



DEPARTMENT OF CIVIL ENGINEERING

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

ROORKEE - 247 667 (UTTARAKHAND) INDIA

E-Newsletter

Vol. 6

Jan-Jun 2023



FROM THE HoD's DESK



Dear All,

It gives me immense pleasure to present before you the activities of the department from Jan 2023 to Jun 2023 through the sixth issue of e-newsletter of the department. I hope that you will find this newsletter informative, and it will provide us the opportunity to know more about the department. It is a humble attempt to stay connected with us electronically.

Thanks
Prof. Praveen Kumar

ACHIEVEMENTS IN BRIEF

1. 10 numbers of Research Projects were sanctioned at a total cost of ₹526.56 Lacs
2. A total of 11 students were awarded their Ph.D. degrees.
3. Faculties have published 50 Research Publications in peer-reviewed journals.
4. 477 numbers of Consultancy projects from various government agencies and private organizations were carried out at total value of ₹2912.58 Lacs
5. 1 new faculty member joined the department as Assistant Professor.
6. 40 numbers of faculties have attended International & National Conferences.

AWARDS AND RECOGNITIONS (FACULTY)

 <p>Prof. B. R. Gurjar Appointed as Director of National Institute of Technical Teachers Training and Research (NITTTR), Chandigarh.</p>	 <p>Prof. R. D. Garg Appointed as Dean of International Relations and Alumni Affairs (DoRA) IIT Roorkee.</p>
<p>Prof. Kamal Jain Elected unopposed for the position of the Vice President of the Executive Council of the Indian Society of Geomatics for the term 2023-2026.</p> 	
 <p>Prof. A. A. Kazmi Renominated as Co-opted Member of the Committee for the Formulation of Guidelines and Standards for Ground Water Recharge using Treated Waste Water, Department of Water Resources, RD and GR Central Ground Water Authority, Ministry of Jal Shakti, Government of India.</p>	
<p>Prof. Satish Chandra Selected for the S.R. Mehra Memorial Award 2022 of IIT Roorkee 2022. This is a very competitive and prestigious award, carrying a cash prize of Rs. 50,000/-.</p> 	
 <p>Prof. C. S. P. Ojha Took part as Panelist in Panel Discussion: Advancing New Methods for the Treatment of Climate Change and Extreme Events a session on climate change adaptation in World Environmental and Water Resources Congress at Las Vegas, USA, May 21 - 24, 2023.</p> <ul style="list-style-type: none"> • Appointed as Member of EWRI Water Supply, Treatment and Distribution Committee, ASCE. • Appointed as Guest Editor for special issue "Sustainable Water Resources Management and Water Supply", Sustainability Journal. • Appointed as Vice Chairman of ASCE Task Committee on Intermittent Water Distribution Systems. 	
 <p>Prof. Anumita Mishra Nominated to represent the Indian Geotechnical Society (IGS) as a Corresponding Member of the International Technical Committee TC-215 on "Environmental Geotechnics" of the International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE) for the term 2022-2025.</p>	 <p>Prof. Akanksha Tyagi Nominated to represent the Indian Geotechnical Society (IGS) on the International Technical Committee TC-307 on "Sustainability in Geotechnical Engineering" of the International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE) for the term 2022-2025.</p>
<p>Prof. Alok Bhardwaj Course Coordinator for the Post Graduate Certificate Program in Data Science and Machine Learning offered by Continuing Education Center, IITR, and TimesPro. It is 11 months online program offered to teach industry professionals about various aspects of AI and ML including statistical thinking, exploratory data analysis, essential mathematics for DS and ML, text analytics and programming with TensorFlow.</p> 	
 <p>Prof. Satyendra Mittal Attended 8th International Conference on Civil, Structural, and Transportation Engineering (ICCSTE'23) in University of Carleton Ottawa, Canada during June 4-6, 2023. He delivered a keynote address: "Hill Slope Erosion due to River Meandering and its Retrofitting - A Case Study". His paper was selected for Best Paper Award at the conference. Prof. Mittal also chaired 2 technical sessions in this conference. He also visited the Department of Civil engineering at the University of Carleton, Ottawa.</p>	

PATENTS PUBLISHED/FILED



Prof. G. D. Ransinchung R. N., Dr. Ankit Sharma and Prof. Praveen Kumar, have published a patent titled : "A method for determination of performance grade of unmodified asphalt binder using rheometer".

Prof. Saurav Das, Mr. Sonu Yadav, **Prof. Rajib Chowdhury** and Prof. S. B. Singh, have published a patent titled : "A cold rolled bainitic steel with high strength and high elongation".



Prof. Rahul Dev Garg and Dr. Neerav Sharma have published a patent titled : "An enhanced advanced driver assistance systems (ADAS) based real-time transportation safety system and method through IoT and deep learning".

