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PROF. (DR.) PARTEEK KUMAR

FACE OF COVER

School of Electrical Engineering
and Computer Science,

Washington State University,
Pullman, WA, USA.

UTKARSH

GLBITM RESEARCH NEWS LETTER - MAY 2025

GL BAJAJ

Institute of Technology & Management

FIND YOUR SPARK

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CONTENTS

GLBITM - AT A GLANCE

G.L. Bajaj Institute of Technology and Management, located in Greater Noida, Uttar Pradesh, India, stands as a beacon of higher education in the fields of engineering and management. Established with the aim of nurturing future leaders and innovators, GLBITM has carved a niche for itself in the academic landscape of the region. It also stands out in its approach to assist and equip the students for their overall development, giving them a strong foundation for a successful future. The institute offers B.Tech, MBA and MCA programs.

This self-financed institute is governed by Rajeev Memorial Academic Welfare Society (Registered Under Societies Registration Act 1860). It is approved by All India Council for Technical Education (AICTE), Ministry of Human Resource Development, Government of India and affiliated to Dr. A.P.J. Abdul Kalam Technical University, Lucknow.

At its core, GLBITM is committed to academic excellence, offering a wide range of undergraduate and postgraduate programs in engineering, management, and computer applications. The institute is affiliated with Dr. A.P.J. Abdul Kalam Technical University (formerly Uttar Pradesh Technical University) and is approved by the All-India Council for Technical Education (AICTE). The institute has been maintaining its positions amongst the top engineering and management colleges in AKTU university results. It has been maintaining the highest pass percentage amongst the engineering and Management colleges in Noida and Greater Noida region under Dr. APJ Kalam University, Lucknow for the last eight years and is listed among the top engineering and management colleges in Greater Noida, Delhi NCR. In fact, this engineering college has been listed among the top engineering of India by NIRF, issued by MHRD, Government of India.

GLBITM has the unique distinction of being the only private institute in Uttar Pradesh to be awarded the prestigious NAAC A+ grade in its first cycle of accreditation. An A+ grade from NAAC in the first cycle is a rare achievement that underscores GLBITM's exceptional standards in teaching, learning, research, and innovation, as well as its comprehensive infrastructure, faculty quality, and governance. Further solidifying its position as a leader in technical education, all eligible engineering branches at GLBITM are accredited by the National Board of Accreditation (NBA).

GLBITM boasts a sprawling campus equipped with state-of-the-art infrastructure. The campus is designed to foster an environment conducive to learning and innovation. It features modern classrooms, well-equipped laboratories, a central library with a vast collection of books and digital resources, and advanced computing facilities. The institute also provides ample sports and recreational facilities to promote the well-rounded development of its students.

Understanding the importance of industry exposure, GLBITM maintains strong ties with the corporate world. It regularly organizes guest lectures, workshops, and seminars led by industry experts. The institute's active placement cell works tirelessly to secure lucrative job opportunities for its graduates, boasting an impressive track record of placements in top multinational companies and esteemed organizations.

Research and innovation are at the heart of GLBITM's ethos. The institute encourages its faculty and students to engage in research activities, contributing to the advancement of knowledge in their respective fields. It has several research centers and innovation labs where cutting-edge research is conducted in collaboration with industry and academic partners.

GLBITM is not just about academic achievements; it also emphasizes the holistic development of its students. Through a variety of extracurricular activities, clubs, and societies, students are encouraged to pursue their interests and talents beyond the classroom. Leadership, teamwork, and social responsibility are some of the key values instilled in students, preparing them to be not only successful professionals but also conscientious citizens.

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Message from
Face of Cover

PROF. (DR.) PARTEEK KUMAR

School of Electrical Engineering and Computer Science,

Washington State University, Pullman, WA, USA.

Pioneering Progress Through Research Excellence

Dear Esteemed Readers,

It is with immense gratitude and enthusiasm that I greet you as the featured face of the cover for the May 2025 edition of the Research Newsletter of G. L. Bajaj Institute of Technology and Management, Greater Noida. I sincerely thank the GLBITM leadership for this honour and for recognizing my profile for this distinguished platform.

As a Professor at the School of Electrical Engineering and Computer Science, Washington State University, Pullman, USA, I have had the privilege of engaging with academic communities across the globe. Yet, the vibrant research culture and the forward-looking vision at GLBITM stand out as both inspiring and commendable. This newsletter reflects the institute's unwavering commitment to academic excellence, innovation, and societal impact.

More than a compilation of scholarly achievements, this publication embodies the dynamic intersection of ideas, inquiry, and implementation. It is a celebration of intellectual rigor—where faculty, scholars, and students come together to contribute meaningfully to the evolving landscape of science, technology, and management. The research showcased within is a testament to the energy and innovation that drive GLBITM's academic endeavours.

Notably, the institute's pursuit of excellence is reinforced by significant milestones such as its NAAC A+ accreditation and NBA accreditation of eligible programs—clear indicators of quality, credibility, and future-readiness. This newsletter offers a window into that excellence, fostering collaboration, inspiring minds, and encouraging the translation of research into real-world solutions.

I invite you to explore the stories and accomplishments featured in this edition with curiosity and admiration. Each article speaks volumes of the dedication, resilience, and creative thinking that define GLBITM's research ecosystem.

My heartfelt congratulations to the editorial team and the entire GLBITM community for continuing this impactful initiative. May the spirit of inquiry and innovation that animates these pages continue to grow, spark dialogue, and shape the future.

Message from Chief Patron

MR. PANKAJ AGARWAL

Vice Chairman

G.L. Bajaj Institute of Technology and Management, Greater Noida

A Vision Realized: Advancing Our Research Endeavors

Dear Scholars, Innovators, leadership Team and Researchers,

As the Vice Chairman of G.L. Bajaj Institute of Technology and Management, Greater Noida, and your Chief Patron, I congratulate the Editorial team to come out with this *Research Newsletter 'Utkarsh'*. This initiative embodies the realization of our long-standing vision—to establish GLBITM as a beacon of excellence in innovation, research, and academic growth.

Over the years, GLBITM has earned a distinguished reputation, marked by consistent achievements and a commitment to advancing knowledge. This *Research Newsletter* is more than a publication; it is a testament to our shared dedication, highlighting the intellectual rigor, creativity, and problem-solving mindset of our faculty and students. It serves as a vital platform to exchange ideas, foster interdisciplinary collaboration, and nurture a research-driven culture that reaches beyond institutional boundaries.

I extend my sincere appreciation to our faculty, students, administrative teams, and industry partners whose dedication and efforts have made this endeavour possible. As you engage with the articles in this edition, I hope it ignites curiosity, inspires innovation, and reinforces our collective commitment to research excellence.

Together, let us continue to push boundaries—questioning, discovering, and innovating—to shape a future defined by knowledge, creativity, and lasting impact.

Message from Chief Patron

MR. KARTIKAY AGARWAL

CEO

G.L. Bajaj Institute of Technology and Management, Greater Noida

A New Chapter in Research and Innovation Begins

Dear Researchers, Innovators, and Knowledge Seekers,

It gives me immense pleasure to introduce the *Research Newsletter* of G.L. Bajaj Institute of Technology and Management, Greater Noida. This initiative marks an important step forward in our ongoing commitment to strengthening the research ecosystem and cultivating a vibrant culture of academic excellence.

GLBITM has always believed in empowering minds through knowledge and innovation. This newsletter reflects that vision—a dedicated platform to highlight the outstanding research contributions of our faculty and students. It serves not only as a channel for sharing impactful findings but also as a catalyst for expanding our global footprint in research and development.

Through this initiative, we aim to inspire collaborative thinking, encourage interdisciplinary engagement, and promote solutions to real-world challenges. I extend my sincere appreciation to all contributors and supporters who have brought this vision to life. Together, let's continue advancing research as a powerful force for progress and transformation.

Message from Patron

DR. PREETI BAJAJ

Director

G.L. Bajaj Institute of Technology and Management, Greater Noida

Fostering Excellence and Innovation: A Message from the Director

Dear Esteemed Mentors, Leaders, Teachers, Researchers and Community at Large,
Greetings from G.L. Bajaj Institute of Technology and Management, Greater Noida.

As Director of G.L. Bajaj Institute of Technology and Management, Greater Noida, and Patron of this monthly research newsletter, I take immense pride in seeing this vibrant platform continue to thrive as a reflection of our institute's dedication to fostering a dynamic, research-driven academic culture. This newsletter remains a powerful medium for showcasing groundbreaking research, facilitating interdisciplinary collaboration, and highlighting the significant contributions of our faculty and students to the global academic community.

At GLBITM, we are deeply committed to nurturing a culture of inquiry and innovation. Our vision is to empower students and faculty to pursue high-impact research that addresses both local and global challenges. This ongoing publication plays a pivotal role in reinforcing that vision—by sharing diverse research outcomes and thought leadership, it not only informs but also inspires deeper engagement in meaningful scholarly work.

This platform strengthens our collective ambition to continually elevate research standards. By celebrating achievements and fostering a spirit of curiosity and innovation, it motivates our community to push boundaries and set new benchmarks. In doing so, we advance GLBITM's reputation as a leader in technological and managerial education, while contributing robustly to India's research ecosystem and global knowledge networks.

Our NAAC A+ accreditation and NBA-certified programs underscore our commitment to excellence, but it is through consistent scholarly effort that we truly distinguish ourselves. This newsletter exemplifies that ongoing pursuit—highlighting research that enhances learning, drives progress, and positions GLBITM as a beacon of academic and research excellence.

Heartiest congratulations to the editorial team, contributors led by Prof Mayank Dean Research and Development and the entire GLBITM family for your relentless pursuit of knowledge and innovation. Let us continue to harness this platform to inspire, collaborate, and lead—raising the bar for research impact locally and globally.

Overview OF GLBITM RESEARCH

The Research and Development department at GLBITM is committed to achieving these vision and mission objectives, guided by our core values of excellence, innovation, collaboration, and societal impact. Through our dedicated efforts, we aspire to contribute significantly to the advancement of science and technology, preparing our students to be leaders in their fields and driving positive change in the world.

Vision

At G.L. Bajaj Institute of Technology and Management (GLBITM), Greater Noida, our vision for Research and Development (R&D) is to be a globally recognized center of excellence in research, fostering innovation and advancing knowledge in engineering, technology, and management. We aim to create an ecosystem that nurtures creativity, encourages interdisciplinary collaboration, and contributes significantly to the betterment of society, the environment, and the global economy.

Mission

OUR MISSION IS TO:

- **Promote a Research-Intensive Culture:** Cultivate an environment where faculty, students, and researchers are encouraged to pursue their research interests, pushing the boundaries of knowledge and innovation.
- **Foster Interdisciplinary Collaboration:** Encourage collaboration across different disciplines within the institute and with national and international research organizations, industries, and academic institutions to address complex global challenges.
- **Enhance Research Infrastructure:** Continuously upgrade our research facilities and resources to provide a state-of-the-art environment that supports cutting-edge research and development activities.
- **Focus on Societal Impact:** Direct our research efforts towards solving real-world problems that benefit society, contributing to sustainable development and improving the quality of life.
- **Strengthen Industry-Academia Linkages:** Establish strong connections with industry to ensure that our research is relevant and contributes to technological advancements, innovation, and entrepreneurship.
- **Promote Global Research Collaborations:** Engage in partnerships with leading international universities and research institutions to enhance the global impact and visibility of our research, facilitating exchange programs, joint research projects, and publications.
- **Encourage Research Excellence:** Recognize and reward outstanding research contributions and achievements of our faculty and students, fostering a culture of excellence and continuous improvement.

Glimpses *of month*

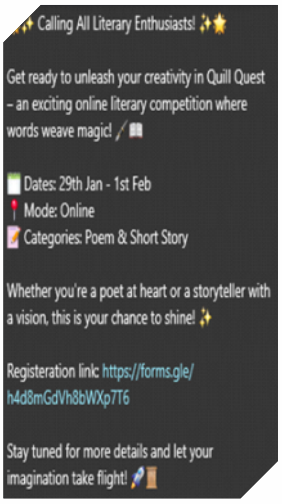
JAN' FEB & MAR'25

EVENTS ORGANIZED BY DEPARTMENTS

1 EVENT NAME: QUILLS QUEST

Date: 29th January, 2025 - 1st February, 2025
Deptt: CSE

Quills Quest, organized by Shrinik Club, successfully brought together literary enthusiasts for an inspiring and imaginative competition. Held from 29th January to 1st February 2025, the event featured an engaging keynote by a renowned author, setting the tone for a captivating experience. The competition, conducted online, welcomed participants from diverse backgrounds, offering carefully crafted categories in Poetry and Short Story that encouraged creativity, originality, and artistic expression.



