MAHARAJA SURAJMAL INSTITUTE OF TECHNOLOGY
DEPARTMENT OF ELECTRONICS AND COMMUNICATIONS

ElektroNews

Electronics & Communication Engineering is one of the leading and fastest growing fields of engineering. It provides comprehensive knowledge of conventional topics like navigation systems, radar, electric motors, communication systems, VLSI design and more advanced topics like Internet of Things, wireless sensors etc. All smart electronic devices need software interface to run and come with one or the other device controlling programs designed and developed by electronics and communication engineering, hence computer science and ECE go hand-in-hand.

The Department of Electronics & Communication Engineering, MSIT aims at unceasing commitment towards students, helping them learn, grow, and develop and achieve their goals, whether it is becoming a professor, an entrepreneur, or joining industry. The department has a fine blend of experienced as well as young and dynamic personalities as faculty and is involved in providing quality education at Undergraduate (UG) level. The research interests of the faculty members and students encompass a wide gamut of sub-disciplines of Electronics & Communication Engineering.

The department is performing outstanding with the complete support of management and Director. The department runs in two shifts- morning and evening. Morning shift is headed by Prof. Archana Balyan with a young, experienced and dynamic team with 5 Associate Professors, 17 Assistant Professors, While evening shift is headed by Dr. Pardeep Sangwan with a young and promising team of 10 Assistant Professors. To give the students clear insight into design and development processes, the department has modern, well-equipped laboratories with adequate facilities. Some of the important laboratories of the department are eg. Signals & Systems Lab, Analog Electronics Lab, Control Engg. Lab, Microwave Devices lab, Digital Image Processing Lab, Consumer Electronics Lab, Digital Circuits & Systems Lab and Microprocessors lab, VLSI Design Lab and a Satellite & Mobile Comm. Faculty is supported by a well-trained technical staff.

DIRECTOR'S MESSAGE

It gives me immense pleasure in writing a preface to the first issue of ElektroNews, a yearly newsletter of Electronics Department of Maharaja Surajmal Institute of Technology. The newsletter consists of sections documenting significant academic events such as seminars, workshops organized in department and significant achievements of students in various competitions etc., technical and non-technical articles, allowing everyone to exchange their views, thoughts and experiences. I express my sincere gratitude towards our college management for their continuous support, motivation and guidance. I congratulate the editorial team for bringing out this much awaited issue of newsletter. I request all faculty members to extend their whole hearted support to the newsletter. With best wishes and a great hope that everyone will enjoy reading it.

Prof. A.K Singh , Director ,MSIT

MESSAGE FROM HOD

Electronics and Communication Engineering is a versatile and important branch of engineering. Electronics engineer can work in various fields like automotive system, airspace engineering, design engineering, control systems, power electronics engineering, communication engineering etc. and most importantly in software field also. Department has well qualified and dedicated faculty with well-developed laboratories. We impart quality engineering education through sound theoretical knowledge, hands on laboratory as well as computational skill and exposure to recent technologies by visiting industries & expert talk. We provide opportunities for students to participate in various technical and sports events /competitions. This newsletter is an attempt to highlight the achievements of the department, in spite of the space constrain we have showcased the best and look forward to have more in the future on a quarterly editions.

I wish good luck to the entire team of editors and look forward for your kind patronage to our newsletter.

Prof. (Dr.) Archana Balyan, Head of Department ECE

VISION of Department

ECE department strives to become a center of quality education to meet the global technological needs for the benefit of mankind.

MISSION of Department

• To impart high quality education in the field of electronics & communication engineering to meet the national and global challenges.
• To provide adequate facilities, infrastructure and environment to the students as well as faculty members thereby creating an ambience conducive for teaching-learning process.
• To empower the students by enhancing their soft skills and ethics to create social awareness and imbibe national values so as to become good citizen.
• Creating a thrust for life-long learning through interaction with outside world on contemporary issues and technological trends.

Faculty Achievements during the year

Our faculty is consistently striving towards research and excellence. They have presented their research work in various Internaional Conferences and Journals. These are:
• Archana Balyan, Classifying Breast Cancer Based on Machine Learning, In: Proceedings of International Conference on Artificial Intelligence and Applications. Advances in Intelligent Systems and Computing, Springer, 2020.
• Chaudhary, Parul, and Puneet Azad. "Energy Harvesting Using Shoe Embedded with Piezoelectric Material." Journal of Electronic Materials 49.11 (2020): 6455-6464.
• Azad, Puneet. "Design and Analysis of a Synchronized Interface Circuit for Triboelectric Energy Harvesting." Journal of Electronic Materials 49.4 (2020): 2491-2501.
• Yadav, Deepshikha, Puneet Azad, and Rahul Vaish. "Solar Energy Harvesting using Candle-Soot-Coated Thermoelectric Materials." Global Challenges (2020): 1900080.
• Meena Rao, Impact of Routing Protocols and Artificial Intelligence Techniques on adhoc networks in critical scenario, SCOPUS, SPRINGER LINk, 2020.
• Rathee, Neeru, Dinesh Ganotra, and Ajay Rathee. "Facial Action Unit Intensity Detection by Extracting Complimentary Information using Distance Metric Learning." IETE Journal of Research 66.2 (2020): 214-223.

