



Lokmanya Tilak Jankalyan Shikshan Sanstha's
Priyadarshini Bhagwati College of Engineering, Nagpur

An Autonomous Institution Affiliated to R.T.M. Nagpur University, Nagpur



ACCREDITED BY NAAC GRADE 'A'

Harpur Nagar, Umred Road, Nagpur- 440024



ElectroSphere

(2022-2023)

DEPARTMENT OF ELECTRONICS & COMMUNICATION
ENGINEERING



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ABOUT COLLEGE



PRIYADARSHINI BHAGWATI COLLEGE OF ENGINEERING, AN AUTONOMOUS INSTITUTE, WAS ESTABLISHED IN THE ACADEMIC YEAR 2007 AND IS ONE AMONG THE FAST-GROWING TECHNICAL INSTITUTES IN THE REGION WITH A VIEW TO IMPART HIGH-QUALITY TECHNICAL EDUCATION TO THE ASPIRANTS OF TECHNICAL EDUCATION IN THE FIELD OF ENGINEERING. THE COLLEGE IS SITUATED IN THE HEART OF NAGPUR CITY AT HARPUR NAGAR ON THE MAIN UMRED ROAD, AT A DISTANCE OF ONLY 5 - 6 KMS FROM RAILWAY STATION AND 2.5 KMS FROM BUS STAND. IT IS WELL CONNECTED BY RAIL, ROAD AND AIR ROUTES. THE COLLEGE IS IN DEVELOPING STAGE, WELL EQUIPPED WITH ALL KIND OF NECESSARY INFRASTRUCTURE AND QUALIFIED AND DEDICATED FACULTIES. IT IS SET UP ON 06 ACRES LAND SITUATED WELL WITHIN THE CITY AREA AT NAGPUR - THE ORANGE CITY.

VISION & MISSION OF THE INSTITUTE

VISION

To be a leading institution ensuring Academic Excellence, Nurturing Research, Innovation and Entrepreneurial Attitude to produce employable technocrats for service to society.

MISSION

1. To be a student centric institute imbining experiential, innovative and lifelong learning skills, addressing societal problems.
2. To create a conducive ecosystem for Research, innovation & extension services.
3. To inculcate entrepreneurial attitude and values amongst Learners.
4. To Collaborate with Industries and other institutions to strengthen symbiotic relations.
5. To inculcate high ethical and moral values among the students.



PRIYADARSHINI BHAGWATI COLLEGE OF ENGINEERING



DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

VISION OF THE DEPARTMENT

To cultivate global engineers who excel in Electronics & Communication technology and innovation, driven by high-quality education, research, student empowerment, ethical leadership, and entrepreneurship to positively impact the society..

MISSION OF THE DEPARTMENT:

M1: To educate for innovation and societal impact.

M2: To Provide an industry-relevant, technology-driven learning environment.

M3: To foster entrepreneurial skills for value-based technological solutions.

M4: To collaborate with industry and academia to ensure curriculum relevance.

PROGRAM EDUCATIONAL OBJECTIVES OF THE DEPARTMENT :

PEO1: Graduates will utilize their knowledge and skills to build successful careers, contributing to industry innovation and demonstrating leadership.

PEO2: Graduates will develop strong analytical and problem-solving skills to tackle real-world engineering challenges, using modern techniques to address societal needs.

PEO3: Graduates will uphold ethical standards in their professional conduct, considering societal and environmental impacts, and commit to continuous learning throughout their careers.

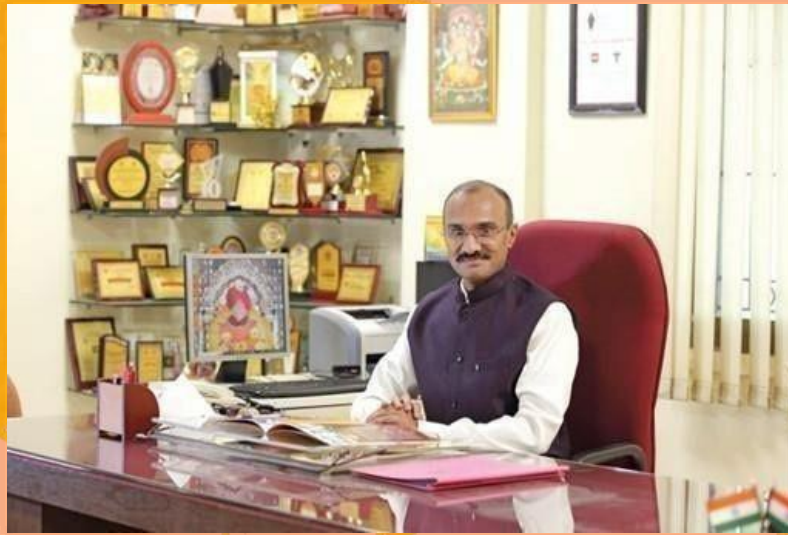
PROGRAM SPECIFIC OUTCOMES (PSOs)