2 EVENT NAME: PROCESS OF INNOVATION DEVELOPMENT & TECHNOLOGY READINESS LEVEL (TRL)" & "COMMERCIALISATION OF LAB TECHNOLOGIES & TECH-TRANSFER

Date:25th, February, 2025
Deptt: CSE

The objective of this event was to provide students with a comprehensive understanding of the various stages of innovation development and it aimed to enhance students' understanding of Innovation, Entrepreneurship, and Intellectual Property Rights.

The session focused on the structured process of innovation development, emphasizing the importance of assessing Technology Readiness Levels (TRLs) before market implementation.

3 EVENT NAME: BITCOIN INDIA TOUR

Date: 27th March 2025
Deptt.: CSE (DS) & CSE

The Department of Computer Science and Engineering (CSE) and CSE (Data Science) at GL Bajaj Institute of Technology and Management, in collaboration with BTC India, organized a seminar as part of the Bitcoin India Tour – Noida Edition on 27th March 2025. The event was conducted in association with YuktiKula and Shrinik Clubs. The session aimed to introduce students to the concept of Bitcoin and explore its role in promoting financial inclusion in today's digital economy. The session featured Mr. Shiv Pande, Chief Business Officer and Founding Member of Bitsave, as the keynote speaker. He delivered a talk on the topic "Bitcoin and Financial Inclusion," where he discussed the fundamentals of Bitcoin, its growing impact on the global financial system.

4 EVENT NAME: ICDT 2025 – 3RD INTERNATIONAL CONFERENCE ON DISRUPTIVE TECHNOLOGIES

Date: 7th–8th March, 2025
Deptt.:CSE

The Department of Computer Science and Engineering at G. L. Bajaj Institute of Technology and Management, Greater Noida, successfully organized the 3rd International Conference on Disruptive Technologies (ICDT 2025) on March 7–8, 2025. The conference witnessed active participation from researchers, academicians, and industry professionals across India and abroad such as USA, Iraq, Ethiopia, Malaysia and Indonesia. Out of 1,426 submissions, 299 papers were accepted for the presentations. All accepted and presented papers will be published in Scopus-indexed IEEE Xplore.

5 EVENT NAME: WOMEN IN ENGINEERING (WIE) - SPECIAL SESSION OF IEEE CONFERENCE ICDT 2025

Date:8th March 2025
Deptt. : CSE

The session aimed to encourage women's participation in engineering and research, discuss strategies to empower women in STEM fields, and provide valuable networking and mentorship opportunities for female students and professionals. Additionally, it focused on promoting IEEE Women in Engineering (WIE) initiatives, including scholarships, conferences, and outreach programs, to further support and inspire women pursuing careers in science, technology, engineering, and mathematics.

Dr. Sudeshna Chakraborty, Galgotias University – WiE Keynote Speaker

Dr. Vineeta Khemchandani, Galgotias University – WiE Keynote Speaker

6 EVENT NAME: NATIONAL STARTUP DAY CELEBRATION

Date: 16th January, 2025
Deptt: IT

The Department of Information Technology has organized the National Startup Day celebration, highlighting the entrepreneurial spirit that fuels innovation and growth. The event featured an inspiring session by Mr. Prakash Rastogi from VirtuBox Infotech Pvt. Ltd., who shared valuable insights into building successful startups and navigating challenges in the business world. His expertise motivated budding entrepreneurs to think big and take bold steps toward their dreams. This day served as a platform to honour startups' contributions and inspire the next generation of innovators.

7 EVENT NAME: WORKSHOP ON POWER BI

Event Date: 25th February, 2025
Deptt: IT

The Power BI Workshop, organized by the Codespace Club, aims to provide participants with hands-on experience in data visualization and business intelligence using Power BI. This practical session is designed to equip attendees with the essential skills needed to analyze data, create interactive reports, and derive meaningful insights, preparing them for real-world applications in data-driven decision-making.

8 EVENT NAME: FDP ON AI AND ML

Event Date: 17th - 22nd March, 2025
Deptt: MCA

The six-day Faculty Development Program (FDP) on Artificial Intelligence and Machine Learning was conducted at GL Bajaj Institute of Technology and Management, organized by the Department of MCA in collaboration with E&ICT Academy and IIT Guwahati. The program aims to equip faculty members with in-depth knowledge of Artificial Intelligence (AI) and Machine Learning (ML), enabling them to integrate cutting-edge technology into their teaching and research methodologies.

The inaugural session was graced by esteemed personalities, including Mr. Kaushlendra Singh Sisodia (Founder & CEO, UniConverge Technologies Pvt Ltd, The IoT Academy, Noida), Dr. Gaurav Trivedi (Professor, EEE Department, IIT Guwahati), Ms. Feroza Haque (Project Manager, E&ICT Academy, IIT Guwahati), and Mr. Aswani Kumar (FDP Faculty Instructor).

The first keynote session was delivered by Mr. Kaushlendra Singh Sisodia, a distinguished expert with over 22 years of industry experience in IoT and digital transformation.

The second keynote session was presented by Dr. Gaurav Trivedi, an esteemed professor from IIT Guwahati, who provided an in-depth understanding of machine learning algorithms, neural networks, and AI-driven decision-making systems.

The next speaker, Ms. Feroza Haque, who joined virtually, shared her experiences as a Project Manager at E&ICT Academy, IIT Guwahati. The final session of the day was conducted by Mr. Aswani Kumar, an expert in AI and ML, who has extensive experience working in academia and software development in the United States and India.

9 EVENT NAME: WORKSHOP ON COMPREHENSIVE RESEARCH WRITING

Date:8th January, 2025
Deptt. : MBA

A Pre-Conference workshop was organized by Department of Management Studies, GLBITM on the below mentioned topic:

1) To strategize the effective writing of research articles
2) Integrating theory and developing framework
3) Systematic literature review
4) Hypothesis development
5) Effective way of writing research methodology
6) Scale development

10 EVENT NAME: INTERNATIONAL CONFERENCE ON MULTIDISCIPLINARY CONCEPTS IN MANAGEMENT

Date:9th - 10th January, 2025
Deptt. : MBA

Department of Management, G. L. Bajaj Institute of Technology & Management has organised International Conference on Multi disciplinary Concepts in Management (ICMCM-2025), held on 9th-10th January 2025 in collaboration with Jack H. Brown College, California State University-San Bernardino, USA. This event has been a phenomenal journey of innovation, collaboration, and impactful discussions around the theme of "Sustainable Development and Global Green". The conference brought together some of the brightest minds, esteemed scholars, industry leaders, and policymakers, to share insights, discuss innovative approaches, and contribute towards actionable strategies for sustain ability and green business practices. The Conference was honoured by the Chief Guest Shri Manjeev Singh Puri and Shri Sumit Kishore. Distinguished keynote and plenary speakers: Prof. Steven Carnovale, Prof. Weng Marc Lim, Prof. Sonjaya Singh Gaur, Prof. Sharad Gupta, Prof. Dr. Shailesh Rastogi, Dr. Pankaj Gupta, Prof. Prakash Singh, Prof. Rakesh Gupta Prof. Vipin Gupta, Prof. Suneel Maheshwari, Prof Ravinder Rena, Dr.Bhuvanesh Singh, Mr. Dhiraj Tripathi, Dr. Satbir Singh, Prof. Sachin S Gunthe from IITM. Under the leadership of Prof. MANAS KUMAR MISHRA, Director, GLBITM for enabling such transformative platforms; and Prof. Dr. Kanhaiya Singh for his continuous guidance and support.

11 EVENT NAME: FDP ON METHODS OF RESEARCH AND PUBLICATION ETHICS

Event Date: 17th - 21st February, 2025
Deptt: ECE

The Department of Electronics and Communication Engineering at G.L. Bajaj Institute of Technology and Management organized a five-day Online Faculty Development Programme on "Methods of Research and Publication Ethics" from 17th to 21st February 2025. The event included active participation from 65 faculty members and featured insightful sessions delivered by renowned experts.

The program was coordinated by Dr. Dinesh Kumar Singh and Dr. Smriti Sachan (ICT-104, ECE Dept.), under the guidance of Dr. Satyendra Sharma, HOD, ECE Dept., GLBITM, Greater Noida.

12 NAME OF EVENT : INTERNATIONAL CONFERENCE ON PERVASIVE COMPUTATIONAL TECHNOLOGY

Event Date: 8th - 9th February, 2025
Deptt: CSE-AIML

GL Bajaj Institute of Technology and Management (GLBITM), in collaboration with IEEE UP Section, hosted the International Conference on Pervasive Computational Technology 2025 on February 8–9. Over 1200 global participants joined to discuss AI, ML, IoT, and Data Science. The event featured keynote speeches, technical sessions, and special WiE and Young Professionals segments. Out of 1252 papers, 189 were selected, and best paper awards were given to three distinguished researchers. The conference emphasized global collaboration and technological advancement.

13 NAME OF EVENT: BHARAT XR X SNAP AR WORKSHOP

Event Date: 26th March 2025
Deptt: CSE-AIML

On March 26, 2025, the Abhyudaya Club, CSE-AIML Department, GL Bajaj, held a Snap AR Workshop with Bharat XR and Snap AR. Students explored AR using Lens Studio, created filters, and won prizes. Thanks to Ms. Chhavi Garg, Dr. Santosh Kumar Srivastava, Ms. Attiuttama Mishra, and Kashish Verma for their support.

14 NAME OF EVENT: ROAD SAFETY HACKATHON

Event Date: 21st – 22nd January 2025
Deptt: CSE-AIML

In January 2025, the Abhyudaya Club, CSE-AIML Department, GL Bajaj, and Toyota organized a Road Safety Hackathon. Students attended a bootcamp, developed prototypes with mentors, and showcased projects at the finale. Thanks to Dr. Naresh Kumar and Ms. Attiuttama Mishra for their support. The event sparked youth innovation for safer roads.

FACULTY ACHIEVEMENTS

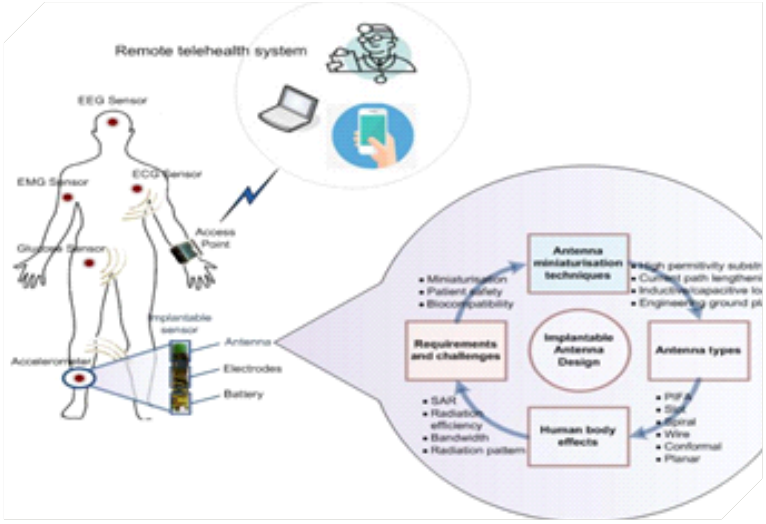
LECTURE DELIVERED BY DR. MADHU SHARMA GAUR

Dr. Madhu Sharma Gaur, Professor and Head of the MCA Department at GL Bajaj Institute of Technology and Management, Greater Noida, delivered an inspiring session at the IEEE UP Section WIE Affinity Group Inaugural Lecture Series "I.G.N.I.T.E 360°" held on 16th April 2025. Recognized for her academic leadership and commitment to advancing technical education, Dr. Gaur highlighted innovative teaching methods, research-focused learning, and the vital role of women in technology leadership. Organized by the School of Artificial Intelligence in collaboration with Bennett Hatchery, the event fostered rich discussions on leadership, innovation, and women's empowerment, further enhancing Bennett University's research and collaboration culture.

RECEIVED RESEARCH PROJECT GRANT BY DR. SHIVESH TRIPATHI

Dr. Shivesh Tripathi, Associate Professor in the Department of Electronics and Communication Engineering at G.L. Bajaj Institute of Technology and Management, has been awarded a prestigious sponsored research project by the Council of Science & Technology, Lucknow, Uttar Pradesh. The project sanctioned on 9th August 2024 with a grant amounting to ₹16 lakhs, is titled "Design and Development of Implantable Antenna Systems in IoMT Devices for Health Monitoring Applications."

Falling under the broad domain of RF and Microwave Engineering, the project aims to contribute significantly to the emerging field of Body-Centric Wireless Networks (BCWNs)—a rapidly evolving area driven by advances in wireless communication and the growing demand for seamless health monitoring technologies. BCWNs encompass on-body, off-body, and in-body communication systems, with a special focus on biomedical applications. This project seeks to design miniaturized, biocompatible, and efficient implantable antennas for integration into Internet of Medical Things (IoMT) devices, thereby enhancing continuous, real-time physiological monitoring and patient care solutions.



