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**International Conference on Recent Trends  
in Science, Engineering & Technology**

# **ICRTSET-2.0**

Organized by:

**Khandesh Bahuuddeshiya Sanstha's  
College of Engineering & Technology,  
North Maharashtra Knowledge City Jalgaon**

In association with  
**Conference World and IARDO**  
[www.iardo.com](http://www.iardo.com)

**15<sup>th</sup> October 2025**

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**ISBN: 978-93-48954-26-8**

**International Conference on Recent Trends  
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**ICRTSET-2.0**

**Editors**

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**PROF. J. G. PATIL**

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***Published By:***

*A.R. Research Publication*

## ***Preface***

Conference World and AR Research Publication is fast growing group of academicians in Engineering, Sciences and Management. AR Research Publication is also known for fast reply and zero error work. Conference world has organized a various conferences at renowned places namely Delhi University; New Delhi, Jawaharlal Nehru University; New Delhi, PHD Chamber of Commerce and Industry New Delhi, YMCA New Delhi, India International Centre New Delhi Sri Venkateswara college of Engineering and Technology, Andhra Pradesh, Dhananjay Mahadik Group of Institutions (BIMAT), Shivaji University, Maharashtra, Vedant Engineering Kota and many more places across the country.

We are very pleased to introduce the proceedings of the ***International Conference on Recent Trends in Science, Engineering and Technology*** [ICRTSET- 2.0] as for previous conferences, the theme was the link between the information provided by conference world and the use made of this information in assessing structural integrity. These were the issues addressed by the papers presented at the conference. The level of interest in the subject matter of the conference was maintained from previous events and over 57 Suitable papers were submitted for presentation at the conference.

Papers were well represented in the conference to arouse a high level of international interest. Three countries were represented in the final program from Europe, North America and Asia. In the event, the conference was highly successful. The presented papers maintained the high promise suggested by the written abstracts and the program was chaired in a professional and efficient way by the session chairmen who were selected for their international standing in the subject. The number of delegates was also highly gratifying, showing the high level of international interest in the subject. This is also indicated by the large number of countries, 01 represented by the delegates. This Proceeding provides the permanent record of what was presented. They indicate the state of development at the time of writing of all aspects of this important topic and will be invaluable to all workers in the field for that reason. Finally, it is appropriate that we record our thanks to our fellow members of the Technical Organizing Committee for encouraging participation from those areas. We are also indebted to those who served as chairmen, without their support, the conference could not have been the success that it was. We also acknowledge the authors themselves, without whose expert input there would have been no conference. Their efforts made a great contribution to its success.

## **About Conference**

The central motive of the International Conference is to throw up a number of new ideas and solutions to address the present-day challenges in the fields of Engineering, Economics, Computer Science, Management, Mathematics, and Social Science & Technology. The scope of the conference is broad and covers many aspects of international research prospective. This conference aims to provide a scholarly platform for participants to publish their research in reputed International Journals. The authors have incredible opportunity to present their research virtually and present findings worldwide that will not only help them gain the necessary exposure that they need to make their research work known in global scientific circles but also open the door to incredible opportunities for collaboration and conducting further research.

## **About College**

### **Vision**

- To become an institution of national repute that will create professionals with global competence, entrepreneurs with high motivation for the development of the society.

### **Mission**

- To impart quality education through comprehensive curriculum and effective Teaching-Learning Process.
- To enhance career opportunities through Institute-Industry collaboration.
- To promote Conducive Environment for Teaching Learning and overall personality development.
- To inculcate ethics, sense of discipline and responsibility towards society.

## **Quality Policy**

KBS's COET NMKC is dedicated to promoting leadership in technical education through the implementation of quality teaching and learning practices. The college is committed to providing students with quality education, aligning its efforts with the evolving needs of society. The emphasis is on imparting knowledge that is both theoretical and practical, contributing to the overall development of students. This commitment is reflected in the college's quality policy, focusing on leadership in technical education

## **Origin of the College**

"College of Engineering and Technology, North Maharashtra Knowledge City", established in the year 2011, aims at imparting higher & technical education to the people of the region. We look forward to produce new generation of Engineers who will work efficiently to make our society a developed one. The aim behind this college and the courses is to provide need based contemporary education. Keeping in mind that Education without the inculcation of values lacks in true character and substance, the institute has prepared the Ethics & Code of conduct for students and faculty members including professional ethics & social responsibilities. We focus not only to teach one Engineering but also to educate one as a value studded person for one lifetime.