• Dahiya, A., & Deshwal, D., 2020. "Design Fundamentals: Iris Waveguide Filters Versus Substrate Integrated Waveguide (SIW) Bandpass Filters". In Proceedings of International Conference on Artificial Intelligence and Applications (pp. 195-202). Springer, Singapore. Aman Dahiya, "Design of An Offset Posts K- band Bandpass Filter using Substrate Integrated Waveguide for microwave Applications," International Journal of Recent Technology and Engineering (IJRTE) ISSN: 2277-3878, Volume-8 Issue-6, March 2020. (Scopus Indexed)

• Neeru Rathee, Investigation of facial expressions for physiological parameter measurement, International Conference on Advancements in Computing & Management (ISSN 2524-7565), Google scholar, 2020.
• Neeru Rathee, Epileptic Seizure Detection using Bidimensional Empirical Mode Decomposition and Distance Metric Learning on Scalogram, International Conference on Signal Processing and Integrated Networks ((ISSN: 1947-8402), Google Scholar, 2020.
• Neeru Rathee, Micro Expression Analysis :A Review, 3rd Springer International Conference on Computing Informatics and Networks (ISBN: 978-981-15-9712-1), Google Scholar, 2020.
• Gupta, Richa, Garima Bakshi, and Aakash Bansal. "Dual-Band Circularly Polarized Stacked Sapphire and TMM13i Rectangular DRA." Progress In Electromagnetics Research 91 (2020): 143-153
• Yaduvanshi, Rajveer S., Richa Gupta, and Saurabh Katiyar. "Smart DRA for beam width and orientation control." Frequenz 1.ahead-of-print (2020).
• Richa Gupta, "Multi Layer Stacked Rectangular Dielectric Resonator Antenna", International online conference on advances in computing, communication and green technologies organized by Ansal University,Gurgaon, July 2020, Scopus, 2020
• Richa Gupta, "Design Of Hexagonal Microstrip Patch Antenna For Bandwidth Enhancement And Miniturization", International online conference on advances in computing, communication and green technologies organized by Ansal University,Gurgaon, July 2020, Scopus, 2020

• Poonam, Shaifali M.Arora, Robust watermarking schemes for copyright protection of digital data: A survey, International conference on emerging technologies in data science, data mining and information security, 2020
• Deshwal, Deepti, Pardeep Sangwan, and Divya Kumar. "A Language Identification System using Hybrid Features and Back-Propagation Neural Network." Applied Acoustics 164 (2020): 107289.
• Deshwal, Deepti, Sangwan, Pardeep. "Isolated word language identification system with hybrid features from a deep belief network." International Journal of Communication Systems (2020): e4418.
• Deepti Deshwal, Design Fundamentals: Iris Waveguide Filters Versus Substrate Integrated Waveguide (SIW) Bandpass Filters, International Conference on Artificial Intelligence and Applications . Springer, Singapore.(2194-5357), Scopus, 2020
• Aman Dahiya, "Design Fundamentals: : Iris Waveguide Filters vs. Substrate Integrated Waveguide (SIW) Bandpass Filters", International conference on Artificial Intelligance and applications, SCOPUS, 2020
• Anshul Pareek, "A Robust Surf-Based Online Human Tracking Algorithm Using Adaptive Object Model", The International Conference on Artificial Intelligence and Applications(21945357), 2020
• Preeti Sehrawat, "Review On Vehicular Communication Using Vehicular Networks", National conference on Medical Instrumentation, Biomaterials and signal processing, 2020
• Sharma, Sapna, Robinson Devasia, and Geetanjali Sharma. "A Ovel Low Power And Highly Efficient Inverter Design." International Journal of Information Technology 12.4 (2020): 1111-1116.

Special Achievements by Faculty

• Ms. Deepti Deshwal, Dr. Naveen Dahiya, Dr. Pardeep Sangwan, Dr. KP Chaudhary have successfully published a Patent titled "An automatic Sanitising Device" , November, 2020.
• Dr. Puneet Azad, Dr Shaifali M. Arora, Dr Neeru Rathee, Ms. Deepti Deshwal, Ms. Aman Dahiya received "Research Excellence Award" for outstanding contribution in the field of research by Surajmal Memorial Education Society in Jan,2020.
• Dr Meena Rao have been granted an offer letter to conduct an AICTE-ISTE Refresher program on "Use of ICT in Engineering Education"
• Dr Meena Rao has been awarded the best paper in the 2nd International Conference on Emerging Technologies in Data Mining and Information Security, Springer, 2nd-4th July 2020 in the session Track 4: Data Science and Data Analytics for the paper "Impact of Routing Protocols and Artificial Intelligence Techniques on adhoc networks in critical scenario"

