ANNUAL REPORT
2017 - 18

INDIAN INSTITUTE OF TECHNOLOGY MANDI

Kamand - 175005, Himachal Pradesh, India

VISION

To be a leader in science and technology education, knowledge creation and innovation, in an India marching towards a just, inclusive and sustainable society.

MISSION

- To create knowledge through team effort and individually for the benefit of society.
- To impart education to produce professionals capable of leading efforts towards innovative products and processes for the development of the Himalayan region in particular and our country and humanity in general.
- To inculcate a spirit of entrepreneurship and to impart the ability to devise globally recognized solutions for the problems of society and industry, particularly in the fragile eco-system of the Himalayas.
- To train teachers capable of inspiring the next generation of engineers, scientists and researchers.
- To work intensely with industry in pursuit of the above goals of education and research, leading to the development of cutting edge and commercially-viable technologies.
- To operate in an ambience marked by overriding respect for ability and merit.

CONTENTS

From the Director's Desk

Our 9th year saw rapid expansion of IIT Mandi with many buildings being completed in the North Campus. During the year about 320 students occupied Dashir Hostel, Beas Kund Hostel and Gauri Kund Hostel in the North Campus. They were joined by 60 faculty and staff families. Classes started for MSc and B.Tech in the North Campus.

In 2017-18, we started 3 new M.Sc./M.Tech programmes: MSc in Physics and MTech in Power Electronics & Drives and in Communications & Signal Processing. With these additions, the percentage of PG students has risen to 46%.

The year 2017-18 saw IIT Mandi gaining significant national recognition. The initiative led by IIT Mandi to increase the gender ratio in B.Tech in all IITs was accepted nationally. Our scheme to increase women in B.Tech from 8% in 2016 to 14% in 2018 and 20% in 2020 was approved by the IIT Council in April 2017. In August 2017, IIT Mandi welcomed 22 aspiring young women into our B.Tech, a remarkable increase from 4-6% to 15% of the batch!

In May 2017, Prof. K. Vijay Raghavan, Secretary DBT, visited IIT Mandi to inaugurate our BioX Centre in its new building. Later in the year, when he conceived the ambitious FarmerZone™ project to bring the benefits of AI to millions of small and medium farms in India, he chose IIT Mandi to lead this national project that includes partners from UK and US. The Rs. 7.5 crores Farmerzone project, sanctioned in March 2018, is the largest project at IIT Mandi. The team includes faculty from SCEE, SBS and SHSS.

The faculty, students and staff of IIT Mandi worked hard during 2017-18 on the challenge of making IIT Mandi a preferred destination for high-quality learning, research and innovation. Their new initiatives during the year will surely bear rich fruits during the years to come.

Prof. Timothy A. Gonsalves
Director

ACADEMIC STRUCTURE

Academic activities including Teaching, Learning and Research are carried out in three orthogonal but complementary structures. These are Academic Schools, Student Degree Programmes and Research Groups. Each of these is designed to serve a distinct purpose. The three interact in flexible ways to best achieve the academic goals of the Institute. The structure encourages inter-disciplinary learning and research that evolves in step with the march of technological innovation.

Schools:

Faculty members belong to broadly and loosely defined Academic Schools. Each School provides a home base for faculty whose interests share some fundamental academic principles. Some faculty members also have joint appointments in other Schools. By broadly grouping faculty members into Schools, IIT Mandi has avoided traditional departments and divisions within the institute. This has been done with a view to actively foster an interdisciplinary culture and collaborative research and projects across disciplines within the institute.

Currently, the Schools in the Institute are:

1. School of Computing and Electrical Engineering (SCEE)

Faculty members in the broad areas of Computer Science, Computer Engineering, Electrical Engineering including Electronics and Semiconductors, Signal Processing, Automation and Control and Electrical Energy Systems are part of this School.

2. School of Engineering (SE)

Faculty members from other areas of Engineering including Mechanical Engineering and Civil Engineering, Material Science are part of this School.

3. School of Basic Sciences (SBS)

Faculty members from all areas of basic sciences, including Physics, Mathematics, Chemistry and Biology are part of this School.

4. School of Humanities and Social Sciences (SHSS)

Faculty members from English, German studies, Economics, Sociology, Psychology, Management, History and other areas of Humanities and Social Sciences are part of this School.

Degree Programmes:

1. Bachelor of Technology (B.Tech) in the following engineering disciplines
   a) Civil Engineering (CE)
   b) Computer Science & Engineering (CSE)
   c) Electrical Engineering (EE) and

d) Mechanical Engineering (ME)

2. M.S. (by Research) in the following engineering disciplines
   a) Computer Science and Engineering
   b) Mechanical Engineering
   c) Electrical Engineering
3. Ph.D. in Engineering, Basic Sciences and Humanities & Social Sciences
4. M.Sc. in Chemistry
5. M.Sc. in Applied Mathematics
6. M.Sc. in Physics
7. M.Tech in Mechanical Engineering with Specialization in Energy Systems
8. M.Tech in Energy Engineering with Specialization in Materials
9. M.Tech in Electrical Engineering with Specialization in VLSI
10. M.Tech. in Power Electronics and Drives
11. M.Tech. in Communications and Signal Processing
12. M.Tech in Biotechnology
13. I-Ph.D. (Physics)

Statistics data on existing students at IIT Mandi as on 31st March, 2018

Number of students by Batch, Gender & Category:

	2010-11		2011-12		2012-13		2013-14		2014-15		2015-16		2016-17		2017-18	
By Gender	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
	1	1	5	0	12	2	13	4	134	16	167	33	240	60	262	80

	B.Tech					M.Sc.(Chemistry/Maths)					M.Tech				
Year	Gen	OBC	SC	ST	Total	Gen	OBC	SC	ST	Total	Gen	OBC	SC	ST	Total
2010	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2011	--	--	1	--	1	--	--	--	--	--	--	--	--	--	--
2012	--	2	--	--	2	--	--	--	--	--	--	--	--	--	--
2013	--	1	1	--	2	--	--	--	--	--	--	--	--	--	--
2014	56	34	13	9	112	--	--	--	--	--	--	--	--	--	--
2015	63	36	22	10	131	--	--	--	--	--	--	--	--	1	1
2016	73	40	12	11	147	21	9	7	2	39	15	4	2	1	22
2017	73	39	23	11	146	29	14	11	1	55	41	15	6	0	62
GRAND TOTAL					541					94					85

Existing students of IIT Mandi as on 31st March, 2018

	M.S.					Ph.D.					I-Ph.D.				
Year	Gen	OBC	SC	ST	Total	Gen	OBC	SC	ST	Total	Gen	OBC	SC	ST	Total
2010	--	--	--	--	--	1	1	--	--	2	--	--	--	--	--
2011	--	--	--	--	--	2	1	1	--	4	--	--	--	--	--
2012	--	--	--	--	--	10	2	--	--	12	--	--	--	--	--
2013	--	--	--	--	--	13	2	--	--	15	--	--	--	--	--
2014	3	--	--	--	3	27	7	1	--	35	--	--	--	--	--
2015	11	--	--	--	11	38	11	2	--	51	5	1	--	--	6
2016	9	2	--	--	11	54	14	8	--	76	5	--	--	--	5
2017	8	3	1	0	12	46	11	4	--	61	4	2	--	--	6
GRAND TOTAL					37					256					17

	Part-Time/ERP (M.S./Ph.D.)				
Year	Gen	OBC	SC	ST	Total
2010	--	--	--	--	--
2011	--	--	--	--	--
2012	--	--	--	--	--
2013	3	--	--	--	3
2014	3	1	--	--	4
2015	5	--	--	--	5
2016	--	1	--	--	1
2017	3	2	1	--	6
GRAND TOTAL					19

Existing Faculty (By Gender) at IIT Mandi as on 31st March, 2018			
2017-18			
By Gender	Male	Female	Total Faculty
No. of Faculty	87	23	110

Existing Non Faculty /Staff (By Gender) at IIT Mandi as on 31st March, 2018			
2017-18			
BY GENDER	Male	Female	Total Faculty
No. of Non Faculty	41	11	52

Total Sponsored R & D received in Financial Year 2017-18 (Sponsoring Agency and by Academic School)

Sr. No.	Project No.	Project Title	Sponsoring Agency	Principal Investigator & Co-ordinator(s)	Department/ School	(IIT, Mandi) Amount Sanctioned in Rs.	Duration of Project	FY
1	IITM/HPSCSTE/SP/163	Design and development of efficient solar assisted corrugated box dryer	Himachal Pradesh State council for Science, Technology & Environment (SCSTE)	Dr. Satvasheel Powar (PI) Dr. Dhiraj Patil Dr. Atul Dhar Dr. Arpan Gupta	School of Engineering	8,17,000	2 Years	2017-18
2	IITM/SAC-ISRO/DPS/164	Snow mapping & it's parameter estimation from geospatial (AVIRIS-NG) and field data	SAC-ISRO	Dr. Dericks P Shukla	School of Engineering	28,00,000	2 year	2017-18
3	IITM/DBT-BMBF/SKM/165	BioPEC: Cellulosic waste to high value products by integrating microbial bioprocessing and pyrolysis techniques	DBT-BMBF	Dr. Shyam Kumar Masakapalli (PI) Dr. Neil Mackinnon (PI) Dr. Swati Sharma (Germany)	School of Basic Sciences	45,46,000	2 years	2017-18
4	IITM/DBT-IC/RG/166	Development of a hand held molecular point-of care test device for infectious diseases	DBT-IC	Dr. Rajanish Giri Prof. Daman Saluja (University of Delhi) Prof. James Mahony (Canada)	School of Basic Sciences	98,25,000	2 years	2017-18
5	IITM/ICSSR/AKM/167	Democratization of Indian Christianity: Dalit Christian liberation movement in contemporary india	ICSSR	Dr. Ashok Kumar Mocherla	School of Humanities & Social Sciences	6,00,000	18 months	2017-18
6	IITM/SERB/PPJ/168	A comparative study on microscopic structure and dynamics near glass transition in linear polymer melt at low & high densities	SERB	Dr. Prasanth P Jose	School of Basic Sciences	20,23,780	3 years	2017-18
7	IITM/MHRD-IMPRINT/AD/169	Sustainable waste water treatment through bio-photoelectro catalysis and bio production	MHRD-IMPRINT	Dr. Atul Dhar (PI) Dr. Rahul Vaish Dr. Shyam Kumar Masakapalli Dr. Aditi Halder Dr. Tulika P Srivastava Dr. Rik Rani Koner	School of Engineering And School of Basic Sciences	3,84,34,000	3 years	2017-18
8	IITM/DBT/PM/170	Novel NIR-1 and NIR-2 dyes and their functionalised nanoparticles for non-invasive imaging, tracking and target delivery of theranostic in progressive liver disease prognosis and therapy	DBT	Dr. Prosenjit Mondal (PI) Dr. Subrata Ghosh (Co-PI)	School of Basic Sciences	60,25,600	3 years	2017-18
9	IITM/DTRL-DRDO/MK/171	Site specific forecasting based on sensor data using machine learning time series prediction modeling	DRDO	Dr. Manoj Thakur	School of Basic Sciences	26,06,400	2 years	2017-18
10	IITM/SERB/DS/172	Suitability of higher modeling approach for reactive solute transport through hetrogeneous porous medium: experimental and numerical study	SERB	Dr. Deepak Swami	School of Engineering	42,74,600	3 years	2017-18
11	IITM/SERB/RRK/173	New metal-organic networks as promising electro-active species for energy storage application: from materials developments to prototype fabrication	SERB	Dr. Rik Rani Koner	School of Engineering	30,51,000	3 years	2017-18
12	IITM/UBA/SP/174	MHRD- Unnat Bharat Abhiyan scheme	MHRD	Dr. Satvasheel Powar (PI) Dr. Suryaprakash Upadhyay, Dr. Dericks P Shukla, Dr. Atul Dhar (Co-PI's)	School of Engineering & School of Humanities & Social Sciences	3,50,000	1 year	2017-18

13	IITM/DRDO/RK/175	Non- linear active shape and vibration control of functionally graded structure using functionally graded piezoelectric material	DRDO	Dr. Rajeev Kumar (PI) Dr. Mohammad Talha (Co-PI)	School of Engineering	18,03,000	3 year	2017-18
14	IITM/DST-IR/RG/176	Folding mechanism of trans activation domain of E2APBX1, an intrinsically disordered protein involved in leukemia induction	DST	Dr. Rajanish Giri (PI) Dr. Irina M Kuznetsova (Tikhoretsky St.-Petersburg Russia)	School of Basic Sciences	23,39,200	2 years	2017-18
15	IITM/DST-IR/AKP/177	Magnetic properties and structure transformations in binary Fe- Pb and ternary Fe-Pd-M (M- Ni, Ga)	DST	Dr. Arti Kashyap (PI) Dr. Aleksandr Popov, M.N. Miheev Institute of Mental Physics, Russian Academy of Sciences, Yekaterinburg, Russia	School of Basic Sciences	19,86,400	2 years	2017-18
16	IITM/SERB/AB/178	Development of Gallium oxide based next generation power and sensor device	SERB	Dr. Ankush Bag	School of Computing & Electrical Engineering	51,85,400	3 years	2017-18
17	IITM/DRDO-DTRL/VD/179	Development and evaluation of low -cost landslide early warning solutions	DRDO-DTRL	Dr. Varun Dutt (PI) Dr. Venkata Uday Kala (Co-PI)	School of Computing & Electrical Engineering AND School of Engineering	9,99,460	3 years	2017-18
18	IITM/DST(WOS-B)/RSO/180	Development and dissemination of Agri- based technologies being optimized at IIT Mandi from lab to farmer's field of mid-Himalayan region	DST (WOS-B)	Dr. Reshma Sao (PI) Dr. Shyam Kumar Masakapalli (Mentor)	School of Basic Sciences	26,80,000	3 years	2017-18
19	IITM/NIRD&PR/RT/181	Community development through Panchayati Raj Institution (PRIs) under women's leadership	NIRD&PR	Dr. Ramna Thakur	School of Humanities & Social Sciences	2,30,000	3 months	2017-18
20	IITM/SERB/GSR/182	Study and design of broad band frequency selective surface (FSS) structures for various RF and microwave applications	SERB	Dr. Gopi Shrikanth Reddy	School of Computing & Electrical Engineering	51,97,910	3 years	2017-18
21	IITM/RFSL-Mandi/AB/183	Development of modern state-of-the-Art digital Forensic facilities in Forensic science laboratories in Himachal Pradesh	Regional Forensic Science Laboratory (RFSL)	Dr. Arnav Bhavsar(PI Mr. Rajesh Verma (PI) from RFSL, Dr. Anil K Sao, Dr. Renu Rameshan, Dr, Padmanabhan Rajan, Dr. A.D. Dileep, Dr. Aditya Nigam (Co-PI's)	School of Computing & Electrical Engineering	12,00,000	2 years	2017-18
22	IITM/NDMA/VD/184	Development and evaluation of low-cost landslide monitoring solutions	NDMA	Dr. Varun Dutt (PI) Dr. Venkata Uday Kala (Co-PI)	School of Computing & Electrical Engineering AND School of Engineering	27,85,080	3 years	2017-18
23	IITM/HPSCSTE/SKM/ 185	Photo- catalytic treatment of wastewater for the removal of Azo dyes: using rGO- TiO2 based cost effective composite technology	Himachal Pradesh State council for Science, Technology & Environment (SCSTE)	Dr. Satinder Kumar Sharma (PI), Dr. Venkata Krishnan (Co-PI)	School of Computing & Electrical Engineering , AND School of Basic Sciences	5,88,000	2 years	2017-18
24	IITM/DAE-BRNS/SG/186	Spatial distribution of uranium and associated water quality parameters in groundwater, surface water and drinking water in four districts (Una, Bilaspur, Solan & Sirmour) the state of Himachal Pradesh	DAE-BRNS	Dr. Subrata Ghosh (PI) Dr. Jaspreet Kaur Randhawa (Co-PI)	School of Basic Sciences AND School of Engineering	29,24,300	2 years	2017-18

25	IITM/DAE-BRNS/VKN/187	Spatial distribution of uranium and associated water quality parameters in Shimla and Kinnaur	DAE-BRNS	Dr. Venkata Krishnan (PI) Dr. Rik Rani Koner (Co-PI)	School of Basic Sciences AND School of Engineering	29,24,300	2 years	2017-18
26	IITM/DAE-BRNS/DPS/188	Spatial distribution of uranium and associated water quality parameters in Mandi, Kullu and Hamirpur	DAE-BRNS	Dr. Dericks P Shukla (PI) Dr. Aditi Halder (Co-PI)	School of Engineering AND School of Basic Sciences	27,51,800	2 years	2017-18
27	IITM/SW-FDFA/SDG/189	Capacity building on climate change vulnerability assessment in states of the indian himalayan region	Swiss development corporation (FDFA)	Dr. Anamika Barua (PI) IIT Guwahati Dr. Shyamasree Dasgupta (PI) IIT Mandi	School of Humanities & Social Sciences	18,84,562	16 months	2017-18
28	IITM/SERB/PFS/190	Development of pristine graphene as a catalyst support	SERB	Dr. Prem Felix Siril (PI) Dr. Subrata Ghosh (Co-PI)	School of Basic Sciences	29,54,600	3 years	2017-18
29	IITM/HPSCSTE/NRT/191	A low cost high efficiency renewable energy based hybrid power conversion system for rural Himachal residential application	Himachal Pradesh State council for Science, Technology & Environment (SCSTE)	Dr. Narsa Reddy Tummuru (PI)	School of Computing & Electrical Engineering	6,50,000	2 years	2017-18
30	IITM/DBT-Indo-UK/SS/192	Smart Agriculture: Farmer Zone	DBT	Dr. Srikant Srinivasan (PI), Dr. Renu M.R, Dr. Siddhartha Sarma, Dr. A.D. Dileep, Dr. Shyam Kumar Masakapalli, Dr. Shyamasree Dasgupta (Co-PI's) from IIT Mandi AND Dr. S.K. Chakrabarti (PI) from CPCRI, Shimla, Dr. Tina Barsby (PI) from NIAB(UK) AND Dr. Andre Laperriere (PI) from GODAN (USA) AND Dr. David Hughes (PI) from University of Pennsylvania	School of Computing & Electrical Engineering AND School of Basic Sciences AND School of Humanities & Social Sciences	9,47,76,400	3 years	2017-18
31	IITM/ICSSR/PS/193	Evaluation of business correspondent model of banking: A case study in Himachal Pradesh	ICSSR	Dr. Puran Singh (PI) Dr. Shyamasree Dasgupta (Co-PI)	School of Humanities & Social Sciences	2,50,000	1 year	2017-18
32	IITM/INMAS-DRDO/ASO/194	Detection and quantification of dicentric chromosomes from captured images for triage biodosimetry application	INMAS-DRDO	Dr. Anil K Sao(PI) Dr. Arnav Bhavsar (Co-PI)	School of Computing & Electrical Engineering	8,67,900	18 months	2017-18
33	IITM/DST/VB/195	Scalable manufacturing of asymmetric micro supercapacitor for next generation energy storage devices	DST	Dr. Viswanath Balakrishnan (PI) Dr. Satvasheel Powar (Co-PI)	School of Engineering	68,60,600	3 years	2017-18
34	IITM/NMHS/JKR/196	Development of low cost accelerated water purification systems with added mineralisation for himalayan region	NMHS	Dr. Jaspreet Kaur Randhawa (PI) Dr. Bharat Singh Rajpurohit, Dr. Samar Agnihotri (Co-PI's)	School of Engineering AND School of Computing & Electrical Engineering	40,66,000	3 years	2018-19
35	IITM/MoES/DS/197	Study of solute transport parameters through porous medium	MoES	Dr. Deepak Swami (PI) Dr. Dericks P Shukla (Co-PI)	School of Engineering	44,59,325	3 years	2018-19
36	IITM/DST/AKP/198	Vigyan Jyoti- A new initiative of DST for women	DST	Dr. Arti Kashyap (PI) Co-PI's: Dr. Bindu Radhamany, Dr. Amit Prasad, Dr. Aditya Nigam	School of Computing & Electrical Engineering AND School of Basic Sciences	16,57,900	1 year	2017-18

Internal Projects

S. No.	IIT Mandi Reference No./ Project No.	Project Title	Sponsoring Agency	Principal Investigator & Co-ordinator(s)	Department/ School	Amount Sanctioned in Rs.	Duration of Project	FY
1	IITM/INT/CKN/12	A new generation of nanotherapeutics for site-specific drug delivery in breast cancer	IIT Mandi- BioX	Dr. Chyan K Nandi (IIT, Mandi),& Dr. D. Mandal (IIT Ropar), Dr. Shalmoli (PGI Chandigarh)(Co-PI)	School of Basic Sciences	250000	1 year	2017-18
2	IITM/INT/PFS/13	Synthetic development and characterization of 3D carbon nanotube/ PVA scaffolds for bone tissue engineering applications	IIT Mandi- BioX	Dr. Prem Felix Siril (PI), Dr. Neha Garg(Co-PI) from IIT Mandi, Dr. Prabhat Agnihotri (PI), Dr. Narinder Singh (Co-PI) from IIT Ropar, Dr. Pramod Avti (PGI Chandigarh)(Co-PI)	School of Basic Sciences	1000000	1 year	2017-18
3	IITM/INT/TPS/14	A pilot study to develop microRNAs based non-invasive diagnostic method for the early detection of the oral squamous cell carcinoma	IIT Mandi- BioX	Dr. Tulika P Srivatsava as (PI from IIT Mandi),Dr. Srivatsava Naidu (PI from IIT Ropar), Dr. Narinder Singh (IIT Ropar)and Dr. Arnab Pal (PGI Chandigarh) as Co-PI's	School of Basic Sciences	2200000	1 year	2017-18
4	IITM/INT/NG/15	Design, Synthesis, characterization of organic-inorganic nanohybrids and evaluation of anticancer activities using invitro and invivo systems	IIT Mandi- BioX	Dr. Neha Garg as (PI from IIT Mandi),Dr. Narinder Singh (PI from IIT Ropar) and Dr. Chayan K Nandi (IIT Mandi), Dr. Abhimanew Dhir(IIT Mandi), Dr. Ramna Thakur (IIT Mandi) as Co-PI's	School of Basic Sciences	1000000	1 year	2017-18
5	IITM/INT/JKR/16	Development of lipid nanoparticles-coupled anti-angiomiR for targeting lung tumor angioenesis	IIT Mandi- BioX	Dr. Jaspreet Kaur Randhawa as (PI from IIT Mandi), Dr. Durba Pal (PI from IIT Ropar) and Prof. Anuradha Chakroborti (PGI Chandigarh), Dr. Navneet Singh (PGI Chandigarh), Dr. D. Behera(PGI Chandigarh) as Co-PI's	School of Basic Sciences	750000	1 year	2017-18
6	IITM/INT/SDG/17	Transitioning to e- autos in hill states: A case study in Mandi town	IIT Mandi	Dr. Shyamasree Dasgupta as (PI from IIT Mandi), Dr. T. Narsa Reddy (from IIT Mandi)	School of Humanities & Social Sciences AND School of Computing & Electrical Engineering	1000000	1 year	2017-18
7	IITM/INT/RG/18	Multidisciplinary approach for alzheimer's disease: targeting amyloid beta aggregation	IIT Mandi- BioX	Dr. Rajanish Giri as (PI from IIT Mandi), Dr. Kailash Chandra (PI from IIT Ropar) and Dr. Prem Felix Siril, Dr. Subrata Ghosh as Co-PI's from IIT Mandi	School of Basic Sciences	750000	1 year	2017-18

Seed Grant Projects

S. No.	File no.	Proposal Title	Faculty name	Department/School	Amount Sanctioned in Rs.	Period	FY
1	IITM/SG/SDG/57	Comprehensive valuation of forest ecosystem services and understanding the method of value formation: A case study in Himachal Pradesh	Dr. Shyamasree Dasgupta	School of Humanities & Social Sciences	500000	3 years	2017-18
2	IITM/SG/NRT/58	Material to control strategies for hybrid energy storage system AC-DC microgrid perspective	Dr. Narsa Reddy Tummuru (PI) Dr. Rik Rani Koner (Co-PI)	School of Computing and Electrical Engineering & School of Engineering	1550000	3 years	2017-18
3	IITM/SG/RG/59	Determination of fracture properties of bone for diabetic and non-diabetic patients: experimental and numerical investigation	Dr. Rajesh Ghosh (PI) Dr. Arpan Gupta (Co-PI)	School of Engineering	1200000	3 years	2017-18
4	IITM/SG/SSR/60	Heavy metal pick-up from water using nano fiber	Dr. Sumit Sinha Ray(PI)	School of Engineering	1000000	3 years	2017-18
5	IITM/SG/GSR/61	Broad- band electrically small antennas for various RF and Microwave- application	Dr. G. Shrikant Reddy	School of Computing and Electrical Engineering	553675	3 years	2017-18
6	IITM/SG/SS/62	Developing a low-cost, scalable and resilient agricultural internet-of- thing framework	Dr. Srikant Srinivasan (PI) Dr. Siddhartha Sarma (Co-PI)	School of Computing and Electrical Engineering	1500000	3 years	2017-18
7	IITM/SG/PS/63	Financial inclusion and financial depenning through branchless banking in Himachal Pradesh	Dr. Puran Singh (PI)	School of Humanities & Social Sciences	500000	2 years	2017-18

Sponsored Consultancy Research Projects

S. No.	File no.	Proposal Title	Faculty name	Agreement signed with	Amount Sanctioned in Rs.	Period	F/Y
1	IITM/CONS/TMSC/RS/13	Proof checking of the district courts building at gurgaon state PWD	Dr. Rajneesh Sharma (PI) Dr. Kaustav Sarkar (Co-PI)	Tarun Mathur Structural consultant,764, Sec-8B, Chandigarh	3,45,000	02 months	2017-18
2	IITM/CONS/DDPT/KVU/14	Borrow soil testing for NH-21	Dr. K.V. uday	Druta designs pvt. Ltd., Road no.-10, Banjara hills, hyderabad	1,04,650	01 month	2017-18
3	IITM/CONS/RIC/BJ/15	Matlab simulation of battery energy storage system(BESS) for 17 MW solar PV plant	Dr. Bhakti Joshi	Amber Aziz, Raychem RPG(RIC), Halol, Vadodara, Gujrat	1,84,080	10 days	2017-18
4	IITM/CONS/RxDSI/VD/16	Application for mining rare diseases and analyzing and predicting patient journeys	Dr. Varun Dutt	Rx Data Science Inc, USA	13,54,197	17 months	2017-18
5	IITM/CONS/ISPL/GSR/17	Automotive antenna design review	Dr. Gopi Shrikant Reddy	Ineda Systems Pvt. Ltd, E-Park, Cyberabad, Hyderabad	1,07,380	6 months	2017-18
6	IITM/CONS/REC/SKS/18	Review of design and drawing of dyke wall, fire wall, manhole and barricade structure around oil tank	Dr. Sandip Kumar Saha	Rezilient Engineering Consultancy, Flat no. 101, Nidhi enclave, KPHB, Hyderabad	30,680	12 days	2017-18

DESIGN PRACTICUM 2018

Design Practicum is a unique course of IIT Mandi offered to second year B.Tech students. Students learn product design, development and manufacturing skills though this practicum course. Interdisciplinary teams of six students, randomly selected from different branches propose product ideas and then build working prototypes. Many of these product ideas are derived from the needs of the society and particularly Himachal Pradesh.

The Design Practicum Open house was organized and working prototypes were displayed to external judges and visitors. There were many school students who visited us during the display of projects. This year students made twenty five projects ranging from Exoskeleton - a power suit made for army, autonomous oil spill cleaner, self balancing cycle, pole climber, all terrain stair climbing rover, etc.

Team No.	Project Title	Team Members	Roll No.	Mentor
1	Exoskeleton	Gaurav Kumar	B16057	Dr. Arpan Gupta
		Neelotpal Dutta	B16106	
		Garvit Mathur	B16096	
		Nikhil Gupta	B16023	
		Ritwik Saha	B16110	
		Parimal Kumar	B16137	
2	Crop Monitoring Mechanism	Hritik Gupta	B16097	Dr. Aditya Nigam
		Vinayak Kuthiala	B16039	
		Ajay Kumawat	B16043	
		Avinash Kumar Aryan	B16049	
		Akhil Akkapelli	B16088	
		Anand Ramrakhyani	B16124	
3	Advanced Riding	Pratyush Gaurav	B16026	Dr. Sandip Saha
		Piyush Patil	B16109	
		Naveen Kumar	B16105	
		Harsh Garg	B16132	
		Rohith Basupally	B16093	
4	Pole Climber	Vishnu Priya Jindal	B16041	Dr. Timothy A. Gonsalves
		Sujetth Rangannath Nellutla	B16036	
		Nishant Rana	B16107	
		Rachit Maheshwari	B16071	Dr. Narsa Reddy
		Ashutosh Kumar	B16126	
		Aman Rohilla	B16008	

5	Jeepsy	Mohd Nadeem	B16064	Dr. Tushar Jain
		Abhigyan Khaund	B16082	
		Bharat Lodhi	B16015	
		Vijay Kumar	B16149	
		Kadaru Sahith	B16058	
		Paila Kesava Rao	B16108	
6	The Helping Security Lock	Shashwat Garg	B16034	Dr. C.S. Yadav
		Ankit Kumar	B16125	
		Param Kashyap	B16098	
		Karan Kalra	B16020	
		Vishal Mahar	B16150	
		Johannes Lucke	EB1705	
7	Grey water to Clean water	Kuldeep Anjana	B16100	Dr. Atul Dhar
		Devashish Singh	B16055	
		Priyanshu Khandelwal	B16027	
		Anshul Gupta	B16012	
		Hardeep Malik	B16131	
		Aditya Singh	B16085	
8	EDISON(Electric Skate Board)	Vivek Sharma	B16119	Dr. Srikant Srinivasan
		Chirag Vashist	B16094	
		Shubham Choudhary	B16035	
		Rajan Bajaj	B16072	
		Bhanu Singh	B16128	
		Akash Kumar	B16087	
9	Manhole Cleaning System	Lokesh Kumar	B16061	Dr. Rajeev Kumar
		Rakshit Raj	B16074	
		Anmol Passi	B16092	
		Chirag Singh	B16129	Dr.Satish Chandra Jain
		Saquib Raza	B16111	
		Anubhav Chaudhary	B16013	
10	All Weather Jacket	Rohan Agarwal	B16130	Dr. Shubhojit Roy Choudhary
		Akul Gupta	B16006	
		Gaurav Meena	B16075	
		Shubham Kumar	B16146	
		Manish Sharma	B16063	
		Vikas Kumar Meharda	B16118	

11	Automatic Stamping Machine	Vishal Anand	B16040	Dr. Deepak Swami
		Dilip Chauhan	B16018	
		Sarthak Shekhawat	B16033	
		Abhay Kumar	B16121	
		Ajay Kumar	B16086	
		Shashi Mohan	B16076	
12	Pedal Powered River Water Harvesting System by Burning Human Calories	Gagandeep Tomar	B16056	Dr. Ajay Soni
		Ram Lakhan	B16138	
		Hemant Kumar	B16019	
		Anant Mishra	B16011	Dr. Amit Prasad
		Rijul Bathla	B16140	
		Koka Rajesh	B16059	
13	AutoKart	Sonali Jagarwal	B16079	Dr. Gaurav Bhutani
		Bhavya Bhatt	B16016	
		Aman Jain	B16044	
		Purvesh Chhajed	B16070	
		Rohit Kumar	B16142	
		Shishir Asthana	B16144	
14	Library Assistant Bot(LAB)	Yash Agrawal	B16120	Dr. Arnav Bhavsar
		Anand Kumar	B16045	
		Mothi Kailash	B16102	
		Shivam Verma	B16077	Dr. Prosenjit Mondal
		Nidhika Kadela	B16134	
		Chahak Godara	B16051	
15	LibWalk-World's most intelligent library system	Amrendra Singh	B16010	Dr. Mahesh Reddy Gade
		Sajal Boris	B16030	
		Paresh Agrawal	B16042	
		Tirupati Mishra	B16080	
		Abhijeet Rajput	B16083	
		Ajay Kumar	B16122	
16	Sound and Pressure to Electricity	Sylvia Mittal	B16038	Dr. Rajneesh Sharma
		Kirti Jorwal	B16099	
		Abhinandan	B16002	
		Surender Kumar	B16148	
		Amirth Varshan	B16089	
		Suryakant	B16117	

17	Helper Wheels	Dhrubodeep Basumatary	B16017	Dr. Ankush Bag
		Anurag Maurya	B16046	
		Kaustubh Verma	B16021	
		Siddharth Singh	B16147	
		Mohit Gouniyal	B16133	
		Stanzin Tsognis	B16116	
18	Electric Assist Cycle	Nikhil T R	B16066	Dr. Siddhartha Sharma
		Arpit Batra	B16047	
		Abhishek Bhaskar	B16084	
		Amit Rajain	B16009	
		Mukul Jangid	B16103	
		Saurabh Kumar	B16143	
19	Autonomous Oil Spill Cleaner	Lakshay Arora	B16060	Dr. Kaustav Sarkar
		Randheer Kumar	B16139	
		Gagandeep Singh	B16095	
		Anirudh Prasad Nistala	B16091	
		Vedant	B16081	
		Yogesh	B16151	
20	Eye - Go	Ayush Meghwani	B16127	Dr. Shyam Kumar Masakapalli
		Abhinav Dixit	B16003	
		Rohit Kaushal	B16028	
		Sammarth Kapse	B16031	
		Amit Ranjan	B16090	
		Rocky Verma	B16141	
21	Acciddent Free Roads	Aman Khandelwal	B16007	Dr. Kala Venkata Uday
		Amudhan	B16062	
		Daksh Sagar	B16052	
		Hrushikesh Sudam Sarode	B16032	
		Naman Chaudhary	B16104	
		Naveen Kumar Chouhan	B16022	
22	Smart Grain Dryer	Aashish Kumar	B16001	Dr. Mohammad Talha
		Kumar Abinash Mishra	B16101	
		Niraj Yadav	B16024	
		Aj R Laddha	B16004	
		Bhavesh Kumar	B16050	
		Niyush Katheria	B16136	

23	Spark	Palak Gupta	B16067	Dr. Pradeep Kumar
		Akhilesh Devrari	B16005	
		Prashant Shekhar Gupta	B16025	
		Venkat Ram	B16078	
		Piyush Agrawal	B16068	
		Shantanu Kaushik	B16113	
24	PizzaHouse-Automatic Pizza making Machine	Suryavanshi Virendra Singh	B16037	Dr. Satinder Sharma
		Prabhakar Prasad	B16069	
		Navneet Sharma	B16065	
		Shreyas Bapat	B16145	
		Deepak Jarwal	B16054	
		Shivam Chaudhary	B16115	
25	Bi-Ped support for Physically disabled	Hrishikesh Sagar	B16029	Dr. Gopi Srikanth Reddy
		Satpal Meena	B16112	
		Ashish Meena	B16048	
		Ashutosh Jamadari	B16014	Dr. B.D. Chaudhary
		Rakshit Matta	B16073	

An exoskeleton is an external skeleton that protects or supports an organism. One of the application is to increase the speed, strength, and endurance of the soldiers. A soldier has to carry heavy backpack loads and walk a long distance. In such a case an exoskeleton would benefit them by increasing the load carrying capacity and decreasing the rate of energy consumed by the muscles. The main focus is on increasing load capacity and reduces the energy expenditure while carrying the load.

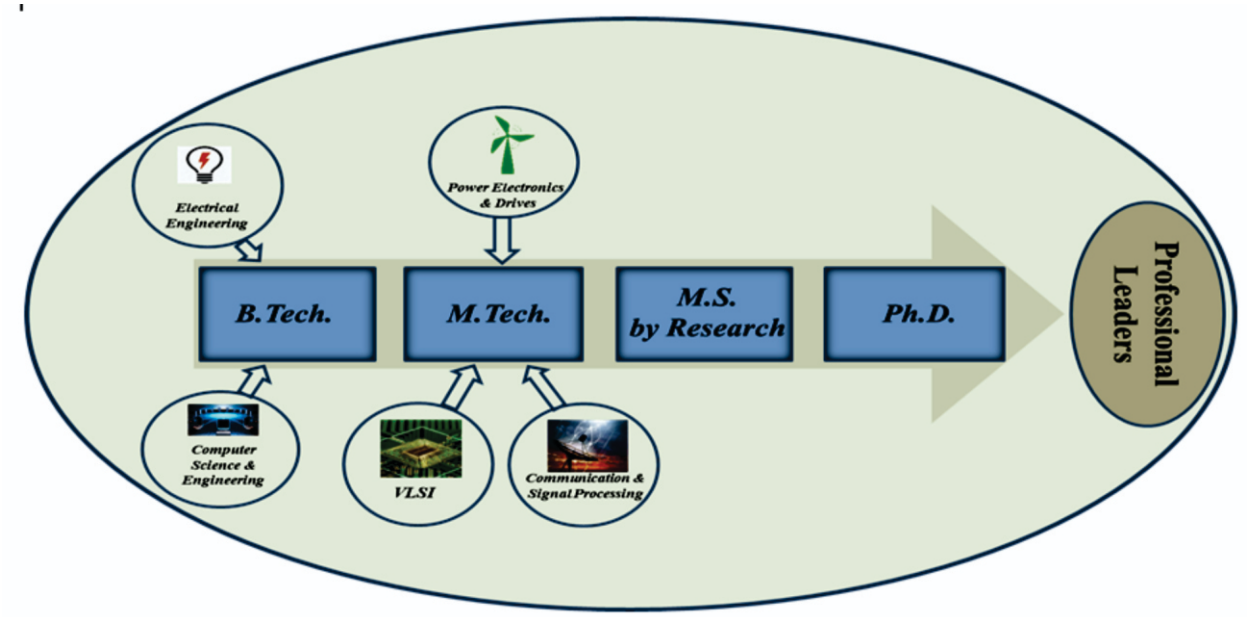
ACADEMIC SCHOOLS

School of Computing and Electrical Engineering (SCEE)

The School of Computing and Electrical Engineering (SCEE) of IIT Mandi aims to maintain excellence in teaching and research in technologies related to Computing, Communication, Electronics and Electrical Engineering.

The School of Computing & Electrical Engineering has 33 Faculty members, 7 Staff Members, 65 Ph. D Students, 56 Masters students and 355 B.Tech Students. It has five broad areas namely Power Electronics & Drives, Controls & Sensors, VLSI, Signal Processing and Communications, Computer Science & Engineering.

The School offered two UG degrees namely B.Tech. in Computer Science & Engineering and Electrical Engineering. The School has three M.Tech. program namely in Power Electronics and Drives, Signal Processing & Communications, and VLSI in addition to regular PhD and MS by Research programs.



Degree programs offered by SCEE, IIT Mandi

Various programs in SCEE with their intake capacity and start of year

Program	Year of start	Intake Capacity
B. Tech. (Computer Science & Engineering)	2009	40
B. Tech. (Electrical Engineering)	2009	40
M. Tech. (VLSI)	2016	30
M. Tech. (Communication & Signal Processing)	2017	30
M. Tech. (Power Electronics & Drives)	2017	30
M.S. by Research	2010	As per the requirements
Ph.D.	2010	

The area of research covers a broad spectrum of theoretical and application-based topics such as: smart grid, renewable energy, materials for efficient semiconductor devices, next generation communication and efficient human-computer interaction etc.

At the undergraduate level, we emphasize the hands-on learning approach by providing students with a firm foundation of both the theory and practice of Computer Science and Electrical Engineering. We also have joint faculty positions with the School of Basic Sciences and School of Humanities to expose students to the social, ethical, and liberal education to make significant contributions to the society.

The first batch of B.Tech. Students completed their graduation and enter the world of innovation as capable engineers. At the post-graduate level our Faculty provide a deeper mastery of the basics and opportunities for research and professional capabilities for students in the field of Computer Science and Electrical Engineering.

Our Faculty are engaged in both practical and theoretical research, often in partnership with government agencies, private industry and non-governmental organizations. National and international collaborations are one of the prime focus of the faculty. This aims towards advancement of knowledge within our disciplines and also to contribute to society.

There was Rs. 9.8 core of External Funding in 2017-18. There were around 37 Journal Papers, and 64 Peer Reviewed Conference Papers, 3 book/book chapters and 7 patents filed in 2017-18

For more information

Website: http://iitmandi.ac.in/Schools/SCEE/index.php

Faculty

Dr. Bharat Singh Rajpurohit
Chairperson
Associate Professor
Specialisation: Power Electronics Application to Power Systems
Ph.D. from IIT Kanpur in 2009
Home Town : Jodhpur, Rajasthan
Phone: 01905-267046
Email: bsr

Dr. Aditya Nigam
Assistant Professor
Specialisation: Biometrics, Computer Vision, Image Processing
Ph.D. from IIT Kanpur
Home Town: Kanpur, UP
Phone: 01905-267152
Email: aditya

Dr. Arnav Bhavsar
Assistant Professor
Specialisation: Image analysis, Computer vision
Ph.D. from Indian Institute of Technology Madras, Chennai, India (2011)
Home Town: Surat, Gujarat, India
Phone: 01905-267049
Email: arnav

Dr. Astrid Kiehn
Visiting Associate Professor
Specialisation: Distributed Algorithms, Verification, Theoretical Computer Science
Ph.D. from TU-Munich University, Germany (1989)
Home Town: Hamburg, Germany
Phone: 01905-267053
Email: astrid

Dr. Bhakti Madhav Joshi
Assistant Professor
Specialisation: ac drives and control
Ph.D. from IIT Bombay in 2014
Home Town: Pune (Maharashtra)
Phone: 01905- 267051
Email: bhakti

Anil Kumar Sao
Associate Professor
Specialisation: Image processing
Ph.D. from Indian Institute of Technology Madras, Chennai
Home Town : Bhilai, Chattisgarh
Phone: 01905-267066
Email: anil

Dr. Ankush Bag
Assistant Professor
Specialisation: Semiconductor Devices, Epitaxy and Compound Semiconductors
Ph.D. from IIT Kharagpur (2016)
Home Town: Howrah, West Bengal
Phone: 01905-267276
Email: ankushbag

Dr. Arti Kashyap
Associate Professor (Joint Appointment)
Specialisation: Magnetism and magnetic materials
Ph.D. from IIT Roorkee.
Home Town: Mandi, Himachal Pradesh
Phone: 01905-267042
Email: arti

Prof. B. D. Chaudhary
Emeritus Professor
Specialisation: Software Technology
Ph.D. from I.I.T. Kanpur in 1979 year
Home Town: Darbhanga, Bihar
Phone: 01905-267819
Email: bdchaudhary

Prof. Deepak Khemani
Professor (on deputation from IIT Madras)
Specialization: Artificial Intelligence
Ph.D. from IIT Bombay
Home Town:
Phone: 01905-267227
Email: khemani

Dr. Dileep A. D.
Assistant Professor
Specialisation: Pattern Recognition, Kernel Methods for Pattern Analysis, Machine Learning, Speech Technology, Computer Vision
Ph.D. From IIT Madras, Chennai in year 2013
Home Town: Udupi, Karnataka
Phone: 01905-267047
Email: addileep

Dr. Gopi Shrikanth Reddy
Assistant Professor
Specialization: Communications: Antennas and Wave Propagation, RF and Microwave Passive component Design
Ph.D. from IIT Bombay (2015)
Home Town: Jabalpur, Madhya Pradesh (Paternal Town: Telengana)
Phone:01905-267221
Email: gopishrikanth

Dr. Hitesh Shrimali
Assistant professor
Specialisation: Analog and mixed signal VLSI design, Analog-to-digital converters, Design and modeling of Radiation hard circuits
Ph.D. from: IIT Delhi
Home town: Ahmedabad, Gujarat
Phone: 01905-267259
Email: hitesh

Dr. Kunal Ghosh
Assistant Professor
Specialisation: Solar Photovoltaics
Ph.D. from Arizona State University, 2011
Home Town: Kolkata
Phone: 01905-267145
Email: kunal

Prof. Narendra Karmarkar
Visiting Distinguished Professor
Specialization:
Ph.D. from University of California (1983)
Home Town:
Email: narendrakarmarkar

Dr. Narsa Reddy Tummuru
Assistant Professor
Specialization: Hybrid Energy Storage Applications in Future Microgrids, Efficient Power Electronic Interfaces in Renewable Energy Applications and Smartgrid Communication Networks Ph.D. from IIT Madras (2015)
Home Town: Distt. Krishna, Andhra Pradesh
Phone: 01905-267225
Email: tummuru

Dr. Padmanabhan Rajan
Assistant Professor
Specialisation: Speech processing, speaker recognition
Ph.D. from IIT Madras in year 2012.
Home Town : Cochin, Kerala
Phone: 01905-267049 Email: padman

Dr. Ramesh Oruganti
Emeritus Professor
Specialisation: Power Electronics, Solar photovoltaic energy systems
Ph.D. from Virgina Tech, America
Phone: 01905-267123
Email: ramesho

Dr. Rahul Shrestha
Assistant Professor
Specialization: VLSI Design and Circuits & Systems for Signal Processing and Wireless Communication.
Ph.D. from IIT Guwahati (2014)

Dr. Renu M. Rameshan
Assistant Professor
Specialisation: Image Processing
Ph.D. from IIT Bombay in 2013
Home Town: Trivandrum, Kerala

Home Town: Bangalore, Karnataka
(Parental: Darjeeling, West Bengal)
Phone: 01905-267271
Email: rahul_shrestha

Dr. Samar Agnihotri
Assistant Professor
Specialisation: Information Theory, Communication Complexity, Wireless Communications
Ph.D. from Indian Institute of Science, Bangalore in year 2009
Home town: Delhi
Phone: 01905-267107
Email: samar

Dr. Satyajit Thakor
Assistant professor
Specialisation: Communication Theory, Information Theory, Network Coding
Ph.D. from Institute for Telecommunications Research, Uni. of South Australia in year 2012.
Home Town: Anand, Gujarat
Phone: 01905-267150
Email: satyajit

Dr. Siddhartha Sarma
Assistant Professor
Specialization: Resource allocation in Wireless Networks, Wireless Energy Harvesting and Crowd sensing
Ph.D. from Indian Institute of Science
Home Town: Agartala, Tripura
Phone:01905-267116
Email: siddhartha

Dr. Sriram Kailasam
Assistant Professor
Specialisation: Distributed Systems (Cloud Computing)
Ph.D. from Indian Institute of Technology Madras (2014)
Home Town: Mumbai, Maharashtra
Phone: 01905-267120
Email: sriramk

Phone: 01905-267051
Email: renumr

Dr. Satinder Kumar Sharma
Associate Professor
Specialisation: Nanoelectronics,Sensors, Photovoltaic& self-assembly.
Ph.D. from Kurukshetra University in 2007.
Home Town : Mandi, Himachal Pradesh
Phone: 01905-267134
Email: satinder

Dr. Shubhajit Roy Chowdhury
Assistant Professor
Specialisation: Biomedical Embedded Systems, Non invasive diagnostic systems,
Near Infrared Spectroscopy, VLSI Architectures
Ph.D. from Jadavpur University (2010)
Home Town: Kolkata, West Bengal
Phone: 01905-267110
Email: src

Dr. Srikant Srinivasan
Asst. Professor
Specialization: Big-Data acquisition and analysis, Nanoelectronics, Spintronics
Ph.D. from Purdue University - West Lafayette, USA (2012)
Home Town: Hyderabad
Phone: 01905-267222
Email: srikant

Prof. Timothy A Gonsalves
Director & Professor
Specialisation: Computer networks and distributed software systems
Ph.D. from Stanford University in 1986.
Home Town: Ooty, Tamil Nadu
Phone: 01905-267001, 7002
Email: tag

Dr. Tushar Jain
Assistant Professor
Specialisation: Control theory, fault tolerant control, industrial process control
Ph.D. from Université de Lorraine, France (2012)Home Town: Meerut, Uttar Pradesh
Phone: 01905-267117
Email: tushar

Dr. Varun Dutt
Assistant Professor (Joint Appointment)
Specialisation: Artificial Intelligence, Human-Computer Interaction, Judgment and Decision Making, Environmental Decision Making
Ph.D. From Carnegie Mellon University (USA) in year 2011
Home Town: Lucknow, Uttar Pradesh
Phone: 01905-267041
Email: varun

Dr. Yvonne Dittrich
Adjunct Professor
Specialisation:
Ph.D. from University of Hamburg in year 1997
Home Town: Copenhagen
Phone:
Email: ydi

Dr. Pooja Vyavahare
DST INSPIRE Faculty Fellow
Specialization: Distributed Computation, Network Analysis, Algorithm Design
PhD from IIT Bombay (2016)
Home Town: Indore, Madhya Pradesh
Phone: 267053
Email: pooja_vyavahare

Mentor Faculty

Prof. Enakshi Bhattacharya
Mentor Professor
Specialization: MEMS processing and sensors
PhD from TIFR, Bombay
Email:enakshi

Prof. Hema A Murthy
Mentor Professor
Specialisation: Speech, Signal processing, Computer networks
Ph.D. from IIT Madras, 1992
Email: hema

Dr. Sanjeev Manhas
Mentor Assistant Professor
Ph. D. from De Montfort University, Leicester, UK in Electronics and Electrical Engineering, 2003
Phone: +91-1332-28517
Email: samanfec

Research Projects

1. New Projects:

Names of PI, Co-PI, funding agencies and amount of grant received and amount spent etc.

