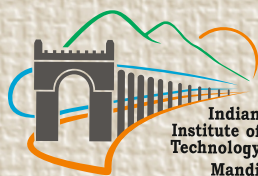


Indian Institute of Technology Mandi

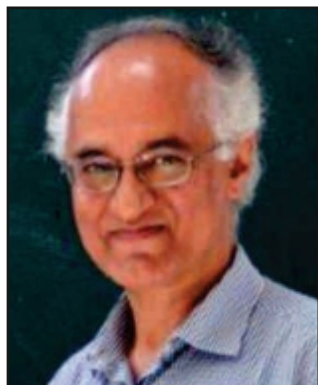
4th

Convocation

10-10-2016



Scaling the Heights



DIRECTOR'S REPORT

Prof. Timothy A. Gonsalves,
Director, IIT Mandi

Welcome

Prof. Joachim Holtz, Chief Guest of the Convocation; Mr. M. Natarajan, Padmashree, the Guest of Honour and Former Chairman, Board of Governors and former Scientific Advisor to Defence Minister, Government of India; Members of the Board of Governors; Members of the Senate; distinguished guests; graduating students who will be conferred their degrees today, their family members; my faculty and staff colleagues; dear students; invited guests; the members from the media, and, ladies and gentlemen, it gives me immense pleasure to extend a very warm welcome to all of you as we congregate today on the occasion of the 4th Convocation of the Indian Institute of Technology Mandi. I congratulate you, the graduating students, on your success and wish you all the best for your future endeavours in life.

We are extremely happy to welcome our Chief Guest, Prof. Holtz, Professor Emeritus, Wuppertal University, Germany. In 1969 he became Associate Professor and, in 1971, Professor and Head of the Control Engineering Laboratory at Indian Institute of Technology Madras. In 1972, he joined the Siemens Research Laboratories in Erlangen, Germany. From 1976 to 1998, he was Professor and Head of the Electrical Machines and Drives Laboratory, Wuppertal University, Germany.

Mr. M. Natarajan was appointed as the 1st Chairman of the Board of Governors, IIT Mandi in March, 2010 and served two terms upto March, 2016. Living in distant Tirunelveli, he epitomised Digital India even before the phrase was coined. Using email and telephone, he was virtually always by my side during the trials, tribulations and excitement of the formative years of IIT Mandi. However complex the issue was, his advice or decision was always prompt and always the best!

This Convocation marks seven years of ceaseless endeavour by IIT Mandi in pursuing its vision of being a “leader in science and technology education, knowledge creation and innovation, in an India marching towards a just, inclusive and sustainable society”. Thanks to concerted efforts by our faculty, students, alumni and staff, today IIT Mandi has already achieved peaks of excellence as an academic institute committed to the goals of higher education and frontier research in India. I would like to acknowledge all the well-wishers in India and abroad and the Governments of India and Himachal Pradesh for their support in the course of our journey.

Today, 10 research scholars will be graduating with M.S. and Ph.D. degrees.

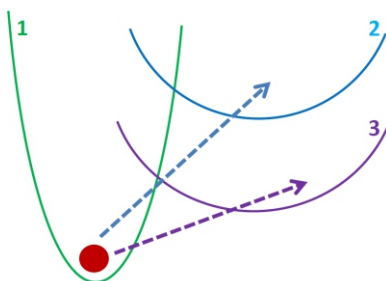
Doctor of Philosophy (Ph.D.)

1. Diwakar

Ph.D. Supervisor: Dr. Aniruddha Chakraborty

Title of the Thesis: Exact Solution of Few Multi-state Problems in Quantum & Statistical Mechanics

Diwaker's work in the area of multi-state problems is aimed at the analytic evaluation of transition probabilities between different states. This work started with very simple and known models, but then continued to consider scenarios with ever increasing complexity by using variety of analytic methods.



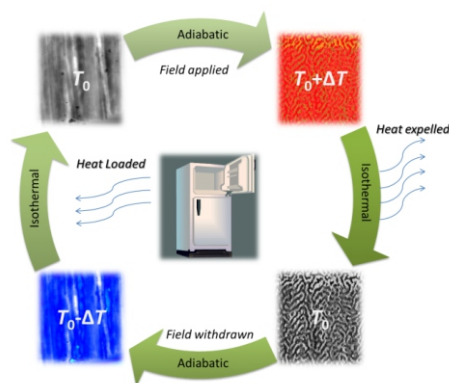
Multi-state problems in quantum and statistical mechanics

2. Satyanarayan Patel

Ph.D. Supervisor: Dr. Rahul Vaish

Title of the Thesis: Investigation of Solid State Refrigeration Potential in $\text{Ba}_{0.85}\text{Ca}_{0.15}\text{Zr}_{0.1}\text{Ti}_{0.9}\text{O}_3$ based Ferroelectric Ceramics

Satyanarayan's research focuses on the ferro-electric materials for energy conversion and solid state refrigeration applications. It is an attempt towards unification of multi-caloric effects in ferroelectric ceramics.



