CHANDIGARH
ENGINEERING COLLEGE
CGC, LANDRAN, MOHALI
Building Careers. Transforming Lives.

The Communiqué

(Capturing Moments, Preserving Memories)

News Magazine | Volume-32

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An Institution of Excellence

2024

www.cgc.edu.in

Vision of the Chandigarh Engineering College- CGC, Landran, Mohali

To become a leading institute of the country for providing quality technical education in a research based environment for developing competent professionals and successful entrepreneurs.

Mission of the Chandigarh Engineering College- CGC, Landran, Mohali

1. To provide state of the art infrastructure and engage proficient faculty for enhancing the teaching learning process to deliver quality education.
2. To give a conducive environment for utilizing the research abilities to attain new learning for solving industrial problems and societal issues.
3. To collaborate with prominent industries for establishing advanced labs and using their expertise to give contemporary industry exposure to the students and faculty.
4. To cater opportunities for global exposure through association with foreign universities.
5.To extend choice based career options for students in campus placements, entrepreneurship and higher studies through career development program.

(Prof.) Dr. Rajdeep Singh
Director Principal
Chandigarh Engineering College-CGC, Landran, Mohali

Dear Students, Faculty, and Staff,

As the Director Principal, I am honored to have the opportunity to share some thoughts with you in this quarter's edition of our college magazine. This publication exemplifies the dynamic intellect and innovative energy that characterize our academic community. CEC-CGC fosters an environment where knowledge is not only taught, but also generated and exchanged. The articles and features in this magazine showcase the wide range of academic pursuits we engage in. Our college stands out as a truly exceptional institution of higher education, where we proudly display cutting-edge research, dynamic teaching methods, and a supportive atmosphere for collaborative learning. I am particularly pleased to see the interdisciplinary approach that is evident in many academic endeavors. In today's fast-paced world, the ability to connect ideas from different fields is crucial. Our college is committed to fostering connections, and this magazine offers a glimpse into the cutting-edge projects and research taking place here.

I want to take a moment to extend my congratulations to all the members who have contributed to this edition. Dear readers, I suggest you to delve into the contents of this magazine with a receptive attitude and a spirit of inquisitiveness. Let the information stimulate your curiosity, encourage you to inquire, and embrace the pleasure of continuous learning. Let's continue to explore new frontiers of understanding, tackle fresh obstacles, and commemorate our successes as a united team.

Dr. Sukhpreet Kaur
Professor & Head, CSE Department

Greetings Everyone!!!

Dear Colleagues and Students,

As the Head of Department, I am excited to be able to contribute to this quarter's edition of our college magazine Communique. This publication highlights the academic and artistic endeavors that characterize our institution. Our faculty and students are deeply engaged in innovative research, dynamic teaching approaches, and community outreach initiatives that not only challenge the limits of our field but also create a meaningful influence on society. The articles and features in this magazine highlight the remarkable achievements and dedication of all the departments of CEC-CGC Landran.

I would like to extend my heartfelt appreciation to all the contributors who have made valuable contributions to this specific edition. We deeply value your commitment and the exceptional level of quality you consistently maintain, which drives the advancement of our college. Once again, I would like to express my sincere admiration to the editorial team for their tremendous dedication in producing this publication.

From the Editor's Desk….

Dear Readers,

Greetings and welcome to the 32nd edition of Communiqué, a quarterly publication of CEC-CGC. As the Chief Editor of our esteemed college magazine, it is my pleasure to welcome you to this quarter's edition, which promises to be as insightful and engaging as ever. Our team has worked tirelessly to bring you a collection of articles and creative pieces that reflect the vibrant intellectual and cultural life of our campus. Our creative corner is brimming with literary gems and artistic expressions that showcase the talent and creativity that thrive within our college community. Whether you're an avid reader or a budding writer, there's something in this magazine for you as per your interest.

I would like to extend my heartfelt gratitude to our dedicated team of writers, photographers, designers, and everyone else who contributed to this issue. Your passion and commitment are what make this magazine a success. I would also like to thank our readers for their continued support and feedback, which helps us grow and improve with each edition.

As we turn the pages of this quarter's magazine, let us embrace the opportunity to learn, reflect, and be inspired. Have a happy reading!!

Dr. Inderjot Kaur
Editor-in-Chief

RANKING & AWARDS 2024

1. **NAAC A+ Grade obtained in March 2024**
   - CEC-CGC landran has achieved NAAC A+ Grade by NAAC
2. **Dataquest Tech School survey, 2024**
   - 1st in Punjab in Top T-Schools (Private)
   - 5th rank in North India (Zone Wise)
   - 12th rank in Top 100 T-Schools (Private)
   - 17th rank in Top 100 T-Schools (Overall) – Government and Private
3. **India Today Ranking 2024**
   - 1st Rank in Private Colleges in Punjab (Self-financed)
   - 57th Rank across country among Private Colleges
4. **NIRF Ranking 2023**
   - CEC-CGC landran has been ranked in 100-150 Band in Engineering Category
5. **NIRF Innovation 2023**
   - CEC Positioned in the band of 51-100 in the Innovation Category
6. **Patent Filing Rank**

   CGC Landran bestowed with 4th position Pan India among the Top 10 Patent filing Institutes and 3rd among the Top 5 in the field of Information Technology along with the IITs, other premium Institutions and IT Corporates in the country.
7. **MoE-AICTE**

   CEC-CGC, Landran, Mohali has received the highest 3.5-star rating by Institution Innovation Council of the Ministry of Education (MoE) and All India Council of Technical Education (AICTE) for demonstrating excellence in activities related to Innovations, Entrepreneurship, Startups, and Research & Development.
8. **Dataquest CMR Employability Index Survey 2023**
   - 10th Rank Overall among top 100 T Schools (Government and Private)
   - 6th Rank Overall among top T Schools (Private)
   - 5th Rank in North India in Top 10 Zone Wise Institutes (Government and Private)
9. **Dataquest Tech School survey, 2023**
   - 1st in Punjab in Top 100 T-Schools (Overall) – Government and Private
   - 1st in Punjab in Top T-Schools (Private)
   - 15th rank in Top T-Schools (Private)
   - 5th rank in North India (Zone Wise)
   - 22nd rank in Top 100 T-Schools (Overall) – Government and Private
10. **India Today Ranking 2023**
    - 2nd Rank in Private Colleges in Punjab
    - 4th Rank in Private Colleges and Universities in Punjab
    - 61th Rank across country among Private Colleges
    - 1st in Top Five Gainers among First 100 (Govt+Private)
11. **Outlook I-Care Rankings 2023-India's Best Colleges**
    - 59th among top 100 private institutes in India
    - 4thprivate institute among Punjab including (University's Institutes)
    - 1stprivate college in Punjab (excluding university's Institutes)
12. **THE WEEK-Hansa Research Survey 2023**
    - 8th in private colleges North Zone
    - 39th Rank in private Engineering colleges across the country
    - 65th Rank in Engineering Colleges all over India

13 Times of India Engineering Survey 2023

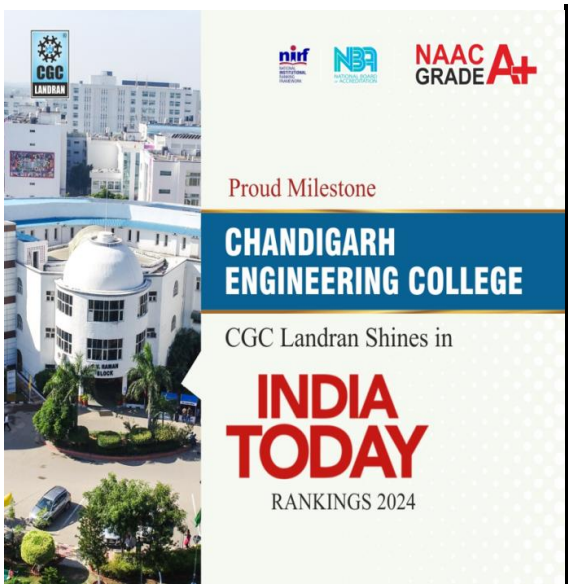
- 3rd in Research Capabilities
- 91th in Top 170 Private Institutes
- 88th in Top 125 private Engineering Institutes

14 CSR-CHRDC Ranking 2023

- 12th Position in Top Emerging Colleges of Super Excellence
- 4th Position in Top Engineering Colleges in State of Punjab

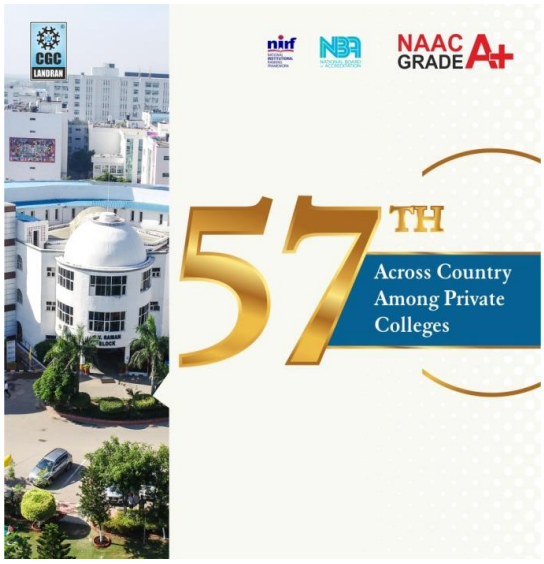
CEC-CGC once again achieved a remarkable position in India Today Rankings- 2024

Chandigarh Engineering College-CGC Landran, Mohali has once again achieved a remarkable position in the India Today Rankings for the year 2024, showcasing its academic excellence and institutional strength. This prestigious ranking has been achieved after a thorough evaluation criterion. India Today positioned CEC-CGC as one of the leading institutions in the country, reaffirming its dedication to providing excellent education, conducting research, and fostering holistic development. CEC-CGC, Landran, Mohali has secured 1st rank in Private Colleges in Punjab (Self-financed), 57th Rank across country among Private Colleges, and 85th Rank across country among Private and Government Colleges.



India Today Rankings 2024

1st rank in Private Colleges in Punjab (Self-financed)



57th Rank across country among Private Colleges

85th Rank across country among Private and Government Colleges

4th International Conference on Computational Methods in Science and Technology (ICCMST 2024)

The Department of CSE and IT at Chandigarh Engineering College-CGC, Landran, organized 4th International Conference on Computational Methods in Science & Technology (ICCMST 2024) on 2nd and 3rd May 2024. The inaugural function commenced at 10 am on 2nd May 2024. The Honorable Chief Guest for the event was Prof. (Dr.) Susheel Mittal, Vice Chancellor of I.K. Gujral Punjab Technical University, Jalandhar. The Guest of Honor, Prof. (Dr.) Lalit Kumar Awasthi, Director of NIT, participated virtually. Additionally, Prof. (Dr.) Divya Bansal, Head of Cyber Security Research Centre at Punjab Engineering College, Chandigarh, also graced the occasion.

The inaugural session featured two international speakers: Dr. Marek Bolanowski from Poland and Dr. Daniel D. Dasig Jr. from the Philippines, who shared their research and expertise with research scholars, faculty members, and students. The conference began with a welcome address from the Honorable Management of CGC, Landran. Dr. P.N. Hrishekeesha, Campus Director, and Dr. Rajdeep Singh, Executive Director (Engineering), were welcomed by Ms. Parneet Kaur, one of the conference organizers. Dr. P.N. Hrishekeesha welcomed all the dignitaries and praised the organizing team and participants for their efforts in arranging the conference. Prof. (Dr.) Divya Bansal, Guest of Honour, addressed the participants on the importance of hard work and passion, offering valuable insights that could benefit research scholars and students in their respective organizations.

Prof. (Dr.) Susheel Mittal, Vice Chancellor of IKGPTU, Jalandhar, delivered a speech on bridging the gap between industry and academia, advocating for real-time solutions to everyday problems and encouraging students to pursue careers in industry. Prof. (Dr.) Lalit Kumar Awasthi, Director of NIT Uttarakhand, joined virtually and discussed the role and significance of Artificial Intelligence in today's world, urging students to stay updated with the latest trends and technologies.

Following their speeches, all dignitaries and delegates of the conference released the conference proceedings and were felicitated by the CGC dignitaries. The keynote speakers, Dr. Marek Bolanowski from Poland and Dr. Daniel D. Dasig Jr. from the Philippines, then presented their talks. Dr. Sukhpreet Kaur, HOD-CSE, concluded the inaugural ceremony with a vote of thanks, expressing gratitude to all dignitaries and participants and encouraging future events to facilitate knowledge sharing and expertise.

After the inaugural ceremony, three parallel technical sessions commenced, where research scholars presented their papers on Machine Learning, Cloud Computing, Recent Advancements and Challenges in Artificial Intelligence, Internet of Things, Cybersecurity, and Blockchain Technologies. Session Chairs evaluated and provided feedback on the presented papers.

Day one of the conference concluded on a positive and successful note.

