Indian Institute of Technology Mandi

ANNUAL REPORT
2021-22

INDIAN INSTITUTE OF TECHNOLOGY MANDI

Kamand – 175075,
Himachal Pradesh, India

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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 individual 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 ecosystem 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 ambiance marked by overriding respect for ability and merit.

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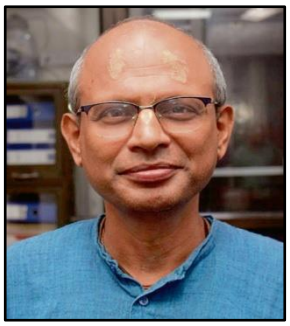
From the Director's Desk



IIT Mandi has rapidly progressed since 2009 when it began its journey. Presently, about 2000 students in various disciplines of Engineering, Sciences, Humanities, and Social Sciences are studying at IIT Mandi.

In the year 2021, the world saw an unprecedented situation due to the Covid-19 pandemic. However, the Institute continued its academic activities and achieved its targets. The teaching activities were conducted online and the students graduated on time. Our faculty received several research projects, including Covid-related research projects, and published several papers and patents this year. The anti-bacterial, self-cleaning materials developed by IIT Mandi researchers for Face Masks and PPE Equipment got appreciation from the Government of India (GOI). IIT Mandi Researchers discovered Phytochemicals in a Himalayan Plant that inhibit the COVID-19 Virus. Hon'ble Prime Minister Shri Narendra Modi reviewed Landslide Monitoring and Early Warning System developed by IIT Mandi. Further, Shri. Rajendra Arlekar, Hon'ble Governor of Himachal Pradesh visited IIT Mandi to discuss Landslide Risk Management. IIT Mandi signs MoU with District Disaster Management Authority Kangra and DDMA Mandi to deploy Landslide Monitoring and Early Warning Systems in Himachal Pradesh. Dr. Arti Kashyap was selected as one of the 75 Women in STEAM by the Office of Principal Adviser, Govt. of India. Dr. Amit Jaiswal received the INSA Medal for Young Scientists 2021. Sponsored research grants of nearly INR 17.48 crores were received in the financial year 2021-2022 from external agencies.

The last year had seen the growth of campus infrastructure. The South Campus has a fully functional infrastructure having sixty-one thousand six hundred sq m of built-up area. This campus presently provides hostel facilities for 1100 students and quarters for 54 faculty/staff members. Two hostel blocks of five hundred capacity with a dining hall, ten 2-BHK, and forty-five 3-BHK apartments have been added to this campus extending over an area of 22000 sq m completed in the current year.

On the other hand, North Campus presently has one lakh fifty-five thousand two hundred sixty sq m built-up area. The north campus houses hostel facilities for 1260 students and residential facilities for 141 faculty/staff members. The indoor Sports Complex including the swimming pool is now fully functional. This campus also has a state-of-the-art health center catering to the needs of the campus residents.

IIT Mandi has grown a strong partnership with many international universities. This involved significant mobility of faculty and students and joint research activities. Eighteen International students enrolled in Masters and Ph.D. programs at IIT Mandi. Of these, five students are from Bangladesh, seven students are from Nepal, five students are from Ethiopia and one student is from Pakistan.

IIT Mandi celebrated its 9th Convocation on 23rd October 2021, with a graduating batch of 452 students which includes 146 B.Tech. Students, 137 M.Tech. students, 99 M.Sc. students, 11 M.A. students, 14 M.S. students (by Research), and 45 Ph.D. Scholars. Padma Vibhushan Prof. Anil Kakodkar, Former Chairman of the Atomic Energy Commission of India, Former Secretary, the Government of India, and Former Director, Bhabha Atomic Research Centre, graced the occasion as the Chief Guest. Prof. Prem Vrat, Chairman, Board of Governors, IIT Mandi, presided over the Convocation. On 6th March 2022, IIT Mandi celebrated its 13th Foundation Day. Honorable Member-NITI Aayog and Chancellor, Jawaharlal Nehru University, Dr. Vijay Kumar Saraswat graced the occasion as the Chief Guest.

To take the institute to a greater height, new interdisciplinary programs are being initiated. Some of them are in the areas such as Sustainable Development, the Indian knowledge system and Robotics and Artificial Intelligence. The Institute organized a three-day workshop on Indian Knowledge System (IKS) and Mental Health from 25th to 27th March 2022 in partnership with IIT Mandi iHub and HCI Foundation. This resulted in the formation of a new center: an Indian Knowledge System and Mental Health Applications Centre (referred to as "IKSMHA Centre"). This center will be dedicated to empiric scientific research to unravel the hidden potential of Indian Knowledge Systems in various applications with special emphasis on mental health.

We sincerely seek the participation of all stakeholders including industry, academia, funding agencies and all well-wishers in this exciting journey as IIT Mandi endeavors to scale the heights.

Prof. Laxmidhar Behera
Director

1. 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 interdisciplinary learning and research that evolves in step with the march of technological innovation.

1.1 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 to foster an interdisciplinary culture and collaborative research and projects across disciplines within the Institute.

Currently, the Schools in the Institute are:

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.

School of Engineering (SE)

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

School of Basic Sciences (SBS)

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

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.

1.2 Degree Programmes

1. Bachelor of Technology (B.Tech.) in the following engineering disciplines
   a) Civil Engineering (CE)
   b) Computer Science & Engineering (CSE)
   c) Data Science and Engineering (DSE)
   d) Electrical Engineering (EE)
   e) Engineering Physics (EP)
   f) Mechanical Engineering (ME)
   g) B.Tech.-M.Tech. Integrated Dual Degree in Bio-Engineering
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 a Specialization in Energy Systems
8. M.Tech. in Materials and Energy Engineering
9. M.Tech. in Structural Engineering
10. M.Tech. in VLSI
11. M.Tech. in Power Electronics and Drives
12. M.Tech. in Communications and Signal Processing

13. M.Tech. in Computer Science and Engineering
14. M.Tech. in Fluid Thermal and Engineering
15. M.Tech. in Biotechnology
16. I-Ph.D. (Physics)
17. Master of Arts in Development Studies

1.3 Statistics of the currently enrolled students based on the Year of Enrolment, Batch, Gender and Category

Gender wise data		
Year	**Male**	**Female**
2012	1	0
2013	1	0
2014	1	2
2015	8	8
2016	34	17
2017	47	16
2018	202	60
2019	278	81
2020	447	146
2021	538	176
Total	**1557**	**506**

Year	B.Tech.						M.Sc. (Chemistry/Math/Physics)						M.Tech.					
	Gen	**OBC**	**SC**	**ST**	**EWS**	**Total**	**Gen**	**OBC**	**SC**	**ST**	**EWS**	**Total**	**Gen**	**OBC**	**SC**	**ST**	**EWS**	**Total**
2016	0	1	0	0	--	**1**	--	--	--	--	--	**0**	--	--	--	--	--	**--**
2017	0	1	0	1	--	**2**	0	1	0	0	0	**1**	0	0	0	0	0	**0**
2018	94	53	29	15	--	**191**	0	0	1	1	0	**2**	0	0	0	0	0	**0**
2019	126	72	41	17	6	**262**	0	0	0	0	0	**0**	4	0	1	0	0	**5**
2020	120	86	45	22	32	**305**	31	35	17	8	15	**106**	38	27	9	3	3	**80**
2021	114	87	45	21	32	**299**	52	37	18	10	14	**131**	72	34	8	2	17	**133**
Total	**454**	**300**	**160**	**76**	**70**	**1060**	**83**	**73**	**36**	**19**	**29**	**240**	**114**	**61**	**18**	**5**	**20**	**218**

Year	M.A.						I-Ph.D.						M.S. (by Research)					
	Gen	**OBC**	**SC**	**ST**	**EWS**	**Total**	**Gen**	**OBC**	**SC**	**ST**	**EWS**	**Total**	**Gen**	**OBC**	**SC**	**ST**	**EWS**	**Total**
2015	0	0	0	0	0	**0**	3	0	0	0	0	**3**	--	--	--	--	--	**--**
2016	0	0	0	0	--	**0**	4	0	0	0	0	**4**	--	--	--	--	--	**--**
2017	0	0	0	0	--	**0**	4	2	0	0	0	**6**	0	0	0	0	0	**0**
2018	0	0	0	0	--	**0**	0	0	0	0	0	**0**	9	2	0	0	0	**11**
2019	0	0	0	0	0	**0**	2	1	0	0	0	**3**	19	3	0	0	0	**22**
2020	6	4	2	1	0	**13**	2	1	0	0	1	**4**	7	3	0	0	3	**13**
2021	8	5	3	1	2	**19**	1	0	0	0	0	**1**	18	4	0	0	4	**26**
	14	**9**	**5**	**2**	**2**	**32**	**16**	**4**	**0**	**0**	**1**	**21**	**53**	**12**	**0**	**0**	**7**	**72**

Year	Ph.D.						Part-Time/ERP (M.S./Ph.D.)					
	Gen	**OBC**	**SC**	**ST**	**EWS**	**Total**	**Gen**	**OBC**	**SC**	**ST**	**EWS**	**Total**
2012	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**
2013	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**
2014	1	0	0	0	0	**1**	2	0	0	0	0	**2**
2015	7	5	0	0	0	**12**	1	0	0	0	0	**1**
2016	32	9	4	0	0	**45**	0	1	0	0	0	**1**
2017	35	11	4	0	0	**50**	2	1	1	0	0	**4**
2018	46	4	4	0	0	**54**	3	1	0	0	0	**4**
2019	40	15	2	2	0	**59**	8	0	0	0	0	**8**
2020	31	18	3	2	8	**62**	7	2	1	0	0	**10**
2021	63	18	6	0	12	**99**	4	0	1	0	1	**6**
	255	**81**	**23**	**4**	**20**	**383**	**28**	**5**	**3**	**0**	**1**	**37**

1.4 Research and Development Activities

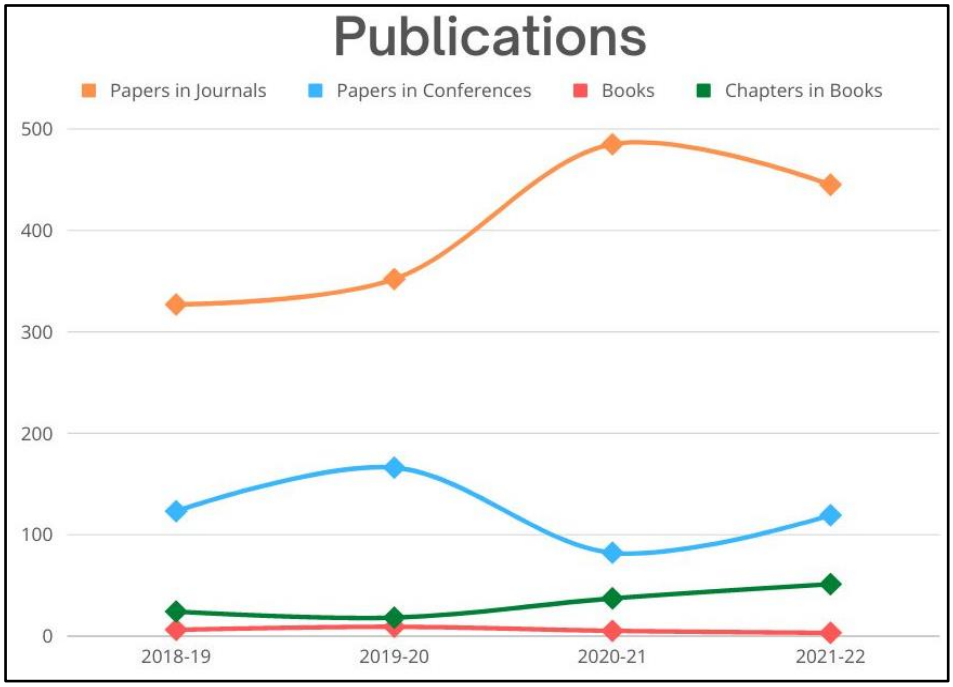
	Sponsored Projects		Consultancy Projects	
Year	**Number**	**Sanctioned Outlay (Rs. In crores)***	**Number**	**Projects Outlay (Rs. In crores)***
2021-22	43	17.48	18	1.35
2020-21	35	11.17	9	0.44
2019-20	42	10.27	8	0.95
*: includes GST for Indian parties/clients				

Table1: Information on new projects sanctioned during the last three years

Project Type	Funds received (Rs. in crores)
Sponsored Projects	**11.42**
Consultancy Projects	**0.74**
Equipment Usage	**0.46**
Total	**12.62**

Table 2: Funds received for R&D in 2021-22

1.5 Publications Data

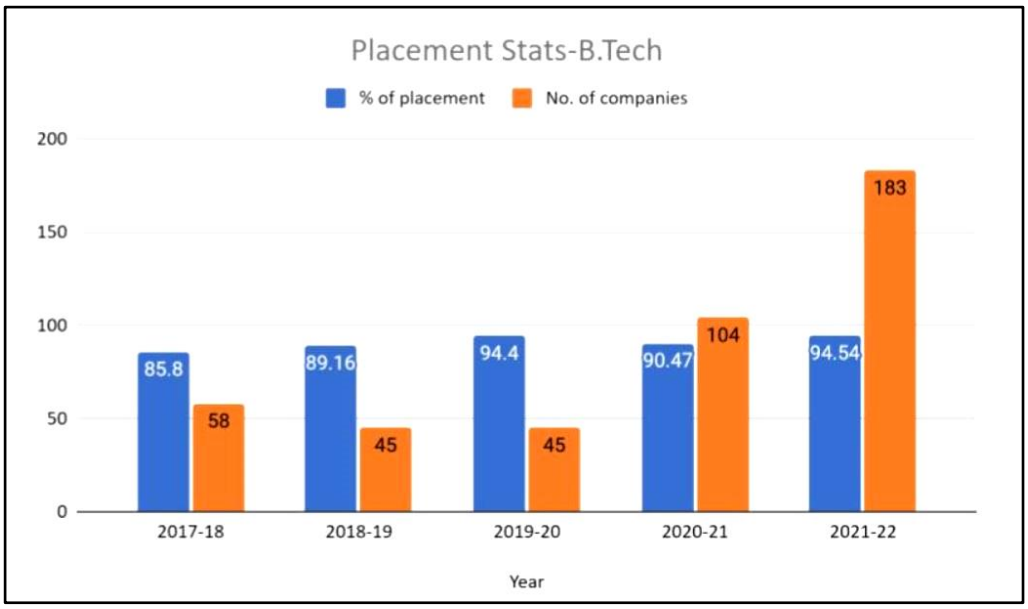


(Books and Book Chapters have tentative numbers.)

Year	Papers in Journals	Papers in Conferences	Books	Chapters in Books
2018-19	327	123	6	24
2019-20	352	166	9	18
2020-21	485	82	5	37
2021-22	445	119	3	51

	SCEE	SE	SBS	SHSS	Total 2021-22
Papers in Journals	35	137	263	10	445
Papers in Conferences	35	39	33	12	119
Books	0	0	2	1	3
Chapters in Books	9	23	17	2	51
	SCEE	**SE**	**SBS**	**SHSS**	**Total 2020-21**
Papers in Journals	66	154	245	20	485
Papers in Conferences	32	25	7	18	82
Books	0	3	0	2	5
Chapters in Books	6	20	5	6	37
	SCEE	**SE**	**SBS**	**SHSS**	**Total 2019-20**
Papers in Journals	80	119	107	46	352
Papers in Conferences	129	0	30	7	166
Books	1	0	2	6	9
Chapters in Books	3	2	6	7	18
	SCEE	**SE**	**SBS**	**SHSS**	**Total 2018-19**
Papers in Journals	70	113	119	25	327
Papers in Conferences	91	0	23	9	123
Books	6	0	0	0	6
Chapters in Books	6	4	7	7	24

Publications Data with tentative numbers



Distribution of offers in different sectors of the economy excluding PPOs

2. PROJECT-ORIENTED B.TECH. CURRICULUM

Historically, the IITs had a B.Tech. Curriculum that was aimed at training experts in each specific branch for a career in research or engineering in the branch. The curriculum had a large and strong core covering all sub-areas of the branch in depth. There was also a substantial component in basic sciences and engineering fundamentals. The courses were carefully sequenced, assuming that all students would take them in lock step with changes in society and technology, IIT Mandi has taken a fresh look at the B.Tech. Curriculum. As an Indian Institute of Technology; we must train leaders for the growth of India with a strong technology focus. The necessary and desirable characteristics of our B.Tech. graduates are:

- Self-motivated with a passion to do something useful.
- The ability to learn quickly and devise innovative solutions.
- The ability to work hard, in a focused and disciplined manner.
- A solid foundation in basic principles and substantial practical hands-on experience.
- Sufficient specific knowledge to be immediately productive.
- The ability to communicate effectively and work with others.
- With these characteristics, our graduates can be expected to make their mark, enhance IIT's reputation and recompense the nation for its investment in their education.

The foundations of all B.Techs are Facility in design and innovation; a strong understanding of common scientific and engineering principles and methods; and breadth of knowledge outside science and engineering i.e. in the humanities, social sciences and management.

Next is the core of knowledge in the student's chosen branch. This is kept to the bare minimum, with principles and techniques being learned in theory courses, labs, or practicum. Finally, we have many specialist baskets. Many of these are interdisciplinary. The boundaries in the curriculum diagram have deliberately been drawn in a vague and overlapping manner. This is to emphasize the flexibility and the inherently interdisciplinary nature of tomorrow's B.Tech. graduate.

2.1 Design Practicum

IIT Mandi has been running its unique flagship UG course named “Design Practicum (DP)” for several years. The course is offered to second-year UG students towards nurturing and developing their creative, innovative, and managerial skills in developing products useful for society. This course targets connecting technological knowledge to societal applications, like pollution (air, water & noise), sanitation, climate change, public security & safety, health, agriculture, etc. The course is also designed to create a time and resource-constrained scenario under which the students need to perform. Accordingly, interdisciplinary teams of randomly selected five to six students are nurtured by a two mentors’ group in their journey of discussing socially relevant problems, identifying probable solutions, and ultimately coming up with a product to implement the best solution. The expected learning outcomes of this program are the ability to work in interdisciplinary teams, coordination, delegation, leadership, technical learning, planning and integrity, learning by mistakes, and teamwork. The products successfully built and demonstrated in the previous years include a wall-climbing robot, fire-fighting robot, gesture-controlled 3-D hologram, automated ration vending machine, etc. Such products have huge potential to be used in public safety, security, and defence to save valuable human life.

Due to COVID-related constraints, DP couldn't be organized within the campus this year. However, the students are working with the idea and making as much progress as possible before fabricating the final products. The coordinators are planning for an in-person open house where the students can showcase their products once they return to the campus and fabricate their products.

2.2 Interactive Socio-Technical Practicum (ISTP)

IIT Mandi offers this unique interdisciplinary course curriculum to accommodate better the needs of a changing world where societal challenges require technological solutions more than before, and technology can no longer be seen as something above or outside of society. This approach focuses on building an academic culture of encouragement towards design and innovation to address today’s critical socio-economic challenges through technical pathways. A crucial course under the design and innovation stream is the Interactive Socio-Technical Practicum (ISTP), offered to

third-year B.Tech. students. IIT Mandi students and their counterparts from institute's abroad work for two months on joint technology-oriented projects with social relevance. Student teams assess specific real-world problems through extensive fieldwork and literature review. After checking the different dimensions of the problem, they propose technological solutions for the same.

Due to the COVID-19 pandemic and restrictions on the movement of people across countries, in 2020-21, 22 projects were executed successfully by 81 IIT Mandi students only under the mentorship of 20 IIT Mandi faculty members and NGO partners.

Detailed information about the modalities of the course and all project reports are available here: http://www.iitmandi.ac.in/ISTP/

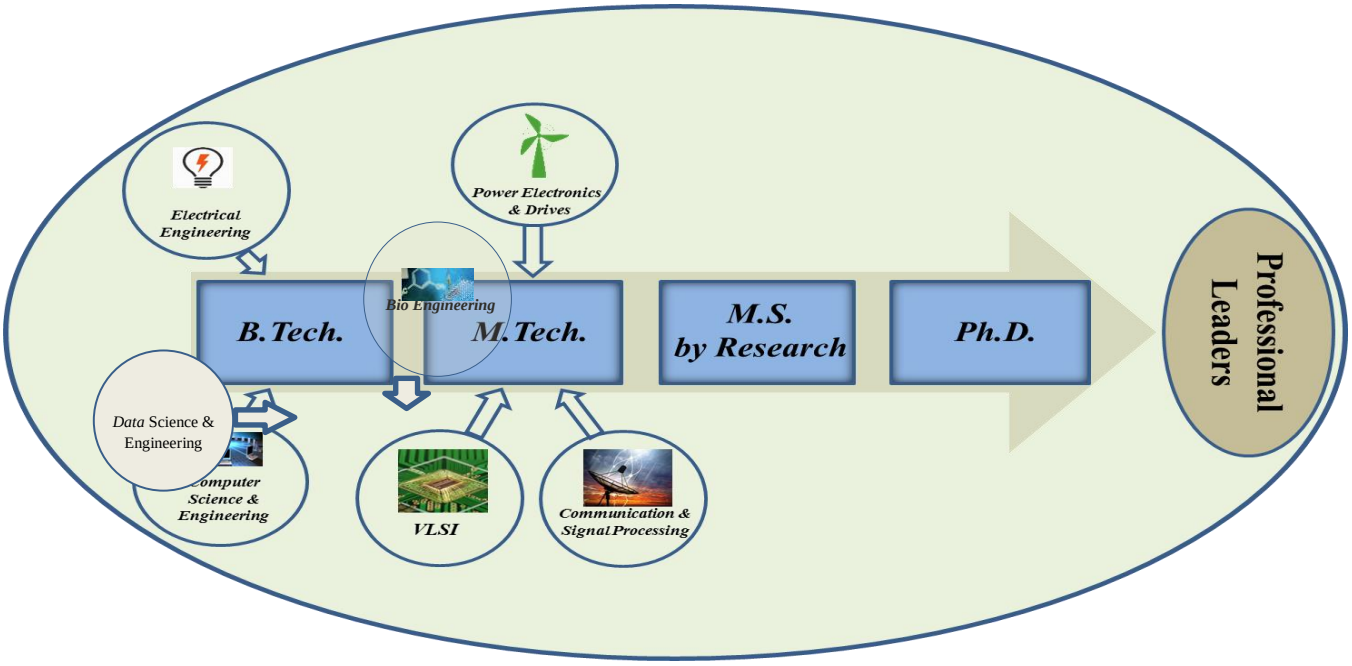
3. ACADEMIC SCHOOLS

3.1 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 35 Regular Faculty members, 7 other Faculty members, 8 Staff Members and around 80 Ph.D. Students, 141 Masters Students, and 553 B.Tech. Students. It has five broad areas namely Power Electronics & Drives, Controls & Sensors, VLSI, Signal Processing and Communications, and Computer Science & Engineering.

