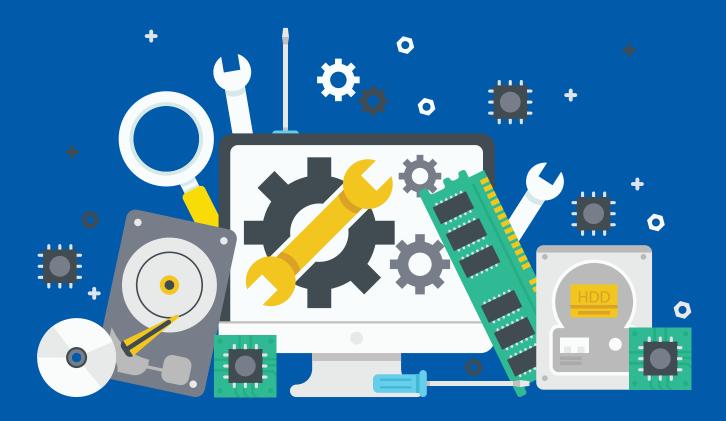


# SCHOOL OF ENGINEERING AND TECHNOLOGY PRISM

**NEWSLETTER OCT-DEC 2024** 



## K. R. Mangalam University | SOET Newsletter

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## FROM EDITORS DESK



This issue reflects the dynamic spirit of our academic and research pursuits, underscoring our steadfast dedication to excellence and innovation. At SOET, we remain committed to expanding the frontiers of knowledge through pioneering research and the integration of forward-thinking teaching approaches. Our core philosophy is centered on nurturing talent and fostering innovation among both students and faculty, inspiring them to explore new horizons beyond traditional learning frameworks.

Dear Readers,

As we unveil this quarterly edition of PRISM, the official newsletter of the School of Engineering and Technology (SOET) at K.R. Mangalam University, I am filled with immense pride in the remarkable progress and achievements our school has made. This issue reflects the dynamic spirit of our academic and research pursuits, underscoring our steadfast dedication to excellence and innovation.

At SOET, we remain committed to expanding the frontiers of knowledge through pioneering research and the integration of forward-thinking teaching approaches. Our core philosophy is centered on nurturing talent and fostering innovation among both students and faculty, inspiring them to explore new horizons beyond traditional learning frameworks.

PRISM stands as a vibrant testament to the diverse accomplishments of our students, alumni, and faculty. It features everything from compelling literary and technical pieces to perspectives on cutting-edge trends, technologies, and events — capturing the essence of the creative and intellectual vitality that defines SOET. We firmly believe that each student possesses unique capabilities and a fresh perspective, a belief consistently reaffirmed through their outstanding contributions and achievements in their respective fields. Their ingenuity continues to shape and enrich the innovative culture of our institution.

As you turn through the pages of this edition, we invite you to celebrate the passion, creativity, and drive that continue to elevate SOET. May this newsletter serve as a source of pride and inspiration for our entire community, reflecting our shared journey towards academic excellence and transformative growth.

Dr. Shweta Bansal
PRISM- Chief Editor
School of Engineering and Technology
K R Mangalam University

## FROM EDITORS DESK



This quarter has witnessed a series of exciting milestones across various engineering disciplines, highlighting new MoUs, impactful technical events, significant publications, and valuable faculty contributions. This edition brings you a carefully curated selection of articles, success stories, and insightful perspectives that not only showcase our commitment to academic and research excellence but also aim to inspire the wider engineering community to envision, innovate, and achieve.

Dear Readers,

It gives me great joy to welcome you to the fourth quarter edition of PRISM, the newsletter of the School of Engineering and Technology. This publication serves as a bridge connecting us to the ever-evolving world of technological innovation, research, and the noteworthy accomplishments of our students, faculty, and alumni.

This quarter has witnessed a series of exciting milestones across various engineering disciplines, highlighting new MoUs, impactful technical events, significant publications, and valuable faculty contributions. This edition brings you a carefully curated selection of articles, success stories, and insightful perspectives that not only showcase our commitment to academic and research excellence but also aim to inspire the wider engineering community to envision, innovate, and achieve.

I sincerely thank all our contributors, writers, and the editorial team for their tireless efforts in bringing this edition to life. To our readers, we deeply appreciate your ongoing support and interest.

Let us continue to embrace and celebrate the spirit of engineering and innovation! Happy Reading!

Warm Regards

Ms. Kriti Sharma

PRISM - Editor School of Engineering and Technology K R Mangalam University

# FROM IQAC DESK



**Previous editions of** PRISM have been truly commendable, providing a stage for our students, faculty, and alumni to share their achievements, perspectives, and innovative ideas. These contributions have not only celebrated SOET's milestones but have also fostered a culture of learning, collaboration, and forward-thinking.

It is with immense pride and happiness that I contribute to this edition of PRISM, the quarterly newsletter of the School of Engineering and Technology (SOET) at K.R. Mangalam University. As a platform for intellectual and creative expression, PRISM has consistently highlighted the dynamic academic, research, and extracurricular activities of our school, embodying our ongoing pursuit of excellence.

Previous editions of PRISM have been truly commendable, providing a stage for our students, faculty, and alumni to share their achievements, perspectives, and innovative ideas. These contributions have not only celebrated SOET's milestones but have also fostered a culture of learning, collaboration, and forward-thinking. I sincerely thank the editorial team for their dedication, creativity, and meticulous efforts in making each issue impactful and engaging.

At the Internal Quality Assurance Cell (IQAC), we strongly believe that initiatives like PRISM significantly contribute to enhancing educational quality and nurturing a vibrant academic atmosphere. This newsletter serves as a meaningful link between students, faculty, alumni, and industry professionals, helping build a unified community driven by excellence and progress.

As we anticipate the upcoming editions, I am confident that the editorial team will continue to excel with their fresh ideas and unwavering dedication. I encourage all contributors to share their most compelling work, insights, and achievements so that PRISM continues to shine as a source of inspiration and a reflection of the remarkable talent within SOET.

On behalf of IQAC, I extend my warmest wishes to the entire editorial team and all contributors. May PRISM keep evolving, informing, and celebrating the spirit of SOET for many years to come.

Warm regards,

Dr. Shikha Dutt Sharma

Coordinator, IQAC

K.R. Mangalam University

## WORDS FROM THE LEADERSHIP

#### FROM THE VICE CHANCELLOR'S DESK



This initiative has grown into a prestigious platform where both faculty and students proudly showcase their academic accomplishments, research pursuits, and creative endeavors. It is a moment of great pride to share that PRISM has now entered its fourth consecutive edition for the year 2024, solidifying its place as a valued tradition at K.R. Mangalam University. More than just a newsletter, PRISM stands as a powerful reflection of the academic excellence and creative spirit that characterize SOET.