Externally Sponsored Research Projects:

S. No.	Project Title	Sponsoring Agency	Investigator	Amount Sanctioned in Rs.	Duration of Project
1	Development of Gallium oxide based next generation power and sensor device Date of Sanction: 28.09.17 Date of Completion: 27.09.20	SERB	Dr. Ankush Bag	51,85,400	3 Years
2	Development and evaluation of low -cost landslide early warning solutions Date of Sanction: 06.10.17 Date of Completion: 05.10.20	DRDO-DTRL	Dr. Varun Dutt (PI),Dr. Venkata Uday Kala (Co-PI)	9,99,460	3 Years
3	Study and design of broad band frequency selective surface (FSS) structures for various RF and microwave applications Date of Sanction: 09.11.17 Date of Completion: 08.11.20	SERB	Dr. Gopi Shrikanth Reddy	51,97,910	3 Years
4	Development of modern state-of-the-Art digital Forensic facilities in Forensic science laboratories in Himachal Pradesh Date of Sanction: 24.04.17 Date of Completion: 23.04.19	Regional Forensic Science Laboratory (RFSL)	Dr. Arnav Bhavsar(PI-Mr. Rajesh Verma (PI) from RFSL, Dr. Anil K Sao, Dr. Renu Rameshan, Dr, Padmanabhan Rajan, Dr. A.D. Dileep, Dr. Aditya Nigam (Co-PI's)	12,00,000	2 Years
5	Development and evaluation of low-cost landslide monitoring solutions Date of Sanction: 11.12.17 Date of Completion: 10.12.19	NMDA	Dr. Varun Dutt (PI) and Dr. Venkata Uday Kala (Co-PI)	27,85,080	3 Years
6	Photo- catalytic treatment of wastewater for the removal of Azo dyes: using rGO- TiO2 based cost effective composite technology Date of Sanction: 06.01.18 Date of Completion: 05.01.20	Himachal Pradesh State council for Science, Technology & Environment (SCSTE)	Dr. Satinder Kumar Sharma (PI), Dr. Venkata Krishnan (Co-PI)	5,88,000	2 Years

7	A low cost high efficiency renewable energy based hybrid power conversion system for rural Himachal residential application Date of Sanction: 14.03.18 Date of Completion: 13.03.20	Himachal Pradesh State council for Science, Technology & Environment (SCSTE)	Dr. Narsa Reddy Tummuru	6,50,000	2 Years
8	Smart Agriculture: Farmer Zone Date of Sanction: 23.03.18 Date of Completion: 22.03.21	DBT	Dr. Srikant Srinivasan (PI), Dr. Renu M.R, Dr. Siddhartha Sarma, Dr. A.D. Dileep, Dr. Shyam Kumar Masakapalli, Dr. Shyamasree Dasgupta (Co-PI's) from IIT Mandi AND Dr. S.K. Chakrabarti (PI) from CPCRI, Shimla, Dr. Tina Barsby (PI) from NIAB(UK) AND Dr. Andre Laperriere (PI) from GODAN (USA) AND Dr. David Hughes (PI) from University of Pennsylvania	9,47,76,400	3 Years
9	Detection and quantification of dicentric chromosomes from captured images for triage biodosimetry application Date of Sanction: 07.02.18 Date of Completion: 06.08.19	INMAS-DRDO	Dr. Anil K Sao(PI) Dr. Arnav Bhavsar (Co-PI)	8,67,900	18 Months
10	Development of low cost accelerated water purification systems with added mineralisation for himalayan region Date of Sanction: 01.04.18 Date of Completion: 31.03.21	NMHS	Dr. Jaspreet Kaur Randhawa (PI) Dr. Bharat Singh Rajpurohit,Dr. Samar Agnihotri (Co-PI's)	40,66,000	3 Years

Seed Grant Projects

Sr. No.	Projects Title	File No.	Investigator	Amount Sanctioned in Rs.	Duration of Project
1	Material to control strategies for hybrid energy storage system AC-DC microgrid perspective Date of Sanction: 28.10.16 Date of Completion: 27.10.19	IITM/SG/NRT/58	Dr. Narsa Reddy Tummuru	15,50,000	3 years
2	Broad- band electrically small antennas for various RF and Microwave- application Date of Sanction: 07.12.16 Date of Completion: 06.12.19	IITM/SG/GSR/61	Dr. Gopi Shrikanth Reddy	5,53,675	3 years
3	Developing a low-cost, scalable and resilient agricultural internet-of- thing framework	IITM/SG/SS/62	Dr. Srikant Srinivasan	15,00,000	3 years
4	ASIC implementation of hardware-efficient & low-power spectrum sensor based on cyclosationary feature detection for congnitive radio mobile-broadband system	IITM/SG/Rsh/64	Dr. Rahul Shrestha	10,00,000	3 years

Sponsored Consultancy Research Projects

S.No.	Proposal Title	Faculty name	Agreement signed with	Amount Sanctioned in Rs.	Period
1	Matlab simulation of battery energy storage system(BESS) for 17 MW solar PV plant Signing Date- 17.06.17 Completion Date- 26.06.17	Dr. Bhakti Joshi	Amber Aziz, Raychem RPG(RIC), Halol, Vadodara, Gujrat	1,77,600	10 Days
2	Application for mining rare diseases and analyzing and predicting patient journeys Signing Date- 10.08.17 Completion Date- 31.12.18	Dr. Varun Dutt	Rx Data Science Inc, USA	US$ 21,667.152	17 Months
3	Automotive antenna design review Signing Date- 01.10.17 Completion Date- 30.03.18	Dr. Gopi Shrikanth Reddy	Ineda Systems Pvt. Ltd, E-Park, Cyberabad, Hyderabad	1,07,380	6 Months

2. Major Research Achievements including Products/Technologies developed/ ISTP/ DP/ MTP Outcome:

1. The Applied Cognitive Laboratory, SCEE, IIT Mandi in collaboration with the Construction Material laboratory, SE, IIT Mandi has recently developed a low-cost microelectromechanical system (MEMS) landslide monitoring and warning system. This system makes use of low-cost microelectromechanical systems (MEMS) - based sensors for local site-specific monitoring of landslides at every 10 minute interval. A prototypical low-cost system is

currently installed on a hill on the Kamand - Kataula road (near IIT Mandi campus). This technology may be replicated in other landslide-prone areas in India and world in the long term. This project is funded by the State Council for Science, Technology, and Environment, HP Government and DTRL, DRDO.

Team members with the landslide monitoring station at Salgi village against the IIT Mandi's North campus backdrop.

Sensors with wires and the microcontroller box deployed at a landslide site on IIT Mandi's South campus

2) **Development of human-performance modeling framework via physiological and signal processing tools for visual cognitive enhancement in IVD, VR and AR paradigms**: The Applied Cognitive Laboratory, SCEE, IIT Mandi in collaboration with Defense Research and Development Organization (DRDO) developed a human performance modeling framework for achieving cognitive enhancement using IVD, VR and AR as a training and assessment module for the Indian Army. The human performance model consists of cognitive-profiling and training modules in IVD, VR and AR. The cognitive profiling and training modules were prepared with the objective of performance assessment and for performance improvement during simulation-based training. The simulations used for profiling and training the army consisted of manned / unmanned modes (with all the human factors issues in the unmanned/manned interfaces integrated), search (reconnaissance) / shoot (destroy) modes, easy / difficult task-complexity modes (based upon enemy's artificial intelligence), variable dynamicity of targets and different technological interfaces. The cognitive-profiling module accounted for various psychological, physiological, behavioral, ergonomic, and neurological descriptors of performance.

3. Publications:

Patents/Books/Book Chapters/ Papers National and Internationals journals/conferences.

1. S. Karmakar Ghosh, V. Thakur, S. Roy chowdhury "Design and simulation of Helmholtz coil and Maxwell coil for low cost low magnetic field MRI machine", Advanced Materials Proceedings, Accepted for publication.
2. N. Govil, R. Shrestha, S. Roy Chowdhury, "PGMA: An Algorithmic Approach for Multi-objective Hardware Software Partitioning", Microprocessors and Microsystems, Vol. 54, pp. 83-96, 2017.
3. P. Sharma, V. Abrol, A D Dileep and A. K. Sao, “Sparse coding based features for speech units classification”, Computer Speech and Language, Volume 47 Issue C, January 2018 Pages 333-350.
4. P. Sharma, V. Abrol and A. K. Sao, “Deep sparse representation based features for speech recognition”, IEEE Trans. Audio Speech and Language Processing 25(11): 2162-2175 (2017).
5. S. Thakor, T. Chan, A. Grant, "Capacity Bounds for Networks with Correlated Sources and Characterisation of Distributions by Entropies," in IEEE Transactions on Information Theory, vol. 63, no. 6, pp. 3540-3553, June 2017.
6. P. Kumar, S. Thakor, "Performance of OFDM-FSO link with Analog Network Coding," in Photonic Network Communications, Journal Photonic Network Communications, vol. 35, no. 2, pp. 210-224, 2018.
7. S. Kharche, G. Shrikanth reddy, R. Gupta, Jayanta Mukherjee, " A wideband Circularly Polarized Diversity Antenna for Satellite and Mobile Communication", IET Microwaves, Antennas & Propagation, vol. 11, pp. 1861 - 1867, 2017.
8. G. Shrikanth Reddy, S. Kharche, “Elliptical UWB Antenna loaded with Rectangular Split Loop Resonator (RSLR) and Semi-Elliptical Slot for Multi band Rejection”,IEEE International Conference on Antenna Innovations and Modern Technologies (iAIM-2017) Bangaluru, India, (Best paper).
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Patents

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3. Jain, T., Yamé, J.J. and Sauter, D., 2018. Active Fault-tolerant Control Systems: A Behavioral System Theoretic Perspective (Vol. 128), Studies in Systems, Decision and Control. Springer International Publishing.

Conferences Attended and Paper Presented

1. Astrid Kiehn attend the workshop on FSTTCS 2017 (Foundations of Software Technology and Theoretical Computer Science) in 11-15 December 2017 held at IIT Kanpur.
2. S. Ghosh, V. Thakur, S. Roy Chowdhury, "Design of a low cost low magnetic field MRI system", 11th IEEE International Conference on Sensing Technology (ICST) 2017, Sydney, December 4-6, 2017.
3. N. Bhandari, S. Roy Chowdhury, "FPGA based High Performance Asynchronous Finite State Machine based on Modified 4 Phase Handshaking Protocol", 3rd International Conference on Nanoelectronics, Circuits and Communication Systems, Ranchi, November 11-12, 2017.
4. S. Dagar, S. Roy Chowdhury, S. Bapi Raju, A. Dutta, D. Roy, "A computational investigation on using the Excitation-Inhibition (E/I balance) mechanism to optimize tDCS protocol", 4th Annual Conference on Cognitive Science, University of Hyderabad, October 5-7, 2017.
5. N. Govil, R. Shrestha, S. Roy Chowdhury, "A new multi-objective Hardware-Software Partitioning Algorithmic approach for High Speed application", 21st VLSI Design and Test Symposium, IIT Roorkee, June 29 - July 02, 2017.
6. N. Paradkar, S. Roy Chowdhury, "Cardiac Arrhythmia Detection using Photoplethysmography",

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32. H. Shrimali, V.Sharma, J. Tripathi, R. Malik, "Nonlinear Modeling and Analysis of Buck Converter using Volterra Series" in IEEE International Conference on Electronics Circuits and Systems (ICECS), Batumi, Georgia, Dec. 5-8, 2017.

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45. R. Kumar, A. Kumar, A. Bhavsar. "Bird Region Detection in Images with Multi-scale HOG Features and SVM Scoring". International Conference on Computer Vision and Image Processing (CVIP 2017), 2017.

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47. V. Gupta, A. Bhavsar. "An integrated multi-scale model for breast cancer histopathological image classification with joint colour-texture features". International Conference on Computer Analysis of Images and Patterns (CAIP 2017), 2017.

48. V. Gupta, A. Bhavsar. "Breast cancer histopathological image classification: Is magnification important?". IEEE Conference on Computer Vision and Pattern Recognition, CVMI workshop (CVPRW 2017), 2017.

49. V. Gupta, A. Bhavsar. "Random forest-based feature importance for HEp-2 cell image classification". International Conference on Medical Image Understanding and Analysis (MIUA 2017), 2017.

50. S. Gautam, K. Gupta, A. Bhavsar, A. K. Sao. "Unsupervised segmentation of cervical cell nuclei via adaptive clustering". International Conference on Medical Image Understanding and Analysis (MIUA 2017), 2017.

51. R. M. Pindoriya, A. Usman, B. S. Rajpurohit and R. Kumar, "PMSG Based Wind Energy Generation System:Energy Maximization and its control", IEEE ICPS 2017, College of Engineering, Pune, India, Dec. 21-23, 2017, pp. 1-6, 2017.

52. A. Sharma, A. K. Mishra, B. S. Rajpurohit and K. N. Srivastava, "Power Quality Enhancement at PCC for PMSM based Adjustable Speed Drive Load", IEEE ICPS 2017, College of Engineering, Pune, India, Dec. 21-23, 2017, pp. 1-6, 2017.

53. A. Usman, B. M. Joshi and B. S. Rajpurohit, "Review of fault modeling methods for permanent magnet synchronous motors and their comparison," 2017 IEEE 11th International Symposium on Diagnostics for Electrical Machines, Power Electronics and Drives (SDEMPED), Tinos, 2017, pp. 141-146.

54. R.M. Pindoriya, B. S. Rajpurohit, R. Kumar and K. N. Srivastva,"Comparative Analysis of Permanent Magnet Motors and Switched Reluctance Motors Capabilities for Electric and Hybrid Electric Vehicles", IEEE Engineer Infinite International Conference, 13-14 March, 2018, Greater Noida, Delhi, India.

55. M. Sharma and B. S. Rajpurohit, "Minimization in the Price of Electricity Bills of Consumers using MILP", IEEE Engineer Infinite International Conference, 13-14 March, 2018, Greater Noida, Delhi, India.

56. A. Usman, B. S. Rajpurohit, "Finite Element Modeling of Demagnetization Fault in Permanent Magnet Direct Current Motors", IEEE PESGM 2018, Portland, USA, August 05-10, 2018 (Accepted).

4. Outreach/Continuing Education Activities organized: (Workshops/conferences etc. details with high resolution photographs).

1. Organized a 12 days MIT IIT Bootcamp on Innovation technologies in collaboration with IIT Delhi, MIT, USA and Asian School of Business Kuala Lumpur from June 22, 2017 to July 04, 2017. The workshop was attended by 55 participants including 25 participants from USA,

Malayasia and Australia. The workshop was organized with support from MHRD through the Design and Innovation Center. (Pics attached).

2. Workshop on machine learning and medical image analysis. WMLMIA 17, June 17-22

Coordinators: Dr. Anil Kumar Sao, Co-cordinatore: Dr. Padmanabhan Rajan

The Multimedia Analytics and Systems group of the School of Computing and Electrical Engineering at IIT Mandi organised the third Workshop on Machine Learning for Medical Image Analysis (WMLMIA 2017.) The five day workshop focused on the use of machine learning for analysing microscopy images. The workshop was held between 17-21 June, 2017 at the Kamand campus, IIT Mandi. Machine learning is an active research area, where computer algorithms “learn”, in a manner analogous to humans. Several research groups, both in academia and industry, the world over, are studying new and effective ways of utilising machine learning to automate the analysis of medical images. This has several applications, including the rapid diagnosis of large amounts of medical image data, thus helping doctors and clinicians perform faster and more accurate diagnosis. Microscopy analysis are an important modality in modern medicine, useful for diagnosing several diseases including malaria and cervical cancer. Seven speakers, including pathologists, physicists, and engineers gave lectures. Dr Sandeep R. Mathur, professor of pathology at the All India Institute of Medical Sciences, New Delhi delivered the keynote talk. Dr. Kedar Khare from the Department of Physics at IIT Delhi explained about a phase-microscope developed by his research group. Dr. Sarita Ahlawat, also from IIT Delhi, spoke about the efforts to commercialise the above microscope, and its application to the screening of cervical cancer. Dr Sai Subrahmanyam Gorthi from the Indian Institute of Space Science and Technology Thiruvananthapuram spoke about recent research in the use of deep learning in the analysis of microscopy images. Dr Vani Ravikumar, a pathologist from R.V. Metropolis, Bangalore, discussed various clinical aspects and how automation could be useful in diagnosis. Mr K.C. Bhushan from Aindra Systems, Bangalore spoke about the company's journey developing and commercialising automatic cervical cancer screening. Dr. Amod Anandkumar from Mathworks India, demonstarted the various tools available in the Matlab (TM) computing environment for machine learning on images. Other in-house speakers covered topics ranging from the basics of machine learning, hands-on sessions in machine learning, to

applications. The workshop was attended by 50 participants from all over India, including students, research scholars and faculty.

NCVPRIG 2017

3. Offered courses for QEEE and IIIT Allahabad. The courses are “Design with Opamp” (in Oct'17) and “BJT/MOSFET Amplifiers” (in Feb'18). The course taught for IIIT is “High performance design of operational amplifiers” (in March'18).

4. Conducted IoT session with hands on experience in STEP program for high school students from HP in June 2017.

5. A workshop was organized by Construction Material Laboratory on Disaster management. In this workshop various geotechnical management techniques were discussed from the state government employees along with other experts working in this field. Different methods were introduced for mitigating landslides and other disasters by deforestation, human awareness, building gabion walls etc. and some monitoring techniques also introduced for alerting people. In this we presented our Low-cost MEMS based sensors for monitoring and alerting people about the impending landslide, so the uman as well as economy losses can be prevent.

6. Presented low-cost MEMS based landslide monitoring system in Startup Himachal event

organized by the Himachal Pradesh Centre for Entrepreneurship Development to provide financial support to host institutions so that they are able to provide requisite hand holding and support to the potential entrepreneurs/startups having new ideas for serving people.

7. School has arranged Half day workshop on audio forensics for Regional Forensics Lab, Mandi.

8. Organised a Deep Learning (Theory + Tutorial) five-day workshop at AMU. Organised a full day tutorial at NCVPRIPG2017 on "Shallow to Deep Learning (Theory + Tutorial)".

9. From 17th-18th July 2017, SCEE hosted the Formal Methods Update Meeting 2017 at its campus in Kamand. This annual event of the Indian Association for Research in Computer Science (IARCS) brings together scientists and researcher from India working on formal methods in system design and verification. This year, 23 researchers from all over India (TCS Research, TIFR, CMI , IMSc, IISc, IIT Ghandinagar, IIT Hyderabad, Punjabi University Patiala and others) presented and discussed topical developments in their area. The event was supported by TCS and SCEE, the local organization committee comprised Dr. Astrid Kiehn and Dr. Samar Agnihotri.

10. Offered QEEE lectures delivered on specialized topics on control system engineering.

5. Conf./Workshops/Other Inst./Industry Visited (India or Abroad) or Invited Lectures Delivered

Dr. Shubhajit Roy Chaudhury

Conferences visited:

1. IEEE VLSI and Test Symposium, IIT Roorkee, June 30 to July 02, 2017.
2. European Sensors and Actuators Summit 2017, Stockholm, Sweden, August 22-24, 2017.

Invited talks delivered:

1. "Innovation in Point of Care Testing Medical Devices" at the Workshop on Innovation organized by Jawaharlal Nehru Government Engineering College, Sundernagar on March 14, 2018.

2. "Point of care testing of patients: Translating health care from hospital to home" at the International Telemedicine Workshop organized by CDAC Mohali on March 07, 2018.
3. "Neural Networks: A journey from biology to computing to biology" at the Centre for Green Energy and Sensing Systems, Indian Institute of Engineering, Science and Technology, Shibpur on January 30, 2018.
4. "Translating health care from hospital to home" at the TCS Innovation Labs, Kolkata on January 29, 2018.
5. "A low cost point of care testing hardware for stroke diagnosis" at the TCS Innovation Labs sponsored Indian Stroke Workshop, Bangalore on April 14-15, 2017.
6. "Non invasive diagnosis for patient care: From hospital to home" at Indraprastha Institute of Information Technology Delhi, India on April 06, 2017.

Dr. Satyajit Thakor

1. Conference visit:International Symposium on Information Theory (ISIT), Aachen, Germany.
2. Institute visit: Institutue for Telecommunications Research, University of South Australia, Australia.

Dr. Sriram Kailasam

Keynote Lecture on "Cloud-based framework for Smart Applications" delivered in National Conference on Smart Solutions for Research in Energy, Agriculture and Challenges in Health Informatics (SSREACH '18') 24Feb, 2018.

Dr. G Shrikanth Reddy (SCEE)

1. IEEE- International Conference on Antenna Innovations and Modern Technologies (iAIM-2017), Bangalore.
2. Industry visited: National Aerospace lab- Center for EM research, Bangalore.

Dr. Hitesh Shrimali

Visited TU Berlin from Jun-Aug 2017. As a part of the visit organized a BMBF funded workshop on “Current trends in analog circuit designing”.

As a part of TU9-IIT Mandi exchange programme, IIT Mandi and TU-Berlin have organized a BMBF funded workshop on “Current Trends in Analog Circuit Designing" on september 25-26, 2017. The workshop was organized by Dr. Hitesh Shrimali of IIT Mandi and Prof. Friedel Gerfers of TU-Berlin.

The workshop included experts from semiconductor industries such as STMicroelectronics, Synopsys and Western Digital (Sandisk). Prof. Friedel Gerfers presented high performance, high precision, energy efficient sigma-delta data conversion techniques. Moreover, Prof. Friedel Gerfers has presented measurement results of his recent IEEE publication with his PhD student Marcel Runge. Dr. Jai Narayan Tripathi (Technical Leader, STMicroelectronics) has delivered a lecture on jitter measurement techniques. He has presented his recent publications with measurement results on CMOS and FD-SOI technologies. Mr. Tapas Nandi (Director, Synopsys pvt. ltd.) has delivered expert talk on high speed wireless communication links, keeping the focus on high speed transmission links, PLL, CDR and oscillator circuits. Mr. Nitin Gupta (Director, Western Digital) has presented the world of analog in high performance system on chips. Mr. Atul

Bhargava (Technical Staff Engineer, STMicroelectronics) has presented design methodologies for state of the art analog circuits.

The event was co-ordinated by student co-ordinators: Vijender Kumar Sharma, Kumar Sambhav Pandey, Sumit Kumar Pandey, Puneet Arora, Ashish Joshi, Dinesh Kumar B., Indu Yadav, Shivani Sharma, and Ankita Deo.

The detailed workshop activities can be found on the following link:

http://iitmandi.ac.in/workshops/CTACD/

Dr. Ankush Bag

International Workshop on Physics of Semiconductors (IWPSD 2017), IIT Delhi.

Dr. Srikant Srinivasan

Invited lecture at IHBT Palampur on May 17on IoT for agriculture (Photo attached) Invited Lecture at Globalfoundries Bangalore on Spin electronics.

Rahul Shrestha

Visited Taiwan to present my research paper in VLSI-DAT Conference during April 2017.

Dr. Varun Dutt

1. Dr. Varun Dutt presented his work on Interactive Landslide Simulator at London South Bank University, United Kingdom, in June, 2017.
2. Dr. Varun Dutt presented at the 2017 DST ICPS workshop at IIT Kanpur on October 21st, 2017.
3. Dr. Varun Dutt presented at the 2018 DST ICPS workshop at IIT Delhi on March 13th, 2018.
4. Dr. Varun Dutt presented at the SDMA workshop on Rainfall Induced Landslides: Mapping, Mitigations and Monitoring on 11th October, 2017 at IIT Mandi.
5. Dr. Varun Dutt presented a lecture on cognitive modeling at the QIP-CEP Workshop on Experimental & Empirical Methods in Linguistics, 9th July - 15th July 2017, at IIT Delhi.

Dr. Padmanabhan Rajan

Paper presented at MLSP 2017, Tokyo, Japan.

Dr. Arnav Bhavsar

1. National conference on computer vision, pattern recognition, image processing, graphics m (NCVPRIPG 2017) (Dec 2017).
2. Workshop on Machine learning for Medical Image Analysis (WMLMIA 2017) (June 2017).

Dr. Aditya Nigam

Delivered an expert lecture at NITTTR Kolkatta. Delivered an expert lecture at IIT BHU.

Dr. Astrid Kiehn

Guest speaker at "A National Workshop on Reliability and Economic Performance of Multi-functional Microgrids for Indian Scenario", December 21-23, 2017, IIT Mandi, India.

Tushar Jain

Guest speaker at "A National Workshop on Reliability and Economic Performance of Multi-functional Microgrids for Indian Scenario", December 21-23, 2017, IIT Mandi, India.

6. Eminent Guest/Scholars/Students/Interns Hosted: (With details of activities/talks etc.)

1. Invited Lecture by Dr. Shiv Narayan Senior Scientist, CSIR-National Aerospace Lab, Bangalore Title of Talk: Frequency Selective surface and its application in Aerospace industry.
2. The speakers were called as a part of BMBF funded workshop. They were Prof. Friedel Gerfers from TU Berlin, Mr. Tapas Nandy (Director, Synopsys pvt. ltd.), Mr. Nitin Gupta (Director, Western Digital), Dr. Jai Narayan Tripathi (Technical Lead, STMicroelectronics pvt. ltd.) and Atul Bhargava (Technical Lead, STMicroelectronics pvt. ltd.).
3. Invited Lecture by Dr. Marieke van Vugt (University of Groningen) on title Chasing cognitive mechanisms associated with oscillatory synchronization with computational models.

NIT Jalandhar Visitors

Purpose: Research Collaboration meeting

Date of Visit: 13-16 September, 2017

An interaction meeting between faculty and research scholars from NIT Jalandhar, and from IIT Mandi was held on Sep 15, 2017.The objective of the meeting was to explore the possibility of researchcollaboration in the areas of signal and image processing. Suggested areas of collaboration include:

- Machine learning and its applications
- Deep learning and its applications in computer vision
- Deep learning and its applications in biometrics
- Image processing

Prof. M. Manivannan

Purpose: Talk and Seminar

Date of visit: 26 October, 2017

He is from the Department of Applied Mechanics, IIT Madras visited IIT Mandi from September 26-October 01, 2017. Prof. Manivannan delivered a talk on "Modern Health Monitoring Tools from Ayurveda".

Dr. Shiv Narayan

Purpose: Teaching and Seminar

Date of Visit: 10-13 October, 2017

- Lecture and Interactive session by Dr. Shiv Narayan, Sr. Scientist, National Aerospace Lab (NAL-CSIR) Bangalore.
- 11th Oct. 2017: Received Dr Shiv Narayan by evening. Informal discussion about IIT Mandi-infrastructural and academic development.
- 12th Oct. 2017: Lecture on “Fundamentals of Frequency selective surfaces”.

Prof. Milind D Atrey

Purpose: Teaching and Seminar

Date of Visit: 16-22 May, 2017

- He is Professor in charge of the Refrigeration and Cryogenics Laboratory in the Department of Mechanical Engineering, IIT Bombay.
- Prof Milind Atrey visited IIT Mandi to interact with the faculty and students of SCEE to discuss areas of collaboration and stimulate new research directions. .

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Prof. Yvonne Dittrich

Purpose: Teaching and Seminar

Date of Visit: 11-18 November, 2017

- IEEE Seminar on The Indian Stack and Financial Inclusion - What is in there for research? The Indian Stack and Financial Inclusion – What is in there for research?
- I would like to present some of the learnings from a recent trip to Bangalore and Mumbai and discuss the need for research supporting the current development around digital payments. I will take up Software Engineering, Artificial Intelligence, and Security.

Robert Bosch Visitors

Dr. Jonathan Neudorfer, Dr. Farhad Amirali Merchant, Dr. Birupaksha Pal, Dr. Kaustav Niyogi

IEEE Industry Inteaction: Real time simulation at Robert Bosch Research and Technology Centre India

Purpose: Talk and Seminar

Date of Visit: 08-09 November, 2017

An interactive talk with a team from Robert Bosch Research and Technology Center, Bangalore has been schduled by IIT Mandi, IEEE PES-IAS Chapter and IEEE PELS-IES as per the following program:

Title of the talk: **Real time simulation at Robert Bosch Research Centre India**

Prof. B Yegnanarayana

IEEE PES-IAS Lecture on Evolution of ANN, architectures: From learning to deep learning

Purpose: Teaching and Seminar

Date of Visit: 25 October, 2017

Title: Evolution of ANN, architectures: From learning to deep learning

Prof. Ravindra Arora, IIT Kanpur

Purpose: Teaching and Seminar

Date of Visit: 8 December, 2017

IEEE PES-IAS Talk on Introduction to High Voltage Engineering and Lightning Phenomenon

A Technical Talk being organized by IEEE PES-IAS and PELS-IES Delhi Section as per following details:

Topic: Introduction to High Voltage Engineering and Lightning Phenomenon

Dr. N.M. Pindoriya IIT Gandhinagar

Purpose: Talk and Seminar

Date of Visit: 09-10 June, 2017

IEEE PES-IAS and PELS-IES Technical Seminar on Integrating Distributed Renewables and Energy Storage in Distribution Network

IEEE PES-IAS and PELS-IES Technical Seminar on Smart Grid Developments in India: Path towards efficient and environmentally sustainable electricity access

Topic: Smart Grid Developments in India: Path towards efficient and environmentally sustainable electricity access

Dr. Mahima Arrawatia, IIT Guwahati

Workshop/Product demo lecture: Keysight Technologies and Cascade Technologies

Title of Talk: Measurements and testing related to Communication, Semiconductor devices, and IoT application.

Dr. Marieke van Vugt (University of Groningen)

Purpose: Teaching and Seminar

Date: 02-04 September, 2017

Title: Chasing cognitive mechanisms associated with oscillatory synchronization with computational models

Prof. S. N. Singh, IIT Kanpur

Purpose: Talk and Seminar

Date of Visit: 09-10 June, 2017

IEEE PES-IAS and PELS-IES Technical Seminar on Role of Forecasting in Power System OperationTopic: Role of Forecasting in Power System Operation

IEEE PES-IAS and PELS-IES Technical Seminar on Smart Multi-Terminal DC Âµ-Grid Control and Operation

Topic: Smart Multi-Terminal DC µ-Grid Control and Operation

Prof. K.N. Srivasatava

Purpose: Teaching and Seminar

Date of Visit: 13 February, 2017 for a period of 1 semester

IEEE PES-IAS and PELS-IES Technical Seminar on Future Power Systems: Adapting to Future ChallengesTopic: Future Power Systems: Adapting to Future Challenges?

Presentation Date: June 8, 2017

Prof. K.N. Srivasatava

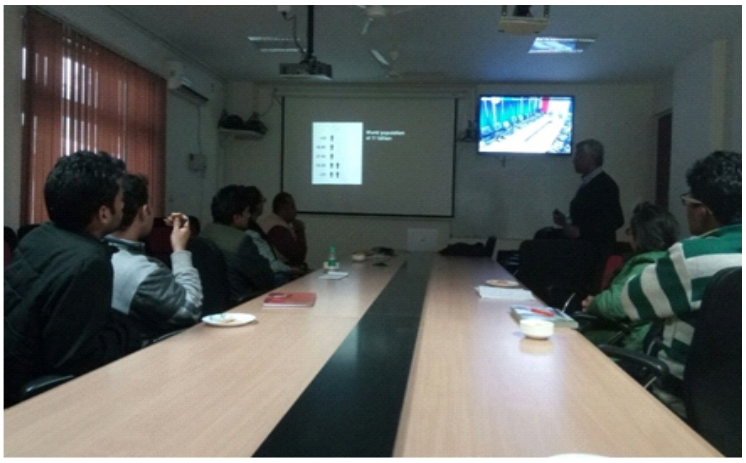
Purpose: Teaching and Seminar

Date of Visit: 13 February, 2017 for a period of 1 semester

IEEE PES-IAS Talk: Why presentations matter?

Topic: Why presentations matter?

Presentation Date: 17 May, 2017



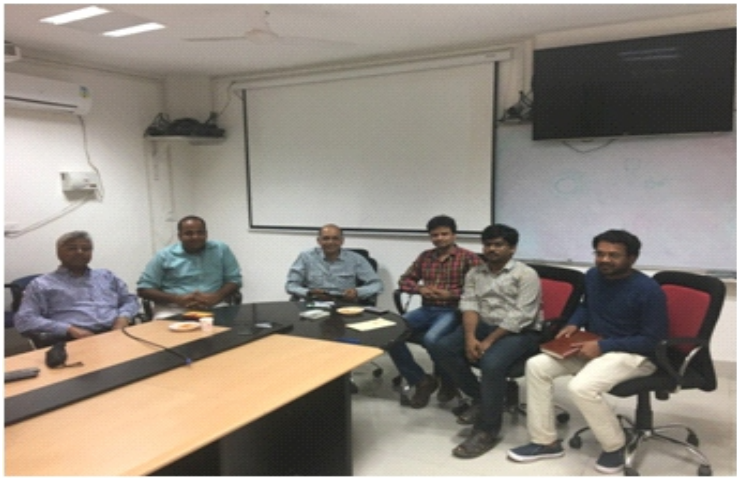
Mr. B. R. Bharath

Purpose: Talk and Seminar

Date of Visit:

Topic: Product manufacturing of power distribution equipment at various voltage levels, application

engineering for projects and general discussions in related area.



7. Professional achievements, honors and awards/ Membership of Professional Societies

Dr. Shubhajit Roy Chaudhuri

1. Selected as Associate Editor of IEEE Access Journal by IEEE in the year 2018.
2. Elected as a member of Award Committee for Gandhian Young Technological Innovation (GYTI) Award by the Society for Research and Initiatives for Sustainable Technologies and Institutions (SRISTI) in the area of Health Care devices in the year 2018.
3. Received IAAM Scientist Medal in the European Sensors and Actuators Summit 2017 at Stockholm, Sweden.

Dr. G Shrikanth Reddy (SCEE)

Best paper award (Session T-7) IEEE- International Conference on Antenna Innovations and Modern Technologies (iAIM-2017), Bangalore.

Dr. Hitesh Shrimali

1. Distinguished Alumni Award 2017 (Instrumentation and Control Engg. Department, Nirma University)
2. All-Rounder Contribution Award for the Execution of Academic and Research Activities at IIT Mandi (2017);
3. IEEE professional member and IEEE societies member for NPS, CAS, IES and SSCS.

Dr. Srikant Srinivasan

- Awarded Ramalingaswami Re-Entry fellowship in Dec. 2017Membership of IEEE and ACM.

Dr. Varun Dutt

1. Appointed to the Board of Governors of RxDataScience, USA in January, 2018.
2. IEEE Senior Membership, 2017.
3. Committee Member for the creation of Centre for Landslide Research, Studies and Management (CLRSM), 2017.

8. New initiatives/New Research facilities created/equipment installed/ laboratory established.

Dr. Shubhajit Roy Chowdhury

1. Developed double sided dry PCB fabrication facility at IIT Mandi at the Design and Innovation Centre.
2. Developed a Tinkering Lab for students at the Design and Innovation Centre.

Dr. Satyajit Thakor

Mathematica software is procured from external project fund for research.

Dr. G Shrikanth Reddy (SCEE)

VNA, Portable Anechoic chamber, Far-field/Near field radiation measurement facility, Material characterization facility.

Dr. Hitesh Shrimali

1. Setup the VLSI design laboratory as a part of Special Man-power Development project from chip to system design (SMDP-C2SD), funded by DeitY. The laboratory is equipped with all the industry standard chip-designing tools such as Cadence, MentorGraphics, Synopsis research suite and the Spartan FPGA boards.
2. The laboratory has cutting edge process design kit (PDK) technologies ranging from 28 nm to 180 nm CMOS technologies. The PDKs have been acquired from the Europractice by signing required NDAs. The Europractice is a consortium of IMEC Belgium, STFC UK and Fraunhofer IIS Germany. These technologies are being used to teach various subjects to UG and PG students.

Dr. Srikant Srinivasan

Initiative on setting up an interdisciplinary IoT lab at IIT Mandi campus. Currently operating from spaces.

Dr. Varun Dutt

Workstation installed in Applied Cognitive Sciences Lab: 32 GB Intel core i5 (2.8 GHz) with Geforce GTX 1080Ti (12 GB memory), Ubuntu

Dr. Arnav Bhavsar

Purchased 2 Drones and 2 depth cameras for the MANAS lab

Dr. Aditya Nigam

From school funding, we have procured 6 GPU card. From Institute and School funding, we have procured 24 GPU nodes in HPC. From school funding, we have procured multiple sensors such as Iris scanner, 4-slap scanner, signature pad, drones, depth sensors.

Dr. Tushar Jain

1. Wind Turbine emulator - Wind turbine emulator mimics the behaviour of actual wind turbine under controlled manner. It provides a flexible testing flatform of dynamic and steady state behaviour of wind turbine. It is also coupled to the generator, other power electronics circuitry and grid. So, it is not needed to rely on environmental conditions which are appropriate for driving the wind turbine emulator at some desired operating point.
2. Three tank system - The Multitank System relates to liquid level control problems commonly occurring in industrial storage tanks. For example, steel producing companies around the world have repeatedly confirmed that substantial benefits are gained from accurate mould level control in continuous bloom casting. Mould level oscillations tend to stir foreign particles and flux powder into molten metal, resulting in surface defects in the final product. The goal of

the Multitank System design is to study and verify in practice linear and nonlinear control methods. The general objective of the control is to reach and stabilise the level in the tanks by an adjustment of the pump operation or/and valves settings.

Major items brought in SCEE labs.:

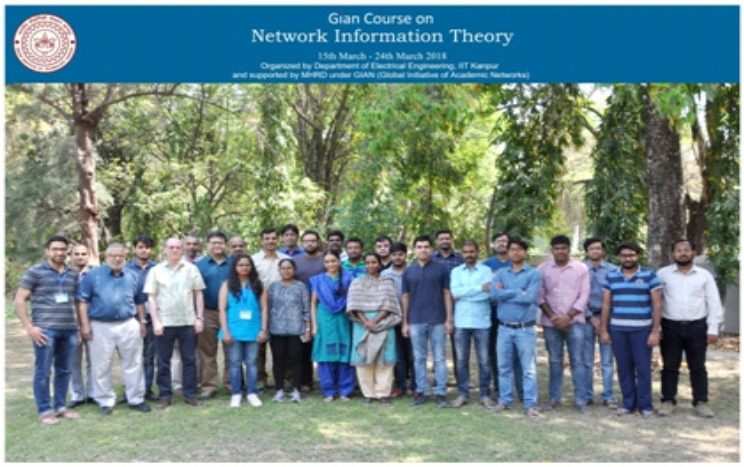
Sr. No.	Name of equipments	Quantities (No's)
1	Spartan 6 FPGA Kit (Xilinx)	1
2	NVIDIA JETSON TK1 development kit	1
3	NVIDIA JETSON TX2 SOM	1
4	Development kit (EIC-Q820-210)	1
5.	Digital Multimeter Model 17B+	1
6	Arbitrary Function Generator	17
7	IC Tetser (Analog)	1
8	IC Tester (Digital)	1
9	Digital Multimeter Model 115 Fluke	5
10	Digital Multimeter Model 17B+ Fluke	10
11	Desktop	1
12	LCR Meter	3
13	DC Power Supply (0-30V)/5A	2
14	DC Power Supply (0-25V)/7A,(0-50V)/4A	1
15	Mixed Domain Oscilloscope	1
16	Current Probes	3
17	Differential Probes	3
18	Desktop	14

9. Student Activities/Achievements:

- Student Ms. Yashika Arora selected for internship at Carnigie Mellon University, USA in the area of NIRS based neurodiagnosis.
- Abhishek Pandey won best MTP thesis award for "Design and Implementation of a Scalable Complex Event Processing Framework".
- Ayush Kumar Yadav won best MTP thesis award for "Evaluating Data Models for Astronomical Data".
- Deepanshu Sapra and Deepanshu Gupta won runner-up MTP thesis award for "A distributed framework for real-time computation of formal concepts and concept lattice.
- Dr. Debarati Banerjee, postdoctoral fellow, SCEE, IIT Mandi was selected for APMI-MPIB-SOTON Winter School on Bounded Rationality 2018 to be held in collaboration with the Max Planck Institute for Human Development, Germany..
- Ms. Palvi Aggarwal, Ph.D. candidate, SCEE, IIT Mandi, got a postdoctoral fellowship offer from Carnegie Mellon University, USA.
- Mr. Zahid Maqbool Ph.D. candidate, SCEE, IIT Mandi, became an Assistant Professor in

Dooru College, Government of Jammu and Kashmir.

- Ms. Shruti Kaushik Ph.D. candidate, SCEE, IIT Mandi, was selected to attend the 1st Data Science Summer school held at Ecole Polytechnique, Paris, France.
- Mr. Akash Rao Ph.D. candidate, SCEE, IIT Mandi won the best poster award in Anushandhan (Annual IIT Mandi Research fair) 2018 in IIT Mandi.
- Ph.D. student, Mrs. Avantika Singh got her research work accepted for the presentation in WiCV@CVPR2018 at Utah USA and have got full funding.
- Vyoma Singh carried out an internship on the topic “Online Calibration” at Robert Bosch Engineering and Business Solutions Private Limited, Bangalore from September 4, 2017 to November 28, 2017.
- Mona Subramaniam A, Vyoma Singh and Avinash Kumar received travel grant from EECI to attend this workshop : European Embedded Control Institute (EECI) -IGSC (M08 – MADRAS(India) 13/03/2017-16/03/2017 Nonlinear Model Predictive Control Frank Allgöwer & Matthias A. Müller, University of Stuttgart, Germany).
- **Mr. Dauood Saleem** Attended a GIAN course by Gerhard Kramer, who is Alexander von Humboldt Pro-fessor and Chair of Communications Engineering at the Technical University of Munich(TUM) Germany on “Network Information Theory” at Indian Institute of Technology Kanpur (IIT Kanpur), March 15-24, 2018.



- Presentation on research work titled, "Classification of HEp-2 Whole Slides Images for Autoimmune Disorder Detection" in BioX research fair, IIT Mandi, held on 11th June 2018.

Ms. Krati Gupta presented her work in CoDS-COMAD 2018 and SPIE-MI 2018 at Texas, USA

10. Media Coverage in Newspapers and TV/ Important Photographs/albums:

Dr. Shubhajit Roy Chowdhury

The news on MIT IIT Bootcamp was coevered in the Tribune.

Dr. Hitesh Shrimali

The Aavishkar event got local media coverage in various Himachali newspapers.

Dr. Varun Dutt

Articles published in newspapers.

भूस्खलन होने से पहले ही मिल जाएगा खतरे का संकेत

हिमाचल समेत पहाड़ी राज्यों के लिए आईआईटी मंडी के इंजीनियरों ने तैयार की सुरक्षा प्रणाली

मेक इन इंडिया योजना से तैयार होंगे उपकरण

कम लागत में विकसित हुई भू-स्खलन निगरानी व्यवस्था

आई आई टी. कमांद के सहयोग से विकसित की है नई तकनीक

इस तरह बनाया है प्रणालुओं ने सिस्टम

16,000 रुपए की आई है लागत

Newspaper: Amar Ujala Dated: March 26, 2018 **Another newspaper cutting**

11. Any other information which may be included in the Annual Report:

Visit from School Children's

A group of students from Govt. Sen. Secondary School Pandoh Distt Mandi. visited our labs on 29 January ,2018 .We have shown them all basic instruments using in our lab.

A group of students from SAI university visited our Labs . The students were from B.Tech 2nd year Electrical and electronics discipline.It was also collaborated with IEEE.

- A group of students from Govt. Sen. Secondary School Pandoh Distt. Mandi visited **Control System Lab** on 29 January, 2018 .We have shown them all basic equipment such as Robotic Arm, Self balancing Robot etc.


- Around thirty five students and three faculty members had visited from Bachelor of Technology in Electrical, Electronics department of Sri Sai University, Palampur, Himachal Pradesh, on 26th March, 2018. We have shown them all the equipment's of control system lab and basic of LabView software.




SCHOOL OF ENGINEERING (SE)

School of Engineering is working towards vision of the institute. School is committed for high standard of engineering education through outstanding teaching, innovative curricula, and excellent research environment. School offers a number of common courses for B. Tech like Design practicum, Reverse engineering, Graphics for design, Materials science, Product realization technology, Mechanics of rigid bodies, Continuum mechanics and Engineering thermodynamics along with the core courses of Mechanical and Civil stream. Presently, School of Engineering has 34 faculty members including 2 Associate Professors, 26 Assistant Professor, 1 Visiting Professor, 1 Emeritus Professor, 1 Distinguished Visiting Professor, 1 Adjunct Professor and 2 Mentor Professors. There are currently 72 Ph.D, 27 MS, 78 M.Tech and 268 B.Tech students in the school. The main areas of research are broadly classified as Materials and Design, Thermo-fluids Engineering, Energy and sustainable Himalayan infrastructure. In Materials and Design area, the focus is towards the development of materials for sensor, actuator & energy harvesting applications and analysis of smart structures and systems. In thermo-fluids engineering, faculty members are investigating Radiative heat transfer, Nano-scale heat transfer and Flow analysis & Heat transfer analysis of IC engines. Additionally, molten metals/alloys are also being explored in the school. Energy efficient systems cover climate change studies, applications of phase change materials towards energy efficient buildings and the use of non-conventional energy sources at IIT Mandi to enhance energy efficiency. Sustainable Himalayan infrastructure encompasses the areas of slope stability, geo hazard zonation, waste management and performance based design. To this end a good number of sponsored research projects have been granted by agencies such as SERB, DRDO, ISRO, NRDMS, DLR (German Aerospace Centre), BHEL etc. The school has several well equipped UG labs (Design lab, Thermo-fluid lab, Mechanical workshop, Surveying lab, Geotechnical lab and Environmental science & technology lab. PG (Energy Engineering lab) and several research lab IC Engine lab, Smart Materials lab, Construction Material lab, Acoustic Vibration lab, Nano material lab etc.

Faculty

Dr. Rajeev Kumar
Chairperson & Associate Professor
Specialization : Solid Mechanics, Vibration, FEM, Optimization
Ph.D. from IIT Roorkee in 2008.
Home Town: Jaspur, Uttarakhand
Phone: 01905-267148
Email: rajeev@iitmandi.ac.in

Prof. Ajit P. Annachhatre
Visiting Professor
Specialisation: Environmental Engineering
PhD From : Indian Institute of Technology Mumbai (1987)
Home Town: Pune, Maharashtra
Phone: 01905-267143
Email: ajit@iitmandi.ac.in

Dr. Arpan Gupta
Assistant Professor
Specialisation: Acoustics, Vibration, Bio-mechanics, Computational methods- FEM, CFD, Lattice Boltzmann Method
Ph.D. from National University of Singapore (2012)

Dr. Atul Dhar
Assistant Professor
Specialisation: IC Engines, Alternative Fuels, Emission Control
Ph.D. from IIT Kanpur, in year 2013.
Home Town: Sultanpur, Uttar Pradesh

Home Town: Indore, MP
Phone: 01905-267135
Email: agupta@iitmandi.ac.in

Dr. Deepak Swami
Assistant Professor
Specialisation: Groundwater flow and transport modelling, Water resources development and management, Disaster mitigation specially related to floods and flash flood.
Ph.D. from IIT Roorkee in year 2014.
Phone: 01905-267269
Email:deepak@iitmandi.ac.in

Dr. Gaurav Bhutani
Assistant Professor
Specialisation: Fluid flow modelling
Ph.D (2016) from Imperial College London
Phone: 01905-267108
Email: gaurav@iitmandi.ac.in

Prof. -Ing. Balthasar Novák
Adjunct Professor
Specialisation: Civil Engineering
PhD From: Technical University Darmstadt (1995)
Phone:
Email: balthasar.novak@iitmandi.ac.in

Dr. Kaustav Sarkar
Assistant Professor
Specialisation: Durability design of concrete, sustainable concrete production, finite element analysis, soft computing
PhD from Indian Institute of Technology, Delhi (2016)
Phone: 01905-267145
Hometown: Kolkata
Email: srkr@iitmandi.ac.in

Dr. Maheshreddy Gadde
Assistant Professor
Specialisation: Earthquake Engineering and Engineering Seismology
Phone: 01905-267143
Email: atul@iitmandi.ac.in

Dr. Dericks Praise Shukla
Assistant Professor
Specialisation:Remote Sensing & GIS, Hydro-geo-chemistry, Water contamination mostly As and other Heavy metals,
Natural Hazards Assessment and Mapping
Ph.D. from University of Delhi in 2012
Phone: 01905-267147
Email : derricks@iitmandi.ac.in

Dr. Himanshu Pathak
Assistant Professor
Specialisation: Computational Solid Mechanics, Fracture Mechanics, Functionally Graded Materials
Ph.D (2015) from Indian Institute of Technology, Patna
Phone: 01905-267224
Email: himanshu@iitmandi.ac.in

Dr. Jaspreet Kaur Randhawa
Assistant Professor
Specialisation: Nanomaterials.
PhD from Gorakhpur University (2000)
Home Town: Mohali, Chandigarh
Phone:01905-267056
Email: jaspreet@iitmandi.ac.in

Dr. K. S. Kasiviswanathan
Assistant Professor
Specialisation : Hydraulics and Water Resources, Engineering Earthquake Engineering
Ph.D (2014) from Indian Institute of Technology, Madras
Phone: 01905-267079
Email: kasiviswanathan@iitmandi.ac.in

Dr. Mousumi Mukherjee
Assistant Professor
Specialisation: Geotechnical Engineering
Ph.Dfrom Indian Institute of Technology, Kanpur

Ph.D (2016) from Indian Institute of Technology, Madras
Phone: 01905-267223
Email: maheshreddy@iitmandi.ac.in

Dr Mohammad Talha
Assistant Professor
Specialisation: Solid mechanics, Composite structures, Functionally graded materials, Structural mechanics, Uncertainty quantification and Imperfection sensitivity in composites.
PhD from IIT Kharagpur in year 2012.
Home Town: Patna, Bihar
Phone: 01905-267152
Email:talha@iitmandi.ac.in

Dr. Pradeep Kumar
Assistant Professor
Specialization: Fluid and Thermal Science
Ph.D. from IIT Kanpur in 2009.
Home Town: Jaunpur, Uttar Pradesh
Phone: 01905-267112
Email: pradeepkumar@iitmandi.ac.in

Dr. Rajesh Ghosh
Assistant Professor
Specialisation: Solid Mechanics, Biomechanics, Finite Element Analysis
Ph.D. from Indian Institute of Technology Kharagpur (2013)
Phone:01905-267151
Email:rajesh@iitmandi.ac.in

Dr. Rik Rani Koner
Assistant Professor
Specialisation: Hybrid Materials
Ph.D. From: IIT Guwahati
Phone: 01905-267220
Email: rik@iitmandi.ac.in

Dr. Satish Chandra Jain
Emeritus Professor

(2016)
Home Town: West Bangal
Phone: 01905-267111
E-mail-mousumi@iitmandi.ac.in

Dr. P. Anil Kishan
Assistant Professor
Specialization: Computational Fluid Dynamics
PhD from IITKharagpur in 2009.
Home Town: Tirupati, Andhra Pradesh
Phone: 01905-267141
Email: kishan@iitmandi.ac.in

Dr. Rahul Vaish
Associate Professor
Specialization: Glasses & Glass-ceramics
Ph. D. (Engg.), Indian Institute of Science Bangalore, 2010
Home Town: Badaun, Uttar Pradesh
Phone: 01905-267139
Email: rahul@iitmandi.ac.in

Dr. Rajnish Sharma
Assistant Professor
Specialisation: Image based Finite element Methods, Cohesive zone modeling, Insitu Characterization of fracture process, Homogenization and multiscale modeling, Analysis and design of the composites under extreme loading environments
Ph.D. from Indian Institute of Technology, Delhi
Home Town: Hamirpur, Himachal Pradesh
Phone: 01905-267144
Email : rajnishsharma@iitmandi.ac.in

Dr. Sandip Kumar Saha
Assistant Professor
Specialisation: Earthquake Engineering
Ph.D. (2014) from Indian Institute of Technology, New Delhi
Phone: 01905-267264
Email: sandip_saha@iitmandi.ac.in

Dr. Satvasheel Ramesh Powar
Assistant Professor

Specialisation: Mechanical Engineering, Machine Design, Tribology, Vibration and Noise, Computer Aided Design
Ph.D. from Indian Institute of Technology, Roorkee (Erstwhile University of Roorkee) (1983)
Home Town: Patparganj New Delhi
Phone: 01905-267278
Email: satish@iitmandi.ac.in

Prof. Subrata Ray
Distinguished Visiting Professor
Specialisation: Physical metallurgy, Composites and Tribology
Ph.D. from Indian Institute of Technology Kanpur (1976)
Phone: 01905-267069
Email: sray

Dr. Sudhir Kumar Pandey
Visiting Assistant Professor
Specialization: Condensed Matter Physics and Material Sciences.
Ph. D. from UGC-DAE Consortium for Scientific Research, Indore in 2007.
Home Town: Garhwa, Jharkhand
Phone: 01905-267066
Email: sudhir@iitmandi.ac.in

Dr. Sumit Sinha Ray
Assistant Professor
Specialisation : Mechanical Engineering
Ph.D. (2016) University of Illinois, Chicago
Home town - Calcutta, West Bengal,
Phone: 01905-267265
Email: sumitsinha@iitmandi.ac.in

Dr. Viswanath Balakrishnan
Assistant Professor
Specialisation: Growth of functional materials/ thin films, Electron microscopy & in situ exploration of structure-property relationships
Ph.D. (Materials Science) from IISc, Bangalore in 2008.
Home Town: Chidambaram, Tamil Nadu
Phone: 01905-267142
Email: viswa@iitmandi.ac.in

Specialisation: Dye-sensitized solar cells, Perovskite solar cells
Ph.D. from Monash University, Australia (2013)
Home Town: Kolhapur, Maharashtra
Phone: 01905-267136
Email: satvasheel@iitmandi.ac.in