Prof. Amit Agarwal, Mr. M. Ikhlakh, and Mr. Sumit Mishra have published a patent titled : "A system for wireless traffic signal control based on crowd-sourced data".



Prof. Rajib Chowdhury, Prof. Anupam Chakrabarti and Mr. Praveen Verma have filed a patent titled : "Process for valorization of ground granulated blast furnace slag for synthesis of calcium silicate hydrate as a pre-formed hardening accelerator for early strength gain in concrete".

Prof. Rahul Dev Garg and Mr. Mayank Sharma have filed a patent titled : "Optimal neighborhood selection for geometric parameters extraction for aerial and terrestrial lidar data classification".



Prof. Satyendra Mittal and Mr. Arpit Jain have filed a patent titled : "Development of micro air pluviator for the preparation of reconstituted specimens in triaxial compression tests".

AWARDS AND NOMINATIONS (STUDENTS)



Ms. Eshta Ranyal, a Ph.D. student working under the supervision of Prof. Kamal Jain, Geomatics Engineering Group, was awarded the "Shastri Best Research Paper Award (SBRPA 2022-23)" under the STEM category for the work carried out during the project undertaken under SICI-MITACS Globalink Research Award in Canada.

Ms. Pritipadmaja, a PhD student working under the supervision of Prof. Rahul Dev Garg, Geomatics Engineering Group, was selected for an IIT Tirupati Navavishkar (NAV) I-Hub Foundation (ITTNiF) - Google Earth Engine (NAV-i-GEE) Research Program. She will work on a fully funded project "Mapping the Heat Sensitivity of Indian Cities: Identifying Drivers and Indicators" using Google Earth Engine for six months under the mentorship of the Council on Energy, Environment, and Water.



Ms. Vipasha Sharma, a Ph.D. student working under the supervision of Prof. S. K. Ghosh, Geomatics Engineering Group, was awarded a (TIF) travel grant of 1500 USD by ISPRS Foundation to present research work titled "A proposed framework for surveillance of dengue disease and prediction" at 39th ISRSE, Antalya, Turkey during April 24-28, 2023.

- **Mr. Anurag Tomar**, a PhD student working under the supervision of Prof. Absar Ahmad Kazmi, Environmental Engineering Group, was awarded the Best Poster Award by Prof. K. K. Pant, Director, IIT Roorkee, during the Institute Research Day held on March 14, 2023, at IIT Roorkee.
- Awarded the Best Pitch Award in the SPARC-funded INDO-US 2-day workshop on "CIRCULAR SOLUTIONS TO SANITATION-MAKING PROFIT FROM TOILETS " conducted by the TAURI (Translating and Accelerating University Research and Innovation) research group, IIT Madras, March 29 - 30, 2023.
- Awarded the Best Poster Award by Prof. K. K. Pant, Director, IIT Roorkee, Mr. Kamal Virendra Singh (Plant Head, Adani Cement), and Dean SRIC during the Uttarakhand Udyog Mahotsav (UKUM), held during March 18-20, 2023.
- Awarded the Best Poster Award at the International Conference on Solid Waste Hong Kong (ICSWHK-2023): Waste Management in the Circular Economy and Climate Resilience, which was held in Hong Kong from May 31 - June 3, 2023.





Mr. Sahil Kundal a Ph.D. student working under the supervision of Prof. Alok Bhardwaj, Geomatics Engineering Group, was awarded a travel Grant of 1000 USD by SPIE, the International Society for Optics and Photonics, to present the research work entitled "GeoBIA-based semi-automated landslide detection using UAS data: A case study of Uttarakhand Himalayas" at Future Sensing Technologies 2023 conference held at Pacifico Yokohama, Japan April 18-20, 2023.

Mr. Vishal Mishra a Ph.D. student working under the supervision of Prof. Kamal Jain, Geomatics Engineering Group, has received the Prestigious Helmholtz Visiting Researcher Grant by HIDA in Germany to spend a research stay from April 10 - July 9, 2023 at Deutsches GeoForschungsZentrum GFZ in Prof. Dr. Mahdi Motagh's group.



Mr. Ravi Verma a Ph.D. student working under the supervision of Prof. P. K. Garg, Geomatics Engineering Group, was selected as one of the 14 CHAMPIONS among 5151 participants (award money of Rs 5000/-) in the IIT Bombay FOSSEE Mapathon, 2023, A pan-India mapping competition held between February 22 to May 06, 2023.

- **Mr. Chandra Has Singh** a Ph.D. student working under the supervision of Prof. Kamal Jain, Geomatics Engineering Group, Department of Civil Engineering was awarded the prestigious HIDA Visiting Fellowship from the Helmholtz Institute of Data Science and Analytics, funded by the German Government This grants him the opportunity to work at the renowned Helmholtz-Centre Potsdam - German Research Centre GFZ in Germany.
- Awarded the prestigious Mitacs Globalink Research Award an incredible honor in the field of Unmanned Aerial Vehicle based research.