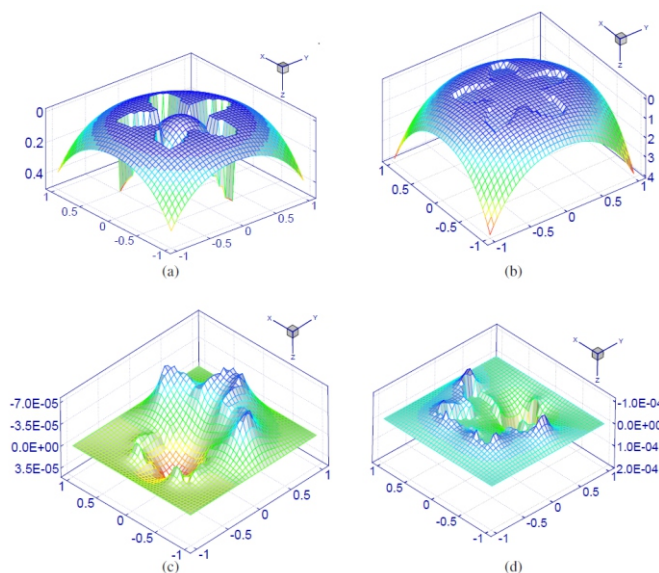
Solid State Refrigeration

3. Hari Vansh Rai Mittal

Ph.D. Supervisor: Dr. Rajendra Ray

Title of the Thesis: A Class of Higher Order Accurate Schemes for Fluid Interface Problems

To introduce novel numerical approaches, which can be used for various complex multi-phase fluid interface problems such as flow past bluff bodies, behaviour of gas bubbles in liquids etc.



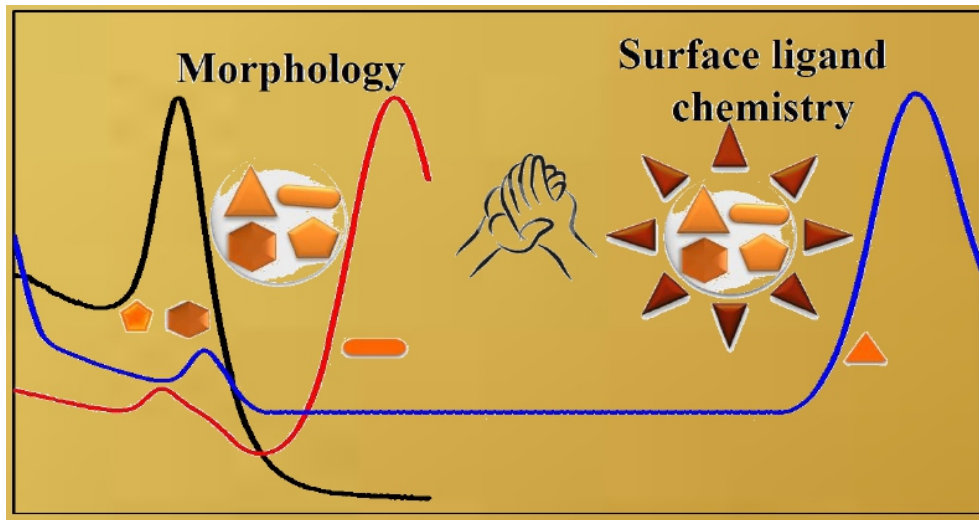
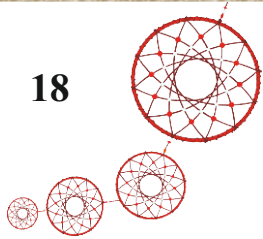
Surface plots of the (a), (b) numerical solutions and (c), (d) errors between exact and numerical solutions; for two different elliptic partial differential equations in a square Cartesian domain embedded with a complex star shaped interface on a 40 x 40 grid

4. Abhishek Chaudhary

Ph.D. Supervisor: Dr. Chayan K. Nandi

Title of the Thesis: Anisotropic Gold Nanoparticle for Sensor, Protein Conformation studies and Sustained Drug Release

On the innovative smart surface chemistry and morphology of Gold nanoparticle for ultrasensitive detection of toxic metal ions, small biomolecules and understanding the conformational dynamics of proteins while adsorbed onto the gold nanoparticle surface to prevent misfolding diseases.