The School offers two UG degrees namely B.Tech. in Computer Science & Engineering, and B.Tech. in Electrical Engineering. The School is also associated with two other UG degrees namely Data Science & Engineering and a Dual degree program in Bioengineering (offered jointly with the School of Basic Sciences.) The School has four M.Tech. Program namely in Power Electronics and Drives, Signal Processing & Communications, VLSI and Computer Science & Engineering in addition to regular Ph.D. and M.Tech. by Research programs.



Degree programs offered by SCEE, IIT Mandi

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

Program	Year of start	Intake Capacity
B. Tech. (Computer Science & Engineering)	2009	70
B. Tech. (Electrical Engineering)	2009	68
B. Tech. Data Science and Engineering	2019	28
B. Tech-M.Tech. (Bio-Engineering) Dual Degree	2019	28
M. Tech. (VLSI)	2016	36
M. Tech. (Communication & Signal Processing)	2017	35
M. Tech. (Power Electronics & Drives)	2017	36
M. Tech. (Computer Science & Engineering)	2021	18
M.S. by Research	2010	As per the requirements
Ph.D.	2010	

The areas of research cover 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, artificial intelligence and applications like computer vision, speech and audio processing, medical image analysis, etc.

At the undergraduate level, the School emphasizes a hands-on learning approach by providing students with a firm foundation in both theory and practice of Computer Science and Electrical Engineering. The school also actively collaborates with other schools to expose students to the social, ethical, and inclusive dimensions of their chosen area of study, enabling them to make significant contributions to society.

The first batch of B.Tech. Students completed their graduation in 2013 and entered the world of innovation as capable engineers. At the post-graduate level, our faculty provides 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 members 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 a priority of the faculty. This aims towards the advancement of knowledge within our disciplines and also to contribute to society.

There were 35 Journal Papers, 36 Peer Reviewed Conference Papers, 9 book/book chapters and 3 patents filed in 2021-22. For more information:

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

FACULTY

S. No.	Name	Specialization & Research Interests	Photograph
1	Dr. Samar Agnihotri Chairperson http://faculty.iitmandi.ac.in/~samar/	Relay networks, Secure Communication and Computation, Distributed compression and computation	
2	Dr. Ankush Bag http://faculty.iitmandi.ac.in/~ankushbag/	Semiconductor Devices, Epitaxy and Compound Semiconductors	
3	Dr. Adarsh Patel http://faculty.iitmandi.ac.in/~adarsh/	Wireless Communications and Networks with the applications of signal processing, Game Theory, Machine Learning, Tensors, and Optimization based techniques.	
4	Dr. Aditya Nigam http://faculty.iitmandi.ac.in/~aditya/	Deep Learning, Biometrics, Computer Vision, Image Processing, Computer Vision and Machine Learning	

5	Dr. Amit Kumar Singha http://faculty.iitmandi.ac.in/~amit/	GaN-Based High-Frequency DC-DC Converters, DC-DC Converters for IoT Applications & Bifurcation Analysis of Digitally Controlled DC-DC Converter	
6	Dr. Anil K. Sao http://faculty.iitmandi.ac.in/~anil/	Medical Image Processing, Speech Processing, Microscopy Image processing, Sparse representation	
7	Dr. Arnav Bhavsar Vinayak http://faculty.iitmandi.ac.in/~arnav/	Computer Vision, Medical Image Analysis, Machine Learning, Deep Learning	
8	Dr. Arti Kashyap http://faculty.iitmandi.ac.in/~arti/	Magnetism and Magnetic Materials, Distributed database application development and big data Analytics	
9	Dr.Bharat Singh Rajpurohit http://faculty.iitmandi.ac.in/~bsr/	Renewable Energies, Power Electronics and grid integration of Renewable Energies, Power System Harmonics, Power System (Operation, Control and Analysis), Parameter Estimation of Electrical Machines	
10	Dr. Dileep A.D. http://faculty.iitmandi.ac.in/~addileep/	Pattern Recognition, Kernel Methods for Pattern Analysis, Machine Learning, Speech Technology, Computer Vision	
11	Dr. Gopi Shrikanth Reddy http://faculty.iitmandi.ac.in/~gopishrikanth/	Antenna and Wave propagation, Microwave passive components, FSS and EBG structures, Electrically Small Antenna, MIMO/Diversity Antenna, and Metamaterials.	
12	Dr. Himanshu Misra http://faculty.iitmandi.ac.in/~himanshumisra/	Electrical Drives, DFIG systems, Electric Vehicle, Renewable Energy, Power Converters	
13	Dr. Hitesh Shrimali http://faculty.iitmandi.ac.in/~hitesh/	Analog and Mixed signal VLSI design, analog-to-digital converters and design of radiation hard circuits (space application)	
14	Dr. Jinesh Machchhar http://faculty.iitmandi.ac.in/~jinesh/	Geometric modelling, Simulation, Design	

15	Dr. Kunal Ghosh http://faculty.iitmandi.ac.in/~kunal/	Silicon solar cells, Performance and reliability analysis of photovoltaic modules	
16	Dr. Manas Thakur https://manas.gitlab.io/	Program analysis, compilers, programming languages	
17	Dr. Moumita Das http://faculty.iitmandi.ac.in/~moumita/	Electric Vehicles: Power Converters and Control, Storage Aspect, Application of Wide Bandgap Devices (SiC, GaN) in Power Electronics & Use of Renewable Energy Sources for Charging of Electric Vehicles	
18	Dr. Narsa Reddy Tummuru http://faculty.iitmandi.ac.in/~tummuru/	Hybrid Energy Storage Applications in Future Microgrids, Efficient Power Electronic Interfaces in Renewable Energy Applications and Smart grid Communication Networks	
19	Dr. Padmanabhan Rajan http://faculty.iitmandi.ac.in/~padman/	Speech and audio processing, Analysis of music, Bioacoustics (analysis of natural sounds - bird calls, animal vocalizations), Machine learning and pattern recognition, especially applied to audio signals	
20	Dr. Pratim Kundu http://faculty.iitmandi.ac.in/~pratim/	Development of techniques for enhancing the reliability of power system operations using wide-area measurements to avoid cascading failures. The research focuses on developing computational algorithms to improve smart grid operations	
21	Dr. Rahul Shrestha http://faculty.iitmandi.ac.in/~rahul_shrestha/	VLSI Design and Circuits & Systems for Signal Processing and Wireless Communication.	
22	Dr. Rameshwar Pratap https://sites.google.com/site/prataprameshwaryadav/home?authuser=0	Algorithms in Data Science and Machine Learning, Theoretical Computer Science	
23	Dr. Renu M. Rameshan http://faculty.iitmandi.ac.in/~r enumr/	Image Processing, Computer vision, Ill-posed problems	
24	Dr.Satinder Sharma http://faculty.iitmandi.ac.in/~satinder/	VLSI Technology, CMOS Device Fabrication & Characterization, Advanced Lithography, Nanoelectronics	

25	Dr. Satyajit Thakor https://sites.google.com/site/satyajitthakor/	Communication Theory, Information Theory, Network Coding	
26	Dr. Shubhajit Roy Chowdhury http://faculty.iitmandi.ac.in/~src/	Biomedical Embedded Systems, Non-invasive diagnostic systems, Near Infrared Spectroscopy, VLSI Architectures	
27	Dr. Siddhartha Sarma http://faculty.iitmandi.ac.in/~siddhartha/index.html	Resource allocation in wireless networks, Wireless sensor network and IoT, Wireless energy harvesting.	
28	Dr. Sreelakshmi Manjunath http://faculty.iitmandi.ac.in/~sreelakshmi/	Communication Networks, Vehicular Networks, Control Theory, Non-linear Dynamics, Non-linear Controller Design & Time-delayed Systems	
29	Dr. Srinivasu Bodapati http://faculty.iitmandi.ac.in/~srinivasu/	VLSI Design, Nanoelectronics, Hardware security, Cryptography and FPGA-based system design	
30	Dr. Srikant Srinivasan http://faculty.iitmandi.ac.in/~srikant_srinivasan/	IoT in Outdoor Environments, Raspberry Pi Sensor Networks, Machine Learning, Data Mining, Image Processing, anoelectronics/Spintronic Device Modelling and Simulation Using Quantum and Semi-Classical Transport Techniques	
31	Dr. Srikanth Sugavanam https://www.srikanthsugavanam.com/	Fibre Lasers, Real-Time Laser Characterization Techniques	
32	Dr. Sriram Kailasam http://faculty.iitmandi.ac.in/~sriramk/	Distributed Complex Event Processing, Cloud Resource Scheduling, Scalable Algorithms for Formal Concept Analysis, Data Analytics for Scientific Data	
33	Dr. Tushar Jain http://faculty.iitmandi.ac.in/~tushar/	Control theory, fault-tolerant control, industrial process control	
34	Dr. Varun Dutt http://faculty.iitmandi.ac.in/~varun/	Artificial Intelligence, Human-Computer Interaction, Cognitive Science, Judgment and Decision Making	
35	Dr. Varunkumar Jayapaul http://faculty.iitmandi.ac.in/~varunkumar/	Algorithms and Data Structures	

List of Other Faculty Members

S. No.	Name	Specialization & Research Interests	Photograph
1	Erwin Fuhrer Visiting Faculty https://sites.google.com/iitmandi.ac.in/erwin-fuhrer/home	MRI, RF hardware, Biomedical Engineering	
2	Prof. RajanKapur Adjunct Professor President, Larankelo Ventures LLC Boulder, Colorado, USA	Renewable Energy, Industrial Electronics, Head Mounted Displays	
3	Prof. Ramesh Oruganti Adjunct Professor http://faculty.iitmandi.ac.in/~rameshо/	Power Electronics, Solar photovoltaic energy systems	
4	Prof. Timothy A. Gonsalves Emeritus Professor (Honorary) http://faculty.iitmandi.ac.in/~tag/	Computer networks and distributed software systems	
5	Prof. Yvonne Dittrich Adjunct Professor IT University Copenhagen https://www.itu.dk/~ydi/ShortCV.htm	Software Engineering	
6	Prof. Kailash Srivastava Adjunct Professor	Power Systems	
7	Dr. Astrid Kiehn Visiting Associate Professor http://faculty.iitmandi.ac.in/~astrid/	Distributed Algorithms, Verification, Theoretical Computer Science	

List of Staff Members

S.No.	Name & Designation	Designation & Qualification	Photograph
1	Nalini Singh Gill	Junior Assistant MCA	
2	Rakhi Sankhyan	Office Assistant B.Sc. (IT), MBA (HR)	

3	Maneshwar	Multi-Tasking Staff ITI (Welder Trade)	
4	Tarun Verma	Junior Lab Assistant Diploma (Electronics), B.Tech. (Electronics)	
5	Shivam	Lab Technical Assistant Diploma (Electrical), Pursuing AMIEE (Electrical)	
6	Arun Kumar	Lab Technical Assistant ITI (Electronics Trade)	
7	Taruna Kumari	Lab Technical Assistant BE & ME Pursuing	
8	Sumit Maan	Lab Technical Assistant M.Tech.	

RESEARCH 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	Duration of Project
1	Entropy region information inequalities and their applications Date of Sanction: 05.04.21 Date of Completion: 04.04.24	SERB	Dr. Satyajit Thakor (PI), Dr. Syed Abbas (Co-PI)	37,13,677	3 Years
2	An end-to-end computational pipeline for analyzing diffusion-weighted images for Indian clinical scenarios Date of Sanction: 12.08.21 Date of Completion: 11.08.24	SERB	Dr. Aditya Nigam (PI), Dr. Arnav Bhavsar (Co-PI)	36,78,400	3 Years
3	AI-Powered Healthcare Project Date of Sanction: 12.11.21 Date of Completion: 11.05.22	DST	Dr. Arnav Bhavsar	5,00,500	6 Months
4	Development of an operational monitoring system of landslides in Kinnaur district through satellite and low-cost IoT-based sensors data Date of Sanction: 01.12.21 Date of Completion: 30.11.24	DC- Kinnaur, H.P.	Dr. Varun Dutt (PI) Dr. Kala Venkata Uday (Co-PI)	56,00,000	3 years

5	Wide area backup protection using unsupervised machine learning Date of Sanction: 28.12.21 Date of Completion: 27.12.23	SERB	Dr. Pratim Kundu	23,36,090	2 years
6	Design of a Ternary Matrix Product Cell with applications to emerging device technologies Date of Sanction: 29.12.21 Date of Completion: 28.12.23	SERB	Dr. Srinivasu Bodapati	18,40,300	2 years
7	Detection scheme for MIMO cognitive ambient backscatter communication networks Date of Sanction: 30.12.21 Date of Completion: 29.12.23	SERB	Dr. Adarsh Patel	31,98,800	2 years
8	Design guidelines for incremental deployment of active queue management strategies in internet routers Date of Sanction: 24.01.22 Date of Completion: 23.01.24	SERB	Dr. Sreelakshmi PM	13,13,400	2 years
9	FIST program Date of Sanction: 03.12.21 Date of Completion: 02.12.25	DST	Prof. Satinder Kumar Sharma	92,00,000	5 years

Sponsored Consultancy Research Projects

S.No.	Proposal Title	Faculty Name	Agreement signed with	Amount	Period
1	Program Analysis for optimizing-R programs Signing Date: 31.08.20 Completion Date: 30.08.21	Dr. Manas Thakur	Mr. Mjana Kunc, Reactor Labs, Prague, Czech Republic	34,82,400	1 Year

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

- The M.Tech. Thesis work Mr. P Srikanth, M.Tech. VLSI student under Dr. B. Srinivasu resulted in two conference publications, IEEE Nanotechnology 2022 and VLSI Design and Test 2022.
- Dr. Shubhajit Roy Chowdhury developed a urine albumin estimation system at a Technology Readiness Level 4, as part of the IMPRINT project titled “Micro-fluidic based urnine albumin estimation system using a novel organic dye.”
- Dr. Aditya Nigam and his team developed a Blackbox attacking system for breaking DNN to demonstrate their vulnerability. The results of this work appeared at the conference Computer Vision and Pattern Recognition 2022.
- Dr. Sriram Kailasam was involved in technology transfer to the company NMS Works as part of the Ucchatar Avishkar Yojana (UAY) project titled “Event-driven data pipeline for large telecom networks”.

Publications: Patents/Books/Book Chapters/ Papers National and International Journals/Conferences

PATENTS

1. H. Arya, A. Garg, and M. Das, "A Control System and a Method for Operating a Charging Station," Indian Patent 202111054890, Nov. 26, 2021.
2. S. Saha and Moumita Das, "Method and System for Calculating a Lifetime of Gallium Nitride (GAN) Based Converter," Indian Patent. 202211016294, March 24, 2022.
3. S. Dhiman, N. Gupta, and H. Shrimali, "Method of running an unrolled binary search or multiple level searches for pipeline ADC," Indian Patent, Application number: 202013054196, published in Mar. 2022.

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1. R. Bhattacharya, D. Ahirwar, B. Biswas, G. Bhutani, S. Roy Chowdhury, "NIRS Device to identify Acute Ischemic Stroke by Using a Novel Organic Dye in the Human Blood Serum" Chapter contributed in Sensing Technology, edited by Suryadevara N.K., George B., Jayasundera K.P., Roy J.K., Mukhopadhyay S.C., Springer Verlag, 2022.
2. Y. Arora, A. Dutta, S. Roy Chowdhury, "Pathways of Hemodynamic Response During Anodal Transcranial Direct Current Stimulation: A Computational Approach," Chapter contributed in Converging Clinical and Engineering Research on Neuro rehabilitation IV, edited by Torricelli D., Akay M., Pons J.L., pp. 711-715, Springer Nature, 2022.
3. I. Vohra, S. Uttrani, A. Rao and V. Dutt, "Evaluating the Efficacy of Different Neural Network Deep Reinforcement Algorithms in Complex Search-and-Retrieve Virtual Simulations," 17th ed. Springer, Cham, 2022.
4. S. Bhargav, S. Kaushik and V. Dutt, "A Combination of Decision Trees with Machine Learning Ensembles for Blood Glucose Level Predictions," 10th ed. Springer Singapore: Lecture Notes in Networks and Systems, 2022.
5. S. Bhargav, A. Choudhury, S. Kaushik, and R. Shukla, "A Comparison Study of Abstractive and Extractive Methods for Text Summarization," 3rd ed. Springer Singapore: Algorithms for Intelligent Systems., 2022.
6. H. Katakwar, P. Aggarwal, Z. Maqbool, and V. Dutt, "Influence of Probing Action Costs on Adversarial Decision-Making in a Deception Game," 15th ed. Springer Singapore: Lecture Notes in Networks and Systems, 2022.
7. A. Rao, R. Daniel, V. Pandey, S. Chandra, and V. Dutt, "Impact of Different Field-of-Views on Visuos patial Memory and Cognitive Workload in a Complex Virtual Environment," 14th ed. Springer, Singapore: Advances in Augmented Reality and Virtual Reality. Studies in Computational Intelligence, 2022.
8. S. Uttrani, B. Nanta, N. Sharma and V. Dutt, "Modeling the impact of the COVID-19 pandemic and socioeconomic factors on global mobility and its effects on mental health," 15th ed. Artificial Intelligence, Machine Learning, and Mental Health in Pandemics, Elsevier, 2022.
9. R. Skomski, P. Manchanda, A. Kashyap, "Anisotropy and Crystal Field," Handbook of Magnetism and Magnetic Materials pp 1–83, Eds Michael Coey, Stuart Parkin, Published in 2021.

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1. I. Kudelin, S. Sugavanam, and M. Chernysheva, "Rotation Active Sensors Based on Ultrafast Fibre Lasers," Sensors, vol. 21, no. 10, p. 3530, May 2021.
2. I. Kudelin, S. Sugavanam, and M. Chernysheva, "Single-shot interferometric measurement of pulse-to-pulse stability of absolute phase using a time-stretch technique," Opt. Express, OE, vol. 29, no. 12, pp. 18734–18742, Jun. 2021, DOI: 10.1364/OE.422805.
3. J Peng, Z Zhao, S Boscolo, C Finot, S Sugavanam, DV Churkin, H Zeng., "Breather Molecular Complexes in a Passively Mode-Locked Fiber Laser," Laser & Photonics Reviews, vol. 15, no. 7, p. 2000132, June 2021, DOI: 10.1002/lpor.202000132.
4. M. Asad, A. K. Singha, and R. M. S. Rao, "Dead Time Optimization in a GaN-Based Buck Converter," in IEEE Transactions on Power Electronics, vol. 37, no. 3, pp. 2830-2844, March 2022, DOI: 10.1109/TPEL.2021.3116126.
5. B. Srinivasu, K. Sridharan "Low-Power and High-Performance Ternary SRAM Designs With Application to CNTFET Technology," IEEE Transactions on Nanotechnology, vol. 20, pp. 562-566, Aug 2021.
6. S. Mandal, A. Chakrabarti and B. Srinivasu "Clustered Error Resilient SRAM-Based Reconfigurable Computing Platform," IEEE Transactions on Aerospace and Electronic Systems, vol. 57, no. 3, pp. 1768-1779, June 2021.
7. Y. Arora, S. Roy Chowdhury, A. Dutta, "Physiological neurovascular modeling of cerebrovascular effects of transcranial electrical current stimulation," Brain Stimulation, Vol. 14, pp. 1597-98, Nov 2021.
8. Y. Arora, P. Walia, M. Hayashibe, M. Muthalib, S. Roy Chowdhury, S. Perrey, A. Dutta, "Grey-box modeling and hypothesis testing of functional near-infrared spectroscopy-based cerebrovascular reactivity to anodal high-definition tDCS in healthy humans," PLoS Computational Biology, Vol. 17(10), pp. e1009386, Jan 2022.
9. L.V.R. Prasadaraju, A. Madhubabu, S. Roy Chowdhury, "Improvements in Medical System Safety Analytics for Authentic Measure of Vital Signs Using Fault-tolerant Design Approach," Frontiers in Medical Technology, Vol. 3, pp. 666671(1-14), Aug 2021.
10. A. Madhubabu, L.V.R. Prasadaraju, S. Roy Chowdhury, "FPGA based High-Performance phonocardiography system for extraction of Cardiac Sound components using Inverse delayed neuron model," Frontiers in Medical Technology, Vol. 3, pp. 666650(1-11), Aug 2021.
11. P. Kumar et al. Priyanka S, Abhijeet S, Ankush P, Ravinder S, Pratik C, Naresh M,K. V. Uday&VDutt, "Prediction of Real-World Slope Movements via Recurrent and Non-recurrent Neural Network Algorithms: A Case Study of the Tangni Landslide," Indian Geotechnical Journal, vol. 51, no. 4, pp. 788-810, June 2021.
12. G. Choudhary and V. Dutt, "Experience in a climate simulator: Influence of probability function and feedback on decisions against climate change," Frontiers in Psychology, vol. 12, July 2021.

