



**SAVEETHA**  
COLLEGE OF LIBERAL ARTS & SCIENCES



**Jawaharlal Nehru Rajkeeya  
Mahavidyalaya, Govt. College,  
Sri Vijaya Puram, Andaman**

**PROCEEDINGS OF ANDAMAN INTERNATIONAL CONFERENCE ON  
RECENT INNOVATIONS IN  
MULTIDISCIPLINARY RESEARCH  
(ICRIMR – 2025)**

**Editors**

**Dr. Gunita Arun Chandhok**

**Dr. H. K. Sharma**

**Dr. R Jayakarthish**

**Dr. Vinod N.C**

**Dr. M. Rajasekar**

**12th & 13th August 2025  
Andaman.**



**SAVEETHA**  
College of Liberal Arts & Sciences  
Saveetha Institute of Medical And Technical Sciences



*In association with*



**Jawaharlal Nehru Rajkeeya Mahavidyalaya,  
Govt. College, Port Blair, Andaman.**

**Proceedings of  
Andaman International Conference on  
“Recent Innovations in Multidisciplinary  
Research (ICRIMR 2025)**

**12<sup>th</sup> – 13<sup>th</sup> August 2025**

**at**

**Jawaharlal Nehru Rejkeeya Mahavidyalaya, Govt.  
College, Sri Vijaya Puram, Andaman**

**Chief Editors**

**Dr. Gunita Arun Chandhok**

**Dr. H.K. Sharma**

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**Organised by**

**The Department of Computational Intelligence  
Saveetha College of Liberal Arts and Sciences  
SIMATS Deemed to be University  
Chennai, Tamilnadu, India**

**Edition 2025**

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**ISBN: 978-4-0741-2892-1**

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**Published by:**

Department of Computational Intelligence  
Saveetha College of Liberal Arts and Sciences  
SIMATS.

## **Preface**

The International Conference on Recent Innovation in Multi-Disciplinary Research (ICRIMR 2025) is scheduled on 12<sup>th</sup> & 13<sup>th</sup> August 2025 in Jawaharlal Nehru Rajeekya Mahavidyalaya, Govt College, Sri Vijaya Puram, Andaman. The conference aims to bring educators, researchers, engineers, scientists, and students together to present the latest trends in research and findings to address the field's challenges in advanced technologies with a Multi-Disciplinary Approach. This conference provides a place for presenting high-quality original research, new ideas, and compelling insights on future trends in next-generation technologies. It also focuses on different innovative paradigms in system knowledge, Intelligence, and sustainability that can assist deliver realistic answers to various problems impacting society, the environment, and industry with a multidisciplinary approach.

## **SIMATS**

Saveetha Institute of Medical and Technical Sciences (SIMATS) is a key contributor to the quality education in India, with an array of specializations such as Medicine, Dentistry, Engineering, Law, Management, Physiotherapy, Pharmacy, Nursing, Allied Health Sciences, Physical Education, Architecture, Liberal Arts and Sciences, Hospitality and Tourism. SIMATS has been awarded an A++ grade by NAAC, and 11<sup>th</sup> Rank by NIRF.

## **ABOUT THE COLLEGE**

Saveetha College of Liberal Arts and Sciences a well-regarded constituent College of Saveetha Institute of Medical and Technical Sciences, Deemed to be a university, established in the year 2020 to craft the "World's Best college" in the Liberal Arts and Sciences discipline. Higher Education Magazine ranked Saveetha College of Liberal Arts and Sciences among "The top 10 promising colleges in Chennai 2023". SCLAS is ranked 7<sup>th</sup> in state and 19<sup>th</sup> at the National level, according to IIRF rankings. The Institution aims to build a lively and comprehensive learning community in a culture of excellence consistently by a great value system that promotes responsible citizens with effective human values. Today, the college offers various Undergraduate & Postgraduate programs in liberal arts and sciences, Foreign Languages (German, Japanese, Chinese, French), Internships and Research Projects form an integral part of the curriculum. The College has competent faculty and excellent infrastructure integrated with eminent Research Teams. Clubs and other extra-curricular activities are offered to students providing them a wide range of opportunities to learn and excel. CBCS is followed at SCLAS. The college also offers study

abroad programs with Universities in the U.K. Malaysia, Singapore, Australia, Indonesia, UAE, etc.