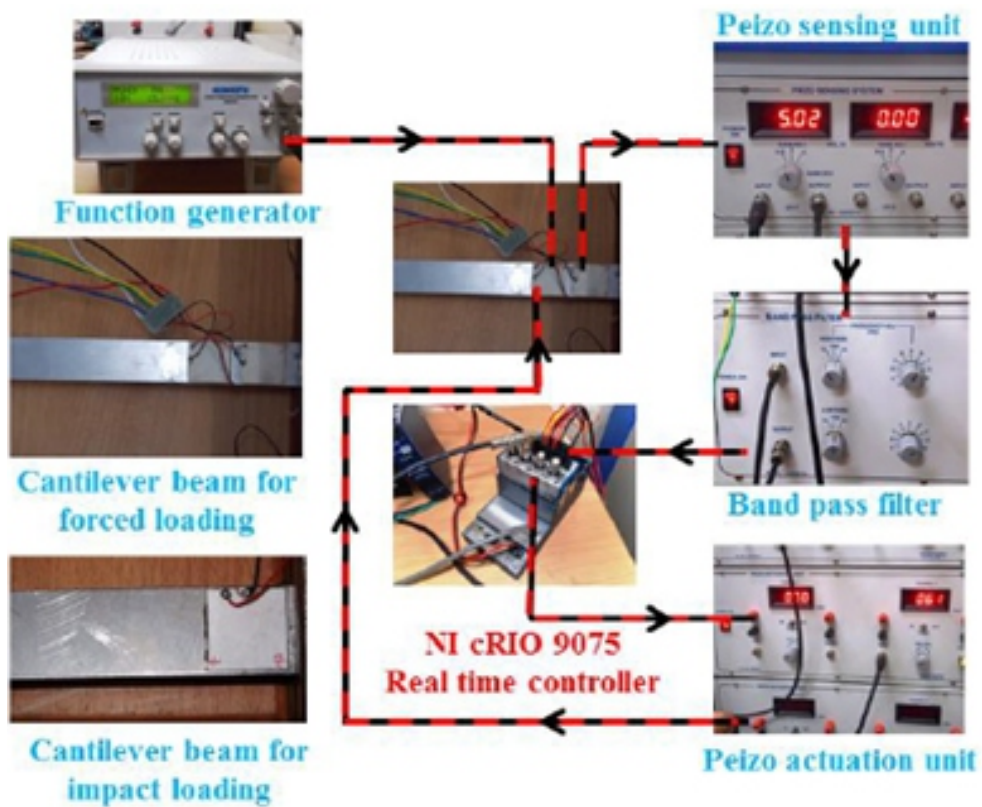


5. Chander Kant Susheel

Ph.D. Supervisor: Dr. Rajeev Kumar, Co-Supervisor: Dr. Vishal Singh Chauhan

Title of the Thesis: Geometric Nonlinear Shape and Vibration Control of Functionally Graded Smart Structures

Modeling of antenna reflector including functional graded piezoelectric material (FGPM) actuators and sensors by using Nonlinear Finite Element Method. Modeling is validated with experimental results.



6. Ashish Kumar

Ph.D. Supervisors: Dr. Hari Varma and Prof. P.C. Deshmukh (IIT Madras)

Title of the Thesis: Photoionization Dynamics of Some Free and Confined Atomic Systems

Study of photoionization of free and confined atomic systems revealed the importance of non-dipole interactions at very low photon energies (~ 10 eV) in the case of Ca trapped in a spherical attractive well (Ca@SAW) (Fig.1)

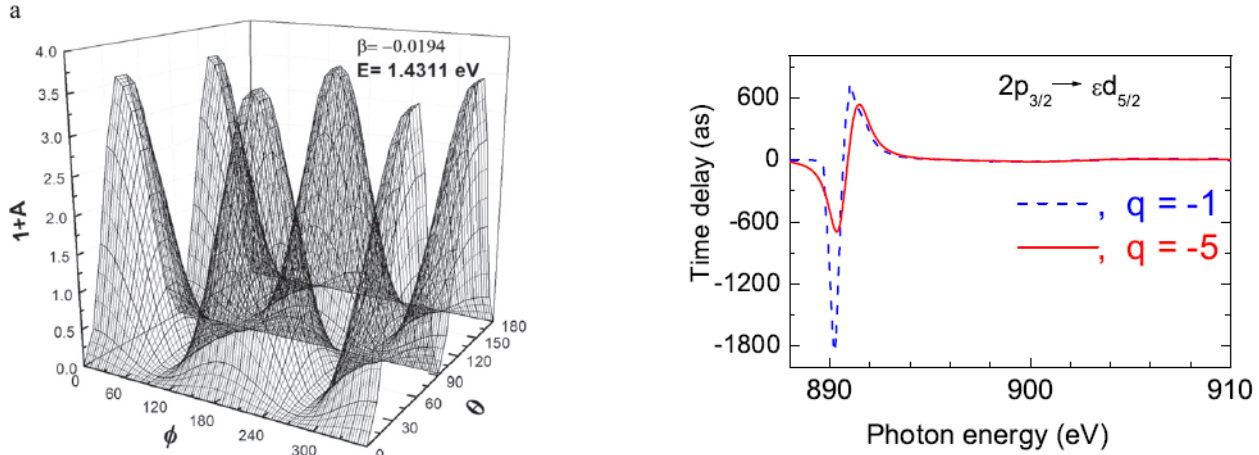


Fig 1. Deviation from dipole angular distribution due to presence of confining potential

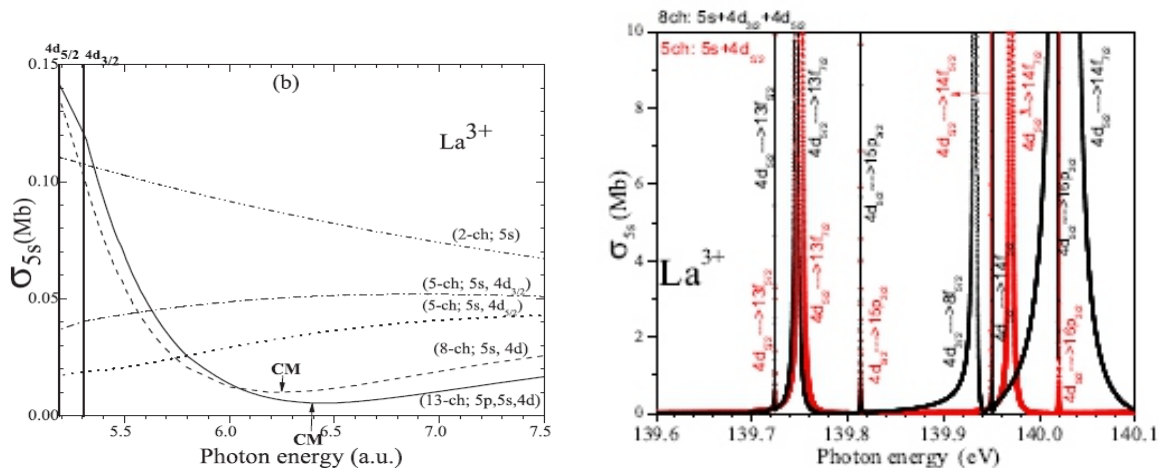
Fig. 2: Fluctuation in time delay in 2p ionization channel due to CRs in 1s

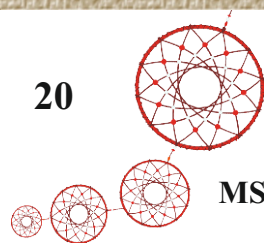
7. Sindhu K

Ph.D. Supervisors: Dr. Hari Varma and Prof. P.C. Deshmukh (IIT Madras)

Title of the Thesis: Photoionization Studies of Some Closed Shell Atoms and Ions

Sidhu's thesis reports the photoabsorption process of several closed shell elements including isonuclear & isoelectronic sequence. Studies across La isonuclear sequence have shown the importance of electron correlation in the form of inter-channel coupling



**MS (by Research)****1. Monisha Rastogi**

MS Thesis Supervisor: Dr. Rahul Vaish

Title of the Thesis: Ab initio Molecular dynamics and DFT calculations as a support tool and predecessor to experimental investigations of new energy materials

To predict a rational molecular dynamics scheme which could assist in predicting the phase transition behaviour in the nanocomposites which are useful as phase change materials in low to medium temperature range applications.