13. H. Katakwar, P. Aggarwal, Z. Maqbool, and V. Dutt, “Influence of probing action costs on adversarial decision-making in a deception game,” ICT Analysis and Applications, Vol 314, pp. 649-658, Jan 2022.
14. A. Pathania, P. Kumar, A. Maurya, K. Uday, and V. Dutt, “Development of an Ensemble Gradient Boosting Algorithm for Generating Alerts About Impending Soil Movements,” Machine Learning, Deep Learning and Computational Intelligence for Wireless Communication, vol 749, pp. 365-379, May 2021.
15. P. Kumar, P. Sihag, P. Chaturvedi, K. Uday, and V. Dutt, “BS-LSTM: An Ensemble Recurrent Approach to Forecasting Soil Movements in the Real World,” Frontiers in Earth Science, vol. 9, no. 716, Aug 2021.
16. Aashima, S. Bhargav, S. Kaushik, and V. Dutt, “Development of Ensemble Tree Models for Generalized Blood Glucose Level Prediction” Lecture Notes in Electrical Engineering April 2021.
17. K.S. Pandey, H. Shrimali, “Novel VLSI Architectures and Micro-cell Libraries for Subscalar Computations,” in IEEE Access, vol. 10, pp. 56985-56995, Mar. 2022 (DOI: 10.1109/ACCESS.2022.3157879) impact factor: 3.367.
18. R. Mahajan, I. Timrov, N. Marzari, and A. Kashyap, “Importance of intersite Hubbard interactions in β-MnO2: A first-principles DFT+U+V study”, Phys. Rev. Materials, 5, 104402 Oct (2021).
19. R. Pathak and A. Kashyap, “Boron interstitials in ordered phases of Fe-Pd binary alloys: A first principle study,” Journal of Magnetism and Magnetic Materials, vol.528, 167766, June 2021.
20. D. V. Devalraju, P. Rajan, “Multiview Embeddings for Soundscape Classification,” IEEE Trans. Audio Speech and Language Processing, Vol 30 pp. 1197-1206, Feb 2022.
21. B. D. Verma, R. Pratap, D. Bera. “Efficient binary embedding of categorical data using Bin Sketch,” Data Min. Knowl. Discov. 36(2): 537-565, March 2022.
22. B. D. Verma, R. Pratap, M. Thakur. “Variance reduction in feature hashing using MLE and control variate method,” Mach. Learn. 111(7): 2631-2662, July 2022.
23. D. Bera, R. Pratap and B. D. Verma, “Dimensionality Reduction for Categorical Data,” in IEEE Transactions on Knowledge and Data Engineering, DOI: 10.1109/TKDE.2021.3132373 Dec 2021.
24. D. Bera, R. Pratap, B. D. Verma, B. Sen, and T. Chakraborty, “QUINT: Node embedding using network hashing,” in IEEE Transactions on Knowledge and Data Engineering, DOI: 10.1109/TKDE.2021.3111997 July 2021.
25. M. G. Moinuddin, S. Srinivasan, and S. K. Sharma, “Probing Ferrimagnetic semiconductor with enhanced negative magnetoresistance: 2D chromium sulphide,” Advanced Electronic Materials, vol. 7, no. 9, pp. 2001116, Sep 2021.
26. Y. Zhou et al., “Identification and utilization of genetic determinants of trait measurement errors in image-based high-throughput phenotyping,” The Plant Cell, vol. 33, no. 8, pp. 2562-2582, Aug 2021.
27. J. Johnson et al., “Enhanced field-based detection of potato blight in complex backgrounds using deep learning,” Plant Phenomics, May 2021.
28. M. Packiaraj, S. Kailasam, “HyPar-FCA: a distributed framework based on hybrid partitioning for FCA,” Journal of Supercomputing Vol 78, Mar 2022.
29. S. Marwaha, P. Pratik, and K. Ghosh, “Thermal Model of Silicon Photovoltaic Module with Incorporation of CFD Analysis,” Silicon, Vol. 14, pp. 4493-4499, 2022.
30. S. Marwaha and K. Ghosh, “Analysis of Silicon-perovskite Tandem Solar Cells with Transition Metal Oxides as Carrier Selective Contact Layers,”, Silicon, pp. 1-12.
31. R. R. Jha, S. K. Pathak, V. Nath, W. Schneider, B. V. R. Kumar, A. Bhavsar, A. Nigam, “VRfRNet: Volumetric ROI fODF reconstruction network for estimation of multi-tissue constrained spherical deconvolution with only single shell dMRI,” Magnetic Resonance Imaging (Elsevier), vol. 90, pp. 1-16, Jan 2022.
32. R. R. Jha, G. Jaswal, A. Bhavsar, A. Nigam, “Single-shell to multi-shell dMRI transformation using spatial and volumetric multilevel hierarchical reconstruction framework,” Magnetic Resonance Imaging (Elsevier), vol. 87, pp. 133-156, Jan 2022.
33. A. Chirag, Pratyush, A. Nigam, “A generic framework for deep incremental cancelable template generation,” Neurocomputing (Elsevier), vol. 467, pp. 83-98, Jan 2022.
34. Awanish Kumar, G. Shrikanth Reddy, Jyotibhusan Padhi, Rushiraj Jawale, Shiv Narayan, "Wideband, polarization-independent electromagnetic wave absorber using cross arrow resonator and lumped SMD resistors for C and X band applications", International Journal of RF and Microwave Computer-Aided Engineering, Vol. 32, Issue-7, July 2022
35. A. Chawla, R. K. Singh, A. Patel, A. K. Jagannatham and L. Hanzo, “Distributed Detection for Centralized and Decentralized Millimeter Wave Massive MIMO Sensor Networks,” in IEEE Transactions on Vehicular Technology, vol. 70, no. 8, pp. 7665-7680, Aug. 2021.

CONFERENCES ATTENDED AND PAPERS PRESENTED

1. I. Kudelin, S. Sugavanam, and M. Chernysheva, “Ultrafast gyroscopic measurements in passive Mach-Zehnder interferometer via time-stretch technique,” in 2021 Conference on Lasers and Electro-Optics Europe and European Quantum Electronics Conference, Jun. 2021.

2. E. Kapoor, A. K. Singha, and R. Madhu Sudhan Rao, "Design of a Digital Peak V2 Controller for the Synchronous Boost Converter with Negligible ESR," 2021 IEEE 2 Workshop on Control and Modelling of Power Electronics (COMPEL), Nov 2021, pp. 1-8, DOI: 10.1109/COMPEL52922.2021.9646024.
3. M. Asad and A. K. Singha, "Real-Time Dead-Time Optimization in a GaN-Based Boost Converter Using a Digital Controller," 2021 IEEE 12th Annual Ubiquitous Computing, Electronics & Mobile Communication Conference (UEMCON), Dec 2021, pp. 0723-0729, DOI: 10.1109/UEMCON53757.2021.9666693.
4. N. Malkani and M. Thakur, "Refactoring Scala Programs to Promote Functional Design Patterns," Poster in the 30th ACM SIGSOFT International Symposium on Software Testing and Analysis (ISSTA), July 14th-15th, 2021.
5. S. Kulshreshtha, R. Sharma, and M. Thakur, "Can we run in parallel? Automating Loop Parallelization for TornadoVM", Poster in the 30th ACM SIGSOFT International Symposium on Software Testing and Analysis (ISSTA), July 14th-15th, 2021.
6. A. Bharat, A. Craik, D. Maier, V. Sundaresan, M. Thakur, and V. Krishna Nandivada, "Split Scalarization: Practical Field Privatization by Splitting the Live Ranges of Objects," In Proc. 5th Workshop on Advances in Open Runtimes and Cloud Performance Technologies (AORCPT), co-located with IBM CASCON-EVOKE, November 24th, 2021.
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8. B. Srinivasu, A. Chattopadhyay "Cycle PUF: A Cycle operator based PUF in Carbon Nanotube FET Technology," 2021 IEEE 21st International Conference on Nanotechnology (NANO), 13-16, 2021.
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10. P. Sai Sushma, T. Narsareddy, and H. Misra, "Wireless Power Transfer to Electric Vehicles along with Regenerative Braking using battery-supercapacitor combination," IEEE International Conference on Power Electronics, Smart Grid and Renewable Energy (PESGRE-2022). Jan 2022.
11. R. Sinha and H. Misra, "Control of PMSM driven Electric Vehicle for Indian Drive Cycle," 2021 National Power Electronics Conference (NPEC), Dec 2021, pp. 01-06.
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13. Y. Arora, A. Dutta, S. Roy Chowdhury, "Hemodynamic responses to transcranial direct current stimulation (tDCS): Grey box modeling for model predictive neurovascular dosing in stroke," 13th World Stroke Congress (WSC 2021), Amsterdam, October 28-29, 2021.
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15. D. Ahirwar, Shweta, K. Shakya, S. Roy Chowdhury, "Gradient Boosting algorithms to Classify fNIRS," 2021 IEEE-EMBS International Conference on Biomedical and Health Informatics (IEEE BHI 2021), July 27-30, 2021.
16. A. Anuchin, M. Das, L. Rassudov, D. Savkin, K. Fedorova, and N. Kuraev, "Current Control of a Direct Current Motor Fed through LC-filter from Power Converter Based on Wide-Bandgap Semiconducting Devices," 2021 XVIII International Scientific-Technical Conference Alternating Current Electric Drives XVIII International Scientific-Technical Conference Alternating Current Electric Drives (ACED), pp. 1-6, Ekaterinburg, Russia, 24th-27th May 2021.
17. H. Arya and M. Das, "Solar Powered EV Fast Charging Station to Support Distribution Grid" 9th IEEE International Conference on Power Systems (ICPS), pp. 1-6, Kharagpur, India, 16th-18th Dec. 2021.
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25. K. Kang, S. Kushnarev, W. W. Pin, R. Pratap, H. Yeo, Y. Chen, “Improving Hashing Algorithms for Similarity Search via MLE and the Control Variates Trick,” ACML 2021: 814-829 Nov 2021.
26. R. Pratap, S. Bhardwaj, H. S. Sarode, R. Kulkarni, “Feature Hashing with Insertion and Deletion of Features,” IEEE Big Data 2021: 888-898. Nov 2021.
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28. S. Bansal, S. Kailasam, and S. Obiedkov, “Approximate Computation of Exact Association Rules,” in the 16th International Conference on Formal Concept Analysis, France, June 2021.
29. G. Ponnuswami, S. Kailasam, and D. A. Dinesh, “Evaluating Data-Parallel Distributed Training Strategies,” in the 14thInternational Conference on COMmunication Systems & NETworkS (COMSNETS), pp. 759-763, Bangalore, Jan 2022.
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31. R. R. Jha, S. K Pathak, W. Schneider, B. V. R. Kumar, A. Bhavsar, A. Nigam, “LFANET: Transforming 3T Single-Shell to 7T Multi-Shell DMRI Using Deep Learning Based Leapfrog and Attention,” in IEEE 19th International Symposium on Biomedical Imaging (ISBI'22), 2022, pp 1-5. March 2022
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OUTREACH/CONTINUING EDUCATION ACTIVITIES ORGANIZED

- The 3rd Online Winter School on Cognitive Modeling was organized by Dr. Varun Dutt, Dr. Arnav Bhavsar, and Dr. Shubhajit Roy Chowdhury. The WSCM started on 13th November 2021 and spanned over three weekends. The WSCM was hosted in collaboration with the IIT Mandi iHub and HCI Foundation, the University of Groningen, the University of Waterloo, Stanford University, and the Indian Institute of Technology Roorkee. The inaugural event of the 3rd Winter School on Cognitive Modeling included 50+ participants, speakers, and students from various countries across the globe. The event included key sessions from various national and international researchers and professionals to train students on the best practices in the area of cognitive modeling. This year’s Winter School featured many national and international speakers, including Prof. Marieke van Vugt (University of Groningen, Netherlands), Prof. Neils Taatgen (University of Groningen, Netherlands), Dr. Percy Mistry (Stanford University, USA), Prof. Terrence C. Stewart (University of Waterloo, Canada), Prof. Partha Pratim Roy (Indian Institute of Technology Roorkee, India), Prof. Tapan Kumar Gandhi (Indian Institute of Technology Delhi, India) and more.
- A 4-day weekend workshop titled “Foundations of Machine Learning and Applications” was successfully organized by the IIT Mandi iHub and HCI Foundation and the Indian Institute of Technology Mandi on 28-29 August 2021, and 4-5 September 2021. The workshop targeted motivated executives and working professionals willing to work in the area of Machine Learning. The workshop consisted of over 30 hours of extensive lectures and lab sessions on various foundational and cutting-edge topics. Dr. Satyajit Thakor was the coordinator and convenor of this workshop. International expert speakers were Dr. Shih-Chun Lin from NTU, Taiwan, and Dr. Stefano Rini from NYCU, Taiwan. The Indian expert speakers were Dr. Dileep A. D. and Dr. Arnav Bhavsar, Dr. Aditya Nigam, and Dr. Satyajit Thakor from the School of Computing and Electrical Engineering, IIT Mandi.
- A 5-day Deep Learning workshop at IIT Mandi under TIH-HCI was coordinated by Dr. Aditya Nigam. This covered all the basics along with several advanced topics successfully. Five laboratory sessions were planned to deal with installation, training testing, and deployment issues. The workshop trained 40+ participants. To attract software and industry professionals, we plan to conduct it during weekends.

CONFERENCE/WORKSHOPS/OTHER INSTITUTE/INDUSTRY VISITED (INDIA OR ABROAD) OR INVITED LECTURES DELIVERED

Invited talks

- Dr. Himanshu Misra delivered a two-day talk at NITTTR Chandigarh on clean and renewable energy on August 10-11, 2021.
- Dr. Shubhajit Roy Chowdhury delivered two invited talks - "Near Infrared Spectroscopy aided by Anodal Transcranial Direct Current Stimulation for Cerebral Oxygenation studies: Prospects and Challenges" at the Computational Neurosciences Meet, IIT Madras, August 14, 2021; and "Embedded Systems for Biomedical Applications" at the IEEE NITK Circuits and Systems Society-Student Chapter, February 24, 2022.
- Dr. Pratim Kundu gave an invited talk in a short-term course “Stability Issues, Challenges and Solutions in Renewable Integrated Power Systems” at NIT Uttarakhand in February 2022, and a guest lecturer at IEEE PES Kerala Student Branch Webinar in November 2021.
- Dr. Sreelakshmi Manjunath was an invited speaker at the National Communications Conference (NCC), 2022, conducted virtually and was jointly organized by IIT Bombay, IIT Dharwad, IIT Gandhinagar, IIT Goa, and IIT Indore in May 2022. She delivered a talk titled "Understanding the performance of 802.11p-based vehicular communication in heterogeneous traffic. “She was also an invited speaker at the 15th International Conference on COMmunication Systems & NETworkS (COMSNETS), 2022.

Conferences

- Dr. Satyajit Thakor chaired a session at the National Conference on Communications 2021 (July 2021) at IIT Kanpur (online mode) and a session at JTG/IEEE ITSoc Summer School (June 2021) at IIT Kanpur (online mode).
- Dr. Manas Thakur served as a Program Committee Member of International Conferences: CASCONxEVOKE 2021 and CC 2022.
- Dr. Amit Kumar Singha served as a Technical Program Committee member of the International Conference on Power Systems (ICPS) 2021.
- Dr. G. Shrikanth Reddy serves as an affiliated member of Technical Committee-1: Field Theory and Computational Electromagnetics of IEEE Microwave Theory and Technologies society.

Faculty Development and Training Programmes

- Dr. Manas Thakur taught Compilers in an Atal Faculty Development Programme organized by IIT Tirupati, in January 2022.
- Dr. Shubhajit Roy Chowdhury gave a talk "Architectural synthesis of VLSI circuits" at the Faculty Development Programme on Low Power VLSI Design organized by NIT Meghalaya, September 27 - October 1, 2021, and another talk at ATAL Faculty Development Programme 2021, Department of Computer Engineering, Women Engineering College, Ajmer, Rajasthan, August 2021
- Dr. Himanshu Misra delivered a talk at LNCT Bhopal in Short Term Training Program on electric vehicles on May 22, 2021.
- Dr. Pratim Kundu delivered an invited talk to Short Term Training Program on Smart Grids and Power Systems at NIT Meghalaya in March 2022.
- Dr. Satyajit Thakor Delivered an invited lecture titled “The undirected multiple-unicast network information flow problem,” at the Centre for Networked Intelligence, IISc, February 2022.
- Dr. Sriram Kailasam gave an invited talk: "Research issues in irregular applications", on 27 April 2021, in AICTE-ISTE, sponsored FDP on Recent trends in cloud computing (Phase II) at DRIEMS Autonomous Engineering College, Cuttack, Odisha.
- Dr. Gopi Shrikanth Reddy gave invited lectures on FDP/QIP Programs at IIT Indore.
- Dr. Sreelakshmi Manjunath was co-instructor, for the Certificate Program in Effective Teaching of Computer Networks, an online certification program conducted by IIIT Delhi in association with ACM India. The program was conducted from Jan-April 2022.
- Dr. Aditya Nigam delivered a lecture in MDCWC2022, conducted by NIT Trichi on 24th Friday.

Other Activities

- Dr. Moumita Das was invited for research collaboration at the Mid Sweden University, Sweden.

- Dr. Erwin Fuhrer and Dr. Padmanabhan Rajan were participants in a panel discussion in the IEEE Signal Processing Society Forum-2021 on 'Trends in Multi-Scale Signal and Image Processing for Biomedical Instrumentation', IEEE Kerala Section, December 15, 2021.

EMINENT GUESTS HOSTED

- Dr. Jinesh C. Machchhar hosted Prof. Bharat Adsul from IIT Bombay who offered a 1-credit course titled Selected Topics in Computer Graphics: Curves in Computer Geometric Modelling.
- Dr. Erwin Fuhrer organized a talk by Matthew McCusker, Binding Site Ltd, UK in May 2021, on "The practical application of Sensitivity, Specificity as well as NPV and PPV in the IVD industry."

PROFESSIONAL ACHIEVEMENTS, HONORS, AND AWARDS/MEMBERSHIP OF PROFESSIONAL SOCIETIES

- Dr. Shubhajit Roy Chowdhury's project on Urine Albumin Estimation System was selected for presentation before the Hon'ble Prime Minister of India in the year 2021.
- Dr. Arti Kashyap was selected as one of the 75 Women in STEAM by the Office of Principal Adviser, Govt of India.
- Dr. Shubhajit Roy Chowdhury was selected as Associate Editor of IEEE Sensors Journal in the year 2021.

NEW INITIATIVES / NEW RESEARCH FACILITIES CREATED / LABORATORY ESTABLISHED

- Dr. G. Shrikanth Reddy installed the Far-field measurement Anechoic chamber at IIT Mandi. The chamber is used for the analysis and characterization of wireless devices. The chamber is funded through a project from the DST ICPS division.
- Dr. Moumita Das Transportation established the Electrification Research Laboratory. She has also installed a battery-swappable-based charging station for electric vehicles.
- Dr. Himanshu Misra is currently developing an Electric Drive Teaching and Advanced Electric Drives research lab. This lab will facilitate teaching and research for UG as well as PG courses.
- Dr. Srikanth Sugavanam and Dr. Erwin Fuhrer established a new Measurement and Instrumentation Laboratory, as part of the course IC231. A defining feature of the course is that it can be run in a fully hybrid, online hardware mode, where remote students can control real-world hardware and sensors. This enabled remote hardware-based teaching of a practicum course during the online teaching mode, and also allowed a smooth transition to the in-person mode once the classes started on campus.

3.2 SCHOOL OF ENGINEERING (SE)

School of Engineering (SE) is committed to serve society through innovation and excellence in engineering education and research focused on the development of sustainable technologies. Our mission includes the translation of research for the welfare of society, integration of research with engineering education; execution of external research projects towards engineering solutions via a cross-disciplinary research approach, etc. SE is committed to a high standard of engineering education through outstanding teaching, innovative curricula, and an excellent research environment. SE offers many common courses and various programs 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 the Mechanical and Civil Engineering stream. Presently, the School of Engineering has 40 faculty members including 2 Professors, 15 Associate Professors, 18 Assistant Professors,1 Visiting Professor,1 Emeritus Professor, 2 Distinguished Visiting Professors and 1 Adjunct Professor. There are currently 105 Ph.D. (including 2 ERPD & 2 Part time scholars), 38MS (including 1 Part-time), 77 M.Tech. and B.Tech. 208 (ME-114, CE-94) students in the school.

The main areas of research are broadly classified as Materials, Production Design, Manufacturing, Thermo-fluids Engineering, Energy and sustainable Himalayan infrastructure. In the Materials and Design area, the focus is on the development of materials for sensors, actuators& energy harvesting and energy storage applications and analysis of smart structures and systems. In thermo-fluids engineering, faculty members are investigating Radiative heat transfer, Nano-scale heat transfer, Flow analysis & Heat transfer analysis of IC engines along with analysis of other engineering systems. Energy-efficient systems cover climate change studies, applications of phase change materials towards energy-efficient buildings, and the use of non-conventional energy sources to enhance energy efficiency. Sustainable Himalayan infrastructure encompasses the areas of slope stability, Geohazard 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, MoE, NRDMS, NMHS, MoES, DLR (German Aerospace Centre), BHEL, etc. The school of Engineering has several well-equipped UG labs (Design lab, Thermo-fluid lab, Mechanical workshop, Survey lab, Geotechnical lab, and Environmental Engineering &Earth Science lab. Along with these, SE also has many advanced laboratories such as an Energy Engineering lab, Advanced Structural Engineering lab, Smart Structure & System, IC Engine lab, Composite Design & Manufacturing, Thermo-Fluid, Geohazard, Acoustics Vibration lab, Nanoscale materials& Device lab, Smart Material & Structure Research Laboratory, Biosensor and Biomaterial Lab, Atmospheric Chemistry and Climate Change and I4S, etc.

