



Indian  
Institute of  
Technology  
Mandi

# Tidings

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published  
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## SE faculty strength

Regular faculty: 29  
Visiting professors: 2  
Adjunct professors: 1  
Distinguished Visiting  
Professor: 1  
Emeritus Professor: 1  
Mentor Professors: 2

## Present student strength

B.Tech.  
(Civil&Mechanical):97  
&120  
M.Tech. ( Civil &  
Mechanical): 17 &59  
Ph.D. &MS:75&26  
Female Students:  
PG &UG: 24&21

## Placements '18

L&T ECC  
NOVOPAY  
ADDVERB  
TRURING  
ISRO  
TORK

## School Chairperson's Message...



Greetings! It gives me immense pleasure to present the 7<sup>th</sup> issue of "TIDINGS". This newsletter is one of the ways in which we disseminate information relating to the School of Engineering (SE) of IIT Mandi. I am sure that you will appreciate the progress that we have made in the last semester as you read this newsletter. While we continue to peruse our academic and research activities to make our own mark in specific areas, we are also engaging into cross disciplinary activities to solve cutting edge problems. The students and faculties at SE have developed strong expertise in design, structure, materials, manufacturing, thermal and other important areas of Civil and Environmental engineering. The task before us is to put our expertise together and develop holistic systems to provide engineering solutions to societal and industrial problems. Some of our colleagues are already working towards making prototypes and I am hopeful that we are not far from achieving success in this direction. With this note, I extend my sincere thanks to previous school chairperson, Dr. Rajeev Kumar for his dedicated contribution for shaping up the school to great extent. I also would like to thank all my faculty colleagues and staff for their tireless efforts to help the school grow at a very steady pace.

Dr. Viswanath Balakrishnan

## Recently commenced projects

### Water and Energy Efficient Reliable Irrigation System (WatEr-ERIS): Solar energy and Cloud-based decision support systems for automated irrigation system

PI: Dr. Kasiviswanathan K S, Co-PIs: Dr. Subhamoy Sen, Dr. Narsareddy Tumuru (School of Computing and Electrical Engineering, IIT Mandi); Sponsor: DST, IMPRINT; Budget: 94,12,800 INR, Duration: 2019-21

### Impacts of Recent El-Niño Southern Oscillation (ENSO) on the Water-Food-Energy Nexus in India

Co-PI: Dr. Kasiviswanathan K S; Sponsor: Swedish Research Council - Sustainability and Resilience funding; Budget: 59,19,983 INR; Duration: 2019-21

### Efficient removal of most penetrating particles (dia~300 nm) from air/ water using supersonically blown ultrafine PVDF nanofibers

PI: Dr. Sumit Sinha Ray ; Sponsor: SERB; Budget: 48,63,000 INR; Duration: 2018-21

### SPARC grant on wastewater treatment. PI Dr. Gaurav Bhutani, Co-PIs: Prof. Ajit Annachhatre, Dr. Atul Dhar from IIT Mandi; Pablo Brito-Parada and Stephen Neethling from Imperial College London. Budget: 47 lakhs

**Treatment of acid mine drainage for heavy metal removal**  
PI: Dr. Sumit Sinha Ray, Co-PI: Prof. A. Annachhatre; Sponsor: Ministry of Metals; Budget: 19,84,000 INR; Duration: 2019

### Developing a sensor based real time river flow monitoring framework for forecasting flash floods

PI: Dr. Kasiviswanathan K S ; Sponsor: State Council for Science and Technology, HP; Budget: 5,50,000 INR; Duration: 2019-20

## New courses

**Geology and Geomorphology:** The course aims at disseminating the basic concepts of geology, rock formation, rock types and geomorphological features. This course is being engaged by Prof. Ramesh P. Singh.

**Structural Health Monitoring:** The course deals with the condition management of major infrastructure using stochastic systems to ensure safety and serviceability.

### Analysis and Design for Earthquake Resistant Structures:

This course provides insights into the design of buildings to withstand earthquake forces and related seismic safety issues.

**Strut and Tie Models for Concrete Structures:** This course offers the basic principles and application of STM to special concrete elements and regions of discontinuity in structures.