2. Manish Sharma

MS Thesis Supervisor: Dr. Rahul Vaish and Dr. Vishal Singh Chauhan

Title of the Thesis: A Study on Solar Energy Harvesting Using Pyroelectric Materials

Manish has carried out research on solar energy harvesting using pyroelectric effect. He carried out numerical investigation on potential of pyroelectric materials for solar energy conversion applications. Currently, he is a Ph.D. candidate in University of Quebec, Montreal, Canada.

3. Manoj Dhiman

MS Thesis Supervisor: Dr. Om Prakash Singh

Title of the Thesis: Salt Fingers in Two and Three Dimensions

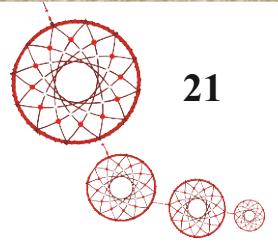
Manoj's research was on Double Diffusive Convection (DDC) salt fingers is a buoyancy-driven flow, with density depending on two different diffusing scalar components, distributed such that faster diffusing component gravitationally stabilise the fluid and the slower one destabilise it. He explored these phenomena numerically, over a wide range of parametric space in both 2D and 3D.

4. Abhijeet Sachdev

MS Thesis Supervisor: Dr. A. D. Dileep

Title of the Thesis: Example-Specific Density Based Matching Kernels for Varying Length Patterns of Speech and Images

This thesis addresses some issues in classification of varying length patterns of speech and images represented as sets of continuous valued feature vectors using kernel methods. This work mainly focused on designing a kernel that matches the two varying length patterns using their local information. A family of example-specific density based matching kernels are proposed in this work.



5. Pothula Abhinay Reddy

MS Thesis Supervisors: Dr. Anil Kumar Sao and Dr. Bharat Singh Rajpurohit

Title of the Thesis: Condition Monitoring and Fault Diagnosis of Single Phase Transformers

In this thesis, a novel method is presented for the extraction of winding parameters of a single-phase transformer. Further the interpretation of variation observed in the winding parameters is explained with reference to the possible fault occurrence.

Academic Activities

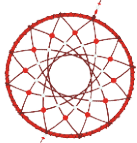
Building proper infrastructure for higher education in a remote location is always a challenge. However, we did not allow it to act as a deterrent when it came to the question of academic excellence. Currently, we have 842 students including 231 research scholars. In addition, we have several Post-Doctoral Fellows who are assisting and contributing to research. There are 516 B. Tech. students across disciplines of Computer Science, Civil, Mechanical and Electrical Engineering. Also, there are 11 students in I-PhD (Physics), 46 students in M.Sc. (Chemistry) and 38 students in M.Tech. and other PG programmes.

In 2016, IIT Mandi expanded the breadth of its academic programmes by starting four new Post Graduate programmes with the intake capacity of 12 students in each programme. These new Post Graduate programmes are

- M. Tech. in Mechanical Engineering with Specialisation in Energy Systems
- M. Tech. in Electrical Engineering with Specialisation in VLSI
- M. Tech. in Biotechnology
- M.Sc. in Applied Mathematics

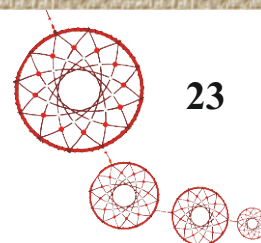
Currently, there are 10 students in M.Tech. in Mechanical Engineering with Specialisation in Energy Engineering; 9 students in M.Tech. in Electrical Engineering with Specialisation in VLSI, 8 in M.Tech. in Biotechnology and 11 students in M.Sc. in Applied Mathematics.

IIT Mandi places a great emphasis towards enhancing excellence in research. The institute has a total of 925 international and national, peer reviewed journal publications up to this present academic year 2016. In this year alone, there are 239 publications till date. Nature, one of the top scientific journals in the world, tracks the affiliations of high-quality scientific articles published from every country in 68 high-quality science journals with monthly updates. As per Nature Index, IIT Mandi ranked 6th among all IITs based on total number of publications during 2015-16. Based on publications per faculty, the rank of IIT Mandi is 3rd, following IIT Bombay and IIT Kanpur. This is a remarkable achievement within this short span of seven years and it gives a glimpse of the kind of quality research carried out by young researchers and faculty members at IIT Mandi.