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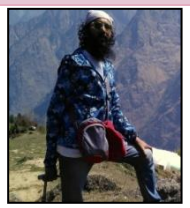
6.	**Dr. Dericks Praise Shukla** **Associate Professor** Specialization: Remote Sensing & GIS, Hydro-geo-chemistry, Water contamination mostly as and other Heavy metals, Natural Hazards Assessment and Mapping Ph.D. from the University of Delhi (2012) Home Town: Allahabad, Uttar Pradesh Phone: 01905-267147, Email: dericks@iitmandi.ac.in	
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RESEARCH PROJECTS

Research projects from IIT Mandi seed grants, sponsored projects, and brief progress of the work done against each project, highlighting the major achievements during this period. Names of PI, Co-PI, funding agencies and amount of grant received and amount spent, etc.

EXTERNALLY SPONSORED RESEARCH PROJECTS

S. No.	Project No.	Project Title	Sponsoring Agency	Investigators	Project Cost (in Rs.)	Duration of Project
1.	IITM/HP-SDMA/SSH/327	Seismic Safety Evaluation of Life-line Buildings in Mandi District	Himachal Pradesh State Disaster Management Authority (HP-SDMA)	Dr. Sandip Kumar Saha (PI), Dr. Kaustav Sarkar	Rs. 36,04,700/-	1 year, 28.04.2021 – 30.04.2022 (Extension requested)

2.	IITM/DRDO/PK/355	Development and Implementation of Non-Gray Radiation model for Combustion Applications	ARDB/DRDO	Pradeep Kumar and Gaurav Bhutani	Rs. 32,91,807/-	3 years, (11th Feb. 2022 to 10th Feb.2025)
3.	IITM/SERB-TARE/AM/354	Phase selective CVD growth with controllable 1T-to-1H phase transition in WS2 monolayer for optoelectronic device applications	SERB	Dr. Viswanath (Coordinator-Mentor) Dr. Arul Prakash Jothi (PI)	Rs. 10,05,000/-	3 years, (7-12-2021 to 7-12-2024)
4.	IITM/IEEE/RK/339	Design and development of an auto-tuned ventilator: A contactless treatment for COVID-19 patients	IEEE	Prof. Rajeev Kumar (PI)	Rs. 3,70,150/-	1 year, (1-09-2021 To 8-9-2022)
5.	IITM/SJVNL/SUS/338	Study for the optimum height of lift for mass concreting in concrete dam structures	SJVNL	Dr. Subhamoy Sen (PI) Dr. Himanshu Pathak (Co-PI)	Rs. 32,40,000/-	2 years, (21-09-2021 To 20-9-2023)
6.	IITM/SERB/SWS/361	Development of oxidation-resistant glass - link carbon and carbon/carbon composites for high-temperature applications	SERB	Dr. Swati Sharma	Rs. 29,44,832	3 years, (16-3-2022 To 15-03-2025)
7.	IITM/DRDO/SUS/375	Digital twin development using Bayesian filters with sub-structured predictor model for aerospace application	ARDB, DRDO	Dr. Subhamoy Sen	Rs. 34 lacs	3 years, August 2022-2025
8.	IITM/NERC/ASK/340	Developing a Framework for Landslide Susceptibility and Adaptability in South East Asia (SEAL)	NERC UK	Dr. Ashutosh Kumar	Rs. 15,18,322/-	October 2021-March 2022

SEED GRANT PROJECTS

S. No.	Project No.	Project Title	Sponsoring Agency	Investigators	Amount Sanctioned (in Rs.)
1.	IITM/SG/SYS/74	Aerosol brown carbon (BrC) and humic-like substances (HULIS) in the northwestern Himalayas: sources and implications for climate forcing	IIT Mandi Seed Grant	Dr. Sayantan Sarkar	Rs. 700000/-

PROGRESS OF RESEARCH PROJECTS

1. **PI: Dr. Atul Dhar**
   Project Title: Sustainable wastewater treatment through bio-photoelectron catalysis and Biofuel Production
   Project No. IITM/MHRD-IMPRINT/AD/169
   Duration of the Project: July 2017 to 31 March 2022
   Project Cost: 384 Lakhs
   The project was completed in March 2022 and a prototype was developed for the co-treatment of domestic organic waste along with domestic wastewater. The treated water quality was suitable for the reuse of the water and combustible biogas was generated through the coupled anaerobic digester with the treatment plant. Three patents were filed based on the research done during this project along with more than 15 research papers. One start-up has been registered by the investigators working on this project who are making effort for the commercialization of the developed prototype.

2. **PI & Co.PI: Dr. Sandip Kumar Saha & Dr. Kaustav Sarkar**
   Project Title: Seismic Safety Evaluation of Life-line Buildings in Mandi District
   Project No. IITM/HP-SDMA/SSH/327
   Duration of the Project: April 2021 to 30 April 2022
   Project Cost: Rs.36,04,700/-

Completed rapid visual screening of 10 Civil Hospitals in the Mandi district to assess their seismic vulnerability. Material quality evaluated and other building characteristics were evaluated through non-destructive testing (NDT) to perform a detailed vulnerability assessment. Recommendations on numerical modeling and non-linear analysis of typical building typologies are prepared.

3. **PI: Dr. Mousumi Mukherjee**
Project Title: Rate-dependent Behavior of Sand and Its Implications on Strength Prediction from Field Penetration Tests
Project No. IITM/SERB/MM/248
Duration of the Project: 3.5 years (24.06.2019-23.12.2022)
Project Cost: Rs.29.35 Lakhs
Constant rate penetration tests are widely used for in-situ soil strength characterization or pile capacity determination due to their fast experimentation time and cost-effectiveness. The strength predicted from these rapid tests can differ remarkably from their static counterpart owing to the higher strain rate. The proposal aims to assess the strength prediction by rapid penetration tests in the sand about the rate-effect phenomena. The conceptual visco-plastic material model proposed by Mukherjee (2016) has been generalized and verified for its applicability under the triaxial test condition. A methodology has been established for the calibration of model parameters and subsequently, the model predictions were validated against two sets of experimental data available in the literature. Presently work is going on to embed the visco-plastic material model within a commercially available FEA analysis software ABAQUS by writing a UMAT subroutine. The project work also involves the simulation of a pile penetration test under a large deformation framework. In this regard, two different formulations, i.e. updated Lagrangian and coupled Lagrangian-Eulerian, have been explored to identify their effectiveness in simulating pile penetration problems. One international journal and one international conference have already been published, and three manuscripts, two international journals and one national conference are presently under review consolidating the related research outcomes.

4. **PI: Dr. Parmod Kumar**
Project Title: Investigations of a chugging phenomenon in direct contact condensation towards mitigation of the pressure amplitude and oscillations
Project No. IITM/SERB/PKU/273
Duration of the Project: 20 December 2019 to 19 February 2022
Project Cost: Rs. 30.87 Lakhs
The experimental facility has been developed to perform direct contact condensation-based experiments and exhaustive experiments are being performed for the vertical injection of steam into the subcooled water pool. Moreover, numerical simulations are also being performed to understand the underlying condensation phenomenon. In this regard, a user-defined function (UDF) is developed for introducing interfacial mass transfer in the volume of the fluid method using the software package ANSYS FLUENT. In modeling, the emphasis is given on the interphase heat transfer using the interfacial jump approach and the vapor phase is considered compressible

5. **PI: Dr. Parmod Kumar**
Project Title: Intelligent design of intakes for hydraulic machines to retard the vortex-induced entrainment
Project No. IITM/SEED/PKU/67
Duration of the Project: June 2019 to June 2022
Project Cost: Rs. 8 Lakhs
An experimental facility has been developed to perform the pump intake vortex-induced air entrainment experiments. The experiments have been completed using two cylindrical discharge tubes of four different internal diameters. The experiments have reported the simultaneous occurrence of two different vortex structures at the large spacing between the discharge pipes. Whereas for closely spaced pipes a single vortex is found whose tip extends into two different pipes when it reaches close to the inlet of discharge pipes. The findings have been published in the reputed journal Physics of Fluids and another manuscript is under preparation. The computational

simulations of the phenomenon are being carried out using the Eulerian approach-based volume of the fluid framework. The simulations will assist in understanding the detailed hydrodynamics of the interface evolution.

6. **PI: Dr. Pradeep Kumar & Dr. Gaurav Bhutani**
   Project Title: Development and Implementation of Non-Gray Radiation model for Combustion Applications
   Project No. IITM/SEED/PK/355
   Duration of the Project: 11th Feb. 2022 to 10th Feb. 2025
   Project Cost: Rs.32,91,807/-
   The HI-TEMP database has been utilized to calculate the radiative properties for different participating species like water vapor, carbon-di-oxide, etc. at different temperatures, pressure and model fractions. Further, the Full spectrum k- distribution method has been used to reorder random varying radiative properties into a monotonically increasing smooth function. The radiative transfer equation is solved using FSK for some small-scale problems of Hydrogen combustion. We are in the process of developing a database of FSK distribution and an efficient algorithm to use this data for the solving of radiative transfer equations for more general and full-scale problems.

7. **PI: Dr. Viswanath Balakrishnan**
   Project Title: Scalable manufacturing of asymmetric micro supercapacitor for next-generation energy storage devices.
   Project No. IITM/DST/VB/195
   Duration of the Project: March 2018-July 2021
   Project Cost: Rs.68,60,000/-
   We have developed micro supercapacitors devices with the aid of simple methods and investigated their performance over a large number of cycles. The DST-MES project is also completed and we are exploring further the way to interface the supercapacitors to energy conversion devices.

8. **PI: Dr. Viswanath Balakrishnan**
   Project Title: Phase selective CVD growth with controllable 1T-to-1H phase transition in WS2 monolayer for optoelectronic device applications.
   Project No. IITM/MHRDSTARS/VB/295
   Duration of the Project: Sep 2020-Aug 2023
   Project Cost: Rs. 49,95,000/-
   In the project-related 2D materials, we are able to stabilize metastable phases in newer materials such as MoSe2 and WSe2. In addition, we also demonstrated the memristor devices utilizing atomically thin 2D materials. For the TARE project, we have developed a simple approach with the use of CNTs to address some issues related to battery thermal management.

9. **PI: Dr. Ashutosh Kumar**
   Project Title: Developing a Framework for Landslide Susceptibility and Adaptability in South East Asia (SEAL).
   Project No. IITM/NERC/ASK/340
   Duration of the Project: October 2021- March 2022
   Project Cost: Rs.15,18,322/-
   The SEAL (Landslides Susceptibility and Adaptability in South East Asian Countries) project investigated the efficacy of an optimally designed capillary barrier system that limits water infiltration into the underlying soil. This was achieved by developing a cylindrical apparatus at IIT Mandi with Dr. Ashutosh Kumar, who was one of the collaborators of the project. The instrument is capable of monitoring matric suction and water content at different depths of a soil column in real-time when subjected to hydraulic loading. The climate adaptive barrier layer (CABL) was prepared by using an amended soil containing a 5% by dry mass of waste produced from the water treatment plant. The outcome of this research has demonstrated the potential applicability of CABL in limiting the flow of water in the underlying soil column and has the potential to safeguard the underlying infrastructure.

10. **PI: Dr. Ashutosh Kumar**
    Project Title: Development of design methodology for shallow foundations on sloping ground subjected to hydraulic load and fault rupturing phenomena: experimental and numerical investigation
    Project No. ITM/SG/ASK/70
    Duration of the Project: Jan 2021-January 2024
    Project Cost: Rs.16,00,000/-
    The SEED grant project is investigating the behavior of shallow foundations resting on sloped ground. Extensive numerical modeling has been carried out to understand the behavior of soil then a physical model is developed and monitoring is carried out.

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PATENTS

S. No.	Patent Detail/Title	Patent Applied	Inventor detail	Year of filing	File no./ Application number
1.	Method For Cladding Internal Cylindrical/Curved Surface Via Microwave	28 July 2021	**Sunny Zafar** and Bhupinder Singh	2021	202111033942
2.	A Thermal Energy Storage Device and A Solar Space Heating Assembly	20 January 2022	Shukla P.K., and **Kishan P.A**	2022	202211003420
3.	A Quick And Effective Poling Technique For Ferroelectric Materials	13 August 2021	Moolchand Sharma and **Rahul Vaish**	2021	202111036727
4.	Functionalized nanofiber membrane and method of preparation thereof	24 December 2021	Manish Kumar and **Jaspreet Kaur**	2021	202111060593

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SHORT-TERM COURSE/WORKSHOP ORGANIZED

1. A Short-Term course on Modelling and Simulation of Engineering Systems (MaSES), from **31 Jan to 04 Feb 2022**. (**Coordinators: Dr. Mohd. Talha & Prof. Rajeev Kumar**)
   Modeling and Simulation (M&S) is becoming an important and powerful tool for designing and evaluating complex engineering systems. Modeling and simulation technology helps engineers to test whether the proposed design specifications are met by employing virtual experiments rather than performing physical experiments. The virtual experiments substantially shorten the design cycle and reduce the cost of design and provide an immediate appraisal of the design decisions so that an alternative and better-performing design can be achieved. Therefore, it is necessary to train engineers and researchers in M&S techniques, and this short-term course is introduced to train engineers across the disciplines.
2. The workshop on “Computational Techniques for Smart Materials Modelling and Bio-Medical Applications” funded by Accelerate Vigyan Scheme by SERB was organized online mode during 24-31 January 2022. There were 25 Participants. **(Dr. Sunny Zafar & Dr. Himanshu Pathak: Coordinators).**
   Computational techniques have broader and more efficient applicability to investigate real-life engineering problems. It can analyze complicated geometry domains, various boundary conditions, non-linearity, and coupled physics phenomena common in scientific problems. This one-week workshop has been designed to introduce state-of-the-art computational techniques, formulation background, and implementation issues in detail.
3. International workshop on "Landslides Susceptibility and Adaptability in South-East Asia: Theory to Practice", jointly organized by IIT Mandi and Durham University UK from March 29-30 2022. (Report) **(Dr. Ashutosh Kumar: Coordinator).**
   A two-day international workshop on the theme “Landslides Susceptibility and Adaptability in South-East Asia: Theory to Practice” was jointly organized by IIT Mandi India and Durham University UK. The workshop was organized as a part of the project “Understanding Landslide Susceptibility and Adaptability in South-East Asia (SEAL)” funded by a UKRI-NERC grant. About 350 participants from more than 25 countries covering six continents registered and more than 214 participants attended online including 20 participants who attended in person at IIT Mandi.
4. Two Days Short Course Organized on “Application of Unsaturated Soil Mechanics on the analysis of slopes jointly by IIT Mandi- Durham University UK and Universiti Kebangsaan Malaysia” from 24-25 February 2022. Report. (Dr. Ashutosh Kumar: Coordinator). A two-day short-term training course on the theme “Application of unsaturated soil mechanics on the analysis of slopes” was organized by IIT Mandi in collaboration with Durham University UK and Universiti Kebangsaan Malaysia. The short training course was organized as a part of the project “Understanding Landslide Susceptibility and Adaptability in South East Asia (SEAL)” funded by a UKRI-NERC grant. More than 400 participants from around 14 countries registered for the course and were attended by more than 250 participants.

NATIONAL/INTERNATIONAL CONFERENCES ATTENDED AND PAPERS PRESENTED

1. Mohd, Fahed, and Mohammad Talha. "Effect of graphene platelets reinforcement on the vibration behavior of functionally graded porous arches under thermal environment." Materials Today: Proceedings (2022).
2. Shakir, Mohammed, and Mohammad Talha. "Transient response of GPLs reinforced FG-porous skewed plates subjected to blast loading." Materials Today: Proceedings (2022).
3. Raza, Ahmed, Himanshu Pathak, and Mohammad Talha. "Computational investigation of porosity effect on free vibration of cracked functionally graded plates using XFEM." Materials Today: Proceedings (2022).
4. Mohd, Fahed, and Mohammad Talha “Stochastic vibration characteristics of functionally graded porous arches reinforced with graphene platelets under thermal environment”. 20th ISME conference on advances in mechanical engineering IIT Ropar (2022).
5. Y. Aggarwal and S. K. Saha, “Seismic Vulnerability Assessment of Important Buildings in Mandi Region, Himachal Pradesh, India”, Two-day Symposium on Socio-Technological Aspect of Seismic Disaster Management, IIT Guwahati, India, June 23 - 24, 2022. (Attended and presented by student)
6. Thakur, A Gupta and S. Saha, "Metamaterials for Seismic Design", Progressive Research in Industrial & Mechanical Engineering (PRIME - 2021), Patna, India, August 5 -7, 2021. (Presented by student)
7. Bisht M, and Bhutani G, A new code for discrete element modeling of the collapse of granular columns – model

validation, Proceeding of the 48th National Conference on Fluid Mechanics and Fluid Power, Dec 2021.

8. Dwivedi A, Morrison A, and Bhutani G, Computational modeling of a two-phase inverse bubble column, Proceeding of the 48th National Conference on Fluid Mechanics and Fluid Power, Dec 2021.
9. Dr. Himanshu Pathak, "Finite element modeling of in-situ composite patch repair of cracked aluminum aircraft structures," Proceedings of the Indian Structural Steel Conference, IIT Hyderabad.
10. Amir, Mohammad, Mohammad Talha, and Sang-Woo Kim. "Uncertain Eigenvalue Analysis of Nonlinear Finite Element Modeled Sandwich Panel with the Graded Cellular Core." Abstract of the Korean Society for Aeronautical and Space Sciences Conference (2022): 94-95.
11. Gupta, Ankit, and Mohammad Talha. "Structural Responses of Geometrically Imperfect Functionally Graded Plates with Microstructural Defects Under Hygrothermal Environment." *Machines, Mechanism and Robotics*. Springer, Singapore, 2022. 1425-1435.
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13. Singh, K., Kumar, R., Talha, M., & Narain, V. (2022). Vibration Control of Smart Cantilever Beam Using Fuzzy Logic Controller. In *Machines, Mechanism and Robotics* (pp. 1801-1812). Springer, Singapore.
14. Sharma, S., Kumar, R., Talha, M., & Narain, V. (2022). Shape Control of Piezo laminated Structure Using Poling Tuned Piezoelectric Actuators. In Machines, Mechanism and Robotics (pp. 1765-1776). Springer, Singapore.
15. S. Khakurel, R. Dhakal, T. Yeow, S. Saha, "Residential Building Repair Cost and Claim Settlement Time from the Canterbury Earthquake Sequence", New Zealand Society for Earthquake Engineering (NZSEE) Annual Technical Conference, Christchurch, New Zealand, April 14-16, 2021. (Attended and presented by a collaborator)
16. Y. Aggarwal and S. K. Saha, "Seismic Loss Estimation Due to Damage of Structural Components for Buildings in Hilly Region", 17th World Conference on Earthquake Engineering (17WCEE), Sendai, Japan, September 27 – October 2, 2021. (Attended and presented by student)
17. M. Kulariya and S. K. Saha, "Analysis of Buildings in Hilly Terrain Under Multiple Hazards", 17th World Conference on Earthquake Engineering (17WCEE), Sendai, Japan, September 27 – October 2, 2021. (Attended and presented)
18. S. Khakurel, R. Dhakal, T. Yeow, S. Saha, "Derivation and Application of Performance Group Weighting Factors for Rapid Seismic Loss Estimation", 17th World Conference on Earthquake Engineering (17WCEE), Sendai, Japan, September 27 – October 2, 2021. (Attended and presented by student)
19. Dr. Mousumi Mukherjee, "attended the 20th International Conference on Soil Mechanics and Geotechnical Engineering (ISSMGE) 2022, Sydney, Australia (Online)".
20. Siddharth Pathak and Mousumi Mukherjee (2022), Prediction of Rate-dependent Mechanical Behaviour of Toyoura Sand Employing a Newly Proposed plastic Constitutive Model, Extended Abstract: Proceedings of the 15th World Congress on Computational Mechanics (WCCMXV) and 8th Asian Pacific Congress on Computational Mechanics (APCOM-VIII),Yokohama, Japan.
21. Madhusudan Negi and Mousumi Mukherjee (2022), Assessment of macro and micro level heterogeneities for characterizing the mechanical behavior of sand in biaxial test employing DEM, Proceedings of the 15th World Congress on Computational Mechanics (WCCMXV)and 8th Asian Pacific Congress on Computational Mechanics (APCOM-VIII),Yokohama, Japan.
22. Athwart A. Saurkar, Mousumi Mukherjee, Nishant Sharma and Arindam Dey (2022), Non-linear analysis of coupled building-foundation system subjected to lateral loading condition, Extended Abstract: Proceedings of the 2nd Eurasian Conference on Open Sees, Open Sees Days 2022 Eurasia, Turin, Italy.
23. Mousumi Mukherjee and Bhupendra Chand (2022), Simulation of pile penetration in sand employing updated lagrangian and CEL based FE approach: a comparative study, Proceedings of the 20thInternational Conference on Soil Mechanics and Geotechnical Engineering (ISSMGE) 2022, Sydney, Australia.
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25. Singh, A. and Kumar, P., "Bouncing of liquid drop upon Coalescence on a Super hydrophobic Surface", Paper ID: 52741, Droplets 2021, August 16-18, 2021, TU Darmstadt, Germany.
26. Rajeev Kumar, Manjeet Rani and Sunny Zafar, Influence of stacking sequence on impact strength/hardness of CF/GF hybrid composites fabricated by VARIMC technique, Proceedings of the 2nd International Conference on Aspects of Materials Science and Engineering 2021 (ICAMSE 2021), Punjab University, Chandigarh, India, March 2021. (Best paper award).
27. Shukla, D., & Rai, A. (2021, December). Evaluation and Ranking of different gridded rainfall-interpolation combinations for a large Himalayan watershed using an entropy-based weighted sum model. In AGU Fall Meeting Abstracts (Vol. 2021, pp. H35T-1271).

