

# ENTC

Department of Electronics and Telecommunication Engineering



## The Future Batteries

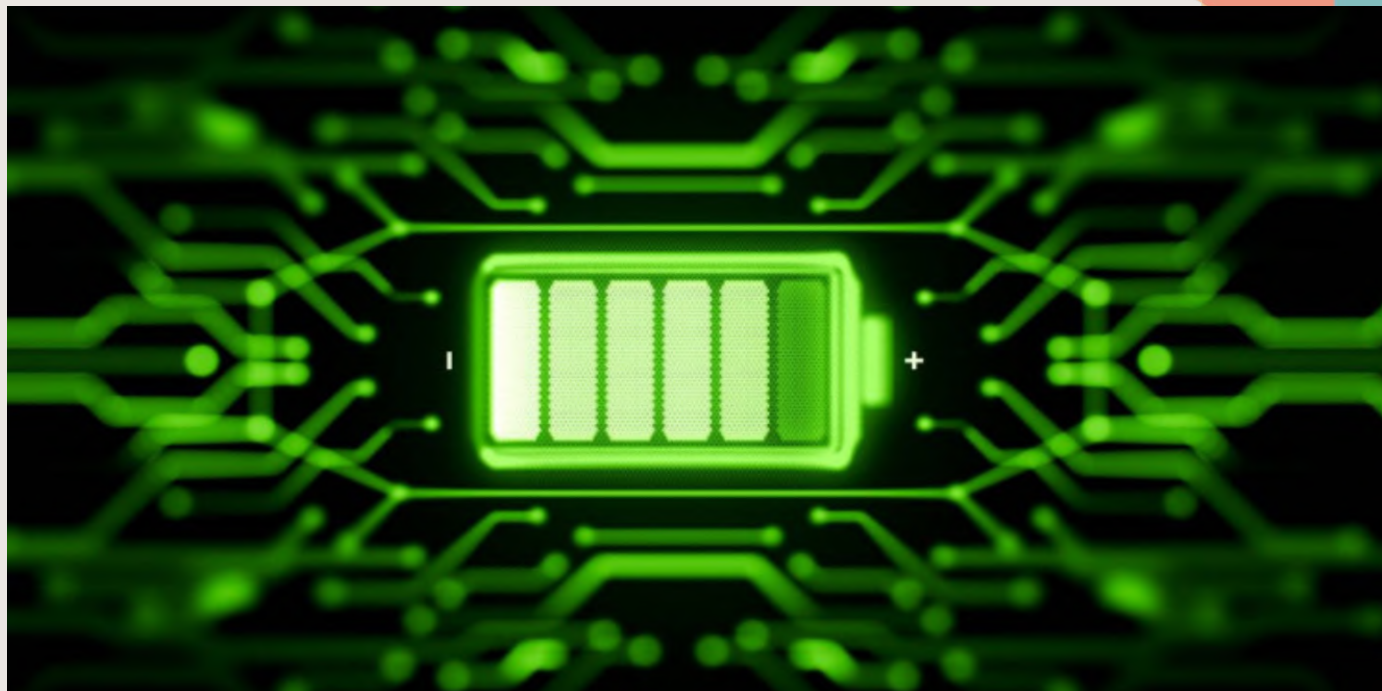
Power Charge | Last Months | Power Over Air



### INSIDE

International Placement | University Rank Holders | FDPs  
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# THE FUTURE BATTERIES:



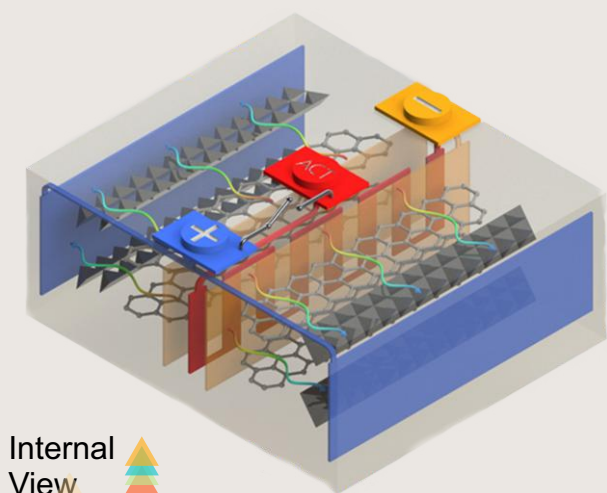
## COVER STORY

Inside story of how future batteries can be distinctly designed to charge in seconds, provide back up for hundreds of hours with next level wireless charging

