



JAIPUR ENGINEERING COLLEGE  
AND RESEARCH CENTRE

# National Conference on Emerging Trends in Civil Engineering for Sustainable Development



**Organized By**  
Department of Civil Engineering,  
Jaipur Engineering college and research centre, Jaipur.

**Dr. Krishan Kumar Saini (Convenor)**  
**Dr. Ajay Sharma (Co-Convenor)**  
**Mr. Hetram Sharma (Organizing Secretary)**  
**Mr. Yogesh Kumar Agarwal (Organizing Secretary)**  
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**Mr. Pradeep Kumar Jain (Organizing Secretary)**



**NATIONAL CONFERENCE ON  
EMERGING TRENDS IN  
CIVIL ENGINEERING  
FOR SUSTAINABLE DEVELOPMENT**

**Editors**

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Mr. Teekam Singh, Mr. Pradeep Kumar Jain**

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JAI PUR ENGINEERING COLLEGE  
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**Shri O.P. Agrawal**  
(Chairman)

I am happy to note that the Department of civil Engineering of JECRC, Jaipur is organizing a two-day National Conference on “Emerging Trends in Civil Engineering for Sustainable Development” **NCETCESD-2024**. The conference would be another milestone in the academic trajectory of JECRC.

Our future and sustained growth depends on the innovations of scientists and engineers. The contributions and innovative ideas to be presented in the conference will certainly benefit the participants.

Jaipur is known for its rich cultural heritage which I am sure will be an ideal venue for such an intellectual interaction.

I wish to extend my good wishes for the success of the conference.

**O.P. Agrawal**



JAI PUR ENGINEERING COLLEGE  
AND RESEARCH CENTRE



**Shri Amit Agrawal**  
(Director)

It gives me great pleasure to welcome you all in National Conference on “Emerging Trends in Civil Engineering for Sustainable Development” **NCETCESD-2024**, Jaipur. The vision of JECRC is to foster research and technological innovations which lays the foundation of Industrial growth of the country in a globally competitive environment. We reaffirm our commitment of providing well informed professionals ready to assume their responsibilities in society. Such interactions expedite technological innovations. The drastic changes in engineering sciences have accelerated the need for skilled human resource development in all fields especially technology.

I sincerely thank the keynote speakers, the participants and the core team members who have worked hard to make this event a success.

**Amit Agrawal**



JAI PUR ENGINEERING COLLEGE  
AND RESEARCH CENTRE



**Shri Arpit Agrawal**  
(Director)

Welcome to all the participants in National Conference on “Emerging Trends in Civil Engineering for Sustainable Development” **NCETCESD-2024**. The overwhelming response to the Conference received from participants of various institutions of higher learning across the different parts of the country motivates us to improve ourselves.

We are currently in the era of engineering revolution, spearheaded by recent developments in engineering sciences, providing sustainable solutions to various issues in different areas. The deliberations in different tracks of the conference will highlight the current developments in the field of Civil Engineering that shall create awareness about the dynamics of the Engineering Sciences.

I extend my best wishes for the success of the conference and I am confident that the interaction will be a source of inspiration to upcoming educationists, technocrats, academia who shoulder the responsibility of bringing in the desired innovations in their fields leading to the advancement of the country.

**Arpit Agrawal**



JAIPUR ENGINEERING COLLEGE  
AND RESEARCH CENTRE



**Prof. V.K. Chandna**  
(Principal)

It is gratifying to note that the Department of Civil Engineering of JECRC are hosting a two-day National Conference on “Emerging Trends in Civil Engineering for Sustainable Development” **NCETCESD-2024**. Nowadays, organizing such technical conference provides a platform where the researchers can expose their ideas of their research concern. They may also be able to listen and get aware of the recent trends in research and education in a particular field of their interest in the education of invited lectures from different subject experts.

I am confident that the conference shall benefit all the participants in finding the solutions of their research problems through discussion.

I also convey my best wishes & greetings to all the participating delegates and wish the conference a great success.

**Dr. V. K. Chandna**





JAIPUR ENGINEERING COLLEGE  
AND RESEARCH CENTRE



**Dr. Krishan Kumar Saini**  
(HOD- CE)

I am glad to write few words on the occasion of the 5<sup>th</sup> national conference on "Emerging trends in Civil Engineering for Sustainable Development" organized on 08-09 May 2024.

This Conference provided the opportunity for enhancing the knowledge and awareness about latest trends and research in the field of civil engineering globally. Leading academicians, researchers and industry personals exchanged and shared their experience and research findings in the area of Civil Engineering. Various students and researchers presented their research papers. It became possible by combined efforts of many academicians, researchers and industry personals.

I express my heartfelt thanks to the Management for their consistent and unending support. I also extend my gratitude to Prof. V.K. Chandna, Principal, Jaipur Engineering College & research centre for his endless mentoring and untiring efforts to motivate to organize the Conference at such a large level.

I am also grateful to invited speakers, sponsors, members of the advisory and organizing committees, all my colleagues in the Civil Engineering Department, student volunteers and media persons and all others who have contributed to the successful organization of the Conference.

**Dr. Krishan Kumar Saini**

## **PREFACE**

For a society to develop, it is necessary to have a vision, the ability to see what lies ahead, as well as the knowledge of various impediments in the present and of the means to arrive at a better future. The world around us is dramatically changing. It is becoming more and more interconnected through technology. Changing global conditions demand that we rethink the strategies of growth, and research is a tool to understand reality in order to make it a better living experience. Every walk of life is enriched due to research. It was scientific innovation that brought about the invention of a steam engine at a primitive level, thereby, making life easy at a click in the digital world. Research in its manifold pattern lays its foundation in diverse fields of Civil Engineering.

This conference will provide a unique opportunity of presenting and discussing emerging Trends for sustainable development in civil Engineering and make the bridge between academia and industries. The conference consists of scientific session, symposia on specific topics and paper presentation. A Group of experts will have chance to share information and get in touch with other groups.

We gratefully acknowledge the encouragement and support of the Management showing their faith in us to convene this conference. We are also thankful to Prof. V.K. Chandna, Principal for his valuable guidance at every step we needed in organizing the Conference. our wholehearted thanks to the reviewers, invited speakers, members of the advisory and organizing committees, student volunteers and media persons and all others who have contributed in the successful organization of the Conference.

## **About The Department**

### **Civil Engineering**

#### ***Vision:***

To produce competent and professional Civil Engineers for the sustainable development of the society.

#### ***Mission:***

M1. To provide outcome based education and promoting research aptitude.

M2. To create a learning environment conducive to industrial requirements.

M3. To inculcate the pedagogy of continues learning, ethical values and social responsibility.

Department of Civil Engineering is one of the major activities in the engineering profession and its principles are involved in the design, development and construction of nearly all of the physical devices and systems. The Civil Engineering department of JECRC has highly qualified faculty members. The department aims at providing basic knowledge in Civil Engineering along with in-depth knowledge in the design civil components and practical applications to overcome the challenges of modern day industry and its commitment to produce knowledgeable and responsible Civil Engineers. Continuing student development programs and training/ workshops are being organized on a regular basis. Students of the department are actively participating in various extracurricular and extension activities.

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- Geo-technical Engineering
- Earthquake Engineering
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