• Aman Dahiya, Anand Pratap Singh, Dhirendra Kumar "Design Techniques of Substrate Integrated Waveguide (SIW) and its Microstrip Transitions," International multidisciplinary conference on current research trends-2020 (IMCCRT-2020), 19-20th september, Malaysia, 2020.
• Deepti Deshwal, Pardeep Sangwan and Divya Kumar, 2020. "A Language Identification System using Hybrid Features and Back-Propagation Neural Network". Applied Acoustics, Elsevier,164, p.107289. (SCI Indexed)
• Deepti Deshwal, Pardeep Sangwan and Divya Kumar, 2020. "A Structured Approach towards Robust Database Collection for Language Identification" In Proceedings of 21st IEEE International Arab Conference of Information Technology, Egypt, Nov 28-30, 2020

• Deepti Deshwal, Pardeep Sangwan, 2020. "A Comprehensive study of Deep Neural Networks for Unsupervised Deep Learning". Artificial Intelligence for Sustainable Development: Theory, Practice and Future Applications, Springer
• Deepti Deshwal, Pardeep Sangwan and Divya Kumar, Language Identification Performance Evaluation Using Spectral Processing (November 21, 2020). Proceedings of the 2nd International Conference on IoT, Social, Mobile, Analytics & Cloud in Computational Vision & Bio-Engineering (ISMAC-CVB 2020), Available at SSRN: https://ssrn.com/abstract=3734808 or http://dx.doi.org/10.2139/ssrn.3734808
• Pardeep Sangwan, Deepti Deshwal and Naveen Dahiya, 2020. "Performance of a Language Identification System using hybrid features and ANN learning algorithms". Applied Acoustics, Elsevier (SCI Indexed)
• Aman Dhaiya received IEEE Research Project on "Reconfigurable smart broadband Antenna for wireless Communication Devices" by Maharaja Surajmal Institute of Technology in January 2020.

Our faculty believes in Knowledge has a beginning but no end. Therefore to consistently acquire new skills time to time faculty members attend **various Worshops / Faculty development programs**. Some of them are:
• Dr. Archana Balyan, Ms. Poonam Dahiya, Ms. Anshul Pareek, Ms. Sakshi Rajput, Ms. Prinkle Tehlan attended a FDP on Mobile Broadband Transformation from 19th to 23rd October, 2020.
• Dr.Puneet Azad and Mr. Deepak Goyal attended a FDP on Universal Human Values in Education from 28th September to 2nd October, 2020.
• Dr. Sudesh Pahal attended a FDP on Nural Network and Deep Learning from 23rd to 27th November, 2020.
• Dr. Meena Rao attended a FDP on Cyber Security from 5th to 9th October, 2020.
• Dr. Shaifali M. Arora attended a FDP on Emergency Trends in OFC Technology from 19th to 23rd October, 2020.
• Dr. Neeru Rathee attended a FDP on Deep Learning for Computer Vision on 22nd September, 2020.
• Dr. Richa Gupta attended a FDP on Antenna Design and Analysis using Mathematical Solvers" from 7th to 12th September, 2020.
• Ms. Deepti Deshwal, Ms. Aman Dahiya and Ms. Geetanjali Sharma attended a FDP on ICT Tools for Teaching Learning process and institute on 10th August, 2020.
• Mr. Parveen Kumar attended a FDP on Developing Values &Ethics on 21st Sept, 2020.
• Ms. Nishtha Saroha and Ms. Vishaka Tomar attended a FDP on Antenna and modern wireless system from 3rd to 7th August, 2020.
• Ms. Preeti Sehrawat attended a FDP on IoT and Machine learning on 16th Nov, 2020.
• A special one week FDP has been organized for the faculty of ECE department on Machine learning. All faculty members from ECE had attended this FDP.

Student's Corner

Our Students Achiever's in GGSIPU Examinations :

Batch	Semester	First Position	Second Position
2016-20	7th	Abhishek Kapoor – 42315002816 secured 988/1100 marks (89.82%)	Piyush Bansal- 40515002816 secured 987/1100 marks (89.73%)
	8th	Abhishek Kapoor – 42315002816 secured 745/800 marks (93.13%)	Pushkar Malhotra – 41915002816 secured 737/800 marks (92.13%)
2017-21	5th	Samriddhi Prabhakar Raut – 05315002817 secured 1108/1200 marks (92.33%)	Chanchal Mishra- 20115002817 secured 1094/1200 marks (91.17%) .
	6th	Samriddhi Prabhakar Raut – 05315002817 secured 1061/1100 marks (96.45%)	Yukti Mohan – 06715002817 Secured 1047/1100 marks (95.48%)
2018-22	3rd	Yogendra Manral- 07715002818 secured 1002/1100 marks (91.09%) .	Shubham Bhardwaj- 05615002818 secured 979/1100 marks (89%).
	4th	Yogendra Manral- 07715002818 secured 1151/1200 marks and 95.92%.	Shubham Bhardwaj- secured 1139/1200 marks (94.92%).