Mr. Saurav Kumar B. Tech. Civil Engineering has secured AIR-1 in Gate 2023 Examination in Geomatics Engineering.

Following B. Tech. Civil Engineering students have been awarded HoD's Letter of Appreciation for having the highest increase in SGPA in Autumn Semester 21- 22, Spring 21-22, and Autumn 22-23.



Mr. Raghvendra Kumar



Mr. Ashok Kumar Meena



Mr. Pintesh Kumar Meghwal



Mr. Vivek Mohan



Mr. Palash Bhatnagar



Mr. Anirudh Verma



Mr. Vansh Gupta



Mr. Ayush Diwang

JOINING OF NEW FACULTY



Dr. Abhishek joined as Assistant Professor on March 10, 2023. He has carried out his doctoral research from Tokyo Institute of Technology (Tokyo Tech) in 2022. He earned his Master's degree in 2019 and Bachelor's degree in 2017 from the Indian Institute of Technology Roorkee. Thereafter, he pursued his post-doctoral research at the Indian Institute of Science (IISc) Bangalore in 2023. His areas of interest are Global and regional hydrological cycle, Groundwater and sustainability, GRACE terrestrial water storage, Remote sensing and machine learning methods, Identification of hydro-climatic extremes, and Precipitation extremes, uncertainty quantification, adaptation, and mitigation.

RESEARCH PROJECTS AWARDED

Name of the Principal Investigator/ Co- PI	Research Project	Sponsoring Agency	Amount (₹ Lacs)
 Prof. Akanksha Tyagi	Reliability-Based Design of Tunnels in Anisotropic Spatially Variable Residual Soil Slopes.	Science & Engineering Research Board (SERB), New Delhi	23.28
 Prof. Anjaneya Dixit	Maximizing carbon sequestration in cement-based constructions through material innovation and additive manufacturing	DST, Govt. of India	74.50
	Investigating the potential of slags for carbon sequestration under low CO ₂ concentration and subsequent use in concrete.	Faculty Initiation Grant, IIT Roorkee	20.00
 Prof. Nikhil Saboo (PI)  Prof. Praveen Kumar (Co-PI)	Development of damage prediction based mechanistic empirical pavement design guidelines for India	Ministry of Road Transport and Highways, Government of India, New Delhi	180.19
 Prof. Rajib Chowdhury	Development of a design-through-analysis isogeometric module in FEAST: Towards structural analysis and optimization.	VSSC - ISRO, Kerala	15.31
 Prof. Satish Chandra	Impact of Speed Limit on Capacity and Safety of a Road	Ministry of Road Transport and Highways, Government of India, New Delhi	32.58
 Prof. Sudipta Sarkar	Ion Exchange Driven Direct Carbon Capture and Sequestration System (IXDCCS)	United States-India Science & Technology Endowment Fund (USISTEF)	50.00
 Prof. Siddhartha Khare	AI-Based Geo-Enabled Crop Insurance and Farm Equipment Renting Solutions under BhoomiCam Pvt Ltd. Startup	TBI scheme of IIT Bhilai Innovation And Technology Foundation (IBITF)	76.10
	Development of forest phenology model using Near Surface (PhenoCam and UAV) and Satellite Remote Sensing Data in Western Himalayan region	SAC-ISRO, Ahmedabad	34.60
	Multi-Scale Precision Agriculture by Combining PhenoCam, UAV and Satellite data in Semi-Arid Region of India	Faculty Initiation Grant, IIT Roorkee	20.00

EVENTS:

WORKSHOPS/CONFERENCES/SHORT TERM COURSES

Hands-on Training on Advance Surveying Instruments "Karyashala": January 1 - 11, 2023

INDIAN INSTITUTE OF TECHNOLOGY, ROORKEE

Karyashala / कार्यशाला

Hands-on Training on Advance Surveying Instruments
(Digital Level, Total Station, GPS, Terrestrial Laser Scanner, Drone/UAV and Gravimeter)

(1 - 11) January 2023

About the Workshop

This Karyashala intends to familiarize young generation researchers with high-end Modern Surveying Instruments in order to apply this knowledge in real-world scenarios & open new opportunities in Geospatial domain

The Course Instructors include experts from Geomatics Engineering Discipline of IIT Roorkee, Foreign universities & Scientific institutions.