Dear Readers,

I sincerely congratulate and thank the editorial team for successfully bringing forth yet another impressive edition of PRISM, the official newsletter of the School of Engineering and Technology. This initiative has grown into a prestigious platform where both faculty and students proudly showcase their academic accomplishments, research pursuits, and creative endeavors.

It is a moment of great pride to share that PRISM has now entered its fourth consecutive edition for the year 2024, solidifying its place as a valued tradition at K.R. Mangalam University. More than just a newsletter, PRISM stands as a powerful reflection of the academic excellence and creative spirit that characterize SOET.

This particular edition holds special meaning for our graduating students. It encapsulates your academic journey, the mentorship that has guided you, and the challenges you've overcome. It is a celebration of your resilience, hard work, and commitment to learning—qualities that will serve you well in the journey ahead.

As you step into the next chapter of your lives, I am confident that the knowledge and experiences you've gained at KRMU will equip you to face new challenges with courage and conviction. I wish you the very best in all your future endeavours and professional pursuits.

The success of PRISM is a testament to the outstanding mentorship of our faculty and the creativity, passion, and dedication of our students. This publication exemplifies the spirit of collaboration and excellence, and I am delighted to see it grow into a defining feature of our university's academic culture. Let us continue to nurture the legacy of PRISM as a symbol of innovation, learning, and the vibrant energy of KRMU. Congratulations to all who contributed to this remarkable achievement.

Prof. (Dr.) Raghuvir Singh
Vice Chancellor

K. R. Mangalam University



This publication offers students a space to voice their ideas and explore their creative potential, thereby nurturing a culture of innovation and intellectual development. Furthermore, PRISM plays a crucial role in strengthening our bond with stakeholders especially our alumni. Their contributions not only enrich the content but also serve as a source of motivation, illustrating the varied and successful paths they have taken post-graduation.

#### FROM THE DEAN'S DESK

Dear Readers,

It is a privilege to share my thoughts in this edition of PRISM, the quarterly magazine of the School of Engineering and Technology (SOET) at K.R. Mangalam University. PRISM continues to serve as a dynamic platform where our students and faculty can express their technical skills, creative writing, achievements, and the wide array of activities taking place within our school.

This publication offers students a space to voice their ideas and explore their creative potential, thereby nurturing a culture of innovation and intellectual development. Furthermore, PRISM plays a crucial role in strengthening our bond with stakeholders—especially our alumni. Their contributions not only enrich the content but also serve as a source of motivation, illustrating the varied and successful paths they have taken post-graduation.

On behalf of SOET, I extend my sincere congratulations to the dedicated editorial team for their tireless work in compiling this outstanding fourth-quarter edition of 2024. Your enthusiasm and commitment are truly commendable. I am confident that PRISM will continue to shine as a symbol of knowledge sharing, creativity, and community engagement within the SOET family.

Dr. Pankaj Agarwal

Dean, School of Engineering & Technology

K.R Mangalam University

#### **ABOUT SCHOOL: VISION & MISSION**

The School of Engineering & Technology at K.R. Mangalam University offers various undergraduate and postgraduate programs. The aim of these programs is to equip the students with knowledge and skills and provide a professional approach in the field of Engineering and Technology, to make their capable in successfully meeting the present requirements and future challenges in the Engineering Profession. SOET brings together outstanding academicians, industry professionals and experienced researchers to impart hands-on and multi-disciplinary learning experience.

#### Vision

To excel in scientific and technical education with integrated teaching-learning, research, and innovation.

#### Mission

- Creating a unique and innovative learning experience to enhance quality in the domain of Engineering & Technology.
- Promoting Curricular, Co-curricular and Extracurricular activities that support overall personality development and lifelong learning, emphasizing character building and ethical behaviour.
- Focusing on Employability through research, innovation and entrepreneurial mindset development.
- Enhancing collaborations with National and International organizations and institutions to develop cross-cultural understanding to adapt and thrive in the 21st century.

#### **ADVISORY BOARD MEMBERS**

The School of Engineering & Technology has established an advisory board to guide its developmental strategies, enhance industry alignment, and foster innovative research and educational excellence.

Purpose of the Advisory Board

The Advisory Board plays a vital role in supporting the School of Engineering & Technology by:

- Providing strategic guidance on engineering education, training, research, professional development, and community service.
- Recommending initiatives to boost public awareness and engagement with the school's programs, services, and resources.
- Acting as a liaison to address industry needs and assess the school's ability to respond effectively to those demands.

Advisory Board: Driving Strategic Excellence at SOET

The Advisory Board is a cornerstone of our academic and developmental strategies, contributing expert guidance across key areas to advance the School of Engineering and Technology's (SOET) mission:

- Career Pathways: Assisting in defining clear, robust career trajectories for students.
- Industry Alignment: Advising on policies and practices to ensure alignment with industry standards and educational goals.
- Curriculum Relevance: Keeping our curriculum responsive to industry demands and workforce expectations.
- Community Engagement: Promoting SOET programs and services across the community and the state.

- Collaborative Agreements: Facilitating articulation agreements with educational and training institutions.
- Knowledge Sharing: Enhancing student and faculty expertise through technology training, project mentoring, workshops, invited talks, and seminars.
- Industry Connections: Building relationships for internships, recruitment, and scholarships.
- Research & Innovation: Identifying opportunities for innovative research and fostering impactful partnerships for KRMU.
- Outreach & Entrepreneurship: Highlighting outreach needs and strengthening ties with entrepreneurial ventures.
- Strategic Collaborations: Establishing links with industries for Memorandums of Understanding, consultancy projects, and more.

The board's insights and efforts ensure that SOET remains a hub for academic excellence and innovation, fostering success for both students and the broader community.