Students Participation in Technical activities:

• Abhishek Parashar of 4th year is selected as a mentor at Deeplearning.ai and Google AI where he teaches Machine learning , Deep Learning, and data science to people.

• Abhishek Parashar of 4th year was the speaker of the talk and was invited by Jamia Hamdard University to speak about python, Machine Learning, and its possibilities.

• Rahul Mishra of 4th year participated in e-Yantra Robobtics Competition organized by IIT Bombay held on 8/2/2020.

• Nehal Singhal, Rakshit Satija, Richa Pathak of 4th year, ECE (members of team Brainiacs 101) year won the Smart India Hackathon Software Edition 2020 and won 1 Lac INR cash prize.

• Muskaan Jain of 4th year deployed a multilingual app at the Google Assistant platform and received 200$ google cloud store credit for a year along with other goodies.

• Saurav Kadian of 4th year reached semi-finals in Impromtu - Debating Competition held online on 8/29/2020

• Yukti Mohan of 4th year bagged 1st position at IMS Case Champions organised by the S.P. Jain School of Global Management on

• Kartik , Adarsh Bhaskar of 3rd year co-ordinated the Awareness campaign organized in Tihar Gaon on 10/22/2019

• Varun Jain of 3rd year bagged 7th position in Frontend Hackathon held online on 7/12/2020

• Abhishek Parashar of 4th year is a 3X Kaggle Expert with a world rank of 237 and an India Rank of -18. He has been contributing to Julia and Tensorflow as a developer and has got a cash reward for the same.

• Ishaan Gill of 3rd year participated in KubeCon and CloudNativeCon and received $2000 USD to attend the event in Amsterdam, Netherlands

• Tavneet Singh, Vimal Kumar Tripathi of 3rd year bagged 1st position at HackJNU V1.0, a hackathon organised by Jawaharlal Nehru University in February,2020.

• Tavneet Singh, Vimal Kumar Tripathi of 3rd year won 1st position at Smart India Hackathon 2020, national level Hackathon organized by AICTE in August virtually.

Students Participation in Extra-curricular activities:

• Eishan Deshwal of 2nd year participated in International Pre-ABP Debate2020 by wolce.org (Malaysian Organization) held on 9/19/2020. It was a 2v2 British Parliamentary debate. He was able to break as an individual adjudicator and given the opportunity to adje qualifying teams. He is a semi A level adjudicator in the debating circuit.

• Varun Jain of 3rd year bagged 2nd Position in KESARI Talent Hunt organized online on 8/15/2020

• Adarsh Bhaskar, Tavneet Singh, Vimal Kumar Tripathi of 3rd year won the Inter-department cricket tournament organized in February.

• Srishti Gupta of 3rd year organised Indian Youth Conclave. She led and sustained an entity of 45 members. She also led city wide events, community engagements, and also initiated student community building in 30+ Delhi colleges and impacted 1000+ students through online workshops. She also handled the finances of a youth fest and was able to successfully organize a 500+ delegate youth fest Indian Youth Conclave.

• Srishti Gupta of 3rd year organized the project - Social Library. She has been a part of LEAP which is a student community and a social service project devised to provide quality and all- around education and development opportunities to people from all ages, all sections and all walks of life. The project was adopted as the flagship project for Rotary International.

• Muskaan Rana of 3rd year is currently working as a content writer at Cinet IT Solutions. She has volunteered at NGO named Girlup Noor. She is Currently Working as Assistant Manager at Rana Properties

• Tavneet Singh of 3rd year has worked as a Data Science Intern at Pikkal & Co, a Singapore based B2B Podcast Consulting Agency. He has also been Selected as a Campus Datapreneur for an e-learning organization called StepUp Analytics in September.

• Eishan Deshwal of 2nd year was the breaking adjudicator and panelist various national and international debates including Japan BP 2020, Amsterdam open 2020 , Africa Inter-Varsity debate 2020 , The 8th Mukarji Memorial ProAm Debate 2020 (St.Stephens college DU) and has participated in many.

• Ankita of 4th year won bronze medal in Kabaddi tournament (Girls) organized by GGSIPU, Delhi on 10/9/2018

• Advet of 4th year cleared the first round of Indian Engineering Olympiad held on 2/24/2019

• Arundhati Baweja of 4th year organised the YEF Model United Nations as a part of her internship at the NGO Youth Empowerment Foundation in April 2020

• Eishan Deshwal of 2nd year participated in Asthana debate union BP debate 2020 and aotearoa open 2020 as an Independent adje represented MSIT and IPU in 2 major (over 100 participants) international events this month.