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29. Shukla, D., Shukla, P., & Shukla, A. (2021, December). Temporal analysis of various indices and LST for forest fire study in parts of Mizoram region using Google Earth Engine. In AGU Fall Meeting Abstracts (Vol. 2021, pp. H55X-1014).
30. Dr. Pradeep Kumar," 8th European Thermal Science Conference 6-10 September 2020, Lisbon, Portugal"
31. Dr. Pradeep Kumar, "26th National and 4th International ISHMT-ASTFE Heat and Mass Transfer, 17-20th December 2021, IITM, Chennai".
32. Sharma, B., Bau, S., Sarkar, S., 2021. Characterization of exposure and respiratory tract deposition of size-fractionated trace metals from indoor cooking in northeast India. American Geophysical Union (AGU) Fall Meeting, December 13th-17th, 2021, New Orleans, USA.
33. Rana, A., Sarkar, S., 2021. Fluorescent properties of brown carbon aerosols using an excitation-emission matrix (EEM) for different seasons. American Geophysical Union Fall Meeting, December 13th-17th, 2021, New Orleans, USA.
34. Dey, S., Sarkar, S., 2021. The linkage between chemical and optical properties of aqueous brown carbon and HULIS: insights from EEM fluorescence coupled with PARAFAC analysis. American Geophysical Union Fall Meeting, December 13th-17th, 2021, New Orleans, USA.
35. Yang, L., Tham, J., Jia, S., Sarkar, S., Fan, W.H., Reid, J.S., Ong, C.N., Yu, L.E., 2021. Evaluation of peat-forest burning smoke in Maritime Continent during 2011–2019. Asia Oceania Geosciences Society (AOGS) 18th Annual Meeting, August 1st-6th, 2021.
36. Sharma, B., Polana, A.J., Sarkar, S., 2021. Variation in carbonaceous and ionic species at a rural receptor location in the eastern Indo-Gangetic Plain. European Geosciences Union (EGU) General Assembly, April 19th-30th, 2021, Vienna, Austria.
37. Shukla P.K., and Kishan P.A., "Solar Thermal Energy Storage with Phase Change Material for Domestic Active Space Heating", paper presentation in the 7th Thermal and Fluids Engineering Conference organized by the American Society of Thermal and Fluids Engineers (ASTFE), 16-18 May 2022, University of Nevada, Las Vegas, NV, USA. (Oral Presentation)
38. Shukla P.K., and Kishan P.A., "Solar Thermal Energy Storage with Phase Change Material for Domestic Active Space Heating Applications", 5th International Symposium on Convective Heat and Mass Transfer, CONV-22, organized by International Centre for Heat and Mass Transfer (ICHMT) and American Society of Thermal and Fluids Engineers (ASTFE), 05–10 June 2022, at Dokuz Eylul University, Izmir, Turkey. Proceedings in ICHMT Digital library, Begell House Inc. (DOI: 10.1615/ICHMT.2022.CONV22.460). (Poster Presentation).
39. Ashutosh Kumar* (2022) "An Investigation of the effect of the 2015 Gorkha Earthquake within the World Heritage monument zones of Kathmandu Valley" Proc. of the 7th International Young Geotechnical Engineers Conference, Sydney, Australia. ISBN- 978-0-994-6261-5-8. pp. 149-154.

INVITED LECTURES/TALKS IN THE CONFERENCE/CONTINUING EDUCATION PROGRAMS

1. Idealization of Physical systems: Innovation in Mechanical Engineering, under Impact Lecture Series, Ministry of Education (MoE), Innovation Council at Baba Banda Singh Bahadur Engineering College, Fatehgarh Sahib, Punjab on 12 June 2022. - **Dr. Mohd. Talha**
2. Presented a talk on Multi-hazard Resilient Hilly Infrastructure – an Emphasis on Earthquake Resistant Design" in a Week Margdarshan Sponsored online Faculty Development Program: Eco-Friendly Infrastructures, organized by Department of Civil Engineering, C.V. Raman Global University, Bhubaneswar, Odisha, during March 07 – 11, 2022. - **Dr. Sandip Kumar Saha**
3. Presented a talk on "Loss Based Seismic Design" in an Online Faculty Development program on Advancements in The Field of Civil Engineering: Theory and Practice, organized by Pravara Rural Engineering College, Loni, during February 21 – 26, 2022. - **Dr. Sandip Kumar Saha**
4. Presented a talk on "Base-Isolation for Liquid Storage Tanks" in an AICTE-sponsored online ATAL Faculty Development Program on Earthquake Resistant Design and Construction Practices, organized by the Department of Civil Engineering, University Institute of Technology (UIT), Rajiv Gandhi Proudyogiki Vishwavidyalaya, Bhopal, India, during November 29 – December 03, 2021. - **Dr. Sandip Kumar Saha**
5. Presented a talk on "Repair and Retrofitting for Enhancing Seismic Performance of RC Structures" in a week, e-Faculty Development Program on Deterioration, Diagnosis and Rehabilitation of RC Structures organized by the Department of Civil Engineering, B.I.T. Sindri, Dhanbad, Jharkhand, India, during October 25 – 29, 2021. - **Dr. Sandip Kumar Saha**

6. Investigation of Instabilities in Granular Materials Across the Length Scale: Webinar organized by Department of Civil Engineering, School of Engineering, Shiv Nadar University, Delhi-NCR on March 15th, 2022. - **Dr. Mousumi Mukherjee**
7. Delivered a keynote talk on "Towards understanding the characteristics of film boiling heat transfer over curved surfaces" in FLUTE 2021 organized by Amity University Noida. - **Dr. Parmod Kumar**
8. Delivered a talk on "Fundamentals of boiling heat transfer" organized by G.H. Raisoni Institute of Engineering & Technology, Nagpur. - **Dr. Parmod Kumar**
9. Delivered a talk on "Non-Traditional Machining Processes" in FDP on 23rd July 2022 at IIT Mandi - **Dr. Sunny Zafar**
10. Delivered a talk on Green Composite and its Processing on 10th February 2022 at ABES Engineering College, Ghaziabad [online] - **Dr. Sunny Zafar**
11. Delivered a talk on "Manufacturing of polymer composites using microwave energy" Online in ATAL Faculty Development Program, 09th August 2021 at NIT Meghalaya - **Dr. Sunny Zafar**
12. Delivered a talk on "Selective laser sintering process and applications" in Short Term Course on Additive Manufacturing, 3rd August 2021 at NITTTR Chandigarh [online] - **Dr. Sunny Zafar**
13. Delivered a talk on "Manufacturing of polymer composites using microwave energy" in AQIP-STTP- 3. 19th March 2021PHCET, Rasayani [online] - **Dr. Sunny Zafar**
14. Given a lecture in FDP titled "GIS & Remote Sensing" sponsored By AICTE - Training and Learning (ATAL) Academy, during 6th-10th July 2021 being organized by Devi Ahilya University, Indore, M.P. India. My lecture topic was "Application of Remote Sensing on Landslide studies". - **Dr. Dericks P. Shukla**
15. Given a lecture on "Geological Understanding for Hazards" on 26th July 2021 in an online training program on "*Geo-hazard Analysis and Management*" from 26th to 28th July 2021. Organized by the University of Allahabad and the National Institute of Disaster Management. - **Dr. Dericks P. Shukla**
16. Given an invited lecture in the International e-Workshop on Radiation Transport and Application at IIT Bhubaneswar (SPARC-sponsored workshop). - **Dr. Pradeep Kumar**
17. Given an invited lecture in the Mechanical Engineering Department at IIT (BHU) Varanasi. - **Dr. Pradeep Kumar**
18. Brown carbon aerosols: basics and insights from field measurements in eastern India. Invited lecture at IIT Madras-AICTE Workshop on Concepts in Measurement, laboratory Experiment and Modeling of Atmospheric Pollutants – 9th March 2022. - **Dr. Sayantan Sarkar**
19. Expert lecture on "Direct and inverse analysis of moisture transport in concrete" in the online short-term course on "Modelling and Simulation of Engineering Systems", organized by the School of Engineering, IIT Mandi during 31 January - 4 February 2022. - **Dr. Kaustav Sarkar**
20. Expert lecture on "Modeling of hydraulic diffusivity by inverse analysis" in the online faculty development program on "Deterioration, Diagnosis and Rehabilitation of RC structures", organized by the Dept. of Civil Engg., BIT Sindri (J.H.) during 25-29, October 2021. - **Dr. Kaustav Sarkar**
21. Keynote lecture on "Moisture transport in concrete - experimentation and simulation" in the online national conference BITCON on "Multidisciplinary Research ideas in Science, Engineering and Management", organized by the Dept. of Civil Engg., Bhilai Institute of Technology Durg (C.G.) during 22-23, October 2021. - **Dr. Kaustav Sarkar**
22. Expert lecture on "Simulation of moisture transport in concrete" in the online AICTE-sponsored short-term course on "Programming in Finite Element Method and its application to practical problems using ABAQUS", organized by the Dept. of Civil Engg., NITTR Chandigarh during 4-8, October 2021. - **Dr. Kaustav Sarkar**
23. Expert lecture on "The potential of pine needles for use as fiber reinforcement for cementitious systems" in the online AICTE-sponsored short-term program on "Energy Efficient and Innovative Building Construction Practices", organized by the Dept. of Civil Engg., NITTR Chandigarh held during 23-28, August 2021. - **Dr. Kaustav Sarkar**
24. Online talk on "Durability of concrete", organized by the Dept. of Civil Engg., Government Polytechnic Sundernagar on 23 June 2021. - **Dr. Kaustav Sarkar**
25. Talk on "Development of Water Barrier System for Slopes" during the International workshop titled "Landslides Susceptibility and Adaptability in South-East Asia: Theory to Practice" jointly organized by IIT Mandi India and Durham University UK from 29-30 March 2022.- **Dr. Ashutosh Kumar**
26. Talk on "Effect of environmental load on cyclic behavior of soil" during the Two-day short course titled "Application of unsaturated soil mechanics on the analysis of slopes" jointly organized by IIT Mandi, Durham University and Universiti Kebangsaan Malaysia from 24-25 February 2022. - **Dr. Ashutosh Kumar**
27. Invited talk on "Performance evaluation of Historic Urban Infrastructure of Kathmandu City Post 2015 Gorkha Earthquake: An Interdisciplinary Perspective" during Short Training course on Disaster Risk Management/Natural Hazard for Cultural Heritage under CRAFT Project: UK Arts and Humanities Research Council on February 22, 2022, organized by Middle East Technical University, Turkey. - **Dr. Ashutosh Kumar**
28. Invited Talk on "Understanding the impact of changing climatic conditions on Transportation Infrastructure" at a Five-Day virtual international workshop on Recent Advancements and Emerging Economic Aspects of

Transportation Geotechnology RAEEATG 2021 organized by NIT Agartala, India. [Dec. 20-24, 2021]. - **Dr. Ashutosh Kumar**

29. Invited Talk on "Earthquake Resilient Foundation System" and "Seismic Performance of Heritage Structures" at the Five-day faculty development program on "AICTE Sponsored online FDP on Disaster Resilient Infrastructure by Himachal Pradesh University Shimla, Himachal Pradesh. [Aug. 9-13, 2021] - **Dr. Ashutosh Kumar**

PROFESSIONAL FACULTY/STUDENTS' ACHIEVEMENTS/HONOURS/AWARDS

1. **Dr. Rajesh Ghosh**, Editorial Board Member, BMC Musculoskeletal Disorders (BMC Series – Part of Springer. Nature), 2021 – Present.
2. **Dr. Sandip Kumar Saha** chaired a technical session at the 17th World Conference on Earthquake Engineering (17WCEE), held in Sendai, Japan, from September 27 – October 02, 2021.
3. **Dr. Sandip Kumar Saha**, Appointed as Associate Editor - Practice Periodical on Structural Design and Construction, ASCE, June 2021.
4. **Dr. Sunny Zafar** was awarded the Faculty Teaching Honour Roll Award 2021, IIT Mandi
5. **Dr. Sayantan Sarkar,** Guest Editor, Special Issue on "Air quality and climate effects of traditional and emerging pollutants", Atmosphere (MDPI), 2021, https://www.mdpi.com/journal/atmosphere/special_issues/.
6. **Dr. Sayantan Sarkar,** Reviewer for journals: Journal of Hazardous Materials, Science of the Total Environment.
7. **Dr. Kaustav Sarkar,** "The paper titled "Drying resistances of brick, mortar and concrete" published in the Journal of Architectural Engineering (ASCE), 28(1), is amongst the most read articles of the journal. The article also featured amongst the top papers by Indian authors across all ASCE journals in March 2022".

MEMBERSHIP IN PROFESSIONAL SOCIETIES

Dr. Atul Dhar: SAE India

Dr. Sandip Kumar Saha

i. American Society of Civil Engineers (ASCE).
ii. Indian Association for Computational Mechanics (IndACM), (Life Member).
iii. Indian Society of Earthquake Technology (Life Member).

Dr. Mousumi Mukherjee

1. Indian Geotechnical Society (Life Member)
2. International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE)

Dr. Parmod Kumar: Life member of the Indian Society of Heat and Mass Transfer (ISHMT)

Dr. Sayantan Sarkar: Member of the Indian Aerosol Science and Technology Association (IASTA)

OUTREACH ACTIVITIES

1. **Dr. Sandip Kumar Saha**, "Presented a talk on "Understanding the Behaviour of Buildings in Hilly Regions under Multiple Hazards" in a UKIERI-DST Partnership Development Workshop: Urbanization and Resilience against Natural and Man-made Disasters- Developing a Roadmap for Building Resilient Cities in India, jointly organized by the University of Wolverhampton and IIT Delhi, Science Park, Wolverhampton, UK, during December 13 – 16, 2021".
2. **Dr. Sandip Kumar Saha,** "Acted as selection committee and review committee member for The Prime Minister's Research Fellows (PMRF) Scheme".
3. **Dr. Kaustav Sarkar,** "Contributed towards the revision of Harmonized Guidelines and Space Standards for Barrier Free Environment for Persons with Disability and Elderly Persons 2016 under the Department of Empowerment of Persons with Disabilities (DEPwD), Ministry of Social Justice and Empowerment, Government of India.

3.3 SCHOOL OF BASIC SCIENCES (SBS)

The School of Basic Sciences at IIT Mandi is a cluster of various disciplines of science such as Mathematics, Physics, Chemistry and Life Sciences and related domains. The core of the school consists of 39 faculties (plus visiting professors and teaching fellows) having expertise in contemporary fields of research. The school started its Ph.D. program in2010, and presently, 173 research scholars have enrolled to pursue research in various disciplines. The school aims to create an ambiance for the smooth pursuit of scholarly activities in research and education to make an international impact. The School of Basic Sciences has started a M.Sc. program in Chemistry with specialization in various areas such as Organic Chemistry, Inorganic Chemistry, and Physical Chemistry & Nanosciences from the year 2014. The School of Basic Sciences has also started Integrated-Ph.D. Physics in the year 2015, M.Sc. Mathematics &M.Tech. Biotechnology program in the Year 2016 and M. Sc. Physics in 2017. The school had also started three new B.Tech. Programs jointly with other schools in 2019. The school faculty members are closely working with their engineering colleagues on different research projects.

FACULTY/STAFF

1	**Prof. Suman Kalyan Pal** **Professor and Chairperson** Specialization: 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@iitmandi.ac.in, chairsbs	
2	**Dr. Aditi Halder** **Associate 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	
3	**Dr. Ajay Soni** **Associate Professor** Specialization: Nanomaterials and Experimental Condensed Matter Physics Ph.D. from UGC-DAE Consortium for Scientific Research, Indore (2009) Phone: 01905- 267135, Email: ajay	
4	**Dr. Amit Balkrishna Pawar** **Assistant Professor** Specialization: Organic Chemistry Ph.D. from IISc Bangalore Home Town: Pune, Maharashtra Phone: 267116, Email: amitpawar	
5	**Dr. Amit Jaiswal** **Associate Professor** Specialization: Nanobiotechnology Ph.D. from Indian Institute of Technology Guwahati (2013) Home Town: Kolkata, West Bengal Phone: 01905- 267137, Email: j.amit	

6	**Dr. Amit Prasad** **Associate Professor** Specialization: Immunology/Microbiology Ph.D. from Sanjay Gandhi PG Institute of Medical Sciences, Lucknow (2008) Home Town: Ranchi, Jharkhand Phone:01905-267136, Email: amitprasad	
7	**Dr. Aniruddha Chakraborty** **Associate Professor** Specialization: Theoretical Chemistry Ph.D. from Indian Institute of Science (2005) Home Town: Kolkata, West Bengal Phone: 01905-267145, Email: achakraborty	
8	**Dr. Arti Kashyap** **Associate Professor (Joint Appointment)** Specialization: Magnetism and Magnetic Materials Ph.D. from Indian Institute of Technology Roorkee Home Town: Mandi, Himachal Pradesh Phone: 01905-267042, Email: arti	
9	**Dr. Baskar Bakthavachalu** **Assistant Professor** Specialization: Genetics and Molecular Neuroscience Ph.D. from National Centre for Cell Science Home Town: Chennai, Email: baskar	
10	**Dr. Bhaskar Mondal** **Assistant Professor** Specialization: Computational Chemistry and Catalysis Ph.D. from Indian Association for the Cultivation of Science, Kolkata Home Town: Basirhat, West Bengal Phone: 267828, Email: bhaskarmondal	
11	**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	
12	**Dr. C. S. Yadav** **Associate Professor** Specialization: Low-Temperature Physics Ph.D. from Jawaharlal Nehru University (2008) Phone: 01905-267135, Email: shekhar	
13	**Dr. Chayan K. Nandi** **Professor** Specialization: Physical Chemistry Ph.D. from Indian Institute of Technology Kanpur (2006) Home Town: Sarangapur, Bankura, West Bengal Phone: 01905-267047, Email: Chayan	
14	**Dr. Garima Agrawal** **Assistant Professor** Specialization: Polymer Science and Technology, Materials Chemistry, Nanomaterials, Smart Materials, Biodegradable Polymers, Biomaterials Ph.D. from RWTH Aachen University, Germany Home Town: Jaipur, Rajasthan Phone: 267827, Email: Garima	

15	**Dr. Girish Sharma** **Assistant Professor** Specialization: Theoretical condensed matter physics Ph.D. from Clemson University (USA) Home Town: Shimla, HP Email: girish	
16	**Dr. Hari Varma** **Associate Professor** Specialization: Atomic and Molecular Physics Ph.D. from Indian Institute of Technology Madras (2008) Home Town: Kochi, Kerala Phone: 01905-267064, Email: hari	
17	**Dr. Kaustav Mukherjee** **Associate Professor** Specialization: Experimental Condensed Matter Physics Ph.D. from UGC-DAE Consortium for Scientific Research (2008) Home Town: Kolkata, West Bengal Phone: 01905-267043, Email: kaustav	
18	**Dr. Manoj Thakur** **Associate Professor** Specialization: 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	
19	**Dr. Muslim Malik** **Associate Professor** Specialization: Differential Equations Ph.D. from Indian Institute of Technology Kanpur (2006) Home Town: Balrampur, UP Phone: 01905-267119, Email: muslim	
20	**Dr. Nitu Kumari** **Associate Professor** Specialization: Differential Equations, Dynamical Systems, Nonlinear Dynamics Ph.D. from Indian School of Mines Dhanbad (2009) Home Town: Dhanbad, Jharkhand Phone: 01905-267057, Email: nitu	
21	**Dr. Pradeep Kumar** **Associate Professor** Specialization: Raman and Infrared Spectroscopy Ph.D. from the Indian Institute of Science (2014) Home Town: Rohtak, HR Phone: 01905-267152, Email: pkumar	
22	**Dr. Pradeep Parameswaran** **Professor** Specialization: Inorganic/Materials/Nano-Chemistry Ph.D. from the University of Hyderabad (2006) Home Town: Varavoor, Thrissur District, Kerala Phone: 01905-237931/267045, Email: Pradeep	

23	**Dr. Pradyumna Kumar Pathak** **Associate Professor** Specialization: Quantum Optics, Quantum Information and Nanophotonics Ph.D. from Physical Research Laboratory, Ahmedabad Home Town: Mathura, Uttar-Pradesh Phone: 01905- 267046, Email: ppathak	
24	**Dr. Prasad Kasturi** **Assistant Professor** Specialization: Proteostasis, Aging, Stress Response and C.elegans Ph.D. from University of Fribourg Home Town: Nizamabad Email: prasadkasturi	
25	**Dr. Prasanth P. Jose** **Associate Professor** Specialization: Soft condensed matter physics Ph.D. from Indian Institute of Science (2005) Home Town: Palakkad, Kerala Phone: 01905-267064, Email: prasanth	
26	**Dr. Prem Felix Siril** **Professor** Specialization: Chemistry of Nanomaterials Ph.D. from DDU Gorakhpur University (2003) Home Town: Thiruvananthapuram, Kerala Phone: 01905-267040, Email: prem	
27	**Dr. Prosenjit Mondal** **Associate Professor** Specialization: Molecular Endocrinology and Metabolism Ph.D. from Institute of Life Sciences Bhubaneswar (2008) Home Town: Babunpur, Burdwan Phone: 01905-267135, Email: prosenjit	
28	**Dr. Qaiser Jahan** **Assistant Professor** Specialization: Harmonic and Wavelet Analysis Ph.D. from ISI Kolkata (2014) Home Town: Allahabad Phone: 01905-267050, Email: qaiser	
29	**Dr. Rajanish Giri** **Associate Professor** Specialization: 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	
30	**Dr. Rajendra K. Ray** **Associate Professor** Specialization: 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	
31	**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	

