, SSGMCE. The session was conducted by Mr. V. K. Bhangdiya and was attended by 26 students. The workshop introduced participants to the fundamentals of graphic design and digital content creation using Canva. Students learned to design posters, presentations, and creative layouts effectively, enhancing their visual communication and presentation skills.

Figure 4

5) A workshop on "Design, Fabricate & Program an ESP 8266 Microcontroller Board" was conducted from 8th March to 11th March 2024 under the guidance of Prof. V. S. Ingole from FABLAB, SSGMCE. The workshop saw active participation from 68 students who gained hands-on experience in designing, fabricating, and programming ESP 8266-based microcontroller boards. The session helped students enhance their practical understanding of embedded systems, IoT applications, and hardware programming.

Figure 5

6) Branch in association with IEEE ComSoc and IEEE WIE, SSGMCE. The session witnessed the participation of 18 students and focused on practical learning of Arduino-based programming, circuit interfacing, and sensor applications. Through hands-on activities, participants developed a deeper understanding of embedded systems and automation concepts, enhancing their technical and problem-solving skills.

Figure 6

7) An event titled "ELECTROFIESTA" was organized on 15th March 2024 by the ESSA Student Branch in association with IEEE ComSoc and IEEE WIE, SSGMCE. The event witnessed enthusiastic participation from 18 students and featured a series of fun and interactive technical activities. It aimed to promote teamwork, creativity, and problem-solving skills among students while strengthening their interest in electronics and communication technologies.

Figure 7

8) An event titled **"First Year Orientation"** was conducted on **24th September 2024** from **1:00 pm to 4:00 pm**. The session was facilitated by **Dr. M. N. Tibdewal**, **Mrs. K. S. Vyas**, and **Dr. K. T. Kahar**, and was attended by **120 students**. The program aimed to welcome and guide first-year students, introducing them to the academic environment, departmental culture, and various opportunities available at the institute. The orientation helped students gain motivation, confidence, and clarity for beginning their engineering journey at SSGMCE.

Figure 8

9) A two-day workshop on "Arduino Mastery" was conducted on 13th and 14th March 2024 from 4:00 pm to 8:00 pm. The session was facilitated by Prof. Mangesh Bharati and Team and witnessed the participation of 95 students. The workshop focused on hands-on learning of Arduino programming, sensor interfacing, and automation projects. Participants actively engaged in developing practical circuits and innovative ideas, enhancing their understanding of embedded systems and microcontroller-based applications.

Figure 9

10) The Electro Fiesta workshop was held on the 15th and 16th of March, 2024, from 4 PM to 6 PM. A total of 20 students actively participated in the event. The workshop was skillfully facilitated by Mansi Agrawal, Prasad Deshmukh, and Niharika Dagaonkar, who guided the students through the activities and shared their expertise in the field.

Figure 10

11) The Aerobics Training session was conducted on 23rd January 2024, from 4 PM to 8 PM at Chinchili. A total of 54 students participated enthusiastically in the training. The session was expertly conducted by Bhumika Deshmukh, who guided the students through various aerobics exercises and fitness routines.

Figure 11

12) The Alumni-Faculty-Students Interaction Session was held on 25th January 2024, from 11 AM to 1 PM. The session saw the participation of 210 students who engaged actively in discussions and interactions. It was facilitated by the esteemed alumni of the SSGMCE EXTC branch, providing valuable insights and guidance to the students.

Figure 12

13) On 7th March 2025, from 6 PM to 10 PM, a PUBG Esport Tournament was organized by ESSA. The event witnessed the participation of 80 enthusiastic students who competed and showcased their gaming skills in a thrilling and engaging environment.

Figure 13

14) The JUNNON event was conducted on 7th March 2025, from 12 PM to 3 PM, with the participation of 167 students. The workshop was facilitated by Bipin Mahore, Rajat Wankhade, and Tanvi Kakad, who guided the students through the activities and ensured an engaging and informative session.