Projects Corner

ECE 8th sem students of 2016-20 batch have undergone 42 Major Projects during Jan -July2020. Most of the projects were developed using latest and trending technologies such as Internet of Things (IOT), Deep Learning, Machine Learning, Convolutional Neural Network (CNN), Recurrent Neural Networks(RNN).Some of the interesting projects are listed below:

Vasundhra Bhatt, Ujjwal Katyal and Vivek Kumar Shah have made a project on Library Management System.This project aims at hassle-free organizing and fetching of books in a library. It seeks to reduce student-teacher interaction. Students can simply login with their details to search for a book to know the shelf number. Teachers can also add new books to the database to make available for students. Login system assures that no outsider can access library

Kashish Mittal, Pushkar Malhotra have made a project on Antenna Design for Gain Enhancement.The stacked rectangular, cylindrical and conical geometries are analysed for increasing and decreasing stacked permittivity. 10 layer Cylindrical increasing permittivity stacking structure with permittivity varying from (11, 12…., 20) with height 1.5mm each provides narrow beamwidth of 37.38 degree.Different geometries have been studied and compared.10 layers stacked rectangular geometry with decreasing permittivity presents the highest gain (6.9 dB) compared to any other geometry along with reasonably controlled beamwidth.10 layer Cylindrical increasing permittivity stacking structure with permittivity varying from (11, 12…., 20) with height 1.5mm each provides narrow beamwidth of 37.38 degree.

Shashank,Yamini,Shubham Kumar karn,Janardan have made a project on Automatic Image captioning.It is a machine learning based project which uses Recurrent Neural network and Pretrained models to train the Images of the data set. It will generate an appropriate caption for a random input image after preprocessing the data. This caption can further be used for other purposes.

Chandan Gupta,Kartik Khandelwal,Mohit Jindal have made a project on Realtime Biometric Attendance Device.This project will take biometric attendance of users and store the data on a web server through IoT and has the ability to give reports in Excel format .

Students Internship

Internships are very important part of curriculum that gives students the opportunities to explore the professional world. Our students had done their internships from reputed organizations or institutes. Some of these are:

Samriddhi Raut of 4th year received IASc-INSA-NASI Summer Research Fellowship 2020

Chanchal Mishra of 4th year has received Summer Research Fellowship SRF by Indian Academy of Sciences-INSA, Bengaluru for the academic year 2019-2020

Abhishek Parashar of 4th year has interned at a tech startup based in the U.S.A named GetOnDemand as a Data Science intern

Ritvik Johar of 2nd year has been selected by PANASONIC India for an internship of 2 months.

Rakshit Satija of 4th year has done 5 month Research Internship with Baud Scientific (prev Baud Resources) .Baud Scientific is a scientific research company in the field of wind Turbines. They are developing the world's most efficient wind turbine with their multi patented technologies like WindTrain and DeepStorage.. He worked as an Electronics and Control and Project Management Research Engineer (Intern) and was the Youngest Intern (in 3rd year of Undergraduation) in the company to complete a research position internship.He got a chance to work under the founder's mentorship - Mr. Dishant Mishra. This experience was a wholesome development of his technical and non technical skills.

Saurabh Thakur of ECE, 4th year applied in Naaniz food pvt ltd for the role of machine learning intern.After having an interview and got selected. His team was assigned a task to develop indian food classification model using deep learning. They created 4 feed forward neural network layers to classify the food. After training we got an accuracy of 90 percent.

Placement Corner

More than 50 companies visited the campus for placement drive in the year 2019-20 for ECE students. Total job offers were around 209 and job heads around 121 against approximately 190 participating students. Students had participated in the campus drive of many reputed companies like Adobe, Amazon, Infosys, Accenture, TCS, Samsung R&D, Ion Trading, Polestar, etc. The highest salary package secured by ECE students was 27 LPA offered by Adobe, followed by 12 LPA by ION Trading and 10 LPA by LIDO learning.
 From time to time various mock tests, aptitude tests, technical tests and sessions are conducted for the students so that they are well prepared for the kind of questions and situations they will face during the recruitment process.

Seminars/Activities organised for students in the department:

Department is consistently organizing expert talks and seminars from various industries to enhance the knowledge of our students. Seminars organised during the year-

Seminar on "Skill development and its importance"

A seminar/workshop had been organized for the students of ECE 2nd year on "skill development and its importance in today's world" on 21st January 2020. The talk was given by Mr Parth Shukla from 9LedgePro.9LedgePro is a team of skilled knowledge workers whose mission is to assist students in developing skills and help students in obtaining Microsoft Certifications. He explained the importance of python programming language in the tech world. It is used in every branch of computer science like: Web Development, App Development, Machine learning etc. Furthermore, he informed about the Microsoft Student Partners (MSP) programme.

Expert talk on "Microwave Measurements: Interdisciplinary Area"

The Department of Electronics and Communication Engineering(ECE) organised the lecture on"Microwave Measurements: Interdisciplinary Area" on February 25, 2020. The lecture wasdelivered by highly accomplished expert Dr. S.K. Dubey ,Scientist, Apex Level Standards &Industrial Metrology, NPL, Delhi. He has been awarded URSI Young Scientist Award at 2nd URSI AT-RASC, Gran Canaria, Spain for his work on uncertainty evaluation in quantum system in April 2018.He gave an overview about biological effect of EM radiations, Electromagnetic Induced transparency, E-field Probes and sensors, SAR probes, microstrip antenna, Iot, 5G,millimeter waves, Lora and computational modelling of biological tissue in EM radiations. Dr Dubey talked about various ongoing DSD projects and various upcoming research fields in electronics and communications. He showed the video of a laser based music control project that is being done in his lab by his Ph.D. scholar.He guided the students about various fields in which they should pursue their projects. He offered students to visit his research lab in NPL and encouraged them to do or choose their minor/major projects in these areas. Overall, the lecture was highly educative and interesting for faculty as well as students of ECE department.

