



175
YEARS OF
IIT ROORKEE
Estd. 1847

DEPARTMENT OF CIVIL ENGINEERING

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE
ROORKEE - 247 667 (UTTARAKHAND) INDIA



FROM THE HOD'S DESK



Dear Colleagues,

First of all, I want to put on record the good services rendered by Prof. S. K. Ghosh as Head, Civil Engg. Department editor of this e-newsletter. As editor, this is the first issue being published by me. I will try to utilize my experience of more than ten years as member of editorial board of Samvaad, the IITR Newsletter as well as IITR Annual Report. The purpose of the e-newsletter is to share the success story of various faculty members of the department with each other. Kindly come forward and send the write up of each activity of yourself to Data Information Centre (DIC). It will be an authentic documentation of your efforts. The next semester will be the culmination of the celebration of 175 years of existence of IIT Roorkee. Contribution of each one of us should be visible in this year.

Thanks

Prof. Praveen Kumar

ACHIEVEMENTS IN BRIEF

1. 08 Research projects were sanctioned at total cost of ₹ 783.89 lacs.
2. A total of 10 students were awarded their Ph.D. degrees.
3. The faculty published 25 Research Publications in peer reviewed journals.
4. 410 numbers of Consultancy projects from various government agencies and private organizations were carried out at total value of ₹2090.60 lacs
5. 4 new Faculty members joined the department as Assistant Professor.

RECOGNITIONS



Prof. Mahendra Singh
Chairman
Library Advisory
Committee (LAC)



Prof. A. A. Kazmi
Member
National Working
Group on (PHEE)
CPHEEO



Prof. Manoranjan Parida
Director
CSIR-CRRI, Delhi



Prof. Bhupinder Singh
Member,
Editorial Board Journal
"Low-carbon Materials
and Green Construction"



Prof. G. D. Ransinchung R. N.
International Member
Standing Committee,
(TRB)

AWARDS AND NOMINATIONS (FACULTY)



Prof. C. S. P. Ojha
"Best Practice-Oriented Paper Award-2022" by Environmental and Water Resources Institute(EWRI-ASCE), in Atlanta, Georgia.



Prof. Satyendra Mittal has been nominated as Associate Editor of International Journal of Geosynthetics and Ground Engineering (Springer Nature)



Prof. Satish Chandra has been nominated as Member of Programme Advisory Committee (PAC) by SERB, DST, Govt. of India.



Prof. Amit Agarwal has been selected as Outstanding Young Faculty for 2022. He will be awarded Institute Research Fellowship for three years.



Ms. Rashmi Choudhary, Ms. Sifti Ratra and Prof. Amit Agarwal have been awarded 1st Position in the Graphical Abstract competition under Data Science Symposium, Shastra, IIT Madras.



Mr. Harshit, Mr. Chandahas Singh, and Prof. Kamal Jain, UAV Swarm-based Victim Identification and Tracking using Deep Learning in Disaster and Public Safety Environments have been announced as third winner in IEEE IFT UAV Competition.





Prof. Bhupinder Singh, nominated to Technical Advisory Group (TAG) of the Udhampur-Srinagar rail link, a project of strategic national importance, monitored by the Prime Minister's Office (PMO). The project is being implemented by IRCON International Ltd. through Hindustan Construction Company (HCC) Ltd. I.R.C.O.N. is a P.S.U. working in the railway sector. dated Feb 22, 2022.



Prof. Saurabh Vijay has received funding of **approx ₹ 35-40 lacs** for a year from **iHUB Divya Sampark, IIT Roorkee**. The proposal is to develop a mobile/web application to provide asset monitoring support to the users using satellite remote sensing data. It will be used as a subscription based service.

PATENT



Prof. Sudipta Sarkar has been granted Indian patent for an invention entitled "A HYBRID IRON SULPHIDE IMPREGNATED ANION EXCHANGER (HISIIX) FOR SELECTIVE REMOVAL OF HEXAVALENT CHROMIUM FROM CONTAMINATED WATER". Indian Patent Number 393640 dated 30.03.2022.



Ms. Meena Kumari Sharma, Prof. A. A. Kazmi and Prof. Sudipta Sarkar has been granted patent for an invention entitled "UPFLOW SEPTIC TANK". Indian Patent Number 395747 dated 28.04.2022.



Prof. Sudipta Sarkar, Prof. Sonalisa Ray and Research Scholar Mr. Saikat Das has been granted patent for an invention entitled "A SYNTHESIS PROCESS FOR THE DEVELOPMENT OF CALCIUM SILICATE HYDRATE (C-S-H) BASED CONCRETE HARDENING ACCELERATOR". Indian Patent Number 397480 dated 24.05.2022.

AWARDS & NOMINATIONS (STUDENTS)



Mr. Kartikay Kaushik, B. Tech. Civil 2019 has secured 1st Rank in the Engineering Service Examination (ESE)-2021 conducted by UPSC.



Mr. Pawan Rawal, M.Tech (Transportation Engineering) has secured 23rd Rank, in the Engineering Service Examination (ESE)-2021 conducted by UPSC.



Mr. Varun Mishra, B. Tech. 3rd year student from Civil Engineering Group is selected for Mitacs Globalink Research Internships-2022 awards by Western University, London, Ontario, Canada.



