



ANNUAL NEWSLETTER

YEAR : 2021



महात्मा ज्योतिबा फुले
रुहेलखण्ड विश्वविद्यालय, बरेली

**FACULTY OF ENGINEERING AND TECHNOLOGY
M.J.P. ROHILKHAND UNIVERSITY , BAREILLY**

ELECTRONICS AND COMMUNICATION ENGINEERING

FROM THE EDITOR'S DESK

Work like you don't need the money. Love like you've never been hurt. Dance like nobody's watching. Sing like nobody is listening. Speak like a confident speaker. Act like an actor. Write like a poet. Suming up , try to be perfect at each and every thing you want to do. The one who gives his/her best and be responsible towards his/her duty will never be failed in his work. Whole universe is running behind the success, the glamour world, the luxurious life and wanna be richie rich, but they forget about how to work? how to behave with others? how to deal with the situation? the running man forget about the moral values, discipline, regularity, humanity which he should maintain until his death. So achieve the success but with peace , with continuing the moral values, without harming anyone.



EDITORIAL MEMBERS

DR. CHHAVI SHARMA
(Assistant Professor , ECE Dept)



SHIVAM
(19EC40 , EC IIIrd Year)



SMRITI SINGH
(19EC48 , EC IIIrd Year)



OUR DEPARTMENT



The Department of Electronics & Communication Engineering was established in 1995.

The Electronics & Communication Engineering course provides comprehensive knowledge of the subject through coverage of relevant contemporary issues. The focus is on sharpening analytical as well as designing skills and problem solving abilities based on sensitivity to the rapidly changing environment, and a firm grasp of right values. The course structure is dynamic and is reviewed periodically to strengthen existing courses and introduce new ones in keeping with the requirements of the environment. A variety of individual and group learning projects that provide the participants with exposure to real - world instrumentation issues are taught.



DEPARTMENT MISSION

The mission is to inculcate a spirit of scientific and analytical thinking and train the students in contemporary to meet the challenging needs of the industry by providing versatile sound knowledge in the field of Electronics and Technology

DEPARTMENT VISION



Our vision is to develop the department into a full fledged center of learning in various fields of Electronics and Communication Engineering keeping in view the latest developments and to invoke enthusiasm among the students to continually renew their education in rapidly developing technological scenario.

FACULTY MEMBERS

Prof. (Dr.) Manish Rai (H.O.D.)

Prof. (Dr.) S K Tomar

Dr. Hari Kumar Singh

Dr. Chhavi Sharma

Mrs. Inderpreet Kaur

Mr. Sumit Srivastava

Mr. Janak Kapoor

Dr. Saurabh Pathak

Mr. Varun Pratap Singh

ELCOM BITS

A Brigade of Innovation in Technology for Social Cause

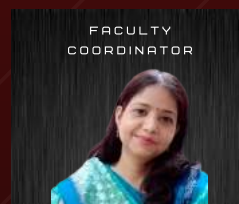
ELCOM BITS, the club of ECE Department was established in the year 2014. Previously it was known as Activity Club . It was renamed as ELCOM BITS in 2021 with the motivation for innovation in Technology for social cause. Many of the events were organised under this club, after the grand success of the events the club became more powerful and now it is considered to be one of the best club of our university. The club helps the students to explore themselves in the field of Technology, graphic designing, coding and cultural activities.



AIM AND VISION

The Aim and Vision of ELCOM BITS is to gain exposure for the students in latest technology and innovate their ideas and make a productive item. The main aim of the club is to build interest in students about the technologies like iot, Arduino, robotics etc.

COORDINATORS



Dr. Chhavi Sharma
(Assistant Professor, ECE)



SHIVAM



SMRITI SINGH



JAY VARSHNEY



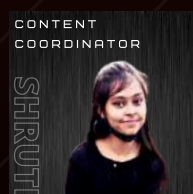
SHREYASI PANDEY



ANUSHKA



SHIVAM BHARDWAJ



SHRUTI JAISWAL



ANKIT MISHRA



ADARSH PATEL

AAGAAZ 2K21

JAN 1, 2021 - JAN 10, 2021

ELCOM BITS organized a talent hunt event "AAGAAZ 21" on 1st January 2021. Due to COVID 19 restrictions, the event took place in online mode. The main aim of the event was to help the students showcase their hidden talent. The event received great response from the faculty and the students. Students participated in the event through online mode where they submitted their short videos showcasing their talent. Winners of the event were announced on the official social media handle of ELCOM BITS CLUB.