LECTURE DELIVERED BY DR. MADHU SHARMA GAUR

Dr. Madhu Sharma Gaur, Professor and Head of the MCA Department at GL Bajaj Institute of Technology and Management, Greater Noida, has consistently demonstrated excellence in academic leadership and research. Notably, she delivered an invited lecture on the topic "Responsible AI: Socio-Technical Challenges and Opportunities" at the prestigious University of Bristol, UK—an achievement that underscores her international recognition and expertise in the evolving field of Artificial Intelligence.

SESSION CHAIR BY DR. MADHU SHARMA GAUR

Dr. Madhu Sharma Gaur, Professor and Head of the MCA Department at GL Bajaj Institute of Technology and Management, Greater Noida, further showcased her academic leadership by serving as a Session Chair at the 2nd International Conference on Cyber Resilience (ICCR). The prestigious conference, jointly organized by Skyline University College, UAE; the Center for Cyber Security Studies, Universiti Kebangsaan Malaysia (UKM); and the Global Academic Forum on Technology Innovation & Management (GAFTIM), was held in collaboration with IEEE.

SESSION CHAIR BY PROF. (DR.) DEEPAK PANDEY

Prof. (Dr.) Deepak Pandey, Professor in the Department of Management at G. L. Bajaj Institute of Technology and Management, Greater Noida, demonstrated his academic leadership by chairing a research track at the ICSSR-sponsored Seminar held on March 22, 2025. The seminar, organized by GNA University, Punjab, brought together scholars and researchers from diverse fields to discuss contemporary issues and advancements. Dr. Pandey's role as Session Chair underscored his commitment to fostering scholarly dialogue and contributing to the growth of research and innovation in the management domain.


AMITY UNIVERSITY
UTTAR PRADESH
AMITY SCHOOL OF ECONOMICS
8th NATIONAL CONFERENCE
ON
VIKSIT BHARAT @2047:
HARNESSING THE POWER OF SUSTAINABILITY AND INCLUSIVE GROWTH
17th March – 18th March 2025
CERTIFICATE OF PARTICIPATION
This is to certify that Prof. (Dr.) Deepak Pandey
from G. L. Bajaj Institute of Technology & Management participated as Session Chair during the 8th National Conference on "Viksit Bharat @2047: Harnessing the Power of Sustainability and Inclusive Growth" organized by Amity School of Economics on 17th March - 18th March, 2025.
Dr. Neeru Sidana
Conference Convener
Asst. Professor III
Dr. Kavita Indapurkar
Conference Chair
Joint Administrator
Prof (Dr.) Balvinder Shukla
Vice Chancellor, AUUP
Sponsors:

Prof. (Dr.) Deepak Pandey, Professor in the Department of Management at G. L. Bajaj Institute of Technology and Management, Greater Noida, served as Session Chair at the 8th National Conference titled "Viksit Bharat @2047: Harnessing the Power of Sustainability and Inclusive Growth", held on March 17–18, 2025. The conference, organized by the Amity School of Economics, Amity University, Noida, provided a dynamic platform for scholars and practitioners to explore strategies for sustainable and inclusive economic development. Dr. Pandey's role highlighted his expertise in management research and his ongoing commitment to fostering academic excellence and impactful discourse.

SESSION CHAIR BY DR. MADNESH KUMAR GUPTA

Dr. Madnesh Kumar Gupta, a faculty member from the Department of Computer Science and Engineering (Artificial Intelligence), served as a Session Chair during the 3rd International Conference on Disruptive Technologies (ICDT-2025) held on 7th and 8th March 2025. The event was organized by the Department of Computer Science & Engineering at G.L. Bajaj Institute of Technology and Management, Greater Noida, Uttar Pradesh, India. Dr. Gupta's contribution was recognized for his outstanding role in facilitating and moderating academic discussions during the conference sessions. In acknowledgment of his active involvement and support in promoting scholarly engagement, he was honored with a Certificate of Appreciation by the organizing committee.

SESSION CHAIR BY DR. VIJEYTA

Dr. Vijeyta, from G. L. Bajaj Institute of Technology and Management, Greater Noida, successfully chaired one of the research tracks at the International Conference on Multidisciplinary Concepts in Management (ICMCM 2025), held on January 9–10, 2025, at GLBITM. The conference provided a vibrant platform for scholars and practitioners to exchange innovative ideas and insights across diverse management disciplines. Dr. Vijeta's role as Session Chair reflected her active engagement in advancing academic research and fostering meaningful discourse in the field of management studies.

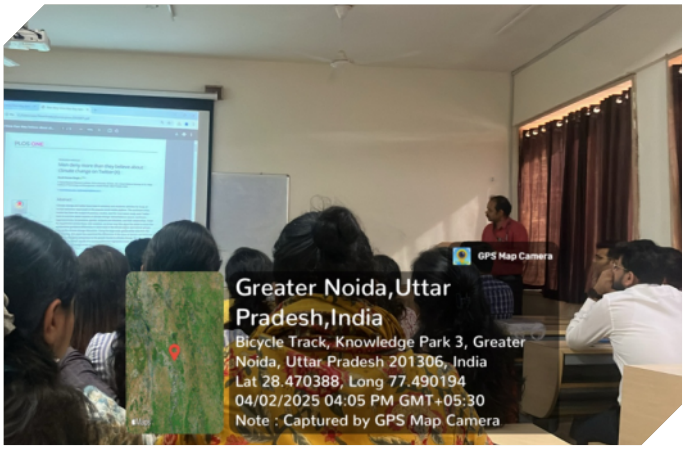
SESSION CHAIR BY DR. DINESH SINGH

Dr. Dinesh Singh from G.L. Bajaj Institute of Technology and Management (GLBITM), Greater Noida, served as Session Chair during the 2nd International Conference on Communication, Computer Sciences and Engineering (IC3SE-2025), held from 19th to 21st March 2025 at Amity University, Greater Noida Campus. His contribution was formally acknowledged by the conference committee for his role in facilitating scholarly dialogue and promoting academic excellence.

GUEST SPEAKERS BY DR. RAJNEESH KHARE

A special lecture on "Personality Traits of an Entrepreneur" was delivered by Dr. Rajneesh Khare, Associate Professor at GL Bajaj Institute of Technology and Management, on March 19, 2025. The session was part of the Women Entrepreneurship Development Programme (WEDP-2025), organized by the Department of Information Technology in collaboration with the GL Bajaj Center for Research and Incubation. Sponsored by the Department of Science & Technology (DST), Government of India, New Delhi, the programme aimed to empower aspiring women entrepreneurs by providing key insights into entrepreneurial mindset and leadership attributes. Dr. Khare's engaging talk offered valuable perspectives on cultivating essential personality traits for entrepreneurial success.

Knowledge Transfer Session by Dr. Mudit Kumar Singh for his publication



Title: "Men deny more than they believe about climate change on Twitter (X)"

Dr. Mudit has conducted a knowledge transfer session for the faculties of the Department of Management Studies, GLBITM. In this session, he shared insights on the comparative study-based research on denial behaviour on their beliefs about climate change on Twitter.

Indexing: SCOPUS Q1, SCIE, IF =2.9 Publisher: PLOS

KNOWLEDGE TRANSFER SESSION BY DR. PAWAN KUMAR MALL

Dr. Pawan Kumar Mall from the Department of CSE-AI delivered a Knowledge Transfer (KT) presentation titled "A Systematic Review of Image Generation Models: Methods, Comparative Insights, and Available Datasets." The session provided an in-depth exploration of advanced AI-driven image generation models, including Generative Adversarial Networks (GANs), Diffusion Models, DALL·E, Imagen, and Stable Diffusion. Dr. Mall critically analyzed widely used datasets such as COCO, LAION, and CIFAR10, which are instrumental in training and benchmarking these models. The presentation also addressed essential performance metrics and highlighted ongoing challenges like model bias and generalization issues. Furthermore, it emphasized the interdisciplinary applications of image generation technologies across computer science, data science, and design, reflecting the growing relevance and impact of generative AI in both academic and industrial domains.

FDP/MDP/Training Program/Workshop

SL.No.	Faculty Member	Department	Title	Days	Institution/ Industry
1	Pushpa	CSE	Methods Of Research and Publication Ethics	5	NITTTR Chandigarh
2	Abha Kaushik	CSE	Python Using AI Workshop	1	AI for Techies
3	Abha Kaushik	CSE	Deep Learning In Biomedical Emerging	6	Joginpally B.R. Engineering College
4	Bhairvee Singh	CSE	Research Methodology & Data Analysis	1	Amity University, Gr. Noida
5	Nitin Tyagi	CSE	Artificial Intelligence and Machine Learning	7	E & ICT ACADEMY IIT GUWAHATI, GNIOT
6	Swagat Ranjan Sahoo	CSE	Generative AI	6	E & ICT Academy, IIT Kanpur
7	Mekhala	CSE	Generative AI	6	E & ICT Academy, IIT Kanpur
8	Pragya	CSE	Generative AI	6	E & ICT Academy, IIT Kanpur
9	Bhairvee Singh	CSE	Generative AI	6	E & ICT Academy, IIT Kanpur
10	Abha Kaushik	CSE	Generative AI	6	E & ICT Academy, IIT Kanpur
11	Amit Wadhwa	CSE	ATAL FDP On - Exploring AI Using Ibm Watson and Google Colab	6	Gurukula Kangri Vishwavidyalaya Haridwar
12	Kuldeep Singh	CSE	Exploring AI Using Ibm Watson and Google Colab	6	Gurukula Kangri Vishwavidyalaya Haridwar
13	Pushpa	CSE	Greener Horizons: Energy Efficiency, Sustainability, and Climate Change Solutions	6	Manav Rachna International Institute Of Research And Studies Deemed To Be University
14	Vrinda	CSE	Greener Horizons: Energy Efficiency, Sustainability, And Climate Change Solutions	6	Manav Rachna International Institute Of Research And Studies Deemed To Be University
15	Anju Chandna	CSE	Greener Horizons: Energy Efficiency, Sustainability, And Climate Change Solutions	6	Manav Rachna International

SL.No.	Faculty Member	Department	Title	Days	Institution/ Industry
16	Jeba Nega Cheltha	CSE	Greener Horizons: Energy Efficiency, Sustainability And Climate Change Solutions	6	Manav Rachna International Institute of Research and Studies Deemed to be University
17	Payal Garg	CSE	Greener Horizons: Energy Efficiency, Sustainability, And Climate Change Solutions	6	Manav Rachna International Institute of Research and Studies Deemed to be University
18	Ashwani Kumar	CSE	Greener Horizons: Energy Efficiency, Sustainability, And Climate Change Solutions	6	Manav Rachna International Institute of Research and Studies Deemed to be University
19	Pawan Kumar Singh	CSE	Greener Horizons: Energy Efficiency, Sustainability, And Climate Change Solutions	6	Manav Rachna International Institute of Research and Studies Deemed to be University
20	Abha Kaushik	CSE	Greener Horizons: Energy Efficiency, Sustainability, And Climate Change Solutions	6	Manav Rachna International Institute of Research and Studies Deemed to be University
21	Mekhala	CSE	Advance Excel with Power BI	6	E & ICT Academy, IIT Kanpur
22	Pragya	CSE	Advance Excel with Power BI	6	E & ICT Academy, IIT Kanpur
23	Kuldeep Singh	CSE	Advances In Artificial Intelligence for Autonomous Vehicles at Manipal Academy of Higher Education	6	Manipal Academy of Higher Education
24	Swagat Ranjan Sahoo	CSE	Iot With Drones	6	IIT KANPUR
25	Jeba Nega Cheltha	CSE	Machine Learning Using Python	5	NITTR, Chandigarh
26	Payal Garg	CSE	Methods Of Research and Publication Ethics	5	NITTTR Chandigarh
27	Ashwani Kumar	CSE	Methods Of Research and Publication Ethics	5	NITTTR Chandigarh
28	Kuldeep Singh	CSE	Faculty Updation Program on Cryptography for Information Security (CIS-25)	5	Dr. A.P.J. Abdul Kalam Technical University, Lucknow.
29	Ambuj Saxena	ME	Clean Energy and Environment Sustainability	6	Government Engineering College, Palamu