Mr. Siddharth Yadav, B. Tech. 3rd year student from Civil Engineering Group is selected for Mitacs Globalink research Internships-2022 awards by Laval University, Quebec city, Quebec.



Mr. Siddharth Singh Baghel, B. Tech. 3rd year student from Civil Engineering Group is selected for Mitacs Globalink Research Internships-2022 awards by University of Victoria, Victoria, British Columbia.



Mr. Ravi Verma, Research Scholar, Geomatics Engineering Group under the supervision of Prof. P. K. Garg is awarded with Commonwealth Split-site Scholarship 2021- 2022 for a period of 1 Year from Feb 2022 to Feb 2023, under the guidance of Dr. Joanna Zawadzka at the Centre for Environmental and Agricultural Informatics, Cranfield University, United Kingdom. He is being provided a monthly stipend of £1133 per month, one-time To and Fro UK airfare, and also £600 as a study travel grant.



Mr. Prateek Tripathi, a Ph.D. Student working under the supervision of Prof. Rahul Dev Garg from Geomatics Engineering Group has been selected for the "**2022 Exploration Science Summer Intern Program**" hosted by Lunar and Planetary Institute (LPI), Houston and NASA, and sponsored by Universities Space Research Association (USRA). He will be visiting LPI from May to August, 2022 and has been involved in activities that support Artemis missions to the Moon, assessments of landing sites and traverse plans for multiple destinations that are responsive to NASA objectives.

Mr. Prateek Tripathi, had also awarded the **Lunar Planetary Institute's (LPI) Career Development Award 2022**. The award was given to Prateek for his very first type of work on Dhala and Ramgarh Impact craters in India at the 53rd Lunar and Planetary Science Conference (LPSC). As a part of this award, Prateek received funds of USD1250 to help cover his expenses for attending the hybrid conference. Prateek received this award from Dr. Lisa R. Gaddis, Director of Lunar and Planetary Institute, former Chief Scientist for the USGS Astrogeology Program, and NASA Planetary Cartography Research Program.



Mr. S.K.P. Kushwaha, Research Scholar (Geomatics Engineering) has been selected as ISPRS SC Board of Directors for the Newsletter Editor-in-Chief Position for 2022-2026.



Mr. Vijaya Kumar Thota, M.Tech. (Geomatics Engineering) has been selected for CoPREPARE Master Exchange Scholarship program to visit the University of Potsdam/GFZ during October 2022-March 2023.



Mr. Vishal Mishra, Research scholar, Geomatics Engineering Group, under the supervision of Prof. Kamal Jain has been awarded for securing the Third position for participating in Geo-Innovation Challenge organised by DTU-Delhi supported by Department of Science and Technology, Govt. of India under National Geospatial Program (NGP) for proposal on 'Web GIS-based Intelligent System for Trafficability Analysis'.

Mr. Vishal Mishra, has also been selected for Georgious Agricola Scholarship from VSB - Technical University of Ostrava (8000 CZK per month) for a research stay at VSB - Technical University of Ostrava.

Mr. Vishal Mishra, has been also awarded by the ISPRS Foundation (TIF) a cash travel grant of USD 900 and a fee waiver of € 350 for attending the prestigious ISPRS Congress in Nice, France.

JOINING OF NEW FACULTY



Dr. SANDIPAN PAUL joined as Assistant Professor on Jan 27, 2022. He has carried out his doctoral from Texas A&M University, Texas, USA & Master's studies from Indian Institute of Science, Bangalore and B. Tech. from Indian Institute of Engineering, Science and Technology, Shibpur. His areas of interest are Finite deformation elasticity and plasticity, Multiscale analysis of concrete and strain gradient theories, Geometric mechanics Chemically-induced damage and Characterization of material defects.



Dr. SIDDHARTHA KHARE joined as Assistant Professor on Feb 28, 2022. He has carried out his doctoral & Master's studies from Indian Institute of Technology, Roorkee and B. Tech. from Rajiv Gandhi Proudyogiki Vishwavidyalaya, Bhopal. Thereafter, he pursued his post-doctoral research at McGill University, Canada. His areas of interest are Remote Sensing, GIS, Phenology, Biodiversity, PhenoCam and Crop monitoring.



Dr. RAKESH RANJAN joined as Assistant Professor on Apr 18, 2022. He has carried out his doctoral study at the University of Waterloo, Ontario, Canada in 2019. He earned his Master's degree from the Indian Institute of Science (IISc) Bangalore in 2014 and Bachelor's degree in 2011 from Motilal Nehru National Institute of Technology Allahabad, Prayagraj. His area of interest are Fracture Mechanics, Fatigue Testing and Analysis, Rehabilitation of Structures, Analysis, Design, and Assessment of Metallic Structures, Bridge Engineering and Friction Stir Welded Joints, High Frequency Mechanical Impact Treatment.



Dr. ANJANEYA DIXIT joined as Assistant Professor on Jun 27, 2022. He has carried out his doctoral study at the National University of Singapore in August 2021. He earned his Master's degree from the Indian Institute of Technology Delhi in 2016 and Bachelor's degree in 2011 from Indian Institute of Technology (BHU), Varanasi. His area of Interest are Sustainable construction materials through waste valorization, Cement chemistry, Ultra-high performance concrete, Carbon storage in cementitious composites and industrial wastes, Structural health monitoring and Lightweight concrete.