### **ABOUT THE DEPARTMENT**

The Department of Computational Intelligence is designed to provide a foundation of computing principles and practices for effectively managing Information systems and enterprise software. The course provides students to specialize in Enterprise Application Development, Web Applications, and advanced programming languages. This course aims at nurturing students with AI technical competencies of Computer Applications and empowering them with the abilities of problem-solving, creativity interpersonal, and managerial skills. The students will gain proficiency in developing secured Information Systems and efficient business transactions without any discrepancies. The students will be trained thoroughly in emerging trends such as Artificial Intelligence, the Internet of Things Business Intelligence, etc. Six months Internship and project are included in the curriculum to get hands-on experience in the field of IT.

### **JAWAHARLAL NEHRU RAJKEEYA MAHAVIDYALAYA**

Jawaharlal Nehru Rajkeeya Mahavidyalaya, Sri Vijaya Puram, South Andaman. A & N Islands, is the premier Institution in the Union Territory of the Andaman & Nicobar Islands which had its inception in 1967 as Govt. College Port Blair. The College offers instructions in wide-ranging disciplines at Undergraduate and postgraduate levels leading to B.A., B.Sc., B.Com., BCA, BBA (Tourism & Travel Mgt.) and BPES (Physical Education) degrees and M.Sc., M.A. and M.Com. degrees respectively. Initially the College was Affiliated with Punjab University, Chandigarh at the

time of inception (1967) and the Affiliation was shifted to Pondicherry Central University in the year 1987. The College is also centre of almost all the UPSC Competitive Examinations. It has also been declared as NET examination centre by UGC from December 2002 onwards. This College has an excellent sprawling campus having statues of great thinkers like Pandit Jawaharlal Nehru and Swami Vivekananda.

The Islands of Andaman & Nicobar are geographically remote because of the vast distance from the mainland coastal line. The Islands of Andaman & Nicobar are home to some of the indigenous tribes. JNRM is the hub of higher educational activities in these Islands and has produced diligent graduates and postgraduates in many disciplines. Apart from many first classes, some of the students have been Gold medalist and toppers in the entire Pondicherry University.

## **Founder & Chancellor's Greeting Message**



**Founder & Chancellor  
Saveetha Institute of Medical and Technical Sciences  
SIMATS Deemed to be University, Tamilnadu, Chennai,  
India**

Dear Delegates,

It is my distinct honor and privilege to welcome you to the International Conference on “Recent Innovations in Multidisciplinary Research - 2025”, an event of exceptional importance and intellectual rigor.

This conference, organized by the Department of Computational Intelligence, Saveetha College of Liberal Arts and Sciences, in association with Jawaharlal Nehru Rajeekya Mahavidyalaya, Govt College, Sri Vijaya Puram, Andaman held from the 12<sup>th</sup> and 13<sup>th</sup> August 2025, is a celebration of the spirit of collaboration and the pursuit of knowledge across multiple disciplines. It embodies our unwavering commitment to fostering innovation, encouraging intellectual curiosity, and promoting scholarly excellence. We are gathered here as architects of a brighter future, where the

confluence of ideas from diverse fields leads to groundbreaking discoveries and innovations.

The program we have curated is designed to challenge, inspire, and provoke thought. It features a distinguished lineup of keynote speakers, engaging panel discussions, and interactive sessions that will allow us to delve deeply into the most pressing issues and emerging trends in our respective fields. This is a unique platform to network, collaborate, and forge new partnerships that will drive the future of multidisciplinary research.

