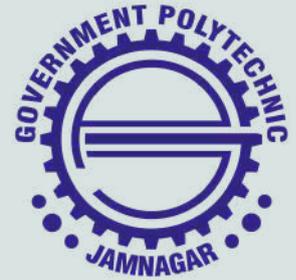


Biannual Edition
Resonance

Volume V | Issue 2 | July 2025



**THE DEPARTMENT OF
ELECTRONICS AND COMMUNICATION ENGINEERING
GOVERNMENT POLYTECHNIC JAMNAGAR**

Resonance

The Official Newsletter of the ECE Department of Government Polytechnic Jamnagar

Resonance captures the pulse of the Department of Electronics and Communication Engineering, showcasing departmental events, latest technologies, institute happenings, and student achievements. It serves as a platform to celebrate innovation and excellence by highlighting student articles, project insights, and contributions from the ECE community. Stay connected, stay informed, and resonate with the future of technology!

Major Highlights of the Issue

Robofest 4.0

Placement

Workshop

**Vision
Mission
PEOs
PSOs
of the ECE
Department**

Editor

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About the Department

In June 2007, Diploma Programme namely Electronics & Communication Engineering has been started at Government Polytechnic, Jamnagar. The Department of Electronics and Communication Engineering envisions upliftment of students especially living in rural areas, through an effective teaching learning process and quality teaching, to make them competent globally with sound technical, interpersonal, analytical, managerial skills and professional ethics. The department possesses a well equipped Labs which provides practical learning of actual environment of industry. The department has highly qualified faculties to ensure qualitative education. At present, the department has student intake of 30.

Vision

To produce creative, innovative and ethical EC engineers that will serve to societal and industrial needs.

Mission

- To impart excellent technical education from fundamentals to application level, with ethics, to EC engineering students so that they can provide solution to industrial or social problems.
- Provide creative teaching-learning environment to students for achieving excellence in technical education.
- To develop state of art laboratories with latest instruments and equipments to develop psychomotor skills in students.
- To establish department library with latest books, magazines, ebooks, video tutorials-lectures and other learning resources to promote reading attitude in students.
- To make students entrepreneur or employable in industries.

PEO

- PEO1 : After completion of program, the students will pursue career in installation and commissioning of various electronics instruments/equipment/devices, computer network, internet broadband, fibre optic cable network, CCTV camera etc., operation and maintenance of automated manufacturing plant / process, troubleshooting of electronics circuit, device, equipment or instrument, design and development of circuit and PCB for any product, freelance project development, customize project development and consultancy
- PEO2 : The students will be able to effectively communicate and present themselves.
- PEO3 : The students will demonstrate high moral values with ethics and express their greater concern for societal problems.
- PEO4 : The students will exhibit excellence in their profession and adapt current trends by engaging in lifelong learning.

PSO

- PSO1 : To test or troubleshoot any electronics circuit or device, to install or maintain electronic equipment or instruments using proper hardware/software tools and techniques.
- PSO2 : Apply fundamentals of electronics and communication engineering to identify the problem and find possible solutions using the latest technology.

FROM THE PRINCIPAL'S DESK

Dear Students and Faculty Members, Government Polytechnic, Jamnagar, is moving ahead on many fronts. In this period, the consistent efforts and hard work of all has resulted in overall progress of college. I congratulate and appreciate the efforts of all involved in the process.

-Shri A.M. Patel, Principal, G P Jamnagar

**MESSAGE FROM THE HOD**

Dear Students, Faculties and Readers, It is my pleasure to extend warm greetings from the Department of Electronics and Communication Engineering. As we continue our journey of academic excellence and innovation, I take immense pride in the progress our department has made—thanks to the collective efforts of our dedicated faculty, inquisitive students, and supportive stakeholders.



Electronics and Communication Engineering lies at the heart of today's technological revolution. Our curriculum is designed to balance strong theoretical foundations with practical exposure through labs, industry-oriented projects, internships and technical events.