The idea for the event was suggested by the Club's Head Coordinator Shivam (3rd Year)



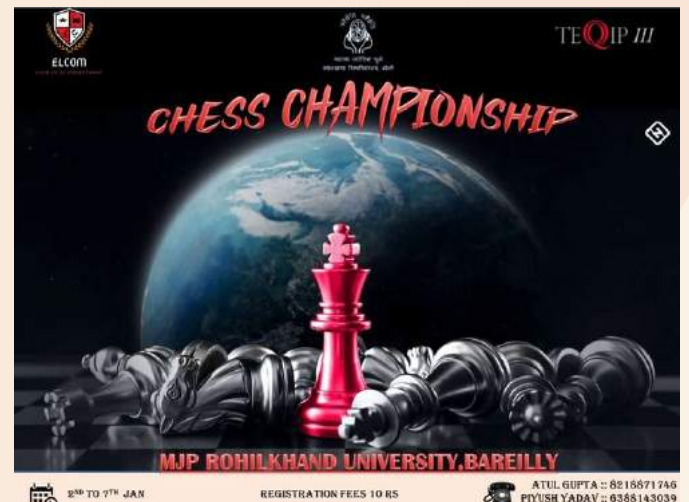
CATEGORY	RANK 1st	RANK 2nd	RANK 3rd
DANCING	Himanshu Bharti (EC 2 YEAR)	Dyoti Vaishnavi (EC 2 YEAR)	Shabaneh Ratan (EC 1 YEAR)
SINGING	Nisant Kumar Kanwar (EC 1 YEAR)	Tanuja Sharma (EC 1 YEAR)	Shruti Tawad (EC 2 YEAR)
INSTRUMENTAL	Karande Kunal Sone (EC 2 YEAR)	Swabhram Shant (EC 1 YEAR)	-----
POETRY	Shakti Singh (EC 2 YEAR)	Kumar Shekshola Sany (EC 2 YEAR)	-----
SPEECH	Aman Shek (EC 1 YEAR)	Shruti Agrawal (EC 2 YEAR)	Mohd Naveer (EC 2 YEAR)
PAINTING	Nisant Kumar Kanwar (EC 1 YEAR)	Ujjwal Kumar Subbarth (EC 1 YEAR)	Ashu Gaur (EC 1 YEAR)
MOTIVATIONAL SPEECH	Ward Ayesh (EC 4 YEAR)	-----	-----

Prof. A.V.S. Deepak (Faculty Coordinator)
Shivam [EC 2nd yr]
Jay Varsaney [EC 2nd yr] (Event Coordinator)

CHESS CHAMPIONSHIP

JAN 2, 2021 - JAN 7, 2021

A Chess Championship was organized by ELCOM BITS CLUB on 25th December 2021. The event was successfully headed by club coordinator Piyush Yadav (4th Year) and Atul Gupta (4th Year). The event received great response from the faculty and the students. Winners of the event were awarded with a cash prize and they were featured on the official social media handle of ELCOM BITS CLUB.



WEBATHON 1.0

MAY 15, 2021



Webathon 1.0, a front end challenge was organised by the coordinator members under the ELCOM club held on 15, 17, 20 May 2021. The event comprised of a webinar in which listeners were explained about Web Development by Mr. Alok Kumar. Audience found the session very informative and it was all about HTML, CSS, JavaScript, etc.

Further, the event comprised of designing a web page and the rules for designing the webpage were further mentioned in the guidelines which was being circulated in all the departments of the university. Around 90-100 entries were being received.

The performance of all the candidates were really outstanding. And finally the results were declared as shown here. The idea was being introduced to the team by Shreyasi Pandey. Overall feedback of all the participants were being taken and it could be rated as one of the wonderful event being organised under ELCOM club of EC Department.