Welcome of Prof. (Dr.) Divya Bansal by the dignitaries

Welcome of Prof. (Dr.) Susheel Mittal by the dignitaries

Group Photograph of Directors and Heads with the Honourable Chief Guests

Release of Conference proceedings

The **second day** of the conference commenced with two parallel technical sessions featuring presentations by research scholars. The sessions covered papers in tracks such as Big Data Analytics & App Communication Networks/IoT/System Design & Methodologies/ICT for Sustainable Environment, and Artificial Intelligence, Cyber Fraud, and Swarm Intelligence.

The valedictory function began at 2 pm on 3rd May 2024 among the presence of Honourable Chief Guest, Dr. Aparna Akula, Principal Scientist at the Centre of Excellence for Intelligent Sensors and Systems (ISenS), CSIR-CSIO, Chandigarh. The function started with a welcome from the Honorable Management of CGC Landran, including Chairman S. Satnam Singh Sandhu, President S. Rashpal Singh Dhaliwal, Honourable Campus Director Dr. P.N Hreeshakesha, and Honourable Executive Director (Engineering) Dr. Rajdeep Singh. They were welcomed by Ms. Megha Sharma, a member of the Organizing Committee. Subsequently, Dr. P.N Hreeshakesha, the Campus Director, welcomed the Chief Guest for the valedictory function and congratulated the entire conference team for its success.

Dr. Aparna Akula, in her address, motivated the attendees and delegates by emphasizing the importance of designing multidisciplinary projects in today's interdisciplinary world. She also provided insights into her own projects. Following her speech, three participants and authors shared their reflections on the conference, and five best paper awards were announced. The Chief Guest was then felicitated by the CGC dignitaries. The valedictory ceremony concluded with a vote of thanks delivered by Dr. Amanpreet Kaur, Convener of ICCMST 2024. She expressed gratitude to all dignitaries, participants, session chairs, administrative members, the branding team, and all faculty members and students who contributed directly or indirectly to the success of the conference.

Welcome of Dr. Aparna Akula by the dignitaries

Participants attending the Conference

Dr. Aparna Akula Honourable Chief Guest sharing her views with participants

Awarding the Best Paper participants

Group Photograph of all the participants with Honourable Chief Guest

Group Photograph of all the participants and students with Honourable Chief Guest

सीजीसी लांडरां ने चैथी इंटरनेशनल कांफ्रेंस ऑन कम्प्यूटेशनल मैथड इन साइंस एंड टेक्नोलॉजी करवाई

सीजीसी लांडरां में कम्प्यूटेशनल मेथड इन साइंस एंड टैक्नोलॉजी का आयोजन

रिसर्च कंट्रीब्यूशन पर सोवनियर रिलीज करते सीजीसी के प्रबंधक व अन्य।

सवेरा न्यूज/तनेजा (राजपुरा): सीजीसी लांडरां के सीएसई और आईटी डिपार्टमैंट ने आज चौथी इंटरनैशनल कांफ्रेंस ऑन कम्प्यूटेशनल मैथड इन साइंस एंड टैक्नोलॉजी का उद्घाटन किया। कांफ्रेंस के लिए 759 पेपर सबमिट हुए, जिनमें से पीअर समीक्षा प्रक्रिया के बाद, 167 पेपर को प्रस्तुत करने के लिए चुना गया। कांफ्रेंस के पहले दिन 350 से अधिक प्रतिभागियों ने भाग लिया। कांफ्रेंस में उपस्थित महानुभवी गेस्ट्स के द्वारा रिसर्च कंट्रीब्यूशन पर एक सौवनियर भी रिलीज किया गया। इस मौके चीफ गैस्ट के रूप में इकेजीपीटीयू जालंधर के वाईस-चांसलर, प्रो डॉ सुशील मित्तल, उपस्थित हुए, प्रो दिव्या बंसल, पंजाब इंजीनियरिंग कॉलेज, चंडीगढ़ गैस्ट ऑफ ऑनर थे और प्रो डा. ललित कुमार अवस्थी, डायरेक्टर ऑफ नेशनल इंस्टिट्यूट ऑफ टेक्नोलॉजी, उत्तराखंड, वर्चुअल मोड के द्वारा कांफ्रेंस में शामिल हुए। इनके साथ साथ गणमान्य व्यक्तियों में शामिल हुए डा पी.एन. हृषीकेश, कैंपस डायरैक्टर, सीजीसी लांडरां, डा. राजदीप सिंह, एग्जीक्यूटिव डायरैक्टर इंजीनियरिंग, और डा. रुचि सिंगला, डायरैक्टर आर एंड डी, सीजीसी लांडरां द्वारा आए हुए सभी महानुभावों का स्वागत किया। इसके साथ साथ प्रमुख कीनोट स्पीकर के रूप में जेर्जव टैक्नोलॉजी यूनिवर्सिटी, पोलैंड, से प्रो डा मारेक बोलानोव्स्की, और डे ला सल यूनिवर्सिटी, फिलीपींस, से प्रो. (डॉ.) डेनियल डी. डेसिग जूनियर, शामिल हुए।

ਵਿਚਾਰਾਂ | ਵਿਗਿਆਨ ਤੇ ਤਕਨਾਲੋਜੀ 'ਚ ਕੰਪਿਊਟੇਸ਼ਨਲ ਵਿਧੀਆਂ ਸਬੰਧੀ ਕਰਵਾਈ ਕਾਨਫਰੰਸ

ਚੌਥੀ ਕੌਮਾਂਤਰੀ ਕਾਨਫਰੰਸ ਕਰਵਾਈ

ਸੀਜੀਸੀ ਲਾਂਡਰਾਂ ਵਿਖੇ ਸੋਵੀਨਾਰ ਜਾਰੀ ਕਰਦੇ ਹੋਏ ਮੁੱਖ ਮਹਿਮਾਨ।

ਸੀਜੀਸੀ ਲਾਂਡਰਾਂ 'ਚ ਵਿਗਿਆਨ ਤੇ ਤਕਨਾਲੋਜੀ 'ਚ ਕੰਪਿਊਟੇਸ਼ਨਲ ਵਿਧੀਆਂ ਸਬੰਧੀ ਚੌਥੀ ਅੰਤਰਰਾਸ਼ਟਰੀ ਕਾਨਫ਼ਰੰਸ ਕਰਵਾਈ

ਕੰਪਿਊਟੇਸ਼ਨਲ ਵਿਧੀਆਂ ਸਬੰਧੀ ਕਰਵਾਈ ਚੌਥੀ ਅੰਤਰਰਾਸ਼ਟਰੀ ਕਾਨਫਰੰਸ ਦਾ ਦ੍ਰਿਸ਼।

Newspaper coverage of the conference

Webinar on Reimagine Learning for Future India

The Department of Mechanical Engineering, CEC-CGC, Landran, in association with NAMTECH, Research Park, IIT Gandhinagar, successfully organized a webinar titled "Reimagine Learning for Future India" on 02nd May 2024. The event aimed to spearhead India's educational evolution and workforce readiness for the Industry 4.0 era, with a central focus on Industry 4.0 concepts and careers in Smart Manufacturing. Students learned how innovative educational approaches can equip India's workforce with the skills and knowledge vital for success in tomorrow's industrial landscape. This technical session provided participants with valuable insights into transformative technologies, preparing them for future challenges and opportunities in the industrial sector.

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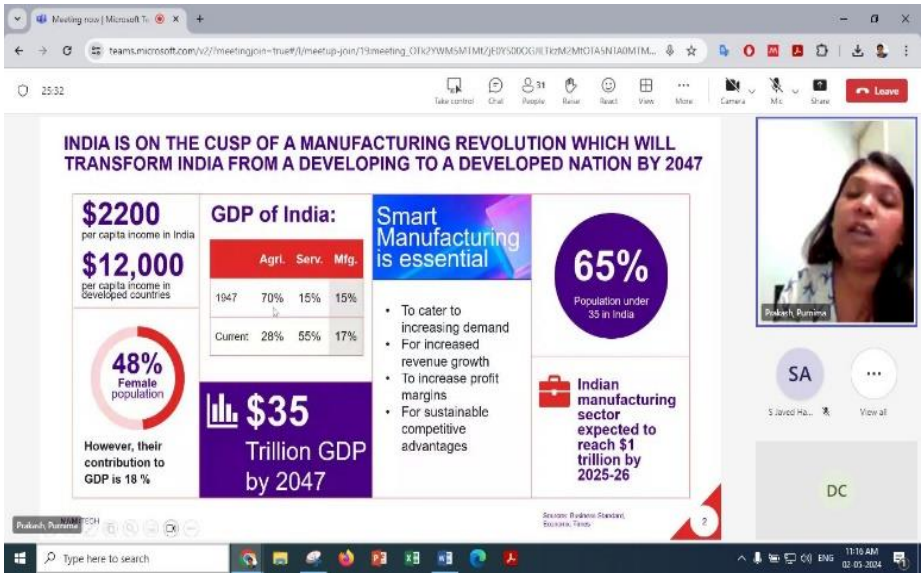
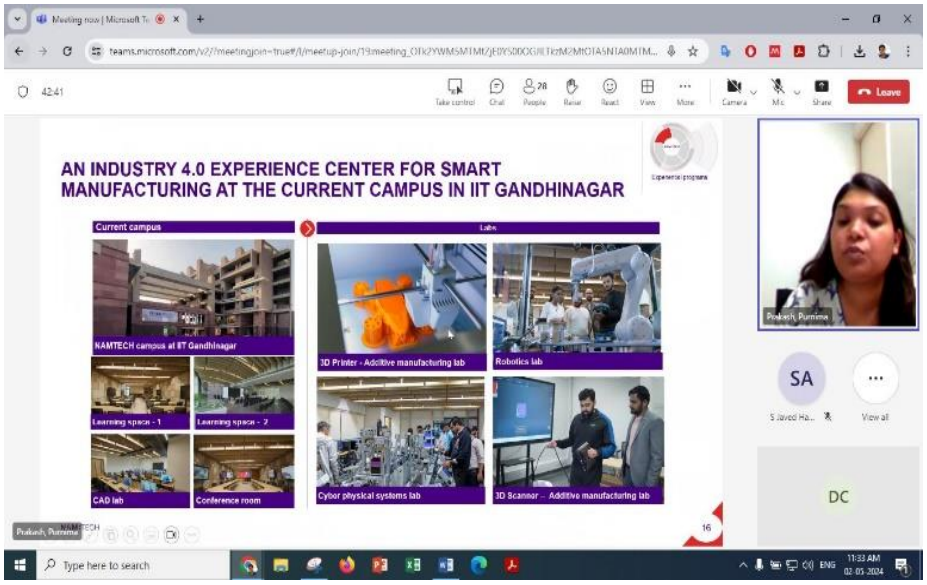




Snapshots of the webinar on Reimagine Learning for Future India

Industrial Visit to Sangam Engineering Enterprises

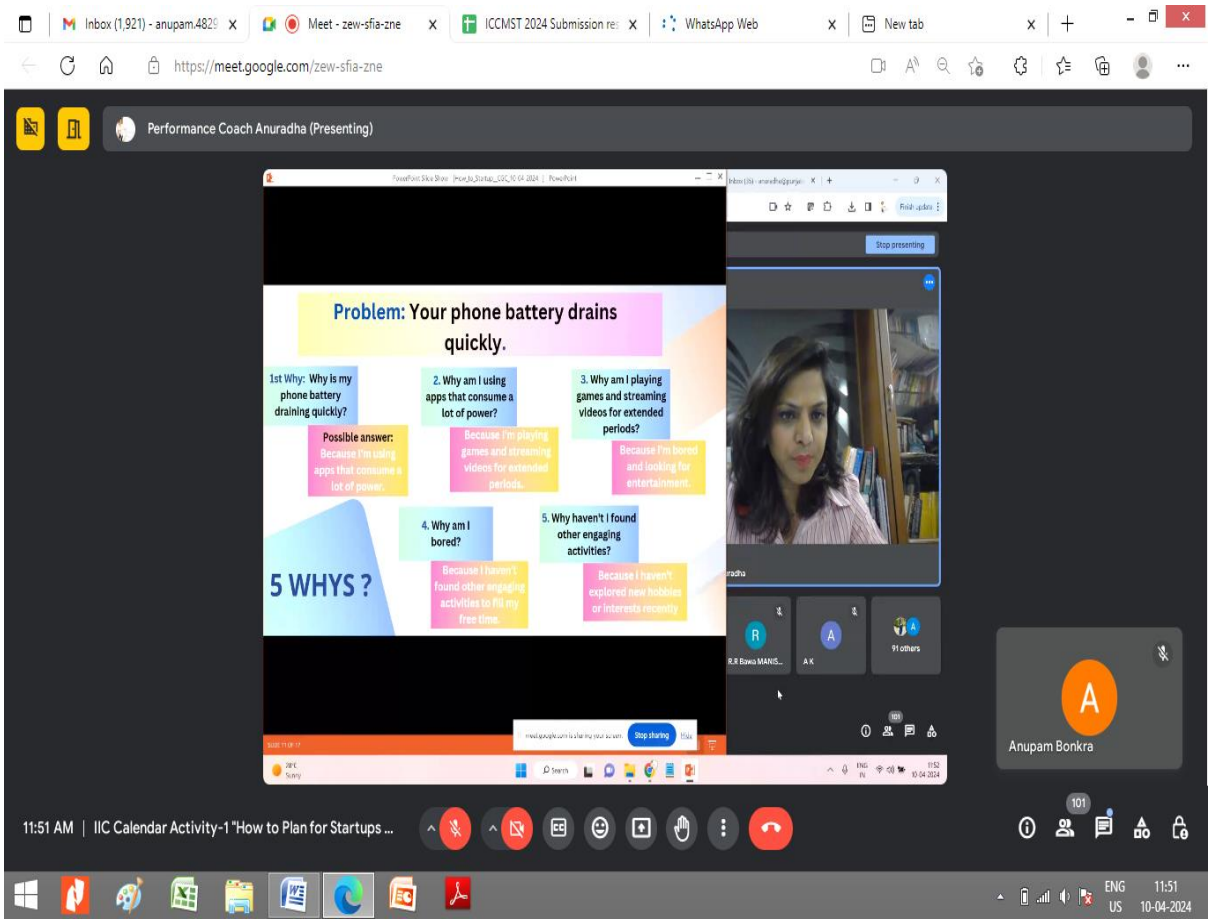
The Department of Mechanical Engineering organized an industrial visit to Sangam Engineering Enterprises, Mohali, on April 03, 2024. The visit aimed to provide Mechanical Engineering students with firsthand exposure to industrial processes and CNC technology, bridging the gap between theory and practice. Students observed the operation of advanced CNC metal cutting machines and various manufacturing processes used in automobile component production, gaining insights into the complexities of the automotive industry. The visit also familiarized students with different types of machinery, offering practical applications of mechanical engineering principles. It provided hands-on experience and a deeper understanding of the operations and mechanisms involved in automotive manufacturing, enhancing their overall learning experience.