Achievements and Awards

- Mr. Athar Aamir Khan (Alumni IIT Mandi), an IIT Mandi alumnus, has secured second rank in the prestigious Civil Services Examination, 2015. He joined IIT Mandi in 2010 as a B.Tech. (Electrical) student and graduated in 2014.
- Satyanarayan Patel (graduating Ph.D. student) has been awarded Humboldt Research Fellowship for Postdoctoral Researchers by Alexander von Humboldt Foundation at Technische Universität Darmstadt, Germany.
- Mr. Abhilash M. (Ph.D. Research Scholar, SHSS) has been awarded the Charles Wallace India Trust research grant to visit Great Britain. He has also been awarded K.N. Raj Fellowship of the Centre for Development Studies, Thiruvananthapuram.
- Mr. Vishrut Shah (MS Student) received the Charpak Scholarship by the French Government for an exchange programme at Universite Francois Rebelais de Tours (France).
- A paper titled, "Influence of motivational factors on hackers' and analysts' decisions in dynamic security games" authored by Zahid Maqbool, C.S.V Pammi & Varun Dutt (Faculty, SCEE and SHSS) won the best student paper award at AHFE 2016.
- Dr. Shubhajit Roy Chowdhury (Faculty, SCEE) was the winner of Best Paper Award at 9th IEEE International Conference on Sensing Technology (ICST) at Auckland, New Zealand in the year 2015.
- Anil Kumar Mathur, Sandeep Kumar and Sudheer Kumar (B.Tech. Electrical- graduating batch) won the 3rd Prize in the worldwide-2016 Myron Zucker Design Contest organized by the IEEE Industrial Application Society. Their entry was based on their MTP "A Non-Intrusive Air-Gap Torque Method for Efficiency Estimation of Induction Machines", guided by Bharat Rajpurohit.
- Dr. Shubhajit Roy Chowdhury (Faculty, SCEE) has been selected for Young Neurologist Award by World Stroke Organisation and VIFA Young Faculty Award for outstanding contribution in the field of Biomedical Embedded System in the in the year 2016
- Dr. Varun Dutt (Faculty, SCEE and SHSS) has been appointed as Review Editor of Frontiers in Cognitive Science and Frontiers in Decision Neuroscience journals.
- Dr. Syed Abbas (Faculty, SBS) has been appointed as an Associate Editor of Numerical Algorithms (Springer)
- IIT Mandi has touched new heights with the highest placement ratio of 84% for the graduating B.Tech. batch. The branch-wise placement ratios are 100% (CS), 87% (EE), and 61% (ME). Apart from these, the entire pioneer batch of 9 graduating students of M.Sc.



(Chemistry), 3 graduating students of M.Tech. (Energy Materials) students and 2 graduating MS students got placed.

Unique academic curriculum at IIT Mandi

5 Week Induction Programme

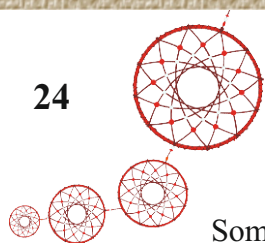
A core activity in any premiere educational institution, such as IIT Mandi, is the maintenance of high standards in teaching and learning process. To facilitate it from the very beginning in a more effective manner, from this year IIT Mandi has designed a unique 5-Week Induction Program (5WIP) from the First Year B.Tech. students. IIT Mandi is the first among all IITs to carry out such an intensive induction programme primarily mentored by the faculty members.

The main objective of the induction programme was to introduce students to the new method of learning that they would experience in coming years - learning by doing, learning to learn on demand, teamwork, identifying and solving real problems of society. The programme was thoughtfully designed to equip them with the skills essential to thrive in the IIT Mandi environment. The sessions were divided under several modules: Proficiency module, which includes English and communication, Computer, Visual thinking; Exploring Engineering; Soft Skills; Human Values; Physical Activities; Creative Stream; Social Awareness; Evening activities; Distinguished Lectures & after dinner talks. The sessions conducted in small groups of 18-20 students and were interactive in nature, leading to learning by doing, with the faculty talking for less than 10% of the time and giving the change to the students to introspect, interact, discuss and debate over several problems. This led to every student making several close friends from diverse backgrounds during the very first days at IIT Mandi, every student to get to know 5-10 faculty well, and at least 1 faculty whom s/he feels comfortable approaching for any personal issue and each faculty gets to know at least 20 students very well.

Practicums and the Design & Innovation stream

The Institute's B. Tech. curriculum has a flexible structure and it has been designed to create technology- savvy leaders and product designers for the future India. Two of the innovative features of the curriculum are Practicums and the Design & Innovation stream. A Practicum is a lab-based course that precedes the corresponding theory course. It encourages self-learning by doing. The Design & Innovation Stream (DIS) exposes undergraduate students to various facets of real-world engineering activities throughout their 4 years. The graduating batch of B.Tech. students is the first batch to fully undergo this Practicum and DIS oriented curriculum which includes

1. Reverse Engineering in 1st year: Makes students understand existing products.
2. Design Practicum (DP) in 2nd year:



3. Interactive Socio-technical Practicum (ISTP) in 3rd year:
4. Major Technical Project (MTP) in 4th year

Some of the notable projects that the students of the graduating batch had undertaken are as follows:

Design Practicum (DP) in 2nd year:

The objective of Design Practicum is to help the students to introspect to the problems/needs of society from various aspects and develop a solution and build a working prototype, which is able to address on such problem by the end of the semester. The graduating batch came up with excellent innovative solutions including “Autonomous Garbage Collection Machine form Parks and Beaches”, “Voice Commanded Desiccant Dehumidifier”, “Automated Road Repairing System”, which were recognized as the best projects.