	RANK 1ST	RANK 2ND	RANK 3RD
1ST YEAR	GAURAV PANDEY CSIT 1ST YEAR	AGRIMA AGRAWAL CSIT 1ST YEAR	SURYA PRATAP EC 1ST YEAR HANSIKA SHARMA CSIT 1ST YEAR
2ND YEAR	HIMANSHU SINGH CSIT 2ND YEAR DHRUV MISHRA CSIT 2ND YEAR	ANKITA GAUTAM CH 2ND YEAR	JATIN KUMAR CSIT 2ND YEAR

@ELCOM_MJPRU WWW.FACEBOOK.COM/ELCOMMJPRU CLUB ELCOM

JASHN-E-AZAADI

AUG 15, 2021



Jashn-e-azaadi was organised by the club members on the occasion of Independence Day. It was held in online mode since it was a nationwide lockdown period due to the COVID-19 pandemic. The situation was worsened during that time but still the members managed to organise everything well.

RESULTS	
Jashn-e-Azadi	
WINNERS	
POETRY	SINGING
1st-ASTHA PANDEY (B.Pharm 1st YEAR)	1st-HARSHITA BAUDOH (B.Pharm 1st YEAR)
2nd-SHAKTI SINGH (CSIT 2nd YEAR)	2nd-PRIVANSHI PANDEY (EC 2nd YEAR)
3rd-KIM SHIKHA (CH 2nd YEAR)	3rd-TEJASWI (CH 2nd YEAR)

The events comprised of Singing And Poetry . It was being performed by the participants on the online platform Google Meet which was little challenging for the Organisers as well as participants. But with the efforts of all, everything was well organised. The results of the poetry and singing are listed as above.

LIVE WEBINAR

SEPT 11, 2021



Mahatma Jyotiba Phule Rohilkhand University, Bareilly
महात्मा ज्योतिबा फुले रूहेलखण्ड विश्वविद्यालय, बरेली
A State University – Government of U.P.; NAAC Accredited; ISO 9001:2015 Certified



LIVE WEBINAR

**A GUIDANCE PROGRAM
ON CAREER OPPORTUNITIES
AFTER B.TECH.**

11th Sept., Saturday | 04:00 PM to 05:30 PM



Speaker
Mr. Pradeep Raghu
ACE Academy Faculty,
M.Tech - NIT Warangal,
Geomatics and Railway engg.
Helping and guiding the
student community with
ACE Engg. Academy since 2016



Chief Patron
Prof. K.P. Singh
Hon'ble Vice Chancellor,
M.J.P. Rohilkhand University,
Bareilly



Patron
Prof. S.K. Pandey
Dean, Faculty of Engg. & Tech,
M.J.P. Rohilkhand University,
Bareilly



Convener
Prof. Manish Rai
HOD, EC Engg,
Faculty of Engg. & Tech,
M.J.P. Rohilkhand University,
Bareilly



Co-Convener
Prof. S.K. Tomar
Dept. of EC Engg,
M.J.P. Rohilkhand University,
Bareilly



Co-ordinator
Dr. Chhavi Sharma
Dept. of EC Engg,
M.J.P. Rohilkhand University,
Bareilly



Scan QR Code
for Registration
or go to the link...

<https://forms.gle/jeSPzD9yAoDLz7Vc8>

In Association with:
ACE
Engineering Academy
Leading Institute For ESE/GATE/PSU

**DEEP
LEARN**

www.mjpru.ac.in

Dated Sep 11,2021 a webinar was held for the student of EC department to give them a broader and clearer view of guidance on career opportunities after B. Tech course. Where speaker Mr Pradeep Raghu made young Minds understood about the opportunities they can grab. In presence of ECE faculty a total of 82 students joined. This webinar was in coordination with Ace Engineering Academy (Engineering Academy for ESE/GATE/PSU) the cutoff for various colleges and courses after btech we discussed with the help of previous year stats. Mr Pradeep Raghu compared a lot of exams. Further important subjects for GATE, PSU through Gate was discussed ,students also came to know about PMRF scheme and developed some kind of interest in students for Fellowship and research. In end it turned out to be very useful for students who were confused somewhere for their career.