Figure:Group Photograph of Students attending the Industrial Visit

Students Learning about the Manufacturing Processes at Sangam Engineering Enterprises

Session on “How to plan for Startup and Legal & Ethical steps”

On 10th April 2024, Chandigarh Engineering College's Institution Innovation Council (IIC) held a session titled "How to Plan for Startup and Legal & Ethical Steps," aimed at students and faculty from various mentee institutions including RR Bawa DAV College for Girls, CGC College of Engineering, Chandigarh College of Pharmacy, Govt. College Ropar and A.S. Group of Institutions. The event provided comprehensive insights into startup planning, legal considerations and ethical frameworks delivered by expert speakers who shared actionable strategies for launching startups and navigating related challenges. Utilizing virtual platforms, multimedia presentations, live Q&A sessions and breakout rooms, the session facilitated interactive discussions and networking opportunities, inspiring entrepreneurial motivation and promoting responsible business conduct. Attendees gained valuable knowledge and practical strategies, leaving the event equipped to participate effectively in the startup ecosystem and uphold legal and ethical standards.



Faculty delivering an online session

Session With ATL Schools

Chandigarh Engineering College organized a session for Atal Technical School students on 19th April 2024, aimed at immersing them in innovation and entrepreneurship. The event, held in Wilson, Block 3, included students from Infant Jesus Convent School, Learning Public School and Shivalik Public School. It featured expert insights, practical exposure to advanced labs and discussions on intellectual property rights. Participants gained hands-on experience with emerging technologies, enhancing their understanding of innovation and entrepreneurship. The session aimed to foster creativity, critical thinking and entrepreneurial spirit, preparing students for careers in STEM fields and contributing to India's evolving business landscape. The event also highlighted IIC's support services for start-ups including funding, mentorship and networking opportunities. Students bridged the gap between theory and practice. Exposure to incubation centres fuelled entrepreneurial aspirations and increased awareness of intellectual property rights and their significance in innovation.

Students of ATAL School interacting with CEC-CGC faculty

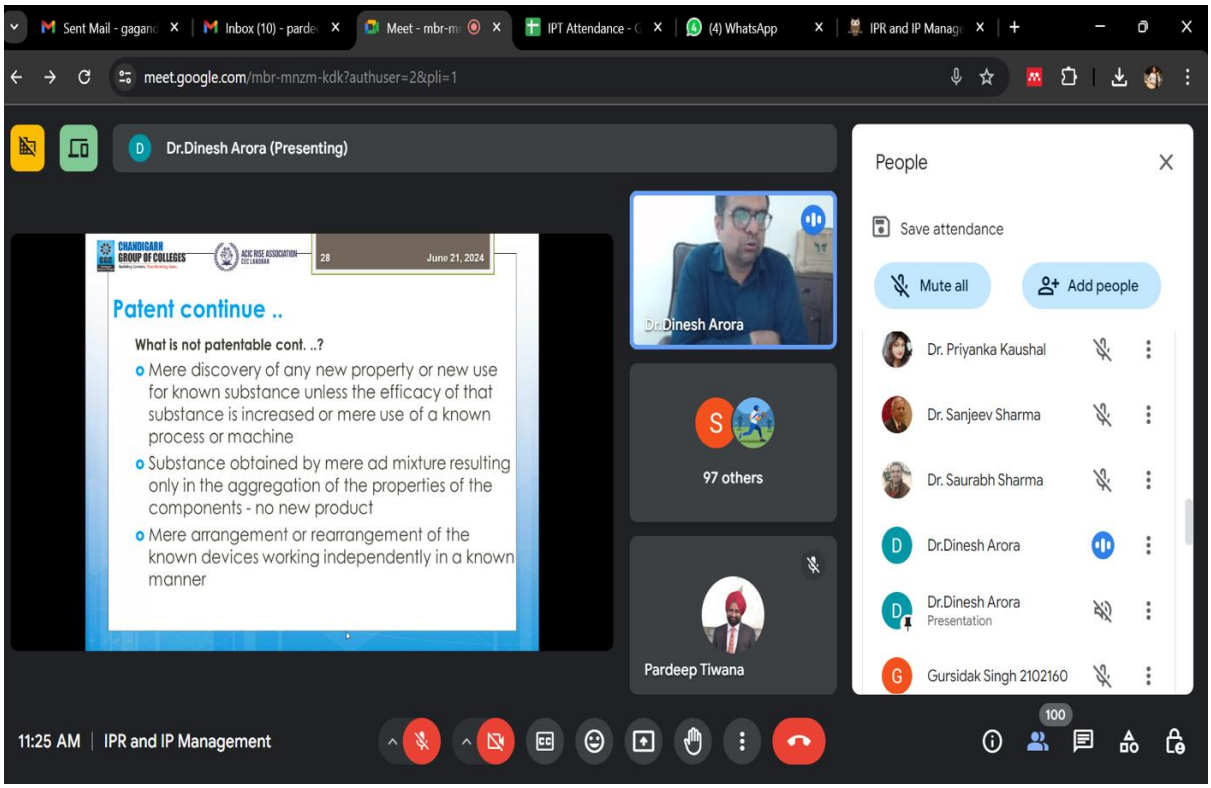
Innovation & Entrepreneur (I &E) Training cum ExposureVisit

On 6 -7 June 2024, Chandigarh Engineering College's Institution Innovation Council (IIC) organized a two-day "Innovation & Entrepreneurship (I&E) Training Cum Exposure Visit" for mentee institute representatives. The event, held in collaboration with ACIC-RISE Association, aimed to enhance awareness of pre-incubation and incubation facilities, intellectual property rights (IPR) filing and management and start-up support provided by the ACIC Incubation Centre at CEC-CGC. Participants included faculty from Government College Ropar, A.S. Group of Institutions Khanna, CGC College of Engineering Landran, R.R. Bawa DAV College for Girls Batala and Chandigarh College of Pharmacy Landran. Sessions covered IPR filing by Ms. Divya Kaushik and pre-incubation management by Dr. Ruchi Singla and Dr. Sonia, emphasizing innovation, ethical practices and start-up development. The program included exposure visits to ACIC-RISE labs and CEC's IPR Cell, showcasing ongoing projects and incubation facilities. The event successfully increased participants' awareness of IP protection, practical startup planning and incubation management, encouraging them to enhance their institution's IIC ecosystem and engage in research and innovation.

Exposure visit of participants to ACIC-RISE labs

Workshop on “IPR and IP Management”

On 21st June 2024, Chandigarh Engineering College-CGC, Landran-Institution's Innovation Council (IIC) organized an online "Workshop on IPR and IP Management" as a part of the IIC Calendar Activity-2 under the Mentor-Mentee Program for IIC Institutes, Ministry of Education (MoE) Innovation Cell (MIC), Govt. of India. The workshop aimed to brief mentee institute representatives on patents, trademarks, copyrights, and commercialization, TRLs, IPR and IP Management. Dr. Dinesh Arora and Dr. Prashant Kumar provided comprehensive insights on these topics emphasizing the importance of strategic IP management, effective commercialization of technology and fostering innovation. The event highlighted the knowledge commercialization cycle, the significance of industry involvement in technology development and the role of Technology Readiness Levels (TRLs). Participants gained increased awareness of IPR and IP management, a better understanding of the knowledge commercialization process and insights into addressing technology commercialization challenges. The workshop aimed to motivate research, innovation and capacity building, equipping participants with the knowledge to navigate the start-up ecosystem and meet market demands.



Dr. Dinesh delivering online session on IPR process

ECE Department organized "ElectroFusion 2K24"

Department of Electronics and Communication Engineering , Chandigarh Engineering College-CGC, Landran, Mohali organized Inter-Departmental Technical, Non- Technical cum Cultural event "Electro Fusion 2K24" on 4th -5th April 2024 with primary objective to provide students the opportunity for exposure and a platform to exhibit their talents and skills across diverse fields. The program started with an Inaugural ceremony taking the blessings of Goddess Saraswati. The Inter-Departmental activities executed with a total number of 9 events which were planned and focused on different categories: Technical and Non-Technical, along with cultural event. The event was folded in various sub-events like Expert Talk on recent advancements in ECE by Dr. Balwinder Singh Joint Director & Head, ACSD, CDAC Mohali Syntax Hack, Circuito, Robo-championship, Battle Arena, Debate Dome, Rangoli Making, Couture Canva ,Talent Hunt. Winners were awarded with cash prizes and certificates.

ElectroFusion 2K24

Harnessing Machine Learning for Real-Time Problem Solving

Article by: Dr. Ashima Kalra
Associate Professor, ECE Department

In today's digital age, Machine Learning (ML) stands as a powerful tool capable of revolutionizing how we address real-time challenges across various domains. From predicting consumer behavior to optimizing traffic flow, the applications of ML are vast and increasingly integral to modern problem-solving.

Healthcare Diagnostics and Treatment
Machine Learning plays a pivotal role in healthcare by analyzing medical data to assist in disease diagnosis, personalize treatment plans, and predict patient outcomes. Real-time ML applications enable healthcare providers to deliver timely interventions, improve patient care, and enhance operational efficiency.

Smart Manufacturing and Quality Control
In manufacturing, ML algorithms monitor production processes in real-time, identifying anomalies and predicting equipment failures before they occur. This proactive approach minimizes downtime, reduces waste, and ensures consistent product quality, thereby optimizing operational efficiency.

Optimizing Transportation and Logistics
Machine Learning optimizes transportation networks by analyzing real-time data to predict traffic patterns, optimize routes, and manage logistics operations efficiently. This results in reduced congestion, lower fuel consumption, and enhanced delivery reliability.

Natural Language Processing and Customer Interaction
In customer service and marketing, ML-powered chatbots and sentiment analysis algorithms analyze real-time customer interactions. This enables businesses to provide personalized responses, improve customer satisfaction, and optimize marketing strategies based on real-time feedback.

Despite its transformative potential, deploying ML for real-time applications poses challenges such as data quality, algorithm complexity, and ethical considerations. Ensuring data privacy, addressing biases in algorithms, and maintaining transparency are critical for fostering trust and achieving ethical AI deployment. As ML algorithms continue to evolve alongside advancements in computing power and data availability, their applications in real-time problem-solving will expand. Collaborative efforts across industries, ongoing research in AI ethics, and investments in AI infrastructure will shape a future where Machine Learning enhances decision-making, drives innovation, and improves quality of life on a global scale.
In conclusion, the application of Machine Learning for real-time problem-solving represents a transformative shift towards data-driven decision-making across industries. By harnessing its predictive capabilities responsibly, we can unlock new opportunities, overcome complex challenges, and pave the way for a smarter, more efficient future.

Generative AI: From Sci-Fi Dream to Reality - Unleashing a World of Creative Potential

Article by: Ms. Dapinty Saini
Assistant Professor, CSE Department

Generative AI is no longer the stuff of science fiction movies. It's here, it's working wonders, and it's poised to revolutionize the way we create content, design products, and approach problem-solving across industries.

Unveiling the Magic: What is Generative AI and Why Should You Care?

Imagine a world where a machine can write a catchy jingle, dream up a ground breaking invention, or paint a masterpiece – all based on your instructions. That's the power of generative AI, a form of artificial intelligence focused on creating entirely new content from text and images to code and even music. Here's the exciting part: generative AI is rapidly evolving. Let's delve into the latest breakthroughs that are pushing the boundaries of what's possible in 2024.