We also conduct Teacher Guardian Scheme which could possibly be the unique relationship exercise, implemented by COET. NMKC. This in fact is student-oriented and the focus is on human touch. Under this program, our highly dedicated and experienced teachers take charge of 15 students each and act as their guardian-in-career by keeping track of every student's day-to-day activities and progress under their charge. The Guardian- Teacher operates as a Friend-Philosopher-Guide to offer students the necessary emotional support individually and collectively. The institute is approved by A.I.C.T.E., New Delhi recognized by Govt of Maharashtra, D.T.E. Code no. EN-5396 & Affiliated to Dr. Babasaheb Ambedkar Technical University, Lonare(M.S).

# International Conference on Recent Trends in Science, Engineering & Technology ICRTSET-2023

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Academic Coordinator.  
Co- Convener



Prof. K. S. Patil  
HOD, Electrical. Dept.  
Co- Convener

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## **Message from the President, KBS,S College of Engineering and Technology North Maharashtra Knowledge city**



I am delighted to extend my warmest greetings to each of you as we convene for the International Conference on Recent Trends in Science, Engineering, and Technology ICRTSET 2023 on 22nd December 2023 in the campus of KBS, S C.O.E.T. N.M.K.C. Jalgaon. It is an honor to host this distinguished gathering that brings together brilliant minds from across the globe to explore and exchange ideas on the latest advancements in these crucial fields.

In today's interconnected world, the pursuit of knowledge and innovation knows no borders. This conference serves as a testament to our collective commitment to fostering collaboration and sharing insights that propel us forward in the realms of science, engineering, and technology.

The challenges we face in the 21st century demand interdisciplinary solutions, and your presence here signifies a shared dedication to addressing these challenges head-on. As we navigate the complexities of our ever-evolving world, it is through platforms like this conference that we can leverage the power of collective intellect to pioneer breakthroughs that will shape the future.

I extend my deepest gratitude to the organizers, sponsors, and participants for their tireless efforts in making this conference a reality. Your dedication to advancing knowledge and fostering collaboration is truly commendable.

May this conference be a source of inspiration, a catalyst for collaboration, and a beacon of progress in the ever-evolving landscape of science, engineering, and technology.

Wishing you all a fruitful and enriching experience.

Sincerely,

**Prof. R.V Patil  
President  
KBS, S COET NMKC Jalgaon**

## Principal Message



Dear Participants, Speakers, and Distinguished Guests, As the Principal of, KBS'S COET NMKC Jalgaon, it is with great pleasure and a sense of accomplishment that I extend my heartfelt gratitude to all of you who contributed to the success of the International Conference on Recent Trends in Science, Engineering, and Technology (ICRTSET 2023).

The conference served as a melting pot of ideas, innovation, and academic excellence. Witnessing the enthusiastic participation and the exchange of knowledge among esteemed researchers, scholars, and professionals was truly inspiring. It is a testament to the commitment and passion that drive advancements in the realms of science, engineering, and technology.

I extend my sincere appreciation to the conference organizers, the dedicated committee members, the keynote speakers, and every participant who contributed to the seamless execution and success of ICRTSET 2023. Your hard work and commitment to scholarly excellence did not go unnoticed.

As we reflect on the achievements of this conference, let us carry forward the momentum generated during ICRTSET 2023. The research presented and connections made have the potential to influence the future trajectory of scientific and technological advancements.

I encourage you all to stay connected, continue the conversations, and explore opportunities for collaborative research. The relationships forged during this conference have the potential to shape the future of our academic and professional endeavors.

Once again, thank you for your invaluable contributions, and I look forward to witnessing the continued impact of the ideas and collaborations sparked at ICRTSET 2023.

**Dr. S.P. Ahirrao**  
**Principal,**  
**KBS'S COET NMKC Jalgaon**

## Convener ICRTSET 2023



It is with immense pleasure and gratitude that I extend my sincere appreciation for your active involvement and contributions to the International Conference on Recent Trends in Science, Engineering, and Technology (ICRTSET 2023).