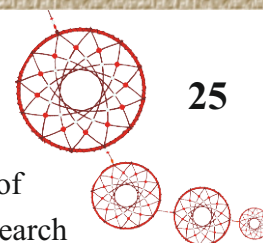
Interactive Socio-technical Practicum (ISTP) in 3rd year:

This programme is designed to make students explore the interaction between technology and society. This course is run in collaboration with the WPI, USA with faculty and students from WPI visiting India to work jointly with IIT Mandi faculty and students on a variety of socio-technical projects. 26 students of the graduating batch of B.Tech. students participated in the ISTP in 2015. They were joined by 21 students from the Worcester Polytechnic Institute (WPI), USA under the mentorship of two of their faculties -Dr. Ingrid Shockey and Dr. Lorraine Higgins. The project titled, “Improving Agricultural Practices in Farm Lands in Mandi by Technological Intervention,” by Amanda Konieczny (WPI), Sammy Neeno (WPI), Cody Slater (WPI), Prashant Kumar (IIT Mandi) and Sakshama Ghoslya (IIT Mandi) under the mentorship of Dr. Venkata Krishnan and Dr. Rajeev Kumar won the ISTP Open House Award. The project titled “Feasibility of Community-Based Businesses in Kamand Valley” by Andrej Samardzic (WPI), Brittany Mowe (WPI), Sarah Rose Gabor (WPI), Paramjit Kainth (IIT Mandi), Shreya Tangri (IIT Mandi) and Mohit Sharma (IIT Mandi) under the mentorship of Dr. Jaspreet Kaur and Dr. Priscilla Gonsalves was the runner-up.

Major Technical Project (MTP) in 4th year:

MTP is the capstone project of the B. Tech. programme, where students need to demonstrate a high degree of technical competence in their engineering discipline. Several students from the graduating batch participated in MTPs in 2015-16. Some of the noteworthy projects included

- “Financial Portfolio Optimization,” by Sehaj Duggal (Mentor: Dr. Manoj Thakur)
- “Design and Implementation of Low Cost Solar PV Emulator” by Prashant Kumar, Shruti Pal and Himanshu Rathore (Mentor: Prof. Ramesh Oruganti and Dr. Bhakti Joshi)
- "CFD Analysis of Solar Updraft Tower for Power Generation" by Ankit Agarwal, Monil Chugh and Vipin Raj Meena (Mentor: Dr. Peadeep Kumar)



● International Linkages

IIT Mandi is a part of the international academic community and thus believes in exchange of knowledge across national boundaries. There are several opportunities for the students, research scholars and faculties to interact and collaborate. International students can pursue graduate full time degree programs at the IIT Mandi. Bachelor's, Master's and Ph.D. students affiliated to institutes in other countries can spend up-to a year at IIT Mandi under existing student exchange programme. They are eligible for academic credit transfer for their respective degree programmes. Opportunities are provided to faculty members at IIT Mandi to carry out teaching and research activities in international institutions. International students can work with the Institute's faculty on collaborative research projects involving institutional, regional, and national interests. During the past year IIT Mandi observed both visits by the international students, researchers and faculties and IIT Mandi students, researchers and faculty members visiting other institutes. It includes:

Clara Hayn, Florian Peter, and Marcel Padilla, who visited IIT Mandi under DAAD RISE program from TU Dresden, TU Stuttgart, and TU Berlin, respectively, between July, 2015 and October, 2015.

Julian Baumgartel, from TU Munich who visited IIT Mandi between February, 2016 and June, 2016 under the student-exchange program. Julian was the first international student, who took courses at IIT Mandi for academic credit.

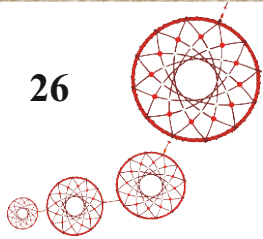
Zipporah Wanjiku Muthui, who visited IIT Mandi from University of Nairobi, Kenya between January, 2016 and July, 2016 for her Ph.D. Muthui is pursuing her Ph.D. with a Postgraduate Training Fellowship awarded by the Organization for Women in Science for the Developing World (OWSD).

Ramona Sygulla (2nd yr. M.Sc. Civil Engg. student at ILEK, University of Stuttgart), who visited IIT Mandi under the DAAD-PROMOS scholarship scheme. Her period of stay was from 24 April to 8 August 2016.

Similar to the previous year, this year also a team of 23 undergraduate students from Worcester Polytechnic Institute (WPI), USA and two faculty mentors visited IIT Mandi between mid-March, 2016 and mid-May, 2016. They worked with a group of undergraduate students at IIT Mandi under the ISTP programme to address to several socio-economic issues concerning the local communities in Mandi and Kamand.

Among the undergraduate students at IIT Mandi, five students visited TU, Munich, Germany; two students visited RWTH Aachen, Germany; three students visited Aalto University, Finland; three students visited IT University of Copenhagen, Denmark and one student visited Blekinge Institute of Technology, Sweden. One MS student visited TUM under DAAD Scholarship from 1st September, 2015 to 31st March, 2016.

A number of IIT Mandi's faculty also visited TU9 institutions, Germany in 2015 for fostering academic collaborations with international partners. Dr. Prem Felix Siril and Dr. Rik Rani



Koner visited KIT Germany between May, 2015 and August, 2015; and, Dr. Pradeep Parameswaran visited RWTH Aachen University between November, 2015 and January, 2016.