APPLICATIONS DEVELOPED



Prof. Nikhil Saboo



Krishna Agarwal



Shubhank



Sanskar Gahoi



Anurag Yadav

A team of Undergraduate students (**Department of Civil Engineering, IIT Roorkee**), under the guidance of Prof. Nikhil Saboo, have developed an aggregate blending software, STAB 2.0. STAB, which stands for a **Simple Tool for Aggregate Blending**, can be used for proportioning of different aggregate stockpiles during the mix design of asphalt or concrete mixtures.

STAB 2.0 in its current form can be used to blend 2-5 stockpiles. One can find all the possible ways of blending the stockpiles to achieve the target gradation (as specified by the highway agency).









With an user friendly graphic user interface (GUI), STAB 2.0 is fast and has various options, for example the output can be saved as .csv file, solution can be viewed graphically, there are options to filter solutions by fixing one or more stockpiles to a predetermined proportion, and much more.

You may search the **link below** to download the folder containing **STAB 2.0. A mini guide** (.pdf) is also provided for easy use of the software (though the software is very easy to use). Few standard aggregate gradations specified as per **MoRTH, India**, are also included as default. However, **the tool can be used to solve aggregate blending problems for any specified gradation by the user**.

You are welcome to use this tool and give your feedback on its use. You may also share it with other colleagues who are involved in such a mix design process.

This is the LINK : <https://civil.iitr.ac.in/TEG/Software>

RESEARCH PROJECTS AWARDED

Name of the Principal Investigator	Research Project	Sponsoring Agency	Amount (₹ Lacs)
 Prof. A.A. Kazmi	Comprehensive characterization of variably processed sewage sludge in Ganga basin to classify its suitability for safe disposal	Central Pollution Control Board (CPCB)	58.11
 Prof. Nikhil Saboo	Utilization of Industrial Waste in Dense and Gap Graded Asphalt Mixes as Fillers	Department of Science and Technology (DST)	60.04
 Prof. Amit Agarwal	Advanced Transport Modeling and Simulation for National Highways in India under CATTs	IAHE (MoRTH)	495.00
 Prof. Z. Ahmad	Replenishment Study of Mahanadi and its Tributaries in Chhattisgarh State	Geology and Mining, Raipur, Chattisgarh	63.52
 Prof. Raja Chowdhury	Effects of Sludge modification on treatment efficiency of algae-based wastewater treatment: Batch and continuous study and sustainability assessment of the same as an emerging technology	SERB (CRG) - DST	32.00
 Prof. Siddhartha Khare	Artificial Intelligence and Remote Sensing at the Service of Nature Solutions: from Urban Trees to Landscapes.	Habitat Nature at work Ltd., Montreal, Canada	14.58
 Prof. Saurabh Vijay	High-resolution observation of glacier ice velocity, topography, terminus and surface features of an Indian Himalayan Glacier	SRIC, IIT Roorkee	20.00
	Interlinked seasonal evolution of supraglacial lakes and ice velocity changes in Greenland	Indian Space Research Organization (ISRO)	24.18
 Prof. G. D. Ransinchung R. N.	Evaluation of efficacy of Georoadchem for Cement treated base employing FDR Technique	M/s KGM Technology (P) Ltd. New Delhi	16.46

EVENTS

WORKSHOPS/CONFERENCES/SHORT TERM COURSES

Civil Conclave: December 18-19, 2021



This 2-day fest was based on the theme 'STIMULATING SUSTAINABILITY,' which celebrates the growth of technology and developments under Civil Engineering in the nation. Events like case study competitions, research work presentations, and guest lectures were conducted, keeping in mind the idea of sustainability. The aim was to provide a platform where ambitious minds will get an opportunity to showcase their abilities.

With more than 150 students from 15 different IITs introducing new technologies and intelligence, Civil Conclave 2021 stood as a sure-shot opportunity. It served as an excellent platform for students to present their skills, propose creative ways, and learn from the best. The

ceremonies attracted several great names. Prof. S. K. Ghosh, Head of Civil Engineering Department, Addressed the enthusiasts about how the institute has contributed to the country's development and has also given exceptional visibility to the national committee. Mr. Sunil Chandra, the deputy director of Forest Survey of India and honorary chief guest, spoke about how these events and problem statements directed our studies towards bringing out sustainable and viable solutions to the real-world industrially concave lens. Professors Satyendra Mittal, Nikhil Saboo, and Sanhita Das spoke about the

technological advancements in the field of Civil Engineering in the recent past and how Civil Conclave 2021 is a promising stage that promotes the discussion of viable ideas. Mr. Sushil Chandra, Chief Election Commissioner of India, and Mr. Ajit K. Chaturvedi, Director, IIT Roorkee graced the valediction ceremony as honorary chief guests.

Civil Conclave is a part of our efforts to foster future leaders and take our rich legacy forward. It attempts to nurture the budding interest in this field, develop ideas, and create new technologies. There is no denying that Civil Conclave 2021 served to bring together the world's leading scientific minds and influential thinkers and connect them to the students and faculty across India.