Dr. Subhamoy Sen
Assistant Professor
Specialisation: Structural Engineering
PhD from: IIT Kharagpur(2016)
Phone: 01905-267261
E-mail-subhamoy@iitmandi.ac.in

Dr. Sunny Zafar
Assistant Professor
Specialisation: Manufacturing Engineering
Ph.D. (2016) from Indian Institute of Technology, Roorkee
Home Town: Chandigarh
Phone: 01905-267268
Email: sunnyzafar@iitmandi.ac.in

Dr. Vishal Singh Chauhan
Assistant Professor
Specialization: Design Engg., Electromagnetic Radiation during Deformation of metals and alloys, Solid Mechanics, FEM
Ph.D. from BIT Mesra, Ranchi in 2009.
Home Town: Sanawad, MP
Phone: 01905-267044
Email: vsc@iitmandi.ac.in

Dr. Venkata Uday Kala
Assistant Professor
Specialization: Geotechnical Engineering,
Ph.D. Indian Institute of Technology, Bombay
Home Town: Hyderabad
Phone: 01905-267149
Email: uday@iitmandi.ac.in

Mentor Professors

Dr. B. K. Mishra
Mentor Professor
Specialisation: Composite materials, Fracture mechanics, Wave propagation
Ph.D. from IT-BHU (1989)
Phone: +91-1332-285679
Email-bhanufme@iitr.ac.in

Dr. Sunil R. Kale
(IIT-Delhi Mech. Engg. Dept.)
Mentor Professor
Specialisation: Heat Transfer, Fluid mechanics, Particle-laden flows, Combustion and Energy Conversion
Home Town: Pune, Maharashtra
Phone: +91-11-2659 1127, 1709
Email-s.r. kale@mech.iitd.ac.in

Externally Sponsored Research Projects

Sr. No.	Project	Sponsoring Agency	Investigators	Project Cost (in Rs.)	Duration of Project
1.	Design, Manufacturing and testing of the Energy System	DST-FIST	Dr. Rajeev Kumar (PI) & Dr. Himanshu Pathak(Co-PI)	2,42,0000	3 years
2.	Search of new semiconducting heusler alloys for high temperature thermoelectric applications	SERB	Dr. Sudhir Kumar Pandey	19,08,940	3 years
3.	Efficient Removal of Most Penetrating Particles (diameter~ 300 nm) from Air/Water Using Supersonically-blown Ultrafine PVDF Nanofibers	DST-SERB (approved, waiting for final sanction)	Sumit Sinha Ray	54.41 lakhs	3 years
4.	Development of nanostructured wear resistant microwave clads to minimise slurry erosion in hydro turbines	SERB, DST Government of India	Dr. Sunny Zafar	53,30,750/-	3 years
5.	Numerical and experimental investigations on impact and thermomechanical fatigue behaviour of microwave cured carbon fiber polymer composites	Aeronautical Research and Development Board, Government of India	Dr. Sunny Zafar (PI) and Dr. Himanshu Pathak (Co PI)	39,00,000/-	3 years
6.	Development of Low Cost Accelerated Water Purification Systems with Added Mineralization for Himalayan Region	National Mission On Himalayan Studies (NMHS)	Dr. Jaspreet Kaur Randhawa(SE), Dr. Bharat Singh Rajpurohit(SCE). Dr. Samar Agnihotri (SCEE).	40,00,000/-	3 years
7.	Fracture Analysis of Functionally Graded Materials (FGMs) by coupled FE-Mesh free Method	SERB (DST), Government of India	Dr. Himanshu Pathak (PI)	16,78,000/-	3 years

8.	Up-gradation of the existing rope-way system used in rural areas.	STD Mandi (DST sponsored)	Dr. Rajneesh Sharma	1.5 lakhs	3 years
9.	Structural vetting and certification for PSPCL Multistory integrated corporate office complex at Shakti Vihar Patiala PB.	Planners Group (PWD Punjab)	Dr. Rajneesh Sharma	3.7864 Lakhs	6 months
10.	Structural analysis and design of the culvert near hospital chowk Mandi HP	PWD Mandi HP	Dr. Rajneesh Sharma	1.495 Lakhs	6 months
11.	Structural vetting and certification for the District Courts Building at Gurgaon HR	Tarun Mathur (PWD Gurgaon)	Dr. Rajneesh Sharma	3.45 Lakhs	2 months
12.	Structural vetting and certification of flyover bridge at Palwal HR	Tarun Mathur (PWD Haryana)	Dr. Rajneesh Sharma	1.77 Lakhs	3 months
13.	Scalalble manufacturing of asymmetric micro super capacitor for next generataion energy stroage devices	DST	Dr. Viswanath Balakrishnan & Dr. Satvasheel Powar	68,60,600	3 years
14.	Suitability of higher modeling approach for reactive solute transport through hetrogeneous porous medium: experimental and numerical study	SERB	Dr. Deepak Swami	42,74,600	3 years
15.	Study of solute transport parameters through porous medium	MoES	Dr. Deepak Swami & Dr. D. P. Shukla	44,59,325/-	3 years
16.	Investigation of phase change nanocomposites for high strain rate resistant armour application	DRDO	Dr. Viswanath Balakrishnan (PI), Dr. Mohammad Talha (Co-PI)	26.86 lakh	3 years

17.	Sustainable waste water treatment through bio-photoelectro catalysis and biofuel production,	IMPRINT-MHRD	Atul Dhar, Rahul Vaish, Shyam Masakapalli, Tulika P Srivastava, Aditi Halder, Satvasheel Powar, Rik Rani Koner, Venkat Mohan from (IICT Hyderabad)	3,84,000,00	3 years, (July 2017-June 2020).
18.	Parametric study on pullout resistance of mdel micro-piles	DRDO	Dr. Kala Venkata Uday (PI), Dr. Kaustav Sarkar(Co-PI)	9,95,900	3 years
19.	Development and evaluation of low -cost landslide early warning solutions	DRDO-DTRL	Dr. Varun Dutt (PI),Dr. Venkata Uday Kala (Co-PI)	9,99,460	3 years (October ,2017 to 2020)
20.	Development and evaluation of low-cost landslide monitoring solutions	NMDA	Dr. Varun Dutt (PI) and Dr. Venkata Uday Kala (Co-PI)	2785080	3 years (December,2017 to 2020)
21.	New metal-organic networks as promising electro-active species for energy storage application: from materials developments to prototype fabrication	SERB	Dr. Rik Rani koner	30,51,000	3 years
22.	Water and Energy Efficient Reliable Irrigation System (WatEr-ERIS): Solar energy and Cloud-based decision support systems for automated irrigation system	Imprint -2, DST	Dr. Kasiviswanathan, Dr. Subhamoy Sen, Dr.Narsa Reddy, Dr. Soundarajan, Amrita University	95,00,000	3 years
23.	Design and development of efficient solar assisted corrugated box dryer	Himachal Pradesh State council for Science, Technology & Environment (SCSTE)	Dr. Satvasheel Powar	8,17,000	2 years

24.	MHRD- Unnat Bharat Abhiyan scheme	MHRD	Dr. Satvasheel Powar (PI) Dr. Suryaprakash Upadhyay, Dr. Dericks P Shukla, Dr. Atul Dhar (Co-PI's)	35,0000	1 year
25.	Non- linear active shape and vibration control of functionally graded structure using functionally graded piezoelectric material	DRDO	Dr. Rajeev Kumar (PI) Dr. Mohammad Talha (Co-PI)	18,03,000	3 year
26.	Snow mapping & it's parameter estimation from geospatial (AVIRIS-NG) and field data	SAC-ISRO	Dr. Dericks P. Shukla	1,00,000	1 year
27.	Spatial distribution of uranium and associated water quality parameters in Mandi, Kullu and Hamirpur	DAE-BRNS	Dr. Dericks P Shukla (PI) Dr. Aditi Halder (Co-PI)	2751800	2 years
28.	Proof checking of the district courts building at gurgaon state PWD	Tarun Mathur Structural consultant,764, Sec-8B, Chandigarh	Dr. Rajneesh Sharma (PI) Dr. Kaustav Sarkar (Co-PI)	345000	02 months
29.	Borrow soil testing for NH-21	Druta designs pvt. Ltd., Road no.-10, Banjara hills, hyderabad	Dr. K.V. uday	104650	01 month
30.	Review of design and drawing of dyke wall, fire wall, manhole and barricade structure around oil tank	Rezilient Engineering Consultancy, Flat no. 101, Nidhi enclave, KPHB, Hyderabad	Dr. Sandip Kumar Saha	30,680	12 days

Seed Grant Projects

Sr. No.	Project Titles	File No.	Investigator	Amount Sanctioned (in Rs.)	Duration of Project
1	Heavy Metal Pick-Up from Water Using Nanofiber Filter Membrane	IIT Mandi-Seed Grant	Sumit Sinha Ray	10,00,000	3 years
2	Development, characterisations and mathematical modelling of microwave cured porous composites for biomedical applications	IITM/SG/SJ/56	Dr. Sunny Zafar (PI) and Dr. Mohmmad Talha (Co-PI)	14,50,000	3 years
3	Development and Implementation of Extended Finite Element (XFEM) Model for Ductile Crack Growth in Structural Engineering Applications	IIT Mandi	Dr. Himanshu Pathak (PI)	5,12,000	3 years
4	Determination of Fracture Properties of Bone for diabetic and non-diabetic Patients: Experimental and Numerical Investigations	IIT Mandi	Dr. Rajesh Ghosh &Dr. Arpan Gupta	12,00,000	3 years
5	Review of design and drawing of dyke wall, fire wall, manhole and barricade structure around oil tank	Rezilient Engineering Consultancy, Flat no. 101, Nidhi enclave, KPHB, Hyderabad	Dr. Sandip Kumar Saha	30,680	12 days

Progress of the Research Projects

PI-Dr. Rajeev Kumar

- **Design, Manufacturing and Testing of the Energy System.**
- In this Project, design, manufacturing & testing facilities will be developed for various type of energy harvesters and energy storage devices. Procurement of laser machining facility, cold welding facility & plasma sintering setup is under process.
- **Non- linear active shape and vibration control of functionally graded structure using functionally graded piezoelectric material.**

- In this Project, a finite element model had been developed for the shape control of functionally graded structure using functionally graded piezoelectric material. Further, based on the model, a MAILAB code had been also developed. Code was validated with existing published results.

PI-Dr. Sunny Zafar

- **Development of nanostructured wear resistant microwave clads to minimize slurry erosion in hydro turbines**
- Material selection done
- Nanostructured clads fabricated
- Erosion testing of clads in progress
- **Numerical and experimental investigations on impact and thermomechanical fatigue behavior of microwave cured carbon fiber polymer composites**

  Project is under review
- **Development, characterisations and mathematical modelling of microwave cured porous composites for biomedical applications**

  a. Porous composites developed

  b. Characterization of porous composites in progress

  c. Mathematical modelling in progress

PI-Dr. Dericks P. Shukla

- **Spatial distribution of uranium and associated water quality parameters in Mandi, Kullu and Hamirpur (three districts of Himachal Pradesh)**

  In view of this, the present project has been formulated to study the uranium concentration and associated water quality parameters in groundwater and surface water in and around Mandi, Kullu and Hamirpur disticts (three districts of Himachal Pradesh). The water quality parameters (16 nos.) such as pH, TDS, EC, DO, ORP, Temp., Salinity, Hardness, Alkalinity, Sulphate, Fluoride, Chloride, Nitrate, Phosphate, Carbonate and Bicarbonate will be analyzed as per BARC standard protocol. A systematic district-wise grid sampling map will be followed and the approval of BRNS will be taken before sampling. Sampling will be carried out in pre-monsoon and post monsoon season. The study will be undertaken to establish the baseline data on naturally occurring uranium levels and associated water quality parameters of the study region.
- **Snow Mapping and its Parameter Estimation from Geospatial (AVIRIS-NG) and Field data.**

  The hyperspectral sensors capture data in contiguous narrow bands of the electromagnetic spectrum and allow whole spectral curves to be recorded with individual absorption features. Therefore, hyperspectral remote sensing provides information related to surface material that can be exploited to characterize, quantify and perform automated detection of the targets of interest. With the availability of 4-8 m pixel resolution AVIRIS-NG hyperspectral data over a continuous electromagnetic spectrum spread over 380 – 2510 nm at 5 nm band interval over

57 sites in India and 1-2 in HP for snow and glacier studies, the applicability of this data is very high. Especially in the field of snow and glacier studies, estimation of snow grain size is required along with snow type mapping. Snow type mapping is required for development of an early warning system for snow avalanche. Hence hyperspectral satellite images can be used for preparation of snow type maps. Since applicability of hyperspectral AVIRIS sensor is not explored for study of snow/glacier parameters and characteristics in Indian context, this will be a good opportunity to do the same.

- **Facile, Low Cost Synthesis of Graphene/Zeolite composite and their application in Removal of Heavy Metals from Water.**

The research proposal aims at developing facile, low cost synthesis of graphene-zeolite composite and evaluates its performance to remove heavy metals from water. GO will be synthesised using Modified hummers method which involves chemical reaction between graphite and oxygen containing compounds followed by sonication and washing. The further GO reduction will be carried out based on one pot, green, photocatalytic approach. The synthesis of zeolite will be performed using bentonite by a hydrothermal process. Bentonite has received attention for zeolite synthesis in recent years owing to its ease of availability, low cost and might be the best way to chemically utilize bentonite resources in the future

- **Multi-Image 3D Reconstruction of Landslide in North – Eastern Sector**
- These days Unmanned Aerial Vehicles (UAV) and drones are easily available at very low cost providing very high-resolution images at different scales. This automated aerial and close-range digital photogrammetry has become a powerful and widely used tool for 3D topographic modelling. The freely available open source software can be used for 3D reconstruction starting from the initial stages of acquisition of the images from the drone, to the final output generation. Finally, the assessment and validation of the reconstructed 3D surface of the landslide can be done by measuring the width (length), height and perimeter on the reconstructed surface. These values can be measured in field using Total Station (TS) instrument. Comparative assessment of these measured quantities will be done keeping the values measured by TS as reference.

- **Semi-Automatic framework for preparation of LSZ using machine learning techniques.**

The focus of this research investigation will be, collection of parameters contributing towards the landslide and their impact modelling in GIS environment, development of efficient model for assignment of weightage & rating to different layers and evolving a semi-automated system for the development of LSZ maps using satellite data & machine learning methods in an efficient, accurate and cost effective way. The ground terrain temporal study like collection of parameters contributing towards the landslide and their impact modelling in GIS environment will be the key issues. This project will be carried out in Alaknanda river basin of Garhwal Himalaya from the origin of the river to Rudra Prayag. The length of the river is approximately 168 Kms in this stretch. This area has seen many landslides in the past. Buffer of 10 Kms on both side of river (shown in green colour in figure) will be considered for this study. This buffer has an area of approximately 2700 Sq. Km of the Garhwal area. The red and blue color in elevation map shows high and low altitudes respectively. All the sub-basins of the

river, lying in Uttarakhand state of India are also shown in map. These LSZ maps will also be an important input for preparing the risk assessment of LSZ.

PI-Dr. Kaustav Sarkar

- **Modelling of Hydraulic Diffusivity and its application in the FE simulation of moisture transport in concrete for assessing corrosion risk.**

  All quipment have been procured. A Finite Difference code has been developed to simulate one-dimensional water absorption profiles in porous building materials.Various techniques for the modelling of moisture distribution profiles are being tested for their robustness in modelling hydraulic diffusivity through cross validation exercises. Headways are being made into the application of ensemble modelling techniques to gain on the strengths of different models.The planning and execution of experiments is at an initial stage.

PI-Dr. Arpan Gupta

- **Design of Quieter hard disk and optical drive using Sonic Crystal.**

  The project is in its last phase. The designed system using sonic crystal has been tested experimentally. It provides a noise reduction of ~ 8 - 9 dB. The proposed novel design has been applied for indian patent. Further, study of sonic crystal along with partitions or panels is under study.

PI- Dr. Sumit Sinha Ray

- **Development of biopolymer filter membrane for efficient heavy metal removal:**

  This work focuses upon usage of biopolymer/agrowaste incorporation in nonwoven filter medium for efficient removal of heavy metal, like- Pb, As, Cr, Cd etc from water. The method to be employed for production of this nonwoven medium is called as Solution Blowing, which will be introduced in India for the first time.

PI- Dr. Sumit Sinha Ray & Dr. Rik Rani Koner

- **Transition/Post-transition metal oxide nanofibers for energy conversion application**

  Here in this work we are developing porous spongy HER, OER and ORR active architecture for fuel cell studies from transition metal oxides like Mn, Fe, Ni etc. and post-transition metal oxide like Ga without any dopant material. So far Ga2O3 nanofiber with porous morphology has been proven to be a bi-functional catalyst, which is also the first work with this material on such domain, as per the best of knowledge of PI.

PI- Dr. Rajesh Ghosh

- **Design and Failure Analysis of Cemented Acetabular Prosthesis**

  Total Hip Arthroplasty (THA) and Hip Resurfacing Arthroplasty (HRA) is necessary for patients suffering from arthritis or traumatic injuries. In this process, femur is replaced by artificial femoral component and socket of the pelvic bone is replaced by acetabular prosthesis. Clinical studies reported that, loosening of acetabular prosthesis is 2 - 3 times higher than the femoral one. The primary goal of the project proposal is to develop and design a new cemented acetabular prosthesis that can minimize failure.

PI- Dr. Mohammad Talha

- **Nonlinear thermo-electro-elasticity analysis of geometrically imperfect functionally graded curved panels with material uncertainties**

  The functionally graded materials (FGMs) are novel, microscopically inhomogeneous composites in which the mechanical properties vary smoothly and continuously in the preferred direction. Due to complexity of the manufacturing process the geometric imperfections, microstructural defects and randomness in the material properties are inevitable which have significant effects on the structural response. The FGM structures are highly flexible which often experiences large displacements and rotations and/or buckling without plastic deformation under normal operating loading and environmental conditions. Therefore, the detailed investigation of the combined effect of the geometric imperfection and material uncertainties with thermo-electro-elasticity is highly desirable to avoid the catastrophic failure of the structures during operating life.

- **Imperfection Sensitivity Analysis of Functionally Graded Structures Featuring Parameter Uncertainties.**

  This study deals with the geometric nonlinear structural behavior (i.e. bending, free vibration, buckling) of imperfection sensitive shear deformable functionally graded plates along with the material uncertainties, and a uniform temperature rise to accomplish the realistic prediction of structural response and reliability. The material properties like Young's moduli, Poisson's ratios, and volume fraction indices are considered as random system parameters featuring uncertainty in the system. A generic function (i.e. product of trigonometric and hyperbolic functions) is used to incorporate initial geometrical imperfection in terms of various imperfection modes like sine type, global type, and local type. The formulation are based on the Reddy's higher order shear deformation theory along with von-Karman type geometric nonlinearity. Numerical results are obtained stochastically using finite element method (FEM) in conjunction with first order perturbation technique (FOPT).

PI- Dr. Himanshu Pathak

- **Fracture Analysis of Functionally Graded Materials (FGMs) by coupled FE-Meshfree Method.**

  The objective of the proposed work is to develop coupled meshfree-finite element method (FEEFG) code for FGMs structural member under thermo-mechanical loading. This includes the evaluation of SIF and J -integral for commonly used FGM components such as thermal barrier coating used in aerospace structure/nuclear reactor. However, before attempting an elaso-plastic problem, a code will be developed using linear elastic fracture mechanics for FGMs. Standard plane 2-D problems of FGM composite fracture mechanics would be analyzed using FE-EFG method. Further, the developed code will be extended for 3-D cracked domain. The developed code will be validated with analytical, numerical and experimental results available in the literature.

  In the next phase, different design issues such as effect of thermal strain, graded exponent will be analyzed. Developed meshless codes can be used in aerospace and nuclear reactor structure where thermal barrier coating is a big issue; also these codes can be used for

accurate analysis of corrosive resistance coating applied in marine structure.

- **Development and Implementation of Extended Finite Element (XFEM) Model for Ductile Crack Growth in Structural Engineering Applications.**

  The objective of proposed work is to develop extended finite element method (XFEM) code for ductile structural member under thermo-mechanical loading. This includes the evaluation of J –integral and J-R curve based fracture criterion for commonly used ductile material components such as aerospace structure, automobile body and nuclear reactors.

PI- Dr. Deepak swami

- **Suitability of higher modeling approach for reactive solute transport through heterogeneous porous medium: experimetnal and numerical study.**

  The experimental setup and the equipment of the project mostly have been procured, the code for the experiments have been developed. The experimentation process will commence soon with various reacitve solutes. The prime objective of the work is to identify the best suiting approach for parameter estimation and modelling the experimental breakthrough curves through hetergeneous porous medium.

- **Study of solute transport parameters through porous medium.**

  The project work has started, phd scholar have been recruited. The project is the study of the transport parameters of various chemicals and the diffusion processes within porous medium. Project also focuses on the aspect of aquifer cleaning.

PI- Dr. P. Anil Kishan

- **Solar energy storage using change material for space heating application**

  The climate data is recorded for the period 1st December 2017 – 15th February 2018. The minimum and maximum temperature in different IIT Mandi, buildings are recorded through data logger.

  A typical temperature profile comparison of 8th Jan 2018, for all four buildings (G1 (made of gypsum boards with insulation), Nako Hostel (concrete structure), Mechanical Workshop (concrete/brick walls with metal sheets roof), and Bamboo Hut (made of prelaminated bamboo) for 24 hours is shown below:

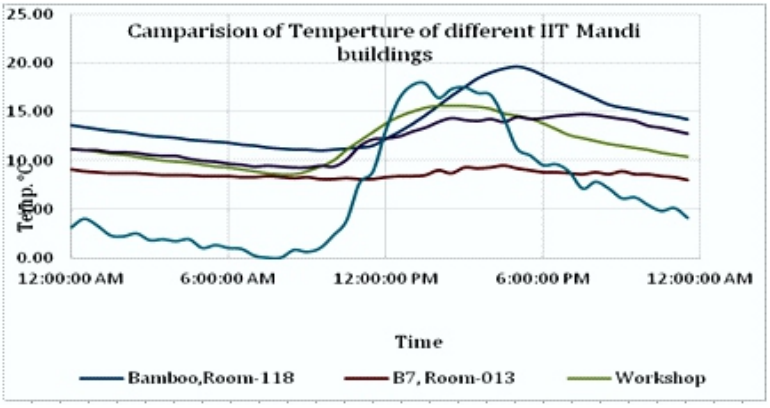


Fig. 1 Typical temperature profile of various buildings

Following conclusions are made:

- The maximum heat required during morning 5 am to 7 am.
- Heat supply has to be controlled as per the requirement, based on the heating load calculations.
- Heat requirement depends on the type of building material.
- The bamboo hut has a maximum temperature difference in 24 hours. Hence large heating loads are required for the bamboo hut.

Local Heating Setups Performance

The local heating is an idea to heat only that place which is desired it will reduce heat total requirement, hence it will reduce the size of the storage unit and the amount of PCM so that cast of the system. It will improve the design of the existing system in order to make the efficient design. Following systems are fabricated in order to make some local heating arrangements:

- The dome over the bed with different copper coil configuration
- Two spiral coils at roof
- Coil in floor
- Coil wrapped over roof
- Portable heating radiator

The room temperature measurements, for 24 hours on 8th Jan 2018, with different configurations are shown in figure 2. The hot water is circulated through the chamber using copper coils with an adjustable heater at temperatures close to 70 °C. The room temperature during the experiment varies between 9 – 15 °C. The setup with spiral coil only maintains the temperature of the environment inside the setup at 15 – 17 °C.In the case of chamber with roof coil and floor coil, the temperature of the chamber can be maintained close to 30 °C. However, out of all above configurations, the performance with floor coil is most effective.

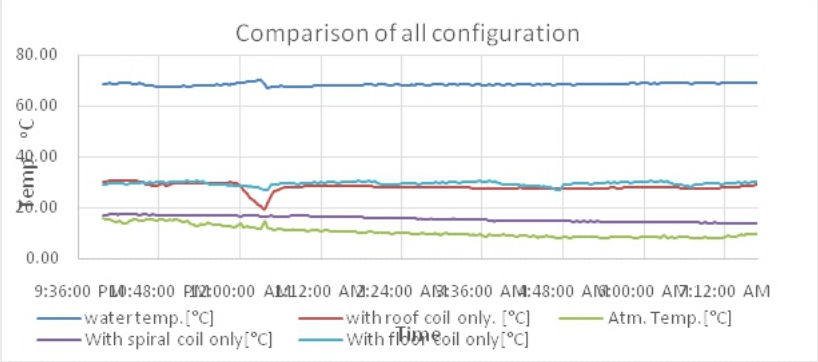


Fig. 2 Temperature variation of the test space with various configurations of heating arrangements

PI- Dr. Rik Rani Koner

- **New Metal-Organic networks as promising electro-active species for energy storage application: from materials developments to prototype fabrication.**

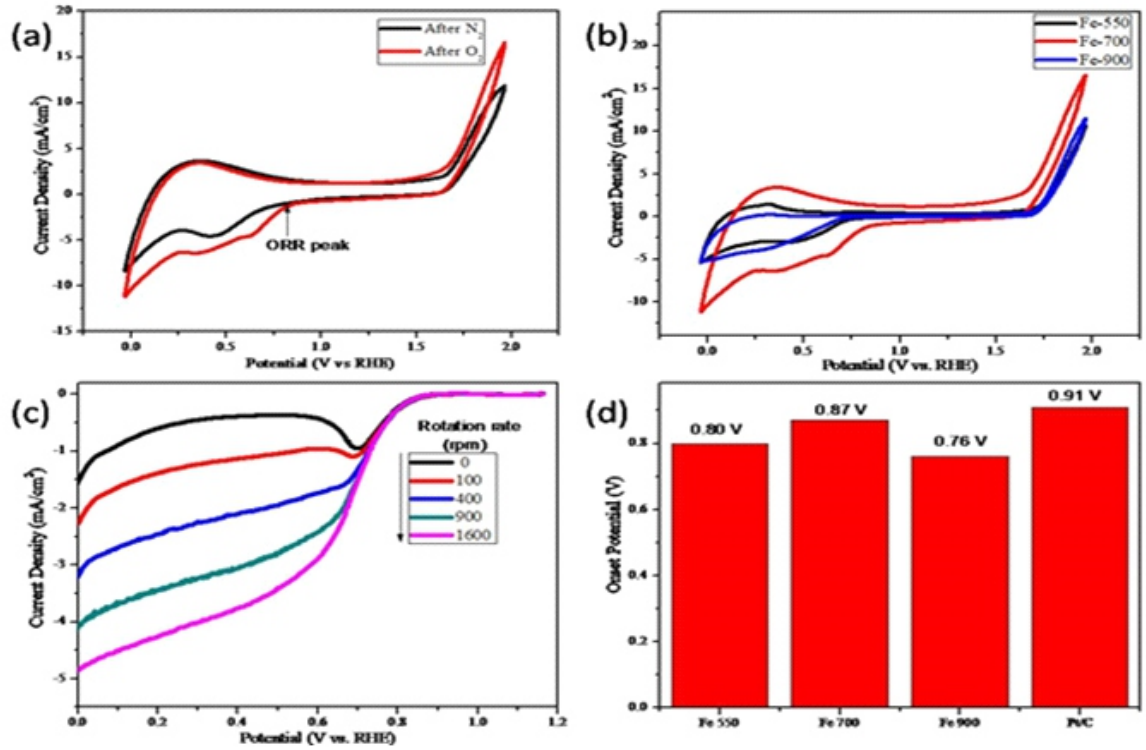
  Approved Objectives of the Proposal:The objective of this proposal is to develop electrode materials for supercapacitor with high efficiency. The electrode materials will consist of high

surface area carbonaceous materials decorated with electro active metal oxide.

- Development of novel metal-organic gel (MOG).
- Introduce MOG as electrode materials of supercapacitor for better energy density with improved efficiency.
- Development of conductive hybrid metal-organic gel as materials with high capacitance property.
- Development of novel conductive metal-organic frameworks (MOFs) as whole electrode materials for stable super-capacitor.
- Finally, development of MOF/MOG based supercapacitor using the proposed materials.

Deployment of proposed supercapacitor packs into the renewable energy based smart grids and exploiting for some of the ancillary services such as frequency regulation, voltage support in coordination with other storage units.

A Polycarboxyl-Decorated Fe(III)-Based Xerogel-Derived Multifunctional Composite (Fe3O4/Fe/C) as an Efficient Electrode Material towards Oxygen Reduction Reaction and Supercapacitor Application: We demonstrate a new polycarboxyl-functionalised FeIII-based gel material, synthesised following a solvothermal method and the development of its composite (Fe3O4/Fe/C) by annealing at optimised temperature. The developed composite displayed excellent electrocatalytic activity for the oxygen reduction reaction with an onset potential of 0.87V (vs. RHE) and a current density value of -5mA cm-2(Figure 1). In addition, as one of the most desirable properties, the composite exhibits a better methanol which are comparable with commercial 20 wt% Pt/C tolerance and greater durability than Pt/C (Figure 2). The same material was explored as an energy storage material for supercapacitors, which showed a specific



Fg-1 at a current density of 1Ag-1 (Figure 3)

Figure 2:(a) CV data of Fe-700 in N2 and O2 saturated 0.1 M KOH at 20 mV/s (b) Comparative CV data of Fe-550, Fe-700 and Fe-900 in O2 saturated 0.1 M KOH at 20 mV/s (c) ORR data for Fe-700 and (d) Bar graph showing comparison of ORR activity

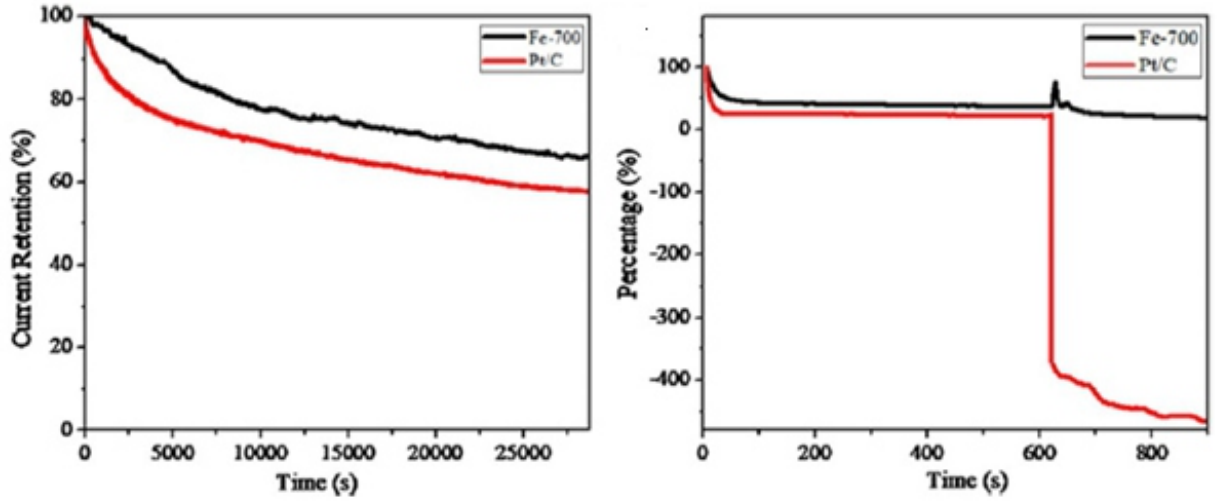


Figure3:(a) Current-time (i-t) chronoamperometric response of Fe-700 and commercial 20 wt% Pt/C in O2 saturated 0.1 M KOH at a potential of 0.73 V vs. RHE with a rotation rate of 800 rpm and (b) Current response with time (i-t) for Fe-700 and commercial 20 wt% Pt/C at a potential of 0.73 V vs. RHE with rotation rate of 800 rpm on addition of methanol at around 620 s.

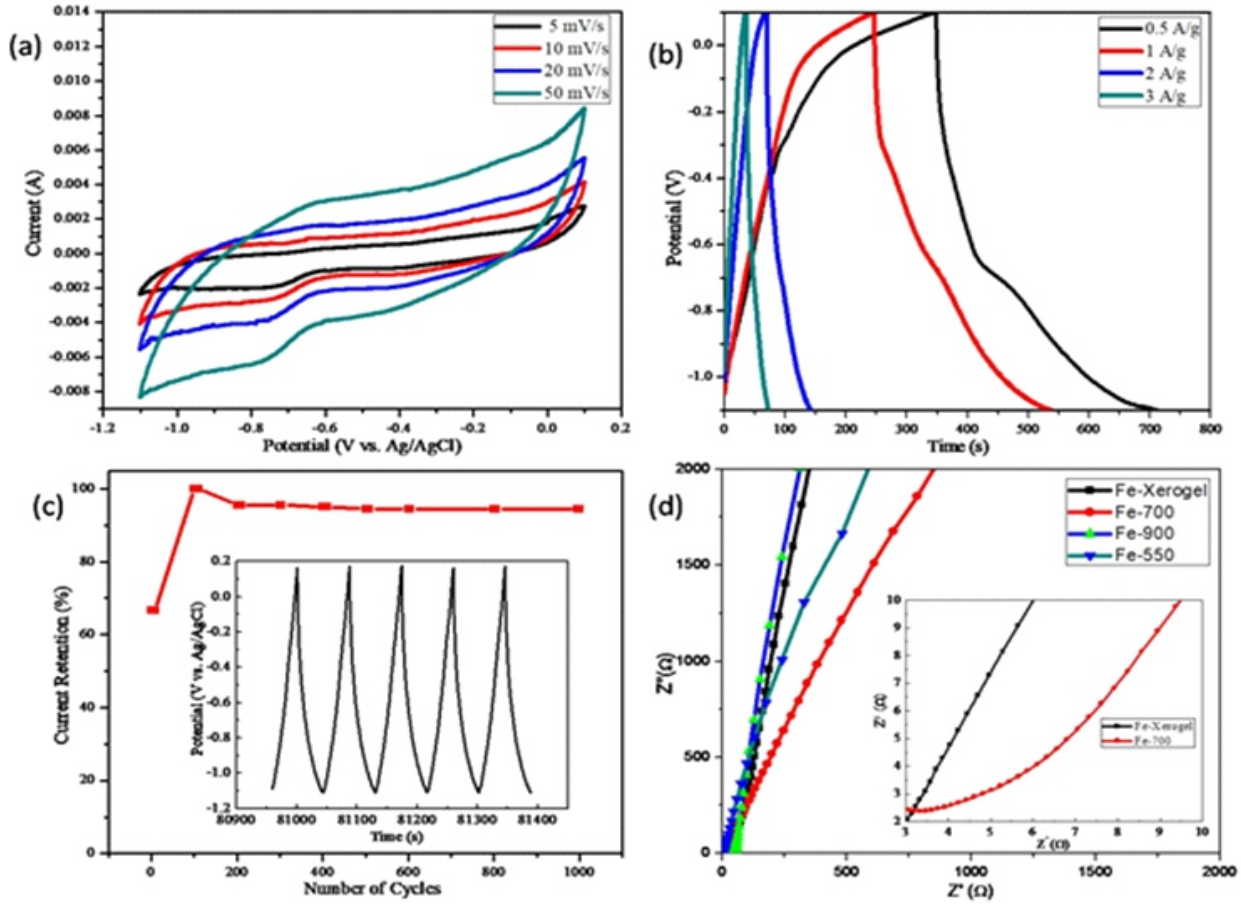


Figure 4: (a) CV data of Fe-700 at different scan rates ranging from 5 mV/s to 50 mV/s (b) Galvanostatic charge-discharge data of Fe-700 at different current densities from 0.5 A/g to 3 A/g in 6 M KOH electrolyte (c) Cyclic stability of Fe-700 for 1000 cycles at 3 A/g; inset shows the last five cycles and (d) Nyquist plot of Fe-Xerogel and annealed samples (Fe-550, Fe-700 and Fe-900); inset shows the plot at higher frequency end.

2. Metal-organic framework derived cobalt embedded heteroatoms doped carbon matrix for energy storage and conversion:

Cobalt embedded heteratom doped carbon matrix was developed which displayed as an energy storage material for supercapacitorwith a specific capacitance of 404 Fg-1 at a current density of 1 Ag-1 (Figure 5). Moreover, the developed composite shoed excellent electrocatalytic activity for the oxygen reduction reaction with an onset potenrial of 0.9 V (vs. RHE), which are comparable with commercial 20 wt% Pt/C (Figure 6).

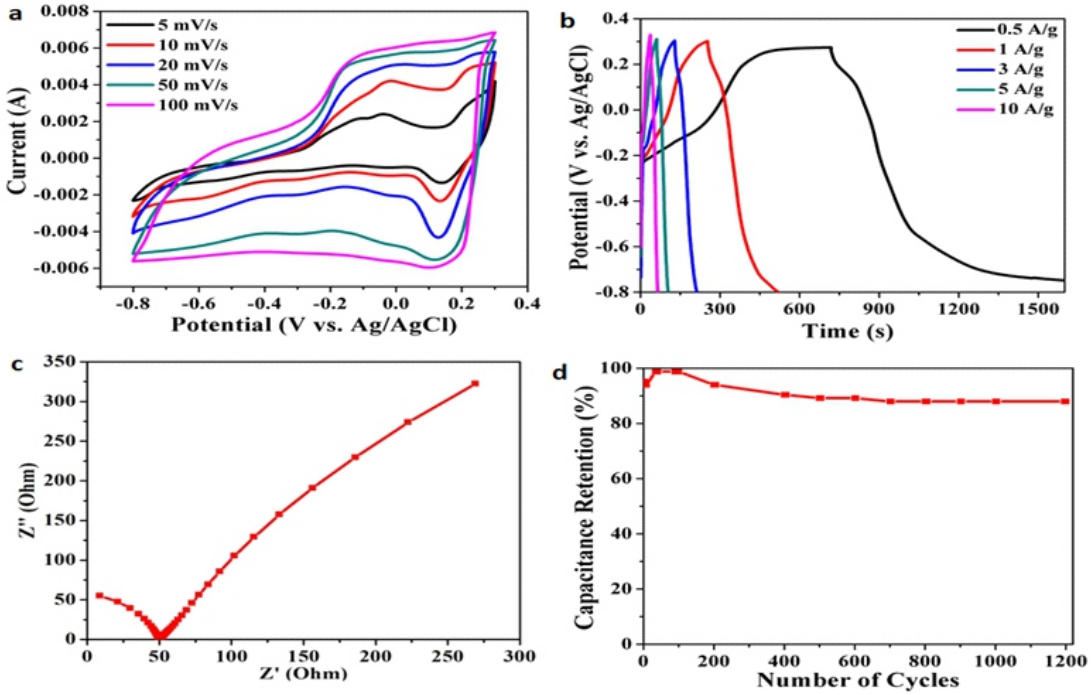


Figure 5: (a) CV data of Co-700 at different scan rates ranging from 5 mV/s to 50 mV/s (b) Galvanostatic charge-discharge data of Co-700 at different current densities from 0.5 A/g to 10 A/g in 6 M KOH electrolyte (c) Nyquist plot of Co-700. (d) Cyclic stability of Co-700 for 1000 cycles at 3 A/g.

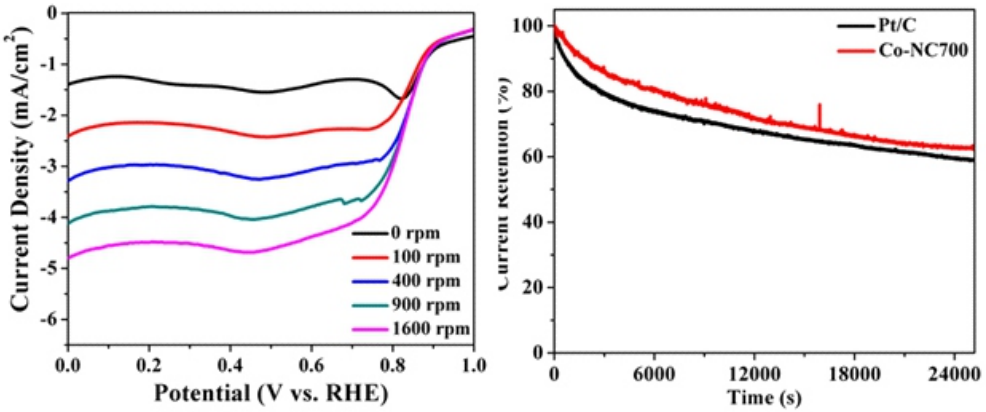


Fig. 6 (a) ORR data of Co-700. (b) Current-time (i-t) chronoamperometric response of Co-700 and commercial 20 wt% Pt/C in O2 saturated 0.1 M KOH at a potential of 0.73 V vs. RHE with a rotation rate of 800 rpm.

3. Zn(II) based multi-carboxyl decorated metal-organic frameworkfor energy storage and conversion:

Zn(II) coordinated metal-organic framework was developed using tetracarboxyl based organic linker. Afterwards,the MOF was annealed at different temperature for developing heteroatom doped carbon matrix for suitable electrode materials for both energy storage and conversion studies. It is worth mentioning that the developed carbon materials exhibit onset potential of -0.91 V towards oxygen reduction reaction which is exactly matching with commercially available Pt catalyst (Figure 7)

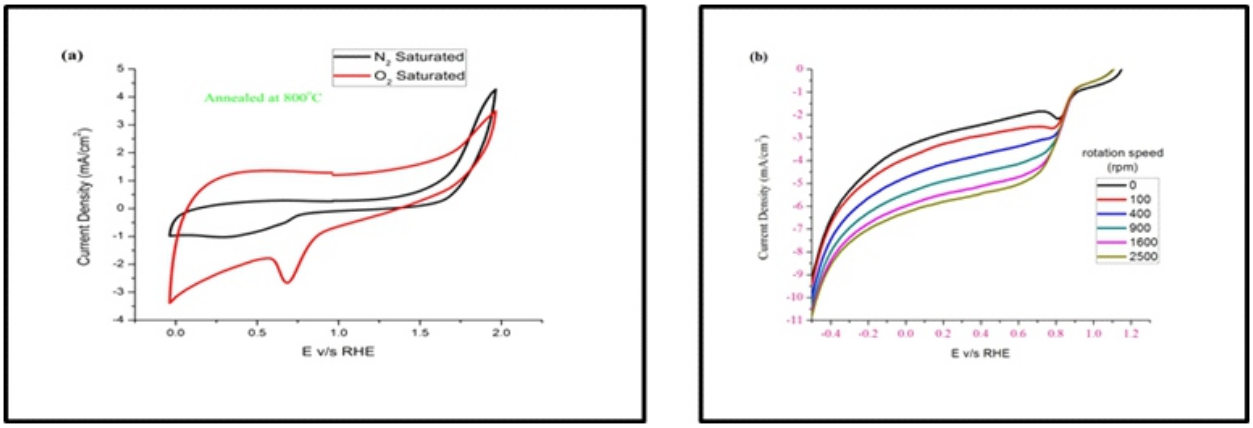


Figure 7:(a) Cyclic voltammetry of Zn MOF-800 in N2- and O2-saturated 0.1M KOH solution at20 mVs-1. (b) ORR data for Zn mof-800

Patents

1. A patent filed at India Patent Office entitled "HIGH TEMPERATURE FIGURE OF MERIT MEASUREMENT SET-UP" - Patent Application Number: 201711027766 A, by **Dr. Sudhir kumar Pandey and Mr. Ashutosh Patel.**
2. A patent filed at India Patent Office entitled," Low cost sensor based system for landslide monitoring & alerts"-Patent Application Number : 201711045337 by Kapil Agrawal, Shubham Agarwal, Pratik Chaturvedi , **Naresh Mali, K. V. Uday** & Varun Dutt.

Short Term Course/Workshop organized during 1-4-2017 to 31-3-2018.

1. 5 days National Workshop on "Composite Materials in Engineering Applications: Design and Manufacturing Perspective", 15-19 January 2018, partially sponsored by IIT Mandi and CSIR, HRDG, Government of India. **(Coordinators: Dr. Himanshu Pathak & Dr. Sunny Zafar).**
2. Short term course and workshop on Adaptronics (Active shape control, active vibration control, active noise reduction and structural health monitoring) during September 20-23, 2017. Speaker was Prof. Dr. Ing. Michael Sinapius, Institute of Adaptronics and Functions Integration, Technical University of Braunschweig, Germany. It comprised of 8 lectures, 6 laboratory sessions and a one day workshop. **(Coordinators: Dr. Vishal Singh Chauhan and Prof. Dr. Ing. Michael Sinapius).**

3. Short term course on "Modeling and Simulation using Finite Element Method for Engineering Applications -2017" at Indian Institute of Technology Mandi, June 19-23 2017. [Partially Sponsored by IIT Mandi] . **(Coordinators: Dr. Rajeev Kumar , Dr. Himanshu Pathak and Dr. Vishal S. Chauhan).**
4. One day workshop organised on concept design of rope way system, 3rd July, 2017 at Indian Institute of Technology Mandi. **(Coordinator: Dr. Rajneesh Sharma)**
5. Organised a 1 day workshop on "Rainfall Induced Landslides: Mapping, Mitigations and Monitoring" Sponsored by SDMA at IIT Mandi, Oct., 11, 2017**.(Coordinator: Dr. K.V. Uday).**
6. Organized International Conference on Sustainable Energy and Environmental Challenges, at IISc Banglore, December 29, 2017- January 3, 2018 in the capacity of conference convenor. (**Dr. Atul Dhar).**

Talks in the conference/workshop/visits

1. **Dr. Sunny Zafar*;** Development of Green Polymer Composites through Microwave Energy, Proceedings of the International Conference on Composite Materials and Structures (ICCMS 2017), IIT Hyderabad, Hyderabad, India, December 2017.
2. **Dr. Sumit Sinha Ray***;International Conference on Advancements In Polymeric Materials (APM 2018) (February 02-04) at CIPET, Bhubanesw.
3. **Dr. Himanshu Pathak,** S. Zafar, N. Pundhir, Computational study of cracks in functionally graded materials, International Conference on Composite Materials and Structures- ICCMS 2017, 27-29th December 2017, IIT Hyderabad, India**. [Presented by Himanshu Pathak].**
4. **Dr. Himanshu Pathak,** A. Singh, I.V. Singh, S. Zafar, Modeling and Simulation of 3-D Interfacial Cracks by XFEM, ASME's International Mechanical Engineering Congress and Exposition, November 3-9, 2017 Tampa Convention Center, Tampa, Florida, USA. **[Presented by Himanshu Pathak].**
5. **Dr. Sudhir** Pandey, "Invited Talk " National Conference on Electronic Structure (NCES 2017)" at IISER Bhopal; 27th – 29th December, 2017.
6. **Dr. Sudhir Pandey,** 62nd DAE Solid State Physics Symposium (DAE SSPS 2017) to be held in Bhabha Atomic Research Centre, Mumbai during December 26-30, 2017.
7. **Dr. Himanshu Pathak,"** Invited Speaker in the FEM workshop at VIT Vellore (17-18 March, 2018).
8. **Dr. Atul Dhar,"**Invited Talk on "Prospects and Challenges for Biodiesel as Alternative Fuel in Indian Scenario", BECAR 2018, at IIT Mandi, 23 January, 2018".
9. **Dr. Atul Dhar,** Keynote talk on "Synergetic Application of Hydrogen in Internal Combustion Engine", in SEEC 2018 at IIScBanglore, December 29, 2017- January 3, 2018.
10. **Dr. Mohd. Talha,** Seventh International Conference on Theoretical, Applied, Computational and Experimental Mechanics (ICTACEM 2017), at IIT Kharagpur.
11. **Dr. Pradeep Kumar,** Asian symposium on computational heat transfer and fluid flow (ACHT2017) 10-13 December 2017 IIT Madras.
12. **Dr. Pradeep Kumar,** Fluid Mechanics and Fluid power (FMFP2017) 14-16 December 2017 Amrita Vishwa Vidyapeethan Kollam Kerla.
13. **Dr. Pradeep Kumar,** International Heat and Mass Transfer Conference 27-30 December 2017 BITS Pilani Hyderabad Campus.

14. **Dr. Pradeep Kumar,** International Conference on on Sustainable Energy and Environment Challenges, 31 December to 3 January 2018, IISc Bangalore.

Achievements/Awards

1. **Construction Materials Lab** - inaugurated by Prof. Balthasar Novak (ILEK, University of Stuttgart) on 25th May 2018 in the presence of Director and Deans (I&S, Faculty and Academis). The lab houses several state of the art equipment for the characterization and quality control of construction materials and elements and is intended to support UG, PG and research projects.
2. **Dr. Sumit Sinha Ray,** Adjunct Assistant Professor affiliation in Department of Mechanical and Industrial Engineering at **University of Illinois at Chicago.**
3. "**Dr. Satvasheel Powar**",Bhaskara Advanced Solar Energy (BASE) Fellowship 2017, Indo-U.S. Science and Technology Forum 2017 to visit **Lawrence Berkeley National Laboratory, University of California Berkeley, USA** for 3 months.
4. **Dr. K. Sarkar** is conferred with the distinguished new faculty award (2017) for sustained performance of excellence in teaching, research and institute service at IIT Mandi.
5. **Dr. Venkata Uday Kala** is selected to represent the Indian Geotechnical Society as a corresponding member of the International Technical Committee IC-208 on slope stability in engineering practice.
6. **Dr. V. Balakrishnan** received the Distinguished Teacher Award for sustained performance of excellence in teaching on Teacher's day 2017.
7. **Dr. G. Bhutani** is honoured by Distinguished New Faculty Award on Teacher's day 2017.
8. **Dr. R. Sharma** started a very innovative Ropeway project to replace the traditional jhullas over rivers in Himachal.
9. **Dr. A. Gupta and Dr. A. Chakraborty** visited Indian Institute of Technology Jammu for Curriculum Development workshop for IIT Jammu on 9th Dec 2017.
10. **Mr. Sumeet Kumar Sharma,** DST (INSPIRE) Ph.D. student, presented paper in "Researchers' Forum on Smart materials and Systems" held at Institute of Smart Structures and Systems (ISSS), IISC Bangalore (27-28 March 2018). In this he was awarded with the best presentation award and also in addition award of 500 Euros sponsored by Springer for the purchasing of ebooks published by Springer.
11. **Mr. Ankit Gupta** co-authored a book chapter titled, "Advances in the fabrication of functionally graded material: modeling and analysis", in Manufacturing Techniques for Materials: Engineering and Engineered, CRC Press. He is working under the supervision **of Dr. Mohammad Talha.**
12. **Mr. Sarthak Nag** co-authored a book chapter titled, "Exhaust heat recovery using thermoelectric generators: A review", in Advances in Internal Combustion Engine Research, Springer, pp. 193-206 (2018). He is working under the supervision of **Dr. Atul Dhar and Dr. Arpan Gupta.**
13. **Mr. Saurabh Yadav, Mr. Gaurav Sharma and Mr. Sarthak Nag** performed acoustic study of A9 lecture hall under the guidance of **Dr. Arpan Gupta.** The work was published in Journal of Noise and Vibration Worldwide, titled as"Reverberation time improvement of lecture auditorium: A case study", Vol. 49,Issue 1, pp. 14-19 (2018).