PSO-1: The graduate will be able to analyze and develop solutions for real-time problems, applying knowledge in Electronics and communication, signal processing, embedded systems, devices, circuits, and emerging technologies, using mathematical and engineering fundamentals to meet industry requirements.

PSO-2: The graduate will be able to Apply hardware/software skills and E&C knowledge for system design, analysis considering societal & environmental aspects, leading to employment or entrepreneurship.

PROGRAM OUTCOMES OF THE DEPARTMENT:

1. **Engineering Knowledge:** Students will be able to apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. **Problem Analysis:** Students will be able to identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences
3. **Design/Development of Solution:** Students will be able to 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.
4. **Investigation:** Students will be able to 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.
5. **Modern Tool Usage:** Students will be able to 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.
6. **Engineer and Society:** Students will be able to apply reasoning informed by contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to professional engineering practices.
7. **Environment and Sustainability:** Students will be able to understand the impact of professional engineering solutions in societal and environmental contexts and demonstrate knowledge of and need for sustainable development.
8. **Ethics:** Students will be able apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. **Individual and Team Work:** Students will be able to function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary setting.
10. **Communication:** Students will be able to communicate effectively on complex activities.
11. **Project Management & Finance :** Students will be able to understand and apply engineering and management principles to manage projects in multidisciplinary environments.
12. **Life-long Learning:** Students will be able to engage in independent and lifelong learning in broadest context of technological change.



**From the Desk of
Dr.N.K. Choudhari, Principal, P.B.C.O.E, Nagpur**

I am truly delighted to connect with you through this year's edition of Departmental Magazine, "ASCONIC," for the academic year 2022-2023. The task of publishing a magazine today is certainly a formidable one. Department has evolved over the years without losing its vibrancy, continuing to create an environment that allows each of you to thrive and blossom, spreading your unique fragrance wherever you go. Remember, "THERE ARE NO SHORTCUTS TO HARD WORK AND NO REWARDS WITHOUT SACRIFICE." Believe in your potential. The keys to success are a positive mindset, unwavering perseverance, passionate commitment, and self-confidence. As you explore the pages ahead, you will discover significant milestones our department has achieved this year. Moreover, our talented students have shared their thoughts, ideas, aspirations, and convictions in imaginative ways. I extend my heartfelt congratulations to Dr. Amita Thakare the editorial board, for unlocking the creativity and potential of our students.



**From the Desk of
Dr. D.M. Kate, HOD, ECE**

It is both a pleasure and an honor to welcome you to the Department of Electronics and Communication at Priyadarshini Bhagwati College of Engineering, Nagpur. Our dedicated members and non-teaching staff, along with our well-equipped laboratories and create a dynamic learning environment.

Since its inception, our department has consistently evolved, organizing a variety of co-curricular and extracurricular activities such as poster-making competitions, seminars on recent technology, and events focused on opportunities after graduation. We also host various technical and non-technical events, including quizzes, all aimed at fostering the overall development of our students through the EC Student Forum.

This message emphasizes the department's commitment to outcome-based education that combines practical learning, critical thinking, and problem-solving. Students are encouraged to apply their knowledge through hands-on lab work to build confidence and skills. Teachers serve as facilitators, nurturing student talents. The magazine aims to showcase the department's strengths, faculty, and students' talents and ideas. The speaker wishes success for this initiative.