ABHYUDAYA

OCT 2, 2021

"ELCOM BITS" a renamed club of EC Department organized an event on 2nd October,2021 on the occasion of the Birth Anniversary of Mahatma Gandhi Ji and Lal Bahadur Shastri Ji. It was the event, which was kept on the special occasion , so as to remember our great leaders who did a lot for this country. The main motive of this event was to recall the teachings and practices of Mahatma Gandhi.

In this event there were two competitions:

1. Sketch Competition:
Theme: Sketch of any freedom fighter.
2. Quiz:
Quiz based on Freedom Fighters.
Total No. of Questions=20.

Sketch Competition Winners:

1. Himadrika Bharti [EE 3rd Year]
2. Ashish Kumar [EC 2nd Year]
3. Vijay Deep Rawat [EE 3rd Year]

*Total Number of Participants : 9.

Quiz Competition Winners:

1. Injamamul Haque [ME 3rd Year]
2. Apoorv Saxena [EE 3rd Year]
3. Anant Tiwari [EC 4th Year]

*Total Number of Participants : 30

ELCOM BITS PRESENTS

|| अभ्युदय ||

A VIRTUAL EVENT

"YOU MUST BE THE CHANGE YOU WISH TO SEE IN THE WORLD"

SKETCH QUIZ

2nd October 2021

Scan And Register

11:00AM

For any query, Contact : Abhinav Jaiswal (6307673923) ,Vaishnavi Sahai (6389498570)

SEMINAR

OCT 5, 2021

IEEE SB MJPRU organised a learn with senior type program on Arduino. The lecture was presented by Piyush Yadav EC 4th year student, who is well experienced in the field of Arduino. This seminar was held on 5 October 2021, it was just an introductory session of Arduino and electronic basics. After the over of session, there was conduction of quiz through Kahoot app. The quiz was conducted on the same topic as explained. The winner of the quiz was Shivam of EC IIIrd year.



IEEE STUDENT BRANCH
MJP ROHILKHAND UNIVERSITY
Student Branch Code: 5TB20138

organizes

Learn With Senior
Arduino & Quiz Competition

SPEAKER
Mr. Piyush Yadav
B.Tech ECE 4th Year

Register Here: <https://tinyurl.com/5xth3c9y>

DATE: OCT 05
TIME: PM 01:00
VENUE: T & P Cell

ieeesbmjpru | ieeesbmjpru | ieeesbmjpru



INTERACTION WITH SENIORS

OCT 10, 2021



ELCOM BITS
Presents

Interaction With Seniors

Ravi Mishra
Mobile Application Developer
Amar Ujala Publications

B.Tech
Electronics And Communication
Engineering (2015-2019)
(IET MJPRU)

DATE: 10.10.2021
TIME: 12:00 pm
VENUE: Google Meet

elcom_mjpru | ClubElcom | www.facebook.com/elcommjpru

“ELCOM BITS CLUB” of Electronics and Communication Department organised an informative webinar on 10th October, 2021 which emphasised on “Career Opportunities in Mobile Application Development”. The Webinar was taken by Er. Ravi Mishra. (B Tech. 2019 Pass Out from ECE stream). The webinar was really very informative as it gives us an opportunity to know about what to do in our future. How to make the attempts and be successful in them. The respected sir gave us the brief idea about the fields we can go for in our career. He was very confident and clear in his speech, he motivated us and guided us the best he can.

*Total no. of Attendees : 50

Social Work

OCT 26, 2021

Team "ELCOM BITS" took this Initiative to do some social work, so we decided to collect the donations as much as we can, and donated it to the orphanage (Arya Samaj , near Civil lines, Bareilly) This was on 26th October, 2021.

First we went to the boys orphanage, gifted them with the goodies and then continued the same with the girls orphanage. Their reaction was too soothing and we really felt blessed after doing this. We with the help of our respected faculty members, were successful in doing this and we also got the opportunity to meet the children and know about the way they are living, their schooling etc.