32	**Dr. Shyam Kumar Masakapalli** **Associate Professor** Specialization: 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	
33	**Dr. Subrata Ghosh** **Professor** Specialization: Organic Chemistry Ph.D. from Indian Institute of Technology Guwahati (2006) Home Town: Bolpur-Santiniketan, West Bengal Phone: 01905-267065, Email: subrata	
34	**Dr. Syed Abbas** **Associate Professor** Specialization: Differential Equations and Ecological modeling Ph.D. from Indian Institute of Technology Kanpur (2009) Home Town: Gonda, Uttar Pradesh Phone: 01905- 267148, Email: abbas	
35	**Dr. Trayambak Basak** **Assistant Professor** Specialization: Metabolic diseases, extracellular matrix, Proteomics Ph.D. from CSIR-Institute of Genomics and Integrative Biology Home Town: Dhupguri, West Bengal Email: trayambak	
36	**Dr. Tulika Prakash Yadav** **Associate Professor** Specialization: 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	
37	**Dr. Venkata Krishnan** **Associate Professor** Specialization: Materials Chemistry, X-ray Science Ph.D. from the University of Stuttgart, Germany (2006) Home Town: Coimbatore, Tamil Nadu Phone: 01905-267065, Email: vkn	
38	**Dr. Sumit Murab** **Assistant Professor** Specialization: Tissue Engineering, Biomaterials, 3D printing/bio-printing, Disease models, Intellectual property rights Ph.D. from Centre for Biomedical Engineering at IIT Delhi/AIIMS New Delhi in 2017. Home Town: Jabalpur, Madhya Pradesh Email: sumitmurab	
39	**Dr. Arko Roy** **Assistant Professor** Specialization: Ultracold quantum gases Ph.D. from Physical Research Laboratory, Ahmedabad Home Town: Kolkata, West Bengal Email: arko	

40	**Dr. Harsh Soni** **Assistant Professor** Specialization: Soft Condensed Matter Physics Ph.D. from IISc Home Town: Baran, Rajasthan Email: harsh	
41	**Dr. Nirmalya Kajuri** **Assistant Professor** Specialization: Theoretical High Energy Physics Ph.D. from the Institute of Mathematical Science Home Town: Kolkata Email: nirmalya	
42	**Dr. Moupriya Das** **Assistant Professor** Specialization: Stochastic processes, Dynamical systems theory Ph.D. from Indian Association for the Cultivation of Science, INDIA (2015) Home Town: Krishnanagar, West Bengal Email: moupriya	
43	**Dr. Eike F. Schwier** **Visiting Assistant Professor** Specialization: Surface Science, Photoelectron Spectroscopy, Density Functional Theory Ph.D. from the University of Fribourg, Switzerland Home town: Bremen, Germany	
FACULTY FELLOWS		
44	**Dr. Sweta Tripathi** **Ramalingaswamy Faculty Fellow** Specialization: Virology, Innate Immunity, Cancer Biology Ph.D.: Boston University Home Town: Gorakhpur Email: shwetatripathi	

STAFF

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3	**Palvi Sharma** Technical Assistant Phone: +91 1905 267061, Email: palvisharma@projects.iitmandi.ac.in Office: Chemistry Lab- Ground Floor, A6 Building	

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RESEARCH PROJECTS

Research Projects From IIT Mandi Seed Grants, Sponsored Projects, Brief Progress Of The Work Done Against Project, Highlighting The Major Achievements During This Period. Names Of Pi, Co-Pi, Funding Agencies and Amount Of Grant Received etc.

S. No.	Reference/Project No.	Project Title	Sponsoring Agency	Principal Investigator & Coordinator (s)	Amount Sanctioned (In Rs.)	Duration
1	IITM/DBT-IYBA/RG/228	Implications of disordered regions in Zika virus capsid folding and functions	DBT-IYBA	Dr. Rajanish Giri	57,08,800	3 years
2	IITM/DBT/PM/233	The role of ectopic liver-derived systemic factors in regulating beta cell function	DBT	Dr. Prosenjit Mondal (PI) DBT	50,63,000	3 years
3	IITM/SERB/PM/281	Function and mechanisms of sourcing in diet-induced fatty liver diseases and lipid metabolism	SERB	Dr. Prosenjit Mondal, Dr. Subrata Ghosh (Co-PI), Dr. Mohan Kamthan (Co-PI)	43,60,000	3 years
4	IITM/SERB/RG/282	Mechanistic insights into the folding and function of Zika Virus NSI protein: implications for replication complex formation	SERB	Dr. Rajnish Giri	57,97,000	3 years
5	IITM/SERB/TPS/283	Evaluation and design of novel synthetic microbial consortia for bioprocessing of rubber and plastic waste to industrial biomolecules	SERB	Dr. Tulika P Srivastava, Dr. Shyam Masakapalli (Co-PI)	41,51,400	3 years
6	IITM/DBT-RF/PKS/315	Unraveling the role of inter-tissue stress communication in maintaining organism-wide proteostasis during stress and aging	DBT	Dr. Prasad Kasturi	4250000	5 years
7	IITM/DST/MTH/319	Sustainable irrigation advisories for mid-Himalayan farmers using smart satellite image analytics	DST	Dr. Manas Thakur (PI) Prof. Yvonne Dittrich (PI) from IT University of Copenhagen, Denmark Dr. Srikant Srinivasan Dr. Shyam Kumar Masakapalli Dr. Ramna Thakur (CoPI's)	9929444	3 years
8	IITM/SERB/BB/321	Flavivirus RNA interacting stress granule complex as determinants of host adaptation and infectivity	SERB	Dr. Baskar Bakthavachalu	38,40,000	3 years
9	IITM/ICMR/RG/322	Drug discovery and folding mechanism against RNA-dependent RNA polymerase of Japanese encephalitis virus	ICMR	Dr. Rajanish Giri	5,66,500	3 years

10	IITM/HPSAMB/HT/326	Engineering design improvisation of packaging material leading to market-friendly prototypes that retain fruits quality	H.P State Agriculture Marketing Board	Dr. Mohammad Talha, Dr. Shyam Masakapalli	17,88,000	18 months
11	IITM/DBT-WIA/BB/331	How does ataxin-dependent stress-granule assembly contribute to neurodegenerative disease	DBT Welcome Trust India Alliance	Dr. Baskar Bakthavachalu	3,60,73,321	5 Years
12	IITM/ICMR/TB/334	High- Resolution plasma proteomic and lipidomic analyses for fibrosis-related metabolic assessment in dilated cardiomyopathy(DCM) patients in India- A multi-center-based study	ICMR	Dr. Trayambak Basak	30,27,638	1 Year
13	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	4.1 years
14	IITM/DBT-RF/ST/156	Role of human cathelicidin in gastric carcinogenesis	DBT	Dr. Shweta Tripathi	88,00,000	5 year
15	IITM/MHRD-IMPRINT/AD/169	Sustainable wastewater treatment through bio-photoelectro catalysis and bioproduction	MHRD-IMPRINT	Dr. Atul Dhar (PI) Dr. Rahul Vaish Dr. Shyam Masakapalli Dr. Aditi Halder Dr. Tulika P Srivastava Dr. Rik Rani Koner	3,84,34,000	4. 8 years
16	IITM/SERB/AJ/351	Wearable NIR triggered on-demand drug release skin patch containing microneedles loaded with gold nanocapsules for localized cancer treatment	SERB	Dr. Amit Jaiswal (PI) Dr. Sanyog Jain (co-PI)	46,88,729	3 years
17	IITM/SERB/PKS/356	Roles for small heat shock proteins in protective protein aggregation and proteome protection	SERB	Dr. Prasad Kasturi	54,78,000	03 years
18	IITM/DBT/TPS/366	Process optimization and up-scale production of lignocellulosicextremozymesfrom Himalayan microbes for biomass valorization/depolymerization	DBT	Dr. Tulika P. Srivastava	33,26,120	3 years
19	IITM/ICMR/RG/342	Folding perspective and inhibitor discovery of Zika virus NS2B-NS3 protease complex	ICMR	Dr. Rajanish Giri	16,30,893	3 years
20	IITM/ICMR/PM/346	Targeted Mass Spectrometry based approach to measure plasma acetylated high mobility group box 1 level as a surrogate marker for hyperinsulinemia	ICMR	Dr. Prosenjit Mondal CoPI- Dr. Trayambak Basak	45,19,450	3 years
21	IITM/CONS/Xceltics/AP/61	Isolation purification and supply of Taeniasolium cyst fluid antigens (6mg)	Xceltics GmbH, PirnaerStrabe 24, D-68309, Mannhein, Germany	Dr. Amit Prasad	1,84,750	40 days
22	IITM/SG/PKS/71	To identify and characterize novel modifiers of protein aggregation	Seed Grant	Dr. Prasad Kasturi	7,00,000	3 years
23	IITM/SG/TB/75	Deciphering the cardiomyocyte-specific secretome networks during fibrosis	Seed Grant	Dr. Trayambak Basak	7,00,000	2 years
24	IITM/DBT-IYBA/RG/22	Implications of disordered regions in Zika virus capsid folding and functions	DBT-IYBA	Dr. Rajanish Giri	57,08,800	3 years

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25	IITM/DRDO/PFS/272	Micronization and Encapsulation of explosives by the expansion of CO2-expanded liquid solutions	DRDO	Prof. Prem Felix Siril (PI) (IIT Mandi) Dr. Sameer Dalvi, IIT Gandhinagar	22,64,850	3 years
26	IITM/SERB/PM/281	Function and mechanisms of sorcin in diet-induced fatty liver diseases and lipid metabolism	SERB	Dr. Prosenjit Mondal, Prof. Subrata Ghosh (Co-PI), Dr. Mohan Kamthan (Co-PI)	43,60,000	3 years
27	IITM/DST/VD/288	National Mission on interdisciplinary cyber-physical system (NM-ICPS) implementation mechanisms-Technology innovation hubs (TIH s)	DST	Prof. Prem Felix Siril (PI), Dr. Varun Dutt, Dr. Arnav Bhavsar, Dr. Anil K Sao, Dr. Aditya Nigam, Dr. Gopi Srikanth Reddy, Dr. Srikant Srinivasan, Dr. Dileep AD and Dr. Satyajit Thakor are the (Co-PIs)	7,25,00,000	5 years
28	IITM/DST-FIST/AH/217	FIST for improvement of S & T infrastructure- FIST project	DST	Dr. Aditi Halder	1,12,00,000	5 years
29	IITM/SERB/BM/299	Computation design of non-noble metal catalysts for photocatalytic N2 activation	SERB	Dr. Bhaskar Mondal	19,91,000	2 years
30	IITM/CSIR/ACY/277	Electron solvation by a layer of polar adsorbates realistic model	CSIR	Dr. Aniruddha Chakraborty	4,32,000	3 years
31	IITM/SERB/GA/303	Designing functional microgels-based agrochemical delivery systems with moisture preservation	SERB	Dr. Garima Agrawal	24,31,000	2 years
32	IITM/SERB/PM/281	Function and mechanisms of sorcin in diet-induced fatty liver diseases and lipid metabolism	SERB	Dr. Prosenjit Mondal, Prof. Subrata Ghosh (Co-PI), Dr. Mohan Kamthan (Co-PI)	43,60,000	3 years
33	IITM/SERB/AH/286	Lowcost flexible and rechargeable Zn-air battery for portable device application	SERB	Dr. Aditi Halder	42,17,400	3 years
34	IITM/DST/VD/288	National Mission on interdisciplinary cyber-physical system (NM-ICPS) implementation mechanisms-Technology innovation hubs (TIH s)	DST	Prof. Prem Felix Siril (PI), Dr. Varun Dutt, Dr. Arnav Bhavsar, Dr. Anil K Sao, Dr. Aditya Nigam, Dr. Gopi Srikanth Reddy, Dr. Srikant Srinivasan, Dr. Dileep AD & Dr. Satyajit Thakor are the (Co-PIs)	7,25,00,000	5 years
35	IITM/SERB/BM/299	Computation design of non-noble metal catalysts for photocatalytic N2 activation	SERB	Dr. Bhaskar Mondal S	19,91,000	2 years
36	IITM/DST(WOS-A)/KGH/302	Design and synthesis of imino sugar-base seven-membered fused deazapurine nucleosides and nucleotides	DST (WOS-A)	Dr. Ketaki Ghosh Prof. Subrata Ghosh (Mentor)	30,30,480	3 years
37	IITM/SCL/SG/343	Process Development for synthesis & purification of Propylene Glycol Mono-methyl Ether Acetate (PGMEA) formulation for Photolithography Applications at SCL	SCL	Prof. Subrata Ghosh	89,09,120	3 years
38	IITM/SERB/ABP/306	Total synthesis of Indolizinone, Quinolizinone and Quinazolinone based natural products via cp*co(III)-Catalyzed Cascada C-H functionalization	SERB	Dr. Amit Balkrishna Pawar	30,44,254	2 years
39	IITM/SERB/CKN/310	Unique fluorescent nano dots as a marker to ease the method of correlative super-resolution microscopy	SERB	Prof. Chayan Kanti Nandi	66,92,400	3 years

40	IITM/DST/AKP/312	Livelihood generation and improvement for women entrepreneurs in small scale fruits and vegetable farming and post-harvesting management	DST	Dr. Arti Kashyap (PI), Dr. Surya Prakash Upadhyay (Co-PI)	35,65,540	3 years
41	IITM/DST/GA/318	Designing 3D printable smart composite hydrogel- inks for tissue engineering applications	DST	Dr. Garima Agrawal (PI), Dr. Rik Rani Koner (Co-PI)	37,96,642	3 years
42	IITM/SU-UK/VKN/328	Low-cost recycling of coronavirus-contaminated medical waste (ReCocir)	Swamsea University (UK)	Dr. Venkata Krishnan	7,16,087	3 years
43	IITM/SU-UK/VKN/333	Agreement between Swansea University, Marley Limited, Manonmaniam Sundaranar University and IIT Mandi	Swansea University (UK)	Dr. Venkata Krishnan	1,81,440	3 years
44	IITM/SCL/SG/344	Development of Bottom Anti-Reflective Coating (BARC) for Photo-Lithography Applications at SCL	SCL	Prof. Subrata Ghosh	85,93,288	3 years
45	IITM/SG/GA/72	Designing multifunctional smart nanogels based electrospun fibers for biomedical applications	Seed Grant Project	Dr. Garima Agrawal	7,00,000	3 years
46	IITM/SG/ABP/76	Rational design and development of cyclopentadienyl-based cobalt catalysts for selective C-H activation	Seed Grant	Dr. Amit B Pawar and Dr. Bhaskar Mondal	16,00,000	3 years
47	IIT/NBHM-DAE/MM/336	Inverse problems for the abstract differential equations and fluid dynamics	NBHM	Dr. Muslim Malik (PI)	15,15,900	3 Years
48	IITM/SERB/SB/284	Identification problem on dynamic equation on the time scale	SERB	Dr. Syed Abbas (PI)	6,60,000	3 years
49	IITM/SERB/SAT/329	Entropy region information inequalities and their applications	SERB	Dr. Satyajit Thakor (PI) Dr. Syed Abbas (Co-PI)	37,13,677	3 years
50	IITM/SERB/NKU/294	Modeling COVID-19 to study the impact of various societal factors on the control of pandemic	SERB	Dr. Nitu Kumari (PI)	5,50,000	1 year
51	MTR/2018/000727	Modeling and Control of Hinglish Invasion in India	MATRICS	Dr. Nitu Kumari (PI)	6,60,000	3 years
52	IITM/SERB/QJ/309	Theory of wavelets on local fields and shearlet coordbit spaces	SERB	Dr. Qaiser Jahan (PI)	6,60,000	3 years
53	IITM/SERB/RKR/208	Development of an efficient numerical method for solving stochastic Partial differential equations and its application to turbulent flow analysis	SERB	Dr. Rajendra Kumar Ray (PI)	20,09,918	3 years
54	IITM/SERB/GS/305	Disorder topology and correlations in Dirac matter	SERB	Dr. Girish Sharma	1,362,372	2 years
55	IITM/SERB/KM/307	Exploration of physical properties of heusler alloys a prospective class of multi-functional material	SERB	Dr. Kaustav Mukherjee	49,87,400	3 years
56	IITM/DST/AS/308	Design of novel layered materials in bulk and 2D form for thermal energy harvesting	DST	Dr. Ajay Soni	38,36,880	3 years
57	IITM/DST/SKP/320	Optical control of valleytronics materials	DST	Prof. Suman Kalyan Pal (PI), Prof. Tonu Pullerits from Sweden	54,25,000	3 years
58	IITM/SERB/CSY/359	Exploration of emerging phenomena in topological quantus materials using magneto-transport and thermoelectricity studies	SERB	Dr. C S Yadav	47,67,400	3 years
59	IITM/SG/GS/73	Theoretical investigation of electronic transport in quasi two- dimensional topological Van der Waal heterostructures	Seed Grant	Dr. Girish Sharma	7,00,000	3 years

60	IITM/SERB/SKP/229	Study the dynamical evolution of spin and valley-related many particles electronic states in two-dimensional transition metal dichal cogenides using ultrafast time-resolved spectroscopy	SERB	Prof. Suman Kalyan Pal	35,00,716	3 years
61	IITM/SERB/AS/230	Large unit cell materials with intrinsically low thermal conductivity for thermoelectric application	SERB	Dr. Ajay Soni	47,12,400	3 years
62	IITM/DST/PK/235	Tailoring the nanoscale properties of graphene and its derivatives via strain engineering for next-generation nanoelectronics devices	DST	Dr. Pradeep Kumar	44,44,600	3 years

PROGRESS OF PROJECTS

1. **Title:** Developing novel strategies to capture Phytopathogen- agricultural host metabolic crosstalk by cell type specific 13 C metabolic phenotyping
   Funding Agency: MHRD-SPARC (Indo-UK)
   Fund Sanctioned: 46,81,775
   Investigators: Dr. Shyam Masakapalli (PI-India), Prof. R George Ratcliffe (PI-UK), Dr. Nicholas Kruger, Dr. Suvendra Ray and Dr. Sidhartha Sathapathy
   Start & End Year: 2018 – 2022

2. **Title:** Farming of unexplored herbs of the mid-Himalayan region and develop a sustainable supply model involving local farmer in the mid-Himalayan region
   Funding Agency: Himalayan Drug Company
   Fund Sanctioned: 5,68,800
   Investigators: Dr. Shyam Masakapalli (PI)
   Start & End Year: 2020 – 2022

3. **Title:** Evaluation and design of novel synthetic microbial consortia for bioprocessing of rubber and plastic waste to industrial biomolecules
   Funding Agency: SERB
   Fund Sanctioned: 41,51,400
   Investigators: Dr. Tulika Srivastava (PI) and Dr. Shyam Masakapalli (Co-PI)
   Start & End Year: 2020 – 2023

4. **Title:** Sustainable irrigation advisories for mid-Himalayan farmers using smart satellite image analytics
   Funding Agency: DST (Indo-Danish)
   Fund Sanctioned: 99,29,444
   Investigators: Dr. Manas Thakur, Dr. Shyam Masakapalli (Co-PI, lead Agronomy), Dr. Srikant Srinivasan and Dr. Ramna Thakur
   Start & End Year: 2021 – 2024

5. **Title:** Engineering design improvisation of packaging material leading to market-friendly prototypes that retain fruits quality
   Funding Agency: H.P State Agriculture Marketing Board
   Fund Sanctioned: 17,88,000
   Investigators: Dr. Shyam Masakapalli (PI) and Dr. Mohammad Talha (PI)
   Start & End Year: 2021 – 2022

6. **Title:** Biophysics of Zika virus Envelope protein, membrane fusion and sss inhibitor discovery
   Funding Agency: SPARC MHRD
   Duration: 15/03/2019-31/03/2022
   Fund Sanctioned: 97.23
   Investigators: Dr. Rajanish Giri, PI; Prof. Indira Mysorekar (PI from USA); Prof. Vladimir N. Uversky (Co-PI from USA); Prof. Sanjeev Kumar Singh (Co-PI from India)

7. **Title:** Implications of Disordered Regions in Zika virus capsid folding and function.
   Funding Agency: DBT (IYBA)
   Duration: 31/01/2019-30/01/2022
   Fund Sanctioned: 57.08
   Investigators: Dr. Rajanish Giri (PI)
   Apart from two published studies on capsid proteins extreme N-terminal region and capsid anchor regions biophysics and aggregation, we are in the process to identify novel inhibitors against capsid protein's disordered regions as well as RNA and lipid interacting regions.

8. **Title:** Mechanistic insights into the folding and function of Zika Virus NS1 Protein: implications for replication complex
   Funding Agency: Core Research Grant, SERB
   Duration: 17/02/2020- 16/02/2023
   Fund Sanctioned: 57.97
   Investigators: Dr. Amit Jaiswal, PI
   So far, we have investigated the folding perspective of beta-roll domain of NS1 protein along with the full-length protein through computational and experimental approaches. Currently, we are working on drug discovery approaches using Virtual screening methods followed by antiviral assays.