Lecture Series On Advanced Finite Element Modelling Of Geotechnical Constructions: March 10th to May 26th 2022 (Virtual Short Course)



Prof. Fook-Hou Lee
(Course Instructor)

The Civil Engineering Department, Indian Institute of Technology Roorkee organized an international short course "Lecture series on Advanced Finite Element Modelling of Geotechnical Constructions" from 10th March to 26th May 2022 every Thursdays 4.30Pm to 6.30Pm. The lecture series comprised of 12 online lectures of which 9.5 lectures were delivered by Prof Lee Fook Hou, Professor, Civil and Environmental Engineering, National University of Singapore and Distinguished Visiting Professor, Civil Engineering Department, IIT Roorkee. The remaining 2.5 lectures were delivered by Dr. Akanksha Tyagi. Topics like "Finite Element Modelling (FEM) Basics, Constitutive Models, Tips on FE Analysis Using Abaqus, Case studies – 3D modelling of Nicoll Highway Collapse and Fort canning Tunnel Singapore and Modelling Spatial variability using Random FEM" as well as Hands-on-sessions were covered in approx. 24 hours' duration course. Total of 101 participants including 8 International participants from Australia, United States, Sri Lanka and Indonesia attended the course. The coordinator of this course was Dr. Akanksha Tyagi.



Prof. Akanksha Tyagi
(Course Coordinator)

3rd Meeting of National Experts on Propagation and Mitigation Model of Mixed Road Traffic Noise for Planning of Mid-Sized Indian Cities. March 11 & 12, 2022 MOE IMPRINT India Project



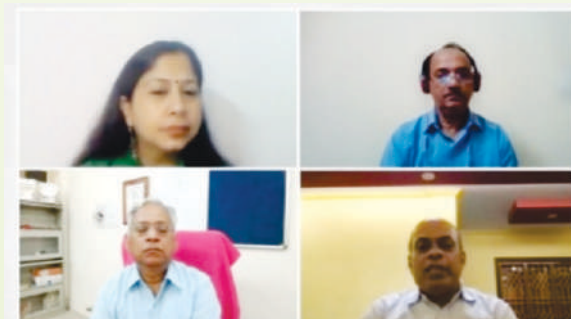
With an aim to develop propagation & mitigation model of mixed road traffic noise field studies have been taken up within the city limits of Kanpur. The data collection sites are based on functional attributes like land use (residential, commercial, industrial and silence zone); traffic density (free flow, congested flow and traffic jam); and geometric features (gradient and curve). The objectives of this project were assessment of road traffic noise propagation for various land use, survey of community response, and analysis of data for model development for the Indian mid-sized city of Kanpur, having similar traffic & geophysical conditions.

Information about the type of traffic volume classification and the presence of heavy vehicles in the traffic stream was obtained through classified volume count. Physical details of data collection sites like pavement type, carriageway width, the width of footpath/shoulder, facade distance from the kerb, flow type (uni-directional or bi-directional) etc. have been obtained.

The extracted data included classified volume, speed, and noise used. These extracted data have been used for developing traffic noise models separately for Mid-Block and Intersection for Kanpur. In this project mixed road traffic noise studies were undertaken for Kanpur city as part of the IMPRINT Research Project in collaboration with IIT (BHU) Varanasi.

Findings

- 1) Mid-Block Traffic Noise Model
- 2) Intersection Traffic Noise Modelling
- 3) Community response annoyance study
- 4) Effect of different attenuations
- 5) Noise Propagation in Vertical Direction



Roads-Highways Summit organized by ET Infra.com: May 05, 2022

Professor Satish Chandra was invited for a panel discussion during Roads-Highways Summit organized by ET Infra.com division of Times Group on May 05, 2022 at New Delhi. Other panellists were Mr. D. Sarangi, ADG, MoRTH and Dr. I. K. Pateria, Director (P-III), NRIDA, New Delhi.

41st Training Course On Pradhan Mantri Gram Sadak Yojana: May 19–21, 2022

41st Training course was organized during May 19–21, 2022. It was attended by 26 field engineers of Rural Engineering Department of Agra, Meerut and Saharanpur Circle. Thirteen faculty member delivered the lecture. Prof. Praveen Kumar was the course coordinator.



Workshop On Principles and Applications of Satellite Radar Remote Sensing (InSAR Karyasala 2022): May 29–June 04, 2022



The Geomatics Engineering Group organized a high-end workshop on "Principles and Applications of Satellite Radar Remote Sensing" during May 29 - June 04, 2022. The workshop was funded by the Science and Engineering Research Board, Department of Science and Technology under "Accelerate Vigyaan" program. More than 100 applications from 50+ institutions were received and 25 selected PG students joined the 7-day workshop at the campus. The participants brought

regional and gender diversity. The course instructors included 10+ SAR experts from IIT Roorkee and various institutions of the world including IIT Indore, NASA JPL etc. The workshop's topics cover basic fundamentals and applications of satellite radar remote sensing in many fields (e.g. landslide, glaciers, agriculture etc.). Organized by: Prof. Saurabh Vijay and Prof. Alok Bhardwaj.

4th 15 days Road Safety Auditors Certification Course: May 30–June 13, 2022

Indian Institute of Technology Roorkee collaborated with the Indian Roads Congress (IRC) and the Ministry of Road Transport and Highways (MoRTH) to organize the fourth 15-day training programme on Road Safety Audit from May 30, 2022 to June 13, 2022. The programme comes under the road safety initiative taken up by the Government of India to have a pool of well-trained road safety auditors in the country. IIT Roorkee, MoRTH, and IRC signed an MoU for conducting three courses to achieve the target of reducing road crashes to 50% by the year 2030.