The distinguished members of the SOET Advisory Board are listed below:

- Prof. (Dr.) P. S. Grover- Former-Professor, Dean, Director, and HoD, Delhi University. Former-Director General at GGS Indraprastha University.
- Prof (Dr.) B. Chandra- Adjunct Professor, Indian Institute of Technology, Delhi.
- Dr Sanjeev Kumar Varshney- Former-Head, International Scientific Cooperation. Department of Science & Technology, Government of India

#### K. R. Mangalam University | SOET Newsletter

- Prof. (Dr.) Brij B. Gupta. Director, International Center for Al and Cyber Security Research and Innovations (CCRI) & Distinguished Professor. Department of Computer Science and Information Engineering (CSIE) Asia University, Taiwan
- Syed Afzal Murtaza Rizvi- Professor, Department of Computer Science, Jamia Millia Islamia, New Delhi.
- Dr. Sharat Kaushik- Director NGF Group of Colleges.
- Mr. Subhajit Bhattacharya- Associate Vice President,

#### Accenture

- Usha Jagannathan- Director for AI Products, IEEE, USA
- Rajinder Chitoria- Data Scientist and Director at Froyo Technologies (P) Ltd.
- Mr. Siddhant Verma- Lead (AI, Data Science and BI team)
- Dr. Kamal Rawal- Head of Department & Professor. Center for Computational Biology and Bioinformatics, Amity University, Noida.

## **COLLABORATION**

In a strategic move to strengthen academic-industry collaboration and enhance hands-on learning opportunities in cybersecurity, K.R. Mangalam University signed a Memorandum of Understanding (MoU) with Suvikson Technologies Pvt. Ltd. in October 2024. The partnership signifies a milestone in the university's vision to empower students with practical exposure, domain knowledge, and project-based learning through real-world applications.

Suvikson Technologies, a Delhi-based cybersecurity firm specializing in digital infrastructure protection, has brought its industry expertise to the classroom by mentoring finalyear students in areas such as threat detection, SIEM, IDS, and network vulnerability assessments. Through this MoU, students gained access to cutting-edge tools, professional development opportunities, and mentorship from  $experienced \, cyberse curity \, practitioners. \, The \, partnership \, also \,$ aimed to co-develop capstone projects aligned with industry needs, allowing students to work on realistic use cases and deploy solutions in simulated enterprise environments. One of the key highlights of this collaboration has been the successful execution of three high-impact student projects under the joint guidance of faculty and industry mentors. These projects were focused on IDS development, network scanning, and SIEM automation, all aligned with current cybersecurity challenges. Suvikson Technologies provided technical support, tool licenses, data simulation



environments, and evaluation criteria that closely mirrored industry practices. In return, students delivered high-quality, research-backed solutions with the potential to be scaled for enterprise-level deployment.

The MoU further envisions regular guest lectures, internships, workshops, and collaborative research. It also marks the beginning of a long-term relationship to create a talent pool of cybersecurity experts from KRMU who are not only academically strong but also practically equipped to handle the demands of the evolving cyber landscape. This partnership underscores the university's commitment to producing future-ready professionals through strategic academic and industrial integration.



Signing MoU with Suvikson Technologies Pvt. Ltd.

## **OUR ACHIEVERS: FACULTY & STUDENTS**



Mr. Harsh Vardhan, Assistant Professor of the School of Engineering and Technology (SOET), share a proud moment to co-author a book Titled "Machine Learning", published by Narosa Publishing House and was officially launched at NSUT Delhi on November 18, 2024. Thanks and gratitude towards KRMU for constant support and motivation.



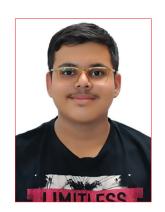


Dr. Anshu, Associate Professor of School of Engineering and Technology, contributed to session chair in the International Conference on Advancement in Computer Technology, Management and Mathematical Science (ICACTMMS 2024) held on 29th November 2024 in Avantika University, Madhya Pradesh in collaboration with INTI International University, Malaysia.

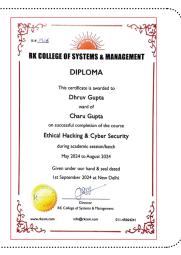


Dr Anshu, Associate Professor of School of Engineering and Technology, participated in International Innovation Research Conclave Award 2024 and was awarded WeGrow India Best Research Excellence Award 2024 for excellent research contribution on 28th December 2024 at ITC Welcome Dwarka New Delhi.





Dhruv Gupta, Student of BCA (Spl. Al and DS)- Ist Year, successfully completed a 4-month diploma course in Ethical Hacking & Cyber Security from RK College of Systems & Management, further strengthening his technical expertise. He was privileged to attend the MediaTek Fan Meetup 2024, an energizing event that brought together over 120 tech enthusiasts, a collaboration between MediaTek and 91mobiles. Also he was selected as a Contributor in the GirlScript Summer Code program, it was a great opportunity for him to enhance his skills and make a meaningful impact in the tech community.









Jaya, student of B.Tech CSE (Cybersecurity), successfully completed "Data Analysis with Python" course. A course on cognitiveclass.ai Powered by IBM Developer Skills Network on 15th October-2024.



## **RESEARCH & INNOVATION**

#### Patent Publication (October - December 2024)

- 1. Dr. Rakhi Dua ,Mr. Harsh Vardhan awarded with Indian Patent On Early Forest Fire Prediction Using lot and Al Technologies with E-ISSN 441364-001 On 20th December 2024.
- 2. Prof. (Dr.) Aman Jatain awarded with Indian Patent on Cervical Cancer Detection Device with E-ISSN 202411095469 On 4th December 2024
- 3. Dr. Preeti Rathi ,Dr. Rakhi Dua ,Mr. Harsh Vardhan,Mr. Rahul Singh, Ms. Lucky Verma,Dr. Deepak Kaushik Awarded With Indian Patent on Adaptive Deep Learning Algorithms For Enhanced Pattern Recognition In Dynamic Environments with E-ISSN 416985-001 On 8th November 2024.
- 4. Dr. Anshu Awarded With Indian Patent on Advanced Gun and Weapon Detection System with Optimizer Impact Analysis with E-ISSN 202411085853 On 10th November 2024
- 5. Dr. Appurva Jain Awarded with Indian Patent on Water Quality Detection Device with E-ISSN 202411072702 On 20th December 2024

#### Journal Research Paper Publication (October - December 2024)

1. Dr. Anshu-An encryption and decryption of phonetic alphabets using signed graphs in The Scientific Temper, by with E-ISSN/ISBN 2231-6396, 0976-8653-212-217 published on 30-11-2024

