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From B.Tech 1st Year Coordinator's Pen



Mr. Sunil Kumar Singh B.Tech 1st year Coordinator sunilkumarsingh@ambalika.co.in

Welcome to our Student Technical Magazine!

Welcome to the latest edition of our technical magazine. This publication showcases the ingenuity and dedication you bring to the fields of science, technology, engineering, and mathematics. Your innovative projects and insightful articles are a testament to your hard work and passion for learning.

Keep pushing the boundaries of what's possible and continue to inspire each other with your creativity and technical prowess.

Warm regards,



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Inside This issue

Dear Readers,

As students standing at the threshold of a rapidly evolving technological landscape, we are uniquely positioned to shape the future. Our generation, more than any other, is immersed in a world where technology is not just a tool but a fundamental aspect of everyday life. This presents us with an unprecedented opportunity to innovate, create, and lead.

The pace of technological advancement is accelerating, with breakthroughs in artificial intelligence, biotechnology, renewable energy, and more. As students, we must seize this momentum. Our classrooms, labs, and workshops are the incubators of tomorrow's innovations. By embracing a mindset of curiosity and creativity, we can contribute to advancements that will define the future.

Innovation thrives in environments where collaboration and diverse perspectives are encouraged. Let us foster a culture of inclusivity in our technical communities, welcoming ideas from all backgrounds. It is through this diversity that we will find the most effective solutions to the complex challenges we face.

Moreover, ethical considerations must be at the forefront of our technological endeavors. As we develop new technologies, we must always consider their impact on society and the environment. Responsible innovation is not just about creating new gadgets or software but about ensuring that our contributions make the world a better place.

As we continue our studies and projects, let's remain inspired by the endless possibilities that technology offers. Let's push the boundaries of what's possible, question the status quo, and strive for excellence. In doing so, we will not only advance our own knowledge and skills but also contribute to a brighter, more innovative future for all.

Remember, the next big breakthrough could come from any one of us. Let's embrace the challenge and make our mark on the world of technology.

BY
Dr. Avneesh Kumar Singh
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The Changing Job Landscape: The Impact of AI on Employment

As artificial intelligence (AI) continues to advance, its integration into various industries is reshaping the job market. While AI brings numerous benefits, such as increased efficiency and the automation of routine tasks, it also raises concerns about job displacement. This article explores the multifaceted impact of AI on employment, highlighting both the challenges and opportunities it presents.

The Rise of AI in the Workplace

AI technologies, including machine learning, robotics, and natural language processing, are transforming how businesses operate. These advancements enable machines to perform tasks that once required human intervention, ranging from data analysis to customer service.

Key areas where AI is making significant inroads include:

- **Manufacturing:** Automated assembly lines and robotic systems enhance production speed and precision, reducing the need for manual labor.
- **Finance:** AI algorithms analyze vast amounts of data to detect fraud, manage investments, and automate transactions.
- **Healthcare:** AI-powered diagnostic tools and robotic surgeries improve patient outcomes, though they may also reduce demand for certain medical roles.
- **Retail:** Chatbots and recommendation systems enhance customer experience, while automated warehouses streamline inventory management.

Job Displacement and Economic Shifts

The introduction of AI into the workforce can lead to job displacement, particularly for roles involving repetitive or predictable tasks. Jobs at high risk of automation include:

- Clerical and Administrative Roles: Data entry, scheduling, and routine administrative tasks are increasingly handled by AI systems.
- **Manufacturing and Production Jobs:** Assembly line workers and machine operators face displacement due to robotics and automation.
- **Customer Service Positions:** AI chatbots and virtual assistants reduce the need for human customer service representatives.
- **Transportation and Logistics:** Autonomous vehicles and drones may eventually replace drivers and delivery personnel.

The displacement of these jobs can lead to economic and social challenges, such as increased unemployment and wage stagnation for affected workers. The ripple effect can also impact related industries and communities reliant on these jobs.