It gives me immense pride in sharing Marvellous Achievement of our Department, in which our students under the mentorship of Mr. A. M. Bhatt, HOD of the Electronics and Communication Engineering Department, created "History" by continuing their victorious journey and became triumphant by securing Third Place in the Grand Finale of Robofest 4.0, a prestigious nation-level robotics competition. With their dedication, teamwork, innovative ideas, problem-solving abilities, and technical skills, they successfully cleared challenging tasks in all the stages right from "Ideation Stage" to "Proof-of-Concept Stage" to "The Grand Finale Round". This achievement stands as a testimony to their consistent efforts and the department's commitment to promoting hands-on learning and technical excellence. Our faculty members are equally committed to staying abreast of the latest technological trends, ensuring our department remains a hub of knowledge, curiosity and development. Let us continue to innovate, inspire and ignite minds for a better tomorrow.

Through a blend of rigorous academics and hands-on projects, we aim to equip our students with the tools to solve real-world problems.

-Shri A.M. Bhatt, HOD, Electronics and Communication Engineering

MOU BETWEEN
GOVERNMENT POLYTECHNIC COLLEGE, JAMNAGAR & IIT BOMBAY

ખબરગુજરાત

ખબર-ગુજરાત | બંધનવર ઘનિવાર ૧૮, જાન્યુઆરી, ૨૦૨૫ | ૩ સાંજ ઢળે ને ખબર મળે...



જામનગર જિલ્લાની ખબર



સરકારી પોલીટેકનિક કોલેજ જામનગરમાં વિનામૂલ્યે આઈઆઈટી મુંબઈના કોર્સ

૧૦૦ જેટલા કોર્સ ઓનલાઈન થઈ શકશે : વિદ્યાર્થીઓ અન્ય અભ્યાસની સાથે સાથે પણ કોર્સ કરી શકશે : સરકારી પોલીટેકનિક કોલેજ ખાતે ફોર્મ ભરવા સહિતની પ્રક્રિયા થશે



તાલપીર : અનિલ મેઠા

જામનગરની સરકારી પોલીટેકનિક કોલેજમાં વિદ્યાર્થીઓ વિનામૂલ્યે આઈઆઈટી મુંબઈના કોર્સ કરી શકશે. ૧૦૦ જેટલા નવા કોર્સ ઉમેરતા પોલીટેકનિક કોલેજ અંતર્ગત જામનગરના કોલેજ વિદ્યાર્થીઓ આ કોર્સને લાભ કરી શકશે અને તેના માટે કોલેજની વેબસાઇટ પર નોંધણી કરવાની જરૂર પડશે.

સાથે સાથે જ આ ઓનલાઈન આ અભ્યાસ કરી શકશે. જે માટે નવી ઓનલાઈન પોલીટી અનુવાર જરૂરી ક્રીડે પણ વિદ્યાર્થીઓના ખાતામાં જમા થશે. હાલના સમયમાં ઉચ્ચ અભ્યાસનું મહત્વ ધ્યાનમાં રાખીને વિદ્યાર્થીઓને આ કોર્સ નવા કોર્સ વિષયોને ઉપલબ્ધ થવા જાય છે. જેનાથી વિદ્યાર્થીઓ