Who can attend

M.Tech & Ph.D. students studying or working in the application areas of Geomatics, GIS, and Remote Sensing

The candidate who has completed their Ph.D. will not be considered

- No Application Fees
- Free Accommodation
- Free Food
- Travel Allowance included
- Number of seats: 25 (15 Ph.D. + 10 PG)

Application starts: 5 Nov 2022
Application deadline: 20 Nov 2022
Result announcement: 28 Nov 2022

Apply Now | <https://forms.gle/AGU5WZ46UE1NDL8A>
Upload your Resume in the given Link
(Selection will be based on merit)

Speakers

P.K. Gang, S.K. Ghosh, Kamal Jain, B.D. Gang, J.K. Ghosh, Ashu Bhargava, Sarabjit Vijay, Siddhartha Khare

Organiser

Dr. Siddhartha Khare
Assistant Professor
Geomatics Engineering,
Civil Engineering Department,
IIT Roorkee

The Karyashala with title "Hands on Training on Advance Surveying Instruments" (Digital Level, Total Station, GPS, Terrestrial Laser Scanner, Drone/UAV and Gravimeter) was organized by IIT Roorkee. This Karyashala was intended to familiarize young generation researchers with high-end Modern Surveying Instruments in order to apply this knowledge in real world scenarios and open new opportunities in Geospatial domain. The Course instructors include experts from Geomatics Engineering Group, Department of Civil Engineering, IIT Roorkee, foreign universities and scientific institutions. The organiser of this event was **Dr. Siddhartha Khare, Assistant Professor, Department of Civil Engineering, IIT Roorkee.**

5th 15 - Days Road Safety Assistance Certification Course: February 20 - March 6, 2023

5th 15-days Road Safety Auditors Certification Course in association with the Ministry of Road Transport & Highways (MoRTH) and Indian Roads Congress (IRC) was held between 20th February and 6th March 2023 with **Prof. Indrajit Ghosh** as the **coordinator** and **Prof. Amit Agarwal, Prof. Pushpa Choudhary, Prof. Sanhita Das** and **Prof. Nikhil Saboo** as **Co-coordinators**. This course was attended by 36 professionals and field engineers from different government and private organizations across India. Mr. S. K. Nirmal, Secretary General, Indian Roads Congress was present as the Chief Guest in the Inaugural Ceremony.



29 lectures were delivered by industry experts, renowned road safety professionals, and academicians during the first 8 days, followed by 3-days of site visits. The mandatory site visits for the Road Safety Auditors Certification course were held in the plain as well as hilly terrains. The locations are near Roorkee and Rishikesh. This is the first kind of Road Safety Auditors Certification course in India, in which site visits were conducted on hilly road stretches. Submitted reports and presentations were evaluated by a certified Road Safety Auditor.

GIAN Course on "Flow and Contaminant Transport through Subsurface": February 20 - 24, 2023



The GIAN (Global Initiative of Academic Networks) course on "Flow and Contaminant Transport through Subsurface" was organized by the Department of Civil Engineering, Indian Institute of Technology Roorkee, during February 20-24, 2023, under the aegis of Ministry of Education, Government of India.

Prof. Rao S. Govindaraju, Course Instructor and Foreign Expert, Purdue University, USA; **Prof. Pramod Kumar Sharma and Prof. K. S. Hari Prasad, Course coordinators, IIT Roorkee;** and **Prof. Priti Maheshwari, GIAN course local coordinator,** provided valuable insights of the GIAN course and addressed the current and future research in the Subsurface Contamination of Water, need for the creation of dialogue among stakeholders, develop new skills for early career researchers and the need to optimal use of water, especially subsurface water in urban as well as rural areas to make a sustainable future making it one the goals of United Nations 17 SDGs.

The course was attended by 38 participants from different parts of India, including faculties, experts, early career researchers and students. During the course, various mathematical and numerical methods were described including the efficacy of modelling groundwater flow and contaminant transport, hydraulics laboratory visits and various fruitful interactions with the experts. The Course Instructor, Prof. Rao S. Govindaraju; Local Coordinator, Prof. Priti Maheshwari and Course Coordinators Prof. Pramod Kumar Sharma and Prof. K. S. Hari Prasad, summarized the 5-day activities and appreciated the team effort and support of different departments, which led to the success of the GIAN course. The valedictory session ended with a vote of thanks presented by Prof. K. S. Hari Prasad.

Training on "Remote Sensing and GIS Technology for Environmental Monitoring, Planning and Management": March 16 - 18, 2023



A Training program on "Remote Sensing and GIS Applications in Environmental Mapping, Monitorings and Management" was organised by the Department of Civil Engineering, IIT Roorkee by **Prof. P. K. Garg and Prof. R. D. Garg**. The program was sponsored by the Central Pollution Control Board, New Delhi, and was attended by 20 participants from various regional offices. The participants were given a wide spectrum of coverage by Experts from Roorkee, IIRS, Dehradun, USAC, Dehradun, and ESRI India, along with the demo on latest GPS, Terrestrial Laser Scanner, Drone and Remote Sensing & GIS Software from various Industries.

World Water Day: March 23, 2023



World Water Day - 2023 has been celebrated jointly by Civil Engineering Department and NIH Roorkee on Wednesday, March 22, 2023. The event was graced by **Shri Mahendra Modi (Retd. IPS), Advisor for Water Conservation UP Government; Prof. Praveen Kumar, Head, CED; Prof. K. S. Hari Prasad; Prof. M. L. Sharma, Dean Finance & Planning; Dr. M. K. Goel, Scientist "G", NIH, Roorkee; Prof. Sudipta Sarkar**. The theme of World Water Day 2023 was "Accelerating change to solve the water and sanitation crisis".