**From the Desk of
Mr. A. D. Landge, Forum Incharge, ASCONIC**

Everyoe has dreams, and so do we. One of our longstanding dreams has been the creation of "ASCONIC" I am delighted to present this edition of our departmental magazine. More than just a collection of articles, this magazine serves as a vibrant tapestry of emotions and creativity, capturing the events organized by both our faculty and students. The combined efforts of the magazine committee have made this edition a resounding success.

I would like to express my sincere gratitude to our management, our principal Dr. N.K.Choudhari, for their unwavering support and guidance.

Additionally, I want to extend my heartfelt thanks to Dr.(Ms.) D.M.Kate, the HOD of EC, for his constant encouragement. I also appreciate the hard work of our student editors, Chaitanya Akhud and Nishant Dahare, who have dedicated themselves to shaping this magazine into its current form.

SUPPORTING PILLARS OF DEPARTMENT



Dr. D.M. Kate, HOD, ECE



Dr. S.B. Dhoble



Dr. P.R. Bokde



Dr. P.M. Palkar



Dr. P.N. Yerkewar



Mr. A.D. Landge



Dr. A.P. Thakare



Dr. T.U. Pathan



Ms. M.S. Dhanvijay

EDITORS



Mr. Nishant Dahare



Mr. Chaitanya Akhud

Message from EDITOR:

All choices you ever made into your Life have brought you to where you are today" Use your time pursuing your dreams and never give up because the struggle you go through today will build the strength for tomorrow. Electroverse is an attempt to explore diverse skills and activities of the department.

I thank my mentors for my guidance and inspiration.

Imagine, Believe and Achieve

Mr. Chaitanya Akhud

Mr. Nishant Dahare

EDITORS (ASCONIC)

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President



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Vice President



Mr. Yash Rangari
Secretary



Mr. Tejas Telange
Treasurer

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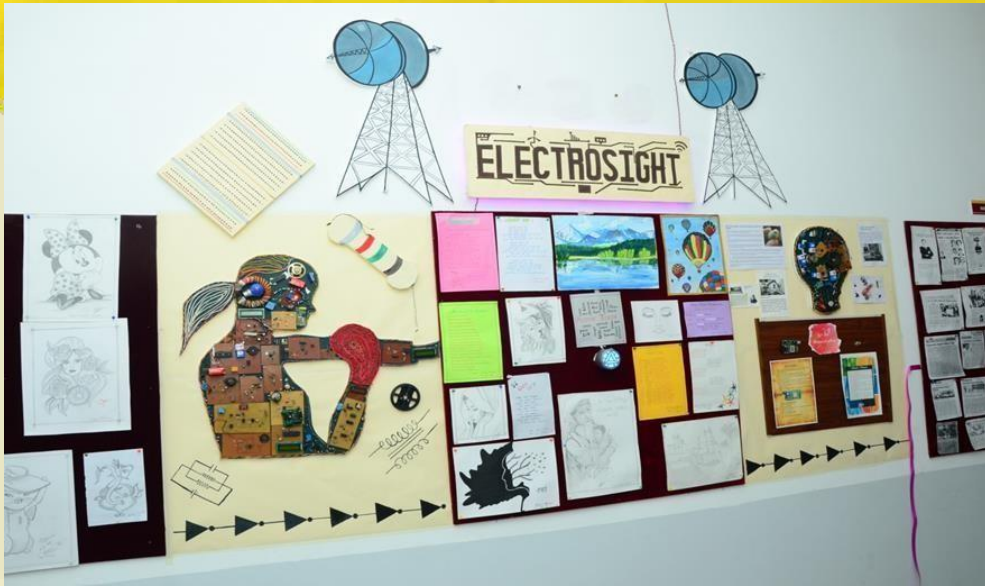
Ms. Samiksha Ganvir

Data Management Committee:- Mr.Rajat Parate (Student Inchagre)

Ms.Sakshi Ghangare

Mr. Shubham Bawankar

“POSTER COMPETITION”



Date of Event :- 15/10/2022



WALL MAGZINE

“Workshop on Embedded System & Applications”

Date of Event :- 24/08/2022



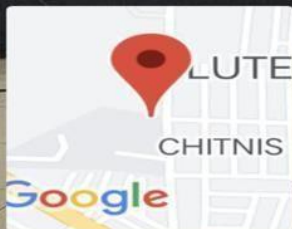
To provide information about latest Embedded software and hardware development tools being used in industry and to create awareness among students about future challenges and industry demand. delivered by Mr. Parag Tembhone, Admire Tech Vision LLP. On 24th August 2022