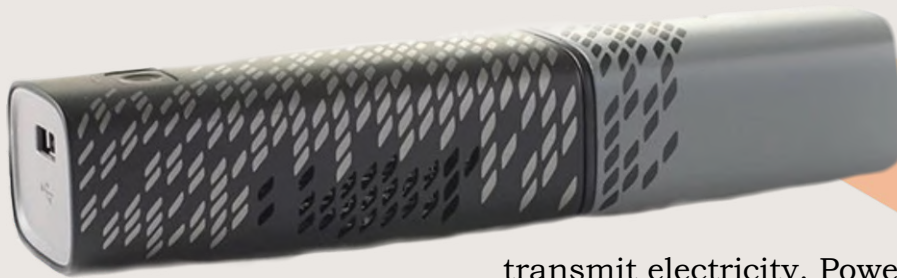
The smart products are getting ever advanced but they are still limited due to power limitations. But good news is the future batteries. Imagine the battery pack which can charge the unit in couple of seconds and last for up to months with power over air feature. All this seems impractical in first look but researchers are already on the way. The subsequent section discloses few of the best battery inventions which can bring the power revolution.

**Lithium-Sulphur Batteries** can outrun the Li batteries in 2020 research. Researchers predicted that, in one charge, the electric car can run up to 1000 KM and smart phones can be powered up to 5 days. **IBM** engineers are attempting to use sea water for designing future batteries. It is reported by the IBM that, the such research is going to replace heavy metals like nickel and cobalt. For replacement, the essential chemicals can be extracted from the sea water. Such new battery chemistry is going to out perform the traditional Li batteries.

**Sand Batteries** is the novel approach in which silicon can be used as the replacement to the graphite, in existing graphite li-ion batteries. Such novel attempt is to extend the life of the batteries up to three times. Silanano is the startup, funded by Daimler and BMW, who are working on this concept, promising to give performance up gradation of up to 40%..



Internal View



At the University of California, **nanowire batteries** are designed. Such batteries can withstand large battery recharge cycles. In the lab test, these batteries were tested for recharge cycle of more than 2,00,000 times and zero degradation is observed. **Solid state batteries** traditionally offer stability but at the cost of electrolyte transmissions. All this means a superior battery. The result is a battery that can operate at super capacitor levels to completely charge or discharge in just seven minutes - making it ideal for cars. Since it's solid state that also means it's far more stable and safer than current batteries. The solid-state unit should also be able to work in as low as minus 30 degrees Celsius and up to one hundred.

Prieto, a **foam battery** maker, believes the future of batteries is 3D. The company has managed to crack this with its battery that uses a copper foam substrate. This means these batteries will not only be safer, thanks to no flammable electrolyte, but they will also offer longer life, faster charging, five times higher density, be cheaper to make and be smaller than current offerings. **uBeam** uses ultrasound to

transmit electricity. Power is turned into sound waves, inaudible to humans and animals, which are transmitted and then converted back to power upon reaching the device. The uBeam concept was stumbled upon by 25-year-old astrobiology graduate Meredith Perry. She started the company that will make it possible to charge gadgets over the air using a 5mm thick plate. These transmitters can be attached to walls, or made into decorative art, to beam power to smartphones and laptops. StoreDot, a start-up born from the nanotechnology department at Tel Aviv University, has developed the StoreDot charger. It works with current smartphones and uses biological semiconductors made from naturally occurring organic compounds known as peptides – short chains of amino acids - which are the building blocks of proteins. The result is a charger that can recharge smart phones in 60 seconds.

Scientists have found that current batteries can in fact be pushed beyond their recommended limits without affecting performance or overheating.