## New faculty



**Prof. Ramesh P. Singh (Visiting Professor)** has research expertise in the domains of Natural Hazards, Remote Sensing Applications, Geophysical Explorations, Atmospheric Pollution and Mining Environment. Prof. Singh has

previously served at the Chapman University and the George Mason University in USA. He was a faculty at the Department of Civil Engineering, IIT Kanpur during 1991-2007.



**Dr. Parmod Kumar (Assistant Professor)** holds a Ph.D. from IIT Roorkee. His research interests include interface capturing, entrainment dynamics, meso-scale simulations and probes and

instrumentation for two phase flow applications. His current research projects are "Investigations of vortex induced entrainment dynamics" and "Exploration of waste heat recovery for refrigeration applications".

## Outreach & Achievements made by faculty

**Dr. D.P. Shukla** has collaborated with HPSEB, FCI and NHA on various projects. He has also been nominated as a member of the Core Group for Landslide Mitigation & DPR preparation at the state level.

**Dr. Kasiviswanathan K S** visited the Lancaster University, UK to attend a workshop on *Drought Monitoring, Prediction and Management* during 18-20 Sep '18. The visit was completely sponsored by India - UK Water Centre. He has also received the "Sivabalan Young Scientist Travel Award" for his work in the field of hydrology as a young researcher.

**Dr. Gaurav Bhutani** visited Imperial College London in January 2019 for 3 weeks to explore future collaboration in the field of computation modelling of multiphase/ granular flows.

**Dr. Sandip Sahar** received the institute's "Teaching Honour Roll" in Sep '18.

**Dr. Rik Koner** attended the "Indo-German Dialogue Industry Academia Cooperation" held at New Delhi on 26 Sep '18. She also visited IIT Roorkee as an invited speaker in the international conference on *Energy Storage* held in Dec '18.

**Dr. Mohd. Talha** visited the Aerospace Engineering Department, Pusan National University, South Korea on 30 Oct '18 to deliver an invited talk on "Thermo-elastic modelling and analysis of imperfection sensitive higher order functionally graded sandwich plates". He also delivered a keynote lecture on, "The influence of imperfection parameters on the structural response of functionally gradient structures", in the 3rd Asian Joint Symposium on Aerospace Engineering in Nov '18.

**Dr. Sumit Sinha Ray** visited the BITS Pilani Dubai Campus, during 4-7 Dec '18 to deliver an invited talk on, "Pool Boiling" in iCRAFT conference.

**Dr. Subhamoy Sen** established collaborations with researchers working the area of Structural Health Monitoring in Inria Rennes and the University of Nantes in France, and the BAM Berlin in Germany.

**Dr. Sunny Zafar** delivered an invited talk on, "Carrier opportunities in Mechanical Engineering" at BBSBEC, Fatehgarh Sahib, Punjab on 27 Nov '18. He also gave a lecture on, "Microwave cladding and joining processes" at NITTTR, Chandigarh in a national level training program in Jan '19.

## Most downloaded paper

Sanjay Singh Tomar, Sunny Zafar, David Hui, Wei Gao and Mohammad Talha, "State of the art of composite structures in non-deterministic framework: A review", Thin Walled Structures, 132, 2018, 700-716, was the most downloaded paper of the journal in Nov.'18.

## Workshops

### A training programme on "Landslide mitigation and rehabilitation

Coordinator: Dr. K. V. Uday, Co-coordinator: Dr. D. P. Shukla

Duration: 12-14 Nov'18, Sponsor: NDMA

Participants: State government engineers and engineering students

Speakers: Prof. Vikas Thakur (NTU, Norway), Dr. K. V. Uday & Dr. D. P. Shukla

### Earthquake Risk Mitigation - A Training program on Strengthening of Techno Legal Regime to Ensure Structural Safety

Coordinator: Dr. M. Gade, Co-coordinator: Dr. S. Saha

Duration: 21-23 Jan.'19, Sponsors: H.P. Institute of Public Administration and SDMA

Participants: State government engineers and other practicing engineers

Speakers: Dr. M. Gade, Dr. S. Saha and Mr. S. Sharma (Retd. Town Planner)

### NMHS workshop on Water Filtration Techniques based on Solar Energy

Coordinator: Dr. J. K. Randhawa, Dr. B. S. Rajpurohit

Duration: 11-13th Feb 2019. Sponsor: SERB + IIT Mandi

Participants: Students of IIT Mandi and other institutes

Speakers: Dr. Narang Pindoria (IIT Ganhinagar), Dr. J. K. Randhawa, Dr. B. S. Rajpurohit (SCEE), Dr. S. Dasgupta (SHSS), and Dr. P. F. Sirl (SBS)

