INSPIRE ZONE

Ambalika Institute Of Management And Technology

DEPARTMENT OF APPLIED SCIENCES

DEPARTMENTAL MAGZINE – (JANUARY 2023)

Editorial Board

From HoD Pen

Mr. Sunil Kumar Singh
sunilkumarsingh@ambalika.co.in

Dear Students,

I am proud of your efforts in creating this student magazine. It is a platform for you to showcase your talents, creativity and skills. I encourage you to continue exploring new topics, thinking critically and independently, and using this publication to spark discussions on important issues.

Remember, education is essential in shaping your future. Make the most of your time here, strive for excellence and take advantage of opportunities to grow and develop.

Congratulations to all who have contributed to this magazine. I look forward to your future successes.

Best regards,

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Inside This issue

Dear Readers,

Welcome to the latest edition of our student academic magazine. It is with great excitement that we present to you a diverse range of articles, features and perspectives, showcasing the exceptional talents and abilities of our student body.

In this edition, we delve into a range of subjects, from the latest developments in science and technology, challenges and opportunity in education and engineering. Our aim is to provide a platform for students to share their ideas and opinions, and to engage in meaningful discourse on the topics that matter most to them.

At the heart of this magazine is a belief in the power of education to transform lives and shape the future. Our aim is to inspire and challenge our readers to think critically, to question conventional wisdom, and to seek out knowledge and understanding.

We are also committed to creating a supportive and inclusive community, where all students feel valued and heard. We believe that by working together, we can achieve great things, and we are proud to be part of a student body that is so rich in diversity and talent.

In conclusion, we hope that this magazine will serve as a source of inspiration and motivation for our readers, and that it will help to foster a love of learning and a commitment to academic excellence.

Thank you for your support and we hope you enjoy this edition.

Dr. Avneesh Kumar Singh
Associate Professor
avneeshkumarsingh@ambalika.co.in

Challenges and Opportunities in Engineering

Science is concerned with what is possible while engineering is concerned with choosing, from among the many possible ways, one that meets a number of often poorly stated economic and practical objective

- By Richard Humming

It is not a secret that the engineering industry is struggling against a widespread skill. Technology is developing rapidly but can engineers *a big question.* To maintain and sustain many crucial aspects of our lives ensuring that we have enough people with the right skill and experience. We also need to upskill and reskill the current workforce for the current and future work place.

The development of heavy engineering industry is one of the top priorities of a nation and is also a major indicator of its economic growth but one of the main problem with this sector is the gap in term of technological maturity *Ex- The Indian market and the developed market.*

India produces a large number of engineers every year but there is gap between their ability and industrial ability. In order to overcome this, there must be learning and development programs as well as innovation labs, R&D labs, Tests and validation centres. In order to bridge the technical gap that exist, the government as well as R&D Institutes must take the initiative.

The problem of finance is another drawback for this industry. In current scenario, the interest rates for financing the equipment is quite high in the construction industry and need to be reduced significantly.

Engineering is a varied, stimulating and important career but we need to work harder than ever to ensure that it's a career choice and not only inspire young people into engineering but also the whole sector needs to improve the quality, targeting and reach of activities designed to attract talent to the industry.

There are various community and commitment covering common goal for better future of engineering and engineers also how to increase the diversity and number of young people entering engineering careers. A number of initiative exist to encourage girls to study engineering and results also encouraging to see that the number of women working in engineering grown from 562,000 in 2010 to 936,00 in 2021.But, the fact that women represent only 16.5% of engineering sector is a serious concern. Women make up half the population, but we draw on such a small proportion of their talent that's why we and the whole engineering sector needs to work harder to drive changes.

The Engineering sector is crucial not only to our economy, but also to our everyday lives it is not without it's share of challenges.

Engineering contains an extended range of job opportunities and specialization. All engineers use science and Maths as their bases to solve problems. The field of engineering offers more career choices than any other discipline, From building a tower to designing a spaceship. Engineers are employed across academic institute, government departments and various other industries.

According to Oxford University research, 40% more jobs in engineering will be available at the end of 2030.

The Indian engineering sector is the strategic importance to the economy owing to its intense integration with other industry segments. India's engineering R&D market will increases in the coming years the *make in India* policy is being carefully pursued to achieve self sufficiency in the defence equipment sector including aircrafts. Demand in the engineering sector is expected to remains healthy primarily on accounts of governments increased trust on infrastructure development. Fresh investments in the power equipments metal, oil, gas and petrochemical industries expected to drive the growth momentum in the capital goods industries in the near years

Engineering and design services such as new product designing, product improvements, maintenance and designing manufacturing system are increasingly getting outsourced. India's engineering sector has a significant potential for future growth both in manufacturing as well as services sectors.