Source: <https://www.pocket-lint.com/gadgets/news/130380-future-batteries-coming-soon-charge-in-seconds-last-months-and-power-over-the-air>





Every year the annual social gathering is celebrated as “Umang”. This year Umang 2020 is celebrated from 18<sup>th</sup> February 2020 to 19<sup>th</sup> February 2020. The fever begins with days celebrations from 12<sup>th</sup> February 2020. The day’s begin with Signature day, Green day, Red and Black day, Chocolate day, Traditional day, Bollywood and Hollywood day, Group and feens day and Executive day celebrations.

For the celebration of Umang 2020, the good start is with Saraswati Poojan. Subsequently, Department flag hosting ceremony, Aura of arts (Arts and Craft), Rockerz - the singing show, Sipna’s Iconic Fashion Show, Feet on Fire - The Dance Show, Variety Entertainment and Jallosh - The DJ Night were organized.



This year new flavour is added with “Kridayan 2020”. It is the sports event which is celebrated from 12<sup>th</sup> February 2020 to 15<sup>th</sup> February 2020. In this sports competition, different indoor and outdoor games were organized.

In indoor games, Carrom, Chess, Table Tennis and Badminton was organized where as in outdoor games, baseball, football, cricket, basketball, lagori, volleyball, kabaddi, arm wrestling, kho-kho and lagori was organized. In the kridayan 2020 in group event of Cricket (Men’s), Kho-Kho (Men’s and Women’s), Volleyball (Women’s), Kabadd (Men’s), Tug of War (Women’s), Lagori (Women’s), Carrom Doubles (Women’s), Basketball (Men’s) remain Winner and Runner. In Singles Arm Wrestling (Women’s), Carrom remain Winner and Runner. Mr. Nishant Kitukale becomes the Best Coordinator for Kridayan 2020.



SIPNA COLLEGE OF ENGINEERING AND TECHNOLOGY , AMRAVATI

Space, the final frontier...



Every year we celebrate “Vidyotan” a National Level Techfest. It is the annual science and technology based national level technical festival of Sipna College of Engineering and Technology, Amravati. The sole purpose of organizing this techfest is to give the students a platform to compete from all around to showcase their talent and skills in various integrated techno events. These events promote a real technical trade for the budding engineers to come up with their bright ideas. This year Vidyotan-2020 is celebrated with theme: “space, the final frontier...to infinity and beyond!”. The event was organized on 17<sup>th</sup> February 2020.



## Sipna Shivismahotsav 2020



शिवछत्रपतींच्या जाज्वल्य इतिहासाचे स्मरण होण्यासाठी सिपना परिवारातील विद्यार्थ्यांद्वारे शिवजयंतीच्या पर्वावर दरवर्षी सिपना शिवमहोत्सवाचे आयोजन करण्यात येते. शिवजयंती पर्वाने अवचित साधुन सिपना शिवमहोत्सव समिती द्वारे विविध कार्यक्रमांचे आयोजन करण्यात येतात. सिपना शिवमहोत्सव २०२० अंतर्गत, बुलेट रॅली, फ्लॅश मॉब, ढोल पथक, शिवराज्याभिषेक नाटिका व अब्जल खान वध नाटिका इत्यादी कार्यक्रमांचे आयोजन करण्यात आले होते. दरवर्षी प्रमाणे यावर्षीपण शिवटेकडी, पंचवटी, इर्विन चौक, जयस्तंभ चौक, राजापेठ मार्गे सिपना अभियांत्रिकी महाविद्यालय पर्यंत रॅली काढण्यात आली होती.



# 9<sup>TH</sup> STATE LEVEL INSPIRE AWARD EXHIBITION 2019-2020

9<sup>th</sup> State Level, Inspire Award Exhibition 2019 - 2020 was held from 8th February 2020 to 10th February 2020 at Sipna College of Engineering and Technology, Amravati.

In this exhibition 384 student participants have exhibited their talent through different attractive project models. These project models are designed to fulfil the societal need.

The 384 student participants who have participated in the event were short-listed from previously conducted state level competition. Through this exhibition, out of 384 participants, 38 students have been selected for national level competition.

for the 9th state level inspire award exhibition, students from different part of the state like Mumbai, Pune, Nashik, Aurangabad, Nanded, Nagpur, Chandrapur and many other cities, have demonstrated their innovative projects.