Figure 14

16) The Workshop on Canva was held on 3rd August 2024, with 26 students participating actively. The session was conducted by Mr. V. K. Bhangdiya, who guided the students through various features and tools of Canva, helping them enhance their design skills effectively.

Figure 15


SPORTS
SECTION

ABOUT US

The Sports Council oversees all sports activities at the college, with staff members assigned as in-charges for different sports. On National Festivals and Swami Vivekananda's Jayanti (12th January), staff participate in sports events. Daily training sessions are held to keep staff fit, and they are encouraged to engage in regular games and use the sports facilities as needed.

Year	Name of the Games	Name of the Award/ Medal	University/State/National/ International	Name of the student
2024-25	Chess (W)	Winner (Women)	SGBAU Inter Collegiate Tournament	Shubhrata Mishra
				Vedik Raut
				Sakshi Bhojane
				Neha Bhut

Year	Name of the Games	Name of the Award/ Medal	University/State/National/ International	Name of the student
2024-25	Table Tennis (M)	Winner (Mens)	SGBAU Inter Collegiate Tournament	Deep Rathod

Figure 16: EXTC's Student Deep Rathod standing proud with the victorious in Table Tennis.

Name of the Games	Name of the Award/ Medal	University/State/ National/ International	Name of the student
BADMINTON (M)	University Colour Coat	SGBAU Inter Collegiate Tournament	MR RUDRESH LATARE

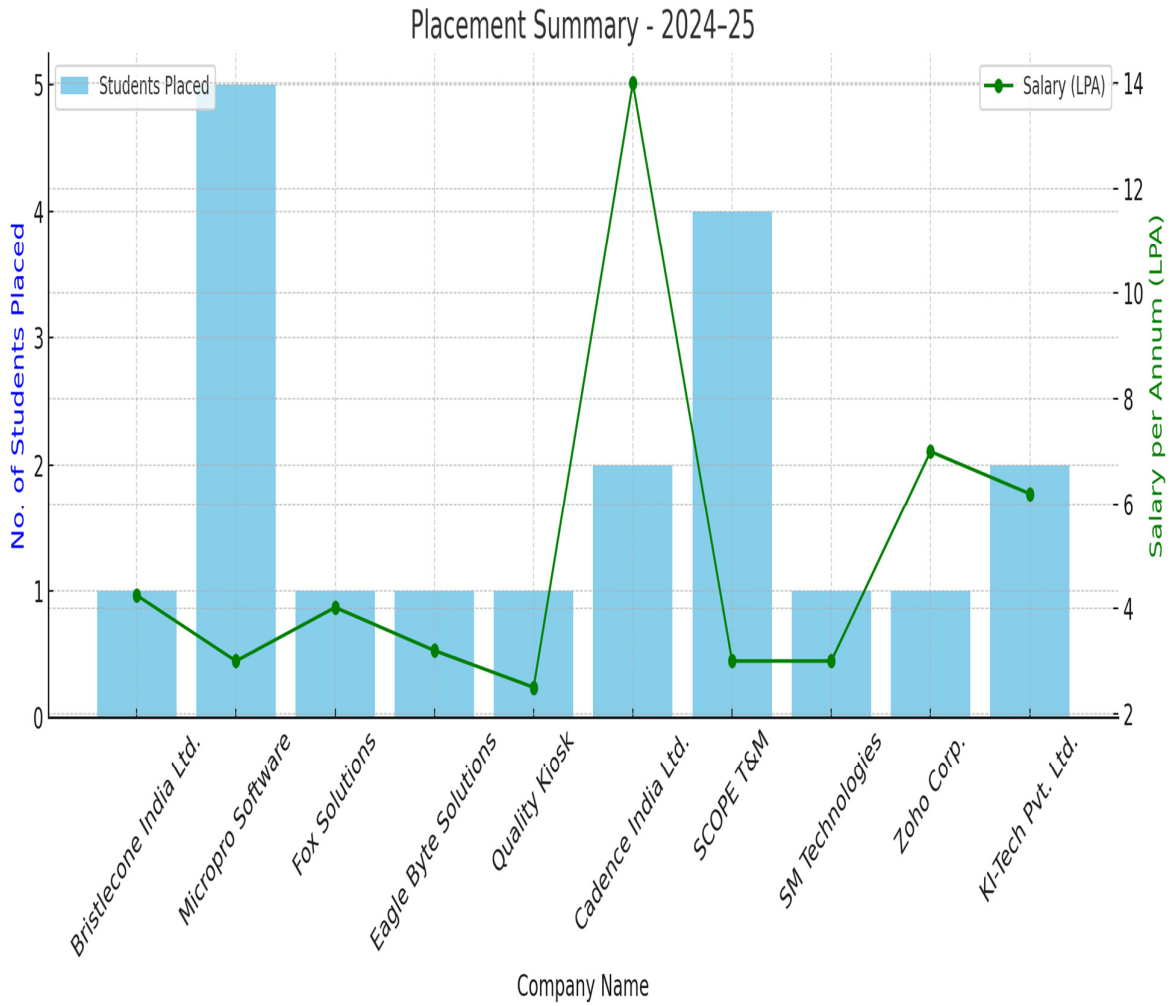
Figure 17: Badminton Colour Coat Holder Rudresh Latare