The event started by a welcome address by Prof. Praveen Kumar, Head of Civil Engineering Department. All the dignitaries released the publication on "Accelerating change to solve the water and sanitation crisis". Chief Guest Shri Mahendra Modi (Retd. IPS) delivered a technical talk on the occasion and felicitations of Chief Guest were done by Prof. M. L. Sharma, Dean F&P. The event was attended by a large number of faculty members and students.



Online Seminar on "Design and Execution of Deep Vibro Techniques - A Contractor's Perspective": March 31, 2023

Industry expert webinar on "Design and Execution Of Deep Vibro Techniques - A Contractor's Perspective" was delivered by Selvaganesh Selvaraju, Deputy Design Manager, Keller Singapore, on March 31, 2023. The online lecture was organised by **Prof. Akanksha Tyagi, Department of Civil Engineering**, under the aegis of IGS Roorkee Student Chapter. The talk gave an overview of contractor's perspective on two important ground improvement techniques, namely the vibro compaction and vibro stone columns. Important aspects regarding selection of the techniques in foundation projects catering to the soil condition, designing and testing of deep vibro techniques solution were presented. Case studies were also presented to demonstrate the successful applications of the techniques and highlighted the sustainability benefits of the deep vibro techniques solution over conventional foundation solutions.

43rd Training Course on "New Technologies Including FDR" under Pradhan Mantri Gram Sadak Yojana: June 1- 3, 2023



The 43rd Training Course on New Technologies including FDR under Pradhan Mantri Gram Sadak Yojana Sponsored by Rural Engineering Department, Uttar Pradesh and organized by the Civil Engineering Department, IIT Roorkee, at Continuing Education Center, IIT Roorkee during June 1-3, 2023. The valedictory function was graced by the **Honourable Director, Prof. K. K. Pant, IIT Roorkee, Prof. Praveen Kumar, Head, CED & Course Coordinator, Prof. Kaushik Ghosh, Coordinator CEC and Prof. G. D. Ransinchung, R. N., Professor, CED.**



1827
IIT ROORKEE

Training Course NEW TECHNOLOGIES INCLUDING FDR JUNE 1 - 3, 2023

Sponsored by :- Rural Engineering Department, Uttar Pradesh

Organised by :- Civil Engineering Department, Indian Institute of Technology Roorkee
AT Continuing Education Center, Indian Institute of Technology Roorkee



GUEST LECTURES/AWARD CEREMONIES

Guest Lecture by Padam Shree Dr. B.K.S. Sanjay: January 17, 2023



Padam Shree Dr. B. K. S. Sanjay, famous Orthopedic surgeon of Dehradun visited Civil Engg. Deptt. on Jan 17 2023 and delivered a lecture on "Road Safety". This program was organized under the auspices of Road Safety week, celebrated all over the country. He was escorted by Dr. Gaurav Sanjay also. The program started by a welcome address by Prof. Praveen Kumar, Head CED and vote of thanks was professed by Prof. Satyendra Mittal, Convener of SAC.

After the programme **Prof. K. K. Pant, Director IITR** also felicitated the speaker in Director's Office and presented him mementoes of 175 years celebrations of IITR. The program was attended by more than 250 persons across IIT campus comprising of faculty members and students.

"Geospatial Lecture Series" Lecture 4: February 09, 2023

Fourth lecture of Geospatial Lecture Series was delivered by **Shri Sunil Kumar Deputy Surveyor General, IFoS, Surveyor General of India & Joint Secretary, Department of Science & Technology, Govt. of India** on February 09, 2022 in Conference Room of Department of Civil Engineering, IIT Roorkee. The title of his lecture was "National Geo-Spatial Policy 2022: Creating Ambience for Startup Ecosystem in Geo-Spatial Field". Through this policy, the work of acquiring, processing and disseminating Geospatial Data has been liberalized and democratized, facilitating equal participation of the private sector in this field.

The restriction regime has been done away with and it has been replaced with benign negative attribute list. The policy will benefit diverse sectors of economy and significantly boost innovation in the country and greatly enhance the preparedness for emergency response. The geospatial technology and data will be agents of transformation for achieving Sustainable Development Goals (SDGs), bringing efficiency, accountability and transparency in all sectors of economy. The event was coordinated by **Prof. Jayanta Kumar Ghosh**.



Guest Lecture by Thomas Boving, Professor, The University of Rhode Island, USA : February 24, 2023



A Guest lecture was delivered by **Dr. Thomas Boving, Professor, The University of Rhode Island, USA Fulbright Scholar, IIT Roorkee** on the topic "HOW TO STOP POISONING OURSELVES PFAS: the deadly forever chemicals" in O. P. Jain Auditorium, Civil Engineering Department, IIT Roorkee on Feb 24, 2023.

