

# 2<sup>nd</sup> International Conference

on

## INNOVATIVE TRENDS IN ENGINEERING FOR SUSTAINABILITY (ICITES-2021)

Theme: SUSTAINABLE INFRASTRUCTURE DEVELOPMENT

JANUARY 9 - 11, 2021

(VIRTUAL CONFERENCE)



*Jointly organized by*



DEPARTMENT OF CIVIL ENGINEERING  
NBA ACCREDITED UG PROGRAMME (UPTO 2023)

&

ODESSA STATE ACADEMY OF CIVIL  
ENGINEERING AND ARCHITECTURE,  
ODESSA, UKRAINE



**Our Knowledge Partners**



**In Association with**





## **About the Conference, ICITES 2021**

Department of Civil Engineering, Toc H Institute of Science & Technology (TIST), Arakkunnam, Kerala, is organizing its second **International Conference on Innovative Trends in Engineering for Sustainability (ICITES-2021)** with the theme **'Sustainable Infrastructure Development'** jointly with Odessa State Academy of Civil Engineering and Architecture, Odessa, Ukraine. The knowledge partners are SEERAM (Society for Environment Education Research and Management), Rebuild Kerala (a Kerala Government initiative) and UNAI (United Nations Academic Impact) SDG Hub as knowledge partners. The themes and subthemes of the conference are based on the United Nations Sustainable Development Goals (UN – SDGs) related to various aspects of life on Earth. Sustainable infrastructure symbolizes the creation and/or existence of structural elements complementing the social, economic and energy-efficient practices to maintain the equilibrium of ecological systems. It encloses a vivid range of initiatives with a special focus on energy, water and land management, smart technologies and the use of sustainable, durable materials, from a holistic viewpoint based on global and domestic sustainable development goals. This conference aims to bring together Researchers, Engineers, Scientists, Academicians and Industrial Professionals from around the globe and provide a common platform to share and exchange their research results and developmental activities in engineering technology for sustainability. ICITES-2021 is unique in itself highlighting and linking the SDGs of UNAI with emerging trends in engineering for sustainable development. This platform will give the delegates the opportunity to share their experiences and establish research relations for future research collaborations in the field of sustainable developments.

## **About TIST**

Toc H Institute of Science and Technology (TIST), established in 2002, embellished with dynamic management, diligent and dedicated faculty and promising cream of the student community, is today a name to reckon with among the comity of Engineering Colleges in Kerala, making giant strides in all engineering branches and management studies. The college offers nine graduate and seven post graduate programmes. Toc H, a pioneer in education, offers blended learning programs combining on-line learning through virtual classrooms, world-class learning materials, ensuring holistic development, thereby serving as an active growth-driver and home to a diverse community of innovators and entrepreneurs. Toc H is affiliated to APJ Abdul Kalam Technological University, Kerala, India and approved by the All India Council for Technical Education (AICTE), New Delhi and Government of Kerala. TIST is accredited by NAAC (National Assessment and Accreditation Council) with NBA (National Board of Accreditation) accredited UG programs (CE, CSE, ECE & ME) and ISO 9001:2015 Certification which ensure top-quality learning environment.

## **About Department of Civil Engineering**

The Department of Civil Engineering, TIST (Estd. 2006) offers Under Graduate course B.Tech in Civil Engineering (NBA accredited upto 2023) and Post Graduate course M.Tech in Construction Engineering and Management. The department continues to conquer new frontiers of knowledge through quality research work, Conferences, QIP and FDP programs for enhancing the Teaching Learning process and moulds the students to be change agents with high professionalism, ethics and sustainability in addition to the curriculum objectives. The department is in close association with Institution of Engineers (IE), Indian Society for Technical Education (ISTE) and has an active student chapter of Indian Concrete Institute (ICI) and Indian Green Building Council (IGBC). The design wing "Rachana" of the department takes up research and consultancy work to offer technical advisory support to various leading organizations like KMRL, Naval base, STICON, PWD etc. The department also undertakes the socially relevant projects like Rebuild Kerala Initiative through which students learn humanitarian concept and their duties towards the society. The department focuses on emerging as a center of excellence in the field of cost-effective green building materials.

## **About ODESSA State Academy of Civil Engineering and Architecture**

Odessa State Academy of Civil Engineering and Architecture (Odessa, Ukraine) is a modern educational and scientific center for training young people. It started its activities in 1930. Presently, the Academy trains more than 4000 students in bachelors and master degrees, with more than 505 faculty members. Academy has 36 departments, 5 research schools and 8 modern scientific laboratories. The academy trains economists, architects, designers and civil engineering in various specialties for the construction industries such as architecture, construction and civil engineering, machine-building industry, production of building materials, economy, geodesy and land management. Each direction offers several specialties to choose from.