2024 and Beyond: A Glimpse into the Cutting Edge of Generative AI

● The Wordsmith Within: How AI is mastering the Art of Language Chatterbots on Steroids: The Rise of Large Language Models (LLMs)Think of LLMs like me as super-powered catboats that can not only have conversations but also craft different writing styles – from composing a press release to penning a sonnet.○ From Blank Page to Bestseller: AI-Powered Writing Assistants Take Centre Stage Say goodbye to writer's block! AI assistants are here to help generate ideas, overcome creative roadblocks, and even write entire drafts, making content creation faster and more efficient.

● Beyond Text: When Images and Videos Leap off the Screen Dall-E 2 and Beyond: The Age of Photorealistic AI-Generated Art Imagine describing your dream vacation destination and having a picture-perfect image appear before your eyes. Thanks to tools like Dall-E2, creating hyper-realistic images based on text descriptions is becoming a reality. Lights, Camera, Action! The Rise of AI-Powered Video Editing Thorold of video editing is also embracing AI. New software can streamline tasks like colour correction and basic editing, freeing up editors to focus on the creative aspects.

● Code and Design: When Creativity Meets Automation○ From Scratch to Prototype: How AI is assisting with Product Design Stuck on a design concept? AI can help generate initial ideas and variations based on your specifications, accelerating the design process. Coding Companions: AI Tools that Write Code alongside You Don’t worry, coders, AI isn't here to replace you. Instead, generative models can create basic code snippets or suggest solutions, making development faster and more efficient. These are just a few examples of how generative AI is making waves in 2024. But the future holds even more exciting possibilities!

Importance of Feature Extraction methods for Real World Applications

Article by: Dr.Shekhar Karanwal
Assistant Professor, CSE Department

To built any real world application there are four phases and these are Image Pre-processing, Feature Extraction, Dimension reduction and Classification. Some examples of the real world applications are Biometric authentication, Mobile phones, Surveillance cameras, For Security purposes etc. In pre-processing the steps of image enhancement and image filtering are performed. Then important and relevant features are extracted through robust and discriminant algorithms. Dimension reduction is necessary to choose the essential features for classification by removing the redundant features. Finally the matching is performed by using the effective and efficient classifier. Among all these phases the feature extraction is the most prominent and major phase. The feature extraction method is classified into different categories and these are local, global, hybrid and deep learning. In local, the features are extracted from different regions such as eyes, nose, mouth, eyebrows and forehead. The features extracted from these regions are integrated to develop the entire feature size. Most of the local feature extraction methods are based on the patch based technology. The patch windows of different sizes are used for developing the feature size. Some of the examples of the local features extraction methods are Local Binary Pattern (LBP), Center Symmetric-Local Binary Pattern (CS-LBP), Multiscale Block-Local Binary Pattern (MB-LBP), Local Ternary Pattern (LTP), Local Derivative Pattern (LDP), Orthogonal Difference-Local Binary Pattern (OD-LBP), Neighborhood and Center Difference based-Local Binary Pattern (NCDB-LBP), Discriminative Binary Pattern (DBP) etc. Most of the LBP variants are inspired from LBP. LBP is one of the first and major local descriptors invented in literature by Ojala et al. In LBP, all the neighborhoods are compared with the center pixel. Those having the value greater or equal to the center pixel are assigned the label 1 otherwise 0. By assigning weights and adding values generates the LBP code for each pixel position. By computing the LBP code for each pixel position generates the LBP image. The LBP image can be used in two ways either histograms are extracted locally from the whole image or histograms are extracted regionally. The merits of LBP are monotonic gray invariance property and less complex algorithm. Despite some demerits there are various limitations are found in LBP such as (1) large feature size, (2) limited spatial ability, (3) noisy thresholding function and (4) un-affective in extreme lightning variations. To overcome all these demerits the LBP variants has been introduced and most of these variants defeats the performance of LBP more emphatically. These LBP variants are advanced versions of LBP and are based on extracting the features directionally, topologically, gammadion structure and so on. In global, the features are extracted globally from the whole image. The whole image can be of any application. Some examples of the global methods are Principal Component Analysis (PCA), Fishers Linear Discriminant Analysis (FLDA), Locality Preserving Projections (LPP), Kernel PCA (KPCA), Kernel FDA (KFDA), Centroid class Principal Component Analysis (CCPCA) etc. In hybrid, the combinations of local and global methods are performed. Feature extraction is performed through local methods and the feature reduction is conducted through global methods. Feature reduction is necessary to remove the irrelevant information. In

unconstrained conditions the performance of local descriptors are much better than global descriptors and the hybrid one is the most effective than either of them. The unconstrained conditions which severely effects the performance are light, emotion, pose, blur, noise, occlusion and corruption.

To achieve discriminativity in such conditions the effective and efficient feature extraction method is needed. To develop real world applications these feature extraction methods plays the crucial role. Some of the major application areas in which these feature extraction methods has been used successfully are Face Recognition (FR), Palmprint Recognition (PR), Ear Recognition (ER), Surveillance Cameras (SC) etc.

The other class of feature extraction method which gains huge popularity is deep learning techniques. For different applications application the results achieved by the deep methods is very amazing. In most of the unconstrained conditions the deep learning methods achieve astounding results. For extracting features in deep methods a pre-trained deep CNN is utilized. Some examples of deep methods are AlexNet, VGG, ResNet-50 and LetNet. Although the feature extraction in these techniques can be done by other layer activation functions. Despite some of the benefits there are various shortcomings are observed in these techniques and these are: (1) Their Computational cost is on higher side, (2) Large portion of training data needed, (3) Difficulty for the adaption of parameter settings. In contrast there are some local methods whose results are much better in unconstrained conditions.

Faculty Achievements (Certifications/ Patents)

- **Ms. Parneet Kaur,** Assistant professor, CEC CSE department got Swayam certification on "Introduction to cyber security"

SWAYAM ONLINE COURSE CERTIFICATION

This Certificate is awarded to

PARNEET KAUR

for successfully completing the 4 credit course

Introduction to Cyber Security

with a consolidated score of 87% marks

in the proctored examination held on 18-May-24

offered by ***Dr. Jeetendra Pande*** *of*

Uttarakhand Open University, Haldwani

Roll No:CH01012486

Uma Kanjilal

Prof. Uma Kanjilal
National Coordinator / Registrar, SED
Indira Gandhi National Open University, New Delhi

Issued On: 20/06/2024

Prof. Somesh Kumar
Controller of Examination
Uttarakhand Open University, Haldwani

- **Dr Amit Verma, Iqbaldeep Kaur and Sumit Kaur** got their patent granted on 30th April, 2024. The title of the patent is "Method for Embedding Data in Images by Steganography."

पेटेंट कार्यालय,भारत सरकार
पेटेंट प्रमाण पत्र
(पेटेंट नियमावली का नियम 74)

The Patent Office, Government Of India
Patent Certificate
(Rule 74 of The Patents Rules)

पेटेंट सं. / Patent No. : 536176

आवेदन सं. / Application No. : 201811048451

फाइल करने की तारीख / Date of Filing : 20/12/2018

पेटेंटी / Patentee : Chandigarh Group of Colleges

प्रमाणित किया जाता है कि पेटेंटी को, उपरोक्त आवेदन में यथाप्रकटित *METHOD FOR EMBEDDING DATA IN IMAGES BY STEGANOGRAPHY* नामक आविष्कार के लिए, पेटेंट अधिनियम, 1970 के उपबंधों के अनुसार आज तारीख दिसम्बर 2018 के बीसवें दिन से बीस वर्ष की अवधि के लिए पेटेंट अनुदत्त किया गया है।

It is hereby certified that a patent has been granted to the patentee for an invention entitled *METHOD FOR EMBEDDING DATA IN IMAGES BY STEGANOGRAPHY* as disclosed in the above mentioned application for the term of 20 years from the 20th day of December 2018 in accordance with the provisions of the Patents Act,1970.

अनुदान की तारीख : 30/04/2024
Date of Grant :

पेटेंट नियंत्रक
Controller of Patents

टिप्पणी - इस पेटेंट के नवीकरण के लिए फीस, यदि इसे बनाए रखा जाना है, दिसम्बर 2020 के बीसवें दिन को और उसके पश्चात प्रत्येक वर्ष में उसी दिन देय होगी।

Note.- The fees for renewal of this patent, if it is to be maintained, will fall / has fallen due on 20th day of December 2020 and on the same day in every year thereafter.

➢ **Ms. DapinderKaur, AnmolAneja, Dr. Lakhwinder Singh and Dr. Manish Mahajan** got their patent granted on 26th April, 2024. The title of the patent is "Sonic Wheelchair."

पेटेंट कार्यालय,भारत सरकार The Patent Office, Government Of India
पेटेंट प्रमाण पत्र | Patent Certificate

पेटेंट सं. / Patent No. : 535112
आवेदन सं. / Application No. : 201711014118
फाइल करने की तारीख / Date of Filing : 20/04/2017
पेटेंटी / Patentee : 1.Anmol Aneja 2.Dr. Lakhwinder Singh 3.Dr. Manish Mahajan 4.Ms. Dapinder Kaur

प्रमाणित किया जाता है कि पेटेंटी को, उपरोक्त आवेदन में यथाअभिलिखित SONIC WHEELCHAIR नामक आविष्कार के लिए, पेटेंट अधिनियम, 1970 के उपबंधों के अनुसार आज तारीख अप्रैल 2017 के बीसवें दिन से बीस वर्ष की अवधि के लिए पेटेंट अनुदत्त किया गया है।

It is hereby certified that a patent has been granted to the patentee for an invention entitled SONIC WHEELCHAIR as disclosed in the above mentioned application for the term of 20 years from the 20th day of April 2017 in accordance with the provisions of the Patents Act,1970.

Date of Grant : 26/04/2024
Controller of Patents

Note. - The fees for renewal of this patent, if it is to be maintained, will fall / has fallen due on 20th day of April 2019 and on the same day in every year thereafter.

*Since the Number of Patentees / Inventors is more, the name of Patentees / Inventors are continued on Page No. 2

Faculty Achievements (Certifications/ Patents)

➢ **Dr. Parveen Singla, Dr. Rajdeep Singh, Dr. Rinkesh Mittal, Ashima Kalra, Sonia Jindal, Chetan Chadha, Himanshu Chawla, Anmol, Tanvi gupta, Ayushi Sharma, Hardyal Singh Mann, Amanjot Singh, Hardiq Verma, Ravikant, Divakar Sharma** got their patent granted on "Heat Shield Device for protecting atmospheric re-Entry of Space Probe and its method thereof."

पेटेंट कार्यालय भारत सरकार The Patent Office, Government Of India
पेटेंट प्रमाण पत्र | Patent Certificate

पेटेंट सं. / Patent No. : 538882
आवेदन सं. / Application No. : 201911012806
फाइल करने की तारीख / Date of Filing : 30/03/2019
पेटेंटी / Patentee : Chandigarh Group of Colleges
आविष्कारक (कों) / Inventor(s) : 1.Dr. Parveen Singla 2.Dr. Rajdeep Singh 3.Dr. Rinkesh Mittal 4.Ashima Kalra 5.Sonia Jindal 6.Chetan Chadha 7.Himanshu Chawla 8.Anmol

प्रमाणित किया जाता है कि पेटेंटी को, उपरोक्त आवेदन में यथाअभिलिखित HEAT SHIELD DEVICE FOR PROTECTING ATMOSPHERIC RE-ENTRY OF SPACE PROBE AND ITS METHOD THEREOF नामक आविष्कार के लिए, पेटेंट अधिनियम, 1970 के उपबंधों के अनुसार आज तारीख मार्च, 2021 के तीसवें दिन से बीस वर्ष की अवधि के लिए पेटेंट अनुदत्त किया गया है।

It is hereby certified that a patent has been granted to the patentee for an invention entitled HEAT SHIELD DEVICE FOR PROTECTING ATMOSPHERIC RE-ENTRY OF SPACE PROBE AND ITS METHOD THEREOF as disclosed in the above mentioned application for the term of 20 years from the 30th day of March 2021 in accordance with the provisions of the Patents Act,1970.

Date of Grant : 20/04/2024
Controller of Patent

Note. - The fees for renewal of this patent, if it is to be maintained will fall / has fallen due on 30th day of March 2021 and on the same day in every year thereafter.

*Since the Number of Patentees / Inventors is more, the name of Patentees / Inventors are continued on Page No. 2

- **Surinder Singh, Gaurav Kumar, Gaganpreet Kaur, Manmeet Kaur, Preeti Bansal, Gurmeet kaur, Lalit Saroya, Shanky Grover, Diwakar Singh, Navneet Kalsi, Harmanpreet Singh, Shubham Rohilla, Vibhi Pupreja** got their patent granted on "An Apparatus for Heat Shield Release Mechanism."