I appreciate all those who have contributed to making this conference a reality – the organizing committee and the participants, underscore your commitment to advancing the frontiers of knowledge.

I am sure this conference will be enriching, enlightening, and full of fruitful exchanges. Let us seize this opportunity to learn from one another, challenge our perspectives, and ignite the spark of innovation to illuminate the path forward for all.

Best Regards  
Founder & Chancellor  
SIMATS

## Director's Message



**Dr. Ramya Deepak**

Director

SIMATS Engineering, SIMATS, Chennai.

Greetings to all!

The world is experiencing a surge of innovation that is transforming economies and lifestyles across various sectors such as technology, energy, finance, education, communication, and space. Breakthroughs in research are driving progress in countless fields, reshaping societies, economies, and the lives of individuals. In this context, instilling a culture of research and innovation in the younger generation is essential. It helps develop critical thinkers, problem solvers, and future leaders capable of spearheading further advancements. Encouraging this mindset from an early age ensures young people acquire the skills, knowledge, and outlook needed to navigate and influence an ever-evolving world.

The International Conference on Recent Innovation in Multi-Disciplinary Research (ICRIMR 2025) will serve as an exceptional platform for global researchers to contribute innovative ideas that have been pivotal in shaping national progress. By uniting experts from various fields, the conference aims to promote collaboration, share knowledge, and inspire fresh perspectives to tackle complex global issues. I appreciate Saveetha College of Liberal Arts and

Sciences for organizing this conference in collaboration with Westford University College, Sharjah, Dubai, and ESN Publications, India. This initiative promises to facilitate meaningful academic exchanges.

I congratulate the Department of Computational Intelligence for hosting this event and offering participants a diverse experience. I wish the entire team great success in all future endeavours.

**Dr. Ramya Deepak**  
**Director**  
**SIMATS**

## Principal's Message



**Dr. Gunita Arun Chandhok**  
Principal

Saveetha College of Liberal Arts and Sciences, SIMATS

Warm Greetings to one and all!

Saveetha College of Liberal Arts and Sciences has consistently promoted a culture of research and innovation within the academic community. I am thrilled that the Department of Computational Intelligence is organizing the The International Conference on Recent Innovation in Multi-Disciplinary Research (ICRIMR 2025) set take place from 12<sup>th</sup> August to 13<sup>th</sup> August 2025, in association with Jawaharlal Nehru Rajeekya Mahavidyalaya, Govt College, Sri Vijaya Puram, Andaman. This conference will offer a valuable platform for researchers from diverse countries and cultural backgrounds to collaborate on addressing global challenges. Such international cooperation will not only elevate the quality and breadth of research but also ensure the development of solutions that are inclusive and adaptable across different contexts.

The event will demonstrate how research can be applied to real-world problems, influencing policies and practices that improve societal well-being, sustainability, and economic growth. By identifying emerging trends and gaps in existing research, the conference will also help shape the future research agenda, guiding scholars towards new frontiers and innovative methodologies that could lead to groundbreaking discoveries.

The cutting-edge developments and interdisciplinary achievements showcased at the conference will influence the future of research and development, setting the stage for transformative solutions and innovations. As experts from various fields come together to share knowledge, the collaborative energy generated will spark new ideas that go beyond traditional boundaries, creating a remarkable journey of intellectual exploration. Let us seize this opportunity to innovate, inspire, and make a lasting impact on the world. Let this conference serve as a beacon of inspiration and a catalyst for future collaborations and discoveries. I wish you all a fruitful and enlightening experience.

**Dr Gunita Arun Chandhok**  
**Principal**  
**Saveetha College of Liberal Arts and Sciences**

## Convenor's Message



**Dr. R. Jayakarthik**  
Professor & HoD

Saveetha College of Liberal Arts and Sciences, SIMATS

Warm Greetings to all!

