

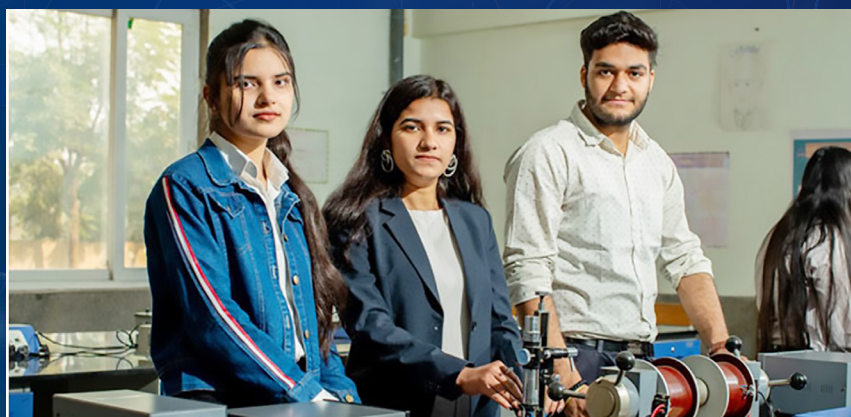


K.R. MANGALAM UNIVERSITY
THE COMPLETE WORLD OF EDUCATION

SCHOOL OF BASIC AND APPLIED SCIENCES

FRONTIERS IN APPLIED SCIENCES

NEWSLETTER OCT - DEC 2024



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FROM THE EDITOR'S DESK



This quarter has been defined by outstanding progress in academics, research, and extracurricular activities. Inside, you will find groundbreaking research publications by our faculty paving the way for their professional growth. Adding a creative touch, this edition also features captivating poems and stories written by our talented students, offering a glimpse into their imaginative minds.

Greetings!

We are pleased to present the latest edition of the quarterly newsletter, *Frontiers in Applied Sciences* (October–December 2024), from the School of Basic and Applied Sciences. This edition serves as a vibrant showcase of the achievements, creativity, and accomplishments of our students and faculty.

This quarter has been defined by outstanding progress in academics, research, and extracurricular activities. Inside, you will find groundbreaking research publications by our faculty paving the way for their professional growth.

Adding a creative touch, this edition also features captivating poems and stories written by our talented students, offering a glimpse into their imaginative minds. Additionally, the events organized by the school have fostered learning and collaboration, with the gallery section capturing these memorable moments.

As we celebrate these milestones, let us continue to pursue excellence and innovation in all our endeavors. My heartfelt gratitude to everyone who contributed to this issue, making it a true reflection of our collective achievements.

Wishing you an enjoyable read!

Warm regards

Editorial Team

Dr. Neeraj Kumari

Assistant Professor (Chemistry)

Dr. Shikha Dutt Sharma

IQAC Coordinator

FROM THE DESK OF IQAC COORDINATOR



This publication serves as a testament to the continuous advancements, research initiatives, and academic endeavors undertaken by our faculty and students

At K.R. Mangalam University, we remain committed to fostering a culture of academic excellence, innovation, and interdisciplinary research.

It is with great enthusiasm that I extend my warmest greetings to all readers of *Frontiers in Applied Sciences*, the quarterly newsletter of the School of Basic and Applied Sciences (SBAS). This publication serves as a testament to the continuous advancements, research initiatives, and academic endeavors undertaken by our faculty and students.

At K.R. Mangalam University, we remain committed to fostering a culture of academic excellence, innovation, and interdisciplinary research. Through this newsletter, we highlight the outstanding contributions made in applied sciences, showcasing groundbreaking research, industry collaborations, and student achievements that reflect the dynamic and evolving landscape of scientific exploration.

The October–December 2024 edition captures the essence of curiosity-driven learning and practical applications in the field of science. As we move forward, I encourage all stakeholders—students, researchers, and faculty—to actively participate in knowledge-sharing initiatives, thereby strengthening our collective academic growth.

I extend my heartfelt appreciation to the editorial team for their dedication in curating this edition, and I look forward to witnessing the continued success of *Frontiers in Applied Sciences*.

Dr. Shikha Dutt Sharma

IQAC Coordinator

K.R. Mangalam University

WORDS FROM THE LEADERSHIP



The commitment, creativity, and excellence exhibited by our staff and students in the domains of science and research are attested to in this newsletter. Significant academic accomplishments, innovative research contributions, and exciting extracurricular activities have all occurred throughout the last quarter.

Dear Students, and Faculty Members of the
K R Mangalam University Community,

It is with great pride and enthusiasm to present the latest edition of Frontiers in Applied Sciences, the quarterly newsletter of the School of Basic and Applied Sciences. The commitment, creativity, and excellence exhibited by our staff and students in the domains of science and research are attested to in this newsletter. Significant academic accomplishments, innovative research contributions, and exciting extracurricular activities have all occurred throughout the last quarter. Our faculty members continue to push the boundaries of knowledge through valuable research and publications that benefit the global scientific community.