Webinar on "How to build strong CV and How to crack PI"

The Department of Electronics and Communication Engineering(ECE) organized a live webinar on "How to build strong CV and How to crack PI" on May 18, 2020. The lecture was highly Educative and interesting. The lecture was delivered by highly accomplished expert Mrs. Tarannum Naseem, she has an experience of 20+ years, in which she has mentored thousands of students & guided them to achieve their goals. The students of II, III, and IV year of ECE department attended this webinar.

Key highlights of webinar were:

● Invest in yourself and cash in on the time available during lockdown
● Learn to put your best foot forward with a powerful resume
● Grab the opportunity to learn the dynamics of an interview and
● How to ace the interview

The webinar was concluded with an extensive Question & Answer round.

Webinar on "Python + Machine Learning"

The Department of Electronics and Communication Engineering(ECE) organized a live webinar on "Python + Machine Learning" on September 18, 2020. Python and Machine learning are the two formidable scientific platforms, which are used in almost all areas of engineering. The lecture was highly educational and interesting. The lecture was delivered by highly accomplished expert Mr Nitin Shrivastva, in association with 4 Achievers, Noida. The students of II, III, and IV years of ECE department attended this webinar. This session introduced the basics of Python language, application of Python in Machine Learning, and various machine learning application-based projects to ECE students. The students were encouraged to pursue or choose their minor/major projects in these areas. The webinar was concluded with an extensive Question & Answer round.

Webinar on Career Options and Opportunities for Electronics Graduates"

Department of Electrical and Electronics Engineering (EEE) in association with Department of Electronics and Communication Engineering (ECE) organized a live webinar on "Career Options and Opportunities for Electronics Graduates" on 25th Sept 2020 for 3rd and final year students. Mr Renjith CV, an Electrical Architect- Medical imaging at Philips Healthcare was the speaker. He holds 18+ years of experience in Electronics/Embedded hardware & product design/testing.

Key points of the lecture were:-

● Opportunities in the core Electronics field.
● Product Development and Industry.
● Opportunities after Engineering (Higher Study/Job etc).
● Enhancement of skill sets and,
● The short term/online training in Embedded System, DSP, VLSI, AI/IoT etc.

Finally, concluding with an overview of the expectation from industries.During the webinar, students shared their doubts about the placements process.

Webinar on "Embedded System: Robotics and IoT"

The Department of Electronics and Communication Engineering(ECE) organized a live webinar
on "Embedded System: Robotics and IoT" on October 3, 2020. Embedded System is a scientific platform, which is extensively used in Robotics and IoT. The lecture was highly technical, educative and interesting. The webinar was conducted in collaboration with BLD Institute of Research. The students of II, III, and IV years of ECE department attended this webinar. This session introduced a complete journey from understanding to working with Embedded Systems, specifically in the applications of Robotics and IoT. The students were encouraged to pursue or choose their minor/major projects in these areas. The webinar was concluded with an extensive Question & Answer round.

Activities organized by Robotics and Automation Society IEEE

The Robotics and Automation Society of IEEE organized a webinar on April 23on YOLO Object detection which is a computer technology related to computer vision and image processing that detects and defines objects such as humans, buildings, and many such things.

IEEE RAS organized a webinar Honest Talks on Machine Learning on August 18, the IEEE MSIT Youtube channel

IEEE RAS organized a webinar Robotricks on August 25, that covered all the important aspects to get started with Robotics and tips on how to make a future in the field of Robotics and Automation.

IEEE RAS organized a webinar Let's meetup with the embedded system on 27th October 2020 to help students master electronics.

After the successful webinar, 2 Youtube series on the topics Machine Learning and Electronics were started on the IEEE MSIT Youtube Channel which would cover the basics as well as the advanced level knowledge.

Techfest of MSIT- AVENSIS 2020

Whenever we hear something like a tech fest, we immerse ourselves into the thoughts of new technical ideas, innovations, robotics, alluring colorful lights, unstoppable music , DJ's , creativity, and even savoring foods. We tend to bend our hunches towards competitions, huge crowds, cultural diversities and this indeed gifts a massive package of memories. Maharaja Surajmal Institute of Technology, successfully organised its annual technical fest- Avensis 2020 on January 8th and 9th. This year the techfest was organized by ECE & CSE department, Dr Shaifali M. Arora(Convener(ECE)), Dr Geetika Dhand (Co-Convener(CSE)) and Ms Poonam(Co-Convener(ECE)). The event was a remarkable success and witnessed a footfall of more than 1500 students from various reputed colleges. This 2 day extravaganza presented a plethora of exhilarating events which were challenging yet extremely intriguing. The Avensis team put in tremendous effort this year to make this event a huge success. It was indeed a challenge to organise and plan the fest in such a short span of time but with the hardwork and dedicated efforts of the whole Avensis team, the fest turned to a memorable event. AVENSIS presented a wide range of enrapturing events; it was a perfect blend of Technical as well as Non-Technical events. There were a total of 32 events held under Avensis 2020. The annual fest was conducted under four departments- Robotics, Fun and Creativity, Technical and Literary and Quizzes.