9. **Title:** Drug Discovery and folding mechanism against RNA dependent RNA polymerase of Japanese Encephalitis
   Funding Agency: ICMR
   Duration: 24/02/2021-23-02-2022 (Extendable)
   Fund Sanctioned: 5.66 Lakhs (1st Year Budget)
   Investigators: Dr. Rajanish Giri, PI
   In the first year of this project, we have prepared the clones for the purification of RdRp and have worked computationally on its drug discovery aspects.

10. **Title:** Folding perspective and inhibitor discovery of Zika Virus NS2B-NS3 Protease complex
    Funding Agency: ICMR
    Duration: 22/11/2021-21-11-2024 (Extendable)
    Fund Sanctioned: 16.30 Lakhs (1st Year Budget)
    Investigators: Dr. Rajanish Giri (PI)
    In the recently introduced project, we are procuring data on novel molecules to be tested against NS2B-NS3 protease using enzyme assays and antiviral assays.

11. **Title:** How Does Ataxin-Dependent Stress-Granule Assembly Contribute To Neurodegenerative Disease?
    Funding agency: Wellcome-DBT India alliance Intermediate Fellowship
    Duration: 2020-2025
    Fund Sanctioned: 3,59,04,397
    Amount received (2021-2022): 38,97,432
    Amount Spent (2021-2022): 45,91,889
    Investigators: Dr. Baskar Bakthavachalu (PI)

12. **Title:** Flavivirus RNA interacting stress granule complex as determinants of host adaptation and infectivity.
    Fund Agency: SERB
    Duration: 2020-2025
    Sanctioned: 38,40,000
    Amount Spent (2021-2022): 15,59,597
    Principle Investigators: Dr. Baskar Bakthavachalu

13. **Title:** Targeted Mass Spectrometry based approach to measure plasma acetylated High Mobility Group Box 1 level as a surrogate marker for hyperinsulinemia
    Funding Agency: ICMR-DHR (DHR-GIA/2020/0007888)
    Duration: Oct 2021 – Oct2024
    Principle Investigators: Dr. Prosenjit Mondal, Co-PI: Dr. Trayambak Basak
    Fund Sanctioned: 45,19,450

14. **Title:** Unraveling the role of inter-tissue stress communication in maintaining organism-wide proteostasis during stress and aging
Funding Agency: DBT
Duration: Feb 2021 to Jan 2026
Fund Sanctioned: 42,50,000
Principle Investigator: Dr. Prasad Kasturi

15. **Title:** Roles for small heat shock proteins in protective protein aggregation and proteome protection
Funding Agency: SERB
Duration: Feb 2021 to Jan 2024
Fund Sanctioned: 54,78,000
Principle Investigator: Dr. Prasad Kasturi

16. **Title:** Identification of modifiers of protein aggregation
Funding Agency: IIT Mandi Seed grant
Duration: Apr 2021 to Mar 2024
Fund Sanctioned: 7,00,000
Principle Investigator: Dr. Prasad Kasturi

17. **Project Title:** High-Resolution Plasma Proteomic and Lipidomic Analyses For Fibrosis-Related Metabolic Assessment In Dilated Cardiomyopathy (DCM) Patients In India: A Multi-Center Based Study.
Funding Agency: ICMR
Duration: July 2021 to Jun 2024
Fund Sanctioned: 90,00,000
Principle Investigator: Dr. Trayambak Basak

18. **Project Title:** Total Synthesis of Indolizinone, Quinolizinone and Quinazolinone-based Natural Products via Cp*Co(III)-Catalysed Cascade C□H Functionalization
Amount: 30,44,254/-
Principle Investigator: Dr. Amit Balkrishna Pawar
IIT Mandi Seed-Grant (Ongoing Project, April 2021 - March 2023)

19. **Project Title:** Rational Design and Development of Cyclopentadienyl-Based Cobalt Catalysts for Selective C–H Activation
Amount: 16,00,000/-
Joint proposal by Dr. Amit Balkrishna Pawar and Dr. Bhaskar Mondal

20. **Project Title:** Computational design of non-noble metal catalysts for photocatalytic N 2 activation
Funding Agency: SERB
Principle Investigator: Dr. Bhaskar Mondal
Amount: 1991000
Duration: 2 Years (from 04.12.2020 to 03.12.2022)

21. **Project Title:** Rational Design and Development of Cyclopentadienyl-Based Cobalt Catalysts for Selective C–H Activation
Funding Agency: IIT Mandi
Principle Investigator: Dr. Bhaskar Mondal
Co-PI: Dr. Amit B. Pawar
Amount: 1600000
Duration: 2 Years (from 01.04.2021 to 31.03.2023)

22. **Dr. Moupriya Das:** Applied for the IIT Mandi Seed Grant and DST Start-up Research Grant after joining IIT Mandi on 17th January 2022.

23. **Project:** Low-Cost Recycling of Coronavirus-contaminated Medical Waste (ReCoVir)
Principal Investigator: Dr. Venkata Krishnan
Project no.: IITM/SU-UK/VKN/328

Funding agency: Swansea University, United Kingdom
Amount: Rs. 7.16 lakhs
Period: Apr. 12, 2021 to Apr. 11, 2024

24. **Project:** Case Study: Seasonal Effect on Solar-driven Photocatalyst Performance in the Indian Environment
Principal Investigator: Dr. Venkata Krishnan
Project no.: IITM/SU-UK/VKN/333
Funding agency: Swansea University, United Kingdom
Amount: Rs. 1.81 lakhs
Period: March 19, 2021 to March 18, 2024

25. **Project title:** Designing 3D Printable Smart Composite Hydrogel-Inks for Tissue EngineeringApplications
Scheme: India - South Korea Joint Research project
Sponsoring Agency: DST
PI: Dr. Garima Agrawal; **Co-PI:** Dr. Rik Rani Koner
Amount sanctioned in Rs: 37,96,642/-
Duration of project: 3 years
Progress of the work: Functional polymer-based hydrogels with self-healing and adhesive properties have been developed. Currently, the optimization by tuning different synthetic parameters andcharacterization of the developed samples to evaluate the physicochemical properties is ongoing.

26. **Project title:** Designing functional micro gels based agrochemical delivery systems with moisturepreservation
Sponsoring Agency: SERB
PI: Dr. Garima Agrawal
Amount sanctioned in Rs: 24,31,000/-
Duration of project: 2 years
Progress of the work: Polymer-based biodegradable microgels have been prepared that can help in the controlled delivery of agrochemicals for a longer time, thus avoiding their excessive use.

27. **Project title:** Designing Multifunctional Smart Nano gels for Biomedical Applications
Sponsoring Agency: IIT Mandi
PI: Dr. Garima Agrawal
Amount sanctioned in Rs: 7,00,000/-
Duration of project: 3 years
Progress of the work: Biodegradable, redox-responsive chitosan/stearic acid nanoparticles have been prepared and optimized for anticancer therapy.

28. **Project title:** Designing Functional Nanomaterials for Drug Delivery
Sponsoring Agency: DST
PI: Dr. Garima Agrawal
Amount sanctioned in Rs: 35,00,000/-
Duration of project: 5 years
Progress of the work: Gold-coated iron oxide nanoparticles have been prepared and their surface has been functionalized with thiolated chitosan. The developed system has been optimized and characterized for various physicochemical properties. The reported system has been analyzed for controlled drug delivery, radio sensitization, and imaging for cancer treatment.

BOOK CHAPTERS PUBLISHED

1. Experimental methods to study intrinsically disordered proteins. Nag N, Chetri PB, Uversky VN, Giri R, Tripathi T. Advances in Protein Molecular and Structural Biology Methods (pp. 505-533). Academic Press. 2022.
2. Lingwan M, Masakapalli SK (2022). Deciphering the metabolic adjustments of engineered plants using GC-MS: A typical workflow. The Future of Metabolic Engineering 197, Nova Science Publishers https://DOI.org/10.52305/VEAH4499 ISBN: 978-1-68507-362-6
3. Computational methods to study intrinsically disordered proteins. Kumar P, Bhardwaj A, Uversky VN, Tripathi T, Giri R. Advances in Protein Molecular and Structural Biology Methods (pp. 489-504). Academic Press. 2022.

4. Coronavirus Epidemics and the Current COVID-19 Pandemic. Bhardwaj A, Kumar P, Kapuganti SK, Uversky VN, Giri R. COVID-19: From Bench to Bedside. 2022.
5. Singh A, Kalra SK, Singh SK, Prasad A*. Antibiotic Residues in Food: A Global Concern for Human Health. Publisher: *Spri*nger Nature. P. Mishra et al. (eds.), Innovations in Food Technology. Pp 301-311. ISBN: 978-981-15-6121-4 (https://DOI.org/10.1007/978-981-15-6121-4_21.
6. Arora N, Prasad A*, "The good side of evil: Harnessing the power of Helminths as therapeutics" in Microbial Products related to Health, Environment and Agriculture, Springer Nature publication. ISBN 978-981-16-1946-5.
7. Agrawal, G., Kumar, A. (2021). Polysaccharides-Based Biomaterials for Surgical Applications. In: Oliveira, J., Radhouani, H., Reis, R.L. (eds) Polysaccharides of Microbial Origin. Springer, Cham. https://DOI.org/10.1007/978-3-030-35734-4_51-1
8. Cp*Co(III)-Catalysed C−H Functionalization Mediated by Oxidizing Directing Groups Towards the Synthesis of Heterocycles (Wiley-VCH), accepted for publication Yogesh N. Aher, Bhaskar Mondal, Amit B. Pawar.
9. A. Kumar, A. Kumar, H. Chand and V. Krishnan, Upconversion Nanomaterials for Photocatalytic Applications (Chapter XX) in Up Conversion Nanophosphors: Design, Characterization and Application, S. Thomas, K. Upadhyay, R. K. Tamrakar and N. Kalarikkal (Eds.), Elsevier Publishers, Netherlands, 2021, in press.
10. A. Kumar, V. Sharma, A. Kumar and V. Krishnan, Nanomaterials for Photocatalytic Decomposition of Endocrine Disruptors in Water (Chapter XX) in Emerging Nanostructured Materials for Environmental Applications, S. Balakumar, V. Keller, M. V. Shankar (Eds.),Springer Publishers, Switzerland, 2021, in press.
11. A. Kumar and V. Krishnan, Near Infrared Light Active Lanthanide-doped Upconversion Nanoparticles: Recent Advances and Applications. (Chapter XX) in Springer Handbook of Inorganic Photochemistry, D. Bahnemann and A. O. Patrocinio (Eds.), Springer Publishers, Switzerland, 2021, in press.
12. T. Chhabra and V. Krishnan, Nanostructured Heterogeneous Catalysts for Biomass Conversion in Green Solvents (Chapter x) in Handbook of Nanomaterials and nanocomposites for Energy and Environmental Applications, O. V. Kharissova, L. M. Torres Martínez and B. I. Kharisov (Eds.), Springer Publishers, Switzerland, 2021, 1, 1041-1064.
13. Y. N. Aher, B. Mondal, * and A. B. Pawar* "Cp * Co(III)-Catalyzed C–H Functionalization Mediated by Oxidizing Directing Groups Toward the Synthesis of Heterocycles" in Handbook of CH-Functionalization (CHF), 2022, Ed. Debabrata Maiti.
14. Defect-Enriched Transition Metal Oxides Towards Photoelectrochemical Water Splitting L Sharma, A Halder Photoelectrochemical Hydrogen Generation, 207-224 Springer, Singapore 2022.
15. Vikas Kumar and Nitu Kumari (2021) "Pattern Formation Study of Hassell-Varley Prey-Predator System with Fear Effect", AIP Conference Proceedings, FIAM-2020, held at NIT Jamshedpur, Accepted.
16. Rishabh Saxena, Rajendra K Ray, Recent Advances in Computational Mechanics and Simulations, (Springer), 2021, Numerical Study of Shear Flow Past an Inclined Square Cylinder with Vertical Control Plate, Lecture Notes in Mechanical Engineering PP. 351-361.
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- Solvable One-Dimensional Multi-State Models for Statistical and Quantum Mechanics: R. Saravanan and A. Chakraborty, Springer, Singapore 2021.
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2. Yadav M, Joshi C, Paritosh K, Thakur J, Pareek N, Masakapalli SK*, Vivekanand, V*. (2021). Organic waste conversion through anaerobic digestion: A critical insight into the metabolic pathways and microbial interactions. Metabolic Engineering. DOI.org/10.1016/j.ymben.2021.11.014
3. Jyoti P, NitinPatil N, Masakapalli SK* (2021) Insights into the Polyhydroxybutyrate Biosynthesis in *Ralstonia solanacearum* Using Parallel ^{13}C Tracers and Comparative Genome Analysis. ACS Chemical Biology https://DOI.org/10.1021/acschembio.1c00249
4. Mohanasundaram B, Bhide AJ, Palit S, Chaturvedi G, Lingwan M, Masakapalli SK, Banerjee AK The unique bryophyte-specific repeat-containing protein SHORT-LEAF regulates gametophore development in moss. Plant Physiology 2021 kiab261

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6. Petrauskas A, Fortunati DL, Singh A, Kandi AR, Pothapragada SS, Agrawal K, Huelsmeier J, Hillebrand J, Brown G, Chaturvedi D, Lee J, Lim C, Auburger G, Vijay Raghavan K, Ramaswami M[#], Bakthavachalu B[#]. 2022. Structured and disordered regions of Ataxin-2 contribute differently to the specificity and efficiency of mRNP granule formation. *bioRxiv* 2022.02.15.480566. DOI:10.1101/2022.02.15.480566 ([#] Corresponding authors)
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250. Kumar, Anil, Muslim Malik; Impact of hunting cooperation and feedback control for a nonlinear hybrid Leslie-Gower predator-prey system on non-uniform time domain; Rocky Mountain Journal of Mathematics (Accepted).
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254. M. Kumar, S. Abbas, Diffusive size-structured population model with time-varying diffusion rate, Discrete and Continuous Dynamical Systems Series B, accepted, 2022.
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256. M. Kumar, S. Abbas, Analysis of steady-state solutions to an age-structured SEQIR model with optimal vaccination, Mathematical Methods in the Applied Sciences, in the press, 2022.
257. S. Chandra, S. Abbas, Analysis of Fractals Dimension of Mixed Riemann-Liouville Integral, Numerical Algorithm, in the press, 2022.
258. N. Poonia and Sarita Azad (2021) The spatiotemporal trajectory of COVID-19 in India – insight into past pandemics and future recommendations Current Science 121(11), 1425-1435
259. P. Jena and Sarita Azad (2021) A novel method to detect drought and flood years in Indian rainfall associated with the weak and strong monsoon. Theoretical and Applied Climatology 145(1), 747-761.
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261. N. Poonia and Sarita Azad (2022) Alpha power exponentiated Teissier distribution with application to climate datasets Theoretical and Applied Climatology 149, pages339–353
262. P. Jena, S. Garg, Sarita Azad (2022) Identification of wet-prone regions over Northwest Himalaya using high-resolution satellite seasonal estimates 112(2) 1727-1748 Natural Hazards.
263. N. Poonia and Sarita Azad (2022) Projections of annual maximum temperature over Northwest Himalayas using probability distribution models 92, 1-29 Theoretical and Applied Climatology.

NATIONAL CONFERENCES ATTENDED AND PAPERS PRESENTED

1. The 32nd Annual General Meeting of MRSI and the 3rd Indian Materials Conclave.
2. Shyam Kumar Masakapalli - Delivered invited talk from the Society of Biological Chemists (SBC), India 90th meeting on 18th December 2021 held at Amity University Haryana on “Phytochemical treasures from the Himalayas - profiling, pathway mapping to drug discovery”
3. Dr. Baskar Bakthavachalu: Invited to deliver a talk at the Indian Drosophila Research Conference (InDRC) at IISER Kolkata
4. Dr. Rajanish Giri: Delivered talk at the 48th National Seminar on Crystallography held at IIT Roorkee from 25th -27th of November 2021.

5. Dr. Trayambak Basak: Delivered a Talk on “Cardiac Extracellular matrix remodeling” at the “Current Perspectives on Disease Biology Research” conference organized by Raja Peary Mohan College, West Bengal in August 2021.
6. (2021) Invited talk at the 65th DAE Solid State Symposium, Mumbai, India.
7. (2021) Invited Talk at QMAT 2021 organized by TIFR, Mumbai.
8. (2021) Invited seminar at AMBT (Advanced Materials for Better Tomorrow) Conference organized by the Society of Interdisciplinary Research in Materials and Biology.
9. Mn K-edge EXAFS studies of Co2MnAl Swati Pathak, R. Rawat, S. Khalid, R. Bindu Proceedings of the 65th DAE solid state physics symposium 55, 593.
10. Poster presentation at 65th DAE-SSPS-2021.
11. Oral and Poster presentation " Optical, Electrical and Transport Properties of α-In2Se3 Crystal”; Divya Rawat, Niraj Kumar Singh, Kewal Singh Rana and Ajay Soni* at 65th, DAE Solid State Physics Symposium, December 16-19, 2021 (Virtual Conference). Awarded as the best poster of the symposium.
12. Poster presentation “Synthesis and Magnetic Properties of Unusual Hexagonal Nickel Nanostructures”; Ankit Kashyap, Nikita Kunwar, Divya Rawat and Ajay Soni*, 65th DAE Solid State Physics Symposium) December 16-19, 2021 (Virtual Conference).

INTERNATIONAL CONFERENCES ATTENDED AND PAPERS PRESENTED

1. Kumar, Manoj; Abbas, Syed; Optimal birth control of population dynamics with time-varying diffusivity coefficient. Advances in nonlinear dynamics. Vol. 3, 163–174, NODYCON Conf. Proc. Ser., Springer, Cham, [2022], ©2022.
2. Dr. Ajay Soni co-chaired the thermoelectric symposium in the annual general Body meeting of MRS India, held during December 20-23, 2021.
3. Shyam Kumar Masakapalli - Delivered invited talk in Indo-US symposium on molecular Virology held at IIT Mandi on 17th Feb 2022 on “Promising phytochemicals from the Himalayan flora against SARS-CoV-2”
4. Also chaired a session in Indo-US symposium on molecular Virology held at IIT Mandi on 16th Feb 2022
5. EMBO Lecture Course on RNA binding proteins: From RNA binding to condensation and aggregation (RNA binding proteins) (2022).
6. 18th Annual Stem Cell Symposium titled, “Organoids: Modeling Development, Disease, and Therapies-The UCLA Broad Stem Cell Research Center's Symposiums- Jan 28th, 2022
7. American Society for Biochemistry and Molecular Biology (ASBMB) Annual Meeting, April 27 - 30, 2021- poster presentation
8. 2021 Annual Mid-Atlantic Diabetes and Obesity Research Symposium (MADORS), September 24th, 2021
9. 2021 Diabetes and Metabolism Research Retreat- University of Utah (9-12 November 2021)
10. Heterogeneity of Diabetes: Beta Cells, Phenotypes and Precision Medicine June 2–3 2021Celebrating the 100th anniversary of the discovery of insulin in 2021—Diabetes Symposium,
11. Innovations in phenotyping for Obesity, Diabetes and Co-morbidities A free online symposium Tuesday 6th July 2021: Wellcome-MRC Institute of Metabolic Science-Metabolic Research Laboratories University of Cambridge
12. Janelia's 4D Cellular Physiology workshop on Integrating Nutrition and Metabolism Across Scales August 16th and 17th,2021
13. Deciphering extracellular-matrix collagen PTM-networks during neointima formation in post-stented coronary arteries. VivekSarohi and TrayambakBasak*. Omics 2021 (Proteomics Society of India). October 2021.
14. Comprehensive mapping and dynamics of site-specific collagen post-translational modifications (PTMs) during zebrafish heart regeneration. Vivek Sarohi, Shriya Srivastava, and Trayambak Basak*. Heart Failure Conflux 2022.
15. 23rd International C.elegans Conference (Online) 21-24 June 2021.
16. 13th Annual Meeting of Proteomics Society, India & International Virtual Symposium on ‘OMICS in Redefining Modern Biology’ (Online) 21-23 October 2021.
17. EMBO Workshop Susan Lindquist School on Proteostasis (Online) 29 Nov - 02 Dec 2021.
18. EMBO Lecture Course on RNA binding proteins: From RNA binding to condensation and aggregation (Online) 8-11 February 2022.
19. G. Agrawal, Stimuli-Responsive Polymer-based Materials for Controlled Drug Delivery, 13th International e-Conference on Advancement s in Polymeric Materials APM-2022 (March 2022) (Invited talk).
20. G. Agrawal, Functional Nanogels: A Versatile Platform for Controlled Drug Delivery, APANanoforum International e-Conference 2022 (February 2022) (Invited talk).
21. G. Agrawal, Stimuli-Responsive Microgels and Poly (ethoxysiloxanes) based Smart Materials, APABioforum International e-Conference 2021 on Polymer Biomaterials and Bioengineering (August 2021) (Invited talk).