In addition to academic interests, this newsletter showcases our students' artistic accomplishments including encouraging articles poems and stories that demonstrate their artistic expression and intellectual curiosity. The schools' activities and projects have promoted teamwork critical thinking and all-encompassing education. Let's continue to be dedicated to creating an atmosphere of creativity and exploration as we go. We sincerely thank each and every contributor and we anticipate more significant events in the upcoming editions.

Happy reading!

Thank you.

Warm regards

Prof. Raghuvir Singh

Vice Chancellor

K.R. Mangalam University

FROM THE DESK OF DEAN, SCHOOL OF BASIC AND APPLIED SCIENCES



Our academic goal is centered on innovation and scientific investigation. Through industrial partnerships, multidisciplinary research, and practical experiential learning, our teachers and students are constantly expanding our understanding. This newsletter provides a forum for highlighting noteworthy accomplishments that support the constantly changing field of applied sciences.

Dear Readers,

It gives me immense pleasure to present the latest edition of Frontiers in Applied Sciences, our quarterly newsletter that encapsulates the remarkable academic and research advancements within the School of Basic and Applied Sciences at K.R. Mangalam University. Our academic goal is centered on innovation and scientific investigation. Through industrial partnerships, multidisciplinary research, and practical experiential learning, our teachers and students are constantly expanding our understanding. This newsletter provides a forum for highlighting noteworthy accomplishments that support the constantly changing field of applied sciences.

Highlights of recent industry visits, faculty and student accomplishments, cutting-edge research, workshops, and expert sessions that promote scientific curiosity and professional development are all included in this edition. We are still dedicated to creating a vibrant learning atmosphere that equips students with the abilities and know-how needed to succeed in their chosen industries.

I want to express my sincere gratitude to the students, faculty members, and contributors for your unwavering passion and commitment to expand scientific knowledge. I urge every reader to actively interact with the material, contribute their thoughts, and keep encouraging a spirit of inquiry and learning.

Enjoy your reading!

Regards

Prof. Meena Bhandari

Dean, School of Basic and Applied Sciences

ABOUT SCHOOL

School of Basic & Applied Sciences (SBAS) at K.R. Mangalam University imparts knowledge in the most dynamic field to disseminate industry-relevant knowledge via hands-on learning across various disciplines. The school offers undergraduate, postgraduate & international doctoral degrees in physics, chemistry, mathematics, and Forensic Science. SBAS provides a solid foundation in the natural and applied sciences. Our

expert faculty members foster an environment of exploration and critical thinking. Students embark on a journey of scientific discovery and innovation, preparing for careers that shape the world. Unlike traditional methods, our graduates are not just theorists but problem solvers ready to address real-world challenges. SBAS fosters innovation, critical thinking, and a practical understanding of science and beyond.

OUR ACHIEVERS- FACULTIES & STUDENTS

Faculty's Achievement

Dr. Ritika Khatri, Assistant Professor (Physics), School of Basic and Applied Sciences has been conferred with the “Best Thesis Presentation Award” at 3rd International Conference on Advances in Nanomaterials and Devices for Energy and Environment (CANDEE- 2024), organized by Department of Engineering Sciences, ABV-IIITM Gwalior from 3-5 December 2024. The award was graciously presented by Prof. Anurag Srivastava, Convener, CANDEE 2024.



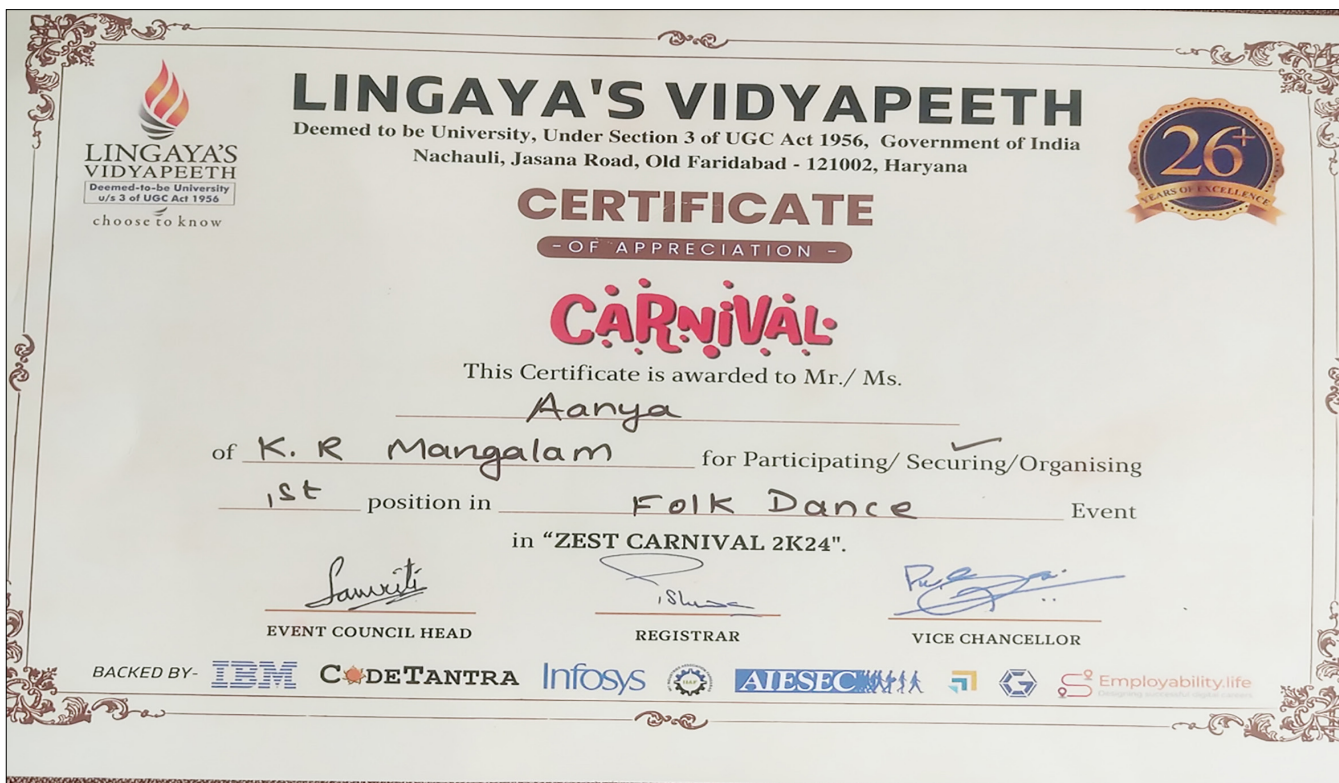
Dr. Rishi Ranjan Kumar, Assistant Professor (Physics), School of Basic and Applied Sciences (SBAS), has been awarded the with 1st position for presenting his work during National Conference on 'Advanced Materials for Sensors, organized by ECS-JNU student chapter, Jawaharlal Nehru University, New Delhi on 19th December 2024.