- 2. Dr. Prabhakar Bhandari -A comparative numerical evaluation of solar air heater performance having W-contoured, taper-contoured and reverse taper-contoured turbulators in Archives of Thermodynamics, by The Committee of Thermodynamics and Combustion of the Polish Academy of Sciences and The Institute of Fluid-Flow Machinery Polish Academy of Sciences with E-ISSN/ISBN2083-6023-1231-0956 published on 01-12-2024
- 3. Dr. Kaushal Kumar-Analyse the Effect of Steel Waste on Performance Characteristics of Concrete in international journal of experimental research and review, by IAPH with E-ISSN/ISBN 2455-4855- 2455-4855 published on 01-12-2024
- 4. Dr. Kaushal Kumar-Explainable Machine Learning to Analyze the Optimized Reverse Curve Geometry for flow over Ogee Spillways in Water Resources Management, by Springer with E-ISSN/ISBN1573-1650-0920-4741 published on 20-12-2024
- 5. Dr. Shweta Bansal, Dr. Meenu, Dr. Swati, Dr. Surabhi Shanker -Skin Cancer Detection using Deep learning Technique in African Journal of Biomedical Research, by Ibadan Biomedical Communications Group with E-ISSN/ISBN1119-5096-1119-5096 published on 31-12-2024
- 6. Mr. Rupesh Kumar Tipu -Compressive behaviour of

- elliptical concrete-filled steel tubular short columns using numerical investigation and machine learning techniques in Scientific Reports, by Springer Nature with E-ISSN/ISBN2045-2322-2045-2322 published on 06-11-2024.
- 7. Dr. Digvijay Singh-Energy Efficiency and Economic Survivance Appraisal of a 375 kwp Rooftop Solar PV System Under Hot and Dry Indian Climate in Heat Transfer, by Wiley with E-ISSN/ISBN2688-4542-2688-4534 published on 08-11-2024.
- 8. Dr. Meenu-Conv1D-LSTM: Autonomous Breast Cancer Detection Using a One-Dimensional Convolutional Neural Network with Long Short-Term Memory by IEEE with E-ISSN/ISBN2169-3536-2169-3536 published on 11-12-2024.
- 9. Ms. Archna Goyal -Advanced Deep Learning Models for Accurate Citrus Disease Classification: Performance Analysis and Insights in Nanotechnology Perceptions, by Brookfield Academic Limited, United Kingdom. With E-ISSN/ISBN1660-6795-1660-6795 published on 25-11-2024.
- 10. Prof. (Dr.) Aman Jatain -Detecting Cyber-attacks in Fogcloud Architecture-driven IoMT Networks Using Hybrid Deep Learning Techniques in Nanotechnology Perceptions, by Collegium Basilea with E-ISSN/ISBN1660-6795-1660-6795 published on 12-12-2024
- 11. Dr. Yogita Raghav-Smart Healthcare: Cloud-IoT Solutions for Enhanced Patient Well-Being in African Journal of Biomedical Research, by Biomedical Communications Group, Ibadan, Nigeria with E-ISSN/ISBN1119-5096-1119-5096 published on 12-12-2024.
- 12. Dr. Meenu, Dr. Swati-Novel Advance Image Caption Generation Utilizing Vision Transformer and Generative Adversarial Networks in Computers, by MDPI with E-ISSN/ISBN2073-431X-2073-431X published on 22-11-2024.
- 13. Mr. Manish Kumar-Analysing the recent advancements for Speech Emotion Recognition Using Machine Learning Techniques in African Journal of Biomedical Research, by African Journal of Biomedical Research with E-ISSN/ISBN1119-5096-1119-5096 published on 22-11-2024.

- 14. Dr. Yogita Raghav-Optimizing Cloud Performance: A Comparative Analysis of Bird Swarm and Ant Colony Algorithms For Load Balancing in Jilin Daxue Xuebao (Gongxueban)/Journal of Jilin University (Engineering and Technology Edition), by Jilin University with E-ISSN/ISBN1671-5497-1671-5497 published on 25-11-2024.
- 15. Prof. (Dr.) Aman Jatain -Cutting-Edge Machine Learning Techniques for Early Alzheimer's Disease Diagnosis in High Technology Letters, by Inst. Of Scientific and Technical Information of China with E-ISSN/ISBN1006-6748-1006-6748 published on 07-11-2024.
- 16. Dr. Meenu-Hybridizing Wolf Search Algorithm with Xgboost Model for Accurate Identification Of Cardiac Disorder in Frontiers in Health Informatics, by Frontiers in Health Informatics with E-ISSN/ISBN2676-7104-2676-7104 published on 25-10-2024.
- 17. Dr. Prabhakar Bhandari -Comparative Study of Thermal Criteria and Fluid-Flow Criteria in Micro and Mini Channel Design Constrains with or without Insert Made of Aluminium Material in International Journal of Integrated Engineering, by Penerbit UTHM with E-ISSN/ISBN2600-7916-2229-838X published on 07-10-2024.

#### **Book Chapter Publication (October - December 2024)**

- 1. Dr. Meenu, Dr. Swati published book chapter-Role of Sustainable Strategies Using Artificial Intelligence in Brain Tumour Detection and Treatment in Achieving Sustainability with AI Technologies by IGI E-ISSN/ E-ISBN- 9798369334119 on 12/23/24
- 2. Dr. Yogita Raghav published book chapter-Edge Computing Empowering Distributed Computing at the Edge in Emerging Trends in Cloud Computing Analytics, Scalability, and Service Models by IGI Global E-ISSN/ E-ISBN- 9798369309001 on 10/10/2024.
- 3. Dr. Yogita Raghav published book chapter-Bridging the gap harnessing cloud computing and IOT for wildlife conservation in Harnessing Cloud Computing and iot for Wildlife Conservation by IGI Global E-ISSN/ E-ISBN- 978-1-032-65668-7 on 30/11/24.

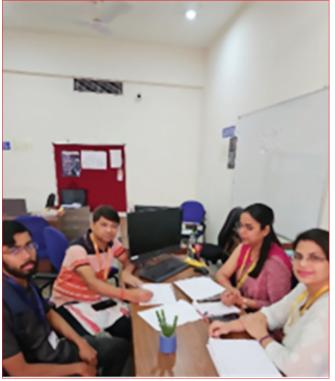
## PARENTS- TEACHER INTERACTION

On Friday, 18th October 2024, the School of Engineering and Technology at K.R. Mangalam University organized Parent-Teacher Meeting" in Room No. B3120, B Block. The Parent-Teacher interaction was, coordinated by Ms. Kriti Sharma to provide an essential platform for parents, guardians, and faculty to discuss the academic performance of students, with 50 parents and guardians attending the event.

During the session, the faculty presented mid-term examination sheets and provided detailed feedback on students' academic progress. Teachers also took the opportunity to discuss student discipline, the conduction of classes, and upcoming events and competitions, fostering deeper communication between parents and the academic team. A significant highlight of the meeting was the verification and updating of parent contact details, including email addresses and mobile numbers, ensuring efficient communication for future interactions. Additionally, a questionnaire was distributed to parents and guardians, allowing them to share their valuable insights and suggestions. The meeting proved beneficial as it not only allowed parents to gain insight into their ward's academic standing but also enabled the faculty to address individual concerns and feedback. It further strengthened the bond between the university and the parent community, setting the foundation for enhanced collaboration in the future.