Training is provided by 5 institutes: Architecture and Fine Art Institute, Institute of Civil Engineering, Construction Technology Institute, Institute of Hydraulic Engineering and Civil Engineers, Educational and Scientific Institute of Business and Information Technology.

The Academy also contributes to the evolution of the state's educational, social, and economic needs. Academy works closely with local and regional development programs and has strong relation with local and foreign building companies and enterprises. Presently the academy has flourished with more than 20 departments at these enterprises.

## **About SEERAM**

Society for Environment Education Research And Management" (SEERAM) founded in the year 1995 is a Non-Governmental Organization. SEERAM has expertise in environment education, research and awareness, water conservation project, EIA and is one of the most leading Environmental Service Advisors in Pune. Their ultimate focus remains on the "Environmental Sustainability Practices" by way of reducing emissions, preventing pollution and waste, and optimizing the energy use. SEERAM also aims towards creating Social Entrepreneurs, who would collaborate with the change makers, stewarding the model which addresses the existence and flourishing of a society, tending to evolve rapidly and support the circular economy.

## **About Rebuild Kerala**

The Rebuild Kerala Initiative presents a unique approach to rebuild the state after recent floods. The Government established the Rebuild Kerala Initiative (RKI) to "bring about a perceptible change in the lives and livelihoods of its citizens by adopting higher standards of infrastructure for recovery and reconstruction and to build ecological and technical safeguards so that the restructured assets could better withstand floods in the future". The implementation approach is to execute activities through competent agencies with a detailed project document and with proper timeline. The Project Management Unit (PMU) constituted as part of the RKI, looks after LSGDs in a sustainable manner.

## **Vision of the Department**

To transform into a centre creating change agents in civil engineering with professional competency, integrity and ethical values for serving the society with the highest level of proficiency through their chosen domain.

## **Mission of the Department**

1. Provide ambience to create civil engineers of global standards to serve the society collaboratively, competently and ethically.
2. To provide an academic environment for lifelong learning nurturing the skills in research and development for the benefit of all stakeholders.
3. To include professionalism in students through team work, effective communication and leadership skills.
4. To encourage and empower the faculty in the field of engineering education and mentoring for enhancing the teaching - learning process.
5. To impart hands on experience to aspiring undergraduates through interdisciplinary research projects, industrial training and consultancy work.



# THEMES & SUB-THEMES

## Good Health and Well being

Solid Waste Management  
Air Quality Management  
Chemical Substances  
Consumer Safety  
Nitrogen Pollution  
Ozone Depletion  
Indoor Air Quality  
Respiratory Diseases  
Atmospheric Pollution  
Waste Disposals  
Plastic Waste Management  
Disaster Prevention & Universal Design  
Disaster Management  
Hazardous Substances & Detection Techniques

## Clean Water and Sanitation

Waste Water Management  
Drinking Water Quality  
Sustainable Water Management  
Water Quality and Water Resources  
Bio Hazards

## Affordable and Clean Energy

Energy Efficiency in Buildings  
Energy Efficiency in Industry Sector  
Energy Efficient Transportation/ Vehicles  
Energy Efficiency in Power Generation & Distribution  
Energy Efficiency by Controlled Human Behavior  
Green Building Literacy  
Conservation of Renewable and Non Renewable Energies  
Assessments of Habits and Energy Efficiency  
Sustainable Technologies for Energy Efficiency  
Sustainable Energy  
Carbon Footprint Analysis  
Urban Energy Resilience  
Smart Energy Systems  
Clean Technologies  
Environmental Benefits of Conserving Energy

## Industry Innovation and Infrastructure

Zero-Carbon & Low Energy Housing  
Smart and Bioclimatic Architecture  
Low Cost Building  
Sustainable Construction Materials, Systems & Technologies  
Green House Gas Emissions  
Environment Friendly Buildings  
Ecosystem and Building Construction  
Eco-Friendly Materials  
Emerging Sustainable Technologies in Pavement Engineering  
Sustainable Transport Planning  
Sustainable Traffic Management  
Sustainable Construction Technologies in Transportation  
Sustainable Public Transport  
Intelligent Transport Systems  
Transportation for Disaster Resilience  
Improvement of Highway Capacity  
Vulnerability Assessment of Transport Systems

Studies on Heterogeneous and Weak Lane Discipline Traffic  
Macroscopic Traffic Flow Modeling  
Rural Road Development  
Vulnerability Assessment of Infrastructure for Natural Hazards  
Environmental Analysis of a Building with Reused Building Materials