INTERACTION WITH SENIORS

NOV 25, 2021



Interaction with seniors was the short seminar type session held in EC department, where we met our pass out seniors who are well placed at some other companies. They came and guided us to step further for our goals. They also shared their experience about the exams they qualified. It was very motivating and interesting session, in which we were able to ask any doubts about our career. The host of this seminar was Shantanu Shankar 2014 passed out who is now working as government official as project manager.



TECH MANTHAN 2021

JAN 1 ,2021 - JAN 10 , 2021

Tech Manthan organised by ELCOM BITS on 17th December, 2021. This event was comprised of two competitions, Technical Quiz followed by Technical Exhibition. It was conducted in offline mode. It was one of the successful event. The winners of the Technical Quiz were -

- 1) Shakti Gangwar
- 2) Zainul
- 3) Ankur Singh

Department of Electronics And Communication Engg.
M.J.P. Rohilkhand University, Bareilly (U.P.)

ELCOM BITS Presents

TECH MANTHAN

- QUIZ-A-THON (Individual)
- TECHNICAL EXHIBITION (Team of Max. 4 Members)

Scan And Register

17/12/2021 12:30 AM

Training & Placement Cell MPRU

elcom_mjpru ClubElcom elcommjpru



Technical exhibition was also very crowded, there were about 30 projects for display. The projects including Accident prevention glasses, Radar tracking system, Line following robot were exhibited by students. We also collected the reviews which were considered to be excellent.



TechManthan was successful only because of the Organisers - Shivam Sharma, Smriti, Piyush, Anushka, Jay, Subodh, Shruti, Shreyasi, Shivam Bhardwaj, Yogita, Abhinav, Arman, Titiksha, Vaishnavi, Renu, Rajat, Ashutosh, Aditya, Rupesh, Dhananjay, and Mansi.

A special thanks to Dr. Chhavi Sharma (Faculty Coordinator) and Dr. Manish Rai (H.O.D. , ECE) for their support and guidance.



CLASS REPRESENTATIVES (CR)

ECE 1st Year :



Divyanshu Pandey
(21EC06)



Sofiyana
(21EC18)

ECE 2nd Year :



Rajat Kumar Singh
(20EC45)



Vaishnavi Sahai
(20EC62)

ECE 3rd Year :



Rohan Maurya
(19EC36)



Smriti Singh
(19EC48)

ECE 4th Year :



Piyush Yadav
(18EC30)



Swati Sagar
(18EC51)

TOPPERS 2021

ECE 1st Year :

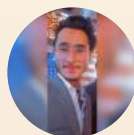


Sania Akhtar
(YGPA-9.12)

ECE 2nd Year :



Shruti Jaiswal
(YGPA-9)



Noorain Raza
(YGPA-9)

ECE 3rd Year :



Anjali Maurya
(YGPA-8.3)

ECE 4th Year :



Shubham Tiwari
(DGPA-8.53)



TECH TALKS

• MARS ROVER

It is a motor vehicle that travels across the surface of planet Mars. They can advance the knowledge of how to perform very remote robotic vehicle control. As of May 2021 there have been six successful robotically operated Mars rovers, the first five were managed by NASA -

- 1) Sojourner (1997)
- 2) Opportunity (2004)
- 3) Spirit (2004)
- 4) Perseverance (2021)
- 5) Curiosity (2012)



PERSERVERANCE MARS ROVER

It is a car-sized Mars Rover designed to explore the crater Jezero on Mars.

The main job of the Perseverance rover is to seek signs of ancient life and collect samples of rock. It was prepared by the Jet Propulsion Laboratory. The Perseverance Mars Rover has the following parts -

- 1) Body - A structure that protects the rover's vital organs.
- 2) Electrical Powers - Batteries and Powers
- 3) Wheels & Legs - Parts for mobility
- 4) Brain - Computer to process information
- 5) Temperature Controls - Internal heaters, a layer of insulation.
- 6) Communication - Antennas for speaking and listening
- 7) Neck and head - A mast for the camera to give the rover a human scale view
- 8) Eyes and ears - Cameras and instruments that give the rover information about its environment
- 9) Arm and Hand - A way to extend its reach and collect rock samples for study

-Smriti Singh (EC IIIrd Year)



• What is 5G?