2nd Prof. Bhawani Singh Memorial Lecture: March 13, 2023

Col. Deepak Patil, General Manager (Project), NHIDCL visited the Department of Civil Engineering, IIT Roorkee on March 13, 2023 to deliver the 2nd "Prof. Bhawani Singh Memorial Lecture" on the topic "Peculiarities of Tunnel Construction in Himalayan Geology: A Case Study on Silkyara Tunnel" **Prof. Praveen Kumar, Head Civil Engineering Department and Prof. Mahendra Singh** were also present there to grace the occasion. Prof. Aditya Singh presented him a memento as a token of appreciation at the end of lecture. The whole event was jointly organized by Indian Geotechnical Society Roorkee Chapter and Department of Civil Engineering IIT Roorkee.



FORTHCOMING EVENTS

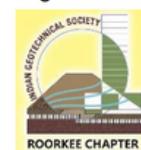
Indian Geotechnical Conference (IGC-2023): December 14-16, 2023

The Indian Geotechnical Conference IGC 2023 will be organized by IGS Roorkee Chapter in association with Indian Institute of Technology Roorkee and CSIR- Central Building Research Institute, Roorkee on **December 14-16, 2023**. The Roorkee Chapter of the Indian Geotechnical Society invites all individuals and organizations engaged in the advancement and novel applications of Geotechnical Engineering to share their experiences at the Indian Geotechnical Conference 2023. The Conference will be chaired by **Prof. N. K. Samadhiya, Prof. Mahendra Singh, and Prof. Satyendra Mittal, Department of Civil Engineering, IIT Roorkee**. The organizing secretaries of the conference are **Prof. V. A. Sawant, CED, IITR, Prof. R. S. Jakka, EQD, IITR, Prof. Kaustav Chatterjee, CED IITR, Prof. Anindya Pain, CSIR-CBRI**. Indian Geotechnical Society, Roorkee Chapter was established in 1972, with Prof. Dinesh Mohan, the then Director, Central Building Research Institute, as its founder Chairman. Subsequently, eminent geotechnical engineers headed this chapter and brought laurels to the entire geotechnical community. The IGS Roorkee chapter has always been active since its inception and contributing in the area of Geotechnical Engineering. IGS Roorkee chapter hosted the Indian Geotechnical Conferences in 1985, 2003 and 2013 respectively. The chapter has been again entrusted with the task of organizing IGC-2023 which will be organized in association with IIT Roorkee and CSIR-CBRI Roorkee. The theme of the conference is **"Geotechnical Advances in Sustainable Infrastructure Development and Risk Reduction"**.

INDIAN GEOTECHNICAL CONFERENCE IGC-2023 GEOTECHNICAL ADVANCES IN SUSTAINABLE INFRASTRUCTURE DEVELOPMENT AND RISK REDUCTION Dec 14,15 & 16, 2023



Organised by



IGS Roorkee Chapter

In Association with



International Conference on Geomatics in Civil Engineering (IGCE - 2024): March 14 -16, 2024

The Department of Civil Engineering is going to organize an **International Conference on Geomatics in Civil Engineering (IGCE - 2024)**. The theme of the conference is being chosen as **"GEOMATICS IN CIVIL ENGINEERING"**. The aim of this conference is to provide a platform to bring researchers and field engineers working on application of Geomatics engineering (surveying, photogrammetry, remote sensing, GIS, GPS) in civil engineering (structural engineering, geotechnical engineering, hydraulics & water resources engineering, environmental engineering, transportation engineering). The Organizing Secretary of this Conference is Prof. Jayanta Kumar Ghosh.

VISITORS



Prof. Venkatesh Marwade, Purdue University and Prof. Allan Bradley, University of IOWA made a visit to the Department of Civil Engineering, IIT Roorkee along with the students of Purdue University and had a delightful conversation with the students of IIT Roorkee during the Interaction meet held on January 04, 2023 between students of IIT Roorkee with Purdue University students and Faculty of civil engineering at Purdue University, University of IOWA.

Prof. Amit Srivastav, Senior Lecturer, The University of Adelaide, South Australia made a visit to the Department of Civil Engineering, IIT Roorkee on February 06, 2023 for an Exchange Programme organized by the Civil Engineering Department. In which he introduced opportunities to various engineering programs in The University of Adelaide and had a healthy interaction with students and faculty members.



Dr. Joanna Zawadzka, Research Fellow, Cranfield University, United Kingdom visited Department of Civil Engineering on March 03, 2023, She had a fruitful meeting with Head of Department Prof. Praveen Kumar. She interacted with research scholars of Geomatics Engineering Group which was followed by an expert lecture on "Specially explicit assessments of ecosystem services and biodiversity for urban and rural areas - state-of-the-art and opportunities for sustainable spatial planning". She greatly appreciated the research work of Geomatics Engineering Group.