WE ARE HIRED!

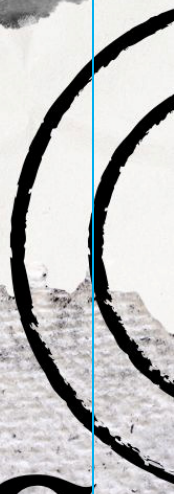
PLACEMENT SECTION

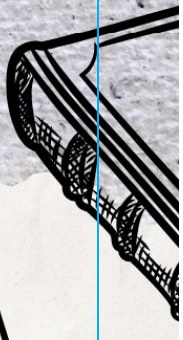
Sr. No.	Name of Company	No. of Students Placed	Salary per annum (In LPA)
01	Bristlecone India Limited, Mumbai	**01**	**4.25 LPA**
02	Micropro Software Solutions Ltd., Nagpur	**05**	**3.00 LPA**
03	Fox Solutions Pvt. Ltd., Nashik	**01**	**4.02 LPA**
04	Eagle Byte Solutions Pvt. Ltd., Nashik	**01**	**3.20 LPA**
05	Quality Kioask Technologies Pvt. Ltd., Pune	**01**	**2.50 LPA**
06	Cadence India Limited, Pune	**02**	**14.00 LPA**
07	SCOPE T&M Pvt. Ltd., Pune	**04**	**3.00 LPA**
08	SM Technologies Pvt. Ltd., Nagpur	**01**	**3.00 LPA**
09	Zoho Corporation, Nagpur	**01**	**7.00 LPA**
10	KI-Tech Pvt. Ltd., Hyderabad	**02**	**6.20 LPA**
Total Students Placed		**19**	

- **Bar Chart (Blue):** Shows the number of students placed in each company.
- **Line Graph (Green):** Represents the salary offered (in LPA) by each company.



GRAPHICS AND ILLUSTRATIONS





The visual elements of SRUJJAN 2024–25 aim to complement the magazine's essence of innovation, student spirit, and departmental excellence. Each page is designed not just to inform, but also to engage and inspire. This year's edition includes:

🖼️ Cover Page Design

The cover embodies the theme of **"Empowering Minds Through Innovation"**, blending modern graphic elements with our department's identity. It reflects the technological strength, academic excellence, and creative energy of our students and faculty.

📑 Section Dividers

Each major section—*From the HOD's Desk*, *Technical Articles*, *Creative Writing*, *Placements*, and *Faculty Achievements*—is introduced with clean and distinct graphic headers, ensuring consistency and visual clarity across the magazine.