Faculty interacting with Parents during PTM

Oct -Dec, 2024

#### **CLUBS & CENTERS**

#### The Computer Society of India (CSI)

The Computer Society of India of School of Engineering and Technology (SOET) organized a project based competition "TECH EXPO" in which it include WEB DASH on 15th October, 2024, at 1:30 PM in A113.

The event was conducted under the supervision of faculty coordinators of Dr. Reenu Batra, and Ms.Megha Sharma, Incharge CSI. The event was well-attended by SOET students along with CSI members. It was too engaging, problem

solving oriented and creative event cum competition. aims to provide students with an opportunity to explore the latest trends and advancements in web design and development. The event focused on helping students understand the key principles of creating effective, user-friendly webpages. By participating, students gained valuable knowledge and practical insights to enhance their web development skills and stay ahead in the fast-evolving digital world.



Faculty interacting with Parents during PTM

## Centre of Excellence: Artificial Intelligence

# Geekathon 2024: Fueling Innovation, One Hack at a Time!

In a remarkable celebration of creativity, innovation, and collaboration, the School of Engineering and Technology at K.R. Mangalam University proudly hosted Geekathon 2024—a high-energy, 24-hour tech marathon that brought together the brightest young minds from across disciplines. The event was a true testament to the spirit of innovation and problem-solving that defines the university's academic ethos.

Held on campus, Geekathon 2024 was not just another hackathon—it was an experience that challenged students to go beyond theoretical knowledge and plunge into real-world problem-solving. Over the course of one intense day and night, teams comprising students from Computer Science, Artificial Intelligence, Cybersecurity, Electronics, and even Management and Design, came together to tackle pressing challenges through technology. The interdisciplinary synergy was electric, resulting in projects that were not only technically impressive but also deeply impactful in terms of societal relevance. From the moment

the clock started ticking, participants dove into ideation, brainstorming sessions, and rapid prototyping. Under the constant mentorship of faculty experts and industry professionals, students transformed their concepts into working solutions—ranging from Al-powered safety and surveillance systems, mental health support chatbots, smart home automation, to blockchain-based educational record verification platforms. The diversity in project themes reflected the evolving technological landscape and the students' awareness of global and local issues alike.

The evaluation process was equally rigorous and rewarding. Teams were judged on parameters such as originality of the idea, technical feasibility, user-friendliness, scalability, and potential for social impact. The panel of judges, consisting of faculty members, industry representatives, and startup mentors, provided constructive feedback and real-time insights to the teams during their presentations.

Beyond the coding and competition, Geekathon 2024 was a platform that fostered teamwork, resilience, leadership,

#### K. R. Mangalam University | SOET Newsletter

and entrepreneurial thinking. Sleep-deprived but inspired, students worked relentlessly—some debugging code in the early hours, others refining UI designs, or rehearsing their final pitch decks. It was a fusion of hard work and heart, of caffeine-fueled collaboration and breakthrough thinking.

The winning teams were recognized not just with certificates and trophies, but also internship offers, incubation support, and mentorship from partnering tech firms. These rewards underscored the real-world value of the projects developed and the university's commitment to bridging the gap between academia and industry. For many participants, Geekathon wasn't just an event—it was a launching pad for entrepreneurial ventures and long-term career paths.

Perhaps the most lasting impact of Geekathon 2024 was its role in nurturing a culture of innovation-driven learning. By encouraging students to take risks, test ideas, and work collaboratively, the event reinforced the importance of experiential education. It sparked curiosity, encouraged problem-solving at scale, and instilled confidence in the students' abilities to be creators of change. With its overwhelming success, Geekathon has now firmly established itself as a flagship event at K.R. Mangalam University—a celebration of technology, passion, and possibility. As the university continues to push the boundaries of future-forward education, events like Geekathon serve as vital platforms for nurturing the tech leaders, changemakers, and innovators of tomorrow.





Students Participating in Geekathon 2024

Oct -Dec, 2024

## **EVENT**

On November 23-24, 2024, K.R. Mangalam University hosted Feel the Vibe: Design-A-Thon '24, a two-day extravaganza of creativity and innovation. College Dekho ImaginXP, extended their support as mentorship and sponsorship partner with their mentors offering their expertise to help teams refine their ideas and bring them to life. With over 450 participants from top institutions across India, the event served as a platform for interdisciplinary teamwork under the theme Cultural Fusion.

Students from universities such as Manipal University Jaipur, Dev Bhoomi Uttarakhand University, KIET Group of Institutions, NIFT Delhi, IGDTUW Delhi, Chandigarh University, Sage University Indore, ABES Engineering College, Bansthali Vidyapeeth, Kalinga University, RAIT Nerul, SP Jain School of Global Management, Galgotias University, Pranveer Singh Institute of Technology, IILM University, Panipat Institute of Engineering and Technology, Sikkim

Manipal University, Dehradun Institute of Technology, Raj Kumar Goel Institute of Technology, GD Goenka University, Bharati Vidyapeeth's College of Engineering, MSIT New Delhi, VIPS Delhi, SR University Warangal, IGNOU University, PVPSIT Vijayawada, IT-TrendCo, and GD Rungta College Bhilai collaborated with K.R. Mangalam University students to develop innovative solutions across three tracks—Appland, Webweave, and Playcraft.

The event was made possible under the exceptional leadership of convenors Ms. Jyoti Kataria and Mr. Ashwani Kumar. The Design-A-Thon demonstrated K.R. Mangalam University's commitment to nurturing future-ready professionals and fostering a culture of creativity, innovation, and collaboration.

Feel the Vibe: Design-A-Thon '24 stands as a testament to the power of teamwork, mentorship, and a shared vision for the future.