DEPARTMENT OF  
ELECTRONICS & TELECOMMUNICATION ENGINEERING

*Heartily Congratulates*

*University Toppers  
and  
Merit students*

*University Toppers*



**MS. AAFRIN ISRAIL ALI**  
*First Rank*



**MS. ADITI RAJENDRA KADU**  
*Ninth Rank*

*7<sup>th</sup> Sem Toppers*



**Mr. Sanket Jaiswal**



**Ms. Priya Tayade**



**Ms. Rutuja Dapki**



**Mr. Akshay Pardhi**

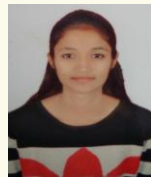
*5<sup>th</sup> Sem Toppers*



**Mr. Richa Virle**



**Mr. Yash Gupta**



**Ms. Shivani Chambhare**



**Ms. Bhavana Shingare**

*3<sup>rd</sup> Sem Toppers*



**Ms. Ishwari Sawai**



**Ms. Pranjali Sarode**



**Ms. Kshitija Manwatkar**



**Ms. Muskan Singhai**

# STUDENTS' ATTAINEMENTS

## *Heartily Congratulations*

For getting successfully placed  
in



**Ms. Snehal Tote**

**FUJITSU**



**Ms. Gauri Umale**

## *Heartily Congratulations*

For getting successfully placed



**Ms. Vaishnavi Zanwar**  
**Wipro**



**Ms. Asavari Thakare**  
**Beldar Tech-Flake**

## *Heartily Congratulations*

For successfully completing internship at

**Cojag Smart Technology**

**Ms. Rashmi Ladole**

**Ms. Pujal Kalamkar**

**Ms. Pratiksha Awankar**

## *Heartily Congratulations*

to the following students for participating and  
clearing second round  
in

**National Level Techno-Social Competition**

Organized by

**BHAU Institutions, College of Engineering, Pune.**

**Mr. Akshay Pardhi**

**Mr. Gaurav Holkar**

## Felicitation Programme for Academic Achievers

A felicitation programme was conducted for 11<sup>th</sup> September 2019. In this programme, students who have excel in summer 2019 SGBAU exam are felicitated. Mr. Vedant Dave (Rank-I, Sem-2), Ms. Ishwari Sawai (Rank-I, Sem-2), Mr. Yash Gupta (Rank-I, Sem-4), Ms. Richa Gorle (Rank-II, Sem-4), Ms. Surekha Dhawave (Rank-III, Sem-4), Mr. Akshay Pardhi (Rank-I, Sem-6), Ms. Vaishnavi Rathi (Rank-II, Sem-6) and Ms. Renu Chandak (Rank-III, Sem-6) did remarkable work in the university examinations.



## Teachers' Day Celebrations

A teacher's day programme was conducted by the students of department of Electronics & Telecommunication Engineering, on 05<sup>th</sup> September 2019. The student had planned various activities for the faculty. Head of the Department had appreciated the efforts taken by the students for celebration of teacher's day.



## Training Programme on Signal and Image Processing

A training programme on Signal and Image Processing using Matlab was conducted at the department. The programme was conducted by the in-house faculty, Prof. Nikesh Gadre. Through the programme, sir has discussed various issues in signal and image processing which can be well executed using Matlab. In this programme, practical techniques to write Matlab programme for digital manipulation of image, image acquisition and pre-processing of image are discussed, in depth. Discussion on Matlab functions, simulation technique, solution to complex mathematical processes have added special flavour to the programme.



## Seminar on Role of Embedded Engineers in Automation Industries

A Seminar on role of embedded engineers in automation industries were in the seminar conducted on 14<sup>th</sup> January 2019. Mr. Bhushan Shinkar and Mr. Rushikesh Pachghare, working in Altron India and Value India, respectively, were the guest of honour for the programme.