“CULTURAL DAY OF ASCONIC STUDENT FORUM”

Date of Event :- 18/10/2022



RAMP WALK



Nagpur, Maharashtra, India

Plot No. 7A, Pawansut Nagar, behind Nirmal Nagari, Dhanwantari

Nagar, Chitnis Nagar, Nagpur, Maharashtra 440009, India

Lat 21.120654°

Long 79.126257°

18/10/22 12:23 PM GMT +05:30

GPS Map Camera

Forum Cordinators

“A vibrant celebration of talent, tradition, and togetherness marked the Cultural Day of the ASCONIC Student Forum on 18th October 2022.”

“DEPARTMENTAL SPORTS”

Date of Event :- 17/10/2022



CARROM BOARD



CHESS



TABLE TENNIS

“Promoting teamwork and healthy competition, the Departmental Sports was successfully organized on 17th October 2022. ”

Guest Lecture on IT Career



To provide information about latest software development tools being used in industry and to create awareness among students about future challenges and industry demands of software development delivered by Mr. Kishor Nilatkar , Technical Architect/ Director, Automechano Technologies on 17/12/2022.”

SKETCHES



Aditi Mokdan



Shrutika More



Purva Ganorkar

Artificial Intelligence (AI) in Communication

Artificial Intelligence (AI) has become a transformative force in the field of communication, enabling networks and systems to become smarter, more efficient, and more secure.

By leveraging advanced algorithms, machine learning, and natural language processing, AI enhances how information is transmitted, received, and processed across various platforms. One of the most significant applications of AI is in network optimization. AI algorithms analyze traffic patterns and predict demand, allowing networks to manage data flow efficiently and reduce congestion. This results in faster, more reliable connections for users.

Another critical area is security. AI-powered systems can detect and prevent cyber threats by identifying unusual activity and anomalies in real-time, safeguarding data integrity and privacy. AI also plays a vital role in signal processing improving the clarity and quality of transmitted data by filtering noise and enhancing signal strength. Additionally, AI-driven virtual assistants and chatbots are revolutionizing customer service by providing instant, accurate responses, reducing wait times, and improving user experience.

Core AI technologies such as machine learning, deep learning, and natural language processing (NLP) enable systems to learn from data, understand human language, and adapt to new situations. These advancements lead to more intuitive and responsive communication systems. Impact and Future Outlook AI's integration into communication networks leads to self-healing and predictive maintenance capabilities, minimizing downtime and operational costs. Future developments point toward fully autonomous networks capable of dynamic adaptation to changing conditions, ensuring seamless and secure communication globally.

Dr. Amita Thakre
Assistant Professor

Airtificial Intelligence in daily life

Artificial Intelligence (AI) is one of the most advanced technologies in today's world. It refers to machines or computer systems that can perform tasks which normally require human intelligence, such as learning, thinking, and decision-making.

AI is now a part of our daily lives, even if we don't always notice it. For example, voice assistants like Siri and Google Assistant use AI to understand and respond to our commands. Similarly, apps like YouTube and Netflix suggest videos and movies based on our preferences using AI algorithms.

In the field of healthcare, AI helps doctors diagnose diseases more accurately and quickly. In transportation, it is used in navigation systems and self-driving cars. Online shopping platforms use AI to recommend products and improve customer experience.

However, AI also has some disadvantages. It may lead to job loss in certain sectors as machines replace human workers. There are also concerns about privacy and data security.

Despite these challenges, AI has a bright future. It can improve efficiency, save time, and make life easier. With proper use and regulation, AI can bring great benefits to society.

In conclusion, Artificial Intelligence is a powerful tool that is transforming the world. It is important to use it wisely for the betterment of humanity.