Student's Achievement



Mr Abhishek Sharma participated in Guest lecture on 23rd November 2024



Ms Anya from forensic science secured first position in ZEST Carnival 2024

SCIENTIFIC CREATIVE ARTICLES

MAHA KUMBH MELA 2025: A GRAND CONFLUENCE OF FAITH AND TRADITION

The Maha Kumbh Mela 2025, currently taking place in Prayagraj, Uttar Pradesh, is one of the largest spiritual gatherings in the world. Held from January 13 to February 26, this sacred festival has attracted an estimated 400 million pilgrims from across the globe. Devotees have gathered at the Triveni Sangam, the confluence of the Ganga, Yamuna, and the mythical Saraswati rivers, to take part in religious rituals believed to bring spiritual purification and enlightenment.

This Maha Kumbh Mela is a rare event that occurs once every 144 years, making this year's celebration particularly significant. The timing of the Mela is determined by specific celestial alignments, which are believed to enhance the spiritual potency of the rituals performed. Central to the event are the 'Shahi Snan' or Royal Baths, where saints, ascetics, and devotees immerse themselves in the holy waters of the Sangam. These sacred baths are believed to cleanse the soul, wash away past sins, and aid in the attainment of 'moksha' or liberation. The festival commenced with the first Shahi Snan on Paush Purnima, followed by other auspicious bathing dates throughout the event. Beyond its religious significance, the Maha Kumbh Mela is a vibrant cultural spectacle. The festival grounds are alive with colorful processions, devotional music, and discourses by revered spiritual leaders. Millions

from diverse backgrounds unite in shared faith and devotion, creating an atmosphere of peace, reflection, and spiritual rejuvenation. However, organizing an event of such magnitude comes with challenges. On January 30, during the Mauni Amavasya bathing ritual, a tragic stampede resulted in the loss of 30 lives and several injuries. In response, authorities have implemented stricter safety measures, such as designating no-vehicle zones and restricting VIP movements during major bathing days, ensuring the well-being of attendees.

The Maha Kumbh Mela has not only drawn pilgrims but has also garnered global attention. International visitors, fascinated by its sheer scale and spiritual ambiance, have flocked to Prayagraj to witness this extraordinary event. Notably, Indigo CEO Pieter Elbers described his visit as a "once-in-a-lifetime experience," underscoring the universal appeal of the festival.

As the Maha Kumbh Mela 2025 progresses, it continues to embody the essence of faith, resilience, and communal harmony. This monumental gathering not only reinforces the ancient traditions of Hinduism but also showcases the profound human capacity for devotion, unity, and spiritual awakening.

Dr. Ruby Jindal

Associate Professor (Physics)

HOW BOTANICAL REMAINS CAN REVEAL THE PERSON'S IDENTITY IN FORENSICS

In Forensic Investigations, botanical remains- Including pollen, seeds, wood, and plant Fibers can assist identify human remains and eventually helps in criminal investigations and human identification. Palynology, or pollen analysis, geolocation and movement tracking- To particular plants and areas, pollen grains are quite unique. Finding pollen from a given geographic area on or within a body might help one determine a person's residence, travel history, or burial site. Certain seeds or plant fragments discovered on clothes, shoes, or inside stomach contents might link someone to a particular habitat or last known place.