A Few Major Instruments Installed in Labs:

Figure :1 High Temperature Microwave Furnace

Figure :2 Polymer curing microwave applicator

Figure 3: Domestic Microwave Applicator

Figure :4 Slurry Jet Erosion Test Rig

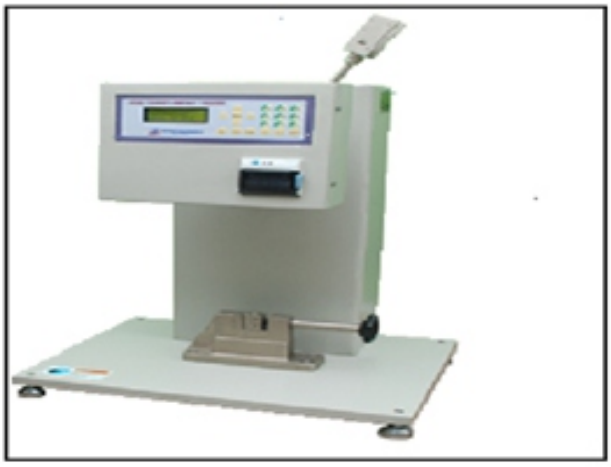


Figure :5 Izod/Charpy computerised impact tester for Polymer Composites

Figure :6 Stir Casting Machine

Figure 7: Optical microscope

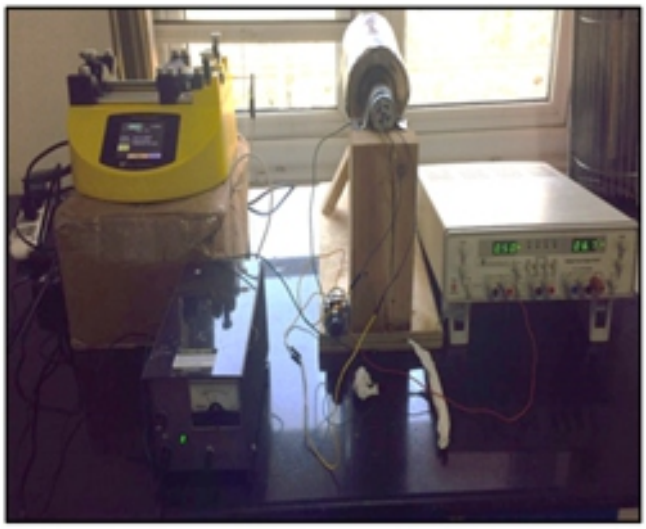


Figure: 8 Electrospinning (in-house built)

Figure :9 Precision Cutter (In house Development)

Figure :10 Split Hopkinson Bar set up (In house Development)

Figure :11 Ropeway System (In House Development)

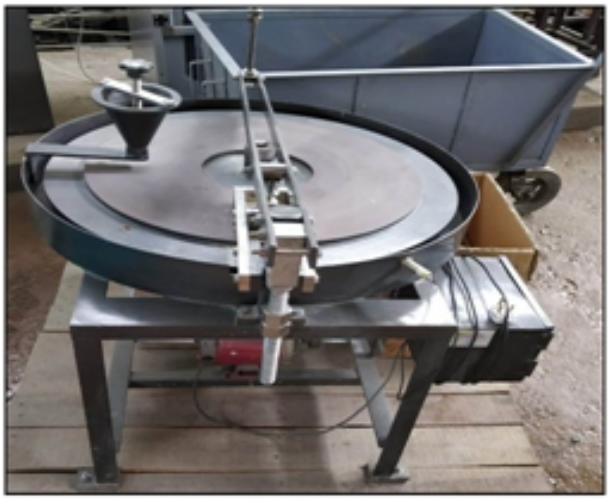


Figure :12 Tile Abrasion Testing Machine

Figure :13 Carbonation Chamber

Figure :14 Concrete Core Grinding Machine

Figure :15 Curing Tank

Figure :16 Curing Tank –(i)

Figure :17 Curing Tank- (ii)

Figure :18 Hygropin moisture meter

Figure :19 Walk in Chamber

Figure :20 Phase Heat Transfer

Figure :21 Bernoulli Apparatus

Figure :22 Diffused Research Polariscope

Figure :23 Pipe Losses Apparatus

Figure :24 Recirculating Type AC

Figure :25 Reynolds Apparatus

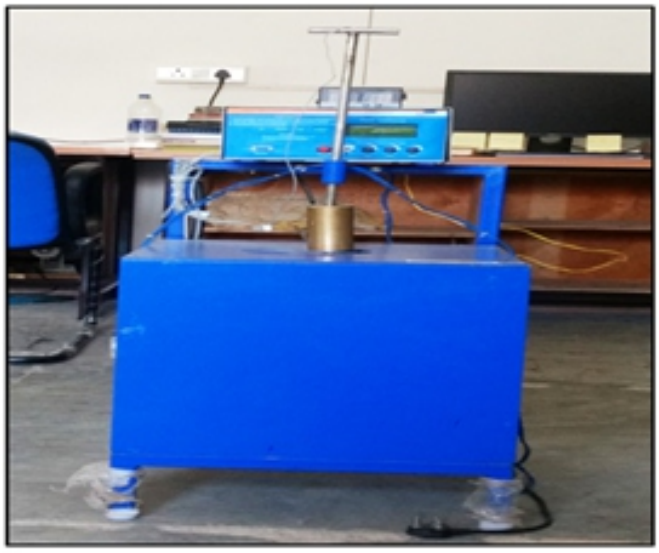


Figure :26 Unsteady State Heat Transfer

Figure :27 Water Cooling Tower

Figure :28 Conditioning Chamber

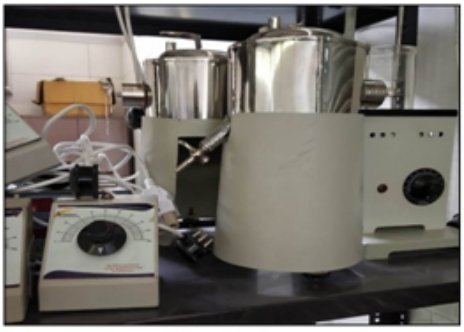


Figure :29 Flash & Fire Point Apparatus

Figure :30 Universal Testing Machine

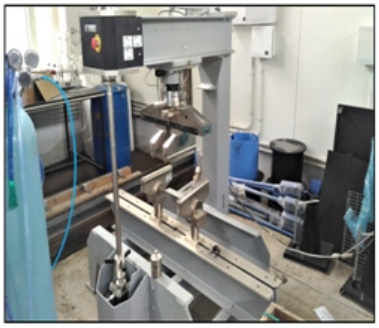


Figure :31 Flexure Testing Machine

Papers Published In International Journals

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72. Ankit Gupta, Mohammad Talha: Large amplitude free flexural vibration analysis of finite element modeled FGM plates using new hyperbolic shear and normal deformation theoryAerospace Science and Technology 67, 287-308 (2017).

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74. Ankit Gupta, Mohammad Talha: Static and Stability Characteristics of Geometrically Imperfect FGM Plates Resting on Pasternak Elastic Foundation with Microstructural Defect, Arabian Journal for Science and Engineering, 1-17 (2018).

75. Ankit Gupta, Mohammad Talha: Influence of micro-structural defects on post-buckling and large-amplitude vibration of geometrically imperfect gradient plate, Nonlinear Dynamics, 1-18 (2018).

76. Mohammad Amir, Mohammad Talha: Thermoelastic Vibration of Shear Deformable Functionally Graded Curved Beams with Microstructural Defects, International Journal of Structural Stability and Dynamics, Accepted (2018).

77. Ankit Gupta, Mohammad Talha,WolfgangSeemann: Free vibration and flexural response of functionally graded plates resting on Winkler–Pasternak elastic foundations using nonpolynomial higher-order shear and normal deformation theory, Mechanics of Advanced Materials and Structures 25 (6), 523-538 (2018).

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SCHOOL OF BASIC SCIENCE (SBS)

The school of Basic Sciences at IIT Mandi is a cluster of disciplines of Mathematics, Physics, Chemistry and Life Sciences. The core of the school consists of 35 faculties having expertise in contemporary fields of research. The school started its Ph. D. program in 2010 and presently 120 research students have enrolled to pursue research in various disciplines. The school aims to create an ambience for the smooth pursuit of scholarly activities in research and education to make an international impact. The school of Basic Sciences has started M.Sc. program in Chemistry with specialization in various areas such as Organic Chemistry, Inorganic Chemistry, and Physical Chemistry & Nano sciences from Year 2014 and presently 50+ students have enrolled in this particular program. The School of Basic Sciences has also started I-Ph.D in year 2015 (enrolled students till now are 17) and M.Sc. Mathematics and M.Tech program in Year 2016 (enrolled students till now are 27 & 18 respectively). The faculty members of the school are closely working with the engineering colleagues on different research projects.

Faculty

Dr. Syed Abbas
Chairperson and Associate Professor
Specialisation: Differential Equations and Ecological modelling
Ph.D. from Indian Institute of Technology Kanpur (2009)
Home Town: Gonda, Uttar Pradesh
Phone: 01905- 267148
Email: abbas
Chairperson Email: chairsbs

Dr. Aditi Halder
Assistant Professor
Specialization: Design and development of new functional nanomaterials for the application of renewable energy, nano-electronics and sensor
Ph.D. from Indian Institute of Science (2009)
Home Town: Kolkata, West Bengal
Phone: 1905-267140
Email: aditi

Dr. Ajay Soni
Assistant Professor
Specialisation: Nanomaterials and Experimental Condense Matter Physics
Ph.D. from UGC-DAE Consortium for Scientific Research, Indore (2009)
Phone: 01905- 267135
Email: ajay

Dr. Amit Jaiswal
Assistant Professor
Specialization: Nano biotechnology
Ph.D. from IIT Guwahati (2013)
Home Town: Kolkata, West Bengal
Phone: 01905- 267137
Email: j.amit

Dr. Amit Prasad
Assistant Professor
Specialisation: Immunology/Microbiology
Ph.D.from Sanjay Gandhi Postgraduate Institute of Medical Sciences, Lucknow (2008)
Home Town: Ranchi, Jharkhand
Phone:01905-267136
Email: amitprasad

Dr. Aniruddha Chakraborty
Associate Professor
Specialisation: Theoretical Chemistry
Ph.D. from Indian Institute of Science (2005) Bangalore
Home Town: Kolkata, West Bengal
Phone: 01905-267145
Email: achakraborty

Prof. Arghya Taraphder
Visiting Professor

Dr. Arti Kashyap
Associate Professor (Joint Appointment)

Specialisation: Condensed matter physics
Phone: 01905-267803
Email: arghya

Specialisation: Magnetism and magnetic materials
Ph.D. from Indian Institute of Technology Roorkee
Home Town: Mandi, Himachal Pradesh
Phone: 01905-267042
Email: arti

Dr. Bindu Radhamany
Associate Professor
Specialization: X-ray spectroscopy
Ph.D. from UGC-DAE, consortium for scientific research, Indore (2005)
Home Town: Kollam, Kerala
Phone: 01905-267060
Email: bindu

Dr. Chayan K. Nandi
Associate Professor
Specialisation: Physical Chemistry
Ph.D. from Indian Institute of Technology Kanpur (2006)
Home Town: Sarangapur, Bankura, West Bengal
Phone: 01905-267047
Email: chayan

Dr. C. S. Yadav
Assistant Professor
Specialisation: Low Temperature Physics
Ph.D. from Jawaharlal Nehru University (2008)
Phone: 01905-267135
Email: shekhar

Dr. Hari Varma
Associate Professor
Specialisation: Atomic and Molecular physics
Ph.D. from Indian Institute of Technology Madras (2008)
Home Town: Kochi, Kerala
Phone: 01905-267064
Email: hari

Dr. Kalpesh Haria
Assistant Professor
Specialisation: Operator Theory
PhD from IIT Bombay (2014)
Home Town: Jamnagar, Gujarat
Phone: 01905-267114
EMail: kalpesh

Dr. Kaustav Mukherjee
Assistant Professor
Specialisation: Experimental Condensed Matter Physics
Ph.D. from UGC-DAE Consortium for Scientific Research (2008)
Home Town: Kolkata, West Bengal
Phone: 01905-267043
Email: kaustav

Prof. Kenneth Gonsalves
Visiting Distinguished Professor
Specialisation: Materials Synthesis
Ph.D. from University of Massachusetts at Amherst
Home Town: Charlotte, NC, USA
Phone: 01905-237976
Email: kenneth

Dr. Manoj Thakur
Associate Professor
Specialisation: Optimization, Soft Computing, Machine Learning & its Application to Computational Finance
Ph.D. from Indian Institute of Technology Roorkee (2007)
Home Town: Roorkee, Uttarakhand
Phone: 01905-267154
Email: manoj

Dr. Muslim Malik
Assistant Professor
Specialisation: Differential Equations
Ph.D. from Indian Institute of Technology Kanpur (2006)
Home Town: Balrampur, UP
Phone: 01905-267119
Email: muslim

Dr. Pradeep Kumar
Visiting Assistant Professor (Under DST)
Specialisation: Raman and Infrared Spectroscopy
Ph.D. from Indian Institute of Science (2014) Bangalore
Home Town: Rohtak, HR
Phone: 01905-267152
Email: pkumar

Dr. Pradeep Parameswaran
Associate Professor
Specialisation: Inorganic/Materials/Nano-Chemistry
Ph.D. from University of Hyderabad (2006)
Home Town: Varavoor, Thrissur District, Kerala
Phone: 01905-237931/267045
Email: pradeep

Dr. Prem Felix Siril
Associate Professor
Specialisation: Chemistry of Nanomaterials
Ph.D. from DDU Gorakhpur University (2003)
Home Town: Thiruvananthpuram, Kerala
Phone: 01905-267040
Email: prem

Dr. Qaiser Jahan
Assistant Professor
Specialisation: Harmonic and Wavelet Analysis
PhD from ISI Kolkata (2014)
Home Town: Allahabad
Phone: 01905-267050
EMail: qaiser

Dr. Nitu Kumari
Assistant Professor
Specialisation: Differential Equations, Dynamical Systems, Nonlinear Dynamics
Ph.D. from Indian School of Mines Dhanbad (2009)
Home Town: Dhanbad, Jharkhand
Phone: 01905-267057
Email: nitu

Dr. Pradyumna Kumar Pathak
Assistant Professor
Specialisation:Quantum Optics,Quantum Information and Nanophotonics
Ph.D. from Physical Research Laboratory, Ahmedabad
Home Town: Mathura, Uttar-Pradesh
Phone: 01905- 267046
Email: ppathak

Dr. Prasanth P. Jose
Assistant Professor
Specialization: Soft condensed matter physics
Ph.D. from Indian Institute of Science (2005) Bangalore
Home Town: Palakkad, Kerala
Phone: 01905-267064
Email: prasanth

Dr. Prosenjit Mondal
Assistant Professor
Specialisation: Molecular Endocrinology and Metabolism
Ph.D. from Institute of Life Sciences Bhubaneswar (2008)
Home Town: Babunpur,Burdwan
Phone: 01905-267135
Email: prosenjit

Dr. Rajanish Giri
Assistant Professor
Specialisation: Biophysics and protein folding, Intrinsically Disordered Proteins, T Cell Engineering, Protein Engineering
Ph.D. from Sapienza University of Rome, Rome, Italy (2013)
Home Town: Allahabad
Phone:01905- 267154
Email: rajanishgiri

Dr. Rajendra K. Ray
Associate Professor
Specialisation: Computational Fluid Dynamics, Numerical Methods for PDEs
Ph.D. from Indian Institute of Technology Guwahati (2009)
Home Town: Sainthia, West Bengal
Phone: 01905- 267041
Email: rajendra

Dr. Shyam Kumar Masakapalli
Assistant Professor
Specialisation: Metabolic Systems Biology (Fluxomics and metabolomics), Plant and microbial metabolism, NMR and GC-MS.
Ph.D. from University of Oxford, UK (2012)
Home Town: Rayagada, Odisha
Phone: 01905-267147
Email: shyam

Dr. Subrata Ghosh
Associate Professor
Specialisation: Organic Chemistry
Ph.D. from Indian Institute of Technology Guwahati (2006)
Home Town: Bolpur-Santiniketan, West Bengal
Phone: 01905-267065
Email: subrata

Dr. Venkata Krishnan
Assistant Professor
Specialisation: Materials Chemistry, X-ray Science
Ph.D. from University of Stuttgart, Germany (2006)
Home Town: Coimbatore, Tamil Nadu
Phone: 01905-267065 Email: vkn

Dr. Neha Garg
DST INSPIRE Faculty Fellow till 31st July, 2016
Ramanujan Fellow From 1st August, 2016 to till date
Specialisation: Cancer Biology, Stem Cells.
Ph.D. from Sapienza University of Rome, Rome, Italy (2013)
Home Town: Delhi
Phone: 01905-267155
Email: neha

Dr. Sarita Azad
Assistant Professor
Specialization: Statistical Time Series Analysis
Ph.D. from Delhi University and Indian Institute of Science (2008)
Home Town: New Delhi
Phone: 01905-267141
Email: sarita

Dr. Suman Kalyan Pal
Associate Professor
Specialisation: Fast and Ultrafast Laser Spectroscopy
Ph.D. from Indian Association for the Cultivation of Science, Jadavpur (2006)
Home Town: Katwa, West Bengal
Phone: 01905-267040
Email: suman

Dr. Tulika Prakash Srivastava
Associate Professor
(Ramalingaswamy Fellow, DBT)
Specialisation: Bioinformatics, Systems Biology, Metagenomics, Comparative Genomics, Protein Function and Structural analysis
Ph.D. from IGIB, CSIR, Delhi (2005)
Home Town: Delhi
Phone: 01905-237922
Email: tulika

Faculty Fellows

Dr. Ketaki Ghosh
Teaching Fellow
Specialisation: Synthetic Organic Chemistry
Ph.D.: IIT Kharagpur (2015)
Home Town: Suri, Birbhum, WB
Email: ketaki

Dr. Sweta Tripathi
Ramalingaswami Faculty Fellow
Specialisation: Virology, Innate Immunity, Cancer Biology
Ph.D.: Boston University
Home Town: Gorakhpur
Email: shwetatripathi

Research Projects
Externally Sponsored Research Projects

Sl. No.	IIT Mandi Reference/ Project No.	Project Title	Sponsoring Agency	Principal Investigator & Co-ordinator(s)	Amount Sanctioned in Rs.	Duration
1	IITM/DBT/ TPS/36	Exploring the Human Microbiome: A Hunt for the candidates for Pre- and Pro-biotics	Ramalingaswami Re-entry Fellowship-DBT	Dr. Tulika P. Srivastava	82,00,000	5 Years
2	IITM/NBHM /RRY/47	Development of Higher Order Accurate Numerical Schemes for Elliptic Equation with Various Discontinuties & its Application to Immersed Interface Problems	NBHM (DAE)	Dr. Rajendra Kumar Ray	2,99,500	3 Years
3	IITM/BRNS/ RKR/51	Modeling of Contaminated Sediments in Lakes/Rivers	BRNS (DAE)	"PI: Dr. Rajendra Kumar Ray Co-PI: Dr. O.P. Singh"	21,07,100	3 Years
4	IITM/CSIR/ SKP/70	Carrier Multiplication in Electronically Coupled Nanocrystals and Harvesting	CSIR	Dr. Suman K. Pal	12,58,000	3 Years
5	IITM-DST-VR/ SKP/76	Quantum Dots for Novel Solar Solutions	DST-VR	"Dr. Suman K. Pal Prof. Tonu Pullerits (Lund University, Sweden)"	40,27,000	3 Years
6	IITM-SERB/ SKP/81	Engineering Chemical Structure to Improve Device Efficiency: Novel Organic Polymers/Macromolecules & their Nanocomposites for Photovoltaic Application	SERB	"Dr. Suman Kalyan Pal Co-PIs: Dr. Subrata Ghosh Dr. C.K. Nandi Dr. Suresh Chand (NPL) Dr. Rajiv Kr. Singh (NPL)"	43,64,000	3 Years
7	IITM/UGC-DAE/ BR/83	Effect of dimensionality on the lectronic structure of some novel transition metal oxides	UGC-DAE	Dr. Bindu Radhamany	2,29,800	3 Year
8	IITM/BRNS/ AS/84	Development of High Temperature Thermoelectric Transport Measurements System to Study Chalcogenide Based Thermoelectric Nano-Composites	BRNS	Dr. Ajay Soni	2,500,000	3 Years
9	IITM/SERB/ AS/85	Layered Chalcogenide Nanocomposites for Thermoelectric Applications	SERB	Dr. Ajay Soni	2,600,000	3 Years
10	IITM/DBT /AP/88	Immuno-modulating effect of Taenia solium cyst antigens on immune reactive cells and their role in pathogenesis	DBT	Dr. Amit Prasad	3,250,000	5 Years
11	IITM/DST /AKP/91	Setting up centre for innovative technologies for Himalayan Region under CSTRI Scheme	DST	Dr. Arti Kashyap	31,40,000	3 Years

12	IITM/DST /VK/92	Bioinspired Advanced Materials for Enhanced Solar Energy Conversion in Organic Photovoltaics	DST-SERB	Dr. Venkata Krishnan	20,87,000	3 Years
13	IITM/DST-INSPIRE/ PK/95	Physics of Electromagnos Dynamics Probed by Raman Scattering	DST-INSPIRE	Dr. Pradeep Kumar	35,00,000	5 Years
14	IITM/DST /NG/96	Identification of the Hedgehog pathway modulators in non-small cell lung cancer stem cells	DST-INSPIRE	Dr. Neha Garg	35,00,000	5 Years
15	IITM/DST /AH/97	Generating Renewable Energy Sources Using Anthropogenic CO2 for Sustainable Future	DST-SERB	Dr. Aditi Halder	30,40,000	3 Years
16	IITM/ISRO /SG/98	Development of Indigenous DUV photoresistsfor 180 nm process technology at Semi-conductor Lab (SCL) Mandi: Make in India	ISRO	Dr. Subrata Ghosh	81,00,000	3 Years
17	IITM/SERB /AJ/99	Stimuli Responsive Smart Nanocarriers for Theranostics Application	SERB	Dr. Amit Jaiswal	22,56,000	3 Years
18	IITM/SERB /RG/100	Intrinsically Disordered Proteins: Folding and Binding Mechanisms of Transactivation Domain of Adenoviral Oncoprotein E1A with its partner TAZ2	SERB	Dr. Rajanish Giri	27,36,000	3 Years
19	IITM/DST-GITA/ SG/101	Novel Non Chemically Amplified Molecular Photoresists for Nanoelectronics at the 20nm Node or Beyond	DST-GITA	Dr. Subrata Ghosh	29,29,500	3 Years
20	IITM/SERB /PM/107	The role of hyperinsulinemia in the pathogenesis of insulin resistance and diabetes	SERB	Dr. Prosenjit Mondal	44,41,352	3 years
21	IITM/ISRO-SCL/AH/ 108	Development of indigenous chemical mechanical polishing slurries for microelectronics application at semiconductor laboratory (SCL)	SCL Mohali	PI: Dr. Aditi Halder,Co-PI: Dr. Venkata Krishnan, Dr. Rik Rani Koner	69,60,000	3 years
22	IITM/DBT /AJ/111	Engineering novel plasmonic nanocapsules for cancer therapy and diagnostics	DBT	Dr. Amit Jaiswal	19,31,000	3 years
23	IITM/SERB-RF/NG/113	Ramanujan Fellowship	SERB	Dr. Neha Garg	89,00,000	5 years
24	IITM/DST /AKP/118	Eco friendly utilization of hazardous dry pine needles for social benefit	DST	Dr. Arti Kashyap	19,13,000	2 years
25	IITM/MHRD (UAY)/SG/ 121	Development of Indigenous photoresists technology for semiconductor industries: impact on Indian economy, skilled manpower development and employment possibility	MHRD	"Dr. Subrata Ghosh (PI), Dr. Satinder K. Sharma (Co-PI), Dr. Pradeep C. Parameswaran (Co-PI)"	239,00,000	3 years

26	IITM/DBT/SKM/126	Integrating Genome scale metabolic analysis of model plant pathogen Ralstonia solanacearum with RNAseq and fluomics	DBT	Dr. Shyam Masakapalli (IIT Mandi), Dr. Siddhartha Satapathy (Tezpur University); Co-PI's Dr. Tulika Srivastava (IIT Mandi), Dr. Suvendra Ray(Tezpur University)	57,40,000	3 years
27	IITM/SERB/SA/128	Mathematical Modelling of the Epidemiology of Multi-Drug Resistant Tuberculosis (MDR-TB)	SERB	Dr. Sarita Azad	18,25,725	3 years
28	IITM/HPSCSTE/VK/129	Low cost Bioinspired Point-of-Care devices for early detection of diseases using Saliva as diagnostic fluid in rural Himachal areas	HP State council for Science, Technology & Environment (SCSTE)	Dr. Venkata Krishnan (PI), Dr. Neha Sood (Co-PI)	6,60,000	2 years
29	IITM/IRCS/VK/131	Indian Red Cross Society project-IIT Mandi collaboration	Indian Red Cross Society	Dr. Venkata Krishnan (PI), Dr. Varun Dutt, Dr. Ramna Thakur, Dr. Shyamasree Dasgupta (Co-PI's)	42000	1 year
30	IITM/DBT-TP/RG/134	Deciphering the molecular mechanisms governing the direct Aβ aggregation inhibition with the serum protein- Transferrin: Implication for Alzheimer's disease	DBT	Dr. Rajanish Giri(PI, IIT Mandi) Dr. Tamir Tripathi (Co-PI, North Eastern Hill University, Shillong)	70,33,000	3 years
31	IITM/MHRD-IMPRINT/SRC/138	A microfluidic based point of care testing device for measuring urine albumin using a novel organic dye	MHRD-IMPRINT	Dr. Shubhajit Roy Chowdhury(PI)Dr. Subrata Ghosh (Co-PI) Dr. Prosenjit Mondal (Co-PI)	73,20,000	3 years
32	IITM/CSIR/KM/143	Investigation of physical properties of multiferroic compounds belonging to double perovskites family	CSIR	Dr. Kaustav Mukherjee	10,00,000	3 years
33	IITM/SERB/CSY/144	Study of Nernst effect in the superconductors and semi-metallic compounds	SERB	Dr. C.S Yadav	14,18,271	3 years
34	IITM/SERB/KM/148	Study of magnetic and magnetocaloric properties of mixed metal oxides and rare-earth intermetallics	SERB	Dr. Kaustav Mukherjee	30,58,110	3 years

46	IITM/SERB/PPJ/168	A comparative study on microscopic structure and dynamics near glass transition in linear polymer melt at low & high densities	SERB	Dr. Prasanth P Jose	20,23,780	3 years
47	IITM/MHRD-IMPRINT/AD/169	Sustainable waste water treatment through bio-photoelectro catalysis and bio production	MHRD-IMPRINT	Dr. Atul Dhar (PI),Dr. Rahul Vaish,Dr. Shyam Kumar Masakapalli,Dr. Aditi Halder,Dr. Tulika P Srivastava, Dr. Rik Rani Koner (Co PI's)	3,84,34,000	3 years
48	IITM/DBT/PM/170	Novel NIR-1 and NIR-2 dyes and their functionalised nanoparticles for non-invasive imaging, tracking and target delivery of theranostic in progressive liver disease prognosis and therapy	DBT	Dr. Prosenjit Mondal (PI),Dr. Subrata Ghosh (Co-PI)	60,25,600	3 years
49	IITM/DTRL-DRDO/MK/171	Site specific forecasting based on sensor data using machine learning time series prediction modeling	DRDO	Dr. Manoj Thakur	26,06,400	2 years
50	IITM/DST-IR/RG/176	Folding mechanism of trans activation domain of E2APBX1, an intrinsically disordered protein involved in leukemia induction	DST	Dr. Rajanish Giri (PI) Dr. Irina M Kuznetsova (Tikhoretsky St.-Petersburg Russia)	23,39,200	2 years
51	IITM/DST-IR/AKP/177	Magnetic properties and structure transformations in binary Fe- Pb and ternary Fe- Pd-M (M- Ni, Ga)	DST	Dr. Arti Kashyap (PI) Dr. Aleksandr Popov, M.N. Miheev Institute of Mental Physics, Russian Academy of Sciences, Yekaterinburg, Russia	19,86,400	2 years
52	IITM/DST(WOS-B)/RSO/180	Development and dissemination of Agri- based technologies being optimized at IIT Mandi from lab to farmer's field of mid- Himalayan region	DST (WOS-B)	Dr. Reshma Sao (PI), Dr. Shyam Kumar Masakapalli (Mentor)	26,80,000	3 years
53	IITM/HPSCSTE/SKM/185	Photo- catalytic treatment of wastewater for the removal of Azo dyes: using rGO- TiO2 based cost effective composite technology	Himachal Pradesh State council for Science, Technology & Environment (SCSTE)	Dr. Satinder Kumar Sharma (PI), Dr. Venkata Krishnan (Co-PI)	5,88,000	2 years

35	IITM/SERB/BR/149	Engineering the electronic structure of possible oxide topological insulators	SERB	Dr. Bindu Radhamany	29,51,960	3 years
36	IITM/DAE-BRNS/AJ/150	Nanoplasmonic SERS substrate design for trace analysis and detection	DAE-BRNS	Dr. Amit Jaiswal	24,99,400	3 years
37	IITM/SERB/HV/151	Effect of correlation, relativistic interaction and confinement on the photoionization dynamics of atomic systems	SERB	Dr. Hari Verma	18,83,750	3 years
38	IITM/DBT/RG/152	Understanding intrinsically disordered proteins: Transactivation domains of cMyb and p53 from single molecule to ensemble and disease perspectives	DBT	Dr. Rajanish Giri (PI), Dr. Chayan K Nandi (Co-PI)	70,29,200	3 years
39	IITM/UGC-DAE/CSY/153	Exploring the tunability of magnetic structure in multiferroic compounds YBa1-xSrxCuFeo5 (0≤ x≤ 0.6 and LnBaCuFeO5 (Ln = D, Ho, Yb) by employing temprature dependent neutron diffraction	UGC-DAE	Dr. C. S. Yadav (PI), Dr. Kaustav Mukherjee (Co-PI)	45,000	1 year
40	IITM/DBT-RF/ST/156	Role of human cathelicidine in gastric carcinogenesis	DBT	Dr. Shweta Tripathi	88,00,000	5 years
41	IITM/SERB/AP/158	Immunotyping of Taenia solium functional secretome and their proteomic identification	SERB	Dr. Amit Prasad	53,85,397	3 years
42	IITM/SERB/SKM/160	Systems analysis of photoautotrophic metabolic phenotypes of plants in response to stress	SERB	Dr. Shyam Kumar Masakapalli	50,92,560	3 years
43	IITM/INT/VKN/09	Surface modified Upconversion Nanoparticles for Theranostic Applications in Cancer.	IIT Mandi, IIT Ropar, PGIMER Consortium	Dr. Venkata Krishnan (PI), Dr. Neha Garg (Co-PI), Dr. Yashveer Singh and Dr. Shalimoli Bhattacharyya	12,00,000	1 Year
44	IITM/DBT-BMBF/SKM/165	BioPEC: Cellulosic waste to high value products by integrating microbial bioprocessing and pyrolysis techniques	DBT-BMBF	Dr. Shyam Kumar Masakapalli (PI)Dr. Neil Mackinnon (PI)Dr. Swati Sharma (Germany)	45,46,000	2 years
45	IITM/DBT-IC/RG/166	Development of a hand held molecular point-of care test device for infectious diseases	DBT-IC	Dr. Rajanish Giri,Prof. Daman Saluja (University of Delhi),Prof. James Mahony (Canada)	98,25,000	2 years

54	IITM/DAE-BRNS/SG/186	Spatial distribution of uranium and associated water quality parameters in groundwater, surface water and drinking water in four districts (Una, Bilaspur, Solan & Sirmour) the state of Himachal Pradesh	DAE-BRNS	Dr. Subrata Ghosh (PI) Dr. Jaspreet Kaur Randhawa (Co-PI)	29,24,300	2 years
55	IITM/DAE-BRNS/VKN/187	Spatial distribution of uranium and associated water quality parameters in Shimla and Kinnaur	DAE-BRNS	Dr. Venkata Krishnan (PI) Dr. Rik Rani Koner (Co-PI)	29,24,300	2 years
56	IITM/DAE-BRNS/DPS/188	Spatial distribution of uranium and associated water quality parameters in Mandi, Kullu and Hamirpur	DAE-BRNS	Dr. Dericks P Shukla (PI) Dr. Aditi Halder (Co-PI)	27,51,800	2 years
57	IITM/SERB/PFS/190	Development of pristine graphene as a catalyst support	SERB	Dr. Prem Felix Siril (PI) Dr. Subrata Ghosh (Co-PI)	29,54,600	3 years
58	IITM/DST/AKP/198	Vigyan Jyoti- A new initiative of DST for women	DST	Dr. Arti Kashyap (PI) Co-PI's:Dr. Bindu Radhamany, Dr. Amit Prasad, Dr. Aditya Nigam	16,57,900	1 year

Seed Grant Projects

Sl/. No.	File no.	Proposal Title	Faculty name	Amtount in Rs.	Period
1.	IITM/SG/AH/34	Using Anthropogenic carbon dioxide for sustainable future through heterogeneous electrocatalysis	Dr. Aditi Halder	7,00,000	3 Years
2.	IITM/SG/MM/35	Controllability of Some Differential Equations	Dr. Muslim Malik	4,64,000	3 Years
3.	IITM/SG/PM-AJ/37	Targeted delivery of therapeutics to pancreatic beta cells by nanocarriers to augment glucose-dependent insulin secretion	Dr. Prosenjit Mondal, Dr. Amit Jaiswal	20,00,000	3 Years
4.	IITM/SG/AP/38	Understanding the role of inflammaosmes in pathogenesis of Taenia solium cyst infection	Dr. Amit Prasad	7,00,000	2 Years
5.	IITM/SG/RG/46	Inhabition of the Alzheimer's Aβ-Peptide Fibrillization by derived disordered peptides of Transthyretin: Molecular Mechanism by Atomic Force Microscopy	Dr. Rajanish Giri	7,00,000	3 Years
6.	IITM/SG/SKM/48	System Biology of selected Proteobacteria with idustrial, environmental and agricultural significance	PI- Dr. Shyam Kumar Masakapalli Co PI- Dr. Tulika P. Srivastava	18,00,000	3 Years

Women Centre In-House Project

Sr. No.	Project No.	Principal Investigator	Title
1.	IITM/INT/TP/07	Dr. Tulika P. Srivast ava	EWOK - Enabling Women Of Kamand

Progress of the Research Projects

Research

In resonance with the research philosophy of IIT Mandi, we strongly believe in interdisciplinary research and hence, we have developed several research collaborations, both internal and external, with the scientists and engineers from different disciplines.

Dr. Kaustav Mukherjee

Magnetic and universal magnetocaloric behavior of rare-earth substituted DyFe0.5Cr0.5O3

Investigation was carried out to study the effect of partial substitution of Dy-site by rare-earths (R = Gd, Er and La) on the magnetic and magnetocaloric behavior of a mixed metal oxide DyFe0.5Cr0.5O3. Structural studies reveal that substitution of Dy by R has a minimal influence on the crystal structure. Magnetic and heat capacity studies show that the magnetic transition around 121 K observed for DyFe0.5Cr0.5O3 remains unchanged with rare-earth substitution, whereas the lower magnetic transition temperature was suppressed/enhanced by magnetic/non-magnetic substitution. In all these compounds, the second order nature of magnetic transition is confirmed by Arrott plots. As compared to DyFe0.5Cr0.5O3, the values of magnetic entropy change and relative cooling power are increased with magnetic rare-earth substitution while it decreases with non-magnetic rare-earth substitution. In all these compounds, magnetic entropy change follows the power law dependence of magnetic field and the value of the exponent n indicate the presence of ferromagnetic correlation in an antiferromagnetic state. A phenomenological universal master curve was also constructed for all the compounds by normalizing the entropy change with rescaled temperature using a single reference temperature. This master curve also reiterates the second order nature of the magnetic phase transition in such mixed metal oxides.

Signature of partially frustrated moments and a new magnetic phase in CeNiGe2

Investigation was carried out to study the magnetic, thermodynamic, and transport properties of a heavy fermion compound CeNiGe2. This compound undergoes two antiferromagnetic transitions around 4.1 and 3 K. It was observed in heat capacity that as magnetic field was increased to ~1T, the two peak merge into a single peak around 3 K. However this peak was not suppressed under the application of magnetic field. Instead a new feature develops at 3.6 K above 1 T. The magnetic field induced new feature was investigated through entropy evolution, magnetic Gruneisen parameter and resistivity studies. These studies emphasis the fact that partial magnetic frustration due to field induced spin fluctuation was responsible for this observed feature. This partially frustrated regime develops a new antiferromagnetically ordered phase at high fields. In this compound magnetic field induced quantum critical point was absent implying that the behavior of CeNiGe2 was not in accordance to Doniach model proposed for heavy fermions compounds.

Dr. Prem Felix Siril

Development of 'pristine graphene' as a catalyst support

Dr. Prem Felix Siril (PI), Dr. Subrata Ghosh (co-PI)

Funded by SERB, DST, New Delhi.

Duration : 15.03.2018-14.03.2021 (3 years)

Sanctioned funds: Rs**. 29,54,600/-**

Catalyst support materials play a crucial role in heterogenous catalysis as they protect catalyst particles from agglomeration and provide easy access to the reactants owing to their high surface area. High surface area, porous materials such as mesoporous silica, mesoporous carbon, zeolites etc. are widely used as catalyst supports. With the advent of carbon nanomaterials, carbon nanotubes and graphene are also widely being explored as catalyst supports. However, our recent studies proved that pristine graphene that is produced using liquid phase exfoliation methods are better catalyst support materials than the widely explored reduced graphene oxide. We will investigate the fundamental aspects of the advantages of using pristine graphene as catalyst support in the present project. Moreover, novel catalysts will be prepared and tested for their activity in a wide range of chemical and electro-chemical reactions.

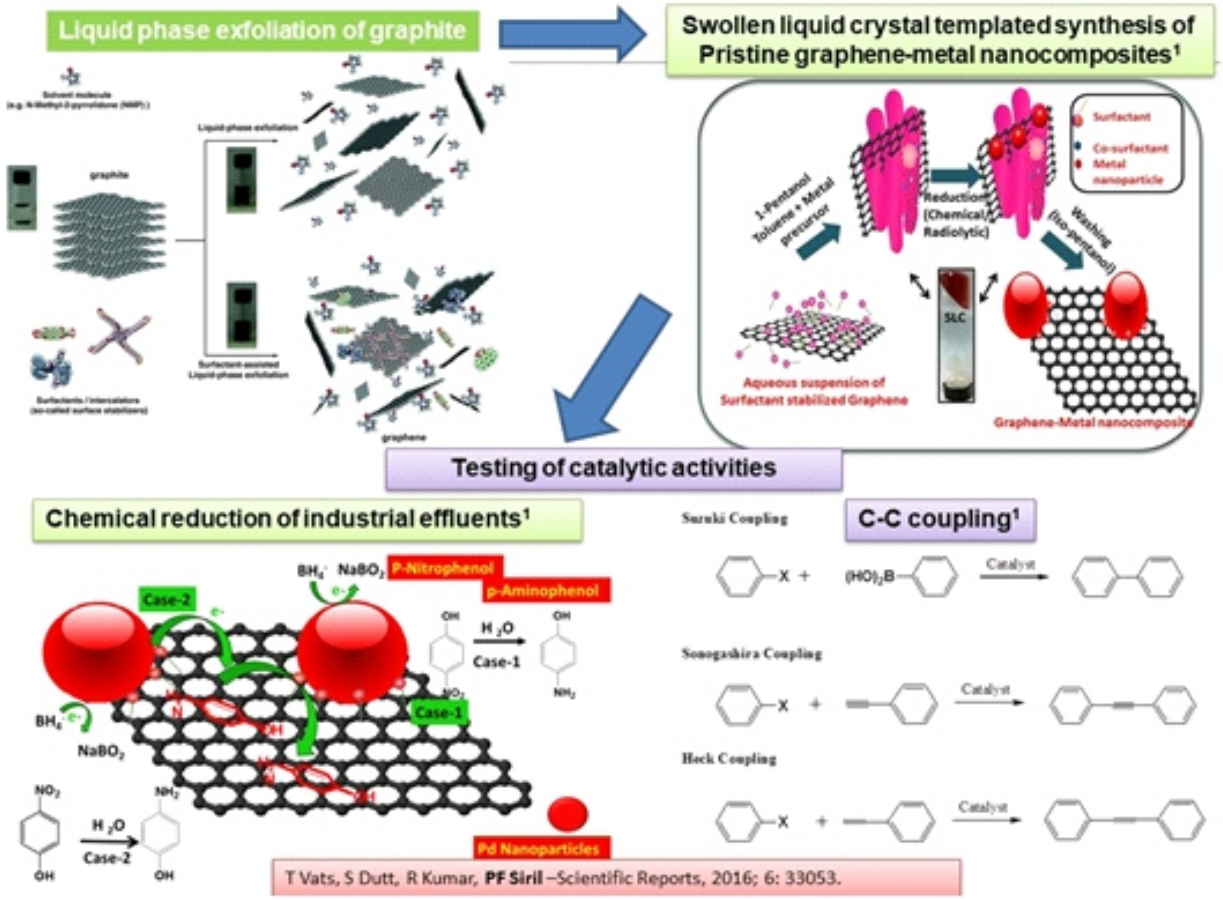

Figure depicting the methodology of the project

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https://doi.org/10.1016/ j.ultsonch. 2017.08.018.

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Book Chapter:

1. Ziyauddin Khan, R. Shanker, D. Um, Amit Jaiswal, H. Ko, Bio-inspired Polydopamine and Composites for Biomedical Applications, Book Title: Electrically Conducting Polymer and Polymer composites: From Synthesis to Biomedical Applications published by Wiley-VCH Verlag GmbH & Co. Germany. (2018, 1).
2. Shounak Roy and Amit Jaiswal*, SERS-based biosensors as potential next generation point-of-care cancer diagnostic platforms, Book Title: Next generation point-of-care biomedical sensors technologies for cancer diagnosis, Springer (2017), Online: ISBN978-981-10-4726-8, Print ISBN: 978-981-10-4725-1.
3. A Kumar, RK Ray, Numerical Simulation of Flow around Square Cylinder with an Inlet Shear in a Closed Channel, Book Title: Applications of Fluid Dynamics, Springer (2018), Online ISBN: 978-981-10-5329-0, Print ISBN: 978-981-10-5328-3.

Workshop/Conferences/Presentations:

1. Observation of itinerant antiferromagnetism in Y-substituted CeNiGe2 Karan Singh and K. Mukherjee Advances in Functional and Exotic materials: Feb 2018, Tiruchirappalli, India.
2. Investigation of magnetic properties of a cluster-glass system Dy5PdNi Mohit K. Sharma and K. Mukherjee Advances in Functional and Exotic materials: Feb 2018, Tiruchirappalli, India.
3. Onset of Glassy Magnetic Phase with Partial Substitution of Mn on Fe Site in a Heusler Alloy Fe2CrAl Kavita Yadav, Mohit K. Sharma and K. Mukherjee DAE Solid State Physics Symposium: Dec 2017, Mumbai, India.
4. Magnetic and Magnetocaloric Behavior of a Binary Intermetallic Compound Tb5Pd2 Mohit K. Sharma and K. Mukherjee DAE Solid State Physics Symposium: Dec 2017, Mumbai, India.
5. Crystal Structure and Magnetism of Layered Perovskites Compound EuBaCuFeO5 Surrender Lal, K. Mukherjee and C. S. Yadav DAE Solid State Physics Symposium: Dec 2017, Mumbai, India AIP Conf. Proc. 1942, 130004 (2018).
6. Cooling Field and Temperature Dependent Exchange Bias in Gd Substituted YFe0.5Cr0.5O3 Karan Singh and K. Mukherjee DAE Solid State Physics Symposium: Dec 2017, Mumbai, India AIP Conf. Proc. 1942, 130005 (2018).
7. Tuning of magnetic properties of a Heusler alloy Fe2CrAl by Mn substitution at Fe site Kavita Yadav, Mohit K. Sharma and K. Mukherjee International Workshop on Advanced Materials: Dec 2017, Berhampur, India.
8. Thermal Conductivity of multiferroic compound YBa1-xSrxCuFeO5 (x = 0.0, 0.25 and 0.5) Surrender Lal, K. Mukherjee and C. S. Yadav International Workshop on Advanced

Materials: Dec 2017, Berhampur, India.

9. Magnetic relaxation and magnetocaloric effect in an intermetallic compound Er5Pd2 Mohit K. Sharma and K. Mukherjee 2nd International Conference on Condensed Matter and Applied Physics: Nov 2017, Bikaner, India.
10. Signature of partially frustrated moment in a heavy fermion CeNiGe2 Karan Singh and K. Mukherjee International conference on Strongly Corrrelated Electron System: July 2017, Prague, Czech Republic.
11. Ankita Sarkar, A. Jaiswal; Stimuli responsive Gold nanorattles Impregnated Chitosan nanocarriers for Theranostic Applications, International Conference on Nanoscience And Technology (ICONSAT-2018), 21-23 March 2018, Indian Institute of Science (IISc), Bangalore, India.
12. Shounak Roy, Amit Jaiswal; Poly-(allylamine hydrochloride) Functionalized Reduced Graphene Oxide Nanocomposites (RGO-PAH) As Novel Nanocarriers For Drug Delivery, International Conference on Nanoscience and Technology (ICONSAT-2018), 21-23 March 2018, Indian Institute of Science (IISc), Bangalore, India.
13. Prem Singh, Sonika, A. Jaiswal; Synthesis, characterization and catalytic applications of Pd-Au bimetallic nanorattles, International Conference on Nanoscience and Technology (ICONSAT-2018), 21-23 March 2018, Indian Institute of Science (IISc), Bangalore, India.
14. Shounak Roy and Amit Jaiswal, Poly(allylamine hydrochloride)-reduced Graphene Oxide (rGO/PAH) nanocarriers for potential application in non-viral gene therapy, 6th World congress on Biopolymer-2017, 7-9 September, 2017, Paris, France.
15. Poonam Jyoti, Lingwan M, Srivastava TP, Masakapalli SK, Ray SK, Satapathy SS. System wide analysis of virulence and chemotactic genes in newly isolated phytopathogen Ralstonia solanacearum. SSC-2017: Kolkatta International symposium on Systems, Synthetic & Chemical Biology, Bose Institute.
16. Poonam Jyoti, Lingwan M, Srivastava TP, Ray SK, Sathapathy SS, Masakapalli SK. Progress towards decoding the metabolic phenotypes of Phytopathogen Ralstonia solanacearum. IBSE- 2018-International Conference From Genotype to Phenotype: Computational Approaches to Understand Biological Systems. IIT Madras Poster selected for Talk.
17. Poonam Jyoti, Lingwan M, Srivastava TP, Ray SK, Sathapathy SS, Masakapalli SK Detailed insights into the metabolic features of the phytopathogen Ralstonia solanacearum. ICCB-2018: International Congress of Cell Biology, CCMB-Hyderabad, Jan 27-31st 2018.
18. Kamatam VKLR, Joshi CK, Masakapalli SK. In vitro metabolic engineering strategies towards H_2 production – feasibility assessment in Indian context. International Conference PRS-2017, Photosynthesis and hydrogen energy research for sustainability. University of Hyderabad.
19. Maneesh Lingwan, Arpita Yadav, Manushree, Sourav Datta, Masakapalli SK. Metabolite profiling of Arabidopsis seedlings subjected to UV-B. International Conference PRS-2017, Photosynthesis and hydrogen energy research for sustainability. University of Hyderabad.
20. Chandrakant Joshi, Masakapalli SK. Strategy towards Pathway based comparative assessment of cellulose degradation potential in microbes. Inbix-2017, Indian Conference

of Bioinformatics. Jaipur.

21. Joshi CK, Leak DJ, Masakapalli SK. RNAseq data analysis – A case study demonstrating tools and tricks. ICCB-2018: International Congress of Cell Biology, CCMB, Jan 27-31st 2018.
22. Manushree and Masakapalli SK. ^{13}C-based Tracer Analysis of Xanthomonas oryzae Central Metabolism. International Conference ASM Microbe 2018, June 2017, Atlanta.
23. Manushree, Masakapalli SK, Leak DJ. ^{13}C-Metabolic flux analysis of fermentative Geobacillus thermoglucosidasius, an industrial thermophile. IBSE- 2018. International Conference. From Genotype to Phenotype: Computational Approaches to Understand Biological Systems. IIT Madras.
24. Manushree, Masakapalli SK, Leak DJ. Metabolic flux phenotype of Geobacillus thermoglucosidasius under microaerophilic chemostat condition. SSC-2017: Kolkatta International symposium on Systems, Synthetic & Chemical Biology, Bose Institute.
25. Manushree, Masakapalli SK. ^{13}C Metabolic flux analysis workflow adapted to study metabolism of agricultural phytopathogens. ICCB-2018: International Congress of Cell Biology, CCMB, Jan 27-31st 2018.
26. Represented IIT Mandi in the State Level Workshop on “National Biodiversity Action Plan (NBAP), National Biodiversity Targets (NBT) and Sixth National Report to Convention on Biological Diversity. 19th Feb 2018 Shimla.
27. Tarun Semwal, Naresh M, Uday K V, Manushree, Shyam K Masakapalli. Study of Mechanical Characteristics of Plants Root for Slope Stability. Conference Paper. Indian Geotechnical Conference in 2017, GeoNEST, IIT Guwahati.
28. Photoionisation studies of Hydrogen inside C60 using Guassian Annular square well method. Afsal Thuppilakkadan, Hari R. Varma, S. Saha, J. Jose and P.C. Deshmukh. 7th Topical Conference of Indian Society of Atomicand Molecular Physics (ISAMP), IISER and IIT Tirupati, January 6-8, 2018.
29. Photoionisation dynamics of Ar@C540, Sourav Banerjee, Afsal Thuppilakkadan, H. R. Varma, P. C. Deshmukh, ISAMP TC-7, 6-8 January, 2018, Tirupati.
30. Eect of model potentials (smooth Vs hard) on the Wigner time delay of H@C60 Photoionisation, Afsal Thuppilakkadan, Subhasish Saha, Jobin Jose and Hari R. Varma, ISAMP TC-7, 6-8 January, 2018, Tirupati.
31. Thermoelectric Performance through Band Modification and Phonon Engineering in Doped SnTe Somnath Acharya, JuhiPandey and Ajay Soni, Invited talk in India-UK workshop on Thermoelectric Materials for Waste-Heat Harvesting, Organized by The Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR, India) and the University of Reading (UK), January 8-10, 2018.
32. Structural Complexities and Confinement Effects in Layered Materials at Extreme Nanoscale Ajay Soni, Invited talk for Material Science Group Seminar, IGCAR, Kalpakkam, TN, January 2, 2018.
33. State of the Art Thermoelectric Materials for Heat Energy Conversion Ajay Soni, Invited talk in National Conference on Recent Trends in Experimental and Theoretical Physics (NCRTETP - 2017), SS University, Palampur, November 23-24, 2017.

34. Graphene Derivatives at Nanoscale and Applications Ajay Soni, Invited talk in Conference on "Sepctroscopy of Emerging Functional Materials" (SEFM-2017), School of Basic Sciences, Indian Institute of Technology Mandi, October 9-10, 2017.

35. Functionalization of Graphene Oxide Dispersions for Conductive Inks and Supercapacitor Applications Mahesh Soni, Ajay Soni and Satinder K Sharma, Conference on "Sepctroscopy of Emerging Functional Materials" (SEFM-2017), School of Basic Sciences, Indian Institute of Technology Mandi, October 9-10, 2017. Mahesh won third prize for poster presentation .

36. Structural Complexities and Confinement Effects in Layered Materials at Nanoscale, Ajay Soni, Invited talk in National Conference on "Physics at Small Scales and Advanced Materials" (PSAM-2017), School of Physics, University of Hyderabad, September 8-9, 2017.

37. Role of Structural Defects and Soft Phonon Modes in Doped Tin Telluride for Thermoelectric Applications, Ajay Soni, Invited talk in International Conference on Materials for Advanced Technologies (ICMAT -2017), Symposium DD-02: Chalcogenide based materials innovations for Thermoelectrics I , June 19-23, 2017.