Mr.A.D Landge
Assistant Professor

Smart Antennas



Smart antennas, also known as adaptive antennas, are advanced antenna systems that dynamically modify their radiation patterns to improve communication quality. They are widely used in modern wireless networks to enhance signal strength, reduce interference, and increase capacity. Smart antennas use multiple antenna elements combined with signal processing algorithms to electronically steer the beam towards desired users or signals. This process, called beamforming, allows the antenna system to focus energy in specific directions, optimizing the connection and minimizing interference from other sources. Switch between predefined directions to target users. Adaptive Array Antennas: Continuously adjust the beam pattern based on real-time signal measurements for optimal performance. Enhanced Signal Quality: Focused beams improve received signal strength and clarity. -Increased Capacity: Multiple users can be served simultaneously with minimal interference. Reduced Interference: Targeted beams prevent signals from interfering with other devices. Directional transmission extends the reach of wireless signals. A Smart antennas are used in cellular networks (such as 4G and 5G), Wi-Fi systems, satellite communications, and radar systems. They are essential for improving network efficiency and supporting high data rates in crowded environments. Smart antennas represent a significant advancement in wireless communication technology. By intelligently directing signals, they enable faster, more reliable connections, and pave the way for the future of high-capacity, interference-resistant wireless networks.

Dr.T.U.Pathan
Assistant Professor

Importance of Sports

Sports play a vital role in the overall development of a person. They are not only important for physical fitness but also for mental well-being and personality development. In today's fast-paced and technology-driven world, where people spend most of their time on screens, sports provide a much-needed break and help maintain a healthy lifestyle.

One of the main benefits of sports is that they keep the body physically fit. Regular participation in sports activities like cricket, football, running, or swimming improves strength, stamina, and flexibility. It also helps in maintaining a healthy weight and reduces the risk of diseases such as obesity, diabetes, and heart problems. A healthy body leads to a healthy mind, making sports an essential part of life.

Apart from physical health, sports also contribute to mental development. Playing sports helps reduce stress, anxiety, and depression. It refreshes the mind and improves concentration and focus. Students who participate in sports often perform better in academics because they are more active and disciplined.

Sports also teach important life skills. They help in developing teamwork, leadership, and communication skills. When individuals play in a team, they learn how to cooperate with others, respect rules, and handle both victory and defeat. These qualities are very important for success in personal and professional life.

Moreover, sports build confidence and character. Winning a game boosts self-confidence, while losing teaches valuable lessons about patience and perseverance. Sports encourage a positive attitude and help individuals face challenges with courage. In addition, sports can also provide career opportunities. Many people become professional athletes and represent their country at national and international levels. Events like the Olympics and World Cup inspire young individuals to take sports seriously.

In conclusion, sports are an essential part of a healthy and balanced life. They not only improve physical fitness but also develop mental strength and life skills. Therefore, everyone should take part in sports regularly to lead a happy, healthy, and successful life.

Dr.P.N Yerkewar
Assisatnt Professor

Climate Change and Its Effects

Climate change is one of the most serious global challenges facing the world today. It refers to long-term changes in temperature, weather patterns, and environmental conditions on Earth. Over the past few decades, climate change has become more noticeable due to human activities such as deforestation, industrialization, and the burning of fossil fuels.

One of the main causes of climate change is the increase in greenhouse gases like carbon dioxide and methane in the atmosphere. These gases trap heat from the sun, leading to a rise in the Earth's temperature, a phenomenon known as global warming. As a result, glaciers are melting, sea levels are rising, and weather patterns are becoming unpredictable.

The effects of climate change are widespread and harmful. Extreme weather events such as floods, droughts, cyclones, and heatwaves are becoming more frequent. These natural disasters not only damage property but also lead to loss of life. Agriculture is also affected, as changing weather conditions reduce crop yields and threaten food security.

Climate change also has a significant impact on wildlife and ecosystems. Many species are losing their natural habitats and struggling to survive. Coral reefs, forests, and polar regions are especially vulnerable. If this continues, it could lead to the extinction of many plants and animals.

Human health is another area affected by climate change. Increased temperatures can cause heat-related illnesses, while pollution leads to respiratory problems. The spread of diseases may also increase due to changing environmental conditions.

However, climate change can be controlled if proper steps are taken. Reducing the use of fossil fuels, promoting renewable energy sources like solar and wind power, and planting more trees can help reduce greenhouse gas emissions. Governments and organizations around the world are working together to address this issue, but individual efforts are equally important.

Tejas Telange
4th sem Ec

The Foundation of Success

Discipline is one of the most important qualities a person can develop in life. It is the ability to control one's behavior, follow rules, and stay focused on goals. Without discipline, it becomes very difficult to achieve success in any field.