1. Burial Context and Time of Death: Some seasonal certain flower or pollen types can point to the season of year death took place in Plant root invasion into skeletal remains can assist determine the time since burial by means of soil composition and root development.

2. Diet and Lifestyle Suggestions: Analysis of plant remnants in the digestive system—e.g., phytoliths, starch grains, seeds—may expose diet and offer information on cultural background or last meals. Carbon and nitrogen isotopes from ingested plants leave remains in bones and hair, providing information on diet—that is, marine vs terrestrial food sources.

3. Toxicology from Plants: Certain deaths might be connected to toxic plants (like nightshade or hemlock). Identification of harmful plant chemicals in the body can point to poisoning. Environmental Transfer: Forensic evidence might come from

plant material discovered in unusual places—a rare plant in a suspect's automobile, for example.

4. Ritual and cultural relevance: Certain plant materials—such as flowers, resins, herbs—placed in graves may point to religious or cultural burial customs. Plant fibers, such as flax, cotton, papyrus is used in clothes or artifacts can expose a person's cultural identity and rank.

5. Environmental Reconstruction and Climate: Former Human Remains: Botanical remains provide insight on the living circumstances and travel habits of an individual, therefore helping to recreate their historical habitat.

Conclusion: In forensic and archaeological investigations, botanical remains reveal important details about a person's identity, where they died, what they ate, and how they died. Evidence of historical habitats, migration patterns, and cultural practices can be pieced together using isotopic data, pollen, seeds, and plant fibres. When it comes to puzzles surrounding human remains, these flora clues provide invaluable evidence.

In summary, advances in optoelectronics and photonics are a brilliant illustration of human inventiveness and creativity. The possibilities are genuinely endless as long as we can use light to propel innovation and advancement, paving the way for a more promising and connected future for all.

Dr. Baljeet Yadav

Assistant Professor (Forensic Science)

RESEARCH UPDATES

JOURNAL ARTICLES

Author Name	Name of the Research Article	Name of Journal	Scopus/WoS/ SCIE	Impact factor and Cite Score	Date of Publication
Dr. Ruby Jindal and Dr. Neeraj Kumari	Effect of ordering of B' site atom on the dynamical lattice properties of sustainable $\text{Sr}_2\text{B}'\text{WO}_6$ ($\text{B}' = \text{Co}, \text{Ni}$) double Perovskite	Chemical Physics Impact	Scopus/WoS/ ESCI	IF: 2.6 CS: 3.8	13 th November 2024
Dr. Neeraj Kumari and Prof. Meena Bhandari	Removal of Organic Dye Using Graphene-based Composite: Isotherm and Kinetic Studies	Journal of Water and Environmental Nanotechnology	Scopus	IF: 1.8 CS: 2.4	25 th November 2024
Dr. Ruby Jindal	Influence of T cation on the vibrational properties of ferroelectric Ca_2TO_4 ($T = \text{Si}, \text{Ti}, \text{Mn}, \text{Ge}$) compounds	Chemical Physics Impact	Scopus/WoS/ ESCI	IF: 2.6 CS: 3.8	21 st December 2024
Dr. Ruby Jindal and Dr. Chandra Mohan	Lead-free halide double perovskites for sustainable environmental applications	Chemical Physics Impact	Scopus/WoS/ ESCI	IF: 2.6 CS: 3.8	7 th November 2024
Dr. Ruby Jindal	Impact of low dose of gamma irradiation on thin films of Bismuth Tri-iodide	Applied Radiation and Isotopes	Scopus/WoS/ SCIE	IF: 1.5 CS: 3.0	21 st November 2024
Dr. Chandra Mohan	Nitrogen containing benzoxazine based heterocyclic compounds: a key to modern drug design	Heterocyclic Letters	WoS/ ESCI	IF: 0.1	12 th October 2024
	Development of functionalized nanowires for smart coatings used in corrosion inhibition	International Journal of Corrosion and Scale Inhibition	WoS/ ESCI	IF: 2.8 CS: 4.9	27 th November 2024
Dr. Seema Raj and Dr. Dilraj Preet Kaur	Membrane Distillation for Sustainable Water Desalination: A Review of Principles, Materials, and Applications	Water, Air & Soil Pollution	WoS/ SCIE	IF: 2.8 CS: 4.9	3 rd December 2024
Dr. Yogendra Kr. Rajoria	Comparative study of maximisation assignment model by existing method and newly proposed methods	International Journal of Operational Research	Scopus	IF: 2.8 CS: 0.94	16 th December 2024
Dr. Suman Srivastva	Synergistic Dual Activation Catalysis by Saccharin-Based Ionic Liquids for Diastereoselective Synthesis of Ferrocene-Appended Furopyranones, Furochromenones, and Benzofuranones	Applied Organometallic Chemistry	Scopus/ WoS/ SCIE	IF: 4.1 CS: 6.6	6 th October 2024

Dr. Mina Kumari	A Comparative Study of ANFIS and TANFIS Hybrid Techniques for Prediction of Heart Disease	African Journal of Biomedical Research	Scopus	IF: 0.18 CS: 0.5	30 th November 2024
Prof. Meena Bhandari	Green synthesis and antimicrobial evaluation of some thiosemicarbazone and semicarbazone derivatives	Rasayan Journal of Chemistry		IF: 0.18 CS: 1.9	December 2024