There were a number of workshops conducted at IIT Mandi involving visitors from universities abroad. They include:

- A workshop on "Advances in Electron Spectroscopy - Experiment and Theory (AESET 2016)" was held between 18th and 21st January, 2016. As part of this workshop, a number of faculty and researchers from several institutions in Japan (University of Tokyo), France (Ecole Polytechnique and Palaiseau Cedex), Germany (IFW Dresden; University of Wuerzburg; TU Dresden; Max Planck Institute for Chemical Physics of Solids; University of Duisburg; and, University of Goettingen), and USA (Argonne National Laboratory and Brookhaven National Laboratory) had visited IIT Mandi.
- A workshop on “Applications of Smart Materials” was held on 17th July, 2015. Dr. Jens Twiefel from Leibniz, Germany and Prof. Michael Sinapius from German Aerospace Center visited IIT Mandi for this workshop.
- Prof. Balthasar Novak from TU Stuttgart visited IIT Mandi to attend the 3rd Workshop of Civil Engineering on 2nd & 3rd March, 2015. This visit was related to the development of the B. Tech. Civil Engineering curriculum at IIT Mandi.
- Delegates from Purdue Pharma L.P., a pharmaceutical company located in Stamford, Connecticut, USA, visited Indian Institute of Technology (IIT) Mandi in July, 2015. IIT Mandi has an on-going collaboration with Purdue Pharma on projects that are worth more than USD 100,000.

In March 2015 the existing MoU between BTH and IIT Mandi was renewed for the next five years.

IIT Mandi signed an MoU with McMaster University Canada in February, 2016 to collaborate and strengthen academic and research cooperation for mutual benefit for the next five years

A Group Photo of workshop on “Applications of Smart Materials” on 17th July, 2015



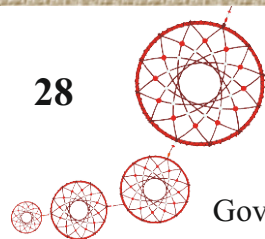
AESET 2016 Group,
a workshop on
"Advances in Electron
Spectroscopy - Experiment and
Theory (AESET 2016)"
18th to 21st January 2016



Sponsored Research and Industry Interactions

The number of sponsored research projects and the total money earned through such projects has significantly increased recently. Total number of projects sanctioned till date is 102 with the highest of 23 during the continuing financial year. In the first half of the current financial year alone IIT Mandi has received sanction orders for around 25 projects totalling more than Rs. 11 Crores. This is more than the funds we received in any of the previous financial years. A significant portion of this funding is for application oriented research for the Industry. Two such projects have been sanctioned under the newly introduced Utchathar Avishkar Yojana (UAY). Rs. 239 Lakhs has been sanctioned towards the project "Development of indigenous photo-resist technology for semiconductor industries: Impact on Indian economy, skilled manpower development and employment possibility", led by Dr. Subrata Ghosh and Prof. Ken Gonsalves. This project is co-funded by Semi-Conductor Laboratory, Mohali. The other project Design of advanced bi-data analytics in the Cyg-Net networks management system for telecom networks is worth Rs. 140 Lakhs is led by Dr. Dileep A.D. with M/s NMSWorks as the industrial partner.

Three major projects involving faculties across the different schools at IIT Mandi and other institutes have been approved by IMPRINT scheme. Project (worth of Rs.76 lakhs) entitled "A microfluidic based point of care testing device for measuring urine albumin using a novel organic dye" led by Dr. Shubhajit Roy Chowdhury, SCEE, Dr. Subrata Ghosh(SBS) and Dr. Prosenjit Modal (SBS). Project(Rs.263 lakhs) titled "Experimentally validated numerical modelling of the damage induced due to aerodynamic shear and high temperature on the re-entry vehicle nosecone" led by Prof. Puneet Mahajan (IIT Delhi), Dr. Balaji (IIT Delhi), Dr. Rajneesh Sharma (IIT Mandi) and Dr. Atul Bhagat (ASL DRDO). Project (worth of Rs. 380 lakhs) titled "Sustainable waste water treatment through bio-photoelectro catalysis and biofuel production" led by Dr. Atul Dhar (SE) Dr. Rahul Vaish (SE), Dr. Satvasheel Powar (SE), Dr. Rik Rani Koner(SE), Dr. Shyam K Masakalpalli (SBS), Dr. Tulika Prakash Srivatava (SBS), Dr. Aditi Halder (SBS) and Dr. S. Venkata Mohan of CSIR- Indian Institute of Chemical Technology.



In January 2016, Indian Institute of Technology Mandi, was selected as one of 18 sites across the country for setting up Technology Business Incubators (TBIs) under the Government's 'Start-Up India' initiative. The TBI, “IIT Mandi Catalyst”, was launched by Prof. Ashok Jhunjhunwala on 15th May 2016 during a well-attended Industry conclave that was organized in partnership with CII northern chapter. It is a section 8 company that has been set up to foster Research and Development (R&D) and entrepreneurship to spawn knowledge-intensive initiatives that would develop innovations useful to the society as a whole. It will serve as a catalyst to nurture and guide entrepreneurial initiatives with social and/or commercial objectives by IIT Mandi students, faculty, and staff. The incubator has already received funds worth 847 lakhs from various sources, mainly from DST. A number of proposals have already been received for incubation from faculty, students and alumnae that are being vetted.

Campus Development

IIT Mandi is the first among new IITs to develop and use its main campus. The move to the South campus in Kamand, which began in July-September 2012 has steadily gained momentum and by April 2015, the shifting of all the B.Tech. students to the permanent campus in Kamand has been completed. Now all the major activities of IIT Mandi are being carried out from Kamand Campus. IIT Mandi is now home to a buzzing community of students, academicians and staff—currently, all of the undergraduate students, the Director and most of the faculty members reside in the main campus.

IIT Mandi's campus is developing fast as an eco-friendly and sustainable infrastructure campus with the state-of-the-art facilities. The total area of IIT Mandi is 538 acres of which about 200 acres is flat-land while the rest is mountainous. Work was entrusted to CPWD and NBCC who have so far constructed 5 academic blocks, 10 hostels, 2 dining hall, which are functional in South campus. Further, 2 new 3BHK and 2 new 2BHK faculty blocks are recently added to the pool of existing 3 2BHK blocks and the studio apartments. In the North campus work of faculty housing (138 flats), student hostels (accommodating 1450 students) and two dining blocks are in progress. The Campus school is functional in the North Campus in its newly constructed building. A Faculty and Staff community center and staff housing is also in nearly completed. The master plan for the complete development of the campus is ready. This intends to cater for 5000 students, 600 faculty and associated staff.