## Achievements made by students



**Sharad Kumar Gupta** and **Muskan Jhunjhunwalla** working with **Dr. D. P. Shukla**, received the Best Paper Award for oral presentation on, "Landslide Susceptibility Zonation (LSZ) using machine learning approach for DEM derived continuous dataset" in the International Conference on Recent trends in Image Processing & Pattern Recognition'18. **Sharad Kumar Gupta** along with **Abhishek Bharadwaj** a B.Tech. student won the Carl-Zeiss award for image processing. The award included a cash prize of Rs 1 Lakh.

**Priyanka Kajal** a Ph.D. student working with **Dr. Satvasheel Powar**, received Best Oral Presentation Award for the paper, "Performance Analysis of Charge Transporting Layers in Perovskite Solar Cells With Varying Deposition Techniques" at III ISEES International Conference On Sustainable Energy and Environmental Challenges at IIT Roorkee in Dec.'18.

**Pankaj Shitole** working with **Dr. R. Ghosh**, received a Young Investigator Scholarship (250 USD) to present his paper, "Fracture toughness at the interface between cortical bone and cancellous Bone" in the 31st Annual Congress of the International Society for Technology in Arthroplasty (ISTA) in London during 10-13 Oct.'18.

**Mohd. Amir** working with **Dr. M. Talha**, received the Best Paper Award for "Influence of microstructural defects on free vibration response of electrically actuated functionally graded panels" in the 3rd Asian Joint Symposium on Aerospace Engg, Gyeong-Ju, Korea during 31 Oct. - 3 Nov.'18.

**Yati Aggarwal**, a Ph.D. student of the School won the Silver and Bronze medals in women's shot-put discuss throw events in the 53rd Inter IIT sports meet held at IIT Guwahati in Dec.'18.

**Ankit Gupta** defended his PhD thesis on 15 Oct.'18. He has developed and implemented a nonpolynomial based higher-order shear and normal deformation theory to investigate the structural response of the FGM plates. He was working with **Dr. Mohd. Talha**.



**Abhishek Vishwanath Bangunde** under the guidance of **Dr. Rajeev Kumar** and **Prof. S. C. Jain**, submitted his MS thesis on, "Torsional vibration analysis and fatigue life estimation of turbo-generator coupled shaft system under electrical disturbances".

**Preeti Gulia**, a Ph.D. student working with **Dr. Arpan Gupta** received an International Research and Education Student Grant from the Acoustical Society of America. This includes a certificate, three year membership and a grant of 1000 USD.

Ph.D. students, **K. Hanumanthu**, **Sneha Das**, **Preeti Gulia** and **Dikshita Nath** received Teacher's Day Awards for their excellent contributions towards teaching assistantship.

**Pushpendra Kumar Shukla** a Ph.D. student working with **Dr. P. Anil Kishan**, received best poster award for CFD Analysis of Latent Heat Energy Storage System With Different Flow Conditions in the III ISEES International Conference On Sustainable Energy and Environmental Challenges at IIT Roorkee in Dec.'18.

M.S. student, **M. Nikhil Mathew** working with **Dr. Atul Dhar**, received the Best Poster Award for, "Exhaust Heat Recovery From a 4-Stroke Diesel Engine Using a Thermoelectric Generator Unit" in the III ISEES International Conference On Sustainable Energy and Environmental Challenges at IIT Roorkee in Dec.'18.

## Call for papers

7th International Congress on Computational Mechanics and Simulation (ICCMS 2019), 11-13 December 2019.

Coordinator: Dr. Sandip Saha, Website: <http://iccms2019.iitmandi.ac.in>

4th International and 19th National conference on Machines and Mechanism (iNaCoMM 2019), 5-7 December, 2019.

Coordinator: Dr. Rajeev Kumar, <http://iitmandi.ac.in/iNaCOMM2019/>

## Upcoming event

International workshop on Climate Change and Extreme Events in the Himalayan Region (C2E2Himalaya), 18-20 April 2019.

Convener: Prof. Ramesh P. Singh, Coordinator: Dr. D. P. Shukla, Website: <http://www.c2e2himalaya.iitmandi.ac.in/>