Student Engagement during Design-A-Thon 2024

#### **TECHNICAL ARTICLES FROM STUDENTS**

#### INTRUSION DETECTION SYSTEM (IDS) FOR NETWORK SECURITY

The student-led project on Intrusion Detection System (IDS) focused on developing a hybrid model to detect and mitigate Advanced Persistent Threats (APTs) and zero-day attacks. Conducted under the mentorship of Suvikson Technologies Pvt. Ltd. and faculty guidance, the project combined signature-based detection using Snort and Suricata with behavior-based analysis enabled by machine learning algorithms. Students captured real-world network traffic to build a training dataset, establishing a baseline of normal network behavior using statistical methods and machine learning techniques such as Naïve Bayes, clustering, and SVMs. Anomalies were flagged based on deviations from this baseline, significantly improving detection accuracy. The IDS was evaluated in a controlled lab setup configured using Kali Linux, port mirroring, and traffic analysis tools like Wireshark and Snorby. Students developed custom detection rules for simulated attacks including SQL injections, brute force attempts, and port scanning. The project demonstrated strong real-time detection capabilities while minimizing false positives—an issue common in traditional IDS systems. Alerts were logged, categorized, and visualized, making it easier for network administrators to act swiftly. The team emphasized the need for continual rule updates and optimization to adapt to evolving threats. The final IDS solution was scalable, capable of monitoring medium to large network environments, and offered potential for realworld deployment in sectors such as finance, education, and critical infrastructure. It was a landmark initiative in blending academic theory with hands-on cybersecurity practice, equipping students with the competencies needed for industry.









Certificate of project completion

#### NETWORK THREAT DETECTION USING NMAP, ZMAP, AND NESSUS

This project presented an advanced framework for vulnerability assessment using a combination of three cybersecurity tools—Nmap, Zmap, and Nessus—within a Kali Linux environment. Designed and implemented by B.Tech Cyber Security students, the aim was to create an integrated solution capable of detecting security vulnerabilities across networks of varying sizes and complexities. Each tool brought distinct strengths: Nmap provided detailed port scanning and OS fingerprinting; Zmap facilitated high-speed, large-scale network sweeps; and Nessus offered deep vulnerability analysis with severity-based categorization and remediation advice. The team configured these tools to work in synergy, enhancing threat detection efficiency and depth. The project began by scanning network subnets with Nmap to identify open ports and services. Zmap accelerated this process by scanning entire address spaces within seconds. Nessus was then used to perform in-depth

assessments, generating professional-grade reports. Reports featured severity metrics, CVE references, and tailored recommendations—making them usable for IT professionals and SME stakeholders alike.

Automation scripts and incident logging structures were developed, supporting future Al-based integration. User feedback revealed that even individuals with minimal technical expertise found the visualizations (pie charts, bar graphs) and structured logs accessible and valuable. The project bridged gaps in literature concerning tool integration and proved that combined open-source and commercial tools could deliver enterprise-level security insights affordably. It sets a precedent for future research into automated, Alenhanced threat detection models, demonstrating the real-world impact student-led innovation can have on modern cybersecurity.









Certificate of project completion

#### SIEM-BASED ANALYSIS AND THREAT DETECTION

The project titled "SIEM for Analysis and Threat Detection" was executed by a team of B.Tech Cyber Security students under the expert guidance of faculty mentors and in collaboration with industry partner Suvikson Technologies Pvt. Ltd. The focus was on leveraging modern Security Information and Event Management (SIEM) platforms to enable real-time detection, correlation, and response to security incidents.

The project addressed key challenges prevalent in traditional SIEM systems—such as high false positive rates, data overload, and limited automation—by integrating machine learning models and external threat intelligence feeds. The students collected and normalized log data from diverse sources, including firewalls, servers, endpoint devices, and cloud platforms. They applied enrichment techniques like geolocation tagging and threat intelligence mapping to enhance contextual analysis of the data. Machine learning algorithms were employed to identify behavioral anomalies, while correlation rules were defined to recognize complex attack chains. For example, the system was configured to detect brute-force login attempts followed by successful logins, triggering alert workflows. A significant aspect of the implementation involved automating incident response. Using a simulated lab environment, the team deployed

CERITIFICATE OF COMPLETION

This is to certify that

SEEMA SEKHAWAT

[Roll no. 2 2024 10000. B. Tech CSI (Cyber Security) Brd Sem)

SCHOOL OF ENGINEERING AND TECHNOLOGY,
KR MANGALAM UNIVERSITY, GURUGRAM

has successfully completed the project on
SIEM FOR ANALISIS. & THREAT DETECTION
OCTOBER 15, 2024 - DECEMBER 05, 2024

10/12/2024
ISSUE DATE

INDUSTRY MENTOR

VIKRANT KISHORE (DIRECTOR)
SUVIKLAN TECHNOLOGIES PVT. LTD.



SOAR (Security Orchestration, Automation, and Response) capabilities to automatically isolate affected systems, generate alert reports, and notify administrators. The performance of the system was evaluated using standard metrics such as Mean Time to Detect (MTTD), false positive rate, and system response latency. The SIEM framework proved successful in identifying attacks like brute force, privilege escalation, and data exfiltration simulations with high accuracy and low manual intervention. The students also emphasized usability by designing structured logs and dashboard visualizations. These were particularly helpful for security analysts and stakeholders in understanding threat context and response priority. Reports were categorized by severity and linked to Common Vulnerabilities and Exposures (CVE) databases, making remediation processes smoother and more informed. This project stands as a strong example of academic-industrial synergy and represents a significant step toward equipping students with real-world cybersecurity experience. It showcased how modern SIEM systems can be made scalable and intelligent through the incorporation of analytics and automation. More importantly, it contributed toward closing the industry-academia gap in cybersecurity education and fostered a mindset of innovation, adaptability, and proactive defense in future cybersecurity professionals.





Certificate of project completion

# Network Anomaly Detection Using Machine Learning: Student Project Spotlight

As part of K.R. Mangalam University's ongoing commitment to experiential learning and industry-relevant skill development, students from the B.Tech (Cyber Security) program successfully completed an insightful project titled "Network Anomaly Detection Using Machine Learning." The initiative reflects the university's dedication to hands-on education that empowers students to address contemporary cybersecurity challenges through technological innovation and analytical thinking. This project aimed to detect and classify anomalous behavior in network traffic—an essential step in preventing cyber threats such as data breaches, denial-of-service (DoS) attacks, and insider threats. Under the mentorship of faculty members and with support from Suvikson Technologies Pvt. Ltd., the student team explored the development of an intelligent anomaly detection model using supervised and unsupervised machine learning algorithms.

The project began with a comprehensive understanding of traditional and modern network anomaly detection techniques. Traditional systems often rely on predefined rules and signature-based methods, which, while effective against known threats, fail to identify zero-day attacks and novel intrusion patterns. The students addressed this limitation by implementing a data-driven approach capable of identifying subtle deviations in network behavior, regardless of whether the threat was previously encountered. The team used the NSL-KDD dataset, a refined version of the popular KDD Cup 1999 dataset, containing a variety of normal and malicious traffic records. This dataset served as the foundation for model training and testing. Students applied various preprocessing techniques, such as feature scaling, normalization, and feature selection, to enhance data quality and model performance.