BY

Aditi Singh, IT, Sec G

Ambalika Institute of Management & Technology

New innovations in Science and Engineering

These are just a few examples of the many exciting advancements in science and engineering. It's an exciting time to be involved in Science and engineering are constantly evolving fields, with new innovations and discoveries being made all the time. Here are a few of the latest advancements in these fields:

Artificial Intelligence: AI has made tremendous strides in recent years, with new algorithms and models being developed that can perform tasks that were once thought to be the sole domain of human intelligence. This includes things like image and speech recognition, natural language processing, and even decision making.

5G Technology: The next generation of wireless technology, 5G, promises to revolutionize the way we communicate and connect with each other. With faster speeds and lower latency, it will enable new applications and services, such as autonomous vehicles and smart cities.

Quantum Computing: Quantum computing has the potential to revolutionize many areas of science and engineering, from cryptography and drug discovery to finance and logistics. This is because quantum computers can solve certain types of problems much faster than classical computers.

Biotechnology: Advances in biotechnology are leading to new treatments and therapies for a wide range of diseases and conditions. For example, CRISPR-Cas9 is a powerful tool that allows scientists to make precise edits to the DNA of living organisms, potentially leading to cures for genetic diseases.

Robotics: Robotics technology has advanced significantly in recent years, leading to the development of new and more sophisticated robots for a variety ,healthcare, and space exploration.

Renewable Energy: The world is moving towards more sustainable forms of energy, and there have been many innovations in this area involved in these fields, and there is no doubt that there will be many more innovations and breakthroughs in the years to come recent years. For example, advances in solar and wind power technology have made these forms of energy more cost-effective and widely available.

These are just a few examples of many exciting advancements in science and engineering. It's an exciting time to be involved in these fields, and there is no doubt that there will be many more innovations and breakthrough in the years to come.

By:

Prerna Srivastava, Bio. Technology, Sec B
Ambalika Institute of Management & Technology

New innovations in Science and Engineering

The fields of science and engineering are both constantly developing, with new discoveries being made every day. The importance of these advances on our daily lives is evident, ranging from cutting-edge technologies to game-changing medical discoveries. We will examine some of the most recent advancements in science and engineering that are influencing the future in this post.

Artificial intelligence

One of the most interesting fields of research and development in recent years is artificial intelligence (AI). AI is already being employed in a variety of applications, from autonomous vehicles and medical diagnosis to robots and natural language processing, thanks to the quick development of machine learning and deep learning techniques. Additionally, AI is being utilized to address some of the largest issues facing the planet, like climate change.

The Quantum Computer

Another cutting-edge field that is emerging rapidly is quantum computing. Quantum computers use quantum bits (qubits), which can be in several states at once. This is contrast to classical computers, which store and process information in binary digits (bits). In particular for specific types of issues like cryptography and simulations of quantum systems, this makes quantum computers significantly more powerful than classical computers. Despite the fact that quantum computing is still in its infancy, numerous businesses and governments are making significant investments in it with the aim of creating the first usable, massive quantum computers.

3D printing

The process of producing goods is being revolutionized by additive manufacturing, sometimes referred to as 3D printing. 3D printing makes it possible to create advanced and highly customizable products, varying from toys and jewellery to medical implants and aircraft components, by creating objects layer by layer. It is anticipated that the manufacturing sector will become more adaptable, efficient, and sustainable as 3D printing technology develops, which will have a positive impact on both the economy and the environment.

Virtual and augmented reality

We are interacting with digital information differently because of two related technologies called virtual and augmented reality (VR and AR). AR improves the real world by superimposing digital data on it, whereas VR builds fully immersive digital worlds that let users experience a new reality. Both technologies have a diverse range of uses, including education and medical training as well as gaming and entertainment. In the upcoming years, VR and AR will likely become even more widespread due to the growing accessibility of equipment like head-mounted displays and smart phones.

Conclusion

Science and engineering innovations are occurring at an extraordinary speed and have a significant impact on our daily lives. These recent technological advancements, which range from 3D printing and VR/AR to AI and quantum computing, are reshaping the future in fascinating and unexpected ways. The possibilities are boundless, and the future appears promising whether it concerns communications, transportation, or medical.

By
Rohit Singh Chouhan, CSE, Sec G
Ambalika Institute of Management & Technology

Innovations in Science and Engineering

Science and engineering have been driving forces behind technological advancements, and they continue to push the boundaries of what's possible. From quantum computing to biotechnology, the latest innovations in science and engineering are poised to change the world in many ways.

One of the most significant new developments in science and engineering is the rise of quantum computing. Quantum computers, which are based on quantum mechanics, are capable of performing certain calculations much faster than classical computers. This has important implications for fields such as cryptography and drug discovery, which rely heavily on complex calculations.