INTELLECTUAL PROPERTY INDIA

पेटेंट कार्यालय,भारत सरकार The Patent Office, Government Of India

पेटेंट प्रमाण पत्र | Patent Certificate

(पेटेंट नियमावली का नियम 74) | (Rule 74 of The Patents Rules)

पेटेंट सं. / Patent No.	:	524404
आवेदन सं. / Application No.	:	201811019976
फाइल करने की तारीख / Date of Filing	:	28/05/2018
पेटेंटी / Patentee	:	Chandigarh Group of Colleges
आविष्कारकों का नाम /Name of Inventor(s)	:	1.Surinder Singh 2.Gaurav Kumar 3.Gaganpreet Kaur 4.Manmeet Kaur 5.Preeti Bansal 6.Gurmeet kaur 7.Lalit Saroya 8.Sanket Sharma

प्रमाणित किया जाता है कि पेटेंटी को, उपरोक्त आवेदन में उपाबंधित *AN APPARATUS FOR HEAT SHIELD RELEASE MECHANISM* नामक आविष्कार के लिए, पेटेंट अधिनियम, 1970 के उपबंधों के अनुसार आज तारीख मई 2018 के अट्ठाईसवें दिन से बीस वर्ष की अवधि के लिए पेटेंट अनुदत्त किया गया है।

It is hereby certified that a patent has been granted to the patentee for an invention entitled *AN APPARATUS FOR HEAT SHIELD RELEASE MECHANISM* as disclosed in the above mentioned application for the term of 20 years from the 28th day of May 2018 in accordance with the provisions of the Patents Act,1970.

Faculty Achievements (Certifications/ Patents)

- **ECE department** got 24 patents with CBR no. and 12 patents granted during the month of April-May 2024. The detail is given below:

S.No	Title of Invention
1	Soundless Horn System
2	Portable Tiffin Box With Temperature control Solution
3	Garbage Segregation System Based On Machine learning/Artificial Intelligence (Ai/Ml)
4	A System For Three-Dimensional Visualization of The Blueprint
5	A Method For Three-Dimensional Bioprinting
6	A System For A Key Reminder
7	Emergency Rescue System
8	Location Detection System
9	Smart Shock Proof Socket
10	Braintec Helmet
11	Underwater Pipeline Inspection And Maintenance System
12	Fruit And Vegetable Quality Tester
13	Centralized Monitoring System For Street Light Fault Detection And Location Tracking.
14	An Intelligent Plant Care And Monitoring System
15	Follow Wagon
16	Agriquaponics
17	Automatic Height Adjustable Bridge
18	Modular Phase Detecting Eltric Socket
19	Fruit Consumption Assistive Device For Child
20	Secured Key Holding Device
21	Hole Digging Assistive Device
22	Modular Zipper Pull Tab Device
23	Modular Drawing Practicing Assistive Device
24	Automated Toddler Securing Device

- **ECE department faculty** completed online certification courses from different platforms like AWS, Lernx and google etc during the month of April to June 2024. The detail is given below:

S.No	Name	Name of course
1	Dr. Tarun Singhal	Mastery in Javascript
2	Dr. Abhishek Sharma	Python 3 Bootcamp
3	Dr. Ramanpreet kaur	Python 3 Bootcamp
4	Dr. Pooja Sahni	Python 3 Bootcamp
5	Dr. Ashima Kalra	Ethical Hacking
6	Dr. Deepak Dadwal	Python 3 Bootcamp
7	Dr. Bhawna Tandon	Python 3 Bootcamp
8	Dr. Gagandeep	Creating Apps in python
9	Rachna	Mastery in Javascript
10	Dr. Pradeep Kumar Gaur	Python 3 Bootcamp
11	Priyanka Sood	AWS Course on data analyst
12	Dr. Sukhdeep Kaur	Creating Apps in python
13	Dr. Mohit Srivastava	Python 3 Bootcamp
14	Dr. Simarpreet Kaur	Creating Apps in python
15	Dr. Mandeep Singh	Creating Apps in python
16	Dr. Komal	Creating Apps in python
17	Dr. Rinkesh Mittal	Project Management
18	Preeti Bansal	Creating Apps in python
19	Dr. Ankur Singhal	Project Management
20	Priyanka Sood	Mastery in Javascript
21	Dr. Gagandeep	Aws courses on cyber security and data analyst
22	Nidhi Chahal	Creating Apps in python
23	Priyanka Sood	AWS Course on data analyst

Faculty Achievements (Publications)

- **Ms. Nisha Kumari**, Assistant Professor, Applied Sciences Department published a research paper entitled, "Taxonomy of Technical Challenges in Digital Forensics" in IEEE Proceedings.

- **Dr.Saurabh Chaitanya**, Associate Professor, Department of Mechanical Engineering published a research paper entitled, "Static and dynamic mechanical behavior of intra-hybrid jute/sisal-reinforced polypropylene composites: Effect of stacking sequence" in SCI listed Journal (Polymer Composites) having an impact factor of 5.1.

- **Dr. Amanpreet Kaur**, HOD and Professor, Department of Information Technology presented and published a research paper titled "Deep Insight of Medical Images Segmentation and Classification By Deep Learning" in 4th International Conference on Computational Methods in Science and Technology (ICCMST) held at CEC-CGC, Landran, Punjab, India on May 2-3, 2024.

- **Dr. Arvinder Kaur**, Associate Professor, Department of Information Technology presented and published a research paper titled "Advancements in Bat Algorithm" in 4th International Conference on Computational Methods in Science and Technology (ICCMST) held at CEC-CGC, Landran, Punjab, India on May 2-3, 2024.

- **Dr. Monika**, Assistant Professor, Department of Information Technology presented and published a research paper titled "Comparative analysis of Bandwidth Allocation and Path Computation in GMPLS based NSFnet Networks" in 4th International Conference on Computational Methods in Science and Technology (ICCMST) held at CEC-CGC, Landran, Punjab, India on May 2-3, 2024.

- **Ms. Megha**, Assistant Professor, Department of Information Technology presented and published a research paper titled "Fog Computing in Health Tech: A Critical Review for Smart HealthCare Systems" in 4th International Conference on Computational Methods in Science and Technology (ICCMST) held at CEC-CGC, Landran, Punjab, India on May 2-3, 2024.

- **Ms. Amanpreet Kaur**, Assistant Professor, Department of Information Technology presented and published a research paper titled "New Era of Gene Classification Methods using Machine Learning" in 4th International Conference on Computational Methods in Science and Technology (ICCMST) held at CEC-CGC, Landran, Punjab, India on May 2-3, 2024.

- **Ms. Navpreet Kaur**, Assistant Professor, Department of Information Technology presented and published a research paper titled "Mitigating DDoS Attacks: A Distributed Blockchain-SDN Secure IoT System Enhanced by Artificial Neural Networks" in 4th International Conference on Computational Methods in Science and Technology (ICCMST) held at CEC-CGC, Landran, Punjab, India on May 2-3, 2024.

Faculty Achievements (Publications)

- **Ms. Lakhvinder Kaur**, Assistant Professor, Department of Information Technology presented and published a research paper titled "Mitigating DDoS Attacks: A Distributed Blockchain-SDN Secure IoT System Enhanced by Artificial Neural Networks" in 4th International Conference on Computational Methods in Science and Technology (ICCMST) held at CEC-CGC, Landran, Punjab, India on May 2-3, 2024.

- **Dr. Ashima Kalra** published book chapter on "Applications of artificial intelligence across Industry 4.0" in CRC book Machine Learning for Sustainable Manufacturing in Industry 4.0.

- **Dr. Ramanpreet Kaur** published research paper on "Predictive Modelling for Heating and Cooling Load Systems of Residential Building" in 2024 IEEE International Conference on Interdisciplinary Approaches in Technology and Management for Social Innovation (IATMSI).

- **Parveen Singla; Shabnam Thakur; Dinesh Arora; Rinkesh Mittal** et al. published research paper on "Blacklist techniques for isolation of black hole attack in mobile ad hoc network" in Scopus indexed AIP conference proceeding.

- **Ms.Nidhi Chahal** published book chapter on "Blockchain, Evolution and Future Scope: An Overview" in CRC book Convergence of Blockchain and Internet of Things in Healthcare.

Students Achievements

- **Deepjot Sehgal**, a student of B.Tech Information Technology successfully completed his **semester exchange programme** at Thomas Moore, Belgium. He expressed his gratitude to CEC-CGC Landran along the following lines:

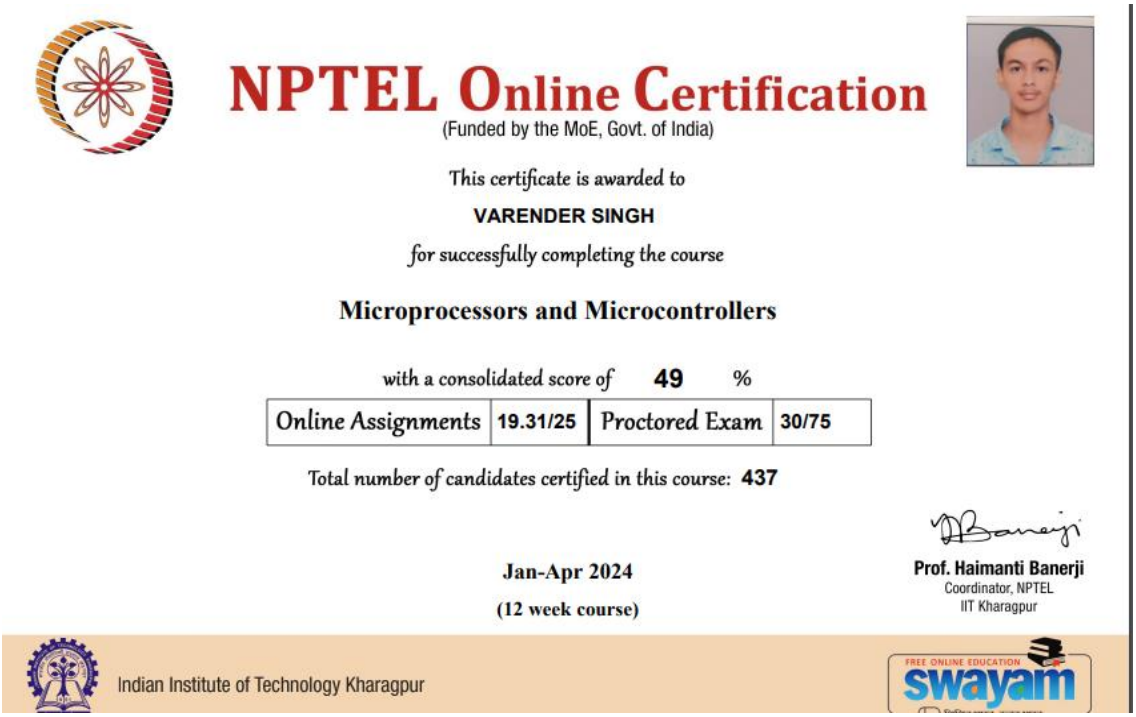
Imagine walking onto a plane and travelling 7000 miles across the ocean to spend a semester of your college career in a completely different place that you've never thought to live even in your dream. Well, that was something that I just personally experienced & It was probably the most exciting, yet nerve-wracking thing that I had ever done in my life all praises to the CGC's International Affairs team, my incredibly helpful mentors, and my personal efforts that i followed their prescribed path. In those five short months, I experienced a discrete culture, ate new cuisines like kip kapsalom samos jullientje frits , made lifelong friends which were unalike my culture, travelled to other countries as I had a Schenegan visa, which gave access to me to travel to 28 countries besides Belgium. Along with all of these enjoyable things, I also learnt to grasp an accent and a language that sounded like a totally other thing to me because in Belgium their first preferred language is Dutch also known as Nederland. To be honest which initially became a huge hurdle in my European life but as you all know where there is a will there is a way and I founded a way by learning dutch in one of their renowned government institution and attained a certification till A2 nonetheless I accomplished all this while learning and taking a full course load at the university. All in all it was literally a life changing experience which taught me numerous things which overall transformed me as an individual.

Deepjot Sehgal at Thomas Moore, Belgium

Students Achievements

- **ECE department** got approximately **120 students MOOC certifications** from different online certification platforms like Coursera, Udemy, Swayam, AWS, future learn ,skill up, AWS Educate, Great Learning, GUVI etc. in the month of June 2024 .

- **ECE department** completed **50+ students SWAYAM-NPTEL certifications** and 4 faculty SWAYAM-NPTEL certifications on Course "Microprocessor and Microcontrollers" till the Month of April 2024.



NPTEL Online Certification

(Funded by the MoE, Govt. of India)

This certificate is awarded to

VARENDER SINGH

for successfully completing the course

Microprocessors and Microcontrollers

with a consolidated score of 49 %

Online Assignments	19.31/25	Proctored Exam	30/75

Total number of candidates certified in this course: 437

Jan-Apr 2024

(12 week course)

Prof. Haimanti Banerji
Coordinator, NPTEL
IIT Kharagpur

Indian Institute of Technology Kharagpur

FREE ONLINE EDUCATION swayam

- ECE department students got placed in reputed companies like Capgemini, Cognizant etc with highest package of **5.04 LPA.**

- Aerothon 6.0, a hackathon conducted by Airbus throughout India, attracted over 21,000 participants. **Kapil**, a CSE department student from CEC, and his team 'Checkit' secured the 1st position, winning a cash prize of **Rs. 1 Lac**.