The heart of the system involved testing several machine learning algorithms—including Decision Trees, Random Forest, K-Nearest Neighbors (KNN), Support Vector Machine (SVM), and Naïve Bayes. These models were trained to distinguish between normal and anomalous behaviors based on traffic attributes like duration, protocol type, number of connections, and flag status. Among the evaluated models, Random Forest emerged as the most effective, demonstrating high accuracy and low false positive rates. It was praised for its ability to handle complex feature interactions and large datasets with minimal overfitting. Additionally, performance metrics such as precision, recall, F1-score, and confusion matrix analysis were used to validate each model's effectiveness. The students emphasized the importance of continuous learning and adaptability in anomaly detection systems. They proposed integrating real-time data streams and using ensemble methods or deep learning for future scalability and higher accuracy. The project also recognized the potential of integrating the system into Security Information and Event Management (SIEM) frameworks for enterprise-level deployment. Throughout the project, the team gained handson experience in not just coding and data analysis, but also in problem-solving, research, and collaborative development. The initiative cultivated essential skills for the cybersecurity workforce, such as algorithmic thinking, system design, and ethical considerations in data handling. This project showcases the fusion of academic rigor and applied research, positioning K.R. Mangalam University as a nurturing ground for cybersecurity innovation. It stands as a proud example of student-led research aligned with industry needs, reaffirming the School of Engineering and Technology's mission to prepare future-ready professionals in the field of cybersecurity.









Certificate of project completion

## TECHNICAL ARTICLES FROM FACULTY

The paper proposes a novel approach for predicting surface chloride penetration in marine concrete using a faster and more efficient Backpropagation Neural Network (BPNN) model trained with the Conjugate Gradient Method (CGM) to optimize the weights and biases of the Artificial Neural Network (ANN). Hyper-parameter tuning has been employed to optimize the number of hidden layers and neurons per hidden layer simultaneously, resulting in improved accuracy and faster convergence compared to conventional Gradient Descent methods. The optimized BPNN model has been tested and validated using real-world data through tenfold cross-validations. The model's performance has been evaluated using various statistical metrics, including mean absolute error (MAE), root mean square error (RMSE), and coefficient of determination (R2). The results demonstrate that the proposed model outperforms conventional methods and other state-of-the-art models, achieving an R2 value of 0.91, an MAE of 0.11, and an RMSE of 0.15. In addition, partial dependence analysis has been performed to analyze the influence of the features on the output. The proposed approach can be an effective tool for predicting the service life of marine concrete structures and optimizing



Dr. Rupesh Kumar Tipu

"Enhancing chloride concentration prediction in marine concrete using conjugate gradient-optimized backpropagation neural network."

their maintenance and repair schedules. In summary, this research paper presents a comprehensive and reliable solution to predict surface chloride penetration in marine concrete structures with improved accuracy and efficiency, while providing insights into the importance of input features.

India's rooftop solar photovoltaic (PV) installations are experiencing rapid growth due to favorable regulations. As climate change becomes a growing concern, researchers are turning their attention to the effects of weather patterns on the performance of rooftop solar panels, and also to optimize their efficiency in a changing environment. Consequently, industry players in the solar sector have been conducting performance validation and feasibility assessments of these plants. A 375 kWp rooftop PV plant is studied as a case example from April 1, 2022 to March 31, 2023, generating 543,666 kWh annually for the grid. The NMBE and MBE were assessed using simulation tools like PVGIS and PV Watts. In addition, a cost-benefit analysis of carbon credits was conducted with and without their inclusion. The energy payback time is calculated at 4.5 years postinclusion. Over a 25-year lifespan, the embodied energy of the PV plant amounts to 2,552,265 kWh. This plant can mitigate CO2 emissions annually by 10,173.57 tons which is equivalent to INR 5,464,925. The current study highlights both environmental and economic benefits



**Dr. Digvijay Singh** 

"Energy Efficiency and Economic Survivance Appraisal of a 375 kWp Rooftop Solar PV System Under Hot and Dry Indian Climate"

by incorporating carbon credits into the project. Further advancement in simulation tools, PV technologies, climate change adaptations are expected which will improve the rooftop system efficiency with shorten pay pabck periods and maximum reductions in CO2 emissions

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# **INTERNSHIPS**

It is pride to share placement status (21 students) and internship status (59 students) for duration of October- December 2024 in companies of their expertise.

# Placement (October- December 2024)

S. No	STUDENT NAME	Program	Name of Company	OFFERED DESIGNATION
1	Mayank Kanaujia	B.Sc. (H) DS	Acmegrade Pvt. Ltd.	Business Development Associate
2	Aarti Kumari Das	MCA	Acmegrade Pvt. Ltd.	Business Development Associate
3	Yuvraj Kumar	MCA	Acmegrade Pvt. Ltd.	Business Development Associate
4	Ekagra Sahu	MCA	Acmegrade Pvt. Ltd.	Business Development Associate
5	Sneha Raj	MCA	Acmegrade Pvt. Ltd.	Business Development Associate
6	Pulkit Agrawal	MCA	Acmegrade Pvt. Ltd.	Business Development Associate
7	Akshay Kumar	MCA	Acmegrade Pvt. Ltd.	Business Development Associate
8	Aditya Sharma	MCA	Acmegrade Pvt. Ltd.	Business Development Associate
9	Aarti Yadav	B.Tech CSE	JTEKT India Ltd.	Associate Software Engineers
10	Vineet Verma	B.Tech CSE (Sp Inv, AI & ML)	JTEKT India Ltd.	Associate Software Engineers
11	Prachi Swarnim	B.Tech CSE (Sp Inv, Al & ML)	Digantra Research and Technologies Pvt Ltd	Full time Data Science Intern
12	Tania Banerjee	B.Tech ME	PolyCab	Graduate Engineer Trainee
13	Shourya Tyagi	B.Tech CSE (Sp Inv, AI & ML)	Autodesk	Software Development Engineer
14	Vineet Verma	B.Tech CSE (Sp Inv, AI & ML)	Autodesk	Software Development Engineer
15	Aarti Yadav	B.Tech CSE	InternsElite	Business Development Trainee
16	Ansh Srivastava	B.Tech CSE (Sp Inv, AI & ML)	InternsElite	Business Development Trainee
17	Vijay	MCA	InternsElite	Business Development Trainee
18	Vaibhav Kaushik	B.Tech CSE (Sp Inv, AI & ML)	InternsElite	Business Development Trainee
19	Billy Jasneel Singh	B.Tech CSE (Sp Inv, Al & ML)	Blue Sky Consultant	Associate Data Analyst
20	Rupali Patra	MCA	Pro Housy Point Tech Sol. Pvt. Ltd.	Business Development Intern
21	Prayas Jadaun	MCA	Pro Housy Point Tech Sol. Pvt. Ltd.	Mobile App Development