SL.No.	Faculty Member	Department	Title	Days	Institution/ Industry
30	Tarun Gupta	ME	Clean Energy and Environment Sustainability	6	Government Engineering College, Palamu
31	Rohit Sahu	ME	Entrepreneurship And Innovation Management for Aatmanirbhar Bharat	5	NITTTR, Chandigarh
32	Tarun Kumar Gupta	ME	Clean Energy and Environment Sustainability	6	Government Engineering College, Palamu
33	Tarun Kumar Gupta	ME	Recent Advances in Renewable Energy Technologies	5	Gautam Buddha University (GBU), Greater Noida
34	Abhishek Pandey	ME	AI Beyond the Basics: Exploring Advanced Concepts & Real-World Applications	6	Asansol Engineering College
35	Abhishek Pandey	ME	Generative AI – Democratization Of AI, Responsible AI	6	Bapuji Institute of Engineering & Technology
36	Abhishek Pandey	ME	Importance Of Artificial Intelligence in Robotics	6	Indian Institute of Information Technology Design and Manufacturing (IIITDM), Kurnool
37	Abhishek Pandey	ME	Robotics & Automation In Advanced Manufacturing and Industry 4.0	6	Medi-Caps University, Indore
38	Abhishek Pandey	ME	Generative AI: Techniques, Tools, And Applications	6	National Institute of Technology (NIT) Delhi
39	Abhishek Pandey	ME	Sustainable Carbon-Free Technologies for Hydrogen Generation and Storage	6	National Institute of Technology (NIT) Tiruchirappalli
40	Avinash Kumar Pandey	CSAIML	Methods Of Research and Publication Ethics	5	NITTTR
41	Avinash Kumar Pandey	CSAIML	Smart Grid and Renewable Energy Source	5	NITTTR
42	Avinash Kumar Pandey	CSAIML	Artificial Intelligence and Optimisation Techniques Using MATLAB	5	NITTTR
43	Avinash Kumar Pandey	CSAIML	Tools For Research in Cloud, Fog and Edge Computing	5	NITTTR

SL.No.	Faculty Member	Department	Title	Days	Institution/ Industry
44	Attiuttama	CSAIML	Faculty Development Program on Research Trends in Cyber Security, Blockchain & AI	5	Gautam Buddha University
45	Attiuttama	CSAIML	Research Training	4	MSME-TECHNOLOGY DEVELOPMENT CENTRE (PPDC)
46	Gaurav Dhuriya	CSAIML	Research Methodology	5	NSUT
47	Gagan Gupta	CSAIML	Artificial Intelligence and Cybersecurity in Education and Research	6	Tecnia Institute of Advanced Studies
48	Gagan Gupta	CSAIML	Information Security and Privacy in Digital World	5	MNNIT, Prayagraj
49	Gagan Gupta	CSAIML	Green Cloud Computing Practices for Sustainable IT	6	Tecnia Institute of Advanced Studies
50	Gagan Gupta	CSAIML	Industy 4.0 With Sustainable Practices	5	VIT, Pune
51	Upendra Dwivedi	CSAIML	Enhancing Research Capabilities for Academic Career Progression	5	NITTTR, Chandigarh
52	Upendra Dwivedi	CSAIML	Mentoring Skills for Effecting Curriculum Implementation	5	NITTTR, Chandigarh
53	Sandeep Kumar	CSAIML	Advances In Computing and IT Revolution	6	Sharda University
54	Devendra Singh Mohan	CSAIML	Fuzzy Optimization Techniques: New Trends	5	NITTTR
55	Pooja Priya	CSAIML	Cmos Digital Vlsi Design	8 week	NPTEL
56	Avadhesh Kumar Sharma	CSAI	Methods Of Research and Publication Ethics	5 Days	NITTTR Chandigarh at G.L. Bajaj Institute of Technology and Management, Greater Noida
57	Avadhesh Kumar Sharma	CSAI	Foundations Of Wavelets and Multirate Digital Signal Processing (NPTEL-AICTE FDP)	4 Weeks	NPTEL-AICTE, IIT Madras

SL.No.	Faculty Member	Department	Title	Days	Institution/ Industry
58	Avadhesh Kumar Sharma	CSAI	Foundations Of Wavelets and Multirate Digital Signal Processing (Elite NPTEL Certification)	4 Weeks	NPTEL, IIT Bombay
59	Abhishek Singh	CSAI	Gen AI	1	VVDN TECHNOLOGIES PVT LTD, MANESAR
60	Piyush Kushwaha	CSAI	Faculty Updation Program On Cryptography For Information Security (CIS-25)	5	ISEA-III project of Meity, Government of India by Innovation Hub
61	Piyush Kushwaha	CSAI	GEN AI	1	VVDN TECHNOLOGIES PVT LTD, MANESAR
62	Anish Kumar Yadav	CSAI	Applied Ai: Practical Implementations	5	TechSaksham
63	Anish Kumar Yadav	CSAI	Cybersecurity Foundation	1	Palo Alto
64	Anish Kumar Yadav	CSAI	Enterprise Security Deployment	1	Palo Alto
65	Anish Kumar Yadav	CSAI	Machine Learning With Python	6	MeitY & IIT Kanpur
66	Amit Shukla	ASH	Methods Of Research and Publication Ethics	5	Education and Educational Management Department
67	Anil Gupta	ASH	Methods Of Research and Publication Ethics	5	Education and Educational Management Department
68	Anil Gupta	ASH	Blockchain & Web3	8	ExcelR Edtech Pvt. Ltd
69	Anil Gupta	ASH	Supercomputing	2	GLBCRI and Department of CSE(AIML.)
70	Anurag Singh	ASH	Methods Of Research and Publication Ethics	5	Education and Educational Management Department
71	Arvind Mishra	ASH	Methods Of Research and Publication Ethics	5	Education and Educational Management Department
72	Brij Kishore Tiwari	ASH	Methods Of Research and Publication Ethics	5	Education and Educational Management Department

SL.No.	Faculty Member	Department	Title	Days	Institution/ Industry
73	Diksha Kushwahae	ASH	Methods Of Research and Publication Ethics	5	Education and Educational Management Department
74	Diksha Kushwahae	ASH	Science, Technology and Innovation for Sustainable Development	5	NITTTR, Chandigarh
75	Diksha Kushwahae	ASH	Inculcating Universal Human Values in Technical Education	5	AICTE
76	Afreen Anjum	ASH	Methods Of Research and Publication Ethics	5	Education and Educational Management Department
77	Gaurav Gupta	ASH	Impact Of Artificial Intelligence on Automated Software Development and Delivery	5	Ajay Kumar Garg Engineering College, Ghaziabad
78	Geeta Saini	ASH	Indian Knowledge System: Science And Technology	5	NITTTR, Chandigarh
79	Gurmeet Kaur	ASH	Fuzzy Optimization Techniques: New Trends	5	NITTTR, Chandigarh
80	Rachana Singh Sisodia	CSE(DS)	International Faculty Development Program on Advances In Computing And IT-Revolution	6	Sharda University, Greater Noida
81	Rachana Singh Sisodia	CSE(DS)	Impact On Artificial Intelligence on Automated Software Development and Delivery	5	Ajay Kumar Garg Engineering College, Ghaziabad
82	Priya Singh	CSE(DS)	Applied Ai: Practical Implementations	5	TechSaksham Program
83	Karan Siwach	CSE(DS)	Next-Gen AI and Data Analytics: Strategies for the Future	5	Astana IT University, Astana, Kazakhstan
84	Karan Siwach	CSE(DS)	Data Sciences For ALL	10	Electronics & ICT Academy NIT Warangal
85	Karan Siwach	CSE(DS)	Information Security and Privacy in Digital World	7	Motilal Nehru National Institute of Technology Allahabad.
86	Yasha Istwal	CSE(DS)	Emerging Technologies for Educators: AI, Iot And AR/VR	5	Bahra University, Solan, Himachal Pradesh with collaboration with C-DAC

SL.No.	Faculty Member	Department	Title	Days	Institution/ Industry
87	Sugandha Chakraverti	CSE(DS)	Advancing Research Excellence: A Comprehensive Faculty Development Program on Research Methodologies And Data Analysis	2	Amity University, Greater Noida
88	Ayesha Malik	CSE(DS)	Next-Gen AI and Data Analytics: Strategies for The Future	5	Astana IT University, Astana, Kazakhstan
89	Deeksha Sankrit	ECE	Cmos Digital Vlsi Design	8 weeks	NPTEL-AICTE
90	Tapas Kumar Mishra	IT	Advances In Computing and IT Revolution	6	Sharda University
91	Tapas Kumar Mishra	IT	Methods Of Research and Publication Ethics	5	NITTTR Chandigarh
92	Adityan Gupta	IT	Generative AI	6	E & ICT Academy, IIT Kanpur
93	Md Sohaib Iqubal	IT	Generative AI	6	E & ICT Academy, IIT Kanpur
94	Kavya Goswami	IT	Generative AI	6	E & ICT Academy, IIT Kanpur
95	Kavya Goswami	IT	Artificial Intelligence and Machine Learning	6	E & ICT Academy, IIT Guwahati
96	Uma Tomar	IT	Artificial Intelligence and Machine Learning	6	E & ICT Academy, IIT Guwahati
97	Paramita De	IT	Design And Analysis of Algorithm (NPTEL-AICTE)	Jan-Mar 25	NPTEL-AICTE
98	Kavya Goswami	IT	Advance Excel with Power BI	6	E & ICT Academy, IIT Kanpur
99	Adityan Gupta	IT	Machine Learning with Python	6	E & ICT Academy, IIT Kanpur
100	Swati Raj, Manikant Dubey, Narendra Singh, Surbhi Agarwal, Akanksha Singh, Anjali Kushwaha	MBA	Methods Of Research And Publication Ethics	1 Week	National Institute of Technical Teachers Training and Research, Chandigarh, GOI
101	Jay Singh	EEE	Methods Of Research and Publication Ethics	5	INTTTR

SL.No.	Faculty Member	Department	Title	Days	Institution/ Industry
102	Nagendra Kumar Rohit Sahu	EEE	Cyber Security (On Premises Hacking)	6	IIT Kanpur
103	Sanjeev Kumar, Deepkiran Munjal, Kavita Singh, Nirmal Saraswat	MCA	Methods Of Research and Publication Ethics	1 Week	National Institute of Technical Teachers Training and Research, Chandigarh, GOI
104	Madhu Sharma Gaur, Sanjeev Kumar, Gaurav Jindal, Kajal Rai, Divya Mishra, Lalan Kumar, Deepkiran Munjal, Anju Mishra Kavita Singh Pragya Siddhi, Biraja Mishra, Akhilesh Nagar, Niharika Singh, Nirmal Saraswat, Prakesh Pal, Sagar Monga	MCA	Artificial Intelligence and Machine Learning	1 Week	GL Bajaj Institute of Technology and Management, Greater Noida, collaboration with E&ICT Academy and IIT Guwahati
105	Smriti Sachan, Dinesh Kumar Singh, Richa Tiwari, Krishanu Kundu, Shilpa Choudhary, Avadhesh Kumar Sharma, Puja Priya, Vivek Gupta, Deeksha Sankrit, Deepti Sharma, Mohan Singh, Rahul Dev, Rishabh Yadav, Sandeep Kumar, Shaina Suresh Kumar	ECE	Methods of Research and Publications Ethics	1 Week	GLBITM in association with NITTTR, Chandigarh


Innovation

GLBITM *Research* *Highlights for* JOURNAL PUBLICATIONS

1 Design and Implementation of High Isolation Textile MIMO Antenna for Wearable Applications

Sanjeev Kumar, Kunal Srivastava, Sachin Kumar, Deepti Sharma, Rakesh N. Tiwari, Abhishek Kandwal, Mahesh Kumar Singh, Bhawna Goyal

https://doi.org/10.1002/dac.70010

This work presents a single-layer wideband textile multiple-input–multiple-output (MIMO) antenna for wearable devices. The antenna design is made up of two rectangular-shaped monopole antennas that are mirror imaged and connected to achieve an equal voltage level in the ground surface. The antenna elements are excited by 50-Ω microstrip feed lines. By using a triangular stub decoupling element on the ground plane, greater than 22 dB of isolation is attained among antenna elements. The suggested two-element MIMO antenna has a bandwidth of 2.3–8.0 GHz and a dimension of 30 mm × 58 mm × 1 mm. In addition, four- and eight-element MIMO geometries have been designed and analyzed for massive MIMO applications. Also, an eight-element MIMO belt antenna for wearable straps is investigated. The effects of antenna bending on the human body are also investigated.

2 Review—A Comparative Analysis of the Fundamental Characteristics and Uses of the Amorphous Polymers Poly(sulfone) and Poly(methyl methacrylate)

Pooja Saxena, Prashant Shukla

https://doi.org/10.1149/1945-7111/ada582

Amorphous polymers have some limitations compared to their crystalline counterparts but also several advantages, such as improved transparency, ease of processing, and specific applications in industries where their unique properties are beneficial. The choice between amorphous and crystalline polymers depends on the specific requirements of the application and desired material properties. In this regard, Poly (sulfone) (PSF) and Poly (methyl methacrylate) (PMMA) offer a range of valuable properties that can be beneficial in various applications. Their unique characteristics make them stand out among other amorphous polymers and contribute to their popularity in different industries. PSF and PMMA are two distinct types of amorphous polymers that possess different chemical structures and properties, leading to varied applications. PSF is preferred when high temperature and chemical resistance are crucial, while PMMA is ideal for applications that require excellent optical clarity and transparency. Both polymers have their strengths and weaknesses, and their uses depend on specific requirements in different industries. This review aims to present a comparative analysis of the fundamental characteristics like physical, chemical, thermal, and mechanical properties of PSF and PMMA and their uses. This article also provides a valuable reference for comprehending the two polymers for progress in numerous science and technology domains.