Students Achievements

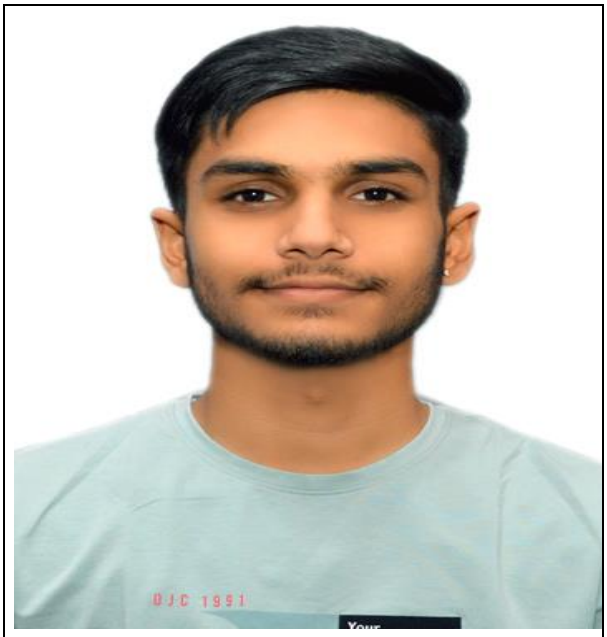
- **CSE department** students Ananya Singla, Anmol Jain, Prashant Kumar, Palak, and Aditya Bhardwaj secured the **2nd position** in the pitching session at the IDE Bootcamp Phase 3, hosted by Graphic Era Deemed to be University in Dehradun.

Students receiving their memento

Students receiving their certificates

Students Section

STUDENT EDITORS



Arpan Sood
B.Tech AI&DS –A1

Darshpreet Kaur
B.Tech CSE-B2

Mohammad Sahil
B.Tech AI&DS –A2

Charu
B.Tech CSE-B2

India with AI in 2050

India, a land of diverse cultures and rich heritage, is on the brink of a technological revolution. By 2050, Artificial Intelligence (AI) is poised to transform the country in ways that are both profound and far-reaching. The integration of AI across various sectors promises to enhance productivity, improve quality of life, and address longstanding socio-economic challenges.

Transforming Healthcare

By 2050, AI-driven innovations are expected to revolutionize healthcare in India. Advanced AI algorithms will facilitate early diagnosis and personalized treatment plans, significantly improving patient outcomes. Wearable devices and AI-powered health monitoring systems will enable continuous health tracking, allowing for timely interventions. Predictive analytics will play a crucial role in managing epidemics and pandemics, enhancing the country's ability to respond swiftly and effectively.

Revolutionizing Education

The education sector in India will undergo a dramatic transformation with the advent of AI. Personalized learning experiences tailored to individual students' needs and abilities will become the norm. AI-driven platforms will provide interactive and immersive learning experiences, making education more engaging and effective. AI-powered systems will optimize crop yields by analyzing soil health, weather patterns, and pest infestations. Precision farming techniques, driven by AI, will minimize resource wastage and maximize productivity. Drones and robotic systems will automate labor-intensive tasks, reducing the burden on farmers and increasing efficiency. By 2050, AI will enable sustainable farming practices, ensuring food security for the growing population.

Boosting the Economy

AI will be a key driver of economic growth in India by 2050. The integration of AI in industries such as manufacturing, retail, and finance will streamline operations, reduce costs, and enhance productivity. AI-driven data analytics will provide valuable insights for businesses, enabling informed decision-making and fostering innovation. The rise of AI-powered startups will create new job opportunities and drive economic development. Additionally, AI will facilitate smart city initiatives, improving urban infrastructure, traffic management, and public services.

Addressing Societal Challenges

AI will play a pivotal role in addressing some of India's most pressing societal challenges. AI-driven solutions will enhance disaster management and response, reducing the impact of

natural calamities. Smart grids and AI-powered energy management systems will promote sustainable energy consumption. AI-based surveillance systems will enhance public safety and security. Furthermore, AI will aid in the efficient delivery of government services, ensuring transparency and accountability.

Conclusion

By 2050, AI will be deeply embedded in the fabric of Indian society, driving progress and innovation across all sectors. The transformative power of AI will not only propel India towards economic prosperity but also address key societal challenges, paving the way for a brighter and more inclusive future. As India embraces this AI-driven future, it is imperative to ensure ethical considerations and equitable access to technology, ensuring that the benefits of AI are shared by all.

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The Impact of 5G on IoT Development

Introduction:

The fifth generation of wireless technology, commonly known as 5G, is set to revolutionize the Internet of Things (IoT). This new technology promises significant improvements in speed, latency, and capacity, which will profoundly affect the development and deployment of IoT devices. This article explores how 5G will impact IoT development, highlighting the key technical advancements and their implications for various industries.

What is 5G?

5G is the latest iteration of mobile network technology designed to enhance the capabilities of current 4G LTE networks. It aims to provide:

Higher Data Rates: Speeds up to 10 Gbps, which is 10 to 100 times faster than 4G.

Ultra-Low Latency: Latency as low as 1 millisecond, significantly reducing the delay in communication.

Increased Connectivity: The ability to support up to 1 million devices per square kilo-meter.
Enhanced Reliability and Network Slicing: Offering dedicated resources for different types of applications, ensuring high reliability.

Key Technical Advancements of 5G:

1. Milli-meter Waves (mm-Wave): These higher frequency bands (24 GHz to 100 GHz) provide more bandwidth and faster speeds but have shorter ranges and are more susceptible to obstacles.
2. Small Cell Networks: These are low-powered cellular radio access nodes that can be installed densely to improve coverage and capacity, especially in urban areas.
3. Massive MIMO (Multiple Input Multiple Output): This technology uses multiple antennas to send and receive more data simultaneously, improving speed and efficiency.
4. Beamforming: Directs signals to specific users rather than broadcasting in all directions, enhancing signal strength and reducing interference.
5. Network Slicing: Allows the creation of multiple virtual networks on a single physical 5G network, tailored to different applications and services.

Impact of 5G on IoT Development:

1. Enhanced Device Connectivity

The increased capacity of 5G networks will enable the connection of a vast number of IoT devices. This is particularly important for smart cities, industrial IoT, and large-scale sensor networks, where the number of connected devices can be immense.

2. Real-Time Data Processing

Ultra-low latency is critical for applications that require real-time data processing, such as autonomous vehicles, remote surgery, and augmented reality. 5G's low latency ensures that

data can be transmitted and processed almost instantaneously, enabling these technologies to function effectively.

3. Improved Energy Efficiency

5G technology includes improvements in energy efficiency for IoT devices, which is vital for battery-powered devices such as sensors and wearables. Longer battery life will lead to reduced maintenance costs and increased deployment of IoT devices in remote or hard-to-reach areas.

4. Advanced Use Cases

5G will unlock new use cases for IoT that were previously not feasible due to technical limitations. Some of these include:

Smart Cities: Enhanced traffic management, smart lighting, and efficient waste management through real-time data analysis.

Industrial IoT: Improved automation, predictive maintenance, and real-time monitoring of industrial processes.

Healthcare: Remote patient monitoring, telemedicine, and connected medical devices.

Agriculture: Precision farming with real-time data on soil conditions, weather, and crop health.

Challenges and Considerations:

While 5G offers numerous benefits for IoT development, several challenges need to be addressed:

Infrastructure Deployment: The need for a dense network of small cells and the integration of mm-Wave technology requires significant investment and planning. **Security:** As the number of connected devices increases, so does the potential for security vulnerabilities. Ensuring robust security measures is critical.

Interoperability: Ensuring that new 5G-enabled IoT devices can work seamlessly with existing technologies and platforms.

Conclusion:

The advent of 5G technology is set to significantly accelerate the development and deployment of IoT devices. With its enhanced speed, capacity, and low latency, 5G will enable a new wave of innovative applications and services across various industries. However, addressing the associated challenges will be crucial to fully realizing the potential of 5G in the IoT landscape. As 5G networks continue to roll out globally, the future of IoT looks more connected and intelligent than ever before.

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The White Room 1 – A Story

Summary: Whenever we feel aggression towards somebody, we dream to get an opportunity to catch him alone somewhere. A place where no one is around other than him and us. But what if somebody's dream come true?

There was once a college student named Atom who had crush on her ex-classmate named Pandey 5 years ago. They both passed their matriculation exam from same school and were tough competitors of each other. Pandey was more than average in all subjects whereas Atom was all section topper in case of mathematics - science and barely passed in other subjects. He was very introvert and arrogant man. He went to different school for higher studies and got separated from Pandey. He found her no. though and behaved as a friend rather than a competitor. But after realizing that she feels ashamed to meet him, he called her even unworthy of friendship and blocked her no. Things got upside down when he saw the same girl in the college, he took admission in. He never preferred talking to her and even noticing her at all.

One day, both get teleported to a fictitious white empty room. Their clothing was transformed to a uniform which contained white shirt, a simple jeans and a pair of inner wears. They had nothing as a substance with them and were unknowingly teleported in this strange dimension. She immediately starts screaming and shouts for help whereas Atom starts to think of what just happened. After screaming for hours, Pandey asks Atom what happened but Atom ignores her and keeps thinking a way to escape successfully. He assumed this as a survival situation for which he was conservating energy. The white room had its four walls at an angle of 108° with respect to floor. Now Atom gets an idea and tries to climb on the wall because the roof seemed to be made up with 30 - 40 LEDs sufficient to escape by breaking through. Pandey calls him foolish for trying this stupidity and waits for him to fall. As he gradually climbs to half of the height of wall he unwillingly fell because of suffocation and tiredness. Pandey then sleeps whereas atom keeps trying to climb wall whole night.

When she wakes up sneezing, she finds that Atom is observing the door carefully. This was the only door of room with no keyhole or handle but a fist sized hole near the wall of door. The interface seemed to be stuck using a lock done from outside but upon touching the outer surface of door through the hole of wall, Atom gets to know that the door is completely smooth, plane and handleless from both sides. Because of starvation and thirst, Pandey was feeling irritation. She was shouting on Atom and also blaming him for all this. She wanted his response, and for that she called him the most insensitive man on earth. He then suddenly struck another idea and used his jeans zip cut out as hacksaw between the door - wall interface. He held both the ends of

cut out from behind and front of the door using the wall hole. But due to loss of energy and starvation, he was no more able to trim the lock of the interface. He then remembers that his incisor tooth is not real (real one was lost in one of the fights with his big brother in corona lockdown) and if broke out, can be used as tool to increase size of wall hole. He breaks his

tooth by plucking hard and Pandey gets horrified of this. But this idea fails too because the incisor depletes to dust when used to dig. Pandey loses hope of escaping and accepts her fate. But Atom with a tense expression comes to her saying that he figured out a successful escaping plan. The plan is to sacrifice of one of them for the other to run away. To escape, they need food as well as tool which is nothing but the remainder. He says that he is ready to sacrifice himself but Pandey calls him mad and asks him to calm down. After a long discussion, she has to accept his idea because of insane starvation pain. He prepares by getting his head a smash on wall. The blood stream comes out of his head and he starts feeling dizzy, but repeats the process and falls down on floor with blood all over white shirt and white floor Pandey mourns and fears to eat his meat but later finishes him. As expected, it takes Pandey 3 weeks to escape successfully using his bones as tool and go back to her life. Suddenly, atom soul watching it all gets teleported in front of the real mastermind behind this. The man describes him that he got the power of initiating a battle between two people in a white room where no one's superpowers or unity, even not that of himself works until the other dies and white room is stained with blood. Only then can the winner escape and he got the powers by battling in same condition too. Now he wanted Atom to be the successor of powers and grants him it. But the very first kill Atom does using powers is of this man for what he did to both. Finally, he returns to his life too hiding his powers.

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Exploring the Future of Communication: Unveiling the Latest Trends in 5G and the Promise of 6G

In the realm of modern connectivity, the evolution of communication technologies continues to unfold at a rapid pace. From the advent of 3G to the widespread adoption of 4G, each generation has ushered in transformative changes, enabling faster data speeds, lower latency, and enhanced reliability. Today, as we stand on the brink of the 5G era and look ahead to the promising horizon of 6G, the landscape of communication is set to undergo yet another seismic shift.5G, the fifth generation of wireless technology, represents a leap forward in the capabilities of mobile networks. While 4G primarily focused on delivering faster mobile internet speeds, 5G promises to be a game-changer by offering:

With peak data rates potentially reaching up to 10 gigabits per second (Gbps), 5G is expected to be significantly faster than its predecessor. This speed is crucial for applications such as high-definition video streaming, virtual reality (VR), and augmented reality (AR).One of the defining features of 5G is its ultra-low latency, which refers to the time it takes for a device to communicate with the network. Estimates suggest latency could be reduced to as little as 1 millisecond (ms), enabling real-time interactions critical for autonomous vehicles, remote surgery, and industrial automation.

The deployment of 5G networks will support a massive increase in the number of connected devices. This scalability is vital for the Internet of Things (IoT), where billions of devices—from smart appliances to wearable technology—require seamless connectivity. Through advancements in network slicing and edge computing, 5G promises improved reliability and network efficiency. This is crucial for industries requiring consistent connectivity, such as healthcare, finance, and emergency services.

Already, 5G is beginning to roll out across the globe, transforming industries and paving the way for innovative applications that were previously impractical or impossible.