Prof. Les Dawes, Head of the School of Civil and Environmental Engineering, Queensland University of Technology, Brisbane, Australia made a visit to Department of Civil Engineering, IIT Roorkee on April 18, 2023 as a part of Potential Collaboration between Queensland University of Technology, Brisbane and Indian Institute of Technology Roorkee



ALUMNI CONNECT

13 No.'s Civil Engineering Alumni Of 1980 Visited The Department And Shared Their Memories And Experiences With The Faculty Members Of The Department: January 20, 2023



9 No.'s Civil Engineering Silver Jubilee Alumni Of 1995 Visited The Department: March 12, 2023



INFRASTRUCTURE (NEW LABS & INSTRUMENTS)

Inauguration of Rejuvenated CAD Lab



The Department of Civil Engineering has recently rejuvenated its "Computer Aided Design (CAD) Laboratory". The laboratory was inaugurated by our honorable Chief guest, Prof. K. K. Pant Director, IIT Roorkee and Prof. Praveen Kumar, Head Civil Engineering Department on March 10, 2023. It could have been possible due to the dedication and untiring efforts of Prof. Amit Agarwal, Convener; Prof. Anumita Mishra & Prof. Sandipan Paul Members of CAD Lab Committee.

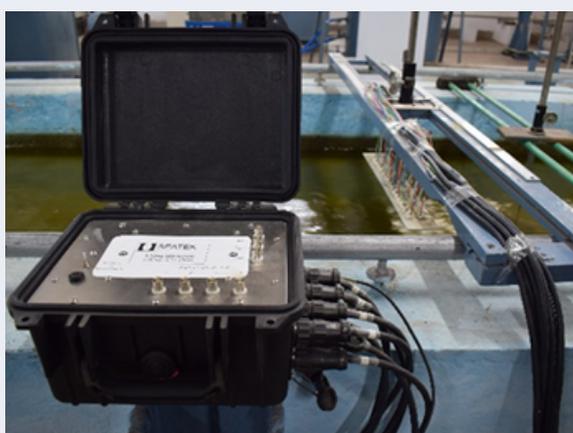
DLS Dynamic Light Scattering System Litesizer 500 (₹ 24.70 Lac)

This equipment has the facility to detect at angles for DLS measurements (side-, back-, or forward scattering) allow for optimal parameter settings. With the included automatic angle selection the instrument can define the most appropriate angle for your sample. It uses the versatile backscatter angle, which is ideal for turbid samples because it reduces multiple scattering events and enables optimal data quality. This allows for a complete analysis of a sample as the Litesizer series is able to resolve up to three different particle size classes within one measurement.



Litesizer 500 can perform zeta potential measurements via electrophoretic light scattering. The patented cmPALS technique (European Patent 2 735 870) allows highly sensitive measurements for meaningful results even at the lowest sample concentration, within significantly shorter measuring times and with minimized sample degradation. This is especially helpful for e.g. peptide solutions. Further, the unique Anton Paar Ω -shaped capillary of the zeta potential cuvettes creates a stable electric field exactly at the measurement position, resulting in highly reproducible zeta potential measurements.

Bed Profiler with 32 Transducers (₹ 23.80 Lac)



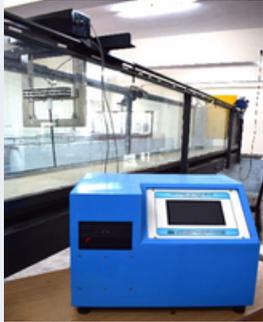
A typical system has the ability to sample up to 32 transducers. Custom arrays are designed to be mounted on a carriage and translated along the flume, thus enabling 3-D bottom profile measurements. The SeaTek ultrasonic ranging system is composed of 4, 8 element, stainless steel arrays, and an electronics package. The transducer spacing is 8 cm (center to center). All four arrays can be mounted to form a continuous 256 cm (8.4 feet) long array. The operating frequency of this system is 2 MHz. The electronics package has BNC inputs for 4 analog channels that can also be sampled during a data run. These analog channels are often used to log the X and Y position of the array during a run. The data is streamed back to a logging PC via RS232 serial communications and captured using supplied software.

The arrays can be mounted to form a continuous 32 inch long array. The operating frequency is 5 MHz. The system is capable of sampling all 32 transducers at a rate of 5 Hz. In addition to fixed arrays, individual transducers can also be used to form arrays. One of the advantages of individual transducers is that the transducer number and spacing can be changed to meet the specific requirements of a given laboratory setup. Above are some examples of individual transducers. Electronic packages can be built that will run up to 64 transducers. One of most popular and versatile transducer is the cylindrical transducer. These are housed in stainless steel housings and are 1 inch in height and 1/2 inch in diameter and are typically bundled four per cable. These custom transducers are so designed to be mounted on the end of threaded rods.