GUEST LECTURES/AWARD CEREMONIES



Felicitation of faculty who completed 25 years at this department- Prof. N. K. Samadhiya and Prof. M. Parida: March 8, 2022



International Womens Day Celebration: March 8, 2022

Felicitations of the award winner of O. P. Jain Memorial Structural Design Award – Mr. V. N. Heggade, CEO STUP Consultants, Mumbai: March 10, 2022



A ceremony was organized on March 10, 2022 in the department to award the prestigious O. P. Jain Memorial Structural Design Award to Mr. V. N. Heggade for his immense contribution to the field. Mr. Heggade, presently the CEO of STUP Consultants, Mumbai, is a senior professional with an experience of more than three decades in the area of construction management. It was truly an enriching experience to be his audience as he recounted the experience of construction of the 'Namaste Signature Bridge' at Delhi, from stages of its inception to its final commissioning. The occasion was graced by Prof. A. K. Chaturvedi, Director, IIT Roorkee and other dignitaries.

Felicitations of award winner of Gopal Ranjan Technology Award - Prof. Amit Prashant, Professor of Civil Engg. and Acting Director, IIT Gandhinagar: March 14, 2022



Under the Institute Research Award Week Program, Prof. Amit Prashant, Professor & Acting Director IIT Gandhinagar, was conferred the Gopal Ranjan Technology Award in the O P Jain Auditorium on March 14, 2022 by Prof. Ajit K. Chaturvedi, Director IIT Roorkee. Gopal Ranjan Technology Award of ₹. 1,00,000/- is given to a deserving person on the basis of his/her 'Creative Work' in the fields of Soil Characteristics, Foundation Engineering, Ground Improvement, Soil Structure Interaction, Engineering Geology, Underground Structures, Rock Mechanics, Subsurface including marine structure in India. The award is given to an Indian National or an alumnus of IIT Roorkee (or its predecessor University of Roorkee) of any nationality.

Prof. Prashant delivered a technical talk on "Seismic Displacements of Cantilever Retaining Wall Using Double Wedge Model" at the Gopal Ranjan Award ceremony. He emphasized in his talk that the developed design methodology considers the sliding as well as rotational failure modes and is capable of providing better predictions of seismic displacements. It is expected that the present state of engineering practice can highly benefit from his simplified approach. IIT Roorkee is highly honoured by the contribution made by Prof. Amit Prashant in the area of Geotechnical Engineering.

1st R. J. Garde Memorial Lecture Programme: March 28, 2022



The programme was graced by chief guest Prof. Subhashish Dey, IIT Kharagpur who introduced about Prof. R J Garde and delivered a lecture on Prof. R. J. Garde's principle. Prof. C.S.P. Ojha gave a brief introduction about Prof. Subhashish Dey, Prof. Subhashish Dey was honored with presentation of memento by Prof. S. K. Ghosh and Prof. Vinnarasi welcomed the dignitaries and chief guest.

Prof. Ajit K Chaturvedi, Director, IIT Roorkee, highlighted, "Prof. Garde's teaching and research work was in Hydraulic Engineering and Fluvial Hydraulics. As IIT Roorkee hosts the inaugural R.J.

Garde Memorial Lecture series, I am happy to point out that his principle of sediment transport shines light on the measures required to mitigate flooding, manage water resources and ecology."



Prof. Dey said, "Prof. Garde's principle throws light over Comparison of the theoretical results with the experimental data shows that the entrainment probabilities in rolling, sliding and lifting modes. Then, at the grain scale, using the log-normal probability density function for the near-bed instantaneous horizontal velocity, the entrainment probabilities in rolling, sliding and lifting modes for a given grain size are derived. The rolling and sliding probabilities increase with an increase in shields function and after attaining their individual maximum values, they reduce, while the lifting probability increases with shields function. The maximum value of the threshold shields function. In a continuum scale, the bed-load flux is derived by hypothesizing the saltating mode of sediment transport incorporating the lifting probability obtained at the grain scale. He thanked Prof. Ajit K Chaturvedi Director, IIT Roorkee and his entire team for giving him an opportunity for participating in this initiative and for this honor too."

Guest lecture by Prof. Vikas Thakur, Professor and Head, Department of Civil and Environmental Engineering, Faculty of Engineering NTNU Norway, Trondheim: April 07, 2022



A guest lecture was delivered by Prof. Vikas Thakur on April 07, 2022 in Conference Room of Department of Civil Engineering, IIT Roorkee. Prof. S.K. Ghosh, Head Department of Civil Engineering, IIT Roorkee, presided over the event. Prof Thakur talked on the topic “Green Shift in the Built Environment” and presented future vision and detection of Civil Engineering Education. The lecture was organised jointly by Department of Civil Engineering and IGS Roorkee Chapter. The lecture was attended by large number of students, faculty and IGS members.