Looking Ahead: The Promise of 6G

While 5G is poised to dominate the landscape for the next decade, researchers and industry leaders are already contemplating what comes next: 6G. Although still in the early stages of development, 6G is envisioned to build upon the foundation laid by 5G and introduce revolutionary capabilities, including:

Terahertz Frequencies: Unlike 5G, which primarily operates in the sub-6 GHz and millimeter-wave frequencies, 6G is expected to leverage terahertz (THz) frequencies. These higher frequencies could potentially enable even faster data rates and lower latency, further enhancing the performance of applications like holographic communication and instantaneous data transmission.

Artificial Intelligence (AI) Integration: 6G networks are expected to integrate AI at a fundamental level, enabling autonomous network management, predictive analytics, and adaptive resource allocation. This fusion of AI and communication infrastructure will enable networks to dynamically adjust to changing demands and optimize performance in real-time.

Ubiquitous Connectivity: Building upon the IoT framework established by 5G, 6G aims to achieve seamless connectivity across all aspects of daily life. From smart cities to immersive

virtual environments, the vision of ubiquitous connectivity will be realized through advanced network architectures and enhanced spectrum utilization.

Sustainability and Efficiency: As global energy consumption increases with each new generation of technology, 6G seeks to prioritize sustainability and energy efficiency. Innovations such as energy harvesting technologies and green communication protocols will play a crucial role in minimizing environmental impact while supporting exponential growth in connectivity.

As we navigate the transition from 5G to 6G, the future of communication holds immense promise. From ultra-fast speeds and minimal latency to AI-driven intelligence and sustainable innovation, these advancements will not only redefine how we connect but also revolutionize industries, empower communities, and drive economic growth on a global scale. Embracing these trends requires collaboration across sectors, investment in research and development, and a commitment to harnessing technology for the benefit of all. As we stand on the threshold of this transformative era, one thing is certain: the evolution of communication has only just begun.

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Women Empowerment

Women empowerment refers to making women powerful to make them capable of deciding for themselves. Nowadays women are doing most of the things that the society assumed a woman can't. In early centuries, women were supposed to do household chores, baby sitting and do what their husbands or family told them to do. But as the time has evolved now women are educated, they are doing jobs and even looking after their homes. Women can be a CEO, a mother, a wife, a sister. She need not to be asked that how she can manage all this. If a man is never asked this question so no women should be asked the same. Women were not allowed to make decisions for them, women empowerment came in like a breath of fresh air. It made them aware of their rights. In our country, women empowerment is needed more than ever as women are not safe. Any girl or women is not safe, whether she is 6 months old or 60 years old.

Moreover women are not allowed to pursue their higher studies. Even in 21 century, women are married off early. This practice is still working in rural areas of our country. They think its women's duty to get married, have children and look after them and her husband. But it is not so. Women have a lot many things that they can do to make their lives better.

There are various ways in how one can empower women. Firstly education for girls must be compulsory so that they can make their life a better one. Secondly women must be given cerebral equality. Many women stay in abusive marriages because of the fear of the society. Parents must teach their daughters not to suffer any type of abuse. Lastly we can empower women by teaching them skills to defend themselves in any case.

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Robotics and AI: Pioneering the Future of Technology

In the realm of technology, Robotics and Artificial Intelligence (AI) stand at the forefront of innovation, promising to reshape industries, enhance productivity, and redefine the human-machine interface. As these fields continue to advance at an unprecedented pace, their integration is poised to revolutionize various sectors, from manufacturing and healthcare to transportation and beyond. Robotics, once confined to controlled environments like assembly lines, has evolved into a multifaceted discipline. Modern robots are no longer mere automatons; they are sophisticated machines equipped with advanced sensors, actuators, and AI algorithms. These capabilities enable robots to perform complex tasks with precision and efficiency, from surgical procedures and warehouse logistics to exploration in hostile environments.

Artificial Intelligence: The Brain behind the Machines

At the heart of this revolution lies Artificial Intelligence (AI), the driving force behind autonomous decision-making and machine learning. AI algorithms enable robots to perceive their surroundings, learn from experience, and adapt to dynamic environments in real-time. This transformative power extends beyond robotics, influencing applications in natural language processing, computer vision, and predictive analytics.

Transformative Applications

The synergy between Robotics and AI has unlocked a myriad of applications across industries. Robots equipped with AI enhance manufacturing efficiency by streamlining production processes, reducing errors, and optimizing supply chain management. Surgical robots perform minimally invasive procedures with unparalleled precision, while AI-powered diagnostics aid in early disease detection and personalized treatment plans. Autonomous vehicles driven by AI algorithms promise safer, more efficient transportation systems, revolutionizing logistics and urban mobility. Robots in customer service and hospitality sectors are transforming the customer experience, offering personalized interactions and operational efficiency.

Challenges and Considerations

While the potential of Robotics and AI is vast, their integration presents challenges. Ethical considerations, job displacement, and data privacy are critical issues that require thoughtful regulation and proactive management. Additionally, ensuring AI systems are unbiased, transparent, and accountable remains imperative for fostering trust and societal acceptance.

Looking Ahead

As Robotics and AI continue to evolve, collaboration between industry leaders, policymakers, and researchers is crucial. Investments in research and development will drive innovation, expand capabilities, and unlock new frontiers of possibility. Embracing these technologies responsibly will pave the way for a future where humans and machines collaborate synergistically; enhancing productivity, improving quality of life, and propelling us towards a new era of technological advancement. So, Robotics and AI represent not just a convergence of technologies but a gateway to transformative change. By harnessing their potential responsibly, we can navigate towards a future where innovation serves humanity's collective aspirations for progress and prosperity.

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Current Trends in Early Childhood Education: Nurturing the Future Generation

Early childhood education (ECE) is undergoing significant transformations driven by evolving societal needs, advancements in technology, and a deeper understanding of child development. These trends are shaping how educators and policymakers approach the critical early years of a child's life, focusing on holistic development and preparing them for future success.

Emphasis on Social-Emotional Learning (SEL)

Recognizing the importance of emotional intelligence, many ECE programs now integrate SEL into their curriculum. Educators emphasize teaching children empathy, self-awareness, and interpersonal skills from an early age. This trend aims to foster resilience, positive relationships, and emotional well-being among young learners.

Play-Based Learning

Play is increasingly recognized as the primary mode through which young children learn and develop essential skills. Play-based learning environments encourage exploration, creativity, and problem-solving abilities. Educators design activities that stimulate imagination and curiosity, promoting both cognitive and social development.

Technology Integration

While controversial, the judicious use of technology in ECE is gaining traction. Educational apps, interactive games, and digital storytelling platforms are being used to enhance learning experiences and introduce children to basic digital literacy skills. However, educators emphasize balanced screen time and ensure that technology complements, rather than replaces, hands-on learning.

Focus on Diversity, Equity, and Inclusion

There is a growing emphasis on creating inclusive ECE environments that celebrate diversity in culture, language, abilities, and family structures. Educators incorporate diverse literature, culturally responsive teaching practices, and anti-bias curriculum to promote equity and respect for all children and families.

Parent and Community Engagement

Recognizing the critical role of families in children's development, ECE programs increasingly prioritize partnerships with parents and communities. Collaborative efforts involve sharing resources, providing parent education workshops, and fostering open communication to support children's learning and well-being both at home and in school.

Despite these positive trends, challenges such as funding constraints, access to high-quality education, and addressing diverse learning needs persist. Additionally, ongoing research and professional development are essential to ensure that educators are equipped with the knowledge and skills to implement evidence-based practices effectively. As early childhood education continues to evolve, stakeholders must remain responsive to emerging research,

societal changes, and technological advancements. By prioritizing holistic development, inclusivity, and partnerships with families and communities, we can ensure that every child has a strong foundation for lifelong learning and success. The current trends in early childhood education reflect a commitment to nurturing the whole child and preparing them to thrive in an increasingly complex world. By embracing innovation, fostering collaboration, and prioritizing the needs of young learners, we can shape a brighter future for generations to come.

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Unleashing the magic of Artificial Intelligence

Artificial intelligence is a rapidly growing technological field that impacts our daily life in various ways. It is often abbreviated as AI. AI teaches a computer to mimic human activities with the help of algorithms. These algorithms allow AI to analyze the data making it more efficient and accurate. AI has the potential to revolutionize various industries from healthcare to transportation. There are various types of AI like natural language processing, reinforcement learning, narrow AI, general AI, machine learning, and deep learning. Machine learning is the most common type of AI, it enables the computer to learn form the data and improve its performance. Overall, AI is a powerful technology that has the capabilities to transform our lives and make a positive impact on the society. By unlocking its full potential we can pave the way for a brighter future.

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The Streetlight

(A Prose Poem)

Tonight, streetlights aren't in perfect alignment. They're irregular. Far far ahead. I see a large space between two lights. I thought this is also irregularity. Then I slipped thinking of all the irregular things that happened, for instance, my speed, the smoking child selling balloons, or my opening up in front of a friend, or your call. As I navigate in my mind, thinking everything irregular, I unmindfully vary my speed as the steps of a child rushing towards shade while walking on a hot floor. My hair crashed on my forehead, air rushing in through my shirt, I felt free. And sad. I couldn't explain what you're to me. I said everything that couldn't be the reason. Because I couldn't say what is the reason. The train of thoughts vanished as I saw something in that distance. The streetlight was there, in between, broken and flickering. I felt cold. Everything has a breaking point. So did you. So did I. So did we. But are you flickering because I am. When I'm happy I flicker. I emit light when I'm in love. And everyone is happy when they're in love. Are all these streetlights in love? I stopped after thinking this. This is so painful to think about. That something in this world is loving when you're not. I wished the air that rushed in my shirt to rush in my helmet and fly away every last of the drop my eyes have. But nothing works the way you want. I take off my helmet, I clean my eyes. I look up at the streetlight. It wasn't irregular. It was my scratchy helmet. I wiped off my tears. I smiled and now I want to fix this streetlight.

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Fragments of Self
(*A Short Poem*)

So many people I've been changing for,So
many versions I've been building of myself,
So many stories I've been living,So
many truths I've been hiding,so many
lies I've been telling.
That I'm terribly confused about the reality
that I've been trying to escape.And now when
I'm on the edge of my life, I've been thinking
about what character to die as.

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Whispers of Learning Lost
(*Poem*)

In classrooms bright, screens softly glow,
Wisdom fades, where do we truly go?
Books forgotten, knowledge lost in bits,
Human touch wanes, in digital fits.

Tests decide, creativity's plight,
Minds confined, in black and white.
Routines dull, devoid of spark,
Individuality fades, in shadows dark.

Once-bold thoughts, now hesitant streams,
Memories triumph, in shallow dreams.
Students molded, like clay so cold,
Originality silenced, stories untold.

In quiet corners, sadness dwells,
Creativity stifled, like silent bells.
True worth elusive, in the rush to conform,
Education's soul adrift in the storm.

Yet whispers linger, in hearts that yearn,
For a place of learning, where all can discern.

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The Library's Song

In a town, dreams soared high,
Library walls whispered, beckoning nigh.
A child wandered, heart in hand,
Seeking solace, in faraway lands.

A book called out, cover adorned,
She held it close, her soul reborn.
Through its pages, she found her quest,
In words woven, she found her rest.

Worlds old, worlds new, she found,
Journeying far, without a sound.
In the embrace of a book's sweet song,
She found belonging, where she belonged.

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Whispers of Time

In the heart of India's ancient soil,
Stories echo, through turmoil and toil.
From the dawn of civilization's rise,
To the tales that reach for endless skies.

Temples stand, with secrets old,
Silent witnesses, tales untold.
Emperors ruled, in splendor and might,
In the tapestry of India's ancient flight.

But in today's rush, their voices fade,
Lost in the hustle, of the modern parade.
Yet in every stone, and every sigh,
The spirit of India's past does lie.

Let us listen, with open ears,
To the whispers of time, through the years.
For in the treasure trove of India's lore,
Lies the essence of who we were and more.

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Festival of Fear

I sat in my room,
And heard a loud boom.
Someone burst a cracker,
And made my mood sicker.

The noise was loud,
Like a thunderous cloud.
Just silence was all my need,
And a cry made my ears bleed

The voice was of my dog,
Who was scared as a log,
When it sees a woodcutter,
Oh! Fear is so bitter.

I thought to myself.
Oh dear! What can I do?
The festival's not the culprit,
But to blame, is who?

I took her in my arms,
And it work like charms.
But what about the others,
The scared puppies and their mothers?

I wish I could help them all,
By closing the firecracker stall.
But what difference would it make,
If no responsibility we'll take

The cries outside got louder,
My dog looked a bit sadder,
She thought of her Street friends,
And promised her to make amends.

So I'd beg you, thee readers,
Don't be their ear bleeders,
For the artimals don't have any refuge,
But the difference you will make is huge.

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India Elections 2024: A Pivotal Moment for the World's Largest Democracy

As India approaches its next general elections in 2024, the country stands at a critical juncture in its democratic journey. Renowned as the largest democracy globally, India's electoral process is set to be a defining moment, shaping its future trajectory profoundly.