## Seminar on Career Opportunities in Core Engineering After Gate

A Seminar on the topic “Career opportunities in core engineering through GATE Exam & M-tech as career option” was organized on 17<sup>th</sup> January 2019 for the students of the department. Mr. Rahul Agalawe was the guests guests of honour at this seminar. The main emphasis of the seminar was to make students aware about career opportunities available in core engineering.

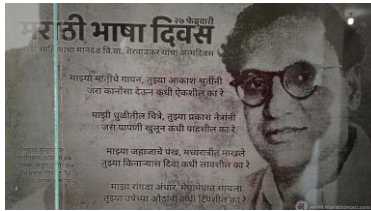


## Seminar on Career Opportunities in IT Industries

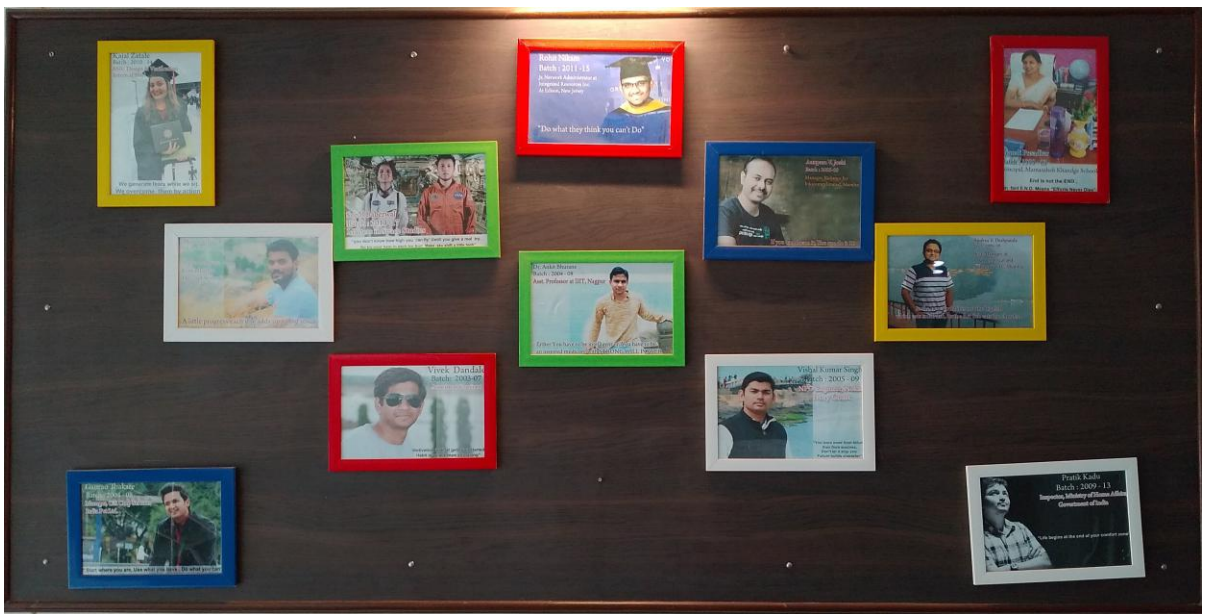
A Seminar on the topic “Career Opportunities in IT industry for Electronics Engineers” was organized on 22 Jan 2020 for the Final Year students of Electronics & Telecommunication Engineering Department. Mr. Prathamesh Wankhade was the speaker at this seminar. The main emphasis of the seminar was to impart knowledge about the IT Industry functional operation to students. He enlightened the students about the role of electronics engineers in the information technology fields & also highlighted Career Opportunities in IT industry for Electronics Engineers.



# WALL MAGAZINE



# Wall of Fame



# FACULTY ATTAINEMENTS

## Heartily Congratulations

to  
**Dr. Pankaj B. Gadge**  
on completion of his Ph.D.  
in  
Science and Technology  
on

“Design of Disease Diagnostic System Based  
on Signal Processing of Respiration Sound  
Under the guidance of Dr. Sandeep V. Rode



## Heartily Congratulations

to the faculties, being reviewer for the first international conference on **Innovative Trends and Advances in Engineering and Technology ICITAET-2019**

Organized by

**SSGMCE, Shegaon and SGIARC, Shegaon**

Technically Co-Sponsored by

**IEEE Bombay Section**

from

27th to 28th December 2019.