# Internship (October- December 2024)

	Student Name	Program	Name of the organization	OFFERED DESIGNATION
1	Chinmaya Kapoor	BCA (Sp AI & DS)	Bobble AI Technologies	Intern
2	Mayank Berry	MCA	Housy Point	Senior Software Engineer
3	Harsh Singh	B. Tech CSE	CSIR NPL	Intern
4	Ayush Kumar Singh	BCA (Sp AI & DS)	HODM Pvt Ltd	Data Analyst
5	Vineet Ravish	B. Tech CSE AI & ML	National Institute of Technology Hamirpur	Intern
6	Vivek Kumar Chhillar	BCA (Sp AI & DS)	Maruti Suzuki	Intern
7	Ansh Srivastava	B. Tech CSE	UNO Minda	Intern
8	Aditya	MCA	Concentrix	Tech Associate
9	Ashish Sachdeva	MCA	Fictive Box Digital Private Limited	React .js developer
10		BCA (Sp AI & DS)	Masters Union	Growth Operations
11	Gyandeep Kumar	MCA	JSpiders	Intern
12	Dimple Tanwar	MCA	Service farm solutions	Intern
13	Anil Panth	B.Tech CSE	Leadingdois Solutions Pvt. Ltd	Intern
14	Navneet Yadav	MCA	Xpert Coders	Web Developer
15	Ayush Sharma	B. Tech CSE AI & ML	Reach Cure	Al Analytic
16	Richa Singh	B.Tech ME	Sandhar Group	Intern
17	Shagun Yadav	B.Tech CSE	CSIR-NPL	Intern in SMS ALERT SYSTEM
18	Subhojit Mukhopadhyay	B.Tech CSE	Orient Technologies Pvt. Ltd	Application Support Engineer
19	Aaranya Thakur	B.Tech CSE	National Institute of Technology Hamirpur	Intern
20	Prince Dagar	B.Tech CSE (Sp Inv, AI & ML)	National Institute of Technology Hamirpur	Intern
21	Sanjana Kumari	B.Tech CSE	Jio Reliance	Data Analyst
28	Madhav Gupta	B.Tech ME	Okaya EV Pvt Ltd	R& D Department
29	Navneet Kaur	MCA	Delotte	Intern
30	Vinay Kumar	MCA	Code Scaler	Frontend Developer
31	Manu Sharma	B. Tech CSE AI & ML	Policy Bazar	Sales
32	Cheris Saini	MCA	Trynet Solutions	Web Developer
33	Vanshika	BCA (Sp AI & DS)	CTDI	Intern
34	Keshav	MCA	FORVIA	Intern
35	Kashvi Soni	B. Tech CSE Data Science	Wipro Limited	Intern
36	Shivam Gautam	B.Tech CSE	Jio Reliance	Data Analyst
37	Rohit	MCA	Inclination IT Innovation Pvt Ltd	Python Intern
38	Aditya Mathur	MCA	Concentrix - Webhelp India Pvt Ltd	Advisor I Trainee Tech Associate
39	Mayank Kumar	B.Tech CSE (Sp Inv, AI & ML)	Realsticone	Relationship Manager

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40	Nitin Yadav	B.Tech CSE (Sp In	CSIR-NPL	Data science and Al
41	Richard Eapper	B. Tech CSE	OMNEX India Ret. Ltd.	Intern
42	Mrinal Meha	b. Tech CSE	NHPC	Intern
43	Ashish	B. Tech CSE (UX & UI)	Hella India Automotive Private Ltd.	Intern
44	Ansh	B. Tech CSE (UX & UI)	Hella India Automotive Private Ltd.	Intern
45	Manya Juneja	B. Tech CSE AI & ML	Target Icon (Technology Consulting Services)	Intern
46	Ishaan Gulati	BCA (Sp AI & DS)	Escorts Limited Faridabad	Intern
47	Tejas Juneja	BCA (Sp AI & DS)	WNS Global Services	Research Intern
48	Ankit Nair	B. Tech CSE	ONGC Delhi	Research Intern
49	Prachi Swarnim	B.Tech CSE (AI & ML)	Digantara Research and Technologies Pvt Ltd	Data Science Intern
50	Akshay Dixit	Program	Name of the Organization	Data Science Intern
51	Rupali Patra	MCA	INTERNPE	Intern
52	Mrinal Kashyap	MCA	Groom Town private limited	Intern
54	Shruti Gupta	B.Tech CSE (AI & ML)	Gaotek Inc	Intern
55	Rahul Tanwar	MCA	Binary semantics	Intern
56	Gunjan	B. Tech CSE	NPL	Intern
57	Sweta Rawat	B. Tech CSE	ONGC	Intern
58	Jaanya Raheja	BCA (Sp AI & DS)	Bobble Al	Intern
59	Aarti Yadav	B. Tech CSE	Maruti Suzuki India Limited	Intern

# **OUR ALUMNI**

My journey at K.R. Mangalam University has been nothing short of transformative. As a student in the B.Tech Computer Science and Engineering (2015-2019) batch, I had the opportunity to learn, grow, and excel both academically and personally. The faculty members were highly knowledgeable and always went the extra mile to ensure that we not only understood the concepts but also applied them practically. The university provided a well-rounded environment where I was able to explore various domains of computer science, including programming, artificial intelligence, and data structures. The emphasis on hands-on learning through live projects, hackathons, and industry visits helped me develop problem-solving skills and gain real-world exposure.

The placement cell played a pivotal role in preparing us for the industry. Through mock interviews, resume-building sessions, and technical workshops, they ensured that we were job-ready by the time we graduated. I was fortunate to secure a great opportunity in the tech industry, thanks to the continuous guidance and support provided by the university. Beyond academics, the vibrant campus life, cultural events, and extracurricular activities helped me



Royal Bhati "Royal Bhati, B.Tech CSE Student, Class of 2015- 2019"

develop teamwork, leadership, and communication skills. K.R. Mangalam University not only gave me the knowledge to excel in my career but also shaped me into a confident and responsible individual. I am proud to be an alumnus of K.R. Mangalam University, and I will always cherish the memories and experiences that have contributed to my personal and professional growth."





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