3 Enhancing transparency in global horizontal irradiance estimation with tree based machine learning algorithms and Shapley additive explanations framework

Rahul Gupta, Chaitanya Ganvir, S. K. Jha, Rahul Singh, Raj Kumar Baghel

https://doi.org/10.1080/01430750.2024.2444346

The estimation of global horizontal irradiance (GHI) is crucial for assessing solar energy potential, especially for investment purposes in specific regions. This study employs two feature selection techniques such as recursive feature elimination (RFE) and least absolute shrinkage and selection operator (LASSO) to identify key variables from two datasets, which are then used to train four machine learning (ML) models such as Decision Tree (DT), Random Forest (RF), Extreme Gradient Boost (XGB), and Extra Trees (ET) regressors. The performance of these models is evaluated using three statistical metrics such as mean absolute error (MAE), root mean squared error (RMSE), and R-squared (R2). The results show that the ET regressor, when combined with LASSO, achieves the best predictive performance, with an MAE of 1.36 W/m² and an RMSE of 2.46 W/m2. The study further employs Shapley Additive Explanations (SHAP) to interpret the model, revealing that parameters like Diffuse Horizontal Irradiance, Solar Zenith Angle, and Direct Normal Irradiance significantly impact GHI prediction accuracy. The combination of feature selection, advanced ML models, and SHAP analysis offers a comprehensive and transparent framework for solar energy resource assessment, addressing the need for accuracy and interpretability in GHI estimation.

4 Enhancing CZTS solar cell performance via back surface field in simulation engineering

Sadanand Maurya, Pratap Kumar Dakua, Lalit Kumar Gupta, Manvinder Singh, Sri Krishna Singh, Rajendra Prasad, Abhinav Mishra, D. K. Dwivedi

https://doi.org/10.1007/s12596-025-02450-y

CZTS (copper zinc tin sulphur) based devices are increasingly popular due to their improved efficiency with different architectures for various types of solar cells (SCs). This study uses SCAPS-1D simulation software to model CZTS devices with a CZTSSe back-surface field (BSF) layer. We introduce a novel structure with a BSF layer to enhance solar cell performance, examining the effects of BSF layer thickness, BSF carrier concentration, temperature, and front and back contact work functions. Adding a BSF layer boosts efficiency to 20.43% at 70 nm thickness. Electrical parameters rise with BSF doping concentration up to 1018 cm-3 before saturating. Efficiency, FF, Jsc, and Voc decrease with rising temperatures but improve with a back contact work function up to 5.35 eV. This study shows that CZTS-based photovoltaic devices with BSF layers can achieve high efficiency and stability.

5 An Overview: On Exploration, Concept and Impact of Metaverse in Education Sector

Swati Raj, Vaishali Gupta, Anjali Kushwaha, Ruchika Vats

https://doi.org/10.36948/ijfmr.2025.v07i01.36068

Users can interact in immersive surroundings by merging the physical and digital realities in a communal virtual space called the Metaverse. The metaverse represents a transformative digital environment that merges physical and virtual realities, offering immersive experiences that can significantly enhance educational practices. Through this research paper we have tried to explain the future scope of metaverse in education and also Benefits of the Metaverse in Education

The metaverse offers enhanced learning experiences through immersive and interactive opportunities that cater to diverse learning styles and significantly boost student engagement. It also provides safe environments for experimentation, enabling students to conduct simulations and experiments that would be too risky or impractical in the physical world. However, challenges remain, including technical barriers such as the high cost of equipment and the need for robust infrastructure, which can limit widespread adoption. Additionally, pedagogical concerns persist, with ongoing debates about the effectiveness of metaverse-based learning compared to traditional educational methods. In conclusion, while the metaverse holds great promise for transforming education, it is essential to address these challenges to ensure its successful integration into learning environments. Future research should focus on overcoming these barriers to fully realize its educational potential.

6 Sensor and Computer Vision Based Cattle Health Monitoring and Management

Devendra Singh, Rajesh Singh, Anita Gehlot, Gaurav Bhandari, Atulya Verma, Pavan Gangwar, Purnendu Shekhar Pandey

https://doi.org/10.14445/23488379/IJEEE-V12I1P109

As part of its efforts to achieve the Sustainable Development Goals by 2030, the United Nations promotes sustainable farming. Though there are complications with real-world deployment, autonomous farming is being explored within the context of edge computing. Automation and smart farming practices could boost farmer efficiency, sustainability, and the well-being of livestock. These advancements minimize costs, eliminate laborious processes, and elevate product quality. Wearable sensors gauge animal behavior, emphasizing the significance of impeccable remote data sharing in this expanding business. Global population growth is driving an evolution toward intelligent farming to address food security and resource constraints. IoT and data analytics optimize farming productivity by substituting outdated wireless sensor networks. IoT effortlessly incorporates technologies like WSN, RFID, and cloud computing. ZigBee technology finds application in livestock health monitoring systems, where sensors measuring heart rate, temperature, pulse rate, and respiration are included. These sensors have connectivity to a Graphical User Interface (GUI) to improve livestock wellness tracking. The advantages of cloud computing encompass exceptionally low latency, bandwidth optimization, assurance, and real-time analytics. This article examines Computer Vision and sensor-based technologies in intelligent agriculture.

7 Exploring Stimulus to Consumers' Virtual Shopping Environment in the Metaverse

S. M. Fatah Uddin, Fateh Mohd Khan, Mohammad Anas, Mohd. Nishat Faisal, Nripendra P. Rana

https://doi.org/10.1080/08874417.2025.2459685

The rapid integration of the metaverse into the retail industry demands a deeper understanding of consumer engagement within immersive virtual environments. Addressing this gap, this study explores the role of metaverse richness in shaping spatial presence and realism, which influence active consumer engagement. Guided by the uses and gratification theory, the research examines how immersive time moderates these relationships. Data were collected through a survey of 332 respondents, capturing their experiences with realistic shopping environments in the metaverse. The findings reveal that metaverse richness significantly enhances spatial presence and realism, which are pivotal in driving active engagement. Moreover, immersive time strengthens these effects, emphasizing its importance in consumer experience design. This study offers actionable insights for businesses aiming to optimize engagement and build enduring consumer relationships in metaverse commerce while contributing to the evolving literature on digital consumer behavior and immersive marketing strategies.

8 Numerical Investigation of RbGeI3-Based Lead-Free Perovskite Solar Cell with Various Cu-Based Hole Transport Layers Using SCAPS-1D

Dharmender, Kaushal Kumar Nigam, Piyush Yadav, Shrija Kuksal, Tushar Parashar, Sudakar Singh Chauhan

https://doi.org/10.1007/s11664-025-11740-x

Lead toxicity in perovskite solar cells (PSCs) presents a major challenge for their broader commercialization. The leading organic hole transport layer (HTL) material, spiro-OMeTAD, is costly due to its complex synthesis process. This research involves a comprehensive device simulation of inorganic RbGeI3-based PSCs, examining various copper-based materials for the HTL, such as copper barium thiostannate (CBTS), copper iron tin sulfide (CFTS), Cu2O, CuI, CuO, CuCrO2, CuInSe2, and CuSCN, using the SCAPS-1D simulator. The study systematically varies parameters related to the absorber layer, including thickness, doping density, and defect density, to evaluate their effects on device performance. It also investigates how changes in the doping density and thickness of both the electron transport layer (ETL) and HTL, interface defect densities, series resistance, shunt resistance, and temperature fluctuations influence PSC performance. The main goal of this research is to optimize critical design parameters to improve the efficiency of solar cell power conversion. The parametric analysis shows significant performance enhancements, with the optimized device achieving short-circuit current density (Jsc) of 33.90 mA/cm2, open-circuit voltage (Voc) of 0.815 V, a fill factor (FF) of 80.93%, and power conversion efficiency (PCE) of 22.36%.

9 Enhancing solar radiation forecasting accuracy with a hybrid SA-Bi-LSTM-Bi-GRU model

Girijapati Sharma, Subhash Chandra, Arvind Kumar Yadav, Rahul Gupta

https://doi.org/10.1007/s12145-025-01791-3

Accurate solar radiation forecasting is essential for optimizing the design, operation, and management of solar power systems. It ensures reliable energy trading, efficient maintenance scheduling and stable power generation. Deep learning (DL) models, known for capturing complex nonlinear relationships, have demonstrated potential in solar irradiance prediction. However, limitations such as data variability and privacy concerns persist. To overcome these challenges, this study introduces a novel hybrid DL model that combines self-attention, bidirectional long short-term memory, and bidirectional gated recurrent unit architectures. The model is trained using features selected through recursive feature elimination and ridge regression, ensuring the most relevant data is utilized for prediction. Using ground-measured global horizontal irradiance dataset, the proposed SA-Bi-LSTM-Bi-GRU model achieves exceptional forecasting performance. It significantly reduces MAE by 64.40–90.34 W/m2, RMSE by 16.15–57.30% W/m2, MAPE by 41.38–69.78%, NMRSE by 8.29–21.65% W/m2 compared to considered standalone and hybrid models, while achieving an R2 of 0.98. These improvements underscore the model's ability to deliver precise and reliable forecasts, enhancing grid stability and energy efficiency. By integrating advanced architectures and achieving substantial performance gains, this model offers a groundbreaking solution for sustainable solar energy management.

10 A pocket-integrated miniature, dual-band, and high gain textile MIMO antenna for 5G and WiFi wearable applications

Deepti Sharma, Rakesh N. Tiwari, Dinesh Kumar Singh, Ladislau Matekovits

https://doi.org/10.1038/s41598-025-86605-8

This paper reports a miniature low-profile denim textile 2-port MIMO (multiple-input-multiple-output) antenna for dual-bands: 5G sub-6 3.5 GHz and Wi-Fi 5.2 GHz wearable applications. This MIMO antenna has impedance bandwidths and peak gain of 310 MHz and 8.3 dBi and 950 MHz 13.0 dBi at 3.5 and 5.2 GHz, respectively. This MIMO antenna has a compact area of 0.078 λ02, with both antenna elements of the MIMO being a modified elliptical patch, L-shaped stubs for impedance matching, and a circular decoupling ring to achieve > 25 dB port isolation. The designed antenna is very tiny and integrated into the shirt's pocket. It is tested in two positions, i.e., hidden (integrated inside the pocket, for example, military applications) and visible (when integrated on the pocket surface for conventional communication). Moreover, the antenna's working is analyzed in these positions (hidden and visible), and it was found that it functions well in both 5G sub-6 GHz and Wi-Fi frequency bands with nearly close gain values and communication range. This MIMO antenna has a very small ECC (envelope correlation coefficient) of 0.006/0.002 in both frequency bands, which shows high channel isolation. The 1 gm/10 gm SAR (specific absorption rate) values at 3.5 and 5.2 GHz are 0.034/0.057 and 0.026/0.0132 W/Kg, respectively, substantially lesser than the recommended values of FCC/ICNIRP.

11 Modal analysis of chirped refractive index profile curved optical waveguide having absorbing boundaries

Sanjeev Kumar Raghuwanshi, Vikash Kumar, Purnendu Shekhar Pandey

https://doi.org/10.1007/s11082-025-08078-3

In this paper, the curved Optical waveguide is analyzed for the first time having a complicated chirp type of the refractive index profile in the fiber core. The finite difference method in conjunction with the conformal transformation has been devised to extract the allowed Eigen values and Eigen vectors of the waveguide. This paper studies the effect of bending radius on b-V graph characteristics, power confinement factor, and mode field profile for better suitability for next-generation optical network systems.

12 Advancements in Fiber and Prism-Based Surface Plasmon Resonance Sensors: Comparative Analysis and Applications in Disease Detection and Biosensing

Purnendu Shekhar Pandey, Azhar Shadab, Malatesh Akkur, Yashpal Yadav, Manoj Kumar, Mahaveer Singh Naruka, Yadvendra Singh, Rajesh Singh

https://doi.org/10.1007/s11468-024-02745-z

The surface plasmon resonance (SPR) technique has proven indispensable as an optical sensing method owing to its extraordinary sensitivity to changes in refractive index, making it crucial for diagnosis of disease diagnostics, environmental assessment, and pharmaceutical development. This review compares the two most common configurations of SPR sensors: fiber-based and prism-based SPR sensors. This comprehensive review covers various sensor configurations, geometric shapes, and fiber types, advantages of each in terms of integration, sensitivity, and performance enhancement. Significant applications include diagnosis of Alzheimer's disease, cardiovascular conditions, cancer, and diabetes. Fiber SPR sensors offer real-time monitoring, mobility, and field flexibility; on the other hand, prism-based SPR sensors provide a higher sensitivity and are more relevant for laboratory applications that demand accuracy. The integration of advanced nanomaterials like graphene and MXenes has further improved both systems' sensitivity and stability. Recent advances in miniaturization and multiplexing enabled them to be adapted for real-time biomarker detection of various medical diagnostics based on environmental safety, providing the tools of modern biosensing technology.