38. Structiral, dielectric and magnetic studies of Mn doped Y-type barium hexaferrite ($Ba_2Mg_2Fe_{12}O_{22}$), M.F. Abdullah, P.Pal, S.R. Mohapatra, C.S.Yadav. S.D.Kaushik, and Anil Singh, DAE-Solid State Physics Symposium- 2017, BARC Mumbai, India.

39. Elctronic transport properties of Fe intercalated Bi2Se3 compound: Fe0.10Bi2Se3, Shailja Sharma, C.S.Yadav, Internaltional workshop on Advanced Materials-2017, NIST Berhampur, India.

40. Thermal conductivity of Multiferroic Material $YBa_{1-x}Sr_xCuFeO_5$ (x=0, 0.25, 0.5), Surender Lal, K. Mukherjee, C.S.Yadav, Internaltional workshop on Advanced Materials-2017, NIST Berhampur, India.

Outreach Activities i.e. Invited Talks/Lectures/Guest Appearance:

Dr. Chayan K. Nandi

1. IACS Kolkata Feb 2018, Nottingham University Sept 2017, AvH meeting bangaluru 2017
2. Chayan K Nandi, "Carbon dots or Organic Nanocrystals", 22-25th Feb 2018, IACS Kolkata
3. Chayan K Nandi, "Carbon dots: a mysterious nano-emitter", 21-22nd Sept 2017, Visiting Scientist, University of Nottingham, UK
4. "Structure and Functional Relationship in Fluorescent Carbon Dots", 22-25th November 2017, AvH meeting, Bengaluru India.

Dr. Hari Varma

1. Wigner photoionization time delay studies of the neon 2s → np autoionization resonances Hari R. Varma, ISAMP TC-7, 6-8 January, 2018, Tirupati.

2. Role of static polarization of C60 on the photoionization dynamics, Recent Development inthe ultrafast phenomena, IIT Tirupati on 8th and 9th March, 2018.

Dr. Pradeep C. Parameswaran

1. Gave an invited lecture titled 'Hybrid Polyoxometalates as Multi-functional Materials, Photoresists, Green Catalyst and Antioxidants' during the Asian Meeting on Metal Oxide Assemblies 2017 (AMMOA 2017) held at IISER Kolkata on 10th May 2017.

Dr. Venkata Krishnan

1. Participated and delivered an invited talk at the International Conference on Nanomaterials for Energy conversion and Storage Applications (NECSA-2018) held at Pandit Deendayal Petroleum University, Gandhinagar, India from Jan. 29 to 31, 2018.
2. Participated and delivered an invited talk at the Conference on Advances in Catalysis for Energy and Environment (CACEE-2018) held at Tata Institute of Fundamental Research (TIFR), Mumbai, India from Jan. 10 to 12, 2018.
3. Delivered an invited talk at National Chemical Laboratory (NCL), Pune on Jan. 09, 2018.
4. Delivered an invited talk at Karunya University, Coimbatore, India on Dec. 14, 2017.
5. Participated and delivered an invited talk at the National Conference on Advanced Materials (NCAM-2017) held at PSG College of Technology, Coimbatore, India from Dec. 12 to 13, 2017.
6. Participated and delivered an invited talk at the International Conference on Nanotechnology: Ideas, Innovations and Initiatives (ICN:3I-2017) held at IIT Roorkee, India from Dec. 06 to 08, 2017.
7. Participated and delivered an invited talk at the National Conference on Recent Trends in Experimental and Theoretical Physics (NCRTETP - 2017) held at Sri Sai University, Palampur, India from Nov. 23 to 24, 2017.
8. Participated and chaired a session in the 2nd Himachal Pradesh Science Congress held at Shimla, India from Nov. 20 to 21, 2017.
9. Participated and delivered an invited talk at the International Conference on Functional Nanomaterials and Nanotechnology (ICFNN-2017) held at Kathmandu, Nepal from Oct. 10 to 13, 2017.
10. Participated and delivered an invited talk at the 8th East Asia Symposium on Functional Dyes and Advanced Materials (EAS8-2017) held at CSIR-NIIST, Thiruvananthapuram, India from Sep. 20 to 22, 2017.
11. Participated and delivered an invited talk at the Multidisciplinary National Conference on Innovative Trends in Science, Technology and Management (MNCITSTM-2017) held at Sri Sai University, Palampur, India on Aug. 24, 2017.

Dr. Prosenjit Mondal

1. Invited talk on 37th Annual conference of SOCIETY OF TOXICOLOGY INDIA (STOX)-2017 on 19th November, 2017 Heavy Metal Toxicity and Interactions Obesogens: A Heavy Metal Link to Obesity" in Lecture theatre-1, Nehru Hospital, 1st Floor, PGIMER, Chandigarh.
2. Young investigator talk on 6th International Conference on Molecular Signalling (ICMS 2018)" at University of Hyderabad (UoH) and National Institute of Animal Biotechnology (NIAB) during 8 - 10February, 2018.

Dr. Shyam K Masakapalli

1. Hosted several high schools of Himachal for study tour to Botanical and Medicinal Plant Garden
2. Ishan Vikas Northeast and H.P. and J&K STEP students Visit 2017 - Hands-on Biotechnology lab exposure offered.

Dr. Prem Felix Siril

1. International symposium on Functional Materials (ISFM-2018), "Unravelling the potential of pristine graphene as catalyst support", 13-15 April, 2018, Chandigarh.
2. International conference on Nano science and Technology (ICONSAT2018), "Unravelling the potential of pristine graphene as a valuable catalyst support", 21-23rd March, 2018, IISc Bangalore.

Achievements

1. 2017 (Sept): Visiting Professor, University of Nottingham. Dr. Chayan K. Nandi.
2. 2017 (Sept): Best Teaching award at IIT Mandi for excellence in Chemistry. Dr. Chayan K. Nandi
3. Received the ACS Pittcon Travel grant which is organised by the American Chemical Society (ACS) Committee on International Activities (IAC) and administered by the ACS Office of International Activities (IA) for participating in the 2018 Pittsburg Conference on Analytical Chemistry & Applied Spectroscopy (Pittcon) in Orlando, Florida, USA. Dr. Amit Jaiswal
4. Conferred Distinguished Teacher Award on 5th Sept 2017 for sustained performance of excellence in teaching. Dr. Shyam K. Masakapalli
5. Dr. Soni Received Bhaskara Advanced Solar Energy Research Fellowship from Indo US Science and Technology forum to visit Rensselaer Polytechnic Institute, Troy New York, to explore collaboration on flexible thermometric materials with Prof Ganpati Ramanath.

Workshop Organised:

- A National Workshop organized on Bioprocessing for Energy and Carbon from Agro Residues (BECAR-2018) at IIT Mandi; 23rd – 24th Jan 2018; with support from IIT Mandi and DBT-BMBF Indo-German Project.

Student Awarded Ph.D Degree:

S. No.	Roll No.	Name	Guide/Co-Guide Name	Year
1	D10004	Pushpender Kumar	Dr. Suman Kalyan Pal	2017
2	D10007	Hemant Jalota	Dr. Manoj Thakur	2017
3	D11018	Abhishek Gupta	Dr. Chayan K. Nandi	2017
4	D11019	Raj Kumar	Dr. Prem Felix Siril	2017
5	D11020	Sunil Kumar	Dr. Subrata Ghosh	2017
6	D11021	Manisha Devi	Dr Pradeep Parmeswaran	2017
7	D11039	Reena Sharma	Dr. P.C Ravi Kumar	2017
8	D12055	Darsi Rambabu	Dr. Abhimanew Dhir (Guide)	2017
9	D12057	Shilpa Sharma	Dr. Pradeep Parmeswaran (Guide)	2017
10	D12072	Swati Tyagi	Dr. Syed Abbas`	2017
11	D12084	Renu	Dr. Arti Kashyap (Guide)	2017
12	D13006	Pankaj Gaur	Dr. Subrata Ghosh	2017
13	S15014	Gaurav Chetal	Dr. Tulika Srivastava	2017

Students Awarded Master Degree:

S.No	Roll No.	Names	Year	Program
1	V15001	Akshita Sharma	2017	M.Sc. Chemistry
2	V15002	Parveen Kumar	2017	M.Sc. Chemistry
3	V15003	Ganga Singh	2017	M.Sc. Chemistry
4	V15004	Deepak Kumar	2017	M.Sc. Chemistry
5	V15005	Sanjhal Jain	2017	M.Sc. Chemistry
6	V15006	Navneet Matharoo	2017	M.Sc. Chemistry
7	V15007	Shubham Biswas	2017	M.Sc. Chemistry
8	V15008	Swadhapriya Bhukta	2017	M.Sc. Chemistry
9	V15009	Tapas Adhikary	2017	M.Sc. Chemistry
10	V15010	Anu Kumari	2017	M.Sc. Chemistry
11	V15011	Kanika Bharti	2017	M.Sc. Chemistry
12	V15012	Shivani Verma	2017	M.Sc. Chemistry
13	V15013	Vicky Varma	2017	M.Sc. Chemistry
14	V15014	Ankita Dhiman	2017	M.Sc. Chemistry
15	V15015	Mohammad Ashraf	2017	M.Sc. Chemistry
16	V15016	Priyanka Negi	2017	M.Sc. Chemistry
17	V15017	Sudhanshu Sharma	2017	M.Sc. Chemistry
18	V15018	Tushar Verma	2017	M.Sc. Chemistry

School of Humanities and Social Sciences (SHSS)

Over the course of the academic year 2017-2018, the School of Humanities and Social Sciences worked towards consolidating existing curricular offerings and building new ones. In particular, the School proposed a new M.A. programme in Development Studies. This programme aims to create a pool of development practitioners and/or academics, who will be well equipped to participate in the process of such informed decision making. While located in the School of Humanities and Social Sciences, the programme will also focus on understanding the basic scientific and technological underpinning of some of the developmental challenges and their existing remedies. A mandatory Field Study component will bring the students face to face with real world challenges. The School looks forward to beginning the programme from August 2018. The School also saw high enrolment in the popular B. Tech Minor in Management with 25 students graduating with a Minor in Management in 2017. The Language Lab established by the School has also evolved into a vibrant center of learning with regular meetings and classes scheduled in that space. Faculty in the School continue to scale new heights as books are contracted, papers published and projects garnered. Collaborative projects have also facilitated meaningful interaction with engineering and science faculty, moving the School towards greater interdisciplinary research. Ph.D. students too add to the vibrancy of the School, with many scholars being first-author on peer reviewed publications. The School will be graduating its first Ph.D. student in the upcoming Convocation 2018.

Faculty:

Dr. Rajeshwari Dutt
Chairperson
Assistant Professor
Specialisation: Latin America, Social and Cultural History
Ph.D. From Carnegie Mellon University (USA) in year 2012
Home Town: Kolkata, West Bengal
Phone: 01905-267043
Email: rdutt

Dr. Aruna Bommareddi
Assistant Professor
Specialisation: Comparative Literature, Indian Literatures in English
Ph.D. from University of Hyderabad (2004)
Home Town: Hyderabad, Andhra Pradesh
Phone: 01905-267121
Email: aruna

Dr. Ashok Kumar M
Assistant Professor
Specialisation: Sociology of Religion,
Social Stratification, Caste and Christianity in India, Marginalized communities and Higher Education.
Ph.D. from IIT Bombay.
Home Town: Tenali, Andhra Pradesh
Phone: 01905-267135
Email: ashok

Prof. Balasundaram Subramanian
Visiting Professor
Specialisation: German Studies and Political Philosophy
Ph.D. in German Studies in 1981
Home Town: Velachery, Chennai
Phone: 01905-267114
EMail: bs

Prof. Bhavender Paul
Adjunct Professor
Specialisation: Management Strategy, Managerial Finance, Biotechnology & Pharmaceutical Technology
Ph.D. Biochem. E. Rutgers U., New Brunswick

Dr. Devika Sethi
Assistant Professor
Specialization: Modern Indian History, Colonialism and Decolonization, Free Speech and Censorship
Ph.D. from Jawaharlal Nehru University, New

NJ '77; MBA, Syracuse U., Syracuse NY '85
Home Town: San Mateo, CA USA
(originally from Patiala, Punjab)
Phone: 01905-267046
Email: bp

Dr. Ingrid Shockey
Adjunct Associate Professor
Specialization: Environmental Sociology
Ph.D. from Brandeis University
Home Town: Northampton, MA, USA

Prof. Pramod Talgeri
Visiting Professor
Specialisation: Philosophy of Hegel and Critique of Modernity and Contemporary Western Philosophy, Modern German Literature, Comparative Literature
Ph.D. from University of Munich, Germany (1970)
Home Town: Pune
EMail: pramod

Dr. Ramna Thakur
Assistant Professor
Specialisation: Development Economics
Ph.D. from HPU Shimla
Home Town: Mandi
Phone: 01905-267044
Email: ramna

Dr. Shyamasree Dasgupta
Assistant Professor
Specialisation: Energy and Environmental Economics, Economics of Climate Change, Applied Econometrics
Ph.D. from Jadavpur University (2015)
Home Town: Kolkata, West Bengal
Phone: 01905-267118
Email: shyamasree

Dr. Surya Prakash Upadhyay
Assistant Professor
Specialisation: Sociology of Religion, Urban Sociology, Post-Reform India
Delhi (2013)
Home Town: Allahabad, Uttar Pradesh
Phone: 01905 267050
Email: devika

Dr. Manu V. Devadevan
Assistant Professor
Specialisation: Literary practices in South Asia, Political and economicprocesses in premodern South Asia & South Asian Epigraphy
Ph.D. from: Mangalore University, Mangalagangothri, Mangalore.
Phone: 01905-267147
EMail: manu

Dr. Puran Singh
Assistant Professor
Specialization: Corporate Finance, Microfinance
Ph.D. from Punjab University (2013)
Home Town: Mandi, Himachal Pradesh
Phone: 01905 267148
Email: puran

Dr. Shail Shankar
Assistant Professor
Specialisation: Identity and group dynamics, Health and Well Being
Ph.D. from University of Allahabad.
Home Town: Deoria
Phone: 01905-267149
Email: shail

Dr. Suman
Assistant Professor
Specialisation: Colonialism, Post colonialism, Imperialism and Romance Literature
Ph.D. from IIT Delhi.
Home Town: Faridabad
Phone: 01905-267140
Email: suman.sigroha

Dr. Varun Dutt
Assistant Professor (Joint Appointment)
Specialisation: Judgment and Decision Making, Environmental DecisionMaking, Artificial

Ph.D. from Indian Institute of Technology Bombay (2011)
Home Town: Lucknow, Uttar Pradesh
Phone: 01905-267136
Email: surya

Dr. Gokul Somasekhran
Teaching Fellow
Specialisation: German Literature
Ph.D. from Free University Berlin
Home Town: Thrissur, Kerala
Phone: 01905-267144
Email: gokul

Intelligence, Human-Computer Interaction
Ph.D. From Carnegie Mellon University (USA) in year 2011
Home Town: Lucknow, Uttar Pradesh
Phone: 01905-267041
Email: varun

Research Projects

S. No.	IIT Mandi Reference/ Project No.	Project Title	Sponsoring Agency	Principal Investigator & Co-ordinator(s)	Department/ School	Amount Sanctioned in Rs.	Duration of Project
1	IITM/UGC/ MVD/73	The Sixteenth Century Renaissance in Southern India	UGC	"Dr. Manu V. Devadevan Co-PI: Prof. Kesavan Veluthat (Univ of Delhi)"	School of Humanities & Social Sciences	48,00,000	3 Years
2	IITM/IRCS/ VK/131	Indian Red Cross Society project-IIT Mandi collaboration	Indian Red Cross Society	Dr. Venkata Krishnan (PI), Dr. Varun Dutt, Dr. Ramna Thakur, Dr. Shyamasree Dasgupta (Co-PI's)	School of Computing & Electrical Engineering AND School of Basic Sciences AND School of Humanities & Social Sciences	42,000	1 year
3	IITM/NIRD PR/RT/142	Documentation of successful practices and scalable models under MGNREGA in Himachal Pradesh	NIRDPR	Dr. Ramna Thakur (PI), Dr. Rajeshwari Dutt (Co-PI)	School of Humanities & Social Sciences	11,64,900	09 month s
4	IITM/ICSS R/AKM/167	Democratization of Indian Christianity: Dalit Christian liberation movement in contemporary India	ICSSR	Dr. Ashok Kumar Mocherla	School of Humanities & Social Sciences	60,00,00	1.5 Year
5	IITM/UBA/S P/174	MHRD- Unnat Bharat Abhiyan scheme	MHRD	Dr. Satvasheel Powar (PI) Dr. Suryaprakash Upadhyay, Dr. Dericks P Shukla, Dr. Atul Dhar (Co-PI's)	School of Engineering & School of Humanities & Social Sciences	3,50,000	1 year

6	IITM/DBT-Indo-UK/SS/192	Smart Agriculture: Farmer Zone	DBT	Dr. Srikant Srinivasan (PI), Dr. Shyamasree Dasgupta (one of the Co-PI's) from IIT Mandi	School of Computing & Electrical Engineering AND School of Basic Sciences AND School of Humanities & Social Sciences	9,47,76,400	3 years
7	IITM/ICSSR/PS/193	Evaluation of business correspondent model of banking: A case study in Himachal Pradesh	ICSSR	Dr. Puran Singh (PI) Dr. Shyamasree Dasgupta (Co-PI)	School of Humanities & Social Sciences	2,50,000	1 year
8	IITM/SW-FDFA/SDG/189	Capacity Building on Climate Change Vulnerability Assessment in States of Indian Himalayan Region	Swiss Development Corporation (SDC)	Dr. Shyamasree Dasgupta & Dr. Anamika Barua, (PI at IIT Guwahati)	School of Humanities & Social Sciences In collaboration with IIT Guwahati	18,84,562.00	1 year 4 months

Details of research grants/seed funding from internal savings of the institute

S. No.	File no.	Proposal Title	Faculty name	Department/School	Amount in Rs.	Period
1	IITM/SG/DSE/65	The Kangra Earthquake (1905): A Social and Political History	Dr. Devika Sethi	School of Humanities & Social Sciences	5,00,000	3 years
2	IITM/SG/PS/63	Financial Inclusion and Financial Deepening Through Branchless Banking in Himachal Pradesh	Dr. Puran Singh (PI)	School of Humanities & Social Sciences	5,00,000	2 years
3	IITM/SG/SDG/57	Comprehensive Valuation of Forest Ecosystem Services and Understanding the Method of Value Formation: A case Study in Himachal Pradesh	Dr. Shyamasree Dasgupta	School of Humanities & Social Sciences	5,00,000	3 years
4	IITM/SG/AB/47	Institutions of Technology and Language Instruction	Dr. Aruna Bommareddi	School of Humanities & Social Sciences	5,00,000	3 years
5	IITM/SG/SS/45	Disaster at Mass Gatherings: A study of Pilgrims Shared Identities and Responses to Catastrohic Flooding	Dr. Shail Shankar	School of Humanities & Social Sciences	4,20,000	3 years
6	IITM/SG/RD/36	Mayans in 19th Century Mexico & Belize	Dr. Rajeshwari Dutt	School of Humanities and Social Sciences	6,20,000	3 years
7	IITM/SG/VD/32	Why do People Exhibit a lack of Understanding about Earth's Climate? Influence of Repeated Feedback	Dr. Varun Dutt	School of computing & Electrical Engineering & School of Humanities & Social Sciences	5,00,000	3 years

Books Published

Books (single author):

- **Sethi, D.** (In Press). Wars over Words: Censorship in India, 1930-60. Cambridge University Press.
- **Bommareddi, A.** (In Press). Narrative Traditions of a Telugu Epic. Palnativirula Katha.
- **Manu V. Devadevan** (2017), Kavya Meemamse: Taulanika Parisheelane, (in Kannada). Dravidian University, Kuppam.

Books Edited:

- Devadevan, M. V. (2018). Clio and Her Descendants: Essays for Kesavan Veluthat. Delhi: Primus.

Book Reviews:

- Dutt, R. (2018). The Mixtecs of Oaxaca. In R. Spores, & A. K. Balkansky (Eds.), Ancient Times to the Present (p. 328). The Americas, Cambridge University Press, 75 (1).
- Upadhyay, Surya Prakash (2018). Religion and Modernity in India by Sekhar Bandopadhyay and Aloka Parasher Sen (eds.) 2017. Contributions to Indian Sociology. (Vol.52, No.1, p. 122-125) Sage.
- Sethi, D. (2018). In the Light, and in the Shadows: Censored Writers in Independent India. Summer hill (Shimla: Indian Institute of Advanced Studies). Forthcoming.
- Manu V. Devadevan (2017), Yigal Bronner, Lawrence McCrea and Whitney Cox (eds), South Asian Texts in History: Critical Engagements with Sheldon Pollock, Indian Historical Review, 44 (2), pp. 327-29.

Book Chapters Published:

- Bala, S. and **Sigroha, S** (2018). Translating Culture, Transcreating Gender: Lal Hota Drakht or The reddening Tree. In Feminism and Feminist Issues: A Literary Perspective, New Delhi: Research India Press (forthcoming).
- **Dasgupta, S**., & Sankhyayan, P. (2018). A Narrative Analysis of State-Level Renewable Energy Policies in India. In A. Gautam, S. De, A. Dhar, J. Gupta, & A. Pandey (Eds.), Sustainable Energy and Transportation. Energy, Environment, and Sustainability (pp. 137-148). Singapore: Springer.
- **Devadevan, M. V**. (nd). Knowing and Being: Kutiyattam and Its Semantic Universe. In D.
- Shulman, & H. Oberlin (Eds.), Two Masterpieces of Kutiyattan: Mantrankam and Anguliyankam. New Delhi: Oxford University Press.
- Kaushik, M. and **Sigroha, S** (2018). A Case for Indian English: Dattani Do(es) the Needful. In English Language Teaching: Innovations and Practices. New Delhi: Adhyayan Publishers and Distributors (forthcoming).
- **Shankar, S**., Hopkins, N., Stevenson, C., & Pandey, K. (In Press). Being together at the Prayag Mela: The social psychology of crowds and collectivity. In T. Gale, A. Maddrell, & A. Terry (Eds.), Sacred mobilities. Farnham, Surrey: Ashgate.

Paper Published in International Journals:

- Bala, S. and **Sigroha, S**. (2018). Familiar yet Exotic: Anita Nair's Mistress. Muse India, Forthcoming.
- Bala, S. and **Sigroha, S**. (2018). Voices from the Margins: Her-Story in Arundhati Roy's The God of Small Things. MEJO, The MELOW Journal of World Literature, 3:1, 131 – 141.

- Roy, J., Chakraborty, D., **Dasgupta, S**. et. al (2018). Where is the hope? Blending modern urban lifestyle with cultural practices in India. Current Opinion in Environmental Sustainability, 31, 96-103.
- Kaushik, M. and Sigroha, S (2018). Facticity and Fictionality: Mahesh Dattani's Where Did I Leave My Purdah? MEJO, The MELOW Journal of World Literature, 3:1, 99 – 109.
- Kumar, M., & **Dutt, V**. (2018). Experience in a Climate Microworld: Influence of Surface and Structure Learning, Problem Difficulty, and Decision Aids in Reducing Stock-Flow misconceptions. Frontiers in Psychology, 9:299. doi: 10.3389/fpsyg.2018.00299
- Keane, M. P., &**Thakur, R**. (2018). Health Care Spending and Hidden Poverty in India. UNSW Business School Research Paper No. 2018-02.
- Sangar, S., **Dutt, V**., & **Thakur, R**. (2018). Economic burden, impoverishment and coping mechanisms associated with out-of-pocket health expenditure: analysis of rural-urban differentials in India. Journal of Public Health, In Press.
- **Sethi, D.** (2018). The Ban Formula: Non-Indian Authors and the Colonial State in the 1920s-30s. Indian Historical Review, ICHR/Sage, 45 (1), 1-23.
- **Sethi, D.** (published Online First in November 2017). 'Alarmist stories and defeatist views': Censorship and morale in India during the Second World War. War in History, Sage.
- Sharma, N., Debnath, S. & **Dutt, V**. (2018). Influence of an Intermediate Option on the Description-Experience Gap and Information Search. Frontiers in Cognitive Science, 9:364. doi: 10.3389/fpsyg.2018.00364
- **Sigroha, S.** (2018). Gendered Migrations and Literary Narratives: Writing Communities in South Asian Diaspora. Millennial Asia, Sage, Forthcoming.
- **Thakur, R**., Sangar, S., Ram, B., & Faizan, M. (2018). Quantifying the burden of out-of-pocket health expenditure in India. Public Health, (Accepted for Publication 0n 19th Feb, 2017).
- **Manu V. Devadevan** (2018), Problems and Prospects in the History of Literature, Beyond Disciplines 1 (1)

International Conferences:

- **Ramna Thakur**, Non-Communicable Diseases in India: a Gender Perspective, International Health Economic Association's Conference, University of Boston, USA, August, 2017.
- **Rajeshwari Dutt,** Hispanics and National Identity in Nineteenth Century British Honduras. The British Scholar Society's Britain and the World Conference, Austin. April, 2017
- **Shyamasree Dasgupta,** 40th International Conference of International Association for Energy Economics, Singapore, June, 2017. She also made a Research visit to University of Stavanger, Norway during November, 2017.
- Rao, A., Pramod, B., Chandra, S., &**Dutt, V**. (2018). Influence of Indirect-Vision and Virtual Reality training under varying manned/unmanned interfaces in a complex search-and-shoot scenarios. 9th International Conference on Applied Human Factors and Ergonomics. Orlando, Florida: Accepted.

Professional Achievements, Honors and Awards:

- **Varun Dutt,** Appointed to the Board of Governors of RxDataScience, USA in January, 2018.
- **Shivam Mishra,** Awarded a fellowship for the research stay at the Bergische University

Wuppertal (Germany) for two months (Jan to Feb) 2018.

- **Puran Singh**, Appointed 'Research Fellow' with Digital Identity Research Initiative, Indian School of Business, Hyderabad.

Workshops/Talk Organized:

Workshops :

1. Dr. Devika Sethi organized and Conducted Teaching and Learning Committee (TLC) Workshop for Teaching Assistants, IIT Mandi (06 May 2017).
2. Dr. Devika Sethi organized Workshop on 'Methodological Issues in Field-Work in Indian Villages' by Dr. Rinki Sarkar (16-18 March 2018). This was for students of the Interactive Socio-Technical Practicum (ISTP) course. There were 36 student participants from IIT Mandi and 24 student participants from Worcester Polytechnic Institute, USA.

Talk Organized:

Lecture by Prof. Christine Gledhill, Professor Emerita in film studies and Visiting Professor at the University of Sunderland. The lecture was titled 'Melodrama, Film Genres, and Melodrama's Transnational Popularity' and was conducted as part of the SHSS Seminar Series on 28 March 2018.

Lecture by Prof. Deepak Kumar Singh, Political Scientist, Punjab University, titled “Changing Contours of India's Refugee Policy” was conducted as part of the SHSS Seminar Series on 23 February 2018.

Membership of Professional Societies:

Shyamasree Dasgupta, Member: International Association for Energy Economics; The International Society for Ecological Economics; Life Member: Indian Econometric Society; Bengal Economic Association; Indian Society for Ecological Economics; SYLFF Fellow, Jadavpur University.

Rajeshwari Dutt, Member: American Historical Association; Latin American Studies Association; Britain and the World

Varun Dutt, Member: Society of Judgement and Decision Making; National Academy of Psychology (NAOP), India. Senior member: IEEE

Ramna Thakur, Member: International Health Economic Association.

Figure 1: English sessions for staff in the Language Lab

MEMORANDUM OF UNDERSTANDING

Collaboration between Indian Institute of Technology Mandi and Institutions Overseas

International activities of IIT Mandi with Institutions located Overseas

International Bachelor's, Master's and Ph.D. students can spend up to a year at IIT Mandi under student exchange. Also, international students can pursue graduate degree programs at the Institute. Students coming for student exchange or degree programs can get credit for courses they take at IIT Mandi. International students can work with the Institute's faculty on collaborative research topics involving institutional, regional, and national interests. IIT Mandi also provides possibilities for faculty members at international universities/institutes to spend time for the purposes of teaching and research. The fields in which IIT Mandi is currently involved at the Bachelor's, Master's, and Ph.D. levels include: Computer Engineering, Electrical Engineering, Civil Engineering, Mechanical Engineering, Basic Sciences, and Humanities and Social Sciences. For those international universities with which IIT Mandi has an existing Memorandum of Understanding (MoU)/agreement, the terms and conditions for the exchange of students and faculty is determined by the underlying MoU/agreement. For students and faculty of international universities with which IIT Mandi does not have an existing MoU/agreement, the terms and conditions on exchange, IPR, and funding pattern will need to be worked out.

Under an existing MoU with Worcester Polytechnic Institute (WPI), USA, IIT Mandi invited a team of 22 undergraduate students and two faculty mentors from WPI to visit the Institute for two-months between mid-March, 2018 and early-May, 2018. These students worked with similar number of IIT Mandi undergraduate students in solving a number of socio-economic issues concerning the local communities in Mandi and Kamand. Furthermore, a number of international students visited IIT Mandi between 1st April, 2017, and 31st March, 2018. These included 9 students from Germany and 1 student from UK.

There were a number of workshops conducted at IIT Mandi involving visitors from universities abroad between April, 2017 and March, 2018. The details of these workshops is given below.

MIT – IIT Make in India Boot Camp

IIT Mandi organized a 10-day social innovation boot camp at IIT Mandi between 24th June and 3rd July, 2017 with Massachusetts Institute of Technology (MIT), USA and IIT Delhi. Students from Australia, Auckland Savings Bank, Malaysia and Massachusetts Institute of Technology USA participated in this boot camp.

First Salters' Chemistry Camp in Himachal Pradesh

First Salters' Chemistry Camp in Himachal Pradesh was organized at IIT Mandi between 3rd July 2017 and 6th July, 2017. As part of this camp, 62 students participated for a three day residential camp conducted by The Royal Society of Chemistry, India and the Salters Institute, UK.

Short term course and workshop on Adaptronics (shape control, vibration control, noise reduction and structural health monitoring)

A short term course and workshop on Adaptronics (Active Shape Control, Active Vibration Control, Active noise Reduction and Structural Health Monitoring) was organised at IIT Mandi between 20th September 2017 and 23rd September, 2017. The speaker of the course, Prof. Michael Sinapius is the member of the Directorate of German Aerospace Centre at Braunschweig Germany and has been associated with it for the last 29 years. He is also Professor and Head of the Institute of Adaptronics and Functions Integration at the Technical University of Braunschweig. In addition, Dr.

Naser Al Natsheh, Lecturer at the Technical University of Braunschweig Germany conducted the Lab Sessions.

BMBF TU9-IIT Mandi Workshop on "Current Trends in Analog Circuit Designing"

As a part of TU9-IIT Mandi exchange programme, IIT Mandi and TU-Berlin organized a BMBF funded workshop on "Current Trends in Analog Circuit Designing" between 25th September, 2017 and 26th September, 2017. The workshop was organized by Dr. Hitesh Shrimali (IIT Mandi) and Prof. Friedel Gerfers (TU-Berlin). Prof. Gerfers presented measurement results of his recent IEEE publication in this area as part of this workshop.

Conference on Spectroscopy of Emerging Functional Materials (SEFM-2017)

School of Basic Sciences, IIT Mandi and Advanced Material Research Center, IIT Mandi organized a conference on the Spectroscopy of Emerging Functional Materials between 9th Oectober, 2017 and 10th October, 2017 at its Kamand campus. The conference was attended by approximately 120 participants including many eminent scientists of the country and abroad working in this areas such as Prof. Tonu Pullerits (Lund University, Sweden), Prof. K. Gonsalves (IIT Mandi) and Dr. Khadga J. Karki (Lund University) to name a few.

National Conference on Computer Vision, Pattern Recognition, Image Processing and Graphics (NCVPRIPG 2017)

The Sixth National Conference on Computer Vision, Pattern Recognition, Image Processing and Graphics (NCVPRIPG 2017) was held at Mandi, Himachal Pradesh from 16th to 19th December, 2017. Dr Guna Seetharaman from Naval Research Laboratory USA was the General Chair.

National workshop on "Bioprocessing for Energy and Carbon from Agro Residues (BECAR-2018)"

A national workshop on "Bioprocessing for Energy and Carbon from Agro Residues (BECAR-2018)" was organized by the School of Basic Sciences IIT Mandi between 23rd January, 2018 and 24th January, 2018. The workshop is supported by IIT Mandi and DBT-BMBF (Indo-German) project that is active at IIT Mandi and Karlsruhe Institute of Technology Germany. Notable expert like Dr Anuj K Chandel (University of Sao Paulo-Brazil), Mr. S.P. Jeevan Kumar (ICAR Mau) and Dr. Swati Sharma (KIT, Germany) presented their ongoing DBT-BMBF project work at this event.

IIT Mandi's 9th Foundation Day Celebrations

IIT Mandi celebrated its 9th Foundation Day on 24 February, 2018, Prof. Hema Sharda, formerly Winthrop Professor at the University of Western Australia was the guest of honour.

Workshop on 'Village Studies in India: Historical Overview and Practical Directions for Fieldwork'

A Workshop on 'Village Studies in India: Historical Overview and Practical Directions for Fieldwork' was conducted by Dr. Rinki Sarkar for IIT Mandi and WPI (USA) students at IIT Mandi between 16th March, 2018 and 19th March, 2018. As part of this workshop, Dr. Sarkar covered materiel on how to conduct socio-technical research in villages in India.

IIT Mandi students visiting Institutions abroad

A number of IIT Mandi graduate and undergraduate students visited several EU institutions under

academic exchange in the last 1-year. The undergraduate visits included: 3-students to Aalto University, 2-students to TU Munich, 2-students to RWTH Aachen, Germany and 1-student to IT University Copenhagen Denmark.

IIT Mandi Faculty visiting Institutions abroad

Several IIT Mandi faculty members visited institutions in Singapur, Norway, Sweden, France, Germany, Europe, Czechoslovikia, UK, Poland, China, Scotland, Italy, Thailand, Japan, Taiwan, Vietnam, Kathmandu, EU, USA, Australia, South Asia, and Latin America in 2017-18 for attending conferences and furthering industry and academic collaborations. The visits included five faculty members from the School of Humanities and Social Sciences; fourteen faculty members from the School of Computing and Electrical Engineering; seven faculty members from the School of Basic Sciences; and, four faculty members from the School of Engineering.

MOUs Renewed

Indian Institute of Technology Mandi has renewed its Memorandum of Understanding with Technical University of Munich, Germany and Worecester Polytechnic Institue, USA.

Selected Photographs

First Salters' Chemistry Camp in Himachal Pradesh held in IIT Mandi.

Boot Camp, students from Australia, ASB Malaysia and MIT USA are participating

The Sixth National Conference on Computer Vision, Pattern Recognition, Image Processing and Graphics (NCVPRIPG 2017

Conference on the Spectroscopy of Emerging Functional Materials on 9-10 Oct, 2017

THRUST AREA RESEARCH CENTRES

Advanced Materials Research Centre (AMRC)

AMRC Coordinator : Dr. Viswanath Balakrishnan

AMRC Co-coordinator : Dr. Rik Rani Koner

Vision:

To promote excellence in advanced materials science and technology via cross disciplinary collaboration with internal and external users of the center.

Mission:

Advanced Materials Research Centre (AMRC) is a multi-disciplinary hub for research facilities at IIT Mandi with a mission to foster basic and applied research in the area of advanced materials dealing with synthesis of new materials, processing, structural, microstructural, thermal, optical and electrical characterizations at various length scales. AMRC represents materials focused research in the areas of energy, environment, electronics, magnetism, organic displays, solar cells, drug delivery, nanotechnology etc with participation of faculty members from physics, chemistry, biology and engineering disciplines. Our main objective is to support and nurture research enterprise by providing access to state-of-art facilities and expertise towards knowledge creation and cutting edge research in the area of materials.

Equipments for Material Research

AMRC houses several state-of-the-art equipments for materials research including:

1) High Resolution Powder X-ray Diffractometer
2) Single Crystal X-ray Diffractometer
3) High Resolution Transmission Electron Microscope
4) Nuclear Magnetic Resonance Spectrometer
5) Fluorescence Confocal Microscope
6) High Resolution Mass Spectrometer
7) Femtosecond Pump-Probe Set-Up
8) Field Emission Scanning Electron Microscope
9) Magnetic Property Measurement System
10) Physical Property Measurement System
11) Raman Spectrometer
12) X-ray Photoemission Spectrometer
13) Surface area isotherm(BET)
14) Chemisorption Analyser
15) Liquid Nitrogen plant
16) Ultra high vacuum system for X –ray photoelectron spectroscopy
17) Atomic Force Microscopy

Several other equipments such as X ray photoelectron spectroscopy (XPS) will be installed in the near future. In addition to the above mentioned sophisticated instruments, AMRC also houses regular characterization instruments, such as UV-vis Spectrophotometer, Circular Dichroism Spectrometer, Atomic Absorption Spectrometer, Optical Microscope, Fluorescence Spectrometer,

Electrochemical Analyzer, Thermo Gravimetric Analyzer Coupled with differential Scanning calorimetry, high performance chromatography, gel permeation chromatography, gas chromatography, dynamic light scattering setup, Rheometer, FTIR.

The facilities available at AMRC is not only used by the researchers of IIT Mandi, but are also extended to outsider researchers and industrial users. Predominantly, AMRC gets external users from the neighboring regions in Himachal Pradesh, Punjab and Jammu-Kashmir states, although there are also some external users from distant institutions. Several external users often visit or send-in their samples for analysis at the AMRC facilities. A representative list of external institutions that have made use of the AMRC facilities is given below.

List of external institutions that have made use of AMRC facilities:

1. Himachal Pradesh University (HPU), Shimla, Himachal Pradesh
2. Institute of Himalayan Bio-resource Technology (IHBT), Palampur, Himachal Pradesh
3. Jawaharlal Nehru Government Engineering College, Sundernagar, Himachal Pradesh
4. National Institute of Technology (NIT), Hamirpur, Himachal Pradesh
5. National Institute of Technology (NIT), Warangal, Telangana
6. National Institute of Technology (NIT), Durgapur, West Bengal
7. University of Jammu, Jammu, Jammu and Kashmir
8. Punjab University, Chandigarh
9. Punjabi University, Patiala, Punjab
10. Guru Nanak Dev University (GNDU), Amritsar, Punjab
11. Shoolini University, Solan, Himachal Pradesh
12. Sirda Group of Institution, Sundernagar, Himachal Pradesh
13. Santlongowal institute of engineering and technology, Sangrur, Punjab
14. Sri Sai University, Palampur (Himachal Pradesh)
15. Jaypee University of Information and Technology, Solan Himachal Pradesh
16. Jamia Millia Islamia (New Delhi)
17. Lovely Professional University, Phagwara Punjab
18. Chitkara University, Punjab
19. Dental College Sundernagar (Himachal Pradesh)
20. LR institute pharmacy .Solan.H.P.
21. IEC University Baddi.Solan.H.P.
22. YSP University .Solan.H.P.
23. Baddi University.Solan.H.P.
24. Carrier point University.Hamirpur.Mandi.H.P.
25. Arni University.Kangra .H.P.
26. Shiv Nadar University.Greater Noida.
27. National Institute of Technology (NIT) Jalandhar.Punjab.
28. National Institute of Technology (NIT) Manipur.
29. Doon University.Uttarakhand.
30. Indian Institute of Technology(IIT), Gandhinagar. Gujarat.
31. Indian Institute of Technology(IIT), Dhanbad. Jharkhand.
32. Indian Institute of Technology(IIT), Guwahati. Assam

AMRC Usage Charges for internal and external users:

Name of the instrument		Internal charges in Rs.	Academic H.P &J&K	Academic outside	Industrial
PXRD		Rs.50/hr	Rs.500/hr	Rs.1000/hr	Rs.2000/hr
NMR	H1	Rs20/sample	100/sample	150/sample	300/sample
	C13	Rs25/sample	150/sample	300/sample	600/sample
TEM	TEM	Rs 100/hr	Rs 1000/hr	Rs 2000/hr	Rs 4000/hr
	EDX	Rs100/hr	Rs750/hr	Rs1500/hr	Rs3500/hr
	STEM	Rs100/hr	Rs750/hr	Rs1500/hr	Rs3500/hr
CONFOCAL		RS100/hr	Rs1000/hr	Rs2000/hr	Rs5000/hr
SCXRD		Rs250/sample	Rs1000/sample	Rs2000/sample	Rs5000/sample
HRMS		Rs 50/sample	Rs 200/sample	Rs 1000/sample	Rs 2000/sample
FESEM	FESEM	Rs 100/hr	Rs 500/sample	Rs 1000/sample	Rs 4000/sample
	E beam Litho	Rs 100/hr	Rs 500/sample	Rs 1000/sample	Rs 2000/sample
	EBSD	Rs 100/hr	Rs 500/sample	Rs 2000/sample	Rs 2000/sample
AFM		Rs 100/hr	Rs 500/hr	Rs 1000/hr	Rs 2000/hr
PUMP PROBE		Rs 100/day	Rs 500/day	Rs 1000/day	Rs 2000/day
PPMS		Rs 100/day	Rs 1000/day	Rs 2000/day	Rs 4000/day
MPMS		Rs 100/day	Rs 1000/day	Rs 2000/day	Rs 4000/day
PES	PES	Rs200/sample/ temperature	Rs1000/sample/ temperature	Rs2000/sample/ temperature	Rs 4000/sample/ temperature
	UPS	Rs 200/sample/ temperature	Rs 1000/sample/ temperature	Rs 2000/sample/ temperature	Rs 4000/sample/ Temperature
RAMAN	Raman/PL	Rs.100/slot(4hr)	Rs.200/slot(4hr)	Rs.400/slot(4hr)	Rs.1000/slot(4hr)
	Low /High Temp	Rs.100/sample	Rs.1000/sample	Rs.2000/sample	Rs.4000/sample
	Raman Mapping	Rs.200/sample	Rs.2000/sample	Rs.4000/sample	Rs.5000/sample
HPLC		Rs 25/hr	Rs 500/hr	Rs 1000/hr	Rs 2000/hr
TGA/DSC		Rs 25/hr	Rs 250/hr	Rs 1000/hr	Rs 2000/hr
AAS		Rs 25/hr	Rs 250/hr	Rs 500/hr	Rs 2000/hr
DLS		Rs 25/hr	Rs 250/hr	Rs 500/hr	Rs 2000/hr
FTIR		Free	Rs 75/hr	Rs 150/hr	Rs 500/hr
UV-VIS		Free	Rs 75/sample	Rs 150/ sample	Rs 500/ sample
FLUORESCENCE SPECTROMETER		Free	Rs 75/hr	Rs 150/hr	Rs 500/hr
OPTICAL MICROSCOPE		Free	Rs 75/hr	Rs 150/ hr	Rs 500/ hr
CD		Free	Rs 75/hr	Rs 150/ hr	Rs 500/ hr
Fluorescence lifetime		Free	Rs 75/hr	Rs 150/hr	Rs 500/hr

Publications using AMRC facilities:

The research results, obtained using the facilities available at AMRC, have been published in reputed international journals. AMRC has produced more than 200 research articles since its inception in 2013 and in the year 2017-18, more than 60 research articles have been published.

- **Some high impact publications are :**
- Dr.Suman Kalyan Pal: Articles in ACS Energy Letter in 2017 (IF:12.2)
- Dr. Rahul Vaish : Applied physics Review(IF:15.4)
- Dr. Venkata Krishnan: Small (IF:9.5),ACS Applied material and interface(IF:7.5),ACS
- Sustainable chemistry & Engineering(IF:5.9),B Chemical(IF 5.4)
- Dr. Chayan K Nandi: Chamical Science(IF:9)
- Dr. Viswanath Bala Krishnan: Advance optical Materials(IF:7.4)
- Dr. Chayan.K. Nandi & Dr. Jaspreet Randhwa: Nano scale(IF: 7.3)
- Dr. Chayan.K. Nandi & Dr.Viswanath Bala Krishnan: Nano scale(IF: 7.3)
- Dr. Ajay Soni: Carbon (IF:7), journal of material Chemistry C (IF: 5.2)
- Dr. Aditi Halder & Dr. Rik Rani Koner: Chemistry A Europian journal (IF :5.3)

AMRC tour for nearby schools and Universities:

AMRC has organized 21 AMRC lab tour for Step program, visit from different Schools and universities of Himachal Pradesh and Jammu & Kashmir region where around 750 students took part.

S.No.	Name of School/Program/Institute	Number of students	Visiting date
1	Step Program (Himachal and J&K)	30	21/06/17
2	Vallabh Govt. College Mandi	65	18/08/17
3	G.S.S.S Nishu Mandi	29	18/11/17
4	G.S.S.S Chowkichandran Mandi	17	18/11/17
5	G.S.S.S Sadiana Mandi	44	18/11/17
6	G.S.S.S Hatwas, Mandi	38	20/11/17
7	G.H.S. Chhajwan Khabu, Mandi	14	21/11/17
8	G.S.S.S Kufri, Mandi	55	22/11/17
9	G.H.S. Jakheru and G.S.S.S Kaphi, Mandi	38	25/11/17
10	Javahar Navoday Vidayala School Kangra	23	25/11/17
11	G.S.S.S Baghi, Mandi	25	25/11/17
12	G.S.S.S Smaila Mandi	33	25/11/17
13	Javahar Navoday Vidayala school Shimla	20	25/11/17
14	Javahar Navoday Vidayala school Pandoh	10	25/11/17
15	Javahar Navoday Vidayala school Bilaspur	05	29/11/17
16	G.S.S.S Tihri, Mandi	39	29/11/17
17	G.S.S.S Dhar Mandi	50	30/11/17
18	G.S.S.S Raigash, Mandi	25	03/12/17
19	Govt. School Bhateri, Mandi	28	04/12/17
20	GSSS Kapahi Distt Mandi	37	03/01/18
21	G.S.S.S Bhunter, Kullu	34	12/02/18
22	Sri Sai University Palampur, Kangra	31	26/03/18

For more information on AMRC contact:

Coordinator, Advanced Materials Research Center (AMRC)
Indian Institute of Technology Mandi , Kamand, Mandi – 175005, Himachal Pradesh, INDIA.
Email: amrcoffice@iitmandi.ac.in, Phone: +91-190-526-7027

Centre for Design & Fabrication of Electronic Devices, (C*4*DFED):

Co-ordinator : Dr. Satinder Kumar Sharma

The main objective of developing **Centre for Design & Fabrication of Electronic Devices (C*4*DFED)** is to create a unique facility for multidisciplinary research on device design and fabrication at IIT Mandi where all state of the art facilities and utilities will be housed inside class 100, class 1000 and class 10000 clean laboratories. This centre will be capable of handling research projects like Development and Application of Nanoelectronics, Development of Extreme Ultraviolet Lithography (EUL) resists materials for the next generation technology node, IC design and fabrication and Nano-Micro (NEMS & MEMS) systems and designs etc.

Vision of C4DFED User Facility @ IIT Mandi

- A World-Class Dynamic Infrastructure and Toolset for Next Generation Integrated Circuits (IC's) & Electronic Device Design & Fabrication Research and also technology development focusing Semiconductor Industries.
- The School of Computing and Electrical Engineering (SCEE), School of Engineering (SE) and School of Basic Sciences (SBS) currently have established diverse expertise and research projects and various program in this area as well others related area. This centre will provide the state of art infrastructure, fulfilling the research needs for IIT Mandi research community and also build a network of faculties & researchers working in the electronic device design & fabrication field that can sustain these activities and foster growth in an advanced area with broad participation or attaining its objective.
- Industrial interactions will be an important focus.
- A Regional Center is envisaged. Education and manpower development through outreach is one of the major objectives.
- Vision of the centre is in line and synchronizes well with the vision of IIT Mandi : *"**To be a Leader in science and technology education, knowledge creation and innovation**"*
- This is within the ambit of the Make in India Advanced Manufacturing National and State policies.

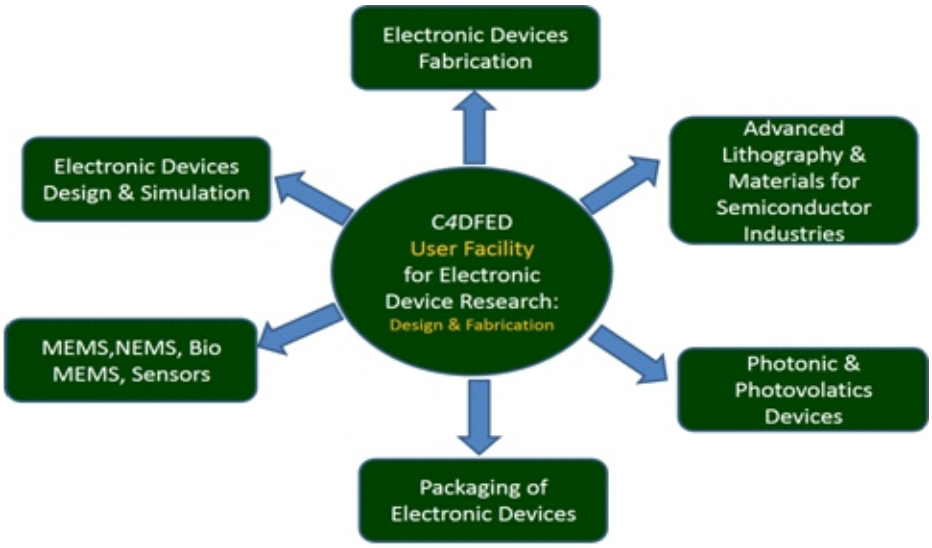
Mission of C4DFED User Facility @ IIT Mandi

- Creation of a centralized state of the art infrastructure facility for next generation integrated circuits (IC's)/electronic device design & fabrication and also futuristic materials research for semiconductor industries.
- Develop and sustain educational resources and a skilled workforce for semiconductor industries through the team efforts.

- Foster collaboration with industries and transfer of new technologies into products for commercial and public benefits.
- To initiate an interdisciplinary MS (by Research), M.Tech and PhD program.
- Outreach training programme for undergraduates, post graduate and teachers & researchers of neighbouring institutes.
- A REGIONAL FACILITY in North India / NATIONAL facility with access to universities and academic institutions as well as industry

Thematic Area C4DFED User Facility @ IIT Mandi

- The *C4DFED* user facility is focused to produce the nano/micro electronics devices for specific users areas and applications and in that process will develop the core technology as well as techniques which will make the centre knowledge and resource centre in the area of electronic device design & technology.
- While the *C4DFED* user facility will focus on immediate deliverables and would like to develop some prototype as well as proof-of-concept devices, a part of the user facility will engage in new ideas and phenomena that will form the science & engineering core of next generation nano/micro devices design & technology and will thus ensure its sustainability and growth.



Sr.No.		
1	Objective of the Centre	To create a unique facility for multidisciplinary research on device design and fabrication at IIT Mandi
2	Users	All IIT Mandi faculties who have similar research interest. Masters and PhD students of IIT Mandi
3	Total Cost of the project	Rs.10 Crores + Equipment
4	Electrical Power required	600 KVA
5	Class 100 area	1200 Sq Ft
6	Class 1000 area	450Sq Ft
7	Class 10000 area	350 Sq Ft
	Class 100000 area	2000 Sq Ft
8	Equipment to be installed	He Ion Milling and Imagi ng system, Electron Beam Lithography with imaging system and Field emission Scanning Electron Microscope are the three major equipment which will be installed in next one month. Few other device characterising equipment will also be installed.
9	Projects expected	Related to Development and Application of Nanoelectronics, Development of Extreme Ultraviolet Lithography (EUL) resists materials for the next generation technology node, IC design and fabrication and Nano-Micro (NEMS & MEMS) systems and designs etc

Present Status:

After the completion of civil work of C4DFED, the clean room vendor took the site for the installations of clean room equipment in Clean Labs and in the utility building. The clean room development work will take about 7 months from January 2018 when all clearance was given to the vendor.