## Sustainable Cities and Communities

Sustainable Site Management and Planning  
Land Use and Ecology  
Urban Infrastructure Planning  
Traffic and Transportation Planning  
Planning Legislation  
Socio Economic Dimensions of Planning  
Urban Development Models  
Urban Management  
Integration of Different Modes of Transport  
Integrated Land Use  
Upgradation Strategies for Urban Development  
Assessment of Diversities in Urban Development  
Place Attachment and Public Participation in Urban Planning  
Smart Urban Planning  
Earthquake Hazards and its Mitigation  
Application of GIS in Urban Change/ Monitoring

## Climate Action

Climate Impact from Construction Processes  
Climate Impact from Roads and Railways  
Sustainable Infrastructures to Fight Climate Change  
Green Construction Practices  
Strategies to Promote Construction with Low Climate Change Impact  
Climate Resilient Infrastructure  
Climate Adaption  
Climate and Carbon Emissions  
Climate Policy Assessment  
Climatic Change in Natural Environments  
Global Health in Change in Climate.  
Climatic Change and Water Security  
Habitat Changes due to Climatic Change  
Carbon Capture and Storage  
Climate Change after Demolition of Buildings  
Environmental Impact Assessment on Demolition Site

## Life below Water

Water Related Hazards  
Coastal Zone Management using GIS  
Application of GIS in Atmosphere/ Oceanography  
Impact of Offshore Structures on Environment

## Life on Land

Role of Impact Assessment in Transitioning to Green Economy  
Impact Assessment and Management Through Technological Advancements  
Impact of Hydroelectric Projects on Environment  
Environmental Impact of Demolished Building Waste  
Demolished Building Waste Management  
Assessment of Potential Hazards of Demolishing Operation  
Application of GIS in Global Change on Environmental Applications  
Application of GIS in Agriculture, Vegetation and Crops  
GIS Application in Resource Management



# ICITES 2021 COMMITTEE

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South India, Technical Services, Ultra Tech Cement Ltd., India

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**Er. Ganesh K**, Head of Section, Bridges, L&T Infrastructure Engineering  
Ltd., Chennai, India

**Dr. Sahila Beegum**, USDA, USA

## Organizing Chair :

**Prof. Lathi Karthi**

HOD, Department of Civil Engineering, TIST

**Prof. Anatolii Kovrov**

Odessa State Academy of Civil Engineering and Architecture, Ukraine

## Organizing Secretary :

**Assoc. Prof. (Dr.) Vasudev R**, Department of Civil Engineering, TIST

**Assoc. Prof. (Dr.) Smitha K K**, Department of Civil Engineering, TIST

**Asst. Prof. Anju Paul**, Department of Civil Engineering, TIST

**Assoc. Prof. Oleg Popov**, Odessa State Academy of Civil Engineering  
and Architecture, Ukraine

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**Asst. Prof. Annie Sonia Xavier**

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**Asst. Prof. Elba Helen George**

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**Asst. Prof. Vidya Jose**

**Asst. Prof. Anjaly M**

**Asst. Prof. Tellma John**

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**Dr. K Balan (Retd.)**, College of Engineering, Trivandrum, Kerala, India

**Dr. Sanu Jacob**, Director, Food, Safety & Standards Authority of India,  
New Delhi, India

**Dr. Mangesh Kashyap**, President, SEERAM, India

**Dr. Suresh K**, Amrita School of Arts and Sciences, Kerala, India

**Dr. R N Uma**, SRPC, Coimbatore, India

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**Er. Jithin A Shaji**, Project Control Lead, Jacobs Engineering, UAE

**Er. Aravind Viswanathan**, Senior Project Consultant, Ernst & Young LLP,  
New Delhi, India

**Er. Veena Tarlana**, DPR Construction, California, USA

**Er. Sneha Raj**, Superstructures, New York, USA

**Er. Jibin Joseph**, Purdue University, USA

**Er. Anu V V**, Technical Universität, Berlin



## Important Dates

Full Paper Submission

5<sup>th</sup> Dec 2020

Intimation of Acceptance

20<sup>th</sup> Dec 2020

Registration Deadline

4<sup>th</sup> Jan 2021

## Registration

Category		Registration Fee	Publication Fee
National	Industries	Rs.2000	Rs.1000
	Academicians/ Faculty/ R&D Organizations	Rs.1500	Rs.1000
	Ph.D. Scholars	Rs.1250	Rs.1000
	PG Scholars	Rs.1000	Rs.1000
	UG Scholars	Rs.750	Rs.1000
Foreign	Academicians/ Faculty/ R&D Organizations	\$120	
	Industries	\$120	
	Students	\$120	

**Selected papers shall be published in UGC approved journal or “Environment Observer” of SEERAM.** The best paper selected under each theme shall be published free of cost in the journal.

For registration and submissions, visit <https://sites.google.com/view/icites2021>

## Conference Venue

Conference shall be held online, hosted by the Department of Civil Engineering, Toc H Institute of Science & Technology

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# KEYNOTE SPEAKERS



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