Opportunities for Growth and New Roles

Despite the potential for job loss, AI also creates opportunities for growth and the emergence of new roles. Key areas of job creation include:

- AI Development and Maintenance: Demand for AI specialists, data scientists, and machine learning engineers, continues to rise as more companies adopt AI technologies.
- **Human-AI Collaboration:** New roles that involve working alongside AI systems, such as AI trainers, explainers, and sustainers, are emerging to ensure ethical and efficient use of AI.
- Creative and Strategic Positions: Jobs requiring creativity, critical thinking, and strategic planning are less susceptible to automation and may see increased demand.
- **Healthcare and Personal Services:** As AI takes over routine tasks, there may be a shift toward more personalized and human-centric roles in healthcare and other service industries.

Adapting to the AI-Driven Future

To mitigate the negative impacts of AI on employment and harness its potential benefits, several strategies can be adopted:

- **Education and Training:** Upskilling and reskilling programs are essential to help workers transition to new roles. Lifelong learning initiatives can ensure that employees stay relevant in an evolving job market.
- **Policy and Regulation:** Governments and organizations should develop policies that promote fair labor practices, protect worker rights, and support those displaced by AI. This may include unemployment benefits, job placement services, and incentives for companies that invest in human capital.
- **Ethical AI Development:** Ensuring that AI systems are designed and deployed ethically can help prevent bias and discrimination, promoting a fairer job market.

Conclusion

The rise of AI presents both challenges and opportunities for the job market. While certain roles may be at risk of displacement, the potential for new job creation and enhanced human-AI collaboration is significant. By embracing education, policy reform, and ethical AI development, we can navigate this transition and build a future where technology and human ingenuity coexist to drive progress and prosperity.

BY

Ms. Vishakha batham

Sec F

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Health Issues Facing Generation Z

Generation Z, born between the mid-1990s and early 2010s, is growing up in a unique era marked by rapid technological advancements, shifting social norms, and unprecedented global challenges. These factors have a profound impact on their physical, mental, and emotional health. Here, we explore some of the significant health issues that Gen Z faces today.

Mental Health

Mental health is a critical concern for Generation Z. Studies show that this generation experiences higher rates of anxiety, depression, and stress compared to previous generations. Key contributing factors include:

- **Social Media:** Constant connectivity and the pressure to maintain a perfect online persona can lead to feelings of inadequacy, loneliness, and cyber bullying.
- **Academic Pressure:** The competitive nature of the education system and the pressure to succeed can contribute to significant stress and anxiety.
- **Global Issues:** Awareness of global crises, such as climate change, political instability, and economic uncertainty, can lead to feelings of hopelessness and existential dread.

Substance Use

Substance use is another area of concern. While some trends show a decline in the use of traditional substances like alcohol and cigarettes, there is a rise in the use of other substances, including:

- **Vaping:** The popularity of e-cigarettes has surged among Gen Z, leading to concerns about nicotine addiction and respiratory issues.
- **Prescription Drugs:** Misuse of prescription medications, particularly opioids and stimulants, is a growing problem.

Physical Health

Despite the focus on mental health, physical health issues remain pertinent. Key areas include:

- **Obesity:** Sedentary lifestyles and poor dietary habits contribute to rising obesity rates among Gen Z. This can lead to long-term health problems, such as diabetes and heart disease.
- **Sleep Disorders:** Excessive screen time and the demands of modern life often lead to inadequate sleep, which can affect both physical and mental health.
- **Sexual Health:** There is a need for better sexual health education, as rates of sexually transmitted infections (STIs) are on the rise in this age group.

Technology Addiction

The omnipresence of technology presents unique challenges. While technology can be a powerful tool for education and social connection, excessive use can lead to:

- **Screen Addiction:** Overuse of smartphones, social media, and video games can interfere with daily life, relationships, and academic performance.
- Eye Strain and Poor Posture: Prolonged screen time can cause digital eye strain, headaches, and musculoskeletal problems.

Coping Strategies and Solutions

Addressing these health issues requires a multi-faceted approach involving individuals, families, educators, healthcare providers, and policymakers. Key strategies include:

- Mental Health Support: Increasing access to mental health resources, reducing stigma, and promoting open conversations about mental health can help Gen Z navigate their challenges.
- **Health Education:** Comprehensive health education programs can inform Gen Z about the risks associated with substance use, the importance of physical health, and strategies for maintaining a healthy lifestyle.
- **Technology Management:** Encouraging healthy tech habits, such as setting screen time limits and promoting offline activities, can mitigate the negative effects of technology.
- Parental and Community Support: Building strong support networks can provide Gen Z with the guidance and encouragement they need to make healthy choices.