VLSI Design lab at the mezzanine floor has setup and in working condition.

As per plan the entire centre will be ready for operation by the end of October 2018. Its formal inauguration is planned during an international workshop IWNEBD, 2018 to be held at IIT Mandi between 31st Oct- 2nd November 2018. This high end unique facility will be fully operative after the inauguration.

BioX

Co-ordinator : Dr. Tulika P. Srivastava

Activities in the BioX Centre

Situated in the largely agrarian, scenic and fragile Central Himalayas, IIT Mandi has a focus on agriculture and the environment. Another important focus area of research is human health. Towards this, IIT Mandi has initiated activities in the life sciences in the broad areas of immediate relevance to the Himalayan region, and to health care particularly for the rural and lower-income strata of society. There is an immediate need to extend the benefits of advanced knowledge and technology to the traditional farmers, particularly those engaged in the cultivation of fruits, vegetables, saffron and medicinal plants in this region. Also, with the advancements in technology, better health care regimes need to be evolved.

Towards these goals, IIT Mandi has taken initiatives to conduct interdisciplinary research and developments including faculties from various different disciplines of basics sciences and engineering. As a part of this initiative the **BioX Centre** was conceived at IIT Mandi in 2012, driven by the need for affordable health care for India, and advanced technology interventions in agriculture and for preservation of the environment in the Himalayan Region. Since then, IIT Mandi has recruited six faculties and two fellows in Life Sciences as a part of the School of Basic Sciences. These faculties and fellows along with the faculties from the other Schools, including the School of Computing and Electrical Engineering and School of Engineering, are engaged in highly interdisciplinary research in the focus areas of life sciences, biophysics, nanotechnology, bioinformatics, plant systems biology, and others. In addition, IIT Mandi also made an initial investment of Rs. 10 crores for purchasing lab equipment related to these areas. A similar amount of funding has also been received by the individual faculties and researchers working in the Centre from different funding agencies including DBT, DST, SERB, MHRD, etc. As it had reached a critical mass, the formal structure of the BioX Centre was finally approved in December 2016.

The broad vision of the BioX Centre at IIT Mandi is to perform cutting edge research in the focus areas of **Systems and Synthetic Biology** with applications in Health care, Agriculture, and Environment. The BioX Centre is envisioning to push the frontiers of technology development and engineering toward advancements in disease prevention and affordable health care, agricultural practices with respect to the Himalayan region, and Himalayan Biodiversity exploration for biotechnological applications by bridging the gap between life sciences, physical sciences, and

engineering. Some of the important missions of the BioX Centre include:

- To tackle major health-related and agri-based challenges and perform cutting-edge research.
- To encourage multi-institutional and inter-disciplinary collaborations to attract extramural funding.
- To develop industry-academic partnerships.
- To facilitate interaction between engineers, computational scientists, and physical and life science researchers.
- To pursue excellence in research, innovation and discovery with focus on life sciences and technology development.

Currently a group of **20 faculties** within IIT Mandi with different expertise whose research focus aligns with the vision of the BioX Centre form a core part of the Centre. These include faculties from the School of Basic Sciences (Biologists, Chemists, Mathematicians, Computational Biologists), School of Engineering (Mechanical Engineering), and School of Computing and Electrical Engineering (Computational Engineering and Electrical Engineering).

Figure: Thrust areas of research being carried out at IIT Mandi.

The Thrust areas of research which are being focused at the centre include:

Disease Prevention and Affordable Health Care

- Biomedical Devices & Instrumentation
- Biomechanics
- Biomedical imaging
- Nanobiotechnology
- Biomaterials
- Diagnostics and Therapy for Diseases

Himalayan Biodiversity exploration for biotechnological applications

- Natural Products Biotechnology For Health and Industry
- Exploration of Novel microbes (enzymes) in extreme environments for industrial and biotechnological applications

Agricultural practices with respect to the Himalayan region

- High-throughput phenotyping in agriculture
- Systems analysis of important crop pathogens for management

The BioX Centre has spearheaded the formation of a *BioX consortium* with IIT Ropar and PGIMER Chandigarh joining IIT Mandi in this venture. The major theme areas which are covered under the consortium include Biomedical Devices & Instrumentation, Biomechanics, Biomedical Imaging, Diagnositics & Therapy for Diseases, Biomedical Nanotechnolgy. So far three major activities have been held under this consortium which include the first meeting of the consortium members held on 5 -6 Feb 2016 at IIT Mandi to discuss the potential ideas of collaboration among the three institutes towards the vision of the consortium. There were close to 30 participants from IIT Mandi and IIT Ropar. This was followed by the second meeting at IIT Ropar on 12 – 13 March 2016 in which 47 participants took part from the three institutes and several researchers presented project proposals requesting grant of seed funding under the consortium. The third meeting was held on 12th May 2016 with participants from IIT Mandi and IIT Ropar. Towards this, a total seed funding of Rs 48 lakh has been awarded so far from IIT Mandi and IIT Ropar to the different PIs.

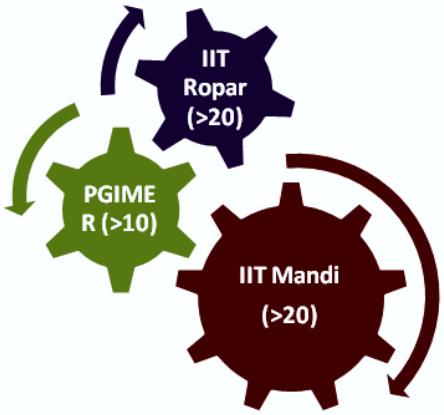


Figure: BioX Consortium members. Numbers in braces indicate the number of faculty involved from the respective Institute.

The major thematic areas being pursued for research in the BioX Consrotium include:

- Biomedical devices & instrumentation
- Biomechanics
- Biomedical imaging
- Diagnositics & therapy for diseases
- Biomedical nanotechnolgy

The BioX faculty have been able to successfully attract collaborative projects of high value. There are two IMPRINT projects worth ~Rs. 4.7 crores under the IMPRINT health and IMPRINT Energy sectors.

Sustainable waste water treatment through bio-photoelectro catalysis and biofuel production.

Figure: IMPRINT project overview under Energy sector.

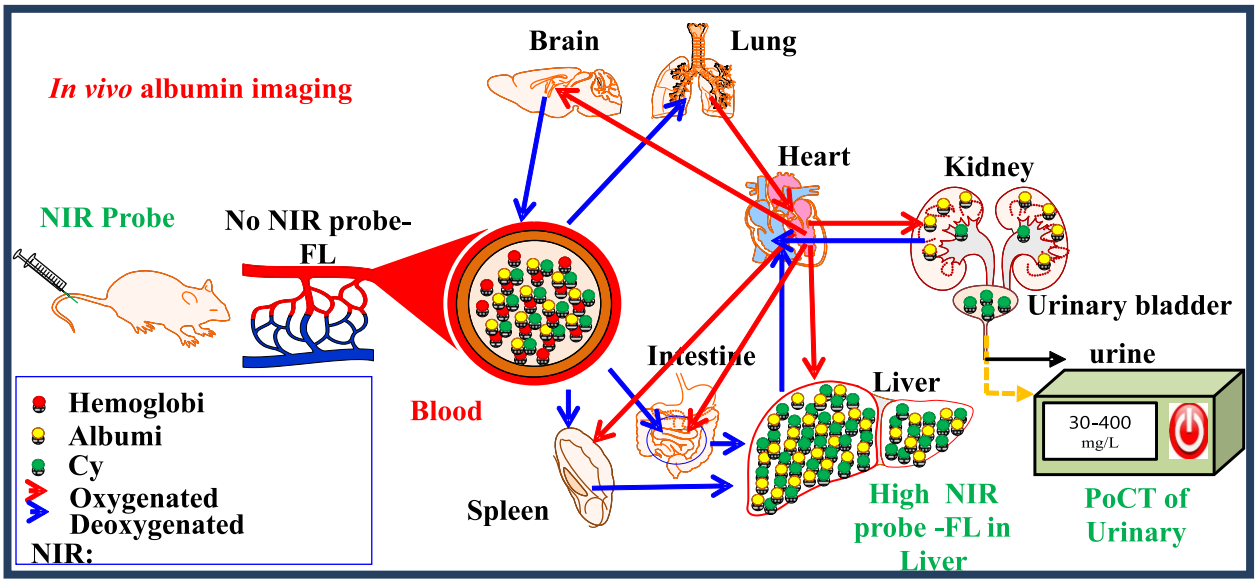
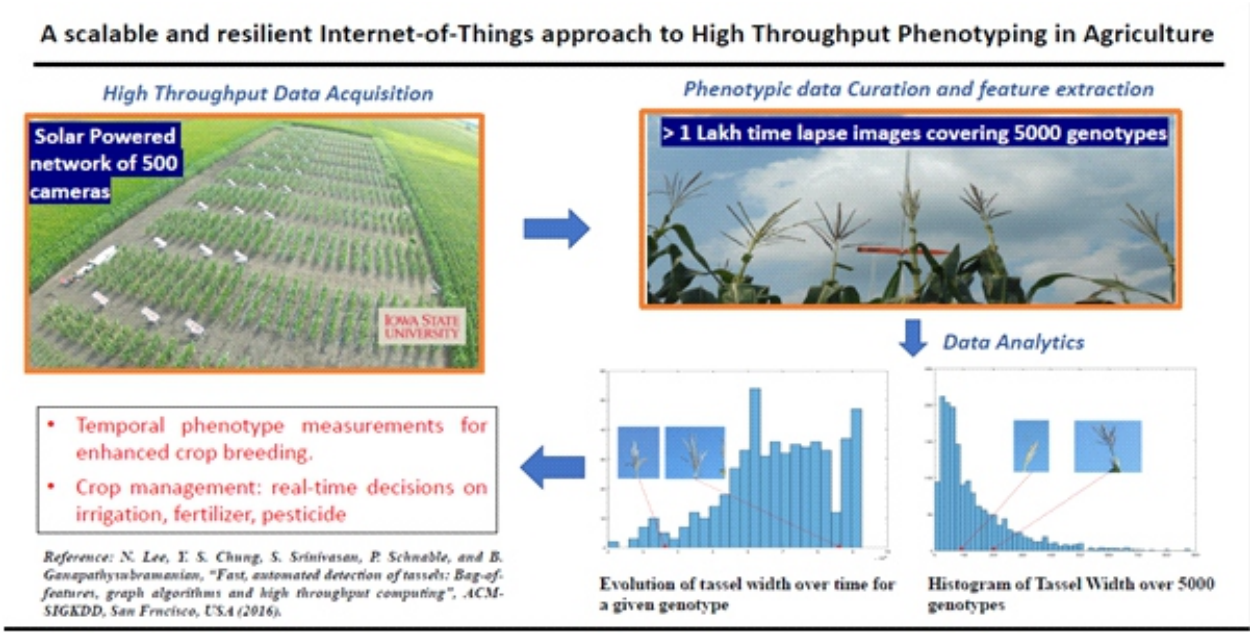


Figure: IMPRINT project overview under Health sector.

There is also one DBT FarmerZone project worth ~Rs. 10 crores.



In addition several other independent projects have been received by the BioX Centre faculty from various funding agencies.

The laboratories and technology platforms that currently exist at the BioX Centre of IIT Mandi include:

- Advanced Materials Research Center (AMRC) (equipped with high end facilities like NMR, Mass-Spec, Single crystal XRD, Confocal Microscope, Spectrophotometers, etc)
- High Performance Computing facility

- Molecular and Systems biology
- Nanotechnology
- Next Generation Sequencing facility
- Animal House facility
- Cell and Tissue culture facilities
- Expanding in other Omics

Figure: Existing research facilities at the BioX Centre

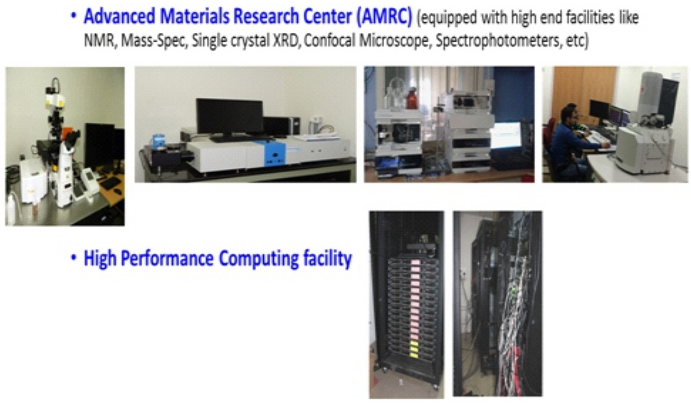


Figure: Other research facilities of the institute being used by the researcher of the BioX Centre

The BioX Centre serves as a platform to foster R & D and teaching in several areas of biotechnology, including systems biology, bioinformatics, biophysics of misfolding diseases, Intrinsically Disordered Proteins (IDPs), metabolic engineering, nanobiotechnology, translational medicine, synthetic biology, etc. exploiting their strong synergy with different areas of technology. Currently, more than fifty research scholars pursuing their PhD degree in the related areas, are using the facilities developed at the BioX Centre. At the BioX Center, we organized a 2-day workshop titled "Bioprocessing for energy and carbon from Agroresidues-2018" - supported by DBT-BMBF project and IIT Mandi. The workshop was organized by Dr Shyam K Masakapalli from IIT Mandi with partners from the German university. An annual research fair of the BioX Center was celebrated on 20th May 2018 wherein the updates of the research highlights were presented in the form of oral presentation and poster presentations by the research scholars of the Centre. The BioX Center faculty have been able to publish their research work in the peer reviewed international journals of high impact. The growth in the number of research articles published by the faculty in the Life Sciences area is given below:

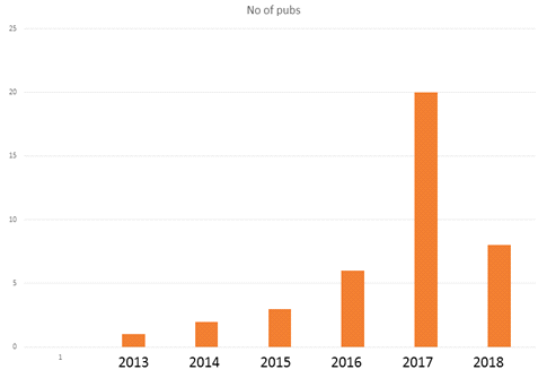


Figure: The growth in the number of publications of the faculty of the BioX Centre in the area of Life Sciences (upto March 2018).

The Centre facilities are also an integral part of the ongoing MTech in Biotechnology program of the School of Basic Scneices at IIT Mandi. The M.Tech in Biotechnology programme was started in August 2016 with the goal to train the next generation of students with cutting edge knowledge and skills suitable towards biotechnological research and bio-pharma based industry. M.Tech in Biotechnology programme at IIT Mandi is intended to nurture and train the students with strong interest in research and Bio-industry to meet the existing challenges of the biomedical

research/industry. The curriculum is directed towards fundamental and practical understanding of the core biotechnology areas along with specialized fields in the form of specialization programs in “Systems Biology” and “Medical and Nano-biotechnology”. In addition, elective courses from other disciplines provide interdisciplinary exposure to the students. The core-subjects, specialized theme areas of BioX, electives from other schools, hands on laboratory training along with the Thesis project component to be undertaken in-house/ other R&D institutes/ industries enrich students with right skills required in the current Job market both in academia and industries, on completion of the program. The first batch of MTech students (8 nos) have already completed their degrees.

Here are the other highlights of our student's achievements:

1. One MTech Student received Khorana fellowship.
2. One MTech Student Ms. Priya Singh received the IASc-INSA-NASI Summer Research Fellowship 2018.
3. Several PhD students visited abroad to present their work, including Ms Naina Arora (Lindau meeting), Ms Manushree (ASM microbiology, Atlanta, USA), Fauzul Mobeen (IHMC 2018, Killarney, Ireland), Ms Aditi Jangid (IHMC 2018, Killarney, Ireland).

Design and Innovation Centre

The Design Innovation Centre at IIT Mandi provides necessary ecosystem for graduates and research scholar to develop much needed skills that are required to design and develop products and technologies. Since India is moving towards “Make in India” policy and IIT Mandi's mission and vision are coherent with the country vision, our institute attempt to produce graduates and research scholars with skills that would enable them to think independently in terms of creativity and innovation. With the conviction that technological innovation constitutes an essential element for achieving progressive development and permanent improvement in any activity, state-of-the-art design centreis being set-up in the campus funded by MHRD. Since the next wave of economic growth globally will be led by innovation and entrepreneurship, this would be the key economic driver for India in the coming years.

The Design and Innovation Centre is a Rs. 1.6 crore project funded by the Ministry of Human Resource Development, Govt. of India. The centre is equipped enough to support the prototype and product development endeavors of the students and faculty members of IIT Mandi. Facilities like 3D printer, PCB fabrication unit, magnetic stirrers, Elvis System Development board and other development and test facilities are available at the centre. The institute is all set to provide easy access of the centre to its students round the clock.

The centre is coordinated by Dr. Shubhajit Roy Chowdhury (School of Computing and Electrical Engineering) along with Dr. Md. Talha, Dr. Atul Dhar, Dr. Kaustav Sarkar (School of Engineering) and Dr. Shyam Kumar Masakapalli (School of Basic Sciences).

We organized an Innovation Summit in collaboration with IIT Delhi and MIT from 23rd June to 4th July 2017. 48 students have been selected (of which 24 students were selected from all over India and 24 students from MIT worked together on innovation project and come up with some prototype under the Make in India banner.

An Innovation Hackathon has been organized during the period April 07 to April 15, 2018. The hackathon began with the teams presenting their proposal for development on the first day. Altogether 80 students participated in the hackathon. The top 10 teams were selected based on the merit, usability and feasibility of their project ideas. The next one week saw an intense developmental work. Finally, the projects were evaluated in an Open House on April 15, 2018. Amongst the projects, the notable ones were a medical support device, automatic grass cutter for the hills and tea infusion kits for rhododendron tea.

Prof. Hiranmay Saha from Centre of Excellence in Green Energy and Sensing Systems, Indian Institute of Engineering, Science and Technology Shibpur delivered a lecture titled “Ïnnovation on Power Generation using Biowaste and Solar PV” which saw a large student participation of around 150 along with a large number of faculty members.

REAEARCH GROUPS

1. UHL: The Centre for Uplifting Himalayan Livelihood (UHL):

Under the CSTRI scheme of DST, a Center for Innovative technologies for Himalayan region (CITHR), called Uplifting hilly livelihood (UHL) established at IIT Mandi. This was sanctioned around October 2015 for the duration of 2 years with an extension of one more year. Within a small span and limited resources, the center has already undertaken many projects of social and economic importance and has created an impact. Details of projects are as following

Eco- friendly Utilization of hazardous Pine Needles for social benefits:

Pine needles cause a major threat to the environment, biodiversity and local economy in the entire Himalayan region due to their non-bio-degradability and highly-inflammable nature. In this project, utilization of pine needles by the pellatization/ briquetting in conjunction with various biomasses is the central focus for social benefit. Center successfully demonstrated unit for briquetting through which It aims to develop and transfer technology to the Government/Non-governmental organizations of the Himalayan region.

UHL has already been successful in preparing the briquettes as well as pellets of dry pine needle and its various forms by mixing other constituents. Center demonstrated its own unit in IIT Mandi campus. The detail of pelletization and briquetting of pine needle biomass is given below:

Briquetting of pine needle:

As a first step, the briquettes of pine needle with the combination of saw dust and wood chips are prepared. This experiment is successfully conducted at Ochha Fuels Private Limited situated in Nagrota Bagwan. The detail of briquette machine established in center is given below

Briquette Machine set up in Center:

The briquetting unit set up in our campus has the **capacity of 150kg/hour** with a connected load of **12 HP.** The cost of the unit is around **six** lacks. Along with the briquette machine center also have pulverizer with a capacity of 50kg/hr with a connected load of 5 HP. Figure below shows the briquette machine. The image of machine set up is shown in attached figure.

The more detail of briquetting unit is given in below mentioned table.

Parameter	Capacity
Actual Output rate (briquette machine)	80-100kg/hr
Actual Output rate (pulverizer)	40-60 kg/hr
Maximum oil temperature rise	9 ^{o}C
Power Consumption	10KW(max)/15HP set up
Amount of pressure	25MPa (approx)
Diameter of product	36mm
Length of product (approx)	120mm

Some photographs for pine needle briquettes are shown below:

Benefits of product:

a. Economic Viability

Based on our cost benefit analysis studies, it seems economically viable product. The following computation gives approximate cost of the product

Machine cost = Rs. 6 lacks (It includes briquette machine and pulveriser cost)

Plant Operating cost **=** (Power consumption + Labor charges) = Rs. 940 / ton

Material cost = (Collection cost + Transportation cost + Labor charges) = Rs. 3350/ ton

Manufacturing overhead = Rs. 200 / ton (approx)

Total production cost = Rs. 4500 / ton

The production cost of briquette is Rs. 4500/ton or Rs. 4.5/kg.

- From calculation, the production cost of briquette would be Rs 4.5/kg while wood also costs around Rs 4.5/kg.
- Cost of the machine (6 lacks) can be recovered in two to three seasons.

b. Techno-commercial feasibility of the product

Pellets and briquettes have useful heat content. The cost of briquettes comes out to be Rs4.5/kg while wood costs around the same. Owing to high calorific value, consumption of briquettes will be quite less than wood. A household will require only 3kg of briquettes/pellets per day as compared to 10 kg of wood.

c. Employment generation

It is estimated that the fall of the pine needles is about 1.2 ton per hectare per season. A healthy person can easily collect around 100-150 KG of pine needles in a day, thereby earning around Rs 200-250 on a daily basis depending on the market price of pine needles. The unit is also helping for employment. At least 4 People will work in a single unit. People who have own vehicles will have a chance to earn more by transporting the needles.

d. Community involvement

The UHL Center organized awareness programs in nearby Gram-Panchayats for Gram Pradhans. The response and acceptance of the product is very good.

Additionally some analysis i.e. calorific value test, vapor content test, ash content test, moisture content and total solid content in sample for briquettes have been done.

Now center is working on the gasification technology. We are designing a pine needle briquette based gasifier with our industrial partner Infinity energy Pvt. limited, Delhi. A patent entitled **"BIOMASS COMPACT BRIQUETTE FUEL AND ITS PREPARATION METHOD"** patent application number **201811000279** is also filed for this invention.

UHL classroom:

Center is designing a platform for the students to study mainly physics, chemistry and maths by online portal. This virtual classroom is specially designed for helping students in the rural area who wants to compete in various technical exams after their school. We will select some students of class 11 and guide them in the course of two years for the preparation of various technical exams and help them to clear their basic concepts in various subjects related to the exams through our video lectures and interactive sessions.

Drying of niche products:

The centre is to also work on low cost locally developed solar drying technique. Solar dryer need is felt at the immediate locality for processing their niche products and to study the socioeconomic impact of implementation of technology. The solar dryer will be used for the drying of niche products and surplus produce of the villagers. Center identified some locally available niche products and their drying temperature, such as walnut, pomegranate, garlic etc.

Azolla as livestock feed:

Azolla is one of floating aquatic macrophytes which are defined as plants that float on the water surface, usually with submerged roots and are generally not dependent on soil or water depth. Azolla has a higher crude protein content (ranging from 19 to 30 percent) and also rich in vitamins (vitamin A, vitamin B12 and Beta- Carotene), growth promoter intermediaries and minerals like calcium, phosphorous, potassium, ferrous, copper, magnesium. It is widely used as bio-fertilizer and cattle feed.

Center is trying to expand Azolla in different parts of Himachal Pradesh. Our team is visiting at regular intervals in different locations of Mandi for Azolla plantation. We are providing a special kit including Azolla sample, fertilizer and canopy to villagers along with a demonstration. We have visited more than 15 villages across Kamand for Azolla demonstration. We are also conducting surveys and social awareness program regarding the production of Azolla. Some photographs of Azolla during our experiments are given below:

Apart from these long term programs, several short term activities are also taken up in various domains like education, health and social benefits. Under these short term projects centre are organizing problem identification surveys across Kamand valley. Center intends to generate livelihood opportunities among local communities so that next generations can take up the newly created entrepreneurial possibilities.

2. Multimedia, Analytics, Networks, and Systems (MANAS)

The multimedia, analytics, networks, and systems (MANAS) group at IIT Mandi broadly focuses data acquisition and on extracting useful information from various types of data including images, audio and video streams, social networks, documented records etc. The group is currently looking at topics on computer vision, medical image analysis, speech and audio signal processing, IoT and embedded systems.

Recent Activities in the MANAS Group Includes

- FarmerZone – Potato Sentinel: This 7.5 crore project was sanctioned by DBT empowering

IIT Mandi to set up a cloud-based advisory service to enable farmers to enhance their agricultural productivity and enable them to secure fair market prices. This work involves a combination of IoT, cloud computing, computer vision for diagnostics and pest detection, precision agriculture and involves international partners from UK and USA in addition to various private participants.

- A low-cost, scalable and reliable agricultural IoT testbed: Members of the group are collaborating to set up wireless sensor networks on campus to collect data related to agriculture and this work has now attracted a lot of interest from other disciplines including mathematicians, geologists, e-vehicles and water conservation.
- Multimodal classification of birds: this research involves detection and classification of birds from audio, images and videos. The information from these multiples modalities can be combined to make reliable decisions for applications such as bird species identification and birdsong classification. This work is supported from a seed grant from IIT Mandi as well as a research project from DST-SERB. Other collaborators include researchers from IISER Tirupati and CDAC Bangalore.
- Low-field MRI scanner: Some members of the group are working on developing a low-cost, low magnetic field magnetic resonance image scanner, which is designed to be portable. Collaborators for this project include researchers from IIT Ropar and PGI Chandigarh.
- Screening for cervical cancer from microscopy images: By joining hands with Aindra Technologies, a startup in Bangalore, some of the group members are developing algorithms for automatic screening of PAP smear images for cervical cancer screening.
- Detecting abnormal activity and human behaviour analysis: Machine learning and deep learning has demonstrated potential for analytics from large amounts of data. This project is in collaboration with the Kovid group, and aims to do analyse surveillance videos.
- Telecom network analytics: This project is supported under the Uchhatar Avishkar Yojana (UAY) scheme. The project involves building machine learning models for network management, load prediction, malicious attacks etc.
- Digital Forensics: This project involves the development of open source software tools for state-of-the-art digital forensics for audio, image and video processing. This is in collaboration with Regional Forensics Lab, Mandi.

3. Condensed Matter Physics

School of Basic Sciences (SBS) consists a strong group of young and dynamic faculty in the field of Condensed Matter Physics (CMP). At present, there are total nine faculty members whose research mainly focuses on the study of physical properties of materials, through diverse experimental and theoretical tools. The faculty members working in the experimental condensed matter physics are Dr. Ajay Soni, Dr. Bindu Radhamany, Dr. C. S. Yadav, Dr. Kaustav Mukherjee, Dr. Pradeep Kumar, and Dr Suman K. Pal. The theoretical condensed matter physics group consists of Dr. Arti Kashyap, Dr. Sudhir K. Pandey and Dr. A. Taraphder (on lien from IIT Kharagpur). In total, there are more than 50 researchers (including faculty members, PhD students and Project associates) who are working in the exploration of the different aspects of condensed matter.

CMP members are working on almost all the contemporary areas of interest in the field and studying various interesting physical phenomena and materials. The focus of the research activity is twofold;

(i) Understanding the underlying physics of the various phase transitions and material properties, and (ii) Exploratory research for new materials for future application. Based on the nature of work, these areas can be roughly categorized as follows:

1. Superconductivity, Topological matter
2. Electron-Electron Correlation, Spin Phonon Coupling
3. Multiferroics, Magnetocalorics, Heusler Alloys
4. Nano-Science, Optoelectronics, Functional Devices
5. Thermoelectrics, Energy Materials, Organic Electronics
6. Soft Condensed Matter Physics
7. Electronic Band Structural Calculation
8. Correlated and disordered electronic systems, Phase transition

In the year 2017-2018, CMP members have published more than 50 research articles in the reputed research journals of the field. The major research journals are Physical Review B, Scientific Report, Europhysics letter, Physics Letters, J. Phys: Cond. Matter, J. Magn. & Mag. Mater., Solid State Comm., Appl. Phys. Lett., J. Phys. D: Appl. Phys. , AIP Advances, J. Alloy and Comp., RSC Advances, Carbon, Materials Express, J. Phys. Chem. Letter, Organic Electronics, Materials Letter, Computation Material Science etc.. There have been very active representation of CMP members in various reputed national and International conferences, where the faculty and research scholars have presented their work in the form of invited/contributory talks, and poster etc. Some representative results of the research work are given below;

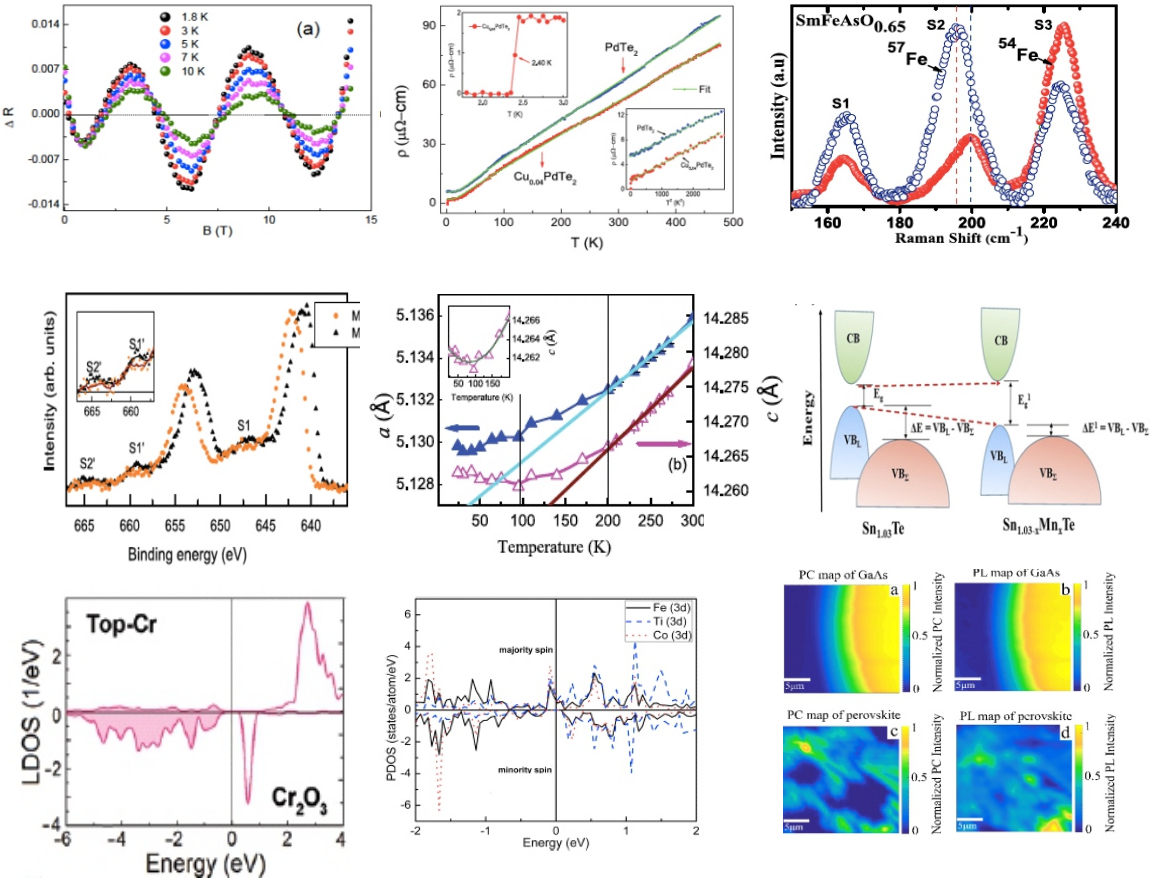


Figure: Some results from the research work published by CMP members

At present, approximately 17 ongoing research projects of total worth more than 3 Crore from various external-funding agencies like DST-SERB, CSIR, BRNS, UGC-DAE CSR, DST-INSPIRE, and DRDO.

Dr. Pradeep Kumar was selected as member of Indian Young Academy of Sciences (INYAS) -2018. Dr. Ajay Soni Received Bhaskara Advanced Solar Energy (BASE) Research Fellowship from Indo US Science and Technology forum to visit Rensselaer Polytechnic Institute, Troy New York. Dr. Soni has become invited executive board member of “Society for Interdisciplinary Research in Materials and Biology”, based at IIT BHU.

A national symposium cum meeting on 'Physics of Strongly Correlated Electron Systems' PSCES 2018 was held at IIT Mandi from April 02-04, 2018. This was an initiative of IIT Mandi where a group of researchers from other north Indian institutions like IIT Roorkee, IIT Delhi, JNU Delhi, IISER Mohali, and IISER Bhopal have decided to meet annually at a chosen venue and have regular scientific discussions in the form of conference. This symposium was attended by more than 120 participants.

SUMMER INTERNSHIP PROGRAMME

IIT Mandi organized "SUMMER INTERNSHIP" 2017, this year. This Internship spanned from 12th June – 4th August, 2017. In this year, thirty-six interns were invited for summer internship, based on recommendations from selected advisors. The students come from the Veltech Dr. RR & Dr. SR University Avadi, Chennai, IIT Patna, NIT Rourkela, Rajalakshmi Engineering College, Anna University, Heritage Institute of Technology, Kolkata, Dr. B.R. Ambedkar Centre For Biomedical Research (ACBR), University of Delhi, NIT Arunachal Pradesh, IIT, Banaras Hindu University, Central University of Tamil Nadu, Galgotias College of Engineering & Technology, Uttar Pradesh, National Institute of Technology, Arunachal Pradesh, NIT Goa, Indian Institute of Technology (ISM), Dhanbad, NIT Kurukshetra, Lovely Professional University, Central Institute of Plastic Engg. & Technology, Lucknow, Indian Institute of Science Education and Research, Thiruvananthapuram, IIT Jodhpur, IIT Kanpur, IIT Guwahati, NIT Raipur, Guru Nanak Dev University, Jalandhar, Sant Longowal Institute of Engineering & Technology, Punjab, Sri Sai University, Palampur, Vellore Institute of Technology, Vellore, IIIT Bhubaneswar, Gautam Buddha University, Greater Nodia, Manipal University, Jaipur, IES, IPS Academy, Indore, M.P. Each student's skill set was matched with an appropriate project within the lab.

Students admitted in different branches like:

- Manufacturing Engineering
- Theoretical /computational chemistry
- Self Healing Cementitious Systems
- Computational Solid Mechanics
- Fluid and Thermal Science
- Immunology
- Nanotechnology
- Bioinformatics and Drug Discovery
- Differential Equations and Control Theory
- Synthesis of Nanomaterials
- Biomedical Engineering
- Geotechnical Engineering
- Wireless Networks and IoT
- Smart Grid and Renewable Energy Integration
- Semiconductor Devices
- Earthquake Engineering
- RF and Microwave Communication and Devices
- Molecular and Cell Biology
- Remote Sensing & GIS
- Study of Cement Based Pyroelectric Sensors for temperature Sensing
- Contact lens Detection from Iris Images Captured using NIR Sensor using Deep Learning
- Power Electronics Applications in Micro Grids
- Utility Databases for the library
- Water Quality Analysis
- Machine Learning and Computational Finance

The summer program held for 8 weeks. The internship includes a stipend and housing assistance as well.

CENTRAL LIBRARY

Central Library plays a vital role in furthering the academic and research mission of IIT Mandi and facilitates creation and dissemination of knowledge. Library provides essential support by offering current library services which are integrated with teaching, learning and research activities. The Library facilitates excellence in teaching, creates an appropriate learning and research environment, anticipates and responds to student learning and research needs, and provides the information infrastructure essential in today's changed environment.

Central library at IIT Mandi is rapidly developing its collection of books, reference books, reports, periodicals, and electronic resources. The Text Book Collection in the Library provides vital supports for on-going undergraduate teaching programs. The books are on various disciplines ranging from Computer Science Engineering, Mechanical Engineering, Electrical Engineering, Mathematics, Physics, Chemistry, Economics, Philosophy, Psychology & English literature. The collection for Post Graduate programs is also being developed simultaneously.

Central Library provides access to the various e-journals databases. This includes access to hundreds of journal titles on subjects such as Mathematics, Chemistry, Physics, Computer Science, Electrical Engineering, Mechanical and Astronomy. Central Library is completely automated by using open source library management software KOHA. All documents are bar-coded and by retro conversion all collections acquired prior to automation are also included in the Central Library books database. Transaction of books is also automated. Library has introduced various innovative services including CAS/SDI, On-line status of ILL, On-line reservation of books etc. By using Web OPAC, users can check their borrowing details online. Two workstations have been set up for users to access library holdings.

Software Used in Library:

(i) KOHA: For automation purpose.

(ii) DSpace: For digitization purpose.

(iii) Greenstone: For digitization purpose.

(iv) Linux: For operating system.

1. Collection Development and Management

Collection building is one of the important functions of the library that supports academic and research work of the students, faculty, staff, and other users. Library collection comprises of books, journals, reports, pamphlets and other reading material in science, engineering, technology, humanities and social sciences.

1.1 Print Documents added during the year 2017-18

During the period of 2017-18, Central Library acquired 906 books. It also added few periodicals/magazines, besides reprints, technical reports and annual reports of other universities/institutions.

A list of new additions of books is issued every week and can be accessed on the library home page. This list also circulated by e-mail. An email alert is also sent to the requesting faculty members(s) about the arrival of publications requested by them.

1.2 Electronic resources subscribed during the year 2017-18

Central Library provides web-based access to the following e-resources:

1.2.1 Full-text e-journals: Access to 10000 + full-text journals from the following databases:

AIP,ACM Digital Library, ACS, APS, ASME, Cell Press, IOP, Elsevier's Science Direct, IEEE Electronic Library, JSTOR, SIAM, Springer Link, Taylor & Francis (S&T complete Collection), Nature, Annual Reviews etc.

1.2.2 Bibliographic e-databases: SciFinder, MathSciNet, SCOPUS & Web of Science.

1.2.3 Video Resources: Jove – Biology, Chemistry and Engineering collection.

1.2.4 E-Books: Central Library provides access to a collection of more than 15444 e-Books in various disciplines. The e-book collection contains the titles which are a rigorous recommendation by the subject experts of the institute and cater to the needs of the users. The publishers of e-books collection include Science-Direct (Elsevier), McGraw Hill, Pearson, T&F, IEEE,IEEE-MIT press, IEEE-Wiley, Morgan Claypool, CUP, ASME, World Scientific and John Wiley. The e-books collection also includes the Lecture Notes Series on Mathematics (LNM), Physics (LNP) & Computer Science (LNCS) of Springer publisher.

The process of e-book collection development for this year has already been started. The efforts are being made to include the book collection of other renowned publishing houses.

2. Circulation

Circulation activities are now automated. Library users can check their borrowing details by using WebOPAC. We serve the users consisting of the faculty, research scholars, students and staff. Circulation desk is kept open for 70 hours a week. On an average, the monthly circulation transactions are about 1700.

3. Digital Library

Central Library has its own homepage (http://library.iitmandi.ac.in/), which provides web-based access to its resources, procures over 19,000 electronic journals and databases. An institutional repository of publications has recently launched which provides access to the intellectual output of the IIT Mandi community. The library is a part of the institute-wise network and has adequate computing infrastructure to cater to the needs of the users

4. OPAC (On-line Public Access Catalogue)

The OPAC is one of the most heavily used databases of the library and is accessible 24*7 via library web page (http//www.webopac.iitmandi.ac.in/). Besides listing all the documents available in the library, it allows on-line renewal and reservation, circulation and tells the current status of each & every book. OPAC is searchable by author, title, accession number, subject and several other fields.

5. Services Offered

- Fully automated Circulation
- Online book reservation, Information search, Patron's library book loan status check
- Web OPAC (Web based Online Public Access catalogue)
- Reserve collection development for student's in-house reading

- New Arrival Book Section
- Reference Service
- Inter-Library Loan
- Document Delivery Service
- Information Alert Services
- E-Journals/Databases
- Digital library services
- User education program
- Mobile App services

6. Future Plans:

- Database of different softwares available with CDs/DVDs available in the Library.
- Single Search solution.
- Online recommendation platform for different library resources.

5th CONVOCATION

Fifth Convocation of the institute was held on 7th October, 2017. Mr. Banmali Agrawala President, Infrastructure, Defence and Aerospace TATA Sons was the Chief Guest of the function.

As part of this Convocation, 116 B.Tech. students, 04 M. Tech., 18 M. S. (Chemistry), 07 M.S. (by Research) students, and 24 Ph. D. Scholars graduated from the Institute.

Ms. Samriddhi Jain (B13136) (B.Tech.) was awarded the President's Gold Medal, Mr. Vivek Sharma (B13239) (ME) was awarded the Director's Gold Medal for all-round performance at the Institute. Ms. Samriddhi Jain (B13136) (CSE), Ms. Shivangi Kataria (B13229) (EE) and Mr. Prince Garg (B13324) (ME) were awarded the Institute Silver Medals. Furthermore, Mr. Siddharth Gangal (B13232) (EE) was awarded the Balasundaram Endowment Prize for German. Ms. Shivangi Kataria (B13229) (EE) was awarded with Rani Gonsalves Memorial Medal and Mr. Mohamad Ashraf (V15015) M.Sc (Chemistry) was awarded Outstanding Academic Achievement Award.

STUDENT AMENITIES AND ACTIVITIES

Sports Facilities and Activities

Physical education and sports section is continuously striving to improve level of sports performance of students in particular and also promoting sports among faculty, staff and their families. The section is also continuously working to improve the number and quality of sports infrastructure to conduct the various activities in both north and south campuses.

The pinnacle of sports performance was achieved by our B.Tech.3rd year students Mr.Nitesh Kumar. He had the honor of winning medals in International Para Badminton championships.

This year goal was set to improve the regular participation of student in various sports and games. So that the sporting talent can be identified early and they can be coached to achieve the institute objective of winning three medals at Inter IIT sports meet 2017.

The preparation for this mission started with summer sports camp. First time students agreed to have hundred percent attendance in the camp to be eligible for the Inter IIT contingent. It was presumed that improved physical fitness level of students during the camp will help them to practice sports with higher intensity during the semester along with their regular academic activities. The summer camp brought a great enthusiasm among the students.

This year for the first time one day sports orientation program was conducted for the P.G. students to spot their sporting talent and also induced in them benefits of regular participation in sports activities. This program caught up their imagination and enhanced their participation during P.G. sports championship.

All these efforts had enhanced the overall sporting culture among the students. These efforts created great hope and enthusiasm among Inter IIT contingent members. This development was induced by our sports advisor Dr.Deepak Swami who created a strict attendance and performance based selection, of different teams. The effort of the students were distinctly visible during IIT Mandi sports festival RANN-NEETI 2017. Several colleges of North India who participated in the meet had a great appreciation for our institute sports facilities and organizers, who conducted sports festival efficiently. All of them they express their desire to participate next year with larger contingent.

The effort of our students were little short of the best. IIT Mandi won the overall runners up trophy by winning Athletic men and women championship. The performance of all our teams were also visibly improved in the intramural tournaments, a landmark performance was demonstrated by P.G. students who won the Inter year sports general championship trophy.

All these achievements improved the courage, physical fitness & match experience of our students. They started looking forward to Inter IIT sports meet 2017.This year due to the great effort of our dean students Dr. Suman K. Pal, Dr. Rajendra K. Ray and Dr. Deepak Swami. The Director had agreed to send our sports contingent for Inter IIT sports meet by Air from Delhi to Chennai. It boosted the spirit and sense of responsibility among the members of Inter IIT contingent. The happiness of our team soar high when IIT Mandi was judged 2nd runners up in the march past in front of all 23 IITS.

Major Achievements

- Mr. Nitesh Kumar, B. Tech. 4th year student of IIT Mandi had been judged as a best Badminton player during 52nd Inter IIT Sports Meet 2017 held at IIT Madras.
- He also won bronze medals in 2nd National Para Badminton Championship 2018, held at Varanasi from 23rd to 25th March 2018.

Mr. Nitesh Kumar, B. Tech. 4th year student of IIT Mandi with silver and bronze medal.

Details of events organized by Physical Education and Sports Section during 2017-2018:-

1. Invitational Tournament of IIT Mandi (Rann-Neeti) Sep-Oct 2017:-700 students participated from NIIT Jalandher, Chitkara College Himachal and Punjab, Thapar, NIFT Kagara and many other engineering colleges from North India. IIT Mandi won over all runners up trophy in Rann-Neeti 2017. The participants had appreciated for organizers and the facilities provided to them.

Badminton and Volleyball boys team of IIT Mandi playing a matchs during Rann-Neeti 2017

2. International Yoga day celebration on 21st June, 2017:- Physical education and Sports section of IIT Mandi celebrated International Yoga Day on 21st June, 2017 at M1 Sports complex Hall, Kamand (South campus). Students, Faculty, Staff and their families attended the yoga sessions. Visiting students from different Himachal schools under the STEP project had also participated in this event. Yoga session was started with a Prayer and introduction, following the prayer different asanas and pranayama were performed by participants,Yoga guru explained the usefulness of each asanas and pranayama.Yoga session was finally concluded after a pledge taken by all the participants.

Students, Faculty, Staff and their families performing the yoga exercises during the International yoga day 2017

3. Summer Cricket Camp June 2017 :- Summer cricket camp was organized for the students of IIT Mandi in the month of June 2017 by Physical Education and sports section as a part of the Inter IIT preparation.

4. T.T. and Badminton Tournament for North Campus students 01st and 08th July, 2017:-

T.T. and Badminton open tournament for North campus students of IIT Mandi were organized in community centre of North Campus in the month of July 2017. Instead of lab works and research the P.G., Ph.D. and internship students took it as a positive initiative and participated in large number. All together 25 to 30 students participated in five categories in T.T. and Badminton which are mentioned below:-

1. Men's single.
2. Men's double.
3. Women's single.
4. Women's double.
5. Mixed doubles.

The main aim of the competition was to provide opportunities to participate objective was achieved to great extent.

Winners of the tournament at community centre North Campus IIT Mandi

5. Summer Sports Camp July-August 2017:- Physical education and sports section of IIT Mandi organized the summer sports camp for preparation of Inter IIT sports meet in the month of July- August 2017.Along with this camp various other sports camps were organized by the section through out the year. Near about 90 students participated in the camp with enthusiasm. During Inter IIT sports meet 2017 at IIT Madras several teams qualified for the quarter finals.

6. NSO Program for B.Tech. 2017:- NSO program was conducted for B.Tech. 2017 batch for the harmonious development of students through sports. Students were taughtCricket,Volley ball, Basketball , Lawn Tennis , Football , Hockey , Badminton ,T.T. and Athletics. During NSO students were allowed to participate in the sports of their choice during the first semester, students enjoyed the evening sports activity with great enthusiasm.

7. Induction Program for PG students at South Campus 20th August, 2017:- First time, Induction program for P.G. students of 2017 batches (M.Sc, M.Tech. and I-Ph.D.) were organized by the Physical Education and Sports section at A1 NKN hall at IIT Mandi south campus. It was an initiative to promote sports among P.G. students, even though it was a single day event, participation of large number of the P.G. students was observed.

Competitions in following events were organized:-

1. Hockey ball
2. Football Relay
3. Short Run
4. Sit and run
5. Tug of war

Prize distribution was done at M1 Sports Complex, it was supported by a huge supporting audience. Around 50 students took part in this tournament.

Opening ceremony of P.G. Induction Program 2017

Closing ceremony of P.G. Induction Program 2017

8. Fresher's Athletic meet for B.Tech. 2017:- Fresher's Athletic meet 2017 was organized for the first time to identify the athletic talent among 1st year students. It provided a plateform to enjoy the thrill of participation among newB.Tech. batch of 2017. Events such as 100m, 200m, shot put, long jump and many other's were conducted during the meet.

9. 52nd Inter IIT Sports Meet 2017:- Near about 101 students of IIT Mandi participated in 52nd Inter IIT Sports Meet 2017 at IIT Madras. During opening ceremony our contingent had done well and was judged **third best contingent for march past**. Our teams participated in Cricket (Boys), Volley ball (Boys and Girls), Basketball (Boys), Lawn Tennis (Boys), Football (Boys), Hockey (Boys), Badminton (Boys and Girls), T.T. (Girls) and Athletics (Boys and Girls). Teams had won most of the matches at league level. In athletics our girls had shown good progress two of our participants finished fifth in long jump and high Jump.

IIT Mandi students contingent during the opening ceremony of 52nd Inter IIT Sports Meet at IIT Madras

IIT Mandi students in cheerful mood after winning third best contingent for march past during the opening ceremony of 52nd Inter IIT Sports Meet at IIT Madras 2017

10. Inter IIT Staff Sports Meet 2017:- 35 Staff and Faculty members of IIT Mandi participated at 24th Inter IIT Staff sports meet 2017 which was held at IIT Madras. Our staff badminton women team got fourth position in the meet.

Staff and Faculty badminton team of IIT Mandi at IIT Madras during 24th Inter IIT Staff Sports Meet 2017

11. Inter year tournament 2018 (Aagaaz):- Aagaaz, The Inter Year Sports Fest of IIT Mandi was conducted on 5th-6th May 2018. The event witnessed a sizeable participation of about 500 students. The event saw some nail biting finish matches. The general championship was decided by the result of the last match of the tournament. Closing ceremony was held on 6th May 2018. Prof. T.A. Gonsalves was chief guest of the ceremony and Dr. Suman K. Pal as honor guest. P.G. won the overall general championship trophy and 2nd year finished the runner up.

National Service Scheme (NSS)

NSS is a voluntary group of students working for the betterment of the community around them. They are the social workers of the institute striving for an improved society around them. The motto of NSS is "NOT ME BUT YOU". This reflects the essence of democratic living and upholds the need for selfless service. The overall objective of this scheme is Education and service to the community by the Community.