વિવિધ ક્ષેત્રમાં પોલીટી કરી શકીને આગળી શકે છે. હવે ધીમે ધીમે આઈઆઈટી, પોલીટેકનિક ડેવલપ કોર્સોની મેળ અને મહત્વ પણ વધતું જઈ રહ્યું છે. એવામાં આઈઆઈટી જેવી કોલેજની સંબંધમાં અભ્યાસ કરવો એ વિદ્યાર્થી ની સારું સાબીતોનું પણ સ્ત્રોત હોય છે. તે સમયા સંબંધી અભ્યાસ સંસ્થાઓમાં અભ્યાસ કરી ઉચ્ચ ક્ષેત્ર મેળવી તેમની કારકિર્દી બનાવી શકે તેવી હવે જામનગરના વિદ્યાર્થીઓ પર આ આઈઆઈટી મુંબઈના કોર્સ કરી શકશે. આ અને 'ખબર ગુજરાત' દ્વારા સરકારી પોલીટેકનિક કોલેજ જામનગરના ડિ-ડિજીટાઇઝેશન મુદ્દાને કાબે અને સમગ્ર માહિતી મેળવી હતી. જેનાથી જામનગરના વિદ્યાર્થીઓને કોલેજની તમામ સુવિધાઓ મળી શકશે. સરકારી પોલીટેકનિક જામનગર અને આઈઆઈટી મુંબઈ વચ્ચેના આ આઈઆઈટી મુંબઈના કોર્સને આઈઆઈટી મુંબઈના ઓનલાઈન કોર્સ વિષયોને ઉપલબ્ધ થવા જાય છે. જેનાથી વિદ્યાર્થીઓ

એ આ વર્ષને ૧૦૦ થી વધુ નવા કોર્સ ઉમેરતા વિદ્યાર્થીઓને નવા ડેવલપ વિષય તેમજ આધુનિક ટેકનોલોજીના વિનામૂલ્યે લાભ મળશે. આઈઆઈટી મુંબઈના ઓનલાઈન કોર્સને દરમિયાનમાં આઈઆઈટીની વિદ્યાર્થીઓને ઉપલબ્ધ થવા તેમજ કોર્સ ડેવલપ કરી શકશે. આ કોર્સમાં ઓનલાઈન આઈઆઈટી મુંબઈના કોર્સને ઓનલાઈન કોર્સ આપશે. ત્યારબાદ ઓનલાઈન કોર્સમાં પણ વિદ્યાર્થીઓ ૩૦ રૂબરૂના સમયમાં કોર્સ વિદ્યાર્થીઓને અન્ય કોર્સ પ્રદાન કરવા પણ ની તમામ લાભ કરી શકશે. આ વર્ષે ૨૦૨૪ માં ૧ કોર્સ જામનગર અને આઈઆઈટી મુંબઈ વચ્ચે કોર્સમાં ૧૦૦ જેટલા વિદ્યાર્થીઓને વિનામૂલ્યે કોર્સ મુદ્દાઓમાં આઈઆઈટી મુંબઈના કોર્સમાં સરકારી કોલેજમાં પ્રથમ નંબરે કરી હતી. આ કોર્સમાં કોલેજના કોર્સ જામનગરના ડિ-ડિજીટાઇઝેશન અને પેસેન્ડેન્સીયા માટે આ વધુ માહિતી મેળવી શકશે અને કોર્સ ભરવા સહિતની પ્રક્રિયા