13 Men deny more than they believe about climate change on Twitter (X)

Mudit Kumar Singh

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Climate change and twitter have been in scholarly and academic attention for study of human behaviour expressed on the popular social media platform. The sentiment of the tweets has been the subject of previous studies, and the most recent study used Twitter texts to examine seven aspects of climate change: denier/believer stance, sentiment, aggressiveness, temperature, gender, subjects and disasters, and their relationships. Amid the big pictures across these vital variables, we know very little about the extent to which the comparative gendered differences in views exist in the climate denier and believer groups shaping the climate change discussion. Using the large scale global twitter data from the past 13 years, this paper has examined the differences in the views of deniers and believers on climate change in comparison to the people neutral to climate change. Based on the expression on twitter, results of a sound multinomial regression model of this study indicates a globally strong climate denier stance of men.

14 A Levelized Multiple Workflow Heterogeneous Earliest Finish Time Allocation Model for Infrastructure as a Service (IaaS) Cloud Environment

Farheen Bano, Faisal Ahmad, Mohammad Shahid, Mahfooz Alam, Faraz Hasan, Mohammad Sajid

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Cloud computing, a superset of heterogeneous distributed computing, allows sharing of geographically dispersed resources across multiple organizations on a rental basis using virtualization as per demand. In cloud computing, workflow allocation to achieve the optimum schedule has been reported to be NP-hard. This paper proposes a Levelized Multiple Workflow Heterogeneous Earliest Finish Time (LMHEFT) model to optimize makespan in the cloud computing environment. The model has two phases: task prioritization and task allocation. The task prioritization phase begins by dividing workflows into the number of partitions as per the level attribute; after that, upward rank is employed to determine the partition-wise task allocation order. In the allocation phase, the best-suited virtual machine is determined to offer the lowest finish time for each task in partition-wise mapping to minimize the workflow task's completion time. The model considers the inter-task communication between the cooperative workflow tasks. A comparative performance evaluation of LMHEFT has been conducted with the competitive models from the literature implemented in MATLAB, i.e., heterogeneous earliest finish time (HEFT) and dynamic level scheduling (DLS), on makespan, flowtime, and utilization. The experimental findings indicate that LMHEFT surpasses HEFT and DLS in terms of makespan 15.51% and 85.12% when varying the number of workflows, 41.19% and 86.73% when varying depth levels, and 13.74% and 80.24% when varying virtual machines, respectively. Further statistical analysis has been carried out to confirm the hypothesis developed in the simulation study by using normality tests, homogeneity tests, and the Kruskal–Wallis test.

15 Thermochemical transformation of agricultural residue for hydrogen production in India Author links open overlay panel

Neeraj Kumar, Deepak Kumar, Ashutosh Mishra

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India is a predominantly agriculture-based state, and the availability of biomass from agriculture residue can be leveraged for producing biofuels, hydrogen, methane, and other valuable chemicals. This article explores biomass pyrolysis as a crucial approach to India's renewable energy goals, focussing on hydrogen production. Thermochemical pyrolysis converts agriculture residue into hydrogen-rich syngas, effectively utilizing India's enormous biomass reserve. The key highlight of this analysis is the simultaneous extraction of biomass charcoal, that captures carbon and improves soil health, aiding in agricultural sustainability. The research primarily emphasizes utilizing agriculture biomass to produce electricity in rural regions, to promote energy sustainability. Additionally, the study explores technology as rapid and microwave-assisted pyrolysis to improve process efficiency. The study also examines the financial potential of hydrogen production employing biomass pyrolysis, taking into consideration aspects like feedstock accessibility, investment costs, and market needs. Moreover, the market demand research shows a large opportunity for hydrogen produced from biomass pyrolysis, with demand probable to surpass 7–10 million metric tonnes per year. However, the effectiveness of biomass pyrolysis application is dependent on complementary government policies, assistance, and energy efficiency initiatives. This paper highlights the significance of these strategies in promoting the widespread use of biomass for hydrogen production in India. In conclusion, this evaluation identified biomass pyrolysis as a novel and potential solution for sustaining India's future energy demands.

16 Influence of Graphene Reinforcement Particles on the Mechanical and Wear Behavior of AlMgCuCrFeZn High Entropy Alloy Composite Material

Ambuj Saxena, Tarun Kumar Gupta, Rahul Chaurasia, Ashish Kumar Srivastava, Kushal Pal Singh and Neeraj Mishra

https://doi.org/10.1149/2162-8777/adbebd

Graphene reinforced (with 3, 6, 9 weight percentage (wt%)) AlMgCuCrFeZn high entropy alloys (HEAs) were developed utilizing the mechanical alloying and spark plasma sintering process and the mechanical properties of the composite samples were analyzed in terms of yield strength and compressive strength. Wear rate, wear resistance, specific wear rate, and Vicker's hardness were also analyzed. The Hollomon power law hardening constants has been determined for the developed samples. HEAs have sound practical implications in different industries due to their exceptional mechanical properties, hardness, and wear resistance. In the present research, graphene was reinforced with AlMgCuCrFeZn HEA to enhance the strength, hardness, and wear resistance, making it suitable for aerospace, automotive, and biomechanical fields. The developed HEA exhibited application in the fabrication of turbine blades, heat exchangers, and nuclear reactors. Results revealed that Graphene (3 wt%)/AlMgCuCrFeZn, Graphene (6 wt%)/AlMgCuCrFeZn, and Graphene (9 wt%)/AlMgCuCrFeZn HEA composite samples exhibited 9.85, 13.053, and 16.18% more yield strength than Graphene (0 wt%)/AlMgCuCrFeZn. Further, Graphene (3 wt%)/AlMgCuCrFeZn, Graphene (6 wt%)/AlMgCuCrFeZn, and Graphene (9 wt%)/AlMgCuCrFeZn HEA composite samples exhibited 12.01, 20.52, and 30.54% more compressive strength than Graphene (0 wt%)/AlMgCuCrFeZn. Graphene (9 wt%)/AlMgCuCrFeZn exhibited maximum wear resistance than other samples the load range 30–120 N.

17 Influence of raster angle on mechanical properties for FDM 3D-printed PLA polymer

Tarun Kumar Gupta, Nagireddy Mounika, Ambuj Saxena, Nagendra Kumar Maurya, Megha Jagga, Gourav Sood

https://doi.org/10.1680/jgrma.24.00212

In the present work, the influence of raster angle (0°, 45°, and 90°) on the mechanical properties of 3D-printed polylactic acid has been investigated. Tensile, hardness, and impact tests were conducted for the same. Furthermore, dynamic mechanical analysis has also been conducted. The results revealed that the mechanical properties of specimens printed at a 0° raster angle are better than the specimens printed at other raster angles. Furthermore, dynamic mechanical analysis exposed that the storage modulus is higher for the specimen printed at a 0° raster angle, and the loss tangent (tan δ) is higher for the specimen printed at a 90° raster angle. The yield strength of 45° and 90° raster angles was 7.12% and 19.74% less than the 0° raster angle, respectively. The ultimate tensile strength of 45° and 90° raster angles was 6.46% and 19.10% less than the 0° raster angle, respectively. The 0° printed specimen exhibited maximum impact strength (45 kJ/m2), hardness (17.45 HV), and flexural strength (64.77 MPa), followed by 45° and 90° specimens. Furthermore, the fracture strain was less than 6% for 45° and 90° raster angles at the comparison of 0° raster angle.

18 Room temperature structural, and ferromagnetic behaviour of Mn, Fe and Mn/ Fe codoped In2O3 Nanocrystalline

Sanjay Kumar , Virendra Kumar , Manoj Kumar Bansal, Arvind Mishra , Vimlesh Mishra

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Manganese & iron-doped indium oxide dilute magnetic semiconductor (DMS) powder was synthesized by solid-state reaction method. The effect of Mn & Fe doping on magnetic, optical, and structural properties of (In)0.985(Mn).015O and (In)0.985(Fe).015O have been systematically studied. The polycrystalline cubic structure has been confirmed by an X-ray diffraction pattern. It is also being reported that the optical band gap increases from 3.8 eV to 4.2 eV for Mn-doped while 3.8 eV to 4.4 eV for Fe-doped samples. FTIR spectra reveal the occupancy of In-O and In-O-H absorption bands. EDAX confirms the occupancy of Fe, O, In, and Mn elements in the prepared samples. M–H plot indicates superparamagnetic behavior in Mn-doped In2O3.

19 A fusion approach of discrete wavelet decomposition and deep learning techniques for the enhancement of wind speed prediction accuracy

Sarvendra Kumar Singh , S. K. Jha & Rahul Gupta

https://doi.org/10.1007/s00704-025-05450-x

Accurate wind speed forecasting is crucial for ensuring the stability of power systems and optimizing wind-integrated smart grids. However, the inherent variability of wind speed presents significant forecasting challenges. To overcome these limitations, this study introduces a cutting-edge hybrid forecasting model that seamlessly integrates Discrete Wavelet Transform (DWT) with Deep Learning (DL) techniques. By leveraging DWT's ability to extract essential frequency features and DL's strength in capturing complex nonlinear dependencies, the proposed model offers a highly effective solution for wind speed prediction. The forecasting framework utilizes seasonally segmented wind speed data from Jaisalmer, Rajasthan, India, covering autumn, summer, winter, and spring. A comparative analysis with standalone DL models reveals that the hybrid DWT-LSTM model consistently delivers superior predictive accuracy across all seasons, achieving minimal error metrics such as Mean Absolute Error (MAE) of 0.0313 m/s, Root Mean Squared Error (RMSE) of 0.01329 m/s, relative RMSE of 0.02653 m/s, and normalized RMSE of 0.016125 m/s along with an exceptional coefficient of determination (R2) exceeding 0.99. With its superior precision and adaptability, the proposed DWT-DL model significantly outperforms conventional methods, offering a robust and scalable solution for wind speed forecasting. Its demonstrated effectiveness positions it as a vital tool for enhancing power grid stability and driving sustainable energy management forward.

20 Model Predictive Control (MPC) and Proportional-Integral-Derivative (PID) Controllers for Load Frequency Control Scheme

Rajeev Kumar, Akhilesh Singh, Nagendra Kumar, Manoj Badoni, Bhagawati Prasad Joshi, Sunil Semwal

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This study aims to examine the use of Proportional Integral Derivative (PID) and Model Predictive Control (MPC) in Load Frequency Control (LFC). A balance between the generation and the load is necessary to ensure the consistency of the electrical supply. These days, MPC techniques are becoming popular due to their merits over conventional PID controllers. In this study, performance of the designed PID and MPC schemes has been tested and compared for two area interconnected power system. This system consists hydro unit in area-1 and three Thermal units in area-2. A step load perturbation scenario in both areas has been obtained to evaluate the effectiveness of the designed control strategies. The results show that both the designed control approaches performed successfully however, the MPC scheme outperform the PID scheme in terms of time domain specifications like reduced oscillation and smaller settling time. It can be concluded that MPC can be used as a secondary controller for LFC applications in future research.

21 The Role of Cyber Threat Intelligence in Protecting National Infrastructure

Magnus Chukwuebuka Ahuchogu, Gonesh Chandra Saha, Urmila R. Kawade, Pravin Ganpatrao Gawande, Sunny Prakash

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Cyber threats pose a significant risk to national infrastructure, with critical sectors such as energy, transportation, healthcare, and finance increasingly targeted by sophisticated cyberattacks. Cyber Threat Intelligence (CTI) plays a crucial role in enhancing cybersecurity defenses by providing actionable insights into emerging threats, adversarial tactics, and vulnerabilities. This paper explores the role of CTI in protecting national infrastructure, emphasizing its contribution to threat detection, risk mitigation, and incident response. We examine the integration of artificial intelligence and big data analytics in CTI to improve threat prediction and real-time analysis. Additionally, we discuss the challenges in implementing CTI, including information sharing barriers, data privacy concerns, and the evolving nature of cyber threats. By analyzing case studies of cyber incidents and successful CTI implementations, this research highlights best practices for strengthening national cybersecurity frameworks. The findings underscore the necessity of a proactive and intelligence-driven approach to safeguard critical infrastructure against ever-evolving cyber risks.