Guest lecture by Prof. Jhuma Sadhukhan, University of Surrey: April 08, 2022



Prof. Jhuma Sadhukhan, visited Department of Civil Engineering, IIT Roorkee on April 08, 2022. She gave a talk on renewable energy system where she highlighted the collaborative research with various eminent industrial ecologists and chemical engineers of the world. During her visit Dean International Relations tried to develop a dual degree M.Tech. Program between IIT Roorkee and University of Surrey, UK. The initiative is still under



process. Two discussion sessions were also arranged by her host Dr. Raja Chowdhury. Both the discussions were on various issues with bioenergy system. Dr. B. R. Gurjar, Dr. Alok Bharadwaj, Dr. Amit Agarwal and Dr. Pratham Arora from IITR took an active part in this discussion. Dr. Udit Bhatia, Asst. Professor from IIT Gandhinagar was the other participant in these discussion forums. The inaugural program of her visit was addressed by former Head of CED Prof. S. K. Ghosh and Dean IR, Dr. Arumugam. Her visit was a part of the funding she received with Dr. Chowdhury from Going global program administered by British Council, UK.

Second Prof. Gopal Ranjan Memorial Lecture: June 27, 2022

Prof. Krishna R. Reddy, Professor of Civil & Environmental Engineering, Department of Civil, Materials, and Environmental Engineering, University of Illinois at Chicago, Chicago, USA.

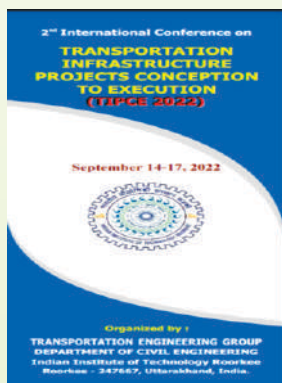


In the memory of late Prof. Gopal Ranjan, the Department along with IGS Roorkee chapter organised Second Prof. Gopal Ranjan Memorial Lecture on June 27, 2022. Prof. Krishna R. Reddy, Professor of Civil & Environmental Engineering, Department of Civil, Materials, and Environmental Engineering, University of Illinois at Chicago, delivered the talk on the topic “The Role of Soil



Mechanics in Geoenvironmental Engineering”. The Director IIT Roorkee, Prof. Ajit Kumar Chaturvedi was the Chief guest during the function. Prof. Praveen Kumar, Head, Department of Civil Engineering, IIT Roorkee presided over the function. The talk was attended by large number of researcher working in the areas of Geotechnical and Environmental Engineering.

UPCOMING EVENTS



Transportation Infrastructures Projects Conception to Execution (TIPCE) September 14-17, 2022

The Department of Civil Engineering is organizing the 2nd International Conference on Transportation Infrastructure Projects Conception To Execution (TIPCE 2022) from September 14-17, 2022. This conference aims at bringing together the industry and academia involved in the transportation sector to emphasize a two-way learning process, i.e., from industry to academia and from academia to industry.

The 9th International Symposium on Hydraulic Structures (ISHS) 2022 October 24-27, 2022

The 9th International Symposium on Hydraulic Structures (ISHS) 2022 of the International Association for Hydro-Environment Engineering and Research (IAHR) will be held at Indian Institute of Technology Roorkee, Uttarakhand, India during October 24-27, 2022. The program will be an International event that will bring together Academia and Industry across the globe to discuss issues and solutions in the design and construction of hydraulic structures. The symposium will provide a distinctive opportunity for Engineers and Researchers to present their works and be mentored by Senior Engineers and Researchers.

Please visit symposium website <http://ishs2022.iitr.ac.in/> and brochure link <http://ishs2022.iitr.ac.in/wp-content/uploads/2021/10/ishs22.pdf> for details.



The IAHR is a worldwide independent organization of engineers and water specialists working in fields related to the hydro-environmental sciences and their practical application. IAHR has several committees that regularly organize conferences and symposia in their own specific fields. Hydraulic Structure Committee is one of them, that works for advancement in the structures. This committee organizes a symposium on "Hydraulic Structure" biennially - e.g. ISHS2020, (Chile), ISHS2018, (Aachen), ISHS2016 (Portland, USA), ISHS2014 (Brisbane), ISHS2012 (Porto, Portugal), and many more. The symposium will be organized under the aegis of IAHR, Indian Society for Hydraulics (ISH), CWC, CBIP etc. The local organizing committee is delighted to invite delegates to participate in the ISHS 2022.

VISITORS



Mr. V. N. Heggade, CEO STUP CONSULTANTS, Mumbai has made a laboratory visit to the Department of Civil Engineering IIT Roorkee on March 10, 2022. He received the O. P. Jain Memorial Structural Design Award and delivered a lecture titled: "My Trust with Namaste Signature Bridge at Delhi"



Prof. Amit Prashant, Professor of Civil Engg. And Acting Director, IIT Gandhinagar has made a visit to the Department of Civil Engg. IIT Roorkee on March 14, 2022. He received the Gopal Ranjan Technology Award and delivered a lecture on "Seismic Displacements of Cantilever Retaining Wall Double Wedge Model"



Prof. Subhashish Dey, Professor of Civil Engg., IIT Kharagpur has made a visit to the Department of Civil Engg. IIT Roorkee on March 28, 2022. He delivered the 1st R. J. Garde's Memorial Lecture.