Conclusion

Generation Z faces a unique set of health challenges shaped by the modern world. By understanding these issues and implementing supportive measures, we can help this generation build a healthier future. Promoting mental well-being, addressing substance use, encouraging physical health, and managing technology use are essential steps in ensuring that Gen Z thrives in an ever-evolving landscape.

BY

Ms. Madhavi Dwivedi, Sec F Ambalika Institute of Management & Technology



The Excessive Use of Energy: Impact on Nature

The modern world's insatiable appetite for energy has far-reaching consequences for the environment. As populations grow and technological advancements continue, energy consumption escalates, often at the expense of our natural world. This article explores the impact of excessive energy use on nature and highlights the urgent need for sustainable practices.

The Environmental Cost of Energy Consumption

1. Fossil Fuel Dependence:

- Greenhouse Gas Emissions: The burning of fossil fuels such as coal, oil, and natural gas is the
 primary source of greenhouse gas emissions, contributing significantly to global warming and
 climate change.
- Air Pollution: The combustion process releases pollutants, including sulfur dioxide, nitrogen oxides, and particulate matter, leading to smog, acid rain, and respiratory problems in humans and wildlife.

2. **Deforestation:**

- **Resource Extraction:** The extraction of fossil fuels often involves deforestation and habitat destruction, disrupting ecosystems and leading to the loss of biodiversity.
- o **Hydropower:** While considered a cleaner energy source, large-scale hydropower projects can flood vast areas, displacing wildlife and local communities and altering river ecosystems.

3. Water Scarcity:

- Thermal Power Plants: These plants, which include coal, natural gas, and nuclear facilities, require large amounts of water for cooling. This can lead to water scarcity and affect aquatic ecosystems.
- o **Pollution:** Energy production can contaminate water sources with heavy metals, chemicals, and radioactive materials, posing risks to both human health and wildlife.

4. Land Degradation:

- o **Mining:** The extraction of coal, oil, and gas, as well as minerals for renewable energy technologies, can lead to soil erosion, loss of arable land, and habitat destruction.
- o **Infrastructure Development:** Building pipelines, power lines, and renewable energy installations can fragment habitats and disrupt migration patterns of wildlife.

The Impact on Climate and Biodiversity

1. Global Warming:

- **Rising Temperatures:** Increased greenhouse gas emissions lead to higher global temperatures, which can cause heatwaves, droughts, and altered weather patterns.
- o **Melting Ice Caps:** Warming temperatures are causing polar ice caps and glaciers to melt, resulting in rising sea levels and threatening coastal ecosystems and communities.

2. Extreme Weather Events:

o **Frequency and Intensity:** Climate change is linked to more frequent and severe weather events, such as hurricanes, floods, and wildfires, which can devastate ecosystems and human settlements.



o **Habitat Loss:** Extreme weather can destroy habitats, reduce biodiversity, and force species to migrate, often leading to conflicts with human populations.

3. Threats to Biodiversity:

- **Species Extinction:** Habitat destruction, pollution, and climate change contribute to the decline and extinction of many species, reducing biodiversity and ecosystem resilience.
- Ecosystem Imbalance: The loss of key species can disrupt food webs and lead to overpopulation or decline of other species, causing imbalances in ecosystems.

Sustainable Solutions for Energy Use

1. Renewable Energy:

- Solar and Wind Power: Investing in solar and wind energy reduces reliance on fossil fuels and decreases greenhouse gas emissions.
- o **Hydroelectric and Geothermal Energy:** These renewable sources can provide consistent power with lower environmental impact, though careful site selection and management are crucial.

2. Energy Efficiency:

- o **Smart Technology:** Utilizing smart grids, energy-efficient appliances, and building automation can significantly reduce energy consumption.
- o **Behavioral Changes:** Encouraging conservation practices, such as turning off lights, reducing water heating, and using public transportation, can collectively make a substantial impact.