22

Role of Artificial Intelligence in Talent Management in Learning Organisation: An Empirical Study

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The way traditional human resource management (HRM) is carried out in domestic and international organizations is changing because of artificial intelligence (AI). AI applications have become widely used in human resources management, controlling personnel, influencing recruitment, accounting allocation of resources, and the process by which decisions are made. In the past ten years, HRM has been affected by AI through the automation of functions such as hiring, performance appraisal, and workforce planning. The research on AI in HRM is relatively fragmented and not systematic. In particular, there is a need for a thorough analysis of AI's role within multinational enterprises -for instance, enterprise-wide technology adoption varies by region. At present, AI plays a role in recruitment, because of the need for skilled employees to support economic growth, organizations constantly recruit, and recruitment functions are highly mobile. In particular, in the technology sector, companies use AI and machine learning (ML) tools to improve talent acquisition. Autonomous testing and self-learning algorithms figure into identifying, evaluating, and retaining candidates. The use of AI in HRM raises questions about efficiency, fairness, and decision-making. A sample of 219 people from learning organization were surveyed to know the factors that determines different Role of Artificial Intelligence in Talent Management in Learning Organisation and found that Talent acquisition and recruitment, Workforce Planning & Retention, Performance Management and Biasness are the factors showing role of AI in talent management.

Journal articles published

Name of the Faculty	Depart -ment	Title of paper	Name of journal	Impact Factor	Publisher	Index in Journal
Deepti Sharma	ECE	Design and Implementation of High Isolation Textile MIMO Antenna for Wearable Applications	International Journal of Communication Systems	1.7/5.9	Wiley	SCI-E
Pooja Saxena	AS	Review—A Comparative Analysis of the Fundamental Characteristics and Uses of the Amorphous Polymers Poly(sulfone) and Poly(methyl methacrylate)	Journal of The Electrochemical Society	3.4	IOP Science	SCI-E
Rahul Gupta	AS	Enhancing transparency in global horizontal irradiance estimation with tree based machine learning algorithms and Shapley additive explanations framework	International Journal of Ambient Energy	5.9	Taylor & Francis	SCOPUS
Manvinder Singh	AS	Enhancing CZTS solar cell performance via back surface field in simulation engineering	Journal of Optics (India)	.2.0	Springer Nature	SCI
Ruchika Vats	MBA	An Overview: On Exploration, Concept and Impact of Metaverse in Education Sector	International Journal For Multidisciplinary Research	9.24	Sky Research Publication and Journals	UGC Recommended (CARE List)
Purnend Shekhar Pandey	ECE	Sensor and Computer Vision Based Cattle Health Monitoring and Management	SSRG International Journal of Electrical and Electronics Engineering	1.1	Seventh Sense Research Group	SCI
Mohammad Anas	MBA	Exploring Stimulus to Consumers' Virtual Shopping Environment in the Metaverse	Journal of Computer Information Systems	3.1/6.8	Taylor & Francis	ABDC
Dharmendra	ECE	Numerical Investigation of RbGeI3-Based Lead-Free Perovskite Solar Cell with Various Cu-Based Hole Transport Layers Using SCAPS-1D	Journal of Electronic Materials	2.2	Springer Nature	SCI-E
Rahul Gupta	AS	Enhancing solar radiation forecasting accuracy with a hybrid SA-Bi-LSTM-Bi-GRU model	Earth Science Informatics	2.7	Springer Nature	SCI-E
Deepti Sharma	ECE	A pocket-integrated miniature, dual-band, and high gain textile MIMO antenna for 5G and WiFi wearable applications	Scientific Reports	3.8/6.9	Nature	SCI-E
Purnendu Shekhar Pandey	ECE	Modal analysis of chirped refractive index profile curved optical waveguide having absorbing boundaries	Optical and Quantum Electronics	3.3	Springer Nature	SCI-E
Azhar Shadab	CSE(DS)	Advancements in Fiber and Prism-Based Surface Plasmon Resonance Sensors: Comparative Analysis and Applications in Disease Detection and Biosensing	Plasmonic	3.3	Springer Nature	SCI-E
Mudit Kumar Singh	MBA	Men deny more than they believe about climate change on Twitter (X)	PLoS ONE	2.9	Public Library of Science	SCOPUS

Name of the Faculty	Depart -ment	Title of paper	Name of journal	Impact Factor	Publisher	Index in Journal
Mahfooz Alam	MCA	A Levelized Multiple Workflow Heterogeneous Earliest Finish Time Allocation Model for Infrastructure as a Service (IaaS) Cloud Environment	Algorithms	1.8/4.1	Multidisciplinary Digital Publishing Institute (MDPI)	SCOPUS
Sansar Singh Chauhan	CSE	Prediction of higher heating values based on imminent analysis by using regression analysis and artificial neural network for bioenergy resources	Proceedings of the Institution of Mechanical Engineers, Part E: Journal of Process Mechanical Engineering	2.3	SAGE Publications	SCOPUS
Ashutosh Mishra	AS	Thermochemical transformation of agricultural residue for hydrogen production in India	Sustainable Chemistry for Climate Action	2.3	Elsevier	ESCI
Ambuj Saxena	ME	Influence of Graphene Reinforcement Particles on the Mechanical and Wear Behavior of AlMgCuCrFeZn High Entropy Alloy Composite Material	ECS Journal of Solid State Science and Technology	1.8	IOP Science	SCI-E
Ambuj Saxena	ME	Influence of raster angle on mechanical properties for FDM 3D-printed PLA polymer	Green Materials	1.8	Emerald Publishing	SCI-E
Sanjay Kumar	AS	Room temperature structural, and ferromagnetic behaviour of Mn, Fe and Mn/ Fe codoped In2O3 Nanocrystalline	Results in Optics	2.28/2.5	Elsevier	ESCI
Rahul Gupta	AS	A fusion approach of discrete wavelet decomposition and deep learning techniques for the enhancement of wind speed prediction accuracy	Theoretical and Applied Climatology	2.8	Springer Nature	SCI-E
Nagendra Kumar	EEE	Model Predictive Control (MPC) and Proportional-Integral-Derivative (PID) Controllers for load frequency control Scheme	Suranaree Journal of Science and Technology	0.24	Suranaree University of Technology	SCOPUS
Sunny Prakash	AS	The Role of Cyber Threat Intelligence in Protecting National Infrastructure	Dianwang Jishu/Power System Technology	7.3	Power System Technology Press	SCOPUS
Vijeyata Tegwal	MBA	Role of Artificial Intelligence in Talent Management in Learning Organization: An Empirical Study	Journal of Informatics Education and Research	0.5	Journal of Informatics Education and Research	Other

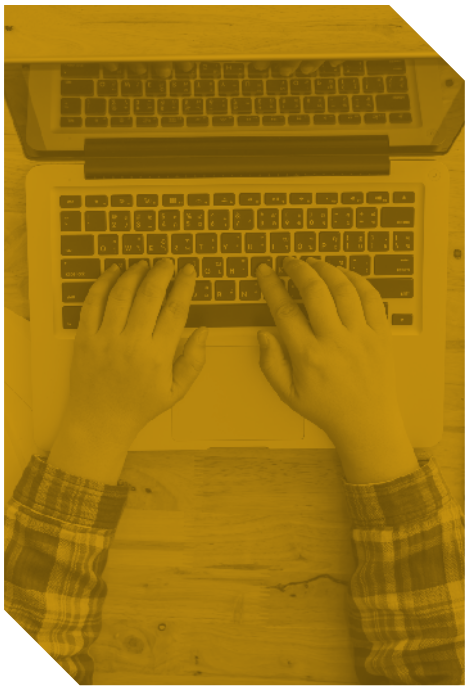
Details of Patents published/granted – January, February & March 2025

Name of inventors	Title	Name of applicant	Application No.	Published date
Dr. Manas Kumar Mishra Dr. Shashank Awasthi Dr. Vinod Kumar Yadav Dr. Sansar Singh Chauhan	Automated Multi-Material Thermal Fusion System for Implantable Lead Assembly	Gl Bajaj Institute Of Technology & Management, Dr. Manas Kumar Mishra, Dr. Shashank Awasthi	202311038711	07-07-2023 Grant No.560986(24/02/2025)
Arun Bhardwaj Kashish Upadhyay Arnav Ashutosh Goel Dr. Nivedita Singh	System For Efficient Construction Project Management	Gl Bajaj Institute Of Technology & Management	202511000908	17/01/2025
Dr Mohan Singh Animesh Mishra Harshit Upreti	System For Managing Mosquito Populations Through Acoustic Manipulation	Gl Bajaj Institute Of Technology & Management	202511000905	17/01/2025
Dr Mohan Singh Ananya Shivani Deep Jyoti	Robotic Apparatus for Targeted Deep-Tissue Electrical Stimulation Therapy	Gl Bajaj Institute Of Technology & Management	202511000909	17/01/2025
Dr. Mohan Singh Aayush Abhishek Kumar	Transportation Information Display System for Real-Time Data Integration And Enhanced Communication	Gl Bajaj Institute Of Technology & Management	202511000911	17/01/2025
Deepti Dohare Akash Deep Dr. Purnendu Shekhar Pandey Jeevesh Gupta	Method For Enhancing Structural Integrity of Construction Materials	Gl Bajaj Institute Of Technology & Management	202511000906	17/01/2025
Dr. Mohan Singh Aryan Pratap Singh Aniket Kumar Avi Chaudhary	Ultrasonic Radar-Based Compact Defense Mechanism	Gl Bajaj Institute Of Technology & Management	202511000933	17/01/2025
Dr. Mohan Singh Anurag Singh Ayush Singh	Urban Management System for Real-Time Data Analysis and Parameter Adjustment	Gl Bajaj Institute Of Technology & Management	202511000934	17/01/2025
Shivam Jaiswal Shreya Kaushik Aditi Kumari Naveen	Integrated Travel Planning and Destination Guidance System	Gl Bajaj Institute Of Technology & Management	202511000937	17/01/2025
Dr. Mohan Singh Ayush Pratap Aryan Dasgupta	Optical Data Storage Apparatus with Multi-Layer Diffraction and Electromagnetic Isolation	Gl Bajaj Institute Of Technology & Management	202511000935	17/01/2025
Pushpa Singh Asha Rani Mishra Payal Garg Himanshu Kumar Singh Nitesh Verma	System For Authenticity and Environmental Integrity of Temperature-Sensitive Medical Products	Gl Bajaj Institute Of Technology & Management	202511000936	17/01/2025

Name of inventors	Title	Name of applicant	Application No.	Published date
Dr. Mohan Singh Avika Saxena Ayushi Kumari	Iot-Based Flood Alert Apparatus for Real-Time Monitoring And Early Warning Systems	Gl Bajaj Institute Of Technology & Management	202511000902	17/01/2025
Pranav Mangal Pragati Srivatsava Nikhil Pratap Singh Palak Shandil Ananya Gupta	Emergency Ambulance Dispatch and Route Optimization System	Gl Bajaj Institute Of Technology & Management	202511000903	17/01/2025
Aditya Singh Palak Shandil	Decentralized Energy Distribution Apparatus for Dynamic Energy Management and Secure Transactions	Gl Bajaj Institute Of Technology & Management	202511000904	17/01/2025
Dr. Mohan Singh Avani Sharma Anvi Singh	Wearable Thermoelectric Monitoring Apparatus for Energy Harvesting and Health Monitoring	Gl Bajaj Institute Of Technology & Management	202511000907	17/01/2025
Dr. Mohan Singh Abhishek Jangir Aditi Raj	Cooling Apparatus with Motion Sensor-Based Mist and Airflow Control	Gl Bajaj Institute Of Technology & Management	202511000910	17/01/2025
Dr. Mohan Singh Avani Sharma Anvi Singh	Wearable Thermoelectric Monitoring Apparatus for Energy Harvesting and Health Monitoring	Gl Bajaj Institute Of Technology & Management	202511000907	17/01/2025
Dr. Mohan Singh Abhishek Jangir Aditi Raj	Cooling Apparatus with Motion Sensor-Based Mist and Airflow Control	Gl Bajaj Institute Of Technology & Management	202511000910	17/01/2025
Aditya Singh Palak Shandil	Decentralized Energy Distribution Apparatus for Dynamic Energy Management and Secure Transactions	Gl Bajaj Institute Of Technology & Management	202511000904	17/01/2025
Pranav Mangal Pragati Srivatsava Nikhil Pratap Singh Palak Shandil Ananya Gupta	Emergency Ambulance Dispatch and Route Optimization System	Gl Bajaj Institute Of Technology & Management	202511000903	17/01/2025
Dr. Mohan Singh Avika Saxena Ayushi Kumari	Iot-Based Flood Alert Apparatus for Real-Time Monitoring and Early Warning Systems	Gl Bajaj Institute Of Technology & Management	202511000902	17/01/2025
Worship Agrawal Dr Pawan Kumar Mall	Hybrid Reward Apparatus for Customer Transaction Management	Gl Bajaj Institute Of Technology & Management	202511017124	14/03/2025
Deepti Dohare Akash Deep	Foundation Assembly for Elevating Structures in Flood-Prone Areas	Gl Bajaj Institute Of Technology & Management	202511017125	14/03/2025
Dr Mohan Singh Seema Singh Bhavya Singh	Neuro-Rehabilitation Assembly for Spinal Alignment and Impulse Application	Gl Bajaj Institute Of Technology & Management	202511017126	14/03/2025

