

**2nd International Conference On
Recent Trends in Civil Engineering, Science
and Management**

ICRTCSM-2024

Organized By:



GURU GOBIND SINGH FOUNDATION'S

**GURU GOBIND SINGH COLLEGE OF
ENGINEERING & RESEARCH CENTRE, NASHIK**

(APPROVED BY AICTE, GOVT OF MAHARASHTRA S DTE MUMBAI, AFFILIATED TO SAVITRIBAI PHULE PUNE

UNIVERSITY NAAC ACCREDITATION FIRST CYCLE 'B+' WITH CGPA 2.72 IN

APRIL 2019. DNV-GL CERTIFIED FOR ISO 9001 2015 STANDARDS)

Mechanical Engineering Department Accredited by NBA

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**2nd International Conference On
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Conference Sponsor

Editors

**Mrs. Pallavi A Padalkar
Dr. Vishvanath N Kanthe
Mrs. Tejashri A Kulkarni**

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Preface

Guru Gobind Singh College of Engineering and Research Centre, Nashik is one of the best technical institutions in Nashik. The college is affiliated with Savitribai Phule Pune University, Pune offers four-year degree courses in Artificial Intelligence and Data Science, Automation and Robotics, Civil, Computer, Mechanical and Electrical Engineering incepted by the foundation in the year 2013-14. The college has a very strong Industry Institute Partnership Cell for the skill development of the students on various value addition courses in association with industries like Siemens India and Bosch. 1st International Conference on Recent Trends in Civil Engineering, Science and Management (ICCSM-17)” was organized in the year 2017, in association with Conference World and AR Research Publication a fast-growing group of academicians in Engineering, Sciences, and Management. A R Research Publication is also known for its fast reply and zero-error work. The conference world has organized various conferences at renowned places namely Delhi University; New Delhi, Jawaharlal Nehru University; New Delhi, Ph. D Chamber of Commerce and Industry New Delhi, YMCA New Delhi, India International Centre New Delhi, Sri Venkateswara College of Engineering and Technology, Andhra Pradesh, Vedant Engineering Kota and many more places across the country.

We are very pleased to introduce the proceedings of the 2nd International Conference on Recent Trends in Civil Engineering, Science and Management were 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 50 suitable papers were submitted for presentation at the conference.

Papers were well represented at the conference to arouse a high level of international interest. The presented papers maintained the high promise suggested by the written abstracts. The program was chaired professionally and efficiently by the session chairmen also highly gratifying, showing a high level of interest in the subject. This Proceeding provides a 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 authors 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 the Conference

The "2nd International Conference on Recent Trends in Civil Engineering, Science, and Management" aims to provide a platform for researchers, professionals, and academicians to discuss and share the latest advancements in civil engineering, scientific developments, and effective management strategies. The conference will facilitate the exchange of knowledge, ideas, and innovations to promote sustainable and efficient practices in the field. Topics may include emerging technologies, project management methodologies, and interdisciplinary approaches that contribute to the overall progress of civil engineering and its associated sciences. Participants can expect insightful presentations, collaborative discussions, and networking opportunities to foster collaboration and promote advancements in the industry.

About IARDO

International Association of Research and Developed Organization (IARDO) is a leading organization in the field of academic research activities under the banner of India Educational Charitable Trust (Regd).

International Association of Research and Developed Organization (IARDO) is an apex body that promotes and encourages commendable achievements from all over the country. The organization under conference world regularly organizes national and International level conferences with the help of its members to promote socially responsible education practices and sustainable development in economic as well social front in India.

About the College

Guru Gobind Singh Foundation was established in the year 1978, by prominent and illustrious Sikh residents of Nasik, as worthy followers of the great saint soldier “Guru Gobind Singh”. The foundation set upon itself the aim of imparting high-quality education with cultural activities, ethics, and social commitment to students. Education at GGSF has never been a business venture, but a noble profession. We believe that dedication, hard work, and professionalism invariably produce positive results.

A magnum opus campus of 12 acres, houses 3 Institutes, Guru Gobind Singh Public School, Guru Gobind Singh Polytechnic, and Guru Gobind Singh College of Engineering & Research Centre with Ultra-Modern Infrastructure and a Green Campus.

All Institutes are equipped with state and art Laboratories for Students to pursue educational and creative activities for the overall development of their personalities.

Guru Gobind Singh College of Engineering and Research Centre, Nashik is one of the best technical institutions in Nashik city. The college ranks 62nd across India and is positioned in the GOLD Band Institution of Excellence category. The institute follows green practices and, hence has received an appreciation Certificate from E-Yantran as a collection center. GCOERC, Nashik is the Gold Award Winner for the year 2023-24. This award was honored to the college for its in-campus Safety and Security (Academia) at the iNFRA Work Excellence Conference and Awards in Mumbai. Many awards in the cap such as Rural Youth Leadership Award and Engineering Education Excellence Award – 2015.

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Dr. Neelkanth G. Nikam,
Principal GCOERC, Nashik



Dr. V. M. Natraj
HOD (CE)

Message from Patron

Greetings to all the distinguished guests, esteemed researchers, academicians, industry experts, and delegates attending the 2nd International Conference on Recent Trends in Civil Engineering, Science and Management ICRTCSM-2024. We take immense pleasure in welcoming you to this prestigious event organized by the Department of Civil Engineering.

It is with great excitement and honor that we hoist this conference, which brings together brilliant ideas on the discussion panel. ICRTCSM-2024 brings together young minds, researchers, and experts in the fields of Civil Engineering, Science, and Management. This conference fosters researchers and scholars to lead their ideas to strengthen the nation. We are thrilled to be a part of this national movement and to facilitate the exchange of ideas and experiences.

We extend our heartfelt gratitude to the organizers, sponsors, and supporters of this event for their efforts and contributions. We hope that the 2nd International Conference on Recent Trends in Civil Engineering, Science and Management ICRTCSM-2024 will yield valuable insights.

Once again we welcome you all to Guru Gobind Singh College of Engineering & Research Centre, Nashik.

Dr. Neelkanth G. Nikam,
Principal GCOERC, Nashik

Dr. V. M. Natraj
HOD (CE)



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Mrs. Pallavi A. Padalkar



Dr. Vishvanath N. Kanthe

Assistant Professor, Conference Convener

Message from Conveners

We are delighted to welcome all the esteemed participant authors, researchers, scholars, experts, and distinguished guests to this prestigious event. It is indeed an honor to convene this **2nd International Conference on Recent Trends in Civil Engineering, Science and Management "ICRTCSM-2024" from 28th March 2024 to 30th March 2024.**

Through this conference, we aim to present a platform to young and budding engineers, and research scholars for fruitful discussions, present and share their expertise, and research findings in the fields of Civil Engineering, Science, and Management and give them exposure to industrial culture.

Furthermore, the conference provides an opportunity to build strong networks and partnerships, for a collective journey towards a sustainable future.

We would like to express our sincere gratitude to our organizing committee, sponsors, and volunteers for their tireless efforts.

Last but not least, we would like to express our appreciation to all the presenters whose research, will be a valuable insight, ensuring the success of the conference.

We wish you all a productive and memorable conference experience. Let us all pave the way for a sustainable use of science and technology with all management techniques.

Mrs. Pallavi A. Padalkar

Dr. Vishvanath N. Kanthe