3

100થી વધુ નવા કોર્સ | નવા ટેકનીકલ વિષય, આધુનિક સોફ્ટવેરનો લાભ

સરકારી પોલીટેકનિક-IIT મુંબઈ વચ્ચે ઓનલાઈન કોર્સ માટે પુનઃ એમઓયુ

જામનગર સરકારી પોલીટેકનિક ખાતે આઈઆઈટી મુંબઈના ઓનલાઈન કોર્સ વિદ્યાર્થીઓ માટે ફોર્મ આપવામાં આવેલ છે. ત્યારે તાજેતરમાં પુનઃ આઈઆઈટી મુંબઈ અને જામનગર સરકારી પોલીટેકનિક વચ્ચે એમઓયુ થયો છે આ કોર્સમાં અતિ આધુનિક સોફ્ટવેર અને ટેકનીકલ કોર્સનો સમાવેશ થાય છે. આ સાથે 100 થી વધુ નવા કોર્સ ઉમેરતા વિદ્યાર્થીઓને નવા ટેકનીકલ વિષય તેમજ આધુનિક સોફ્ટવેરનું વિનામૂલ્યે લાભ મળશે આ માટે વિદ્યાર્થીને પોલ્ટીના ડેવલપર ડિગ્રી સિવાય ફો સમયમાં ઓનલાઈન માધ્યમથી આ કોર્સ કરી શકશે એજ્યુકેશન પોલીસી અનુસાર જરૂરી ક્રીડે પણ વિદ્યાર્થીઓના ખાતામાં જમા થશે. વર્ષ 2024માં 1400 જેટલા વિદ્યાર્થીઓ હોય આ કોર્સમાં લાભ લીધો હતો ઉલ્લેખનીય છે કે ગુજરાતમાં આઈઆઈટી મુંબઈના કોર્સમાં સરકારી પોલીટેકનિક જામનગર ગુજરાત રાજ્યમાં પ્રથમ નંબરે રહી હતી આ માટે સરકારી પોલીટેકનિક જામનગરના પ્રિન્સિપાલ એ એમ પટેલ, ડ્રેનિંગ એન્ડ પ્લેસમેન્ટ ના આર.એસ ઓઝા કોઓર્ડિનેટર જેકબત ડેકાવવામાં આવી હતી

On 1st January 2025, a Memorandum of Understanding (MoU) was signed between Government Polytechnic College, Jamnagar and IIT Bombay. The MoU was signed, to provide students at GP Jamnagar with free access to online technical courses. It includes more than 100 new technical subjects, with emphasis on up-to-date software and technology applications. In the year 2024, with approximately 1,400 students enrolled, GP Jamnagar was recognized as the Top Polytechnic College in Gujarat in leveraging this collaboration. The MoU represents a continuation or renewal of this collaborative program, likely expanding educational reach and technical exposure. A larger pool of students will be enabled to engage in self-paced, expert-led online technical education without course fees. The students will be equipped with competency in modern software and technologies, bolstering employability and readiness for emerging industry demands. This collaboration reflects GP Jamnagar's proactive stance toward digital upskilling and educational excellence.

FROM CIRCUIT TO CELEBRATION
“TEAM E.C. TRIUMPHS AT ROBOFEST 4.0 GRAND FINALE”

Bravo !!! Team E.C. for achieving a historic feat by clinching *Third Place* in the “*Application-Based Robots*” category at the *Robofest 4.0 Grand Finale* held from January 21–24, 2025 at Science City, Ahmedabad. The Triumphant Team has set a new benchmark in educational excellence.

The Robofest 4.0 featured a large field of 1,284 teams, narrowed down to 169 for the Proof-of-Concept (PoC) stage, and finally 100 finalists competing across seven diverse robot categories. Our team’s podium finish illustrates strong multidisciplinary skills across robotics, embedded electronics, control systems, and design thinking.

Our “*Robotic Team*” comprising of *Sanjeev Kashyap, Hem Vadgama, Krushant Kumbharana, Yash Mehta* and *Axit Davda*, under the mentorship of *Mr. A. M. Bhatt*, participated in the National Level Robofest Event for the very *first time* and created *history* by emerging *Victorious* in the *Grand Finale* of the *Robofest 4.0*. They presented the project titled “*Gesture Controlled Robotic Arm with Omnidirectional Moving Base*”.



The first round of Robofest 4.0 featured a large-scale selection, where 1,284 teams registered from across India. A model prototype was submitted in the first round. Students earned ₹ 50,000 and secured a place amongst 169 teams that qualified for the second stage (PoC stage) which was held on 27 October 2024 at Science City, Ahmedabad, receiving INR 2 lakh as development support. Our team’s project titled “*Gesture Controlled Robotic Arm with Omnidirectional Moving Base*”, is operated via hand and finger movements. It is designed for dynamic item handling in industrial and warehouse environments. A full-scale working model was planned for the next level.

SPORTSWEEK “KHELOTSAV 2025”

A sports week event “*Khelotsav 2025*”, was organized from 13th to 15th February 2025. A wide spectrum of activities, including badminton, chess, carrom, volleyball, cricket, etc. provided a platform for participants to demonstrate their skills and competitive spirit. The events were conducted in an atmosphere of enthusiasm and healthy competition, fostering teamwork, perseverance, and leadership among the students.