The Significance of 2024 Elections
Scheduled every five years, India's general elections are a monumental display of democracy in action, involving millions of voters and encompassing a wide array of political parties and pertinent issues. The upcoming 2024 elections hold heightened importance due to the array of challenges and opportunities facing India both domestically and on the global stage.

Key Focus Areas
Central to the electoral discourse are critical issues affecting the lives of every Indian citizen, including economic recovery post-pandemic, employment generation, agricultural reforms, healthcare accessibility, education reforms, infrastructure development, environmental sustainability, and national security. Each political party and candidate will present their vision and policies aimed at addressing these pressing concerns.

Diversity in Political Landscape
India's political landscape is characterized by a diverse and vibrant multiparty system. The ruling party, opposition alliances, and regional parties all play pivotal roles in shaping electoral dynamics. Campaigns will intensify as leaders emerge, engaging voters through rallies, debates, and media engagements.

Harnessing Technology for Voter Engagement
In recent years, India has witnessed significant advancements in digital technologies used for electoral campaigns. Social media platforms, digital outreach strategies, and data analytics are increasingly employed by political parties to connect with voters, disseminate information, and mobilize support, transforming political communication and voter engagement strategies.

Global Implications
As a global economic powerhouse and strategic player, India's electoral outcomes hold implications beyond its borders. Foreign policy decisions, trade relations, and regional stability are closely monitored internationally, recognizing India's influence and significance on the global stage.

Challenges and Opportunities Ahead
Despite its democratic vibrancy, India faces challenges such as ensuring electoral integrity, addressing the role of money in politics, and countering misinformation. The 2024 elections present an opportunity to strengthen democratic institutions, enhance transparency, and bolster civic participation.

Looking Ahead
As Indians prepare to exercise their democratic right in 2024, they do so with a profound sense of responsibility and optimism for a better future. Beyond determining the next government, the elections will reaffirm India's commitment to democratic principles and inclusive development.

In essence, the 2024 elections in India are not just a political event but a reflection of the nation's aspirations, challenges, and collective resolve. As the electoral process unfolds, the world observes with keen interest, acknowledging that the choices made by India's electorate will shape one of the world's most dynamic democracies.

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India's Moment of Glory: Celebrating the Recent World Cup Victory

In a thrilling saga of skill, strategy, and sheer determination, India has emerged triumphant in the recent World Cup, etching its name in the annals of sporting history with unparalleled pride. The nation's passion for cricket has been ignited as its team secured the coveted trophy, marking a monumental achievement that resonates deeply within every Indian heart.

From the exhilarating start of the tournament to the intense final showdown, India's journey was a spectacle that captivated millions. Throughout, the team displayed unwavering commitment and tactical brilliance, overcoming formidable opponents and challenges with remarkable poise and resilience.

Individual brilliance and collective teamwork were on full display, defining key moments that led to India's resounding success. Whether it was the masterful batting performances, decisive bowling spells, or game-changing fielding maneuvers, each contribution underscored the team's depth and determination.

The impact of this victory transcends mere sporting accolades—it is a source of immense national pride and unity. Across the length and breadth of India, jubilant celebrations erupted as fans of all ages and backgrounds rejoiced together. Streets reverberated with chants, flags waved high, and hearts swelled with joyous pride in the team's achievement.

Internationally, India's triumph has garnered widespread acclaim, reaffirming its stature as a dominant force in world cricket. Beyond the boundaries of the sport, the victory symbolizes India's resilience, spirit, and unwavering pursuit of excellence on the global stage.

Looking forward, this historic win serves as a beacon of inspiration for aspiring cricketers and sports enthusiasts across the nation. It exemplifies the possibilities that unfold through dedication, teamwork, and a steadfast commitment to achieving greatness.

In conclusion, India's recent World Cup triumph is not just a sporting victory—it is a profound moment of national glory and unity. As the euphoria continues to reverberate, the legacy of this achievement will endure, inspiring generations and reinforcing India's place as a powerhouse in international cricket.

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Beyond Degrees : Navigating Success in Today's Career Landscape

In the evolving era of career success, the traditional notion of relying solely on academic degrees is being increasingly challenged which means the academic credentials are becoming less relevant in defining success and talent. Society's fixation of acquiring degrees has become imbalanced, often reduced to mere checkbox exercise lacking true significance. While degrees undoubtedly provide foundational knowledge and technical skills, they fall short of equipping individuals with the holistic competencies demanded by modern workspaces.

In this new world, where new online and hybrid learning alternatives and changing job roles are converging with a competitive labour market, and the creator economy. Many companies are prioritizing what you can do, rather than from where you learned to do it. For example, companies such as Apple, IBM, and Tesla no longer require candidates to have college degree to qualify for an interview. Even retail giant Walmart has eliminated the college degree requirement for hundreds of its corporate roles. We are at a point where we can safely say we're reaching a tipping point in how conventional college degrees are viewed. We are at a crossroad where the traditional paths to success are being redefined.

Employers now seek candidates who possess a diverse skill set which includes critical thinking, problem-solving, adaptability, communication and emotional intelligence -attributes that are not always explicitly taught in classrooms. Entrepreneurial ventures thrive on creativity, resilience and networking qualities that transcend academic credentials alone. As industries embrace rapid technological advancements and globalization, the ability to innovate, collaborate cross disciplines, and navigate ambiguity has become invaluable. Individuals who complement their degree with practical experiences, internships, certifications, and continuous learning initiatives are better positioned to seize opportunities and adapt the industry disruptions. Therefore, it can be undoubtedly said that skills are becoming the new currency in today's job market.

As we navigate to the new world, it is crucial to strike a balance between our aspirations and the practical realities of the modern job market. The future is inclusive of both skill-based qualifications and traditional degrees, with each individual's passion and commitment guiding their educational and professional choices. With the inevitable advent of AI thrown into the mix, there is no avoiding to the confluence. Therefore, it can be said that, embracing a lifelong learning mindset and cultivating a diverse skill portfolio are essential strategies for navigating today's dynamic career landscape and achieving enduring professional fulfillment.

Charu
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Importance of Balanced Nutrition in Academic Performances

Achieving academic success isn't just about studying hard-it's also about fueling your body and mind with the right nutrients. Balanced nutrition plays a pivotal role in enhancing academic performance by directly impacting cognitive function, concentration, and overall mental well-being. Essential nutrients like vitamins (e.g., B vitamins, vitamin D), minerals (e.g., iron, zinc), proteins, and healthy fats are crucial for brain health and function. For instance, omega-3 fatty acids found in fish support brain cell structure and communication, while antioxidants from fruits and vegetables protect against oxidative stress, which can impair cognitive abilities. Carbohydrates are the brain's primary source of energy, providing glucose needed for optimal cognitive function. Choosing complex carbohydrates like whole grains ensures a steady release of glucose, sustaining focus and mental clarity throughout the day. Conversely, diets high in refined sugars and unhealthy fats can lead to energy crashes, reduced attention span, and mood fluctuations. By adopting a balanced diet that includes a variety of nutritious foods-such as lean proteins, whole grains, fruits, vegetables, and healthy fats-students can optimize their academic performance. This approach not only supports better concentration, memory retention, and problem-solving skills but also contributes to overall health and well-being, fostering a positive academic experience and lifelong learning habits.

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The Crucial Intersection of Mental Health and Academic Success

In the realm of higher education, mental health has emerged as a pivotal issue deserving of urgent attention. Mental health is something that students must be aware of to function in this world.One in five children experiences a diagnosable mental disorder. However, adolescents have been overlooked in programming and policy responses to mental health issues. Mental health issues contribute to poor academic performance, lower rates of high school graduation, disrupted development, increased health risk, role transition from adolescent to adult, and cumulatively to poor prognosis of life outcome. Early identification, intervention, and treatment is vital to addressing the mental health issues of children. The transition to college life often brings with it newfound freedoms and responsibilities, but also significant stressors that can impact students' mental well-being. Addressing mental health concerns is not merely about mitigating risks; it is integral to fostering an environment where students can thrive academically and personally. Research underscores the profound impact of mental health on academic performance and overall college experience. Students grappling with anxiety, depression, or other mental health challenges may face hurdles in concentration, motivation, and social interactions, hindering their ability to reach their full potential. Recognizing this, universities are increasingly investing in comprehensive support systems, including

counseling services, wellness programs, and peer support networks. By prioritizing mental health initiatives, colleges not only enhance student retention and success rates but also cultivate a campus culture that values holistic well-being. Ultimately, integrating robust mental health resources into educational frameworks ensures that every student has the opportunity to flourish academically and lead fulfilling lives beyond the classroom.

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College Lifestyle: Balancing Entertainment and Style

College life intertwines academics with vibrant social experiences. Embracing both entertainment and style enriches this journey. Campus events, from concerts to sports games, foster community and fun. Movie and game nights provide relaxed social bonding. Exploring local culture through museums and festivals broadens horizons.

Staying stylish on a student budget involves creativity. A capsule wardrobe with versatile basics ensures practical yet fashionable outfits. Thrift shopping offers unique finds while promoting sustainability. DIY fashion projects personalize your style affordable.

Balancing leisure with studies requires effective time management. Use planners to allocate study time and leisure activities wisely. Prioritize tasks to avoid last-minute rushes. Self-care, like exercise and relaxation, supports mental well-being amid academic pressures.

Ultimately, college is about exploration and growth. Engaging in diverse entertainment while expressing personal style shapes a fulfilling college experience. Finding this balance nurtures friendships, enriches learning, and creates lasting memories.

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Navigating Health and Wellness in College

College life is an exhilarating journey that often comes with its share of challenges, particularly in maintaining health and wellness. Balancing academic demands with personal well-being is crucial for a fulfilling experience.

1. Mental Health: Managing stress and anxiety is paramount. Utilize campus resources such as counseling services and peer support groups. Practice mindfulness and relaxation techniques to foster mental clarity and resilience.

2. Physical Health: Regular exercise, even in the form of campus sports or fitness classes, boosts energy levels and enhances mood. Maintain a balanced diet, emphasizing nutritious meals and staying hydrated.

3. Sleep: Prioritize quality sleep to support cognitive function and overall well-being. Establish a sleep routine and create a conducive environment for rest.

4. Social Connections: Foster meaningful relationships with peers to combat feelings of isolation. Engage in campus activities and clubs that align with your interests.

By prioritizing health and wellness, students cultivate habits that sustain them beyond college. Embracing these practices not only enhances academic performance but also promotes a balanced and fulfilling college experience.

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Theory of depression: A Theory

Summary: Depression is just like a hardened bubble gum made from frustration named latex. Frustration is like such unexposed latex which can be swept, but depression is as hard as stone which cannot be treated.

1. Whenever a child is born, why does it cry always? Because its rank of depression is at level 1 i.e. meter of depression isn't upgraded yet.
2. The rank of depression fills when people face hurting moments and whenever its threshold reaches, it gets a upgraded a little, & with this, he cries. That's why our parents say that crying makes one strong or crying releases pain.
3. Whenever something hurting happens in one's life, frustration gets stored up as his depression. For least of one second or for maximum one week, the cause of depression can be remembered but after then, it gets stored up in such moments of life. That's why enjoyment, games, outing is necessary. These works neutralize depression and avoid up gradation of meter of depression.
4. The one in which level of this meter is highly upgraded, there, he lacks love, infatuation and fear. But the one in which level of it is very less upgraded have vice versa condition. Hence, an evil person is always a patient, he is never cause of destruction. The cause is his locality. Similarly kind ones are fit fellows and their locality is the cause of their kindness. (exception exists).
5. During the successive upgrade in depression, tears come. And the no. of tears is inversely proportional to the level of upgrade in its meter, i.e.

$$\text{No. of tears } \chi \text{ 1/ level of depression}$$

Hence, bold and strong people cry rarely in whole life (constant of proportionality varies)
6. After each upgrade in it, one feels sleepy and yawns (maybe some people control yawning but still sleepiness is felt).
7. This level of upgrading makes people worthy if they are still on good track. There is no other way of being worthy. That's why it is said that no pain, no gain.
8. After a successive upgrade, one's nature and behaviour is affected, and if he gets aware of losing his originality, he mourns.
9. For such patients, this theory provides a motive of living which is:
Sacrifice your life for someone whom you love and if you love no one, then sacrifice your life for the one who can sacrifice his /her life for the one he /she loves.
(At least above motive is better than Raju Rastogi 's long jump).

10. If you aren't fulfilling your responsibilities today, then future will force you to complete them before you die and if you try to share your responsibilities with someone else, then he faces the depression which you were about to face. Once his meter gets highly upgraded, he will make you suffer more in completion of remaining responsibilities.
11. Be careful while crying or avoiding crying, because both are slow poison, if you do either, this upgrade kills you. The only way to have precaution from it is whenever you feel sad, try to find relaxations which may calm your mind.

12. Your small decisions results in change in future. Future can get spoiled by your miner stupidity. Not just of yours but also of those who are connected to your life. Thus, be ready to face their depression after your stupidity.
13. If you know that you are right, then have eye contact with whole world, stick to the same thing and say it, NO! YOU STEP ASIDE. (But only if you know you are right). Because your rigidity can save millions from depression produced by other's wrong decision.

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