Technical articles:

"Turning Crisis into an Opportunity"
Indian Economy after Covid -19
NEHAL SINGHAL, 4th Year (2017-18 Batch)

Reflecting on 2020 one feels that COVID-19 was a lesson on life, that combined many learnings in one i.e. the fragility of life & uncertainty of future, the power of nature, what really matters and what does not in life and above all, the need to move on. The experience of this episode shall not only shape our social behavior going forward but will also impact how corporates and economies operate for years to come. It is well known that COVID-19 has not only been a public health crisis but has also severely impacted the economy in near term. However, the good news is that situation is improving. As life limps back to normalcy, the outlook for the Indian economy is positive.

Economic disruption caused by COVID-19 and the recent border standoff have galvanized the government into action and it has made the most of this environment by ushering in a flurry of long pending reforms, especially to boost domestic manufacturing. In my view, the current external environment is one of the finest that India has experienced in a long time on back of low interest rates globally, weak oil prices and likelihood of India benefiting from realignment of global supply chain.

COVID-19 was akin to a flood that causes damage but also leaves behind silt, nutrients, etc., thus improving the fertility of soil for years to come. While COVID-19 has caused deep pain to individuals/society and near-term economic disruption but has also led to ample global liquidity and favorable environment for increase in manufacturing. These factors coupled with accelerated pace of reforms focused around improving India's local manufacturing and a conducive environment to gain share in global manufacturing has the potential to put Indian economy back on a high growth trajectory on a sustained basis.

Design and Analysis of Synchronous Energy Harvesting circuit topologies
### Chanchal Mishra, Samriddhi Raut, Simran Agarwal, 4th Year (2017-18 Batch)

Energy harvesting from ambient resources like mechanical vibrations, acoustic energy, etc., are of growing interest to the researchers. Amongst the various available sources of energy, this project focuses on the design and analysis of power management circuitries (PMCs) for piezoelectric sources owing to their varied application from mechanical to the biomedical field. The interface of energy harvesting circuits (EHCs) requires to perform maximum power point tracking (MPPT) for optimum performance. Adding to this, it is essential to set the damping and charge delivering mechanism in a way that delivers the required amount of power to the load not all the time, but only when it is required, independently.

One such topology we investigated is a dual switch synchronous electric charge extraction circuit (DSSECE) as depicted in the figure. It is based on the principle of transferring the charge across the inductor on detecting a peak in the input signal. With the experimental validation of the above topology, we concluded the independence of DSSECE on load resistance, thus providing a promising topology for energy harvesting and storage applications.
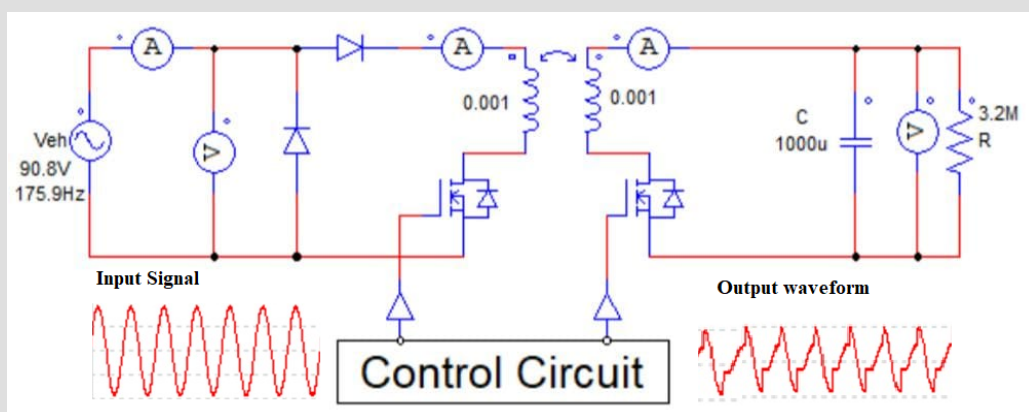
Smart Monitoring & Fault Detection of Sewer System Project
Mishti Gautam ,Pankaj Saroha, , 4th Year (2017-18 Batch)