It gives me tremendous joy to greet you all for the The International Conference on Recent Innovation in Multi-Disciplinary Research (ICRIMR 2025) is scheduled on 12<sup>th</sup> & 13<sup>th</sup> August 2025 in Jawaharlal Nehru Rajeekya Mahavidyalaya, Govt College, Sri Vijaya Puram, Andaman. It is fair to conclude that this International Conference held at Jawaharlal Nehru Rajeekya Mahavidyalaya, Govt College, Sri Vijaya Puram, Andaman, was a great success. Many people have made numerous contributions to make this conference operate smoothly, with lots of informative presentations and an excellent environment for communicating and conversation. We thank the JNRM College for collaborating in securing the required administrative clearance. They provided all kinds of assistance to make this meeting feasible. We thank the

Westford University College administration for collaborating in securing the required administrative clearance to host the event on their university campus. They provided all kinds of assistance to make this meeting feasible. I am thankful to Dr. Ramya Deepak, Director, SIMATS Engineering, and Dr. Gunita Arun Chandhok, Principal, Saveetha College of Liberal Arts and Sciences, I am grateful to my faculty colleagues and nonteaching staff members for their unwavering guidance and support, which has given me a lot of enthusiasm. Thank you for helping to make this event successful. My appreciation to every author, reviewer, and session chair for their tremendous and excellent assistance. I hope that ICMRI will continue to expand in the upcoming years and have a greater influence on the global research community.

**Dr. R. Jayakarthik**  
**Professor & HoD**  
**Saveetha College of Liberal Arts and Sciences**  
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# APPLICATION OF CARBON NANOTUBES FOR THE EFFICIENT REMOVAL OF HEAVY METALS FROM WATER: A SUSTAINABLE APPROACH

*Raji V. R<sup>1</sup> Priyadharshini B<sup>2\*</sup> Lakshmi T S<sup>3</sup> Yogananth A<sup>4</sup> Sivakumar K<sup>5</sup> Nirmala R<sup>6</sup>*

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**Abstract:** Heavy metals are toxic, non-biodegradable environmental pollutants that pose significant risks to human health. The remediation of heavy metal-contaminated water and soil is an urgent concern from both environmental and public health perspectives. In recent years, nanomaterials have garnered considerable attention as promising adsorbents for heavy metal removal, owing to their high adsorption capacities, chemical reactivity, active surface sites, and eco-friendly characteristics. In this study, carbon nanotubes (CNTs) were employed for the removal of lead and chromium from aqueous solutions through batch adsorption experiments. The influence of various operational parameters—including contact time, pH, temperature, initial metal concentration, and adsorbent dosage—was systematically investigated. The results indicated that the optimal pH for adsorption was 6, and the adsorption capacity increased with rising temperature, suggesting an endothermic process. Additionally, the morphological characteristics of the CNTs were analysed using Scanning Electron Microscopy (SEM). Adsorption behaviour was further evaluated using both Langmuir and Freundlich isotherm models. The findings confirm that well-dispersed carbon nanotubes offer an effective and efficient solution for the removal of highly toxic heavy metals, even at low CNT concentrations.

**Keywords:** Carbon nanotubes, Aqueous solution, Lead, Chromium, Heavy metal, Environmental remediation

# Proceedings of Andaman International Conference on “Recent Innovations in Multidisciplinary Research (ICRIMR 2025)”

## About the Editors



Dr. Gunita Arun Chandhok is a distinguished academician with over 30 years of experience in the field of education. Currently serving as the founder Principal of Saveetha College of Liberal Arts and Sciences, (SIMATS).



Dr. H. K. Sharma with 28+ years in teaching and leadership, currently serves as Principal at Jawaharlal Nehru Rajkeeya Mahavidhyalaya, Port Blair, Andaman. Specializing in Polymer Chemistry and Conducting Polymers.



Dr. R. Jayakarthy is an esteemed Professor and the Head of the Department of Computer Science at Saveetha College of Liberal Arts and Sciences, (SIMATS).



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