BOOK CHAPTERS

Author Name	Name of the Book Chapter	Name of Book	Publisher	ISBN/ISSN No.	Date
Dr. Rajni Gautam and Dr. Neeraj Kumari	Disaster Preparedness and Mitigation	Disaster Human Crisis: Emergency, Response and Recovery	Nova Publisher	979-8-89530-059-6	October 2024
Dr. Neeraj Kumari and Dr. Chandra Mohan	The Fundamentals of Disaster	Disaster Human Crisis: Emergency, Response and Recovery	Nova Publisher	979-8-89530-059-6	October 2024
Dr. Mehak	Man-Made Disasters: Causes, Effects and Prevention	Disaster Human Crisis: Emergency, Response and Recovery	Nova Publisher	979-8-89530-059-6	October 2024
Dr. Sujata Kumari	Natural/Geographical Disasters: Causes, Effects, and Prevention	Disaster Human Crisis: Emergency, Response and Recovery	Nova Publisher	979-8-89530-059-6	October 2024
Dr. Kriti	The Modes of Disaster	Disaster Human Crisis: Emergency, Response and Recovery	Nova Publisher	979-8-89530-059-6	October 2024
Dr. Ruby Jindal	Local and Global Disasters: A Comparative Stud	Disaster Human Crisis: Emergency, Response and Recovery	Nova Publisher	979-8-89530-059-6	October 2024
Dr Ruby Jindal	India's Disaster Management System: Rehabilitation, Recovery, and Reconstruction	Disaster Human Crisis: Emergency, Response and Recovery	Nova Publisher	979-8-89530-059-6	October 2024
Dr. Ruby Jindal	The Integral Role of Community Engagement and Government Bodies	Disaster Human Crisis: Emergency, Response and Recovery	Nova Publisher	979-8-89530-059-6	October 2024
Dr. Ruby Jindal	Empowering Communities: The Crucial Role of Local Bodies	Disaster Human Crisis: Emergency, Response and Recovery	Nova Publisher	979-8-89530-059-6	October 2024
Dr. Ruby Jindal	The COVID-19 Disasters: Pandemic Diseases	Disaster Human Crisis: Emergency, Response and Recovery	Nova Publisher	979-8-89530-059-6	October 2024
Dr. Rajni Gautam	Future Scope, Opportunities, and Challenges in Disaster Management	Disaster Human Crisis: Emergency, Response and Recovery	Nova Publisher	979-8-89530-059-6	October 2024

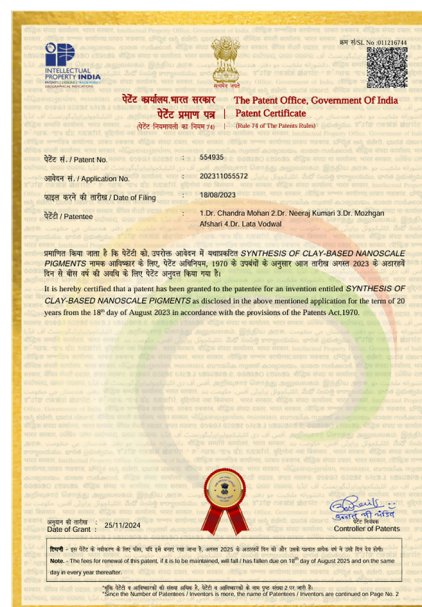
Dr. Chandra Mohan	The Framework of a Warning System for Risk Reduction	Disaster Human Crisis: Emergency, Response and Recovery	Nova Publisher	979-8-89530-059-6	October 2024
Dr. Chandra Mohan	The Importance of an Effective Disaster Management System in India: Safeguarding Lives to Minimize Loss	Disaster Human Crisis: Emergency, Response and Recovery	Nova Publisher	979-8-89530-059-6	October 2024
	Bioindicators of Microplastics	Fate of Microplastics in Wastewater Treatment Plants Occurrence, Identification, Potential Factors, and Future Perspectives	Taylor & Francis Group	9781003438793	November 2024
	Role of Green Chemistry in Producing Biodegradable Plastic and Its Role in Sustainable Development	Sustainable Development Goals Towards Environmental Toxicity and Green Chemistry	Springer Nature	978-3-031-77327-3	December 2024
Dr. Chandra Mohan	Review on Deterministic Mathematical Modelling Studies on COVID-19	Recent Trends in Engineering and Science for resources optimization and sustainable development	CRC Press	9781032980300	December 2024
	Numerical Modeling of Mangalore Port Including Wave Energy Dissipators using the Boundary Element Method				

CONFERENCE PROCEEDINGS

Author Name	Name of the Article	Name of Proceedings	ISBN/ISSN No.	Date
Dr. Chandra Mohan	Wireless Power Transference Services Opportunistic Transactions in Improper Comparison Services	IEEE Xplore	1803-7232	October 2024
	Integrating Fuzzy Logic with LSR Sensors for Optimized Solar Energy Harvesting in Sun-Tracking System			

Patent

Dr. Neeraj Kumari and Dr. Chandra Mohan published Indian Utility Patent titled "Synthesis of Clay-Based Nanoscale Pigments" on 25th November 2024.