Fifth-generation wireless (5G) is the latest iteration of cellular technology, engineered to greatly increase the speed and responsiveness of wireless networks. With 5G, data transmitted over wireless broadband connections can travel at multigigabit speeds, with potential peak speeds as high as 20 gigabits per second (Gbps) by some estimates. These speeds exceed wireline network speeds and offer latency of 1 millisecond (ms) or lower, which is useful for applications that require real-time feedback. 5G will enable a sharp increase in the amount of data transmitted over wireless systems due to more available bandwidth and advanced antenna technology.

How does 5G work?

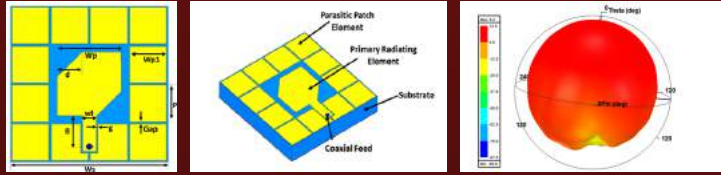
Wireless networks are composed of cell sites divided into sectors that send data through radio waves. Fourth-generation (4G) Long-Term Evolution (LTE) wireless technology provides the foundation for 5G. Unlike 4G, which requires large, high-power cell towers to radiate signals over longer distances, 5G wireless signals are

transmitted through large numbers of small cell stations located in places like light poles or building roofs. The use of multiple small cells is necessary because the millimeter wave (MM wave) spectrum-- the band of spectrum between 30 and 300 gigahertz (Ghz) that 5G relies on to generate high speeds -- can only travel over short distances and is subject to interference from weather and physical obstacles, like buildings or trees.

• Design & Simulation of Low Profile Wide Band Circularly Polarized Patch Antenna

These days, numerous Wi-Fi frameworks such as satellite, climate radar frameworks, Wi-Fi local area networks, and lots of extra had been relegated to perform in C-band (4-8 GHz). The purpose is that the C-band recurrence has various benefits over different recurrence bands like much less interference as well as compact antenna size compared to the lower frequency band. CP is one of the promising features of antennas on account that it may reduce multipath reflections and also gain loss due to misalignment between transmitting and receiving antennas. Satellite communication system, radio frequency identification system, Wi-Fi system, line of sight communication system any many more system demands CP antenna. Microstrip Patch Antennas are one of the best appropriate applicants for the circularly polarized antenna. Microstrip antenna became most popular in the 1970s primarily for space-borne applications. When conformal and low profile microstrip antennas are required, the Microstrip antenna is that the most appropriate choice. This kind of antenna additionally has the advantage of minimal cost and weight, reproducibility, design simplicity and ease of installation. The rectangular and circular patches are more popular, due to their simple analysis and their attractive radiation characteristics. Among the diverse available configuration of a circularly polarized patch antenna, a single-fed patch antenna is commonly favored because of its minimal profile, low fabrication complexity, and simplicity of integration with the RF network as well as low fabrication cost. However, this type of antenna suffers from a narrow impedance in addition to axial ratio bandwidth. Consequently, considerable investigations were done to enhance the BW of the single-fed CP patch antenna. Hypothetically, a single-fed Circularly Polarized fix receiving wire is having limit working transmission capacity (~3%), which isn't appropriate for present-day remote frameworks since of their necessity for wideband operation. Therefore, a lot of attempts have been placed concurrently to enhance the axial ratio (AR) Bandwidth of the circularly polarized patch antenna with coaxial fed like stacking, slot techniques such as U, C, Z- slot, aperture coupling, L-shape probe feeding techniques, meta-material, defected ground plane, etc.

Most of the antennas reported in the literature are using multiple or complex feed networks or having multi layers configuration of dielectric material. Designing of wide band single feed CP patch antenna on single layer dielectric material is very much challenging. In this paper, parasitic elements along with primary stub loaded corner truncated patch antenna have been used to enhance the axial ratio and impedance bandwidth simultaneously.



-Vibhor Verma (EC IVth Year)

• Internet of things (IoT)

The Internet of things (IoT) describes physical objects (or groups of such objects) that are embedded with sensors, processing ability, software, and other technologies that connect and exchange data with other devices and systems over the Internet or other communications networks.