📷 Event Photographs

High-quality photographs of major departmental events from 2024–25 have been included:

- Guest lectures & expert talks
- Technical workshops (like **Electro-Metro**, **Chasing Calsi**)
- Industrial visits
- Project exhibitions and competitions (e.g., **Avishkar 2024**)
- Cultural & sports participation

These images celebrate student engagement and institutional activity.

📊 Infographics

To enhance data presentation, several infographics have been used:

- **Placement Statistics Bar Chart** (Company-wise summary)
- **Pie Charts** of sector-wise placement trends
- Research and publication highlights
- Student project domains

These visual tools offer a quick glance at our department's impressive metrics.

🎨 Student Artwork Contributions

This year, SRUJJAN received a variety of **drawings, sketches, digital illustrations, and photography** from U1 & U2 students. Selected pieces are featured throughout the magazine to add colour, creativity, and personal expression to the layout.

📲 QR Code Integration

A scannable **QR code** has been added to the back cover, linking readers to the **digital version of the magazine**. This supports easy access and broader outreach.

ACKNOWLEDGMENTS

We extend our heartfelt gratitude to all those who contributed to the successful publication of **SRUJJAN 2024–25**, the annual magazine of the **Electronics & Telecommunication Engineering Department, SSGMCE, Shegaon.**

This magazine stands as a testimony to the academic brilliance, creativity, and collaborative spirit of our department, and it would not have been possible without the guidance, support, and efforts of many individuals.

We sincerely thank:

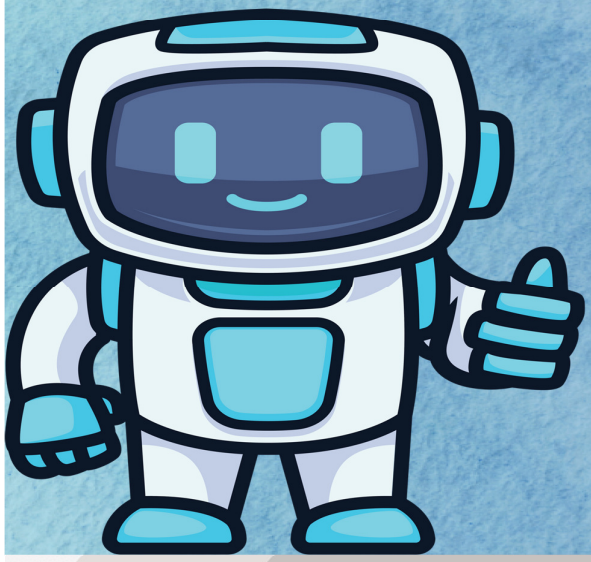
- **Dr. D. D. Nawgaje**, Head of Department, for his consistent encouragement, visionary leadership, and unconditional support throughout this journey.
- **Prof. Sanjay Satal**, Faculty Coordinator, for his mentorship, timely guidance, and valuable feedback that helped shape every aspect of this magazine.
- **All faculty members** for their enthusiastic participation, review support, and contribution of articles, reports, and photographs.
- **The dedicated student editorial team**, whose commitment, creativity, and coordination brought this edition to life.
- **Our technical and non-teaching staff** for their assistance in logistics, content collection, and formatting.
- **All students of U1 and U2**, who contributed poems, articles, drawings, and project highlights, making SRUJJAN not just a magazine—but a reflection of our collective spirit.

We are proud to present this edition as a result of shared passion, teamwork, and excellence. May SRUJJAN continue to inspire and grow with every passing year.

– SRUJJAN Editorial Team
Electronics & Telecommunication
Engineering Department
SSGMCE, Shegaon

"If four things are followed -
having a great aim,
acquiring knowledge, hard work,
and perseverance -
then anything can be achieved."

A. P. J. Abdul Kalam



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