A disciplined person manages time effectively and completes tasks on schedule. Students who follow a disciplined routine perform better in their studies because they avoid distractions and focus on their work. Discipline also helps in building good habits such as punctuality, honesty, and responsibility.

In addition, discipline plays a major role in personal and professional life. It helps individuals stay organized and handle challenges with patience. People who are disciplined are respected by others and are more likely to achieve their goals.

Moreover, discipline improves self-control. It teaches individuals to make better decisions and avoid harmful activities. Whether it is maintaining a healthy lifestyle or working towards a career goal, discipline is essential.

In conclusion, discipline is the key to a successful and meaningful life. It helps individuals grow, achieve their dreams, and lead a balanced life.

Yash Rangari
4th sem Ec

Importance of Technology in Education

Technology has revolutionized the education system in recent years. It has made learning more interactive, accessible, and effective for students all over the world.

With the help of technology, students can attend online classes, access study materials, and learn from anywhere at any time. Digital tools such as smart boards, educational apps, and online videos make learning more interesting and engaging.

Technology also allows teachers to explain complex topics in a simple and visual way. This improves understanding and helps students remember concepts better. Additionally, online platforms provide opportunities for self-learning and skill development.

However, excessive use of technology can also be harmful. Students may get distracted by social media or become dependent on gadgets. Therefore, it is important to use technology wisely and maintain a balance.

In conclusion, technology is a powerful tool in education. When used properly, it can greatly enhance the learning experience and help students succeed.

Tanushree Dabekar
6th sem Ec

Importance of Clean Environment

A clean environment is essential for a healthy and happy life. It includes clean air, water, and surroundings that are free from pollution.

Pollution caused by vehicles, industries, and waste harms the environment and human health. It leads to problems such as respiratory diseases, water contamination, and climate change.

Maintaining cleanliness in our surroundings is the responsibility of every individual. Simple actions like not littering, recycling waste, and reducing plastic use can make a big difference.

Governments and organizations also play an important role in maintaining environmental cleanliness by implementing strict rules and promoting awareness.

In conclusion, a clean environment is necessary for the well-being of all living beings. We must work together to keep our surroundings clean and safe.

A clean environment improves our quality of life. It reduces the spread of diseases, creates a pleasant atmosphere, and supports biodiversity. People living in clean surroundings are generally healthier and happier.

In conclusion, a clean environment is necessary for the well-being of all living beings. We must take responsibility and work together to keep our surroundings clean and safe for present and future generations.

Samiksha Ganvir

Importance of Self-Confidence

Self-confidence is the belief in one's abilities and skills. It plays a crucial role in achieving success and overcoming challenges in life. A confident person is not afraid to take risks and face difficulties. Self-confidence helps individuals express their ideas clearly and make decisions effectively. It also improves performance in studies, career, and personal life.

Lack of self-confidence can lead to fear, hesitation, and missed opportunities. Therefore, it is important to develop confidence through practice, positive thinking, and self-belief.

Moreover, self-confidence helps in building strong relationships and handling criticism. It encourages individuals to keep trying even after failure.

In conclusion, self-confidence is essential for success and personal growth. Believing in oneself is the first step towards achieving great things in life.

Lack of self-confidence can lead to fear, hesitation, and missed opportunities. People may doubt their abilities and avoid taking important steps in life. Therefore, it is important to build confidence through practice, positive thinking, and self-belief.

Self-confidence also plays an important role in personal relationships and professional life. It helps individuals communicate effectively, handle criticism, and face failures with courage. Every failure becomes a learning experience for a confident person.

In conclusion, self-confidence is the key to success and personal growth. Believing in oneself is the first step towards achieving great things in life.

Ritesh Ramtekkar
4th Ec

FAREWELL CEREMONEY

“A heartfelt farewell ceremony was held on 17/05/2023, celebrating memories, achievements, and new beginnings for the outgoing students.”

As you step into the next chapter of your life, we want to wish you all the best for the future. May this new journey bring you success, happiness, and countless opportunities to grow and achieve your dreams.

Remember, every ending is a new beginning. Embrace the future with confidence and optimism. We believe in your potential and are excited to see all the great things you will accomplish.

Good luck and all the best for what lies ahead!





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