The field has evolved due to the convergence of multiple technologies, including ubiquitous computing, commodity sensors, increasingly powerful embedded systems, and machine learning.[1] Traditional fields of embedded systems, wireless sensor networks, control systems, automation (including home and building automation), independently and collectively enable the Internet of things. In the consumer market, IoT technology is most synonymous with products pertaining to the concept of the "smart home", including devices and appliances (such as lighting fixtures, thermostats, home security systems and cameras, and other home appliances) that support one or more common ecosystems, and can be controlled via devices associated with that ecosystem, such as smartphones and smart speakers. The IoT can also be used in healthcare systems

There are a number of concerns about the risks in the growth of IoT technologies and products, especially in the areas of privacy and security, and consequently, industry and governmental moves to address these concerns have begun, including the development of international and local standards, guidelines, and regulatory frameworks.



• What is Industry 4.0?

Industry 4.0 refers to the fourth industrial revolution, although it is concerned with areas that are not usually classified as industry applications in their own right, such as smart cities.

Generally-speaking, Industry 4.0 describes the growing trend towards automation and data exchange in technology and processes within the manufacturing industry, including:

- The internet of things (IoT)
- The industrial internet of things (IIoT)
- Cyber-physical systems (CPS)
- Smart manufacture
- Smart factories
- Cloud computing
- Cognitive computing
- Artificial intelligence

This automation creates a manufacturing system whereby machines in factories are augmented with wireless connectivity and sensors to monitor and visualise an entire production process and make autonomous decisions.

Wireless connectivity and the augmentation of machines will be greatly advanced with the full roll out of 5G. This will provide faster response times, allowing for near real time communication between systems.



• VLSI Technology

Very large-scale integration is a process of embedding or integrating hundreds of thousands of transistors onto a singular silicon semiconductor microchip. VLSI technology's conception dates back to the late 1970s when advanced level processor (computer) microchips were also in their development stages. Two of the most common VLSI devices are the microprocessor and the microcontroller.

VLSI refers to an integrated circuit technology with numerous devices on a single chip. The term originates, of course, in the 1970s, along with various other scale integration classifications based on the number of gates or transistors per IC.

The remarkable growth of the electronics industry is primarily due to the advances in large-scale integration technologies. With the arrival of VLSI designs, the number of possibilities for ICs in control applications, telecommunications, high-performance computing, and consumer electronics as a whole continues to rise.

Presently, technologies like smartphones and cellular communications afford unprecedented portability, processing capabilities, and application access due to VLSI technology. The forecast for this trend indicates a rapid increase as demands continue to increase.

The Advantages of VLSI Technology.

The following are the primary advantages of VLSI technology:

- Reduced size for circuits
- Increased cost-effectiveness for devices
- Improved performance in terms of the operating speed of circuits
- Requires less power than discrete components
- Higher device reliability
- Requires less space and promotes miniaturization



• What is MIMO (multiple input, multiple output)?

MIMO stands for Multiple-In Multiple-Out, referring to the fact that when a packet is transmitted into the channel it transmitted on more than one antenna and when it comes out of the channel it is received on multiple antennas. This is in contrast to a Single-In Single-Out system with one antenna on both ends of the link, or a SIMO system which would include some types of radios that use diversity combining at the receive end but still transmit over only a single antenna. Multiple antennas at the transmitter and receiver introduces signaling degrees of freedom that were absent in SISO systems. This is referred to as the spatial degree of freedom. The spatial degrees of freedom can either be exploited for "diversity" or "multiplexing" or a combination of the two. In simple terms, diversity means redundancy.



• Way to induce magnetism in Graphene

Graphene is quite the 'wonder material' in Electronics, with wonderful qualities. No wonder, then, that it is set to revolutionize the Electronics industry.

Magnetism, however, isn't one of its properties. Recently, a technique has been developed to make graphene magnetic, even as its other properties are preserved.

Graphene has many desirable properties. Magnetism alas is not one of them. Magnetism can be induced in graphene by doping it with magnetic impurities, but this tends to disrupt graphene's electronic properties. Now physicists have found a way to induce magnetism in graphene while also preserving graphene's electronic properties. They have accomplished this by bringing a graphene sheet very close to a magnetic insulator -- an electrical insulator with magnetic properties.