3. Sustainable Resource Management:

- **Reforestation:** Planting trees and restoring natural habitats can help sequester carbon and improve biodiversity.
- o **Circular Economy:** Adopting a circular economy model, where products are designed for reuse and recycling, can reduce waste and lower energy demand.

4. Policy and Education:

- o **Government Regulations:** Implementing policies that promote renewable energy, energy efficiency, and environmental protection is crucial for sustainable development.
- Public Awareness: Educating communities about the environmental impact of energy use and promoting sustainable practices can drive collective action.

Conclusion

The excessive use of energy has profound implications for our natural world, contributing to climate change, pollution, and biodiversity loss. Transitioning to sustainable energy practices is not just a necessity but an urgent imperative. By embracing renewable energy, enhancing energy efficiency, and fostering a culture of conservation, we can mitigate the adverse effects of energy consumption and protect the planet for future generations.

BY

Mr. Vansh Gupta, Sec C

Ambalika Institute of Management & Technology



The Rising Trend: Why More Students Are Choosing Computer Science Over Other Engineering Branches

In recent years, there has been a noticeable surge in the number of students opting for Computer Science and Engineering (CSE) compared to other branches of engineering. This shift reflects broader trends in technology and employment but also raises questions about the balance of skills and the future of various engineering disciplines. This article delves into the factors driving this trend, its implications, and the need for a diversified engineering workforce.

Factors Driving the Interest in Computer Science

1. Career Opportunities:

- High Demand: The tech industry continues to grow rapidly, with companies across various sectors seeking skilled software developers, data scientists, and IT professionals. This high demand translates to attractive job prospects and competitive salaries.
- Diverse Applications: Computer Science skills are applicable in numerous fields, including finance, healthcare, entertainment, and even non-tech industries, offering a broad range of career paths.

2. Technological Advancements:

- Innovation: The rapid pace of technological innovation, including developments in artificial
 intelligence, machine learning, and cybersecurity, captures the imagination of students eager to be
 at the forefront of cutting-edge technology.
- o **Startup Culture:** The rise of startups and tech entrepreneurship presents opportunities for students to create their own ventures and be part of the next big technological breakthrough.

3. Perceived Value and Prestige:

- o **High Earning Potential:** Computer Science careers often come with higher starting salaries and better long-term earning potential compared to many other engineering disciplines.
- o **Industry Perception:** There is a perception that technology and software engineering are more prestigious or impactful, leading to increased interest from students looking to align with these values.

4. Educational Accessibility:

- Online Resources: The availability of online courses, coding bootcamps, and self-paced learning platforms makes it easier for students to gain skills in Computer Science, often before even entering formal education.
- o **Curriculum Appeal:** Computer Science programs often incorporate practical, hands-on learning experiences and projects that appeal to students who enjoy problem-solving and innovation.

Implications of the Shift

1. Skill Imbalance:

 Workforce Diversity: An overemphasis on Computer Science may lead to a shortage of graduates in other critical engineering fields such as civil, mechanical, and electrical engineering. This imbalance can impact infrastructure development, manufacturing, and energy sectors.

Interdisciplinary Innovation: Engineering problems often require interdisciplinary solutions. A
lack of diversity in engineering expertise can hinder innovation and the development of holistic
solutions.

2. Educational Institutions:

- Curriculum Focus: Universities and colleges may feel pressure to focus more resources on Computer Science programs, potentially at the expense of other engineering disciplines. This can affect the quality and availability of education in other fields.
- Student Experience: With an increasing number of students in Computer Science programs, institutions may face challenges in providing personalized attention and maintaining high educational standards.

3. Industry Dynamics:

- Job Saturation: As more students enter the field, there could be increased competition for tech
 jobs, which may affect job security and salaries in the long run.
- **Evolving Needs:** The tech industry itself evolves rapidly, and the skills in demand today may change. This requires ongoing adaptation and learning to stay relevant.

The Need for a Balanced Approach

1. Promoting Engineering Diversity:

- **Awareness Campaigns:** Encouraging awareness about the importance of various engineering disciplines and their contributions to society can help attract students to diverse fields.
- o **Interdisciplinary Opportunities:** Creating opportunities for interdisciplinary projects and collaborations can highlight the value of integrating different engineering skills.