NORWEGIAN DELEGATES VISIT



A visit to the Geotechnical Engineering Laboratories, Department of Civil Engineering was made by His Excellency Mr. Hans Jacob Frydenlund the Ambassador of Norway to India on March 24, 2022. Dr. Rajinder Kumar Bhasin – Regional Manager Asia, Norwegian Geotechnical Institute, Norway accompanied the ambassador along with Ms. Marit Marie Strand – Counsellor for Cooperation, Norway Embassy and Mr. Vivek Kumar – Senior Advisor Royal Norwegian Embassy, New Delhi. The visiting team showed keen interest in the research activities going on in the department especially in the field of Tunnel Engineering. Later, the ambassador visited few more laboratories in the institute and had a meeting with the Director IIT Roorkee. The ambassador mentioned the key areas of research as Rock Mechanics and Tunneling Technology, Energy, Environment and Renewable Energy where researchers from IIT Roorkee and Norwegian Institutes can look to collaborate. He also mentioned that as per the Norwegian government policy at least 50% of the students should attend a foreign Institute during their study years. He said, "I believe that IIT Roorkee could be a good place for students from Norway to have an International exposure". The Ambassador expressed his pleasure on the ongoing cooperation happening between IIT Roorkee and Norwegian Institutes and thanked the Director and the faculty members for the hospitality and a very productive discussion.



Prof. S.K. Khanna (Former HOD of the department 1983-84, Secretary UGC and Chairman AICTE) visited the department on April 5, 2022. During the visit he interacted with many faculty members of the department and shared his experiences related to research, teaching and administration.



Prof. Vikas Thakur, Professor and Head, Department of Civil and Environmental Engineering, Faculty of Engineering, NTNU Norway, Trondheim has made a visit to the Conference Room of Department of Civil Engg. IIT Roorkee on April 07, 2022. He delivered a lecture on “Green Shift in the Built Environment”



Prof. Jhuma Sadhukhan, University of Surrey, UK has made a visit to the Conference Room of Department of Civil Engg. IIT Roorkee on April 08, 2022. She gave a talk on renewable energy system where she highlighted the collaborative research with various eminent industrial ecologists and chemical engineers of the world.

DRDO TEAM VISIT



A visit to the distinguished laboratories of Civil Engg. Department was made by DRDO Team on April 12, 2022. During the visit Department of Civil Engg. gave a proposal for a Centre for Smart Infrastructure for Defence Application (CSIDA) in which a no. of major objectives have been discussed with the team such as Design of Smart Structures which will focus on appropriate building material and consequently the Structural Technology to be practised with a special emphasis to extreme location such as high location or remote location; Studies related to safety aspects of such smart

infrastructure due to snow, high winds, land slides including avalanche, floods, rainfall induced damage such as cloud burst etc. Lightweight bridge and related structure for quick assembly or disassembly; Environmental related aspect of provision of water supply or waste disposal; development of new materials/re-usable material in the area of transportation; New technological introduction for collection of terrain data using satellite data or UAV and generation of 3D visualization for various planning activities; Effect of permafrost on the life of various defence infrastructure.



Prof. Krishna R. Reddy, University of Illinois at Chicago, Chicago, USA has made a visit to the Conference Room of Department of Civil Engg. IIT Roorkee on June 27, 2022. He delivered the **Second Prof. Gopal Ranjan Memorial Lecture** on the topic “The Role of soil Mechanics in Geoenvironmental Engineering.”

INFRASTRUCTURE (NEW LAB INSTRUMENTS)



Soil Moisture and Salinity Monitoring System Cost ₹ 68.25 lacs

The SDI-12 Sensor Reader is a new device capable of reading soil water content from all Acclima SDI-12 moisture sensors (i.e., TDT and TDR sensors). The reader obtains data from the connected sensor, displays the data on the LCD screen, and records and displays waveform readings from compatible sensors. The SDI-12 Sensor Reader can store multiple readings on the kit's included 32-gigabyte thumb drive, which has both micro- and standard USB connectors.



Acoustic Doppler Velocity Meter (ADV) Cost ₹ 39.59 lacs

An acoustic Doppler velocimeter (ADV) is based on the Doppler effect, which may be a from the relative change in frequency of a train whistle or car horn as it travels towards or away from an observer. If an observer is stationary whilst sound waves pass, n waves would pass during concept to a time interval t. If the observer walk towards the source of sound, more than n waves would pass during t. Similarly, if the observer to walk away from the source of sound, less than n waves would pass during t. The Doppler shift is the difference between the frequency heard whilst standing still, and the frequency heard when moving either towards or away from the sound. Ultrasonic Clamp On Water Flow Meter is one of the most powerful Flowmeters available for liquid measurement. The utilization of ultrasonic signal processing, transit-time measurement and signal quality tracking technologies allow the Flowmeter to measure liquid flow rate from outside of a pipe reliably and accurately.