ACTIVITIES UNDERTAKEN
(Financial Year 2017-2018)

Sr.No	Title	Date of Activity
1	PRAYAS Teaching Programme for Government School Students	1st April, 2017 to till continue
2	Computer Education for Government School Students	1st April, 2017 to till continue
3	Migrant Worker's Children Bridge School Programme	1st April, 2017 to till continue
4	SPARK: Library Setup Programme	1st April, 2017 to till continue
5	2nd Earth Day Celebration	22nd April, 2017
6	Blood Donation Camp	08th May, 2017
7	Environment Day Celebration	05th June, 2017
8	Five Week Orientation Programme (5 WIP- NSS)	
a.	Know Your Campus. a.-1. Village Visit a.-2. NSS Orientation a.-3. Disaster Management Training	3rd August to 6th August, 2018
b.	Cleanliness Drive.	05th August, 2017
c.	Plantation camp.	12th August, 2017
d.	Social Visits. d.-1.Visit to National Blind Association Kullu d.-2. Visit to Divya Manav Jyoti Anathalaya Dehar d.-3. Visit to Old Age Home Bhangrotu	18th August, 2017
e.	PRAYAS Orientation	26th August, 2018
9	Orphanage Visit on the Occasion of Diwali	18th October, 2017
10	3rd Donation Programme for Leprosy Patients	19th October, 2017
11	Visit to Suket Senior Citizen Home Sundernagar	20th October, 2017
12	Blood Donation Camp	28th October, 2017
13	Awareness Talk on AID S	29th October, 2017
14	Cleanliness Drive	24th March, 2018
15	**Highlights**	
	Donation Collection Drive for National Blind Association Kullu	August, 2017
	Donation Collection Drive for DMJ Orphanage	October, 2017
	Donation Collection Drive for Leprosy Patiemts	October, 2017
	Donation Collection Drive for Suket Senior Citizen Home Sundernagar	October, 2017

NSS ACTIVITIES AND EXPENDITURE INCURRED (FINANCIAL YEAR 2017-2018)			
Sr. No	**Activities**	**Expenditure on Activity (In Rs.)**	**Remarks**
1	PRAYAS Teaching Programme for Government School Students	12000.00	
2	Computer Education for Government School Students	8780.00	
3	Migrant Worker's Children Bridge School Program	7600.00	
4	SPARK: Library Setup Programme	8780.00	
5	2nd Earth Day Celebration	5390.00	
6	Blood Donation Camp	8090.00	
7	Environment Day Celebration	2418.00	
8	Five Week Induction Programme (5 WIP-NSS)		133158.00 **(from 5 WIP Fund)**
9	Orphanage Visit on the Occasion of Diwali	5200.00	
10	3rd Donation Programme for Leprosy Patients	3200.00	
11	Visit to Suket Senior Citizen Home Sundernagar	3360.00	
12	Blood Donation Camp	7855.00	
13	Awareness Talk on AIDS	4400.00	
14	Cleanliness Drive	5000.00	
Total Expenditure incurred		**82073.00**	**133158.00**

Source of Expenditure:-

(i)	NSS Fund	82073.00
(ii)	5 WIP Fund	133158.00
(iii)	Donation Fund	23040.00
	Total:-	238271.00

Prayas Teaching Programme For Government School Students

PRAYAS Program aims to enhance the quality of education provided to the local Himachal youth by the local area government schools. In this program, the volunteers of NSS unit IIT Mandi seek to identify opportunities through which they can play a supportive role to the school teachers and administration, and help to motivate the local young boys and girls to aim for excellence by presenting both male and female good role models, and to learn through dedication of the IIT Mandi volunteers and coordinators.

The program has 2 parallel aspects:

1. Class 10, 11, 12 Teaching Program: Under this program students from the Government Senior Secondary Schools in Kamand and Kataula come to the IIT Mandi campus on Saturdays and receive coaching in Science, Mathematics, English, Chemistry, Physics, and Biology.

2. Class 7, 8, 9 Homework Helpers Program: Under this program, IIT Mandi volunteers met with students of the Government Senior Secondary Schools in Kamand after the school day ends and assist them with their homework.

The PRAYAS program was initiated in November 2013 with 30 girl's students of Government Girls Senior Secondary School Mandi. Given that the program is in the 5th year of its operation, it suggests that there is enough of a community service spirit at IIT Mandi to sustain such a program

on a consistent basis. The Institute administration has also been supportive of the effort by providing transportation support and access to the Institute resources for these programs. Qualitative feedback suggests that a sustained effort of this type can have a beneficial effect for the local area students.

The program normally takes a pause during the final examinations in the area government schools and the school vacations. Consequently, the direct student interactions in this fiscal began April 15, 2017, and ended January 10, 2018. Subsequently, the program is expected to resume again in late April 2018 continuing its service to the local community.

This year, the program had two facets:

1. **Tutoring Classes:** Saturday morning classes at the IIT Mandi Campus (10 AM to 2 PM) for Class 10, 11 and 12 students from the Senior Secondary Schools in Kamand and Kataula. Subjects covered were:

   Class 10: English, Math, Science for both schools;

   Class 11 and 12 Kamand: English

   Class 11 and 12 Kataula: Chemistry, Physics, Math, Biology, and English.

2. **Homework Helper Program:** After-school sessions of about 1 hour for Class 6-9 students from the Govt. Senior Secondary School, Kamand to assist them with their school homework or with any concepts where they might need some help. This program served Class 6-9 students of Government School in Kamand. About 20 sessions were conducted during the 2017-18 fiscal year, with typically 11-20 children attending any given session. Students were provided assistance with Mathematics, Science, Social Studies, and Hindi.

PRAYAS classes (homework helping programme after school) at government School Kamand

Effectiveness of the Programs for Nearby Government Schools

The Board results for Class 10 and 12 for students who appeared in March 2018 have not been

declared as of this report. When available, those results may provide some indication of effectiveness relative to historical results. Although a statistically valid method to test the effectiveness of the program is not available, qualitative feedback from both the high school students and the school principals suggests the program is well received. Overall, we only expect a modest benefit from these programs, given a modest level of voluntary engagement in this work.

Computer Education For Government School Students

A computer is a great invention of the modern technology. It is generally a machine which has capability to store large data value in its memory. It works using input (like keyboard) and output (like printer) devices. It is very simple to handle the computer as its functioning is so common that a child can handle it.

Volunteers organizing computer training session for government school students Kamand

But due to the lack of computer labs in Government school, students are unable to operate the computers. Their family can't buy laptop/computers for themselves due to financial problems. Many of the students don't know how to start the computer. They are very curious to operate the computer. To spread the education of computer among the government school students, NSS unit IIT Mandi continued computer education programme aims to give basic knowledge of computers. In its second phase the programme continues at Governments school students of Kamand.

The programme started in the month of May, 2016 and continued its 2nd year till dated. Some of the sessions were organized at computer lab, IIT Mandi. Programme aims to educate students in the field of computer because it's the need of modern time. The success of the event is now they know many more things about computer. NSS unit IIT Mandi wants to spread the knowledge of computer among the surrounding area government school students.

Migrant Worker's Children Bridge School Programme

As our campus is being built, a significant number of migrant workers from states like U.P., W. Bengal, Jharkhand, and M.P. live on our campus. Their school age and younger children have no education facilities. The aims of the Bridge School program are:

- Provide some minimal literacy to these children, who have previously not attended school regularly.

- Get the children admitted to a nearby government school.
- Help them cope in school once they are admitted in the government school.

The programme was started in 29th May, 2015 and continued its 3rd year since then. Many of the children have no birth certificate and no Aadhar card. A solution to their lack of proper documentation has been identified by the IIT Mandi volunteers in the form an affidavit on an official stamp paper, notarized by an attorney. In order to save the parents from loosing a day's wages, which they would if they were to go to Mandi, a lawyer was brought to the campus for the execution of the necessary affidavits.

In February 2017, the Bridge School program was extended to the North Campus of IIT Mandi where a significant number of migrant workers have arrived to support the construction activity there. The South Campus program is continuing as some children and their families are still on the South Campus.

During fiscal 2017-18, a total of 10 children from the South Campus and 30 children from North Campus of IIT Mandi were admitted to the nearby Government Primary School in Kamand. Till dated more than 55 migrant worker's children have admissions in nearby government schools. The efforts of volunteers will be success and they are filling satisfaction by devoting themself for this noble cause.

Spark: Library Setup Programme

Initial inspiration drawn from John Wood, who in his book called “Leaving Microsoft to Change the World ", John Wood (founder of Room to Read), suggests that his organization helps to establish libraries in the third world countries. In India, Room to Read has libraries in around 8 states. SPARK program aims to provide the study material to the students of government schools. In this program, the IIT Mandi volunteers seek to identify opportunities through which they can play a supportive role to the school teachers and administration. In this program volunteers setup a library in school and regularly visits there to distribute the books like; general knowledge, encyclopedia, novels etc. among the school students.

Since the reading Program was started by volunteers in the year 2015 and continued till dated, with an aim to encourage the reading hobbies in students. They started setting up libraries using books donated by friends, family and some important books provided from NSS fund. Volunteers in teams of 3 or 4 visited schools, and had read sessions with students. The schools covered are Kamand, Neri, Navlaya and Kataula of Mandi Districts.

Quiz competition after SPARK classes.

Painting competition among school students on awareness theme.

Volunteers also organized competition among them. They organized games and quiz on every weekend of the month. Winners were awarded with certificates and momentous.

Need for starting these programmes are:-

- Lack of space in some schools for libraries.
- Inaccessibility of the books to general students, because of a peculiar location of books, for eg. in two of the schools we visited the libraries were in Principal's room, making it hard for students to issue books for reading.
- A careful study of books, they already have reveals a gap in the science and technology books, encyclopedias and similar books.

NSS unit IIT Mandi provided competitive exam, general knowledge, current affairs, novels (Hindi & English) and story books etc. Mainly the event runs through the donors who donated good collections of books for this noble work. The aim of this event to continue till the students embrace reading as a hobby. NSS unit will be associating with them and guide them for their better future.

2nd Earth Day Celebration

Even though there is some debate as to the official first day of Earth Day. The Earth day we celebrate today came from the event on April 22nd 1970. It was a great day to showcase environmental education, highlight efforts to green the institute and engage the whole student community in making a difference.

Awareness events explained to the students how earth can be saved from global warming. An awareness programme was also organized. The Earth Day celebration offers opportunities to both teach about the issue and make a tangible environmental impact. Together we can make everyday Earth Day and each one of us in the institute can make a difference. In this spirit in mind NSS unit IIT Mandi collaboration with Environmental Club celebrated Students of IIT Mandi.

Students are planting tree on the occasion of "Earth Day

Along with Green Panel participated in both events and encouraged the group of enthusiastic students for celebrating the Earth Day by spreading awareness through both of the events organized by them. The overall weather for the red-labeled day was pleasant with few showers of rain and serene breeze. The celebration of the day started with plantation derives and spreading a couple of hours of the evening by the presentation of several environmental activities by the students of the IIT Mandi. The activities of the group of enthusiastic and energic students of the institute were supported by the presence of some faculty members and staff of the institute. All the event of the morning session was accomplished successfully by healthy refreshments.

At the end of the day, the world history of Earth Day was remembered through and introductory speech, followed by a presentation delivered by the students of the Environment Club of IIT Mandi.

Volunteer delivering introductory speech on Earth Day.

After the end of the evening talk, there were refreshments served in steel utensils- A step towards avoidance of paper cups and plates usage.

Blood Donation Camp

"Blood cannot be washed out with blood". - ***Afghan Proverb***

Voluntary blood donation programmes - recruitment and retention are about people and community, about understanding them, capturing their interest and influencing their behaviour. The main communicating task for both blood donor recruitment and retention should be geared towards getting public understanding about the importance and triggering a response for action. Once a blood donor motivator raises awareness, he or she must motivate and persuade people to donate blood. All over the world, most blood from voluntary blood donors is collected from outdoor camps in rural and urban areas. A Blood Donation Camp was organized by the NSS-IIT Mandi in collaboration with Blood Bank Zonal Hospital, Mandi on 08th May, 2017. It was organized with the help of Blood Bank, Zonal Hospital, Mandi.

Students and staff members are donating blood

It began at around 1 p.m. and continued up to 5:00 p.m., with a steady stream of donors throughout. Students, faculty and staff members participated voluntarily in the camp. Launge, D1 mess was utilized for a thorough medical checkup of potential donors as well as for the donation. Donors were provided with the refreshments. More than 65 volunteers from among the students, faculty and staff members participated voluntarily in the camp. The samples were carefully sealed and transported to the blood bank.

The camp helped the IIT Mandi community in gaining awareness about the benefits of blood donation. The community came together to participate with great enthusiasm and spread social awareness among them. We thank IIT Mandi campus community for coming forward for this great cause.

Environment Day Celebration

World Environment Day (WED) occurs 5 June every year, and is the United Nation's principal vehicle for encouraging awareness and action for the protection of our environment. First held in 1974, it has been a flagship campaign for raising awareness on emerging environment pollution from marine pollution, human over population, and global warming, to sustainable consumption and wildlife crime. WED has grown to become a global platform for public outreach, with participation from over 143 countries annually. Each year, WED has a new theme that major corporations, NGOs, communities, governments and celebrities worldwide adopt to advocate environmental causes. The earth is getting polluted day by day so, we need to protect our environment by conducting many awareness programme all over the world. It is our duty to keep our environment clean. If our surrounding is clean, we will be healthy.

Student, staff and faculty members are participating in cleanliness drive and volunteers spreading awareness on different color bins.

With this idea NSS unit IIT Mandi organized an awareness event on “different color bins for different garbage”. They spread the awareness among IIT community through poster different colors of garbage so that it will dispose properly. After that to continue this idea a cleanliness drive was organized and about 100 bags of garbage collected by the team of student, staff and faculty members of the institute. Respected director Prof. Timothy A Gonsalves also participated in the event. Volunteers segregated the garbage in different color bins.

The theme for 2017 was 'Connecting People to Nature – in the city and on the land, from the poles to the equator'. At the end of event refreshments were served to all participants.

FIVE WEEK INDUCTION PROGRAMME (5 WIP- NSS)

Know Your Campus

1. Village Visit:

Under know your campus, students visited nearby villages like; Navlay, Salgi and Kataula. The main objective of the event was to show the Himalayan villages and its richest culture. Students reach to these villages after 1 hour long hike and enjoyed the surrounding views. They also know the hardship of the local area that how they get food and other necessary items from the market due to the lack of transportation facilities in village area.

2. NSS Orientation: "NOT ME, BUT YOU"

Volunteers are not mere workers. A worker could be good at working, but not at planning or decision-making. Similarly, the planners and decision-makers could be good at their jobs, but not at executing them. They are specialists, whereas volunteers are all-rounder. They are good as workers, as executioners, as planners, as decision makers, as initiators and as leaders.

Volunteers work without any personal motivation. They work to benefit others, not themselves. This makes them workers par excellence, executioners and leader par excellence. The volunteer dharma, therefore, is dharma par excellence. To volunteer is to live in accordance with dharma the values of righteousness, selflessness, and above all egoless. To volunteer is to practice humbleness; to volunteer is to live in synchronicity with Mother Nature, loving, caring, and sharing as she does. A volunteer is essentially a spiritual practitioner, a karma yogi one who is striving for the ultimate union with the supreme through selfless action. Blessed, indeed, are all of you, engaged in this holy work. NSS (National Service Scheme) unit of IIT Mandi organized its orientation programme from 3rd to 06th August 06, 2017 in A1-NKN room.

The program started by Dr. Atul Dhar, Advisor, NSS Unit IIT Mandi. Mr. Prateek Pathania, Field Officer, NSS Unit IIT Mandi welcomed the students and NSS members and Dr. Atul Dhar provided a quick over view on what NSS means to IIT Mandi. After that, Amod Choudhary (NSS volunteer) threw some light on what NSS is doing at IIT Mandi and its future plan for 2017-2018. After that each of the section Coordinators spoke about their respective section and introduced the audience to their team. To provide audience a real feel of what NSS means and how it changed the life of people, some of the NSS volunteers shared their personal experiences of being a member of this unit. After that the function got to over with the vote of thanks by Dr. Atul Dhar, Advisor, NSS Unit IIT Mandi. Overall, the programme went off successfully with the students enjoying every moment along with the volunteers.

3. Disaster Management Training Session:

India has been traditionally vulnerable to natural disasters on account of its unique geo-climatic conditions. Floods, droughts, cyclones, earthquakes and landslides have been a recurrent phenomenon. About 60% of the landmass is prone to earthquakes of various intensities; over 40 million hectares is prone to floods; about 8% of the total area is prone to cyclones and 68% of the area is susceptible to drought.

Disaster management occupies an important place in this country's policy framework as it is the poor and the under-privileged who are worst affected on account of calamities/disasters. Disasters retard socio-economic development, further impoverish the impoverished and lead to diversion of scarce resources from development to rehabilitation and reconstruction.

Different activities organized under know your Campus.

Under 5 WIP NSS unit IIT Mandi organized 3 hour long session on Disaster Management Training from 3rd to 6th August, 2017. Activity organized in different 4 sessions and each session 60 students participated at a time. It organized in the collaboration with District Disaster Management Authority of Mandi. Mr. Nilesh, DDMA Coordinator and Mr. Amarjeet, DDMA Serve Coordinator were organized different sessions on Disasters. The idea of programme to trained the all students how they will tackle the worse situation of disaster. The programme focuses on disasters of last decade in Himachal Pradesh.

Cleanliness Drive

Every year some 3.4 million people, mostly children, die from diseases associated with inadequate water supply, sanitation, and hygiene. Over half of the hospital beds in the world are filled with people suffering from water and sanitation related diseases.

'Swachh Bharat Abhiyan' (Clean Indian Mission) is a national level campaign by the Government of India covering 4041 statutory towns to clean the streets, roads and infrastructure of the country. This campaign was officially launched on 2nd October 2014 by Prime Minister Narender Modi.

The campaign is India's biggest ever cleanliness drive and 3 million government employees and schools and colleges students of India participated in this event. To support this idea of **"Swachh Bharat Mission"** NSS unit IIT Mandi organized cleanliness drive under 5 Week Induction Programme with newly joined 150 B. Tech. students. The main aim of the programme was to motivate the students about good habits in their life. Students divided in four groups and the drive organized on 5th August, 2017.


Students are collecting garbage.

Students took a “cleanliness pledge” and then engaged in “cleanliness campaign activities” for almost 3 hours. The campaign resulted the collection of more than 70 bags of waste materials from Kamand campus. Everyone who participated in the cleanliness drive put in a lot of efforts to clean our campus and make it garbage-free. The overall aim of the programme is to prepare volunteers to promote and maintain cleanliness in their daily life and in the society.

Plantation Camp

Hermann Hesse has rightly explained that when we are stricken and cannot bear our lives any longer, then a tree has something to say to us: Be still! Be still! Look at me! Life is not easy, life is not difficult. Those are childish thoughts. Let God speak within you, and your thoughts will grow silent. You are anxious because your path leads away from mother and home. But every step and every day lead you back again to the mother. Home is neither here nor there. Home is within you, or home is nowhere at all.

Students are planting tree inside the Campus.

By believing these thoughts National Service Scheme unit IIT Mandi organized Tree Plantation Camps under 5 Week Induction Programme and planted 450 saplings along with the campus road. Students divided in three groups and camp organized on 12th August, 2018. Students identified appropriate places for tree plantation with the help of Dr. Shyam Kumar Massakapalli (Assistant Professor) and Mr. Prateek Pathania (Field Officer) or prepared that for plantation. Faculty, staff members, B.Tech 1st Year Students and NSS volunteers planted more than 450 saplings along with the road near the hostels.

Students also placed tree barricades and poured water. Each student took the responsibility to nourish and take care the planted saplings. Eventually, the area attained a glorious look. After one month of plantation the compost/manure was given to the plants by the NSS volunteers. The NSS committee decided to proceed with the same inspiration and enthusiasm to enhance the beauty of the campus.

Social Visit

1. Visit To National Blind Association Kullu

Kindness is the language which the deaf can hear and the blind can see. - ***Mark Twain***

In first visit of Blind association about 60 students visited to National Association for Blind on 18th August, 2017 under Five Week Induction Programme. It was one of the most heart touching experiences for all. Being a human our hands and our eyes are the most important possession we have without which a normal person can never imagine what we would have done possibly. But after staying at the blind school for about 4 hours, it changed our view. We understood how strong and powerful is a person's willpower. And a man has so much strength within himself. It is the normal people with all physical features alright and in working condition tend to curse destiny for some reason or the other. Somewhere it is said that scarcity brings out the best in a person. And that was quite clear from the visit.

Volunteer's interaction with blind students and their teachers.

We thought that the world would be so dark without eyesight. But eyesight cannot be greater than inner vision. They might have assumed a vision inside and that is what gives them strength. Sometimes We feel as if being blind they are lucky to be not seeing so much of cruelty and harshness in the world. Their vision is their key to drive them far in life.

Most of us didn't know about the system of reading which the blind adopt in order to study. Their normal textbooks were converted into braille texts and touching those dots they are able to recognize the letters and read fluently. Their sense of touch means them everything. Everyone holds a white stick in their hand to guide them while walking. They also showed to volunteers how they are crossing road with the help of stick.

Student volunteers donated the collected donations of **Rs. 7,240.00.** So we handed over the amount to Ms. Shalini, Social worker (specially working for the better future of blind children). Student volunteers also interacted them and talked about their study. The association faculty/staff organized a singing competition among students. Student volunteers also asked them to write English words on computer by this technique we know about the sharpness of their mind how they remember the keyboard. We also distributed juices, chocolates, Biscuits and fruits among the students. The school was a boarding one and blind students were taught to be self-sufficient from a very young age. That is very much required for them to gain confidence in themselves. Ms. Shalini organizes a short session on the establishment and working of organization:-

The organization was established in the year 1997 by **Late. Madam Chander Abha** who was a true social worker and had been working for others since 1979. She met a child in one of the crèche center who was almost 10 years of age, she came to know about that due to his blindness he is unable to attend the school, thus was formed the H P State Branch of National Association for the Blind. The school was started with 4 Blind children in the year 1999 with minimum funds and no space. Gradually over the period the organization started expanding and now approximately 40 students are reading words. The organization working on following aspects:-

Special School: The school is looking after the primary section education, pre integration, home management and self-management of the children.

Integrated Education: The organization does not believe in segregation of these children but integration with the main stream schools. At the secondary level the school is assisting the children pursue their higher education by taking special classes after school for all.

Hostel Facility: All the children with the school, both in special and integrated education are provided free hostel as they are from different parts of Himachal Pradesh and now even from other states.

Computer Training: All the children associated with the organization getting computer education. This helps them in their ability to access any information available in audio formats, E-text format etc. This helps them access all different office tools.

Audio Library: The organization is providing the facility of Audio library for not only the school children but also visually impaired pursuing higher education at 12th level and college level. The books are either in cassettes, daisy formats, MP3 formats and text formats etc.'

Extracurricular Development: School is also taking care of extracurricular development of the children, they are encouraged to participate in all cultural events organized locally. Sports is also promoted in the school, children from the school have participated in chess competitions, athletic meets etc. even at state and national level.

Multiple Handicapped Sections: The organization has taken up the extension project of NAB Delhi for Multiple Handicapped section and we are looking at the self-management skills of 10 MHU

children identified by the organization in Kullu and Mandi District. This is a home based model in which the teachers go to the homes of the children. These children need therapeutic services and we are providing them physiotherapy. The multiple disabled have a lot of problem in case of acceptance in the society or even for that matter in their own families. I am sure that with gradual efforts we will be more sensitized to their needs and in times we take up efforts to help them.

It was the most memorable day ever and we feel very lucky to have experienced that. They inspired us a lot and we all understood since then that blind are not helpless and piteous. They possess immense willpower and if supported properly they can go far.

2. Visit To Divtya Manav Jyoti Anathalaya Dehar

It is painful to see babies die, killed or left alone. Every day around the world there is a child aiding for help. Sometimes is very difficult to understand the life's of others. How can someone give life to a child and leave them near a dumpster or by a road side. It hurts so much to see some of these cases. Many of these children seen on the road are going to be somebody in the future.

Under 5 Week Induction Programme, NSS unit IIT Mandi organized visit to Divya Manav Jyoti Anathalaya, Dehar. Fifty students participated in this event. We met the students of orphanage. The glow of their face, the glimpse of their eyes rendered all of us speechless. They came running towards us with lots of expectations and belief in their eyes. We served them with eatables. They just jumped into joy and excitement. It reminded us of our childhood days when we used to do the same when our father used to return from office in lieu of obtaining gifts and other confectionary. Some of the children do not have their parents. Several games were played with children and finally all students came back with lots of sweet memories.

3. Visit To Old Age Home Bhangrotu

The very concept of an old age home is new to India. An old age home is usually the place, a home for those old people who have no one to look after them or those who have been thrown out of their homes by their children. The place is off course like home where the inmates get all the facilities for a routine living, like food, clothing, and shelter. All these necessities are well looked after but, the much-needed love, and care of loved ones is off course sadly missing; for, how can outsiders provide solace? In these homes, it is very interesting and even touching to talk to people whether they are men or women.

At least in India till now, the old people staying away from the home, from their children, or left to themselves is not considered to be a very happy situation. This concept of separating the elders from the youngsters has been imported into India from the West.

Around 50 student and NSS volunteers under 5 WIP went to “Balh Valley Kalyan Sabha, Bhangrotu, Mandi” on 18th August, 2017. Students interact with senior citizens and trying to understand their problems and situations, why they parted from their family? Some of seniors don't have any child and to spend their life smoothly they move to old age home. Students also know about the difficulties facing by senior citizens. Some of them have their own children but they left them due to the generation gap. Volunteers served them fruits and other eatables. Main motive of the visit was to show the real face of society so that students would be committed to serve their parents. The other motive of the visit to meet them so that they don't feel they are alone.

Orphanage Visit on The Occasion of Diwali

NSS volunteers gathered to bring the sparkle of joy to more than 200 orphans at the Divya Manav Jyoti Anathalya on Wednesday, 18th October, 2017 on the occasion of Diwali festival. The volunteers spent quality time with orphans, providing them with the much-needed feeling of

togetherness and bonding of a family, which makes Diwali special to all. A Rangoli and Greeting Card making contest was organized, which encouraged them to express their creativity. Children of the orphanage dedicated Diwali greetings to all NSS volunteers by designing colorful cards.

Orphanage students participating in different activities and group photo with volunteers.

Great preparations were made for this festival. Volunteers collected **Rs. 5000.00** for this orphanage visit. Volunteers celebrated Diwali with all orphans and cheer the day. To add the cheer and joy, Diwali gifts, crackers were distributed to the children and snacks were served to all. We also arranged special dinner for the orphans from the collected donation of Rs.5000.00 and volunteers joined for dinner with orphans. The orphanage decorated with flowers and lights. The students worship goddess Lakshami with orphans and started the celebration of Diwali. After that the prizes were distributed to all event winners. At the end of a lovely day, the volunteers left with hearts overflowing with love and delight.

3rd Donation Programme For Leprosy Patients

Leprosy, also known as Hansen's disease (HD), is a long term infection caused by the bacilli Mycobacterium leprae and Mycobacterium lepromatosis. Initially, infections are without symptoms and typically remain this way from 5 to as long as 20 years. Symptoms that develop include granulomas of the nerves, respiratory tract, skin, and eyes. This may result in a lack of ability to feel pain and thus loss of parts of extremities due to repeated injuries or infection due to unnoticed wounds. Weakness and poor eyesight may also be present.

Volunteers are donating sweets and gifts on the occasion of Diwali.

In the beginning Government runs a hospital especially for Leprosy patients. Government is taking care of their boarding and lodging. At that time people from different districts, states as well as from different countries come to get the treatment and due to non-recovery in their wounds their families abandoned them because they think they are untouchable. But after a long time period governments fails to operate the hospital properly, so the authority decided to close the hospital permanently. At that loneliness time they want to support each other, most of them lived together or married with each other and starts their life. These people are very poor and in this critical time period they are unable to move from that area. So they started to live in tents and steady-steady made mud houses for themselves with the help of social workers and donors. But after a long time period they are unable to fulfill the basic needs of their families. Those people are residing with their families: wife, sons, daughters and their grandchildren in this slum area. Some of them are suffering with the diseases (Leprosy) and some are living simple life without any diseases. But rather than they are living together without transferring any of the diseases. It means they are not untouchable.

On the occasion of Diwali a donation drive was organized for help these patients, NSS-Unit, IIT Mandi organized a donation programme on dated 19th October, 2017 for Leprosy suffering people who are living Raghunath Ka Padhar, near Mandi town. Most of them are from different-different districts of Himachal Pradesh and some one's are from Uttrakhand, Bengal as well as from Nepal, outside the country.

A group photo with leprosy patients.

NSS volunteers met these people and heard their problems and assure to do something for this community of our society. As per part of donation volunteers collected the amount of **Rs. 4800.00** and donated food, fruits, sweets and warm bed sheets. All of them are very happy and thanks to IIT Mandi community to take a step to uplift their life. With that commitment we will do something for them all volunteers came back to campus. After donation event all volunteers gets together future planning for them and in the end refreshments were served to all volunteers.

Visit to Suket Senior Citizen Hom Sundernagar

Students and NSS volunteers went to “The Suket Senior Citizen Home” Dehri, Sundernagar, Mandi on the occasion of Diwali celebration. The main objective of the visit to made a familiar atmosphere for senior citizens and to organize Diwali in a good manner with senior citizens. Students interacted with senior citizens and trying to understand their problems and situations, why they parted from their family? Student volunteers collected **Rs. 6000.00** and donated quilts for upcoming winters.

Volunteers also distributed fruits, sweets and organized special dinner for them on the occasion of Diwali.

Blood Donation Camp

Blood donation is one of the most significant contributions that a person can make towards the society. It is not harmful for any person to donate blood. The body of the donor can regenerate the blood within few days.

Keeping in view the problem of acute blood shortage, A Blood Donation Camp was organized on 28th October, 2017 by the NSS-IIT Mandi in collaboration with Blood Bank Zonal Hospital, Mandi. It was organized with the help of Blood Bank, Zonal Hospital, Mandi and Medical Unit IIT Mandi Kamand. It began at around 01:00 p.m. and continued up to 05:30 p.m., with a steady stream of donors throughout. Students, faculty and staff members participated voluntarily in the camp.

Volunteers are donating blood and a group photo with Zonal Hospital Team.

D1 lounge was utilized for a thorough medical checkup of potential donors as well as for the donation. Donors were provided with the refreshments. Around 51 units of blood was collected. The samples were carefully sealed and transported to the blood bank.

We thank IIT Mandi campus community for coming forward for this great cause

Awareness Talk On Aids

AIDS is not a virus but a set of symptoms (or syndrome) caused by the HIV virus. A person is said to have AIDS when their immune system is too weak to fight off infection, and they develop certain defining symptoms and illnesses. This is the last stage of HIV, when the infection is very advanced, and if left untreated will lead to death.

Under awareness section NSS unit IIT Mandi organized awareness talk on AIDS and about 30 volunteers along with 17 government school students of GSSS Kamand actively participated in the talk. Dr. A. Roy, District Programme Coordinator of AIDS delivered talk on the occasion. Government school students of Kamand and Katoula also participated in awareness talk. The talk is based on the following:

Basic facts about AIDS

- AIDS stands for Acquired Immune Deficiency Syndrome.
- AIDS is also referred to as advanced HIV infection or late-stage HIV.
- AIDS is a set of symptoms and illnesses that develop as a result of advanced HIV infection which has destroyed the immune system.
- Treatment for HIV means that more people are staying well, with fewer people developing AIDS.

Although there is currently no cure for HIV with the right treatment and support, people with HIV can live long and healthy lives. To do this, it is especially important to take treatment correctly and deal with any possible side-effects.

Precautions of AIDS:

Wear gloves:

- When you have open or healing wounds, or skin infections.
- When in contact with blood or body fluids, secretions, excretions or non-intact skin.
- When in contact with surfaces or articles contaminated with blood or body fluids.
- When performing venipuncture or other vascular access procedures.
- When carrying out cleaning or decontamination procedures.

Volunteers and school students participating on the talk and Dr. Roy delivering the talk.

Replace torn or punctured gloves immediately.

Use new gloves for every patient.

Wear protective eye wear, masks or face shields (with safety glasses or goggles) during procedures likely to generate droplets of blood or body fluids.

In general, protective eye wear, masks and clothing are not needed for routine care of AIDS virus-infected persons.

Wear gowns when the splashing of blood or body fluids may occur.

Wash hands:

- Before and after direct patient contact.
- Immediately and thoroughly when contaminated by blood or body fluids.
- After removing gloves.
- After a glove tear or suspected glove leak.
- Before leaving a work area.

The use of gloves does not eliminate the need for hand washing. Hand washing is one of the most important procedures for the prevention of transmission.

'Swachh Bharat Abhiyan' (Clean Indian Mission) is a national level campaign by the Government of India covering 4041 statutory towns to clean the streets, roads and infrastructure of the country. This campaign was officially launched on 2nd October 2014 by Prime Minister Narender Modi.

Students are collecting garbage.

The campaign is India's biggest ever cleanliness drive and 3 million government employees and schools and colleges students of India participated in this event. To support this idea of **"Swachh Bharat Mission"** NSS unit IIT Mandi organized cleanliness drive on 24th March, 2018 inside/outside the campus and about 50 student, staff volunteers participated to make it successful. The main aim of the programme was to motivate the students about good habits in their life.

Students took a "cleanliness pledge" and then engaged in "cleanliness campaign activities" for almost 3 hours. The campaign resulted in the collection of more than 200 bags of waste materials inside/outside the Kamand campus. Everyone who participated in the cleanliness drive put in a lot of efforts to clean our campus and make it garbage-free. The overall aim of the programme is to prepare volunteers to promote and maintain cleanliness in their daily life and in the society. The movement has now as well started and it is going to get only bigger, as one of the central pillars of our plans to serve the society by maintaining the beauty of the scintillating Himalayan landscape.

Donations

Donation Collection Drive for National Blind Association Kullu

In August, 2017 a fund drive was organized in our campus. The community responded generously, and an amount of **Rs.7240.00** was donated by about 60 B.Tech. students of IIT Mandi. The collected amount of donation used to donate as cash to National Blind Association Kullu (Operating an official school for blinds at Kullu).

Donation Collection Drive for DMJ Orphanage

In October, 2017 a fund drive was organized in our campus. The community responded generously, and an amount of **Rs.5000.00** was donated by about 100 students of IIT Mandi. The collected amount of donation used to organize special dinner for orphans on the occasion of Diwali.

Donation Collection Drive for Leprosy Patients

In October, 2017 a fund drive was organized in our campus. The community responded generously, and an amount of **Rs.4,800.00** was donated by about 80 B.Tech. students of IIT Mandi. The collected amount of donation used to donate warm bed sheets for 3rd Donation Programme for Leprosy Patients living at Raghunath Ka Padhar, Near Zonal Hospital Mandi.

Donation Collection Drive for Suket Senior Citizen Home Sundernagar

In October, 2017 a fund drive was organized in our campus. The community responded generously, and an amount of **Rs.6000.00** was donated by about 50 students of IIT Mandi. The collected amount of donation used to donate quilts for Suket Senior Citizen Home Sundernagar.

Guidance and Counseling Service (GCS)

Activities by the Guidance and Counseling Service during the year 2017-18 are broadly categorized in to sections below.

1. Five Week Induction Program (5WIP)

A five week induction program was conducted for the incoming batch of B.Tech students from 1st of August to 2nd of September 2017. More than 70 faculty members were involved in the 5WIP. Responsibilities of GCS include, pre arrival counseling and admission guidance on arrival, organization of the orientation program, over all coordination of activities, preparation of timetable,

carrying out informal activities and distinguished lectures.

2. Orientation Programs

a. PG/PhD students: Orientation program was organized for the incoming PG and PhD students to introduce them to the academics, research and student life at IIT Mandi. Two such programs were organized in year 2017-18. On 8th August 2017 and on 13th February 2018 for students taking admission in odd and even semester.

b. WPI students: In March 2018 organized an orientation program for the visiting WPI students. The program included a introductory session with talks, and walk around the campus.

Technical Society:

Technical Society of IIT Mandi conducts intra-college technical festival Aavishkar

Science and Technology Council (SNTC), that is the technical society of IIT Mandi conducted its intra college tech-fest on 20th May, 2017. 151 students of BTech first year made 25 technical

projects under IC161P course and Aavishkar under the guidance of Dr. Hitesh Shrimali, Dr Gopi Reddy, Dr Ankush Bag, Dr Kunal Ghosh. The projects were demonstrated in an open house on this day.

The projects included Remote Home Automation where you can control lights, fans, locking or opening door from anywhere in the room; Automatic irrigation system because of which the farmers won't have to worry about waking up at 4 AM in the morning to water crops. The sensors sense the water content in soil and automatically irrigates the soil; Ishara - a helping hand for people who cannot speak, can use this device to convert their hand signals into audio signals; a weather station to collect weather data and generate reports; a landslide prediction system; a guiding stick for blind people;a robot which can make drawings; automatic fire extinguisher and many more.

The students demonstrated their projects to school students as well as IIT Mandi students and professors.

At the same time, several SNTC Clubs such as Robotics and Electronics club, Programming Club, Astronomy Club, Civil Club(Nirmaan), Mechanical Club(Yantrik), SAE Supra team showcased their club activities of the session 2016-2017. The Supra team is making a racing car which will compete at annual SAE Supra contest at all India level. Members of Robotronics Club won 2nd position amongst all IITs in the annual Inter IIT Technology Meet. Members of Programming Club scored All India Rank 1 in national programming competitions, four students from Programming Club were selected in highly prestigious Google Summer of Code. Members of Astronomy Club built a telescope and also conducted a night out at Parashar to look at the stars. IIT Mandi overall stood 4th in Inter IIT Tech Meet held at IIT Kanpur on 25 to 26th March, 2017 ahead of all the new IITs.

Supra 18

“SUPRA” is an event organized by society of automatize engineers India (SAE), it was organized in June from 10th-16 June 2018. This is kind of students formula race car event where students from different collages design and manufacture their own formula 1 type vehicle and represent there in the competition .IIT Mandi also participated in that event with our own design and manufactured formula 1 type vehicle which was designed and manufactured in the supra club of IIT MANDI under the guidance of Dr. Arpan Gupta and Dr. Atul dhar.

Top Coder Hackathon and Talk

Top Coder Hackathon

To improve the development skills of the students the Programming Club and ACM chapter conducted a Hackathon which was 24 hour long event where in the students were to develop applications using concepts of android and web development that were based on the theme “Education”. Such a contest also teaches the students the various problems and constraints that arise while developing solutions to real world problems. The event received a large participation of more than 90 students from various streams and years. The Hackathon was managed by a combined effort by all the Programming Club and ACM chapter members. Special thanks to 4th year student Sahil Arora, and Priyansh Saxena for helping and motivate the students during the enduring 24 hours.

Winners:

1. Gagan Deep Tomar, Bhavya Bhatt, Chirag Vashist
2. Pratyush Gaurav, Shashwat Garg, Anant Mishra
3. Hrishikesh Sarode, Hrishikesh Sagar, Ritwik Saha

Top Coder Talk- What is the need of the hour for a CS Undergrad student?

In addition to the Hackathon competition as a part of ACM chapter talk, TopCoder senior evangelist Harshit Mehta also gave a talk on the topic on "What is the need of the hour for a CS Undergrad student?" The talk was attended by numerous students, where the students gained knowledge about possible career opportunities in IT field, as well as methods to hone their coding skills.

Event dates: 17-18 Nov 2017

Utkarsh

Utkarsh is IIT Mandi's intra college tech fest in odd semester. It was held on 10th, 11th and 12th of November 2017. More than 150 students from all 4 years of BTech participated to make this event a success. Under Utkarsh many different events were held conducted by various clubs under Science and Technology Council (SNTC) as described below:

1) Whats-Up

In this students were given 5 random objects present in the night sky. They were given a laser pointer and star charts. For each correct object they spot, they got marks. Then students had to use telescope to align it to one of those 5 objects. Then they had to face a quick Q&A session. After this rigorous activity, winners were decided. The students also spotted some shooting stars. The event was held by STAC i.e. Space Technology and Astronomy Cell's club coordinators Shreyas Bapat and Garvit Mathur.

2) Occulation

This was an event which required a student to have an immense knowledge of Astrophysics, Cosmology and Space Technology. Students were required to prepare any one topic of their choice related to Space Technology, Astronomy, Astrophysics or Cosmology. They were supposed to either document it or make a powerpoint presentation on their topics. Then students had to present the topic in front of audience which included the judging panel too. The event was held by STAC i.e. Space Technology and Astronomy Cell's club coordinators Shreyas Bapat and Garvit Mathur. Also, Jitesh Kumar Gupta, the mentor Co-ordinator,

Indresh Kumar and Swapnil Sharma helped a lot during the event.

3) Rail tracker .

This event was organized only for first year students in which they had to make a robot which can follow the line in between the track on its own and they have to detect the errors in track(like Expansion of track or broken track).The main aim of the event was to give the students idea of how technology can be used to solve important problems(Like Here they learn how Rail accidents can be avoided by detecting the errors in track and avoiding such accidents.) I A total of 55 students from first year participated in groups of maximum 5 students. Students really enjoyed and learnt a lot making their bots. The event was organised by the club coordinators Suryavanshi Virendrasingh, Sanidhya Agarwal and Lakshya Arora.

4) **Robosoccer**

This was an event which was organised to enhance student's interest in robotics with Entertainment. This was the first time to be having such an event in Utkarsh to give them the idea of Competitions held at inter-colleges and international levels. Students were supposed to make a bot whose role was of player as well as keeper and they have to control it wirelessly through bluetooth. A total of 80 students participated in groups of 4 students.Students really enjoyed making their bot and coming with innovative designs for bot and the most entertaining part of the event was the match of bots with snacks which was enjoyed by everyone. A huge Crowd was gathered to observe the event. The event was organised by the club coordinators Suryavanshi Virendrasingh, Sanidhya Agarwal and Lakshya Arora

5) **Capture the stone**

Capture the stone was a 19 hour long CTF event organised jointly by the Programming Club and ACM Chapter on 10th-11th November 2017. It was IIT Mandi's first CTF event. The event was a contest wherein the participants were given hints to find the keys (hidden in the platform itself) to unlock levels on a online platform that was completely developed by a student of IIT Mandi (Abhigyan Khaud). The event received an overwhelming participation of more than 90 students from all streams and events making it a huge success. Being the first CTF event at IIT Mandi it was also a great learning experience for all participant who now know how to go about solving problems in such contest and will feel much more comfortable

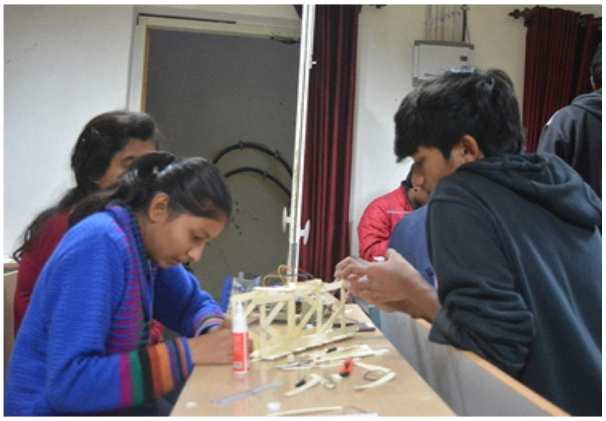
taking part in other CTF conducted by various multinational companies, colleges, etc.

6) **Battle of Trident**

The Battle of Trident was a coding competition organised by both Programming club and the ACM chapter on 11th November. The competition involved one against one matches between participants on the code fights platform that in an online platform developed for the same. Both the clubs had been working on improving the level of programming in the college and the event gave the students an opportunity to test what they have learnt. Such an event also helps the individuals to realise their strengths and weaknesses in regard to the various programming concepts and helps the improve on the same. The received a participation of 30 students spanning all years and streams. It was organised in the presence of Hitesh Ramchandani and Abhishek Sharma (Coordinators, Programming Club), Akash Sharma (Chairperson, ACM Chapter) and Sagar Gupta (Vice-chairperson, ACM Chapter).

7) **Viaduct**.

This event was organised by Nirmaan Club for first and second year students. They had to make a bridge model by using 100 popsicle sticks, glue gun and bottle, threads, clips and paper pieces. A total of 65 students (13 teams of 5 students each) participated in this event. The bridges were load- tested. Winners were decided on the basis of maximum load held, amount of time spent in building and amount of resources utilized. As compared to last year, this event saw immense participation of students.



8) **Plot-It**

This was a survey based event organised by nirmaan club. The students had to find reduced level of three points by using level transfer method and differential levelling. Auto level and staff were used as instruments A total of 8 teams of 5 members each registered for it but only four were allowed to participate because of limited number of instruments. Winners were declared on the basis of closest values matching with the total station and GPS data. Students really enjoyed working with advanced optical instruments and gained a lot of knowledge.

9) **Junkyard Wars**

Junkyard Wars was conducted in the Utkarsh 2k17 by Yantrik Club. The event had two rounds. The first round was conducted in SC-NKN on 11th Nov in which 20 teams participated with each team having 4 members. In this round they have to make a Hydraulic JCB using Syringes, I-V Tubes, Cardboard, Chopsticks and other household items. Out of 20 teams 7 teams qualified for the 2nd Round. In 2nd round the participants were asked to make a catapult

from the junk. It was conducted in the Mechanical Workshop with the help of Staff of Mechanical Workshop.

10) **Innovation Riot**

Innovation Riot was a pitching event conducted by E-Cell, where students with a business idea, bearing themes of the likes: Fintech, Health Tech, IOT, Clean-Tech, Edu-Tech, are required to pitch to a panel of investors (judges, in this case). The panel marks the pitcher based upon presentation, originality of idea, size of your problem, your solution and real time implementation possibility. A total of 6 teams participated in the event, out of which 2 ideas appealed to the judges the most. The winning participants also get a chance to take their ideas forward, and implement it to make it a fully fledged product with the help of IIT Mandi's incubator, Catalyst. It was a great experience for the students, who pitched for the first time, and the judges who heard them. The event was conducted by Hritik Gupta and Nikhil Gupta.

11) **Crowd Fund**

Crowd Fund was a challenge to test the selling skills of the participants conducted by E-Cell, for sales plays a quintessential skill of an entrepreneur. There were 2 parts to the challenge, one to Seller(who were to sell a new/improvised product) and other to the Investor(who were to invest on the product, from the fixed virtual money they had). Sellers are supposed to lure the investors to raise maximum funds. The event received a participation of 16 sellers and 14 investors. The event concluded on a discussion over the merits and demerits, market and customer propositions for each and every product asked for the seller to sell. The event was conducted by Param Kashyap, Navneet Sharma and Shivam Chaudhary.

The closing ceremony was held on 19th November, 2017 in which the winners were awarded certificates and medals by Dr Hitesh Shrimali(SNTC Advisor) and Dr Tushar Jain(Robotronics Club advisor).

E-Cell during Utkarsh 2017

Crowd Fund

Participants either chose to be an investor or seller. Each seller was given an idea to represent to crowd and convince them to invest in his/her idea. Each investor was given virtual currency to invest in the sellers' idea.

After sellers were done pitching their ideas, sellers and investors had an informal talks among themselves over snacks for some time which was a critical time for sellers to convince investors.

Best sellers ad investors were awarded based upon their earning and investments respectively.

Participation : 55

Innovation Riot

This was a pitching competition in which each participant had to pitch his/her idea to the judges using any means necessary, including a compulsory 5-6 slides power point presentation.

Participation : 8




Cultural Society

Inter IIT Cultural Meet '17 , IIT Kanpur

The 2nd Inter IIT Cultural meet was hosted by IIT Kanpur, held between 28 and 30 Dec 2017

Total 7 clubs from IIT mandi took part in this Cultural meet .

Dance, Drama , Art geeks , Music , Shutter bugs , Designauts , Literary these clubs with total 0f 70 students participated in 30 events .

Best Performances from our Institute

Winners in the event "Art of Photoshop"- Designauts.

4th position in the event "Nukkad natak"- Drama Club.

5th Position in the event "Cypher hustle"- Dance Club

Nikon Workshop

Shutterbugs IIT Mandi organised a photography and videography workshop on 23rd September 2017. The workshop was conducted by Nikon India with the effort of club. The workshop started from basic level which later transformed into training in advance photography and videography by Nikon experts. They brought some professional cameras along with various gears for hand on experience. They taught us various aspects of cameras and their uses. Their team consisted of 4 members including Chief Technical Officer of Nikon India with his team along with a dealer in Sundernagar. Tea was served at regular intervals. Workshop witnessed 82 participants including staffs, students and faculties.

The bills are submitted along with the report.

Talk on Art, Design & Tools - By Dr. John Antoine Labadie

A talk, over "Some Thoughts on Art, Design and Digital Tools", was conducted by Designauts IIT Mandi on 6th May 2017, 6 PM at A1-NKN. The speaker, Dr. John Antoine Labadie, who is currently the Professor of Digital Arts & Media Integration Studies Art Department at University of North Carolina, Pembroke was the guest of honour.

Dr. Labadie is counted among the most widely known designers, be it the United States, China, India etc. He studied sculpture and painting at the Dayton Art Institute (1969-71), earned a bachelor's degree in painting at University of Dayton (1973); a Master's in perceptual psychology from Wright State University (1980); and an interdisciplinary Doctorate from the College of Design, Architecture Art & Planning at the University of Cincinnati (1993) in Cincinnati, Ohio USA. He has been a faculty member in the Art Department at the University of North Carolina at Pembroke since 1994 and is the founder of the Digital Arts program there. During the past 20 years Dr. Labadie's art works have been exhibited in more than 600 national and international exhibitions and held in numerous private and museum collections.

The talk was conducted under the guidance of Dr. Tripti Singh and student co-ordinator Mohit Sharma. Students and faculties from various streams showed their interest and became a part of an inquisitive conversation. Dr. Labadie presented slides entailing ideas of art, which focused mainly over the function of design, and on the relationship of creative practice to digital tools in the 21st century. A few visuals on FR were also showed by him.

The session witnessed significant participation from students and faculties of IIT Mandi, thus feeding their interest of art.

Party In The North

“Party in the north” was a fun event conducted in the Pine mess, north campus on Sep 24th'2017. In this event we had many fun events like Ramp walk, Dares, Confessions, Dumb Charades and many other small games along with the main important event i.e. “DJ”. Snacks were served to every

one present. This event went on for three hours from 7pm to 10pm. and the Strength of audience was 150 members.

Here are some pictures of the event, Clicked by Rahul Jain and Himanshu Kumar.

Hiking & Trekking

Trek to Dalhousie

Hiking and Trekking Club organized a trek to Dalhousie in the month of April. The group of students departed from campus at night on 13th April and reached Dalhousie at 8A.M on 14th April. Students went on a sightseeing around Dalhousie after having the lunch. Next day on 15th April, the group left for Jot and trekked upto DianKund. After the lunch, the students departed for Khajjiar. Students enjoyed the scenic beauty and left for Dalhousie. At night, students danced on the beats and departed back for campus in morning on 16th April.

Diwali Celebration 2017

Diwali celebration, this year was organized in all three campuses separately. It started with decorating all three of our campuses and then with Laxmi puja, Prasad distribution, sweets distribution and bursting on crackers (with lesser sound). Lights were purchased for decoration of all the hostels in all three campuses. Sweets were distributed in all the three campuses. Sweets distribution started from 5pm and continued till dinner time. On 19th October Laxmi Pooja started at 7 pm.The Pooja was performed by B.Tech Student Umang Agarwal and MSc Student Himani Arora.

North Campus Pooja Ceremony

On 19th October Rangoli making competition was organized in which students actively participated in both the campuses. Winner were declared two days later for the same.

North Campus Pooja Ceremony

Crackers lighting in North

Students in South Campus Gathering for Pooja

Special Prasad was served to all the students. Special prasad included fruits, “Khil” and “Batasa”

Students offering “Aarti” South Campus

Nearly 700 students participated in all the three campuses and made Diwali memorable.

Dahi Handi Celebration

Hostel affairs Organized a Dahi Handi Competition one week after the Janmasatami. The Event was held on 27th August Sunday. There were participants from both North and South Campus. Participants were from under graduates as well as graduate students. A total of 15 teams registered for the event. With each team comprising 8 persons. Total participation was 300 students. The event was organized in the pace between B3 and B4.The Dahi Handi competition was followed by a 30 minute musical performance where students enjoyed the music and danced to it.

Students making human pyramid to break the Matki

Proper care was taken to insure there is no mishappening and injuries. The event was a success citing the number of students participating in it.

Other Activities:

Exodia

The yearly institute event, 6th Exodia' 17, was organised from 7th - 9th April 2017 was best and bigger this time. A number of technical and cultural events were organised by the IIT Mandi students. Many universities, institutes and colleges' students around the country had participated in these events.

These three days had been a learning opportunity for the students to experience and develop technical, social and competitive skills.