In the event of Chess competition, our students, Mr. Pruthvi Parmar (3rd Semester) and Ms. Khushikumari Mallick (1st Semester) secured 2nd and 3rd place, respectively. Our team also showed good performance in the events of Kho-Kho and Tug of War.

The remarkable performance of the participants not only enhanced the prestige of the event but also reinforced the institute’s emphasis on holistic development.

<u>GAMES FOR BOY</u>	<u>GAMES FOR GIRL</u>
CHESS	CHESS
CARROM	CARROM
BADMINTON	BADMINTON
VOLLYBALL	TUG OF WAR
CRICKET	NARGEL
TABLE TANNIS	1 MINUTE GAMES
TUG OF WAR	

FOR MORE DETAILS AND REGISTRATION CONTACT DEPARTMENT COORDINATOR BEFORE 7/2/2025

GOVERNMENT POLYTECHNIC JAMNAGAR

WINNERS OF “STATE LEVEL TECH-FEST SHAURYA 2K25”

VVP Engineering College, Rajkot had organized a One Day State Level Event-Shaurya 2025 on 25th February 2025. It was a collaborative effort by the staff and students to make the event a grand success under the guidance and supervision of Trustees, Principal and respective Head of departments. Entire event was held under the leadership of Principal Dr. Piyush Vanzara. Our 6th semester student Mr. Jaydeep Rathod and 4th semester student Mr. Aditya Lad got 1st Price in the event. It is proud moment for us that our students participated in the event and became victorious.

DATE
25-FEB 2025

A STATE LEVEL TECH-FEST SHAURYA 2K25

CHEM DEPARTMENT
JATIN CHOPRA-875948242
HAPPY HINGLI-9564671170

IT DEPARTMENT
NARUL VANDRA-922532425

CE DEPARTMENT
RISHI JAIN-9224650645

EC DEPARTMENT
HET UMRETTIYA-8759482876

IGNITING YOUNG MINDS THROUGH ROBOTICS

Three students of Department of Electronics and Communication Engineering, Mr. Sanjeev Kashyap, Mr. Krushant Kumbharana and Mr. Aditya Lad successfully organized a Workshop on Robotics on 30th March 2025, at one of the prestigious school, Shree Saraswati Vidya Mandir, Jamnagar, as a part of STEM child scientist course organised by District Science Centre. Around 150 students of Std. 6-9 participated in the workshop. The workshop was conducted by enthusiastic diploma students under the guidance of faculty members, with an aim to introduce young learners to the fascinating world of robotics and automation. The session began with an interactive introduction to the fundamentals of robotics, covering basic electronic components, sensors, and the role of programming in developing intelligent machines. Demonstrations of simple robots designed and developed by the students captivated the school participants, who showed great interest in understanding the concepts.

Hands-on activities were arranged to provide the school students with practical exposure, allowing them to engage with robotic kits and explore how hardware and software come together to create functional systems. The participants expressed excitement and curiosity while experimenting with the robots, making the session highly interactive and engaging. The workshop not only generated awareness about emerging technologies but also ignited curiosity among the young students towards science, engineering, and innovation. It served as a platform for the E.C. Engineering students to share their knowledge and inspire the next generation of budding technocrats. The school authorities appreciated the initiative for extending technical learning beyond the campus and fostering a culture of innovation among school students.

STUDENT'S CORNER

AN ARTICLE ON “FROM 5G TO AI: RECENT TRENDS IN E&C ENGINEERING”

The field of Electronics and Communication Engineering (E&C) is witnessing rapid transformation with groundbreaking technologies that are redefining the way we live, work, and communicate. Among the most impactful developments, 5G technology and Artificial Intelligence (AI) stand out as key drivers shaping the future of the industry.