Dr. S. S. Mungona



Dr. N. N. Kasat

## Heartily Congratulations

to the following faculties on completion of their courses on  
SWAYAM/ ARPIT/ NPTEL courses

Sr. No.	Name of Faculty	Course Title
1.	Dr. P. D. Gawande	Evolution of Air Interface Towards 5G
2.	Dr. U. S. Ghate	Pedagogical Innovations and Research Methodology and Data Analytics for Smart Grid
3.	Prof. S. S. Tawani	Leadership and Governance in High Voltage Level 2 and Big Data Analytics for Smart Grid
4.	Prof. V. A. Soliv	Digital Circuits
5.	Prof. R. R. Gupta	Big Data Analytics for Smart Grid
6.	Prof. U. Ramekar	Big Data Analytics for Smart Grid
7.	Prof. S. D. Jirapure	Introduction to Research Methodology
8.	Prof. V. A. Gulhar	Python for Data Science
9.	Prof. S. N. Kherde	Introduction to Research Methodology
10.	Prof. V. V. Rathi	Technical English for Engineers

# PROGRAMMES IN DEPARTMENT

## One Week Faculty Development Programme on Signal, Image and Video Processing and it's Application

One week FDP was conducted, from 9<sup>th</sup> December to 13<sup>th</sup> December 2019, at the department in association with Electronics and ICT Academy PDDM IIITDM, Jabalpur - An Initiative of MeitY, Govt. of India. 47 participants from different institutes took attended the programme. In one week, reknown faculties like Dr. S. V. Bonde, SGGS, Nanded, Dr. Saugata Sinha, VNIT Nagpur, Dr. V. R. Satpute, VNIT Nagpur and Dr. Irshad Ansari, IIITDM Jabalpur along with in-house faculties, Dr. Avinash Gawande, Dr. Ajay Gurjar, Dr. Sandeep Rode, Dr. Viraj Gulhane and Prof. Nikesh Gadre delivered expert thoughts. Signal and Image pre-processing, Stochastic Signal Processing, Pattern Recongnition, ANN, Deep Learning, Image Encryption and Video Processing were the key points of discussion.



## One Day Workshop on Syllabus Restructuring

One day workshop on syllabus restructuring was carried out jointly by Department of Electronics and Telecommunication Engineering and Board of Studies, SGBAU, Amravati on 31<sup>st</sup> January 2020. The workshop was inaugurated at the hands of Dr. F. C. Raghuwanshi, Dean, Faculty of Science and Technology, Amravati and Dr. Pramod Patil. Dr. S. V. Dudul, Member, AICTE Model Curriculum Committee, conducted the first session in which sir discussed about various aspects of the academics management. The workshop was conducted for restructuring of the curriculum for the engineering courses in SGBAU, Amravati. Such workshop play significant role to fulfill the gap between industry pace and the academics, so as to fulfill the end user needs.



# DEPARTMENT SPECIFIC

## Vision

To impart quality professional education for creating reputed technocrats and entrepreneurs to meet industry standards and requirements.

## Mission

- To create quality education towards professional excellence.
- To imbibe advanced knowledge in applied areas of engineering and technology.
- To remain updated with contemporary technology and develop managerial skills.
- To technical expertise along with professional ethics as per societal needs.

## Programme Educational Objectives

**PEO.1:** The Graduates shall acquire the fundamental and advanced knowledge in Electronics & Telecommunication Engineering subjects along with additional knowledge in mathematics, basic sciences, inter-disciplinary engineering, management and economics, enabling them to solve basic and complex engineering problems.

**PEO.2:** The Graduates will succeed in getting the entry-level engineering positions in Allied Industries, Design & Fabrication firms and in Government Sectors at regional, national and international levels.

**PEO.3:** The Graduates will succeed in the pursuit of higher studies and will continue life-long learning.

**PEO.4:** The Graduates will be aware of social responsibility, ethical standards and environmental issues to serve the society better.

## Programme Specific Outcomes

**PSO.1:** Understand the basic concepts in Electronics & Telecommunication Engineering and apply them to the respective areas.