EVENTS CORNER

SOFT SKILLS: STRATEGIES FOR SUCCESS

On 25th September 2024, the School of Basic and Applied Sciences at K R Mangalam University organized a highly enriching lecture titled "Soft Skills: Strategies for Success." The lecture, delivered by Ms. Tuhina Ray, the Head of the Career Development Cell at K R Mangalam University, Sohna, aimed at underscoring the importance of soft skills in achieving success in both academic and professional arenas. The primary objective of the lecture was to create awareness among students about the vital role of soft skills in personal and professional growth. Soft skills, such as communication, teamwork, adaptability, problem-solving, and emotional intelligence, are essential in the modern workplace and academic settings. The lecture aimed to highlight the significance of soft skills in enhancing employability and encourage students to understand how these skills contribute to overall success. Ms. Tuhina Ray began by introducing the concept of soft skills and discussing their increasing relevance in today's competitive world. She provided a detailed analysis of various soft skills, including communication, leadership, problem-solving, time management, and emotional intelligence, emphasizing their importance in professional environments. Through real-world examples and engaging stories, Ms. Ray demonstrated how these skills are often the differentiators in hiring decisions and career advancements. In conclusion, the lecture on "Soft Skills: Strategies for Success" proved to be an invaluable session for



Ms. Tuhina Ray discussed about the significance of soft skills

the students at the School of Basic and Applied Sciences. Ms. Tuhina Ray's insights provided clarity on the importance of soft skills and how they are indispensable in today's academic and professional spheres. The session highlighted that while technical knowledge is crucial, soft skills complement and enhance one's ability to thrive in real-world environments.

UNLOCKING INNOVATION: INTELLECTUAL PROPERTY RIGHTS AND STRATEGIC MANAGEMENT WITH KEIC

The seminar titled 'Unlocking Innovation: Intellectual Property Rights and Strategic Management with KEIC' was organized on 28th November 2024 to create awareness about the importance of intellectual property rights (IPR) and its strategic role in fostering innovation. The event aimed to provide students with insights into how intellectual property can serve as a valuable tool in strategic management and entrepreneurship. The main objective to organize the event is to introduce the concept of Intellectual Property Rights (IPR) and emphasize the significance of IPR in innovation and strategic management. The session covered various key topics like basics of Intellectual Property Rights (IPR), types of intellectual property, including patents, trademarks, copyrights, and trade secrets, the role of IPR in strategic management and innovation-driven growth and importance of protecting intellectual property in academia and industry. Dr. Narendra Yadav delivered an engaging lecture highlighting real-world applications of IPR in scientific and entrepreneurial contexts. He also discussed case studies to underline the importance of strategic management using intellectual property.



Dr Narendra Yadav explained the importance of IPR in innovation

FOSTERING FUTURE MINDS: ALUMNI PERSPECTIVES ON THE EVOLVING ROLE OF SCIENCE IN EDUCATION

The lecture titled "Fostering Future Minds: Alumni Perspectives on the Evolving Role of Science in Education" was organized by the School of Basic and Applied Sciences (SBAS) at K. R Mangalam University on November 29, 2024. The lecture aimed to offer valuable insights into the role of science education in shaping the future, through the perspectives of alumni who have successfully transitioned from academia to the professional world. The lecture provided a platform for current students of B.Sc. (H) Mathematics, Physics, and Chemistry to engage with the experiences of an alumnus and understand how science education is evolving to meet the challenges of the modern world. The main objective to organize this event was to provide students with real-world insights on how science education impacts careers by discussing the evolving role of science in addressing contemporary global challenges. The session was led by Mr. Agnivesh Tiwari, an alumnus of the B.Sc. (H) Mathematics program, who shared his journey from being a student at K. R Mangalam University to his current role in the scientific field. He discussed the shifting landscape of science education and its importance in developing critical thinking, problem-solving, and innovation skills. Mr. Tiwari highlighted the growing importance of interdisciplinary knowledge and how students can leverage their scientific background to succeed in diverse career paths. The lecture also featured interactive discussions where students shared their views on the evolving role of science in education and



Mr Agnivesh described about the tricks to qualify the competitive exams

how they perceived their prospects in the field. The lecture concluded with an interactive Q&A session where students had the opportunity to ask questions and clarify their doubts. Mr. Tiwari's insights on how science is transforming and its potential to solve real-world problems resonated deeply with the students. He encouraged them to approach science education with an open mind and adaptability, preparing them for an ever-changing world.