Some of the important facilities that are under operation are as follows:

- School & Day Care for Children: IIT-Takshila Campus school (currently up to 5th standard, the school continues to expand), Day care facility for the children of students, faculty and staff, play area.
- Sports: Basketball, Cricket, Volleyball, Soccer, Hockey, Badminton, Table Tennis and Cycling are few sports being practiced in the main campus. Activities like Hiking and Trekking are encouraged under guidance.
- The Green Office of IIT Mandi was established on 31st October, 2014. The Green Panel of IIT Mandi is chaired by Prof. Timothy. A. Gonsalves (Director, IIT Mandi) and has 10 members (both external and internal), with an executive Green Coordinator.

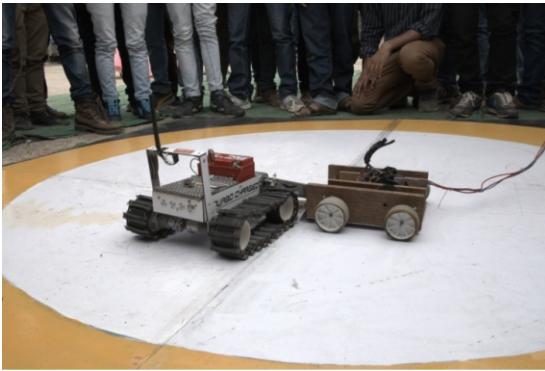
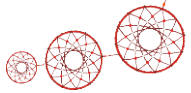
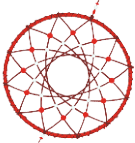
Extracurricular Activities:

IIT Mandi thrives to provide an environment conducive to physical and mental health of the students. Several extra-curricular activities are carried out as an integral component of the campus life. A few notable events are

- **Rann-Neeti** : For the first time at IIT Mandi's permanent campus, Rann-Neeti, the annual sports festival was held during 23rd to 25th Sept., 2016. 11 Teams from JUIT Wakhnaghat, Chitkara Baddi, Chitkara Rajpura, APG Shimla, Abhilashi, Govt. Poly College Sundernagar, NIFT Kangra, NIT Jalandhar took part in the sports fest. 450 athletes showcased their talents in various games like Chess, Basketball, Volleyball, Cricket, Football, Badminton and Table Tennis. IIT Mandi was the runner up.
- **Exodia, the annual tech-cult fest of IIT Mandi**: This year Exodia witnessed teams from NIT Kurukshetra , PEC , HPU , Baddi and many more. About 50+ events were organized at Exodia by the team headed by Mohit Sharma.
- **Exuberance**: Intra College Cultural festival: This time Exuberance witnessed Inter Year competitions in field of Music, Art, and Dance. General Championship was won by the graduating batch.
- **Avishkar and Utkarsh**: The Science and Technology Council organized these two events. Different events were organized over the weekend and all students took part actively. Infact, Utkarsh 2016 was the first inter-house technical event of IIT Mandi that was held in November, 2015. Events from all technical disciplines were included, including robotics, programming, electronic, and also a mechanical design contest in the form of junkyard wars.
- **VIBGYOR**: It was a three day open to all art festival organised by Art Geeks. It included activities such as Painting, Sketching, Doodling (online event), Paper Craft, Origami, Bug making on round stones etc. The event was greatly appreciated by a heavy participation crossing the numbers by 100 Plus people with more than 85 art piece.
- **4th Inter IIT Tech Meet**: The 4th Inter IIT Tech meet took place at IIT Mandi during 29th - 31st January, 2016. Participants from 9 different IITs came together during the event.
- **ANUSANDHAN'16**: The Research Fair: The 3rd Research Fair -2016 “ANUSANDHAN'16” was held at Kamand campus on 27th February, 2016. IIT Mandi research scholars were participated and presented their research work to a live audience



Raan-Neeti, 2016



Exodia, 2016

Utkarsh, 2015



There are several noteworthy achievements by the students of the graduating batch in various fields. Sohil was the Quarter finalist at the IIT Bombay event Full Throttle when he was in First year, Nikhil Garg was the winner of silver Medal at Inter IIT Tech Meet 2016 event, Sandesh Kumar Singh IIT represented IIT Mandi in final round Build the Shield Hacking Competition organized by Microsoft in 2015, Rishikesh Barve was the in the forth position all over India in Xerox Research Innovation Challenge and Winter School on Machine Learning 2015,

Conclusion

Eventually all good things must come to an end but graduation is also another beginning for the next experiences in your life. You graduates are now embarking on a new phase in your lives. In the years ahead, when you look back you will cherish moments that you have passed at IIT Mandi, the friendships you have made, and the wise words and helping hands of your teachers and mentors. Life has all sorts of hills and valleys; the time you spent at IIT Mandi surely prepared you to tackle not just the smooth roads ahead but also for taking the real life challenges. The success of IIT Mandi is not the mountainous location, not the buildings and not the tireless effort we all put in, it is the graduating students who will be the brand ambassadors of the institute. We count on you to make us proud. You are going forth into the world to make your mark, and I hope to serve your fellow humans, especially those less advantaged than you. Your successes, as an engineer as well as a human being, in the future will bring satisfaction to you and enhance the prestige of your alma mater. May the world full of problems yet to be solved welcome you with open arms and I wish you all the best on this 4th Convocation.