Our conference was a tremendous success, thanks to the dedication, enthusiasm, and scholarly excellence demonstrated by each of you. The collaborative atmosphere fostered during this event

I extend my deepest gratitude to the organizing committee, volunteers, sponsors, and everyone who played a role in making ICRTSET 2023 a resounding success. Your dedication and hard work have contributed to the positive impact of this conference.

As we conclude this chapter, let us carry the spirit of collaboration, learning, and innovation into our ongoing work. The connections forged and knowledge shared during ICRTSET 2023 serve as a foundation for future advancements and breakthroughs.

Once again, thank you for your valuable contributions, and I look forward to our paths crossing again in future academic and professional endeavors.

Best Regards,

**Prof. D.G. Pardeshi**  
**Convener, ICRTSET 2023**  
**HOD Civil Engg. Dept.**

## Editorial....



As the Editorial Team, we are delighted to extend our heartfelt appreciation to all contributors and participants who made the International Conference on Recent Trends in Science, Engineering, and Technology (ICRTSET 2023) a resounding success.



The conference showcased an impressive array of research papers, presentations, and discussions that reflected the depth and diversity of contemporary research in science, engineering, and technology. We extend our sincere congratulations to all authors whose work enriched the conference proceedings.

We extend our sincere thanks to the organizing committee, conference chairs, and all volunteers who worked tirelessly to orchestrate a seamless and enriching conference experience. Your dedication to ensuring the success of ICRTSET 2023 has not gone unnoticed.

As we celebrate the success of ICRTSET 2023, we encourage authors and participants to consider the conference proceedings as a starting point for continued research and collaboration. The dissemination of your work will undoubtedly contribute to the advancement of knowledge in our fields.

We look forward to staying connected with you through future conferences, publications, and academic endeavors. Your commitment to advancing the frontiers of science, engineering, and technology is truly commendable.

Once again, thank you for your contributions and we eagerly anticipate witnessing the ongoing impact of the research presented at ICRTSET 2023.

Best Regards,

**Prof. S. R. Kolhe**  
**Academic Coordinator.**  
**Co- Convener**

**Prof. K. S. Patil**  
**HOD, Electrical Dept.**  
**Co- Convener**

## **EDITOR'S DESK**

It's a great deem that KBS's C.O.E.T. N.M.K.C., Jalgaon commences an **International Conference on Recent Trends in Science, Engineering and Technology [ICRTSET-2023]**. Undeniably, it is an incomparable panorama for budding aspirants to present ostentatiously and demonstrate their innate adroitness that specify their proficiency and adeptness. With a gleesome note, we have obtained almost 102 **Papers** for the **Conference across India** which became difficult on account of time constraints and space limitation, we could not publish all the papers. I am in high spirits that that not only KBS's C.O.E.T. N.M.K.C students divulged their proficiency, but also scholars from different areas projected their exuberant skills in the conference. With this, **International Conference** scholarly personalities share their expertise knowledge to young technocrats where they procure enormous information and awareness related to recent trends in order to meet the industry requirements and fulfill its demands. It was very tough for us to select the best among the best papers. This **International Conference** creates innovation ideations in young minds to seed a thought of startups and inculcates entrepreneurial skills. Being **the Principal, Patron, Convener and Editor** selected the papers on various technologies. I feel it's a proud moment and privilege to organize the **International Conference on 22<sup>nd</sup> of December 2023**. We are very much thankful to **Ms. Reshu Gupta**, the **CEO of Conference World** who came forward to associate with us. A special thanks to the **Delegates** for supporting and accepting the **hybrid mode both online and offline participation**. Lastly, exceptional thanks to **AR Research Publications too**.

I wish this **International Conference** blooms and unseals the ignorance of knowledge and braces to kindle the latest knowhow and develops to prowess in all aspects. I am very much elated that the endeavours of the **Convener, Prof. Durgesh G. Pardeshi, Co-Conveners, Keynote Speakers, National Advisory Board, International Advisory Board, Organizing Committee, Faculty, Students of KBS's C.O.E.T. N.M.K.C** for their persistent and strenuous work to conduct the **International Conference**, in an overwhelming manner.

**Published by**

**AR Research Publication,**

3/186 Santpura Govindpuri Modinagar- 201201. Dist: Ghaziabad

International Conference on Recent Trends in Science, Engineering & Technology,

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AR Research Publication (India)

ISBN: 978-93-48954-26-8

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