VISIT TO MORTUARY

On 29th November 2024, students from the B.Sc. and M.Sc. Forensic Science programs Department of Forensic Science (SBAS) were taken for visit of Mortuary at Deen Dayal Upadhyay Hospital, Delhi. The visit was coordinated under the mentorship of Mr. Nitin Tyagi and Ms. Nitin Tyagi (Assistant Professors, Forensic Science). Dr. Jatin Assistant Professor, Department of Forensic Medicine and Toxicology, Deen Dayal Upadhyay Hospital, Delhi demonstrated about the importance of forensic medicine to the students of B.Sc. Forensic Science and M.Sc. Forensic Science. Postmortems were demonstrated to students describing procedures and protocols of Autopsy by Dr. Komal. The primary objective of the mortuary visit was to provide students with hands-on experience in forensic procedures. By witnessing post-mortem examinations first hand, students

were expected to gain a deeper understanding of the techniques and processes involved in forensic investigations. Through discussions and interactions with faculty members and forensic experts, students were encouraged to critically analyse autopsy findings, identify patterns of injury, and draw conclusions based on forensic evidence. The visit aimed to foster the development of analytical skills essential for forensic science professionals. The event sought to provide students with practical exposure to the challenges and complexities encountered in real-world forensic investigations. By actively participating in the mortuary visit, students were expected to gain insights into the multifaceted nature of forensic science and develop the skills necessary to address diverse forensic challenges effectively.



A group photograph of expert and students

VISIT TO CENTRE FOR ADVANCED MATERIALS AND DEVICES, BML MUNJAL UNIVERSITY

The School of Basic and Applied Sciences (SBAS) has organized a Visit for Applied Science students to the Centre for Advanced Materials and Devices at BML Munjal University, Gurugram. This visit took place on Wednesday, 4th December 2024. The objective of the research lab visit to the Centre for Advanced Materials and Devices at BML Munjal University is to expose students to the latest innovations in the field of materials science, including research on new materials, nanotechnology, and device fabrication processes.

A guided tour of the research lab, where students had the opportunity to observe advanced equipment and technologies used in materials and device testing, synthesis, and fabrication was conducted and introduced to specialized

tools like scanning electron microscopes (SEM), atomic force microscopes (AFM), and other materials characterization instruments. A short presentation by the faculty on the latest advancements in materials science, their research methodologies, and the real-world applications of their findings was also organized. In conclusion, the Visit to the Centre for Advanced Materials and Devices at BML Munjal University offered a valuable opportunity for students to gain hands-on experience and a deeper understanding of the latest research and technologies in the field of applied sciences. The lab visit experience was enriching and insightful one, contributing significantly to the academic and professional growth of the students.



The experts explained about the role of analytical techniques

OUR ALUMNI



K.R. Mangalam University has been a genuinely life-changing experience for me. The B.Sc. program gave me a solid academic background, real-world experience, and worthwhile research chances. Our professors were very encouraging and constantly pushed us to think critically and use what we had learned to solve problems in the real world.

Being involved in a number of academic programs, such as research projects and NSS, allowed me to hone my leadership, collaboration, and problem-solving abilities. I learned more and was more equipped for my future pursuits thanks to the industry visits, knowledgeable lectures, and practical training sessions. I owe K.R. Mangalam University for helping me shape my academic and personal development, and I'm excited to use the knowledge and abilities I acquired here in my future career.

Name- Abhay Barwal

Course- B. Sc Program

Batch – 2020-2023



As a B.Sc. Chemistry student at K.R. Mangalam University from 2019 to 2022, I am immensely appreciative of my experience there. The institution helped me develop my scientific knowledge and critical thinking abilities by giving me a solid academic foundation and priceless real-world experiences. The instructors were really encouraging and constantly pushed us to learn through research and go beyond textbooks.

The university's extracurricular and NSS programs, in addition to its academic offerings, helped me hone my leadership, collaboration, and problem-solving skills. My practical understanding was greatly enhanced by the industrial trips, well-equipped labs, and interactive discussions with specialists.

My academic and professional development have been greatly aided by the advice and mentoring I have received from my instructors, which I truly appreciate.

Name- Chhavi Kaushik

Course- B. Sc (H) Chemistry

Batch- 2019-2022

PLACEMENTS

Students from the School of Basic and Applied Sciences at K.R. Mangalam University has successfully been selected as trainee at FARE LABS Private Limited for a period of six month.

S N	Name of the student	Course	Designation	Name of the company
01	Ms Kavya Singh	Forensic Science (VI Semester)	Trainee	FARE LABS Private Limited
02	Ms Divya Panwar	Forensic Science (VI Semester)	Trainee	FARE LABS Private Limited
03	Ms Khushboo	Forensic Science (VI Semester)	Trainee	FARE LABS Private Limited

STUDENTS' CORNER

The Light of Reason

Let not the dark of myths confine,
Awake, O mind, let knowledge shine.
With eyes that question, seek, explore,
Unlock the truths, open the door.
The stars above, the earth below,
Through science vast, their secrets show.
Not fate, nor fear, nor tales of old,
But reason's spark makes truth unfold.
Doubt is not the path astray,
But wisdom's light to guide the way.
For every question, every why,
A world of wonder waits nearby.
So test, observe, refine, repeat,
Let logic stand on steady feet.
With open minds, we rise, we soar,
Through science bright, forevermore.