STUDENT ACTIVITIES





FRESHER'S PARTY



2019

FRESHERS



2020

FRESHERS

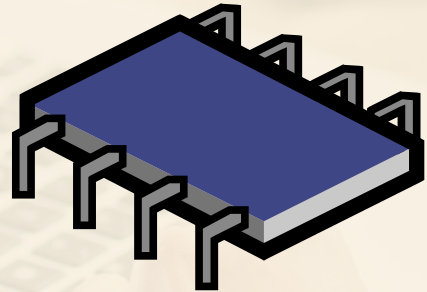


COMPETITIVE EXAM SITES

- GATE 2022 & JAM 2022 - <https://gate.iitkgp.ac.in>
- Indian Engineering Services - <https://www.upsc.gov.in/examinations/Engineering+Services+%28Preliminary%29+Examination%2C+2021>
- JRF - <https://main.icmr.nic.in/content/junior-research-fellowships-jrf>
- CAT - <https://iimcat.ac.in/>
- GRE (Graduate Record Exam)
- GMAT (Graduate Management Admission Test)
- XAT (Xavier Aptitude Test) - <https://xatonline.in/>
- MAT 2022 - <https://mat.aima.in/feb22/>
- AFCAT 2022 - <https://afcat.cdac.in/AFCAT/>

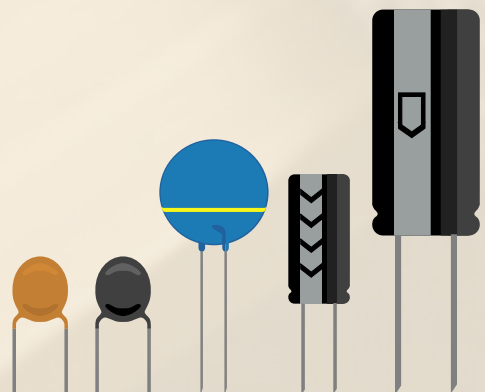
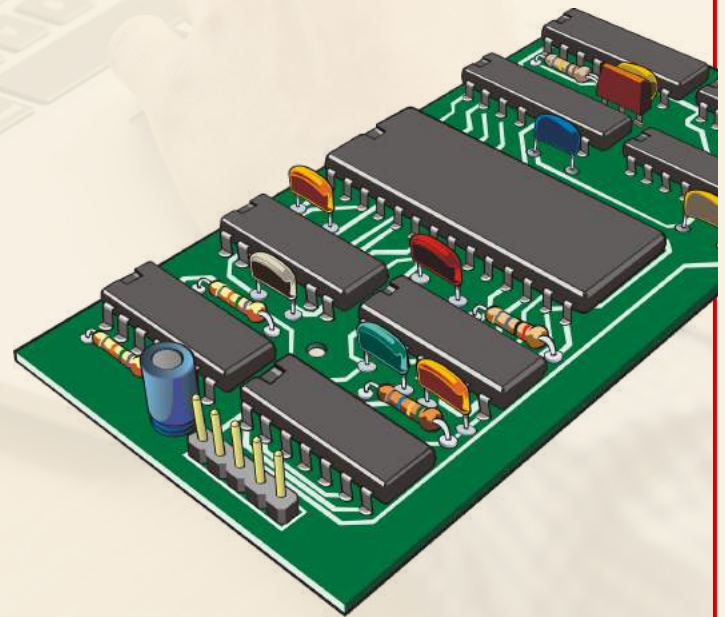
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- <https://www.godaddy.com/>
- <https://www.microchip.com/>
- <https://www.best-electronics-ca.com/>
- <https://www.electronicsforu.com/>
- <https://en.wikipedia.org/wiki/Electronics>
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- Shruti Jaiswal
- Jay Varshney
- Arman Khan
- Abhinav Jaiswal
- Renu Gangwar
- Vaishnavi Sahai
- Titiksha Sharma

" To succeed in your mission, you must have single-minded devotion to your goal. "

-Dr. A.P.J. Abdul Kalam

This is the beginning.....