The Smart Monitoring and Fault Detection System of the Sewer helps civic authorities to rectify faults in a proactive manner, to overcome the problems found in the legacy Sewer System. It has been designed in such a way that it will monitor height of sewage wastewater flowing inside the pipes & manholes with the help of Ultrasonic sensor (HC-SR04), the temperature and the release of harmful gases with the help of Temperature sensor (DHT-11) and Gas sensor (MQ-2) respectively. The Raspberry Pi is the main component of this model which works as the brain of the system. It will fetch real-time data from the sensors and store it in a cloud. The ThingSpeak Cloud platform has been used in this project. Working as a real-time data collector, the sensors send their readings to the Raspberry Pi which thereafter uploads it on the cloud. Cloud is accessible by the Civic authorities where they can keep a track of live conditions of the pipes & manholes and take appropriate measures in case there are any variations from the ideal conditions.
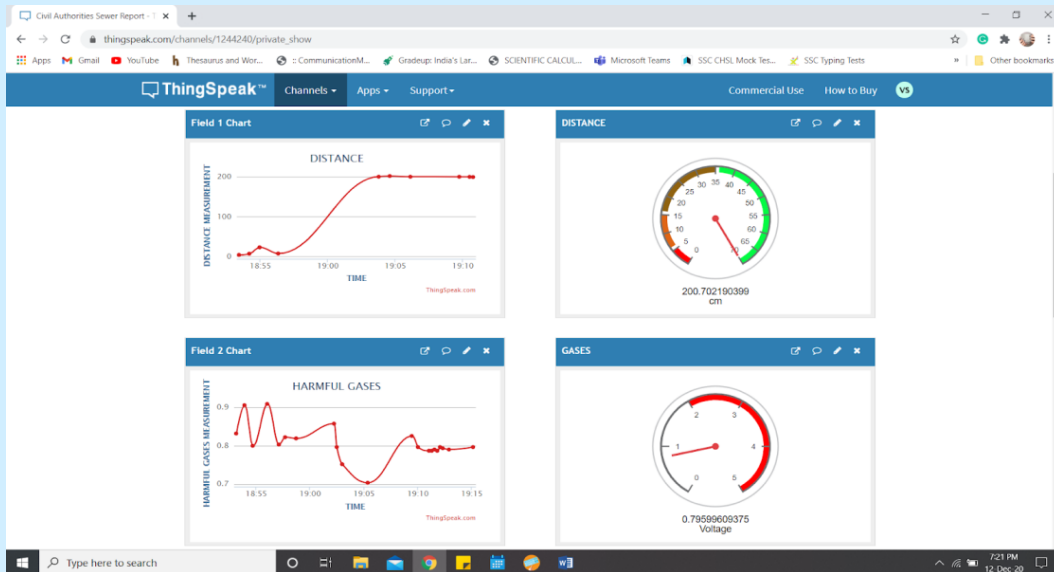
Intelligent Security system for the post Covid Era (Electronic Key based)
Rakshit Satija, Kapil Sehrawat, Nandni Verma,ECE 4th year (2017-18 Batch)

The aim of the project is to create a Electronic key based smart lock, which is unlocked using the various facilities like Mobile app based on WiFi functionality, OTP that is received on the caller's phone using the SMS service. In this post covid era, this touchless system can be implemented to decrease the spread of Corona Virus. Higher level of security in the system is an added advantage. For its operation, A sim card module is connected to microcontroller through UART pins. A text message will be received by the user specifying the One time password for the lock. When the user enters the OTP, the controller will check for the right password and then open the lock. The mobile app and smart lock embedded system will be connected to the internet using the wifi functionality.

Automatic Number Plate Recognition System Using MATLAB
Himanshi, Ece Department, Maharaja Surajmal Institute Of Technology, Delhi

This article presents a new technique to use Automatic Number Plate Recognition. This system plays a significant role throughout this busy world, owing to rise in use of vehicles day-by-day. The current scenario happening in India is, people, break the rules of the toll and move away which can cause many serious issues like accidents.

A new algorithm in MATLAB which has been used to extract the number plate from the vehicle in various luminance conditions. Extracted image of the number plate can be seen in an excel file with date-and-time.

MATLAB have large library functions and set of tools. It provides advanced algorithm for high numerical computation. For plotting and displaying data, 2D and 3D graphics are supported. Online help is present which is very much helpful for new user.

This system can be developed as mobile applications which can be used to

a) Retrieve the details about the owner of the vehicle.

b) Place complaint about rash driving online.

Other applications such as unmanned parking lots, finding stolen cars, identification of vehicle in traffic and security of vehicle can be developed.

Automated Home Security with Raspberry pi
Rohit Gupta, Rohit Raj, Tushar Ratwal

Secure homes even when you are not at home is a project worth investing. Automated home security system has double layer of security. Facial recognition to recognize between an authorized and the unknown visitor. It works on Raspian operating system and Dliblibrary to precisely recognize the face.

For double verification the visitor has to provide a frequency based RFID tag that works on SPI protocol and EM field. At each step a TFT display screen will show the prompts to further proceed the verification. After verifying the tag, the system allows the visitor to enter through automatic door that is controlled by the Servo Motorsonce the person enters, the door closes automatically after a delay preventing the door left open erroneously.