Aditya Patel

BSc. (H) Physics

DNA FINGERPRINTING IN FORENSICS: A REVOLUTIONARY TOOL IN CRIMINAL INVESTIGATIONS

Introduction to DNA Fingerprinting: DNA fingerprinting, also called DNA Profiling, is a technique used in identification of individuals on the basis of their genetic makeup. It was developed in 1984 by Sir Alec Jeffery who is also known as the father of DNA fingerprinting. DNA fingerprinting has become a keystone in forensic science, for criminal investigations as well as for the legal system. Unlike traditional fingerprinting which varies on the basis of different ridge patterns, DNA fingerprinting uses sequences of nucleotides.

Applications of DNA fingerprinting in forensics

1.Criminal Investigations: DNA fingerprinting is vastly used in criminal investigations to match DNA found at crime scenes with probable suspects. Forensic scientists collect biological samples such as blood, hair, saliva, or semen from a crime scene and compare them with DNA profiles of suspects. If the DNA profiles match, it can provide strong evidence that the suspect was involved in the crime.

2. Exculpation of the Innocent

DNA fingerprinting also plays a crucial role for post-conviction exculpations. Many individuals were wrong. Convicted have been released from prison after DNA evidence has cleared their name. This has been especially important in cases where the only evidence against the defendant was circumstantial or where eyewitness testimony was unreliable.

3. Identifying Victims: DNA fingerprinting is invaluable in identifying victims of natural disasters, accidents, or mass deaths in any circumstances. In situations where victims are unrecognisable due to fire, decomposition, or trauma, DNA analysis can be used to match biological remains with a missing person's DNA profile.

Advancement in DNA Fingerprinting: In recent years, DNA fingerprinting technology has advanced more significantly. The development of next-generation sequencing (NGS) and other cutting-edge techniques has allowed forensic scientists to analyse even smaller and more degraded DNA samples. Additionally, databases like CODIS (Combined DNA Index System) allow law enforcement agencies to share and compare DNA profiles across jurisdictions, making it easier to solve cold cases and identify repeat offenders.

Conclusion: DNA Fingerprinting is considered one of the most reliable methods for identifying criminals in available methods today. This method has a profound effect on forensic science today making it one of the most powerful tool in modern criminal investigations. It is even very useful for legal considerations as it provides unique features of individuals and serves its role as a vital instrument of justice.

Priyanshi Kharbanda

BSc(H) Forensic Science

VIRASAT BHI VIKAS VHI

In today's rapidly changing world, the quest for development often seems to be at odds with the preservation of heritage. However, it is entirely possible for development and heritage to coexist harmoniously, each enriching the other and contributing to a more holistic and sustainable future.

Development encompasses economic growth, infrastructure expansion, and technological advancements. These are crucial for improving living standards, creating jobs, and fostering innovation. On the other hand, heritage represents the cultural, historical, and architectural treasures that define the identity of a community. It includes ancient monuments, traditional practices, and historical landmarks that embody the collective memory of a society. The integration of development and heritage can create a unique synergy. For instance, restoring historical buildings and repurposing them for modern use can breathe new life into communities. This not only preserves the architectural integrity of heritage sites but also attracts tourism, generating revenue that can be reinvested into further preservation efforts. Cities like Rome and Kyoto exemplify this balance, where ancient structures coexist with contemporary urban developments, creating a

unique blend of old and new. Moreover, development projects can incorporate elements of local heritage to enhance their cultural significance. For example, new public spaces can feature traditional art and design, reflecting the community's cultural roots. This approach fosters a sense of pride and belonging among residents, strengthening social cohesion.

It is essential for policymakers and urban planners to adopt a holistic approach that recognizes the value of heritage in development. Legislation and regulations should promote the preservation of cultural assets while allowing for sustainable development. Public awareness and community involvement are also crucial in ensuring that heritage is not sacrificed in the name of progress. In conclusion, development and heritage need not be mutually exclusive. By fostering a symbiotic relationship between the two, we can create vibrant, resilient communities that honour their past while embracing the future. This approach not only enriches our cultural landscape but also paves the way for sustainable development that benefits all human beings.

Mr Amrit Anand

B. Sc. (H) Physics

MAGIC TOOL

The statues would be sculpted in my name
Saying
"The girl who suffered a cosmic loss but held it quite impressively and yet stood tall keeping her dignity intact,
Pain, what's that?
Isn't it easy to pretend like nothing happened, like it never touched me,
Like i'm the happiest girl in the world ,
I could win thousands of oscars,
If my life was on screen, I can act great that my life is flawless, completely untouchable.
Not human , no
Something else completely
A magic tool, polished and shining
A cosmic loss carved into silence
And I would do it
I would act like nothing happened,
Even though from inside I am torn apart,
Just to watch them envy me
But then I wonder,
What if I could break down
Right here, in front of the world,
Not caring how their eyes burn into me
Not caring how their whispers cut.
For once, if the world would let me be weak
Give me shoulders to cry on
Tell me to " cry and howl all you want, we aren't watching "
Why must I fear their looks and thoughts?
Why must I carry the weight alone?
Must strength always mean silence?
Must dignity mean never falling?
If I shatter,
will the world still carve statues in my name?

Sneha Pramanik
BSc (H) Chemistry

GALLERY







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