**PSO.2:** Solve complex engineering problems using latest hardware and software tools, along with analytical skills.

**PSO.3:** Understand the concepts of Data Communication Networking, Optical Fiber and Wireless Technology along with ability to classify, analyze and implement latest communication technologies.

**PSO.4:** Demonstrate applications of Embedded system in Social, Environmental and applied areas of Engineering Sciences.

## Programme Outcomes

### PO.1: Engineering Knowledge

Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

### PO.2: Problem Analysis:

Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

### PO.3: Design/ Development of Solutions:

Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

### PO.4: Conduct Investigations of Complex Problems:

Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

### PO.5: Modern Tool Usage:

Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

### PO.6: The Engineer and Society:

Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

### PO.7: Environment and Sustainability:

Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

### PO.8: Ethics:

Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

### PO.9: Individual and Teamwork:

Function effectively as an individual, and as a member or leader in diverse teams, and in multi-disciplinary settings.

### PO.10: Communication:

Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

### PO.11: Project Management and Finance:

Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member or a leader in a team, to manage projects and in multidisciplinary environments.

### PO.12: Life Long Learning:

Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

## ABOUT INSTITUTE

Sipna Shikshan Prasarak Mandal, established in the year 1995, aims to impart higher & technical education to the enthusiastic youths and envision them for a better tomorrow.

Since its inception, SSPM has been successfully running undergraduate and postgraduate courses in emerging areas through Sipna's Arts, Science & Commerce college, Chikhaldara and Sipna College of Engineering & Technology, Amravati, affiliated to Sant Gadge Baba Amravati University, Amravati. We have already marched towards various Postgraduate, Management and Research Programs.

The Sipna College of Engineering & Technology (SCOET) was started in July 1999 to provide professional education to the students in the region and around. The College is located in Amravati, an educational hub of Maharashtra.

Sipna College of Engineering & Technology is an unaided Engineering college approved by the All India Council for Technical Education (AICTE), New Delhi and affiliated to Sant Gadge Baba Amravati University, Amravati (Maharashtra).

The Institute is accredited by IAO and Certified by ISO 9001:2015 (Quality Management System), ISO 14001:2015 (Environment Management System) & ISO 17025:2005

National Assessment & Accreditation Council (NAAC) accreditation is another feather in the cap for the institution and it has received an 'A' Grade. We are the first institute in Maharashtra to get accredited under the new scheme- 2018. Under the AICTE Margadarshan scheme, Sipna College of Engineering & Technology, Amravati is "A Mentee Institute" of College of Engineering, Pune (COEP). To enhance the Industry Institute Interaction and to build a strong rapport with Industry, Sipna C.O.E.T has got the membership of Confederation of Indian Industry (C.I.I), the most reputed Industry Organization. We are proud to say that Sipna C.O.E.T is the only Institute in Sant Gadge Baba Amravati University who is a member of C.I.I. C.I.I is a non- government, not-for- profit, industry-led and industry-managed organization, playing a proactive role in India's development process.

Using innovative and latest teaching methodologies, well equipped with all the infrastructure and facilities needed for efficient transfer of knowledge and skill-sets, Sipna is working towards generating confidence among students to take on tomorrow's challenges of highly dynamic world. This is the reason why we stand out from a cluster of several institutes in the country, and take our students straight to the realms of their future careers.

## ABOUT DEPARTMENT

The department of Electronics & Telecommunication works with a belief in establishing professional & technical standards and an environment prevailing at par.

Considering the perceptibly heavy influence of development in Electronics in all aspects of life, thorough knowledge of Electronics is necessary for the students for their future effective contribution as practising engineers. Keeping this in view, the laboratories of the department have a strong ethos of practice influencing theory and practical.

The department has well equipped advanced and furnished laboratories to meet the state of art. Keeping track of the technology and to strike a balance between theory and practical applications, the latest equipments and softwares are made available. The adoption of collaborative learning strategies seeks to ascertain to what degree such strategies enhance student learning and persistence. In addition to core laboratories the department has research laboratory recognized by S.G.B. Amravati University, Amravati.



## Contact Us

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