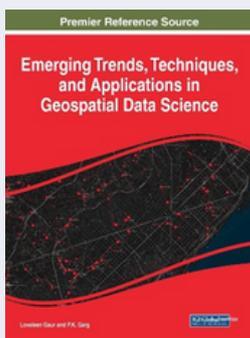
Connected Simulator Setup (₹ 164.72 Lac)



A connected simulator enables an experimental set-up where two or more road users can interactively drive/walk in the same road scenario, simultaneously. In the connected simulator set-up presently in IIT Roorkee, a pedestrian simulator, a two-wheeler simulator, and a four-wheeler and a bicycle simulator are connected to each other. The connected simulators can be operated individually or in a synchronized manner, making it one of most versatile kind of facilities in India. The Connected Simulator set-up is used for critically understanding the road user behaviour for enhancing road safety. Due to the lack of adequate simulation facilities, most of the existing studies pertaining to road users are based on either video-graphic or survey-based data, especially in India. Though broader knowledge on driving/walking behaviour may be gained through such observational arrangements, these set-ups lack in providing minute performance and gaze data which defines the intentions behind road users' decisions and actions. Experimental studies conducted using simulators can provide detailed data for understanding road user' intentions under each movement type and their decision capabilities against various traffic events without compromising their safety. However, the focus of the individual simulators remains on driving performance of the subject in different environments where the interacting entities remain pre-programed as per the experimental design. However, in the real-world, two or more individuals, who are interacting, influence each other's decision-making and driving/walking behaviour, therefore, the present Connected Simulator set-up can overcome these limitations and provide the most favorable means to study road user behaviour as well as testing the solutions to transportation problems in a comprehensive manner before implementing them in the field.

 <p>Wheel Rut Tester ₹ 8.02 lac</p>	 <p>Asphalt Pocker Chip Test Setup ₹ 2.48 lac</p>	 <p>Automatic Marshal Compactor ₹ 1.49 lac</p>	 <p>High Temperature Furnace ₹ 4.71 ac</p>
 <p>Vacuum Saturation Chamber ₹ 1.77 lac</p>	 <p>CSS Hydro Air Phase Meter ₹ 7.25 lac</p>	 <p>Gas Analyzer ₹ 4.95 lac</p>	 <p>Dual Channel pH ORP Rheometer ₹ 4.95 lac</p>

BOOK PUBLISHED



A book on **Emerging Trends, Techniques, and Applications in Geospatial Data Science** has been authored by Prof. P. K. Garg, Civil Engineering Department, IIT Roorkee. "This book provides an overview of basic concepts of data science, related tools & technologies, and algorithms for handling the relevant challenges in real-time applications domains. The book covers a detailed description to the readers with practical ideas of using AI, IoT, machine learning to deal with the analysis, modeling and predications from big data. This book comprises of topics which provides in depth understanding of various latest tools and techniques used in the analysis of geospatial big data for real-time applications, as well as to deal with the relevant challenges for future applications. Overall this book 'Emerging Trends, Techniques and Applications' in Geospatial Data Science', would help the readers to understand the value and importance of big data to individuals as well as homes and organizations. In addition, it will provide insights to undertake research work in future challenging areas.

FAREWELL



Mr. Pravin Ahuja (Senior Lab Assistant) in Environmental Engineering Lab has been retired on January 31, 2023. The Department Of Civil Engineering wished him a happy and healthy retirement life .

Mr. Anil Kumar (Senior Attendant) in Environmental Engineering Lab has been retired on January 31, 2023. The Department Of Civil Engineering wished him a happy and healthy retirement life .



Mr. Kamendra Sharma (Senior Attendant) in Structural Engineering Lab has been retired on March 31, 2023. The Department Of Civil Engineering wished him a happy and healthy retirement life .

OBITUARY



The Department expresses its sincere and heart felt condolence on the sad demise **Retd. Prof. Devendra Swaroop Bhargava** who left for his heavenly abode on May, 2023.



The Department expresses its sincere condolence to the family of **Retd. Prof. Pramod Kumar** who left for his heavenly abode on June 13, 2022. Prof. Pramod Kumar was born on March 21, 1967. He got his bachelor's degree from HBTI, Kanpur in 1989 and he earned his master's degree and PhD degree from the University of Roorkee with specialization in Environmental Engineering in 1992 and 1999 respectively. He joined as Asstt. Prof. in University of Roorkee on Aug 21, 2001 then he became Assoc. Prof. on Oct 23, 2012 and had taken Voluntary Retirement on Jan 01, 2022.

Editor

Prof. Praveen Kumar

Editorial Team

Prof. Akanksha Tyagi

Mr. Vikash Gupta, Mr. Prashant Singh

Mr. Nitin Kumar Sharma, Mr. Sanidhya Chaturvedi

Designed by:

Data Information Centre

CED, IIT Roorkee

+91-1332-286259