5G – The Era of Ultra-Connectivity



5G is not just an upgrade from 4G; it is a complete transformation of the way communication systems operate. Offering data speeds up to 100 times faster, ultra-low latency, and the ability to connect millions of devices simultaneously, 5G is laying the foundation for a fully connected digital society.

With its massive potential, 5G is enabling:

- **Smart Cities:** Intelligent traffic management, connected public services, and energy-efficient systems.
- **Healthcare Innovations:** Remote surgeries, telemedicine, and continuous health monitoring through wearable devices.
- **Autonomous Vehicles:** Cars that can communicate in real time with road infrastructure and other vehicles.
- **Industrial Automation:** Smart factories where machines, sensors, and robots collaborate seamlessly.

For E&C engineers, 5G opens exciting opportunities to work on cutting-edge domains like IoT systems, network security, and advanced antenna design.

Artificial Intelligence – Making Systems Smarter



Artificial Intelligence has become an inseparable part of modern engineering. In E&C, AI plays a crucial role in optimizing communication networks, improving device efficiency, and enabling machines to learn and adapt.

Key AI applications in E&C include:

- **Signal Processing:** AI algorithms help in noise reduction, pattern recognition, and error correction in communication channels.
- **Network Optimization:** AI-driven systems predict and manage massive traffic loads on 5G and beyond networks.
- **Chip and Circuit Design:** AI accelerates the design of highly efficient semiconductors and VLSI circuits.
- **Smart Devices:** From voice assistants to AI-powered sensors, E&C engineers are driving innovations that touch daily life.

AI is also paving the way for personalized communication technologies, ensuring systems that adapt to human needs rather than the other way around.

The Convergence of 5G and AI

The real technological leap emerges from the integration of 5G and AI. Together, these two forces are powering a new generation of innovations:

- **Autonomous Drones and Robotics** for defense, agriculture, and logistics.
- **Personalized Healthcare Systems** capable of real-time monitoring and predictive diagnostics.
- **Smart Homes and Cities** where everything from lighting to security is intelligently automated.
- **Immersive Experiences** such as Augmented Reality (AR) and Virtual Reality (VR) powered by high-speed networks and intelligent processing.

This synergy is creating an ecosystem where connectivity meets intelligence, ensuring not only faster but also smarter and more reliable communication systems.

Opportunities for E&C Students

For students of Electronics and Communication Engineering, these trends present enormous possibilities:

- **Skill Development:** Mastering areas like wireless technologies, data science, embedded systems, IoT, and AI integration.
- **Research & Innovation:** Exploring how 5G and AI can address global challenges such as sustainable energy, disaster management, and digital inclusion.
- **Entrepreneurship:** Building start-ups in sectors like smart healthcare, AI-driven devices, and advanced communication solutions.
- **Global Careers:** The demand for E&C professionals with expertise in these areas is rapidly growing across industries worldwide.

By engaging in hands-on projects, internships, and continuous learning, students can place themselves at the forefront of this technological revolution.

The journey "From 5G to AI" is a testament to how Electronics and Communication Engineering continues to be the driving force of innovation. With these advancements, the boundaries of what is possible are expanding every day. For students and budding engineers, embracing these changes means becoming active contributors to technologies that will define the future of humanity.

-Mr. Nilraj Savani, ECE 5th semester, G P Jamnagar

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As we bring this edition of the Electronics & Communication Engineering Department newsletter to a close, we extend our sincere appreciation to all students, faculty members, and stakeholders who have actively contributed to the progress and vibrancy of our department.

This newsletter has captured the essence of our recent milestones – from victorious journey of our Robotics Team in national-level competitions like Robofest 4.0, to impactful workshops, and campus placements that reflect our ongoing commitment to academic excellence and practical learning.

We firmly believe in nurturing not only technical competence but also creativity, leadership, and lifelong learning. The achievements and activities highlighted here are a testament to the collective spirit and dedication that define our department.

We look forward to sharing more inspiring updates, success stories, and opportunities in the next edition. Until then, let us continue to learn, innovate, and grow – together.

Thank you for being an integral part of our journey.