Another exciting area of innovation is biotechnology. Scientists are using biotechnology to develop new treatments for a wide range of diseases, including cancer, Alzheimer's, and diabetes. They are also developing new tools for genetic engineering, which could allow us to cure genetic diseases and even create new forms of life.

In the field of materials science, researchers are developing new materials with unique properties. For example, they are working on materials that can repair themselves when damaged, or that can change their shape in response to changes in their environment. These materials have potential applications in fields such as aerospace and medicine.

Artificial intelligence (AI) is another area of science and engineering that is rapidly advancing. AI is already being used in a variety of applications, from voice assistants like Siri and Alexa to self-driving cars. In the future, it could have even more profound impacts, such as revolutionizing the way we work and live.

Finally, space exploration is another area of science and engineering where new innovations are happening. Private companies like Space X are working on developing new rockets and spacecraft that could make space travel more affordable and accessible. In addition, scientists are developing new technologies for exploring other planets, such as rovers that can explore the surface of Mars.

The latest innovations in science and engineering are incredibly exciting, and they have the potential to change the world in many ways. From quantum computing to biotechnology, materials science, AI, and space exploration, there are many exciting areas where new breakthroughs are happening. As we look to the future, it's clear that science and engineering will continue to be at the forefront of technological progress.

BY

Ayush Chaudhary, IT, Sec F
Ambalika Institute of Management & Technology

Need Of Getting English Knowledge For Engineering Students

English is a critical skill for engineering students as it is widely used in the field of engineering and technology. In the globalized world, English has become the lingua franca, allowing engineers from different countries to communicate effectively and collaborate on projects.

Many engineering students will work with international teams, attend international conferences, and read technical articles and reports written in English. In these situations, having a strong grasp of the language will greatly benefit their careers.

In addition, engineers must be able to communicate their ideas and solutions effectively. This requires a good command of English, especially for writing technical reports and presentations. In order to get their ideas across, engineers must be able to explain complex concepts in a clear and concise manner.

English skills are also essential for personal and professional development. Engineers who have a strong command of the language will have access to a wider range of information, including the latest research and technological advancements in their field. They will also be able to communicate their ideas more effectively and participate in international discussions and debates.

In conclusion, having a good knowledge of English is crucial for the success of engineering students. It enables them to communicate effectively, collaborate with international teams, and stay informed about the latest developments in their field.

BY

Dr. Swati Srivastava
Associate Professor
Ambalika Institute of Management & Technology

Vision & Mission of Institute

Vision of Institute

To nourish the students, blossom them into tomorrow's world class professionals and good human beings by inculcating the qualities of sincerity, integrity and social ethics.

Mission of Institute

1. To provide the finest infra structure and excellent environment for the academic growth of the students to bridge the gap between academia and the demand of industry.
2. To expose students in various co- curricular activities to convert them into skilled professionals.
3. To grind very enthusiastic engineering and management student to transform him into hard working, committed, having a zeal to excel, keeping the values of devotion, concern and honesty.
4. To involve the students in extracurricular activities to make them responsible citizens

Vision & Mission - Department of Applied Sciences

Vision - Department of Applied Sciences

To educate undergraduate students in the field of technology, service, applied sciences, preparing sincere and socially responsible students to thrive and contribute to an ever-changing global society.

Mission - Department of Applied Sciences

1. To provide strong foundation to the students through basic courses and value added teaching in areas of technical fields, innovation, personality development and competitive abilities and guide for their respective discipline.
2. To renders proactive and adaptive services systems those provide students with a flexible yet solid learning infrastructure.
3. To create and propagates knowledge and tools at the interface between areas of engineering, emerging trends industries and other core areas of Applied Science and Humanities.

Programme Outcome

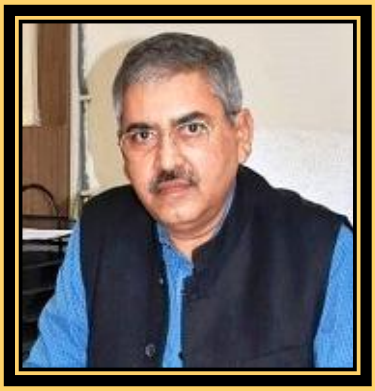
1. Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4. Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5. Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.
6. The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7. Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11. Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one’s own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12. Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Our Patrons

Mr. Ambika. Mishra
Executive Director
Ambalika Institute of management
& technology, Lucknow

Prof. (Dr.) S.Q.Abbas
Director General
Ambalika Institute of management
& technology, Lucknow

Prof. (Dr.) Ashutosh Dwivedi
Director
Ambalika Institute of management
& technology, Lucknow



Prof. (Dr.) Shweta Mishra
Additional Director
Ambalika Institute of management
& technology, Lucknow

Prof. (Dr.) R. S. Mishra
Dean
Ambalika Institute of management
& technology, Lucknow