Name of inventors	Title	Name of applicant	Application No.	Published date
Dr. Mohan Singh Seema Singh Bhavya Singh	Bioelectric Energy Harvester for Capturing Vibrational Energy from Tree Movements	GI Bajaj Institute Of Technology & Management	202511017127	14/03/2025
Deepti Dohare Akash Deep Purnendu Shekhar Pandey	Modular Panel Assembly for Structural Monitoring and Data Transmission	GI Bajaj Institute Of Technology & Management	202511017128	14/03/2025
Sunny Prakash Akash Deep Deepti Dohare	Work-Life Balance Optimization Apparatus and Method	GI Bajaj Institute Of Technology & Management	202511017129	14/03/2025
Dr. Pushpa Vaishali Shruti Gossain Shreya Choudhary Tanishka Aswal	Blockchain-Based Decentralized Green Credit Trade and Exchange	GI Bajaj Institute Of Technology & Management	202511017157	14/03/2025
Sunny Prakash Akash Deep	Adaptive Workforce Allocation System for Dynamic Employee Assignments	GI Bajaj Institute Of Technology & Management	202511017158	14/03/2025
Sunny Prakash Akash Deep Deepti Dohare	Adaptive Performance Review System for Employee Evaluation and Goal Alignment	GI Bajaj Institute Of Technology & Management	202511017159	14/03/2025
Dr. Mohan Singh Aryan Dasgupta Aman Sharma Ayush Pratap	Vertical Energy Storage System with Modular Weights and Energy Recovery Mechanism	GI Bajaj Institute Of Technology & Management	202511017160	14/03/2025
Dr. Mohan Singh Aayush Abhay Kumar	Gesture-Controlled Wearable Apparatus for Dynamic Command Execution	GI Bajaj Institute Of Technology & Management	202511017161	14/03/2025
Dr. Mohan Singh Ankita Anand Animesh Mishra	Forward-Fall Arrest Apparatus with Dynamic Load Stabilization and Energy Dissipation	GI Bajaj Institute Of Technology & Management	202511017162	14/03/2025
Dhruv Yadav Dr. Bishwajeet Kumar	Landing Apparatus for Unmanned Aerial Vehicles with Integrated Energy and Terrain Sensing Systems	GI Bajaj Institute Of Technology & Management	202511017163	14/03/2025
Deepti Dohare Akash Deep	Collapsible Fluid Container with Integrated Heating and Sealing Mechanisms	GI Bajaj Institute Of Technology & Management	202511017164	14/03/2025
Akash Deep Dr. Purnendu Shekhar Pandey Deepti Dohare Sunny Prakash	Posture-Adjusting Chair for Dynamic Ergonomic Support	GI Bajaj Institute Of Technology & Management	202511017165	14/03/2025
Dr. Mohan Singh Seema Singh Bhavya Singh	Measurement Apparatus for Acquiring Electrodermal Activity Signals	GI Bajaj Institute Of Technology & Management	202511017166	14/03/2025

RESEARCH FACILITIES AVAILABLE IN COMPUTING DEPARTMENTS



GL Bajaj Institute of Technology and Management offers comprehensive instructions in the mathematical and computational underpinnings of computer science and engineering. It is a dynamic and forward-thinking academic unit focusing on applied mathematics, computer science, and scientific engineering applications. The department is committed to imparting deep knowledge and skills to its students in cutting-edge computational techniques for real-world science and engineering applications to meet industry demand. With experienced faculty and state-of-the-art resources, we strive to nurture the next generation of professionals and drive advancements in this rapidly evolving field.

1. **NVIDIA DGX A – 100 Server Access**
2. **Listing for E-resources**
   - IEEE Xplore Digital Library -
   - https://ieeexplore.ieee.org/browse/periodicals/title
   - Springer - https://link.springer.com/
   - EBSCO Business Source ELite - https://www.ebsco.com
   - Science Direct-https://www.sciencedirect.com/
   - Perlego - https://www.perlego.com/
   - (Please click on the link, a video explaining how to access and manage the account: https://share.vidyard.com/watch/QYaxSrnFppNC4FyF2Pw7fA?)
   - DELNET - https://discovery1.delnet.in/
   - MyLoft - https://app.myloft.xyz/user/login?institute=ck4o420t2s5ya099816x5aby9
   - Knimbus - https://glbitm.knimbus.com/user#/home
   - NDL - https://ndl.iitkgp.ac.in/
   - NPTEL - https://nptel.ac.in/courses
3. **Turnitin: Plagiarism Detection Software**
4. **Research Tools: Anaconda, Scilab, WEKA tool, Draw.io, CISCO Packet Tracer, Wireshark, ORACLE, JDK, Linux, Windows OS, Apache.**

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

ECE department was established in the year 2005 with an intake of 60 students. It has progressed to an intake of 180 due to our best support and quality TLP. The whole world is looking for our product in every field of day-to-day needs. Electronic products have completely changed the needs of this universe. Engineering is a rigorous part of the verification process which yields quality products. The application of electronics engineering is diversified. Medical applications are lifesaving elements for all the creatures on this earth. Therefore, accuracy plays a vital role in these applications. We can refer to many such an application as aeronautics, robotics in surgery, welding, automation, etc. Many application of processing needs the highest accuracy hence again verification is on priority. Taking many such an application as a challenge, the department of ECE has started a critical task of learning with an initiative of project/research-based learning.

Research-based learning needs progressive and computational environments to support research.

RESEARCH FACILITIES

IN THE DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

1. Network Planning Tool (SDR-4) -3 GHz
2. Spectrum Analyzer – 3.3 GHz
3. Semiconductor Design Tool – CADENCE Virtuoso, 20 users
4. Xilinx - 30 users
5. Pspice -30 users
6. MATLAB – 02 users for DSP
7. MATLAB - 02 users for Digital communication engineering
8. MATLAB - 30 users General

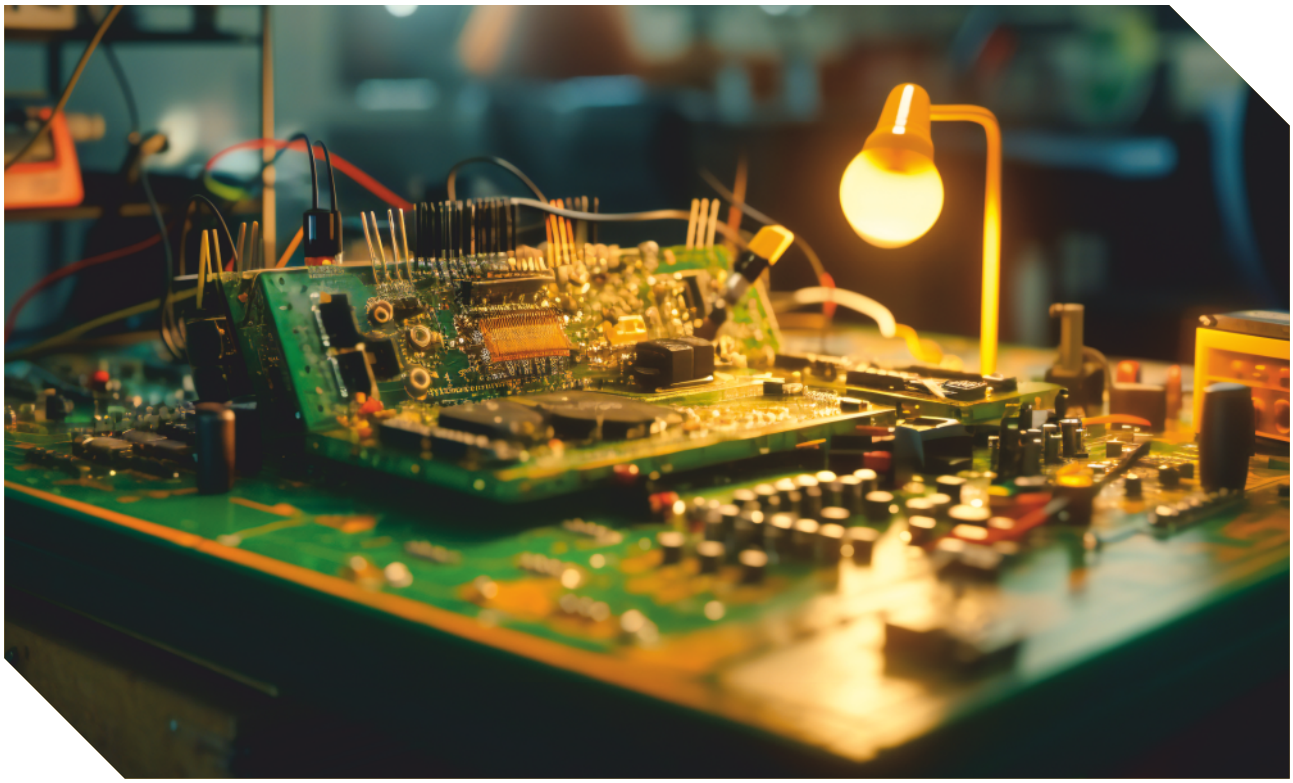
Provision of Research Tools facilitated numerous research papers in the department. At present, Total 135 research papers have been published during the last 05 years and many are under review. The department holds a very effective cadre ratio with good researchers.

17 Ph. D.s from very reputed organizations are the research strength of the ECE department. **The area of research strength of this department is as:**

Wireless Communication → **VLSI Design** → **IoT** → **DSP & Antenna Design is the few attractive research of this department**

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

The Department of Electrical and Electronics Engineering at GL Bajaj Institute of Technology & Management was established in the year 2005 with a vision to impart quality education and provide competent professionals to fulfill the needs of industry and society in a global perspective for the sustainable development of industry and society.



RESEARCH FACILITIES

IN THE DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

MAJOR EQUIPMENT'S

- 3-D Printer, EV Testing equipment
- PLC Wiring Panel, HMI with Enclosures
- VFD Panel with motor
- DC Regulated Power Supply, DSO
- 1-3 phase electrical machines with different load arrangements, etc

MAJOR LABS

- Workshop Lab
- Automation Lab, Software Lab
- Power System Lab, Power Electronic Lab
- Analog & Digital Electronics Laboratory
- Electrical Machine Laboratory, Instrumentation Laboratory
- Microprocessor Lab
- EV Lab, Idea Lab

DEPARTMENT OF MECHANICAL ENGINEERING

The Department of Mechanical Engineering at GL BAJAJ Institute of Technology & Management, Greater Noida was established in 2005. The department offers 4 year B. Tech. Program in Mechanical Engineering. The department provides a strong foundation for the overall growth and development of the students by enriching them with technical, analytical, quantitative, reasoning, ethical & and linguistic qualities. The department has a pool of well-qualified and experienced faculty having backgrounds from IIT, NIT, and other nationally and internationally recognized institutes in various research areas including Computational Fluid Dynamics, FEM, Rapid prototyping, Smart materials, Combustion, etc.

The following research facilitates have been associated with the department, It would be very beneficial for all of us to club with a central research facility.

RESEARCH FACILITIES
IN THE DEPARTMENT OF MECHANICAL ENGINEERING

FACILITIES

Conventional Universal testing machine-400kN	Robotic Milling machine
Rockwell hardness testing machine	Robotic welding machine
Impact testing machine	CNC lathe machine
Torsion testing machine	CNC milling machine
Fatigue testing machine	Additive manufacturing set-up (3D printers)
Stir-casting setup	Muffle furnace
Double disc polishing machine	Pallet making machine

Glimpses of
RESEARCH FACILITIES / LABS

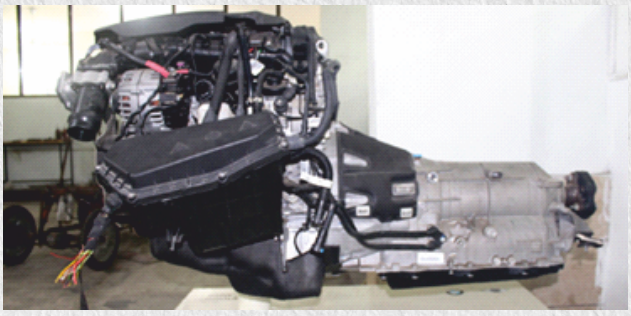
CSE / ACSE

EEE

ABB Centre for Robotic Welding

Glimpses of
RESEARCH FACILITIES / LABS

BMW Skill Next Automotive Learning Centre



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