Exodia'17 was remarkable as institute had provided hospitality to approx 300 students from different universities, institutes and colleges. It was recorded around 800 people attended and witnessed theses events, which made Exordia'17 a mega event of IIT Mandi.

List of Events that were organized during Exodia'17.

Technical :-

1. Junkyard Wars
2. Robowars
3. Internet of Things (IoT)
4. Hurdle Rush
5. Line Follower
6. Effective solutions for Sustainable Development
7. Nirmaan

Cultural:-

1. Exodia Idol
2. Synchronians
3. Band Slam
4. Couture
5. Canvas
6. Groove Fanatic
7. Street Soul
8. Biggest Liar
9. Survivor

Informals:-

1. Escape the room
2. Paintball
3. Fray
4. Blind Date
5. Treasure Hunt
6. Trekking
7. River Crossing
8. Rappelling

Workshops:-

1. Ethical Hacking
2. Cloud Computing
3. 3D Animation

Apart from these events, evening performance from famous artists was organised. On 7th April, ChaarHazaari Band had performed. On 8th April, in EDM show Dual Vibes and MrHawkk rocked the stage. On 9th April, DJ Tejas set the stage on fire and made the audience to dance to the tunes of Bollywood songs.

Here are some of the photos of Exodia'17

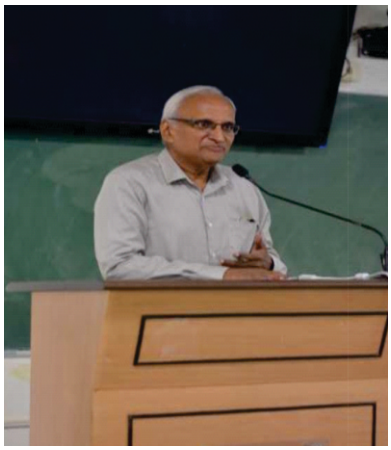
Dunes Music Festival (Performance by MrHawkk and Dual Vibes) [8th April]

Teacher's Day Celebrations

"Most of us end up with no more than five or six people who remember us. Teachers have thousands of people who remember them for the rest of their lives."

-Andy Rooney

This quote captures the immense reach of influence of teachers and profound impact of their actions in our life. Teachers are like guiding lights who help their pupil to navigate the road of life with knowledge and support. On September 05, 2017, student gymkhana organized teacher's day on behalf of IIT Mandi students to express their gratitude and love for their teachers. Event began with the address of Teaching and Learning Chair Prof.Ramesh Oruganti's address, sharing his own experiences with his teachers. Dr.Venkata Krishnan (Associate Dean) shared his thoughts and experience about the role of teachers in shaping his academic and research life.



Sahil Arora 4th year B.Tech(C.S.E) student gave an enchanting memoir of his experiences with his teachers. Quiz based on really amusing facts was conducted by Rahul Singh 3rd year B.Tech(E.E). Quiz was well received by the audience. Prof. Enakshi Bhattacharya gained the most number of chocolates in her kitty for right answers. Prof. Enakshi Bhattacharya shared with us aboutDr. S.Radhakrishnan's contribution in the field of philosophy. How he put the Indian Vedanta philosophy on the world map.

Dr. Devika Sethi came up with a nice advertisement for teaching profession. It must have won some converts in the student audience. In the cultural section of the program, fresher lightened the mood with an exhilarating musical performance. Dr. Shubhajit Roy Chowdhury mesmerized us with a melody of a Rabindra Sangeet.

At last, Prof. Timothy. A. Gonsalves, Director, IIT Mandi addressed the gathering and awarded the faculties and scholars in different categories including Teaching Assistantship awards for students. In his address, Director shared his thoughts on how the teaching and role of teacher may evolve in the future. Dr. Shyam Kumar masakapalli and Dr. Viswanath Balakrishnan received the Distinguished Teacher award for sustained performance of excellence in teaching. Distinguished New Faculty award has been awarded to Dr.Narsa Reddy and Dr. Gaurav Bhutani. Prof. Ramesh Oruganti won the Popular Teacher's award based on popular nominations.

The event was successfully organized by the student gymkhana with large number of student and faculty participation.

Aagaman 2k17

Freshers' party cum AAGAMAN was successfully organised by the second yearites on 26th August. The event started at about 5:30 pm. Started with a round of interactive events. All the events meant to open up the freshers and to encourage them towards positive interaction between them and seniors. Some of the events were Break The Balloon, Couple Dance, Ramp Walk and Face OFF. These events were really interesting and the participation from the freshers was exciting and encouraging. Even some of the second yearites participated in the events to make it even more intriguing. Also there were n number of prizes given away among the freshers and also titles like MR./Miss Fresher were also given. Snacks and dinner was also arranged for the freshers. To cap off the wonderful night there was also a DJ party and both the seniors and juniors set the stage on fire and danced their heels off. The party ended at about 10 pm.

The anti-ragging team and the GCS members were present to prevent any mishappening. In all the event was a success and the motive to break the ice between the seniors and juniors was certainly fulfilled. The magnitude of the event was such that it will surely set a precedence for all the upcoming events in the campus.

Independence Day Celebrations

The 71st Independence Day was celebrated at IIT Mandi. The event started with hoisting of flag by Prof. Timothy A. Gonsalves, Director, IIT Mandi. It was followed by, the guard of honour by the security staff and pledge ceremony by all, which was led by Mr. Sushil Kumar, Registrar IIT Mandi.

Afterwards, Director addressed the gatherings by explaining about the emphasis of “Swaraj and Kranti” which was laid by Gandhiji. He also enlightened with the constrains of self reliance, self rule and self restrain which is very much applicable in the present day.

Cultural program was presented by Mind Tree School and IIT Mandi, where various colorful performances were performed by school children, IIT Mandi faculties, staffs and students

Republic Day Celebrations

The 69th Republic Day was celebrated at IIT Mandi on 26th January, 2018. Prof. B. D. Chaudhary, Director I/c hoisted the National Flag. While addressing the gathering he expressed gratitude for the leaders who defined nation for the long journey.

Urge everyone to contribute to institute value system for academic recognition, commit ourselves today to contribute and bear the responsibility to define long journey of our institute. Touched new paradigms, quantify the goals of our experiments.

Foundation Day Celebrations

IIT Mandi celebrated its 9th Foundation Day on 24 February 2018 at its permanent campus at Kamand. Prof. Bringi Dev, Professor of Management Practice at IIM Bangalore, was the Chief Guest at the function, and Prof. Hema Sharda, formerly Winthrop Professor at the University of Western Australia was the guest of honour. On the occasion, the Director of IIT Mandi, Prof. Timothy A. Gonsalves, welcomed dignitaries, faculty, staff, and students. The dignitaries included Prof. B. D. Chaudhary (Emeritus Professor and Dean Academics), Prof. Ramesh Oruganti (Emeritus Professor and Chairman of the Teaching and Learning Committee of IIT Mandi), and Prof. Deepak Khemani (Dean Faculty and Professor on Deputation from IIT Madras).

Students from six primary schools participating in a race competition at the football ground, IIT Mandi, Kamand campus.

The day also saw the distribution of awards to students for contributing to the campus community, to staff members for diligent performance of their duties, and to faculty for their achievements. Additionally, Mrs. Hema Oruganti handed out sports and art awards to students from six primary schools (including the campus school and four government schools in the neighboring areas of Kamand), who had participated in sports and arts competitions. IIT Mandi has excellent sporting arenas and facilities, and several events were organized to emphasize and highlight sporting prowess. Cross-country runs and a tug-of-war witnessed the enthusiastic participation of faculty, staff and students.

Research Affairs Society

Talk by ACM Chapter

The ACM Chapter IIT Mandi organized a special talk on the topic "Software Engineering in Science" on Monday (May 1, 2017) @7:30pm, in A1-NKN. The major emphasis of the talk was on the integrated nature of Science and Technology and the role of software developers in scientific research-based applications. The talk also featured special section on women in coding and in STEM (Science, Technology, Engineering and Mathematics) areas and how to increase and maintain equal representation.

About 50 students attended the talk, along with Dr. Sriram Kailasam. The talk lasted be 70 minutes with the time for Q/A and high tea was served after the event.

Career and Placement Cell

Career and Placement Cell organized the following career counseling sessions through out the year .

1. **Webinar on quantitative trading algorithms on 28th August 2017.** The workshop agenda were to give a brief introduction to qauantics, Quant finance and developing a trading algorithm with Quantinator.

   Speaker: Mr. Aditya Ranganath (Quantiacs, San Francisco)

2. **Smart training for Final year students- GD-PI Assessments at IIT Mandi on 14th and 15th October, 2017.**

Students trained on following parameters

- English Communication skills.
- Understanding of the topic given
- Skills to handle a GD
- Ability to actively listen
- Team spirit
- Time management
- Leadership skills
- Tone of voice
- Rate of speech

Speaker: Mr.Joshua Gnanakkan(Smart Training resources India Pvt Ltd)

3. **Information session by Robert Bosch officials on 8th November, 2017.** Robert Bosch

Research and Technology Center, Bangalore officials visited IIT Mandi for an interactive and informative session. This session provided information about career and placement opportunities at Robert Bosch.

Speaker: Robert Bosch Officials

4. **Interactive session of students with IBM, Research lab official on 29th October, 2017.** During this interaction students got an idea about various career opportunities available at IBM, Research lab.

   Speaker: Dr. Rashmi Mittal, IBM research lab

5. **Interactive session with the students of IIT Mandi on 17th November to discuss about Internship and Career opportunities .**

   Speaker: Dr. Varun Dutt & Dr. Sunny Zafar(Faculty advisers, CnPcell)

6. **Information session with PG Students to discuss about various career options after PG on 4th December 2017.**

   Speaker: Dr. Varun Dutt (Faculty Adviser, CnP cell)

7. **Unity Development Workshop on 17th February by Internet Academy.** This workshop helped students to understand today's market requirements and know-hows about Unity development into the brains of all attendees and turn them to project-ready developers who are really in demand in today's market. This workshop conducted by a specialized Unity trainer invited from Internet Business Japan Co., Ltd. They are one of the world's first Unity official training centres as well as delivering VR-based products to their clients around the world.

   Speaker: Yusuke Eric Matsumura, Senior Project Manager, Internet Academy

8. **Advanced Javascript Workshop on 18th Febrauary by Internet Academy.**

   This workshop aimed at transforming students into in-demand JavaScript developers. All today's major topics in JavaScript development projects were covered in the workshop. This workshop conducted by a specialized JavaScript trainer invited from Internet Business Japan Co., Ltd. They are one of the world's first web development training centers established in Tokyo, Japan in 1995.

   Speaker: Mr. Rakesh Kumar, Internet Academy

9. **A talk on 23rd February by Prof. Sharada to discuss about career opportunities in India and Australia.** The session aimed at providing more information about education opportunities and scholarships available in Australia.

   Speaker: Prof. Sharada, MIEEE FIEAust Formerly, Winthrop Professor and Director South Asia Relations, UWA, Australia.

10. **Scholarship Test for Summer Training on IBM Project conducted by Aman Bakshi, All soft solutions, held on 7th March.**

11. **Workshop on communication and writing skill by Mr. Parvesh Chandel on 24th March, 2018.**

    Speaker: Mr. Parvesh Chandel is a writer, poet and speaker. He is Bestselling Author of “Stir my heart... Still my soul” and The Tale of Black and White. He has been delivered lectures in various forum. He is a CEO of Omsul publishers. He is awarded by Sahithya academic.

Alumni Affairs

Graduation Dinner for the Fifth Batch of IIT Mandi Students, 21th May, 2017

Sunday the 21st, IIT Mandi hosted their graduation dinner, in Community Centre, North Campus, for all the batches passing out this year. In all, 150 students would be graduating out of which 117 are regular B.tech students, 8 PhD, 3 MS, 18 MSc and 4 are MTech students.

The event was kick started with group photographs being taken with all the student, faculty from all the branches, Dean (Students) and Director, Prof. Timothy A. Gonsalves. The session was followed by welcome note Dr. Suman Kalyan Pal, Dean Students. Followed by speeches from Faculty Advisors and students of respective branches. The drive down the memory lane made many laugh and a few teary, but mostly all wanting to relive their years spent in the campus, all over again.

Finally the Director IIT Mandi, Prof. Timothy A. Gonsalves extended his heartiest congratulations to all the students graduating and he asked each one of the students to maintain long lasting relationships with the institute for future endeavors.

The eventful evening ended with sumptuous dinner served for all attending the event.

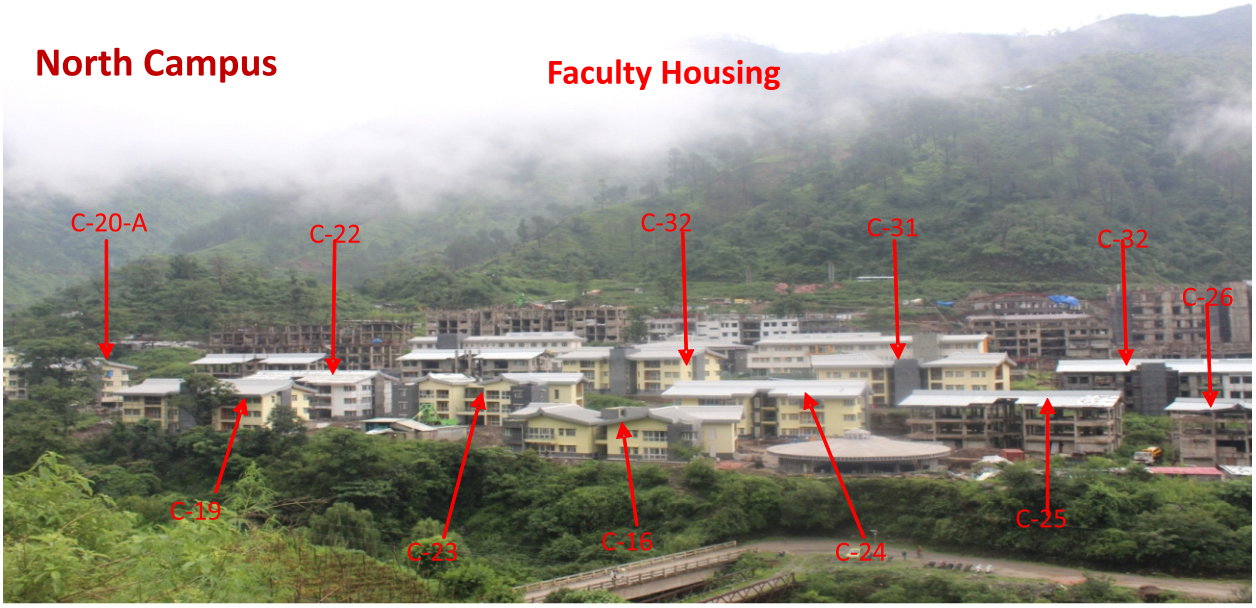
Graduating batch of 2017

The Director unveiling the memento

OUR PERMANENT CAMPUS AT KAMAND

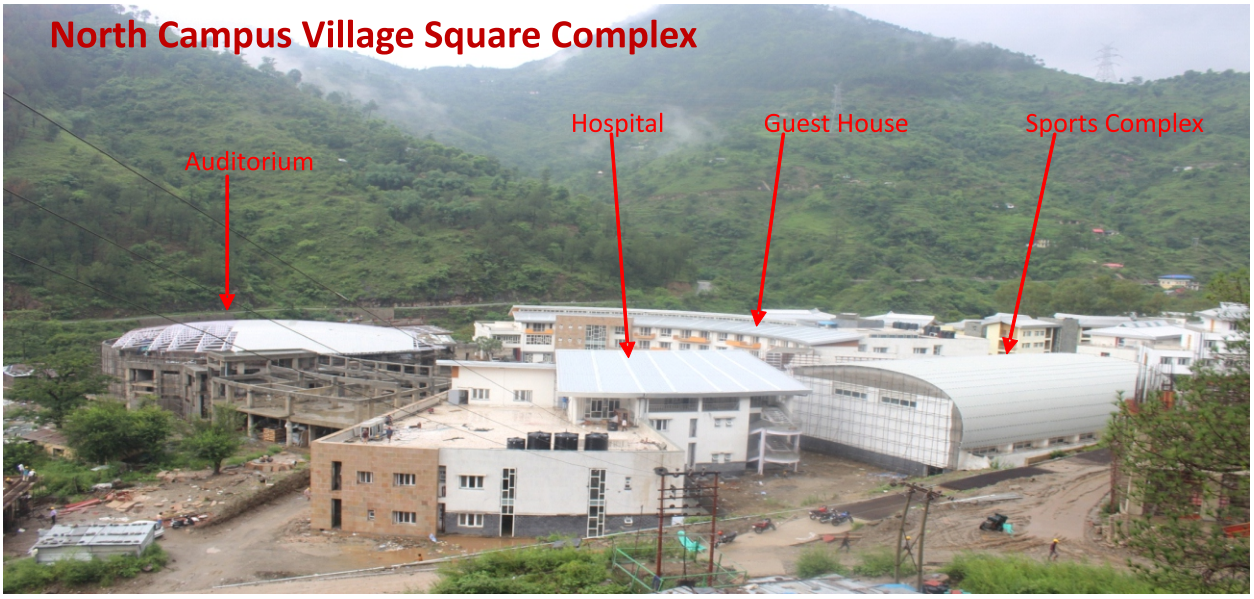
The construction work for permanent campus of IIT Mandi South Campus was started from April, 2012. At present South Campus of IIT Mandi is complete having Academic facilities, hostels, Dining blocks, Faculty housing, playground, recreation facilities for both undergraduate as well as post graduate students.

Residential/Non-residential buildings were planned for North Campus having hostel accommodation for 1400 students, 138 3BHK Faculty housing, Academic blocks, main/satellite library besides village square buildings having Guest House, Sports Complex, Hospital & Auditorium of 800 seater capacity.



Eight Hostel blocks, Dining Hall, one Academic building, 44-3BHK flats stands completed in North Campus and rest of hostels block/faculty housing flats are likely to be completed by Dec. 2018.

Village square buildings are fast coming up. 88 rooms Guest House is complete and functional, Sports Complex block, Hospital building is almost complete and Auditorium is likely to be completed by Dec. 2018.



Board of Governors

Chairperson (Ex-officio)
Shri Subodh Bhargava
Former Chairman, TATA Communications Limited
Villa 69, the Palm Springs
Golf Course Road, Sector – 54
Gurgaon – 122 002, Haryana

Members

Prof. Timothy A Gonsalves
Director, IIT Mandi (Ex-officio)
Indian Institute of Technology Mandi
Mandi – 175 001 (H.P.)

Chief Secretary/ Secretary (TE)
Government of Himachal Pradesh
Shimla – 171 002

Chief Secretary/ Secretary (HE)
Government of Jammu & Kashmir
Srinagar – 190 001

Prof. S. C. Sahasrabudhe
Former Director
Dhirubhai Ambani Institute of Information and Communication Technology (DAIICT)
Gandinagar – 382 007

Prof. (Mrs.) Basabi Bhaumik
Dept. of Electrical Engineering
Indian Institute of Technology Delhi
Hauz Khas, New Delhi-110 016

Mr. Satish K. Kaura
CMD, Samtel Group
6th Floor, 7 TDI Centre
District Centre, Jasola
New Delhi – 110 025

Prof. Subrata Ray
Distinguished Visiting Professor
School of Engineering
Indian Institute of Technology Mandi
Mandi – 175 005(H.P.)

Shri Raj P. Khilnani
Former DG, Anti-Corruption Bureau
1001, Cello Nyati Wind Chimes
Underi, Pune – 411 060

Dr. Pradeep C. Parameswaran
Associate Professor
School of Basic Sciences
Indian Institute of Technology Mandi
Mandi – 175 005(H.P.)

Secretary
Dr. Vishal Singh Chauhan
Shri Sushil Kumar (during 17.07.2017 to 15.12.2017)
Registrar/Registrar I/c (Ex-officio)
Indian Institute of Technology Mandi
Mandi – 175 005(H.P.)

**During this year meetings of the Board of Governor were held on 23.05.2017, 07.10.2017, 16.02.2018.*

Finance Committee

Chairperson (Ex-officio)
Shri Subodh Bhargava
Former Chairman, TATA Communications Limited
Villa 69, the Palm Springs
Golf Course Road, Sector – 54
Gurgaon – 122 002, Haryana

Members

Prof. Timothy A Gonsalves
Director, IIT Mandi (Ex-officio)
Indian Institute of Technology Mandi
Mandi – 175 001, (H.P.)

Bureau Head (Technical Education)
Addl. Secretary (HE)
MHRD
Shastri Bhawan
New Delhi – 110 016

Finance Advisor
MHRD
Shastri Bhawan
New Delhi – 110 001

Prof. S. C. Sahasrabudhe
Former Director
Dhirubhai Ambani Institute of Information and Communication Technology (DAIICT)
6B, Anjaneya, Orchard Avenue
Near Hiranandani School
Powai, Mumbai – 400 076

Prof. P. Sriram
Professor & Head
Dept. of Aerospace Engineering
Indian Institute of Technology Madras
Chennai - 600 036

Dean (F & A) (Ex-officio)
Indian Institute of Technology Mandi
Kamand – 175 005,(H.P.)

Secretary
Dr. Vishal Singh Chauhan
Shri Sushil Kumar
(during 17.07.2017 to 15.12.2017)
Registrar/ Registrar I/c (Ex-officio)
Indian Institute of Technology Mandi
Kamand – 175 005, (H.P.)

**During this year meetings of the Finance Committee were held on 23.05.2017 and 16.02.2018.*

Building & Works Committee

Chairman(Ex-officio)
Prof. Timothy A. Gonsalves
Director
Indian Institute of Technology Mandi
Kamand – 175 005, (H.P.)

Dean (I&S) (Ex-officio)
Indian Institute of Technology Mandi
Kamand – 175 005, Himachal Pradesh

Member

Prof. B. Bhattacharjee
Professor
Department of Civil Engineering
IIT Delhi

Er. A. K. Jain
Senior Consultant, IIT Mandi &
Special DG, CPWD (retired)
Mandi - 175005, Himachal Pradesh

Er. Niranjan Singh
Chief Engineer (Civil), CPWD (retired)
A-3/202, Nirmal Chhaya Towers
V.I.P Road, Zirakpur
Distt. SAS Nagar, Mohali (PB)- 140 603

The Institute Engineer (Ex-officio)
Member Secretary (from 12-02-2018)
Superintending Engineer
Indian Institute of Technology Mandi
Kamand Campus, VPO Kamand
Distt. Mandi – 175 005, (H. P)

Prof. R. L. Sharma (upto 31.12.2017)
Vice Chancellor
Himachal Pradesh Technical University
Hamirpur, (H.P.)

Er. Udayan Ukhal (upto 31.12.2017)
Dy. General Manager
Himachal Pradesh Power Corporation Ltd.
BBMB Colony, Sunder Nagar - 174402

Mr. K. N. Rai (upto 31.12.2017)
Former Chief Executive Civil Works
DRDO, C-4, 4112
Vasant Kunj, New Delhi

Prof. Sunil R. Kale (upto 31.12.2017)
Professor
Dept. of Mechanical Engineering
Indian Institute of Technology Delhi
New Delhi – 110026

Prof. S. R. Gandhi (upto 31.12.2017)
Director
Sardar Vallabhbhai National Institute of Technology
Surat, Gujarat – 395 007

Secretary

Dr. Vishal Singh Chauhan (upto 31.12.2017)
Shri Sushil Kumar (during 17.07.2017 to 15.12.2017)
Registrar/Registrar I/c (Ex-officio)
Indian Institute of Technology Mandi
Kamand – 175 005, (H. P.)

**During this year meetings of the B & W Committee were held on 22.05.2017 and 16.02.2018.*

Senate

Chairman

Prof. T. A. Gonsalves, Director, IIT Mandi (Ex- officio)

Institute Member

Prof. B.D. Chaudhary, Emeritus Professor & Dean (Academics), SCEE, IIT Mandi

Prof. Ramesh Oruganti, Emeritus Professor, SCEE, IIT Mandi

Prof. Kenneth E. Gonsalves, Distinguished Visiting Professor, SBS, IIT Mandi

Dr. Bharat S. Rajpurohit, Asso. Prof. & Dean (Faculty) (from 01.04.2016 to 21.03.2017), SCEE, IIT Mandi

Prof. Deepak Khemani, Prof.(on Deputation) & Dean (Faculty) (from 22.03.2017), SCEE, IIT Mandi

Dr. Suman Kalyan Pal, Associate Professor & Dean (Students), SBS, IIT Mandi

Dr. Subrata Ghosh, Associate Professor & Dean (I&S), SBS, IIT Mandi

Dr. Prem Felix Siril, Associate Professor & Dean (SRIC), SBS, IIT Mandi

Dr. Vishal Singh Chauhan, Assistant Professor & Dean (F&A) I/c, SE, IIT Mandi

Prof. B. Subramanian, Visiting Faculty, SHSS IIT Mandi

Prof. Subrata Ray, Distinguished Visiting Professor, SE IIT Mandi

Prof. Bhavender Paul Sharma, Adjunct Professor, SHSS IIT Mandi

Dr. Anil K. Sao, Associate Professor & Chairperson (from 01.04.2016 to 21.03.2017), SCEE, IIT Mandi

Dr. Bharat Singh Rajpurohit, Associate Professor & Chairperson (from 22.03.2017), SCEE, IIT Mandi

Dr. Prasanth P. Jose, Assistant Professor & Chairperson, SBS, IIT Mandi

Dr. Rajeev Kumar, Associate Professor & Chairperson, SE, IIT Mandi

Dr. Rajeshwari Dutt, Assistant Professor & Chairperson, SHSS, IIT Mandi

Dr. Venkata Krishnan, Co-ordinator, AMRC, IIT Mandi

Dr. Tulika P. Srivastava, Co-ordinator, BioX Centre, IIT Mandi

Dr. Satinder K. Sharma, Co-ordinator, C4DFED, IIT Mandi

Dr. Pradeep Parameswaran, Associate Dean (Course), IIT Mandi

Dr. Venkata Krishnan, Associate Dean (Research), IIT Mandi

Dr. Samar Agnihotri, Associate Dean (SRIC), IIT Mandi

Dr. Varun Dutt, Associate Dean (International Relations), IIT Mandi

Dr. Tulika P. Srivastava, Associate Dean (Recruitment), IIT Mandi

Dr. Vishal Singh Chauhan, Associate Dean (Finance and Accounts), IIT Mandi

Mr. Naresh Singh Bhandari, Deputy Librarian, IIT Mandi

Dr. Astrid Kiehn, Chair Library Advisory Committee (LAC), IIT Mandi

Dr. Varun Dutt, Chief Warden, IIT Mandi

Dr. Arnav Bhavsar Vinayak (SAP Advisor) IIT Mandi

Dr. Dileep A. D. (CIG- CSE), IIT Mandi

Dr. Dhiraj V. Patil (CIG- ME), IIT Mandi

Dr. Deepak Swami (CIG- CE), IIT Mandi

Dr. Rahul Vaish, Associate Professor, SE, IIT Mandi
Dr. Viswanath Balakrishnan, Assistant Professor, SE, IIT Mandi
Dr. Kaustav Sarkar, Assistant Professor, SE, IIT Mandi
Dr. Manoj Thakur, Assistant Professor, SBS, IIT Mandi
Dr. Shyam Kumar Masakapalli, Assistant Professor, SBS, IIT Mandi
Dr. Devika Sethi, Assistant Professor, SHSS, IIT Mandi
Dr. Suman Sigroha, Assistant Professor, SHSS, IIT Mandi
Shri Mohammad Shakeel, Secretary, OSD & Registrar (Ex-officio), IIT Mandi
Mr. Ajay, Student Research Affairs Secretary, IIT Mandi
Mr. Ravi Kumar, Student General Secretary, IIT Mandi
Mr. Paawan Mukker, Student Academic Affairs Secretary, IIT Mandi

Outside Members

Prof. Sunil R. Kale
Professor
Deptt. of Mechanical Engg., IIT Delhi

Prof. Rowena Robinson
Professor, SHSS, IIT Bombay

Prof. N. Sathyamurthy
Honorary Professor
Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), Bengaluru

**During this year meetings of the Senate were held on 15.06.2017, 04.10.2017, 19.02.2018.*

Academic Officials as on 31.03.2018

Prof. Timothy A. Gonsalves
Director

Deans

Prof. B. D. Chaudhary
Dean (Academics)

Prof. Deepak Khemani
Dean (Faculty)

Dr. Subrata Ghosh
Dean (Infrastructure and Services)

Dr. Vishal Singh Chauhan
Dean (Finance & Accounts) I/c

Dr. Suman Kalyan Pal
Dean (Students)

Dr. Prem Felix Siril
Dean (SRIC)

Associate Deans

Dr. Pradeep Parameswaran
Associate Dean (Courses)

Dr. Vishal Singh Chauhan
Associate Dean (Finance & Accounts)

Dr. Samar Agnihotri
Associate Dean (SRIC)

Dr. Varun Dutt
Associate Dean (International Relations)

Dr. Venkata Krishnan
Associate Dean (Research)

Dr.Tulika P. Srivastava
Associate Dean (Recruitment)

Chairpersons

Dr. Bharat Singh Rajpurohit
School of Computing and Electrical Engineering

Dr. Prasanth P. Jose (upto 19.12.2017)
School of Basic Sciences

Dr. Syed Abbas
School of Basic Sciences

Dr. Rajeev Kumar
School of Engineering

Dr. Rajeshwari Dutt
School of Humanities and Social Sciences

Administrative Officials as on 31.03.2018

Dr. Vishal Singh Chauhan
Registrar I/c
(during 25.05.2017 to 16.07.2017 &
16.12.2017 to till date)

Mr. Sushil Kumar
Registrar
(during 17.07.2017 to 15.12.2017)

Mr. Mohammad Shakeel
OSD & Registrar I/c (upto 24.05.2017)

Mr. Naresh Singh Bhandari
Deputy Librarian

Mr. C. L. Sharma
Assistant Registrar
(Audit &Accounts)

Mr. Suresh Kumar Rohilla
Assistant Registrar (Academic) (From
02.05.2017 to till date)

Mr. Vivek Tiwari
Assistant Registrar (Academic) (upto
01.05.2017)

Dr. Chander Singh
Medical Officer

Dr. Neha Sood
Medical Officer

Mr. Hardeep Singh
Security Officer

Mr. Sudhir Kumar Gurang
Security Officer (upto 26.02.2018)

Er. Sunil Kapoor
Superintending Engineer

Mr. J. R. Sharma
Finance & Accounts Officer

Mr. Vivek Tiwari
Assistant Registrar (Admin)
(From 02.05.2017 to till date)

Mr. Suresh Kumar Rohilla
Assistant Registrar (Admin) (upto 01.05.2017)

Mr. Parminder Jit Singh
Assistant Registrar (S&P)

Col. Devang Naik (Retd.)
Manager (I&S)

Dr. Shib Nath Jha
Principal Sports Officer

List of Regular Employees as on 31/03/2018

S. No.	Name	Designation
Group 'A'		
1	Mr. Naresh Singh Bhandari	Deputy Librarian
2	Mr. Suresh Kumar Rohilla	Assistant Registrar (Academics)
3	Mr. Vivek Tiwari	Assistant Registrar (Administration)
4	Mr. Parminder Jit Singh	Assistant Registrar (S&P)
5	Dr. Chander Singh	Medical Officer
Group 'B'		
6	Ms. Monika Kashyap	Superintendent
7	Mr. Vinod Kumar	Sr. Library Information Assistant
8	Er. Neeraj Chauhan	Jr. Engineer (Electrical)
9	Dr. Khushi Ram Bhagat	Physical Training Instructor
10	Ms. Chandan Sharma	Superintendent
11	Mr. Abhijeet Tiwari	Sr. Library Information Assistant
12	Mr. Anuj Kumar Dubey	Superintendent
13	Mr. Hardeep Singh	Security Officer
14	Mr. Puneet Kumar	AE(Civil)
15	Ms. Sonali Malhotra	Sr. Library Information Assistant
Group 'C'		
16	Mr. Ramesh Kumar	Sr. Accountant
17	Ms. Suchetna Shachi	Sr. Assistant
18	Ms. Sushma Kumari	Sr. Assistant
19	Mr. Sunil	Sr. Assistant
20	Mr. Sushil kumar Pal	Sr. Assistant
21	Mr. Amit Sharma	Sr. Lab Assistant
22	Mr. Lalit Kumar	Sr. Lab Assistant
23	Mr. Pawan Kumar	Sr. Accountant
24	Mr. Ankush Kapil	Sr. Lab Assistant
25	Mr. Aditya	Jr.Assistant
26	Mr. Prakash Singh Negi	Jr.Assistant
27	Mr. Sujeet Swami	Jr.Assistant
28	Mr. Desh Raj	Jr. Lab Assistant
29	Mr. Dinesh Thakur	Jr. Lab Assistant
30	Mr. Tarun Verma	Jr. Lab Assistant
31	Mr. Manoj Kumar	Junior Attendant

List of Contract Employees (on Consolidated Emoluments) as on 31/03/2018

S. No.	Name	Designation
1	Mr. J.R. Sharma	Finance & Accounts Officer
2	Mr. C.L. Sharma	Asstt. Registrar (Audit &Accounts)
3	Mr. R.S.Raghav	Technical Superintendent
4	Ms. Lishma Anand	Counsellor
5	Er. Anil Kumar Jain	Sr. Consultant (part time)
6	Mr. Daulat Ram	Field Supervisor
7	Sh. Pavin S. Samuel	Deputy Administrator (Students)
8	Dr. Shib Nath Jha	Principal Sports Officer
9	Col. Devang Naik (Retd.)	Manager (I&S)
10	Mr. Om Shankar Dwivedi	Deputy Manager (Office Automation)
11	Dr. Neha Sood	Medical Oficer
12	Mr. Mandheer Bali	JE (Civil)
13	Mr. Vikas Kumar Chaudhary	AE (Civil)
14	Ms. Debashrita Roy Chowdhury	Web- Content Developer
15	Ms. Nimisha N. B.	Carrer & Placement Executive
16	Mr. Deen Dyal	JE (Civil)
17	Dr. Twinkle Sood	Medical Officer
18	Dr. Mridu Thakur	Medical Officer
19	Mr. Kaul Singh	Physical Training Instrucor

List of Deputation/Foreign Service Employees as on 31/03/2018

S. No.	Name	Designation
1	Er. Sunil Kapoor	Superintending Engineer
2	Mr. Hemant Kumar	AE (Electrical)

Student Leadership - 2017-18

Rakde Anurag Keshav	General Secretary
Kanikaram Sai Sandeep	Cultural Secretary
Akash Dagar	Sports Secretary
Kushagra Singhal	Technical Secretary
V. Sai Subba Rao	Literary Secretary
Amod Kumar Choudhary	Hostel Affairs Secretary
J. Raghunath	Academic Secretary
Ms. Manushree	Research Secretary

Students Admitted in the Institute During the Year 2017-18

PH.D. SCHOLARS – 2017 BATCH

SR. NO.	ROLL NO.	NAME	SCHOOL
1	D17001	Mohammad Amir	SE
2	D17002	Mohammad Kamran	SE
3	D17003	Ajeet Rai	SE
4	D17004	Ashish Kumar	SE
5	D17005	Tarun Semwal	SE
6	D17006	Ahmed Raza	SE
7	D17007	Smriti Sharma	SE
8	D17009	MahakMahajan	SHSS
9	D17010	Nupur Bandyopadhyay	SHSS
10	D17011	Diksha Thakur	SBS
11	D17012	Aranya Kar	SBS
12	D17013	Jaskirat Singh Brar	SBS
13	D17014	Yogesh Pant	SBS
14	D17015	Ritwik Ghosh	SCEE
15	D17016	Kshitij Shakya	SCEE
16	D17017	Sachin Chauhan	SCEE
17	D17018	Chaurasiya Rohit	SCEE
18	D17019	Vishvendra Pratap	SE
19	D17020	Muneeswaran P	SCEE
20	D17021	Muralikrishna. H	SCEE
21	D17022	Awanish Kumar	SCEE
22	D17023	Ankita Deo	SCEE
23	D17024	Joe Johnson	SCEE
24	D17025	Sukesh Kumar Das	SCEE
25	D17026	Shivam Gujral	SCEE
26	D17027	Prachi Gupta	SCEE
27	D17028	Sumit Choudhary	SCEE
28	D17029	Anuj Verma	SCEE
29	D17030	Deepsikha Panda	SCEE
30	D17031	Dalchand Ahirwar	SCEE
31	D17032	Ravinder Kaushik	SBS
32	D17033	Astha Singh	SBS
33	D17034	Iswar Chandra Mondal	SBS
34	D17035	Bidisha Biswas	SBS
35	D17036	Bhuvan Upadhyay	SBS
36	D17037	Shamim SK	SBS
37	D17038	Gurpreet Kaur	SBS
38	D17039	Sonu Chhillar	SBS

39	D17040	Raktim Bhattacharya	SBS
40	D17041	Abhishek Tripathi	SBS
41	D17042	Shubhangi Dwivedi	SBS
42	D17043	Aditya Yadav	SBS
43	D17044	Pawan Kumar Mandal	SBS
44	D17045	Kartik Sahoo	SBS
45	D17046	Krishan Kumar	SBS
46	D17047	Prasanth Saini	SE
47	D17048	Gurpreet Singh	SE
48	D17049	Vikram Singh Chandel	SE
49	D17050	Yati Aggarwal	SE
50	D17051	Sahil Sharma	SE
51	D17052	Saurav Sharma	SE
52	D17053	Ankur Garg	SE
53	D17054	Hemant Thakur	SE
54	D17055	Bhupinder Singh	SE
55	D17056	Mir Khursheed Alam	SHSS
56	D17057	Papari Saikia	SHSS
57	D17058	Navdeep Kaur	SHSS
58	D17059	Keshav Bhardwaj	SBS
59	D17060	Kumar Udit Saumya	SBS
60	D17061	Farhan Anjum	SBS
61	D17062	Shatabisha Bhattacharjee	SBS

MS SCHOLARS

SR. NO.	ROLL NO.	NAME	SCHOOL
1	S17001	Naman Agarwal	SE
2	S17002	Hitesh Kumar	SE
3	S17003	Chandni	SE
4	S17005	Aijaz Hamid Lone	SCEE
5	S17006	Tejinder Thakur	SE
6	S17007	Praveen Kumar	SCEE
7	S17008	Soma Ghosh	SCEE
8	S17009	Bharat Vardani	SCEE
9	S17010	Deepak Mori	SE
10	S17011	Raj Kiran	SE
11	S17012	Deepak Kumar Singh	SE
12	S17013	Vikanksh Nath	SCEE

B.TECH STUDENTS - 2017 BATCH
CIVIL ENGINEERING

SR.NO.	ROLL NO.	STUDENT NAME	BRANCH
1	B17001	Aditya Mantri	CE
2	B17002	Akash Garva	CE
3	B17003	Akshat Malviya	CE
4	B17004	Akshita Jain	CE
5	B17005	Aman Kumar	CE
6	B17006	Amit Chauhan	CE
7	B17007	Ananya Shukla	CE
8	B17008	Anuradha Meena	CE
9	B17009	Arpit Singh Bhadauria	CE
10	B17010	Aryan Singh	CE
11	B17011	Divanshu Gupta	CE
12	B17012	Himanshu Baghel	CE
13	B17013	Jatin Garg	CE
14	B17014	Jatin Nimawat	CE
15	B17015	Madipelly Anurag	CE
16	B17016	Mandadi Pavan Kumar	CE
17	B17017	Mohit Prajapati	CE
18	B17018	Munesh Kumar Meena	CE
19	B17019	Nikita Yadav	CE
20	B17020	Piyush Vastupal Bafna	CE
21	B17021	Raj Kumar	CE
22	B17022	Sanjeev Singh Yadav	CE
23	B17023	Saurabh Singh	CE
24	B17024	Shikhar Kumar	CE
25	B17025	Shishir Kumar Singh	CE
26	B17026	Shivam Kumar Bairwa	CE
27	B17027	Sunil Kumar Dangi	CE
28	B17028	Tanmay Rustagi	CE
29	B17029	Utkarsh Jain	CE
30	B17030	Vikas Verma	CE

COMPUTER SCIENCE & ENGINEERING

SR.NO.	ROLL NO.	STUDENT NAME	BRANCH
1	B17031	Aashima	CSE
2	B17032	Akash Dakoor	CSE
3	B17033	Akhil Rajput	CSE
4	B17034	Aman Saxena	CSE
5	B17035	Ankit Jiganwal	CSE
6	B17036	Arnav Prasad	CSE

7	B17037	Atyant Yadav	CSE
8	B17038	Balam Nivedit Reddy	CSE
9	B17039	Deepak Kumar	CSE
10	B17040	Devesh Soni	CSE
11	B17041	Dheeraj	CSE
12	B17042	Dinbandhu Kumar Singh	CSE
13	B17043	Dipesh Kumar Gupta	CSE
14	B17044	Hitesh Kanodia	CSE
15	B17045	Jaideep Bhargava	CSE
16	B17046	Jhalak Choudhary	CSE
17	B17047	Kanika Gupta	CSE
18	B17048	Khushi Gupta	CSE
19	B17049	Navya Varakantham	CSE
20	B17050	Neeraj Kumar Sharma	CSE
21	B17051	Prajjwal Jha	CSE
22	B17052	Priya Singh	CSE
23	B17053	Purushottam Sinha	CSE
24	B17054	Roshan Sharma	CSE
25	B17055	Sachit Yadav	CSE
26	B17056	Sambhav Dusad	CSE
27	B17057	Saransh Sharma	CSE
28	B17058	Satyam Shukla	CSE
29	B17059	Saurabh Bansal	CSE
30	B17060	Saurbh	CSE
31	B17061	Sharad Shukla	CSE
32	B17062	Shreyansh Kulshreshtha	CSE
33	B17063	Siddharth Gupta	CSE
34	B17064	Suraj Kumar	CSE
35	B17065	Vaibhav Saharan	CSE
36	B17066	Vaibhav Saini	CSE
37	B17067	Varshdeep Singh Meena	CSE
38	B17068	Vinay Kumar	CSE
39	B17069	Vipul Sharma	CSE
40	B17070	Yash Khanna	CSE

ELECTRICAL ENGINEERING

SR.NO.	ROLL NO.	STUDENT NAME	BRANCH
1	B17071	Aaditya Arora	EE
2	B17072	Abhishek Bhardwaj	EE
3	B17073	Aishwarya Bhargav	EE
4	B17074	Akash Deep Batham	EE
5	B17075	Amol Agrawal	EE

6	B17076	Aniket Sahu	EE
7	B17077	Anurag	EE
8	B17078	Anvay Vipul Shah	EE
9	B17079	Arun Kumar Bairwa	EE
10	B17080	Desharaj Meena	EE
11	B17081	Dheeraj Ram	EE
12	B17082	Dhruv	EE
13	B17083	Divya Gupta	EE
14	B17084	Divyanshu Kumawat	EE
15	B17085	Gaurav Nirmal	EE
16	B17086	Hardik Aggarwal	EE
17	B17087	Kriti Mehta	EE
18	B17088	Lakshmi Naga Khyathi Chittineni	EE
19	B17089	Mahale Komal Baburao	EE
20	B17090	Mahima Choudhary	EE
21	B17091	Manpreet Singh	EE
22	B17092	Manvi Gupta	EE
23	B17093	Mayank Mittal	EE
24	B17094	Muhammed Roshan P K	EE
25	B17095	Nakul Yadav	EE
26	B17096	Namrata Malkani	EE
27	B17097	Parth Kankarwal	EE
28	B17098	Pawan	EE
29	B17099	Rishabh Dharmani	EE
30	B17100	Rohit Agarwal	EE
31	B17101	Sachin S Ranjalkar	EE
32	B17102	Shaurya Pratap Singh Tomar	EE
33	B17103	Sohan Sahariya	EE
34	B17104	Swapnil Rustagi	EE
35	B17105	Thabsheer Muhammed M K	EE
36	B17106	Tushar Tyagi	EE
37	B17107	Ujjawal	EE
38	B17108	Vaibhav Sharma	EE
39	B17110	Varun Singh	EE

MECHANICAL ENGINEERING

SR.NO.	ROLL NO.	STUDENT NAME	BRANCH
1	B17111	Aditya Nautiyal	ME
2	B17112	Ajay	ME
3	B17113	Aman Raj	ME
4	B17114	Aman Verma	ME

5	B17115	Ankit Sejwar	ME
6	B17116	Anwesh Das	ME
7	B17117	Arjun Sahdev	ME
8	B17118	Arush Saxena	ME
9	B17119	Ashu Chandelia	ME
10	B17120	Deepshikha Rana	ME
11	B17121	Gautam Asopa	ME
12	B17122	Hritik Dev	ME
13	B17124	Kuldeep Tetarwal	ME
14	B17125	Manas Deep Vishwakarma	ME
15	B17126	Manish Kumar Sharma	ME
16	B17127	Manmohan Meena	ME
17	B17128	Mayank Agrwal	ME
18	B17129	Mohit Kumar	ME
19	B17130	Nabeel Khan	ME
20	B17131	Naveen Kumar	ME
21	B17132	Nitin Mittal	ME
22	B17133	Pradeep Kumar Nag	ME
23	B17134	Prajeet Darda	ME
24	B17135	Purushottam Goel	ME
25	B17136	Rajan Kumar	ME
26	B17137	Rajesh	ME
27	B17138	Rishi Sharma	ME
28	B17139	Rohit Kumar Bhamu	ME
29	B17140	Sachin	ME
30	B17141	Shashi Kumar Fagna	ME
31	B17142	Shreya Prakash Lanjewar	ME
32	B17143	Shubham Meena	ME
33	B17144	Shubham Shah	ME
34	B17145	Swarna Bisane	ME
35	B17147	Toshendra Rustagi	ME
36	B17148	Vaishali	ME
37	B17149	Yash Paliwal	ME
38	B17150	Yuvraj Dholia	ME

M.Sc. (CHEMISTRY)

SR.NO.	ROLL NO.	STUDENT NAME
1	V17001	Gayatri Batra
2	V17002	Neeraj Soni
3	V17003	Meenu Upadhyay
4	V17004	Sakshi Tyagi

5	V17005	Ankit Kashyap
6	V17006	Mahender Singh
7	V17007	Mukesh Kumar
8	V17008	Nishkant Malkoti
9	V17009	Pankaj Kumar
10	V17010	Abhay Sharma
11	V17011	Akash Kumar
12	V17012	Vishal Thakur
13	V17013	Chetan Saini
14	V17014	Renuka Sharma
15	V17015	Jyoti Rohilla
16	V17016	Vedasrse Moutam
17	V17017	Ritu
18	V17018	Shweta Kaushal
19	V17019	Somesh Chamoli
20	V17020	Swarnim Pandey
21	V17021	Anju
22	V17022	Sourabh Kumar

M.Sc. (MATHS)

SR.NO.	ROLL NO.	STUDENT NAME
1	V17041	Kuldeep Singh
2	V17042	Deepak Kumar
3	V17043	Nikhil Raghav
4	V17044	Rishabh Saxena
5	V17045	Anil Kumar
6	V17046	Sneh
7	V17047	Jasvant Singh
8	V17048	Rakesh Kumar
9	V17049	Rajneesh Kumar
10	V17050	Ashwani
11	V17051	Archana Rani
12	V17052	Afifa Fatma
13	V17053	Vivek Kumar Yadav
14	V17054	Abhishek Garg
15	V17055	KM Ayushi Chauhan
16	V17056	Vishnu Pratap Singh Parihar

M.Sc. (PHYSICS)

SR.NO.	ROLL NO.	STUDENT NAME
1	V17081	Priya Yadav

2	V17082	Atmika Bhardwaj
3	V17083	Rajkumar Jangid
4	V17084	Amit Kumar Sharma
5	V17085	Ravi Kumar Sharma
6	V17086	Hariom Saini
7	V17087	Sumit Kant
8	V17088	Sanjeev Kumar
9	V17089	Suraj Singh
10	V17090	Radhika
11	V17091	Mayank Vashistha
12	V17092	Rahul Mittal
13	V17093	Koushal
14	V17094	Ayush Rastogi
15	V17095	Vaibhav Raj Singh Parmar
16	V17096	Mukesh Kumar
17	V17097	Deeksha Kanti

M.Tech. (ENERGY ENGINEERING/MECHANICAL ENGINEERING)

SR.NO.	ROLL NO.	STUDENT NAME
1	T17001	Divesh Bharti
2	T17002	Anand Singh
3	T17003	Saumya Pandey
4	T17004	Prince Kakran
5	T17005	Vikas Hooda
6	T17006	Dikshita Joshi
7	T17007	Apakrita Vinayak Tayade
8	T17008	Diwakar Singh
9	T17009	Tarun Kumar
10	T17010	Manuj Bhati
11	T17011	Roshan Lal
12	T17012	Ashutosh Chauhan
13	T17013	Karanveer Singh
14	T17014	Pankaj Rajendra Kale
15	T17015	Gourav Saraswat
16	T17016	Nikhil Tanaji Doiphode
17	T17017	Hani Chaudhary
18	T17018	Minhaj
19	T17019	Sandeep Yadav
20	T17020	Shashank Prabhakar
21	T17021	Aayush Trivedi

M.Tech. (ELECTRICAL ENGINEERING IN VLSI)

SR.NO.	ROLL NO.	STUDENT NAME
1	T17041	Shubham Sanjay Telgote
2	T17042	Sahil Aggarwal
3	T17043	Mohammad Suhail Illikal
4	T17044	Ashish Manchanda
5	T17045	Muneeb Sulthan P P
6	T17046	Shiv Kumar
7	T17047	Karunanidhan Pandey
8	T17048	Vartika Verma
9	T17049	Rupal Jain
10	T17050	Rahul Panwar

M.Tech. (POWER ELECTRONICS AND DRIVES)

SR.NO.	ROLL NO.	STUDENT NAME
1	T17101	Zen Bichakshyana Mohanty
2	T17102	Ritu Rai
3	T17103	Virendra Singh
4	T17104	Priyanka Tiwari
5	T17105	Gaurav Gautam
6	T17106	Diwakar Jadon
7	T17107	GitikaPandey
8	T17108	Devendra Kumar
9	T17109	Moinudeen
10	T17110	Gaddala Ravi Kumar

M.Tech. (COMMUNICATION AND SIGNAL PROCESSING)

SR.NO.	ROLL NO.	STUDENT NAME
1	T17131	Om Karwal
2	T17132	Raghav Sharma
3	T17133	Vartika Sengar
4	T17134	Vipul Aggarwal
5	T17135	Akshay Tiwari
6	T17136	Anusha Aswath
7	T17137	Anil Tiwari
8	T17138	Muhammad Ubadah
9	T17139	Sarathprasad K V
10	T17140	Chandrakant Sonawane
11	T17141	Sheldiya Niralidhanibhai
12	T17142	Suman Kumar
13	T17143	Surbhi Jain
14	T17144	Hitika Tiwari

M.Tech. (BIOTECHNOLOGY)

SR.NO.	ROLL NO.	STUDENT NAME
1	T17071	Anuma Singh
2	T17072	Priya Singh
3	T17073	Swachhatoa Ghosh
4	T17074	Sucheta Ghosh
5	T17075	Bhoomika Patel
6	T17076	Surbhi Mishra
7	T17077	Pawan Kumar Pandey
8	T17078	Urvashi Singh
9	T17079	Sandesh Kumar Patel
10	T17080	Shahida Siddiqui

I-Ph.D. (PHYSICS)

SR.NO.	ROLL NO.	STUDENT NAME
1	DI1701	Adesh Singh
2	DI1702	Vivek Kumar
3	DI1703	Anjali Jangid
4	DI1704	Nidhi Chamoli
5	DI1705	Sahil Bhabdari
6	DI1706	Keshav Kumar