Terrestrial Laser Scanner Cost ₹ 44.95 lacs

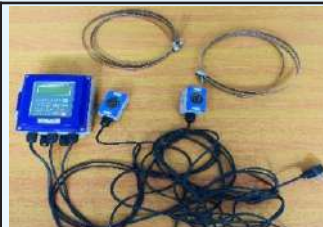
Terrestrial Laser Scanner (FARO Focus^s 350) creates accurate, complete and photorealistic 3D representations of any environment or object in just a few minutes. Focus Premium is easy to operate and offers built-in protection from dirt, dust, fog, rain and heat/ cold. And, for best on-site data capture, The FARO Focus^s 350 is specially designed for outdoor applications due to its small size, extra light weight and extended scanning range. The Focus^s 350 provides scanning results even in challenging environments, narrow job-sites, dusty or humid areas, in rain or direct sunlight applications. An on-site compensation tool allows data quality optimization on-site. Integrated GPS & GLONASS receiver enable easy positioning. HDR imaging and HD photo resolution ensure true-to-detail scan results with high data quality.



Muffle Furnace
Cost ₹ 3.00 lacs



Ultra Sonic Pulse
Velocity Apparatus
Cost ₹ 1.25 lacs



Ultrasonic Water Flow
Meter (Clamp type)
Cost ₹ 2.04 lacs



Wearable & Remote
Eye Tracker (Hardware
and Software)
Cost ₹ 40.00 lacs



High-End Camera with
Remote Control and
Accessories
Cost ₹ 1.99 lacs



Stress Monitoring
Wrist band
Cost ₹ 4.99 lacs (02 Nos)



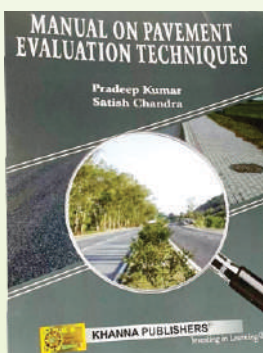
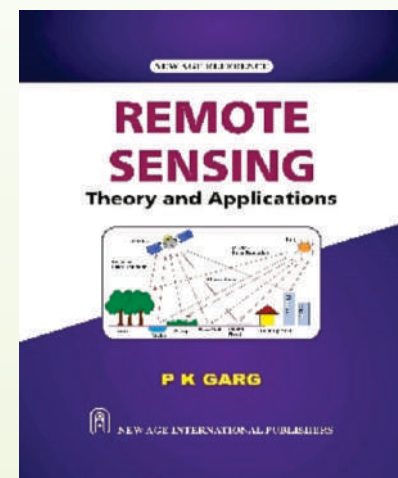
Water Permeability
Apparatus
Cost ₹ 3.67 lacs



Eye Tracker
Cost ₹ 6.30 lacs

BOOK PUBLISHED

The Book titled “REMOTE SENSING THEORY AND APPLICATIONS” is authored by Prof. P.K Garg Civil Engineering Department, IIT Roorkee. This book is published by New Age International (P) Limited Publishers, New Delhi. The book covers the course contents required mainly for UG (Civil Engg.) and PG (Geoinformatics) as well as students, research scholars, faculty members and professionals of Computer Science, Information Technology, Data Science, Geology, Geography, Environmental Science and Earth Science, Today, remote sensing has found large number of applications in Civil Engg., natural resources management, disaster management, environment, geology, soil, forestry, agriculture, urban, infrastructure development, 3D mapping, public health, visualization, etc. The readers having interest in remote sensing will find the book useful as it has been written in simple language and topics discussed with plenty of tabular data and figures.



“MANUAL ON PAVEMENT EVALUATION TECHNIQUES”, authored by Dr. Pradeep Kumar and Satish Chandra is published by Khanna Publishers, New Delhi. The Manual describes various methods of pavement evaluation using conventional and modern equipment and techniques.

MOU'S

MOU with ONGC Ltd., Dated: 01.04.2022



IIT Roorkee and ONGC signed an MOU in which IIT, Roorkee agrees to render services, expert advice/consultancy etc to ONGC in the area of its expertise including (i) Master planning of Townships and Comprehensive Architectural Services (ii) Structural Audit/Condition Assessment of the Existing buildings (iii) Geotechnical Investigation/ Soil Testing, as per ONGC requirements. For each expert service/consultancy in the Area of expertise, a separate agreement shall be signed between the Parties containing the area of operations, scope and deliverables, the time frame and Financial Terms and conditions. The terms and conditions of the said agreement shall be mutually discussed and agreed between the Parties.

MOU with RITES Ltd., Gurugram Dated: 11.01.2022



IIT Roorkee and RITES Ltd. signed an MOU led by Prof. Sanjay Kumar Ghosh, Head, Civil Engineering Department, IIT Roorkee and Shri Vijay Kishore ED(TI), RITES Ltd. The MoU shall allow for Exploring Business Avenues across the Globe for Bidding and carrying out Infrastructure Projects. To facilitate the development of business proposals including exploring consultancy opportunities arising at various Govt./ Semi Govt./ Autonomous Bodies or Authorities / Private Entities/ Multilateral Funding Agencies. Further, both the agencies shall make provisions to share their respective important R&D facilities in order to promote research interaction.

FAREWELL



Mr. Mahipal Singh, Attendant (S.G.) in Building and Maintenance has been retired. The Department of Civil Engineering wishes him happy and healthy retirement life.



Mr. Raj Kumar, Sr. Attendant in Hydraulics Engineering has been retired. The Department of Civil Engineering wishes him happy and healthy retirement life.



OBITUARY

The department expresses its sincere condolence to the family of **Retd. Prof. P. C. Jain (Former HOD of the department 2003-04)** who had left for his heavenly abode and prays that he attains salvation.

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