2. Supporting Other Engineering Disciplines:

- o **Incentives and Scholarships:** Providing incentives, scholarships, and career support for students in less popular engineering fields can help balance the distribution of talent.
- o **Industry Partnerships:** Strengthening partnerships between educational institutions and industries in various engineering sectors can create more opportunities and raise the profile of these fields.

3. Encouraging Lifelong Learning:

 Continual Skill Development: Promoting a culture of lifelong learning and adaptability can help students and professionals stay relevant in a rapidly changing job market, regardless of their initial field of study.

BY

Ms.Raj Lakshmi. Sec A

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The Dark Side of the Digital Age: Cyberbullying

In the age of the internet, where information flows freely and connections are just a click away, we are witnessing a new form of harassment: cyberbullying. This digital menace extends beyond the confines of physical spaces, infiltrating the screens of computers and smartphones, and affecting individuals worldwide. It is crucial to understand what cyberbullying is, its impact, and how we can combat it.

Understanding Cyberbullying

Cyberbullying involves the use of digital platforms to intimidate, threaten, or humiliate someone. It can take many forms, including:

- Harassing Messages: Repeatedly sending hurtful or threatening messages.
- **Public Shaming:** Posting derogatory comments or sharing private information publicly.
- **Impersonation:** Creating fake profiles to damage someone's reputation.
- Exclusion: Intentionally excluding someone from online groups or activities.

The anonymity provided by the internet often emboldens bullies, making them feel invincible and detached from the consequences of their actions.

The Impact of Cyberbullying

The effects of cyberbullying can be devastating and far-reaching. Victims often experience:

- **Emotional Distress:** Anxiety, depression, and feelings of worthlessness are common among those targeted by cyberbullies.
- **Academic Decline:** The stress and distraction caused by cyberbullying can lead to poor academic performance.
- Social Withdrawal: Victims may isolate themselves from friends and family, leading to loneliness and further emotional harm.
- **Physical Symptoms:** Headaches, stomachaches, and other stress-related symptoms can manifest as a result of ongoing cyberbullying.

In severe cases, the relentless nature of online harassment can lead to tragic outcomes, including self-harm and suicide.

Combating Cyberbullying

Addressing cyberbullying requires a multi-faceted approach involving individuals, communities, and technological solutions.



- 1. **Education and Awareness:** Schools and communities must educate young people about the responsible use of technology and the impact of their online behavior. Workshops, seminars, and inclusion in the curriculum can help raise awareness.
- 2. **Parental Involvement:** Parents should engage in open conversations with their children about their online activities. Monitoring and guiding their internet use can help identify and prevent cyberbullying.
- 3. **Support Systems:** Establishing strong support systems, including counselors and peer support groups, can provide victims with the help they need to cope with and overcome cyberbullying.
- 4. **Reporting Mechanisms:** Social media platforms and online services must have robust reporting systems to address incidents of cyberbullying promptly. Users should be encouraged to report any abusive behavior they encounter.
- 5. **Legal Measures:** Many regions have laws in place to protect individuals from cyberbullying. Understanding and utilizing these legal frameworks can deter potential bullies and provide recourse for victims.

Conclusion

Cyberbullying is a complex issue that requires a collective effort to tackle. By fostering a culture of respect, empathy, and digital responsibility, we can create a safer online environment for everyone. It is essential to remember that behind every screen is a real person with real feelings, deserving of kindness and respect. Together, we can make the cyber world a better place.

 $_{\mathcal{B}}\Upsilon$

Mr. Shivam Chaturvedi (Faculty)

Associate ProfessorAmbalika 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

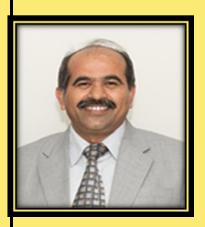
- **1.** Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
- **2.** Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems 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.



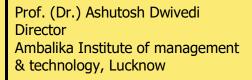
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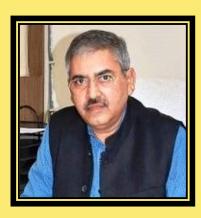
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