INVITED LECTURERS/TALKS/CONTINUING EDUCATION PROGRAMS

1. Dr. Muslim Malik: Resource Person, A Two-Week Refresher Course on Computational Mathematics during 4-17 March 2021, Dr. Harisingh Gour Central University, Sagar (MP), India.
2. Dr. Muslim Malik: Resource Person, Coloquio DM, U Dec: Differential Equation on Time Scales, 8 August2021.
3. Dr. Muslim Malik: Resource Person, Refresher Course in Computational and Mathematical Sciences, UGC-Human Resource Development Centre, JMI, New Delhi, 3 November -2021.
4. Invited Talk on Differential Equation on Time Scales, Department of Applied Science, The North Cap University, Gurgaon, India.
5. Dr. Syed Abbas: Expert Talk at IIIT Allahabad, 18 Aug 2022 and ICMSA 2022, Nanded, July 2022
6. Dr. Nitu Kumari: 2021 August Invited Talk “Introduction to Mathematical Models in Ecology and Epidemiology” at Refresher Course in Mathematics organized by the Department of Mathematics, Ramanujan College, University of Delhi, during 31 August - 14 September 2021
7. Dr. Nitu Kumari: 2021 March Invited Talk “Basic Reproduction Number Estimation and Forecasting of COVID-19: A case study of India, Brazil and Peru” at Faculty Development Program organized by Department of Basic Sciences and Humanities, IIIT Bhagalpur, 18-22 March 2021.
8. Dr. Nitu Kumari: 2022 July Invited Talk On 12th July in the Lecture Series in Nonlinear Dynamics on " Role of Group Defense on Pattern Formation Analysis in a Tritrophic Food Chain Model" Organized by "Prof M. Senthivelan, "Department of Nonlinear Dynamics, Bharathidasan University, Tiruchirappalli - 620 024.
9. Dr. Manoj Thakur: Invited talks in the AICTE ATAL Online FDP on "Computational Mathematics using Computer Algebra Systems (CAS) with applications to Machine Learning", scheduled during Feb. 11-15, 2022.
10. Dr. Samir Shukla: Invited speaker in the \Geometric Analysis Seminar Series" at Indian Institute of Technology Bombay and given a talk titled \Spectral gap bounds for the simplicial Laplacian and an application to random complexes" on March 17, 2022
11. Low Dimensional Semiconductors: Optical Properties and Device Applications, in a one-week short-term course on “Materials & their Characterization” organized by Maharaja Agrasen University, Baddi, 14 June 2021.
12. Optical Properties of Metal Halide Perovskites - From Bulk to Low Dimensions, in an International conference, 11th Asian Photochemistry Conference, online, 1-4th November 2021.
13. Talk - Delivered an invited talk in International Workshop on Physics of Semiconductor Devices (IWPSD) 2021 held at IIT Delhi, during 16-18 Dec. 2021.
14. Talk - Delivered an invited talk in one week online Short Term Course (STC) organized by IIT Indore, under TEQIP, held during 21-26 Feb. 2022.
15. Quantum Materials of Contemporary interests at the Short term course on Smart Materials: Processing and Applications, organized by NIT Uttarakhand and IIT Roorkee on Nov 15-19, 2022.
16. Magnetic monopole, spin-ice and field-induced spin freezing state in the geometrically frustrated system at the webinar organized by the Department of physics, IIT Jodhpur on 20 Oct 2021.
17. One-day Discussion Meeting on Materials Science with Synchrotron Radiation Source held on 22nd October 2021, UGC DAE, CSR, Indore
18. Physics at Nanoscale: The Science of the Invisible, Ajay Soni, invited session for an inservice Course for PGT Physics Teacher of Kendriya Vidyalaya Sangathan across India, organized by ZIET, MYSURU on December 25th, 2021.
19. Crystalline Anharmonicity and Thermoelectric Properties of Bi-Ge-Te Materials with an Intrinsic van der Waal Heterostructure; Ajay Soni, Invited talk in Thermoelectric Symposium of Materials Research Society of India Conference, during December 20-23, 2021. Dr. Soni also co-organized the symposium and chaired the session.
20. Chalcogenide materials doe waste heat recovery using thermoelectric technology; Ajay Soni, Two invited sessions in a faculty development program by Shri Mata Vaishno Devi University, Katra, December 22nd, 2021.
21. Physics at Nanoscale: The Science of Invisible; Ajay Soni, Invited to talk at a Physics Fest organized by the Indian Physics Association (Indore Chapter) and SICA College Indore on June 5th, 2021.
22. Scientific Research: Planning and Execution; Ajay Soni, Invited to talk in the faculty development program by the Teaching Learning Center, organized by Central University of Rajasthan, Kishangarh, Rajasthan.
23. G. Agrawal, Smart Polymeric Nano/Micro-materials for Controlled Drug Delivery, Faculty Development Program at Central Institute of Petrochemicals Engineering & Technology, Guwahati(February 2022).
24. G. Agrawal, Polymer-based Smart Materials for Drug Delivery Application, Faculty Development Program at Central Institute of Petrochemicals Engineering &Technology, Guwahati(August 2021).
25. Dr. Bhaskar Mondal delivered invited lecture on “KAARYASHALA” on “Advanced Technology for Materials Physics and Engineering”, organized by IIT Indore under the “Accelerate Vigyan” scheme, 20th to 26th January 2022.

Invited Lecturers/Talks/Continuing Education Programs By Dr. Venkata Krishnan

26. May 24, 2021 – National Institute of Technology Hamirpur, HP.
27. Jul. 19, 2021 - Mother Teresa Women's University, Kodaikanal, TN.
28. Aug. 03, 2021 - International Seminar on Recent Advances, Indian Chemical Society.
29. Sep. 29, 2021 – Kumaraguru College of Technology, Coimbatore, TN.
30. Oct. 01, 2021 – UGC-HRDC Faculty Development Programme, HPU, Shimla, HP.
31. Oct. 11, 2021 – Saranathan College of Engineering, Trichy, TN.
32. Oct. 25, 2021 - Refresher Course in Chemistry, HRDC-NEHU, Shillong, Meghalaya.
33. Oct. 27, 2021 – AICTE FDP, R. V. College of Engineering, Bangalore, KA.
34. Dec. 02, 2021 - Recent Advances and Innovations in Solar Energy (RAiSE), IITM, TN.
35. Dec. 07, 2021 – UGC-HRDC Refresher Course, University of Calicut, KL.
36. Dec. 21, 2021 – Materials Research Society of India Meeting.
37. Dec. 22, 2021 - Islamiah College, Vaniyambadi, TN.
38. Dec. 23, 2021 – Indian Chemical Society – Env. Chem. Section Meeting, IIT Ropar, PB.
39. Asian College of Science and Commerce.

40. Shyam Kumar Masakapalli – delivered an invited lecture/webinar on Innovation and Startup (Agrotechnologies) on 23rd Dec 2021 at Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon (KBCNMU Centre for Innovation, Incubation and Linkages (KCIIL) and National Research Development Corporation (NRDC), New Delhi supported Innovation Facilitation Center)
41. EMBO Lecture Course on RNA binding proteins: From RNA binding to condensation and aggregation (RNA binding proteins) (2022). Structured domains of Ataxin-2 regulate RNP phase separation and target mRNA interaction.
42. Invited speaker at Bio Sangam 2022 - Healthcare and Pharmaceutical Biotechnology session, organized at MNIT, Allahabad.
43. Invited speaker for Colloquium at the Institute of Health Sciences, Presidency University (2022). Drosophila as a model to study human neuro degenerative disease mechanisms.
44. Delivered a lecture in AICTE-QIP STC on 'Emerging Techniques and Applications in Biosciences and Bioengineering Research' from 21st to 26th March 2022.
45. Dr. Trayambak Basak: Delivered lectures at the University of Calcutta (Online)
46. Dr. Trayambak Basak: Delivered a lecture at Raja Peary Mohan College, West Bengal (Online)
47. Dr. Sumit Murab: Invited lecture, Conference on Biotechnological Innovations in Agriculture, Environment and Health (CBIAEH-2022) Karunya University.
48. Photothermally active nanomaterials for biomedical applications, Invited Speaker, 13th International e-conference on Advancements in Polymeric Materials (APM-2022), CIPET: SARP-ARSTPS, Chennai.
49. Plasmonic Nanomaterials for Therapeutic Applications, Keynote Speakers, ICPMT2022, Sikkim Manipal Institute of Technology, Sikkim Manipal University
50. Deciphering the antibacterial mechanism of 2D MoS2 nanosheets, Invited Talk, National Conference on Nanomaterials in Biology (NCNB 2021), Jaipur, Rajasthan.
51. Plasmonic nanocapsules for photothermal therapy, Invited Lecture, 32nd Midyear Meeting, Indian Academy of Sciences, Bangalore, 2021.
52. Advanced Nanomaterials for Theranostics, Invited Speaker, "KARYASHALA" under Accelerate Vigyan Scheme of DST-SERB (2021) Advancements in In vitro Diagnostic Methods in Healthcare, MNNIT Allahabad.
53. Self-cleanable Mask for preventing SARS-CoV-2, Invited Speaker, Innovations in Biotechnology: Virus, Vaccine and Public Health, 2021, NIT Agartala.
54. Dr. Baskar Bakthavachalu gave an Invited talk at MRDG, IISc, (2022): Regulation and function of messenger Ribonucleoprotein assemblies and an Invited talk at Biosciences and Bioengineering, IIT Madras, (2022): Regulation and function of messenger Ribonucleoprotein assemblies.
55. Dr. Amit Jaiswal Delivered Invited Lecture at the Graduate Seminar Series at Michigan Technological University, USA (2021).
56. Dr. Muslim Malik gave a talk at IIT Ropar on Differential Equation on Time Scales as on 23rd -25th March 2022.
57. Dr. Nitu Kumari Visited IIT Madras to Attend "Women Leading IITs Cohort at IIT Madras on 1st-2nd July 2022"
58. Dr. Rajendra Kumar Ray gave a talk in Visva- Bharati University and Resource Person, 2nd Workshop on Applications of MATLAB in Engineering and Sciences (WAMES-2021), 26th –28th February 2021, Pandit Deendayal Petroleum University, Gandhinagar. He was Resource Person, 3-day Online Workshop on "Advanced Numerical Techniques in Science and Engineering", 15th –19th December 2021, NIT Hamirpur Resource Person, Science Academies Virtual

Lecture Workshop on "MATHEMATICAL BIOLOGY", 10th–12th January 2022, Hindusthan College of Arts & Science, Coimbatore.

59. Dr. Rajendra Kumar Ray was invited Speaker, International Conference on Nonlinear Dynamics and Applications (ICNDA2022), 9th –11th March 2022, Sikkim Manipal University, Sikkim, India.
60. Dr. Samir Shukla visited the Indian Institute of Technology Bombay between 1-8 July 2022 and had given a talk on \Vietoris-Rips complexes of hypercube graphs".

WORKSHOP/ CONFERENCES ORGANIZED

- Dr. Bhaskar Mondal Co-convener for "Chemical Sciences Symposium (CSS-2022)" organized by the School of Chemical Sciences, IIT Mandi on 23rd -24th May 2022.
- Indo-US virtual workshop on "India Mission for Green Hydrogen and Go electric" funded by SPARC, Ministry of Human Resource Development.
- Dr. Rajanish Giri organized "INDO-US Symposium on Molecular Virology" from 15th-17th February 2022.
- Dr. Aditi Halder organized the INDO-US Indo-US SPARC virtual workshop" India Mission for Green Hydrogen and Go Electric" on March 16-17, 2022 at IIT Mandi.
- Dr. Manoj Thakur conducted a one-week online AICTE Training and Learning (ATAL) Faculty Development Programme (FDP) on Machine Learning and Optimization Techniques: Applications to Financial Markets from 12th to 16th July 2021.
- Dr. Nitu Kumari conducted several Lectures and Lab Sessions in the Faculty Development Program organized by IIT Mandi and sponsored by the Department of Technical Education, HP Government.

PATENTS FILED/ AWARDED

S. No.	Patent Application no.	Patent titled	Inventor	Co-Inventor(s)	Status
1	Patent application no. 201711003716; Patent Number: 342426	Compounds for visualization and quantification of albumin, a method for preparation and use thereof	Prof. Subrata Ghosh & Dr. Prosenjit Mondal	Gourav Dey	Granted
2	Patent application no. 202011019980	"Carbogenic Fluorescent Nanodot as New Probe for Super Resolution Microscopy and Method of Application Thereof"	Prof. Chayan k. Nandi	Navneet C. Verma, Aditya Yadav, Chethana Rao	Filed
3	Patent application no. 202011021910	"Single Step Synthesis of Multimodal Magneto fluorescent Core-Shell Superparamagnetic Iron Oxide Nanodots"	Prof. Chayan k. Nandi Dr. Jaspreet K Randhawa	Ashish Tiwari, Anup Singh	Filed
4	Patent application no. 202141007495	"A process for i- line resist dissolution modulation using hydroxy-polymer"	Prof. Pradeep C. Parameswaran, Dr. Satinder Sharma, Prof. Subrata Ghosh, Prof. Kenneth E. Gonsalves	Santu Nandi, Lalit Khillare, M. Yogesh, Suman Dolai, Narayan Tiwari, Paritosh Jain and Surinder Singh.	Granted
5	Patent application no.383670	Highly sensitive MAPDSM-MAPDST based resists technology for next-generation lithography applications	K. E. Gonsalves, S. Ghosh, C. P. Pradeep, P. G. Reddy,	S. Nandi, S. K. Sharma, et al.	Filed
6	Patent application no.202111049251	BSA-dye bioconjugate probe as a lysotracker"	Prof. Chayan K. Nandi	Farhan Anjum, Chethana Rao, Pushpendra Mani Mishra, Aditya Yadav, Kush Kaushik,	Filed
7	Patent application no. 3939/DEL/2015A	A Novel EASAI method for preparing nanoparticles of energetic compounds	Prof. Prem Felix Siril Dr. Pramod Soni	Raj Kumar	Granted
8	Patent application no. 201711003716;	Compounds for visualization and quantification of albumin, a	Prof. Subrata Ghosh & Dr. Prosenjit Mondal	Gourav Dey	Granted

	Patent Number: 342426	method for preparation and use thereof			
9	Filed (Application No. 201611028125)	One Step, Low Temperature, Cost Effective, Photo –Chemical Reduction of Graphene Oxide Dispersions for the Commercial Scale Analogous Reduced Graphene Oxide Production	Dr. Ajay Soni Dr. Satinder Sharma		Filed

PROFESSIONAL ACHIEVEMENTS, HONOURS AND AWARDS

Dr. Trayambak Basak:

- Associate Editor, BMC Cardiovascular Disorders
- Review Editor for Frontier's in Molecular Biosciences

Dr. Amit Parsad:

- Guest teaching faculty for MD/Ph.D. program 2021, Dept of Microbiology, Hemwati Nandan Bahuguna Uttarakhand Medical Education University, Deharakhas, Uttarakhand
- Organizing Member, Annual Meeting of American Society of Parasitologists, July 26-27 2021.
- Nominated as "Coordinator" of Microbiology Society of India, HP Unit from July 2021 till date.

Dr. Amit Jaiswal:

- Alumni Achievers Award (Research & Academics), Heritage Institute of Technology Kolkata, 2021
- Awarded Indian National Science Academy (INSA) Medal for Young Scientists 2021
- A team led by AJ bagged the SRISTI GYTI (Gandhian Young Technological Innovation) Appreciation Award 2021
- External Expert Member, Board of Studies, Chandigarh University

Dr. Amit B Pawar currently working as a Scientific Editor for Synthetic Reaction Updates, a literature updating service for organic chemists from the Royal Society of Chemistry.

Dr. Bhaskar Mondal working as Guest Editor: Special Issue on "Computational Catalysis" in the Journal of Computational Biophysics and Chemistry, World Scientific Publications.

Prof. Chayan K. Nandi: Guest Editor, Frontiers in Chemistry (June 2020).

Dr. Moupriya received the prestigious Ramanujan Fellowship in August 2021.

Dr. Sarita Azad: Teaching Honour Roll Award-2021 by IIT Mandi on teacher's day2021

MEMBERSHIP IN PROFESSIONAL SOCIETIES

1. **Dr. Shyam K Masakapalli:** Founder member of Biological Engineering Society India (https://besi.org.in/)
2. **Dr. Baskar Bakthavachalu:** ASCB Member.
3. **Dr. Rajanish Giri:** Bioinformatics and Drug Discovery Society (BIDDS)
4. **Dr. Trayambak Basak:** Life Member, Proteomics Society of India
5. **Dr. Prasad Kasturi:**

- Life Member, Cell Stress Society International (CSSI)
- Life Member, Proteomics Society of India
- Life Member, Society of Biological Chemists, India
- Member, The Genetics Society of America
- Member, American Society for Biochemistry and Molecular Biology.

6. **Dr. Amit Jaiswal:**

- Life Member, Chemical Research Society of India – CRSI
- Life Member, Materials Research Society of India
- Life Member, Indian Society of Nanomedicine (ISNM)

7. **Prof. Chayan K Nandi** is a Lifetime member of the Materials Research Society of India, 2020.

8. **Dr. Moupriya** is a member of the American Physical Society.
9. **Dr. Venkata Krishnan:** Chemical Research Society of India – Life Member Indian Carbon Society – Life Member.
10. **Dr. Syed Abbas:** SIAM, AMS
11. **Dr. Manoj Thakur:** IEEE, AMS, SIAM, MCDM Society, Soft Computing Research Society (SCRS)
12. **Dr. Rajendra Kumar Ray:** Society for Industrial and Applied Mathematics (SIAM)
13. **Prof. Suman Kalyan Pal:** Life member of the Optical Society of India
14. **Dr. C.S. Yadav:** Membership of the American Physical Society
15. **Dr. Ajay Soni** has been elected as a member of the Journal Energy & Environmental Materials Youth Editorial Board member. (August 2021)
16. **Dr. Ajay Soni** is an Associate Editor for the journal Materials Lab. (December 2021)

OUTREACH ACTIVITIES

Dr. Shyam K Masakapalli:

- Faculty Mentor of IIT Mandi Catalyst supporting startup teams as an outreach activity.
- Several farming-related outreach activities supporting FPCs as POPI board member from IIT Mandi and Member of EWOK society

Dr. Trayambak Basak:

- Delivered lectures at the University of Calcutta (Online)
- Delivered a lecture at Raja Peary Mohan College, West Bengal (Online)

Dr. Garima is a member of the National Advisory Board, Asian Polymer Association 2021

Dr. Trayambak Basak has been invited to guest-edit a special issue on “Fibrosis research” in Frontiers in Molecular Biosciences. He is utilizing this opportunity to cultivate a critical mass of focused research groups (on fibrosis) worldwide.

Dr. Moupriya delivered the Role Model talk in the Vigyan Jyoti program organized at IIT Mandi on 30th May 2022.

3.4 SCHOOL OF HUMANITIES AND SOCIAL SCIENCES (SHSS)

The Academic Year 2021-22 marks a period of continuum the period of pandemic followed by a recovery – towards the end it was a welcome year with the impact of COVID-19 subsiding down, letting academic activities regain their usual modes with the students gradually being back to the campus. The rhythm of academics set in with a renewed enthusiasm and was enriched by new learning from a very difficult time. The School of Humanities and Social Sciences at IIT Mandi is no exception – faculty received new project funds, published several research papers in a reputed journal, book reviews, etc. One of the most important things that the School has done this year is to resume its regular invited talks and distinguished lectures in an online mode. Six School talks, a distinguished lecture and a panel discussion in various domains led to a highly vibrant academic engagement among the faculty and student. Various training workshops were also conducted. The second batch of MA Development Studies students graduated this year with many being placed in highly recognized domains. The Ph.D. and Masters Students won acclaimed awards during the academic award including the Newton Bhabha Fund - Ph.D. Placement, SBI Youth Fellowship Programme for India, Mahatma Gandhi National Fellowship, the Asian Graduate Student Fellowship, etc. As the School of Humanities and Social Sciences forges ahead creating its unique identity within the broader vision of the Institute, the year 2021-22 stands out as a singular year of challenges and overcoming challenges to achieve success.

FACULTY

1	**Dr. Shyamasree Dasgupta** **Chairperson & Associate Professor** Specialization: Energy and Environmental Economics, Economics of Climate Change, Applied Econometrics Ph.D. from Jadavpur University, Kolkata Home Town: Kolkata, West Bengal Phone: 01905-267122, Email: shyamasree	
2	**Dr. Aruna Bommareddi** **Assistant Professor** Specialization: Comparative Literature, Indian Literature in English Ph.D. from the University of Hyderabad Home Town: Hyderabad, Andhra Pradesh Phone: 01905-267121, Email: aruna	
3	**Dr. Devika Sethi** **Assistant Professor** Specialization: Modern Indian History, Colonialism and Decolonization, Free Speech and Censorship Ph.D. from Jawaharlal Nehru University, New Delhi Home Town: Allahabad, Uttar Pradesh Phone: 01905 267244, Email: devika	
4	**Dr. Manu V. Devadevan** **Associate Professor** Specialization: Literary practices in South Asia, Political and Economic Processes in premodern South Asia & South Asian Epigraphy Ph.D. from: Mangalore University, Mangalagangothri, Mangalore. Phone: 01905-267147, Email: manu	

5	**Dr. Neha Kaushik** **Assistant Professor** Specialization: Translation Studies, Women's Writing, Comparative Linguistics, German Studies Ph.D. from Jawaharlal Nehru University, New Delhi Home Town: New Delhi Phone: 01905 267267, Email: nehakaushik	
6	**Dr. Nilamber Chhetri** **Assistant Professor** Specialization: Sociology Ph.D. from Jawaharlal Nehru University, New Delhi Home Town: Kalimpong, West Bengal Phone: 01905-267269, Email: nilamber	
7	**Dr. Puran Singh** **Associate Professor** Specialization: Corporate Finance, Microfinance Ph.D. from Punjab University, Chandigarh Home Town: Mandi, Himachal Pradesh Phone: 01905 267916, Email: puran	
8	**Dr. Rajeshwari Dutt** **Associate Professor** Specialization: Latin America, Social and Cultural History Ph.D. From Carnegie Mellon University, USA Home Town: Kolkata, West Bengal Phone: 01905-267043, Email: rdutt	
9	**Dr. Ramna Thakur** **Associate Professor** Specialization: Development Economics Ph.D. from Himachal Pradesh University, Shimla Home Town: Mandi Phone: 01905-267044, Email: ramna	
10	**Dr. Saumya Dixit** **Assistant Professor** Specialization: Post Consumption Consumer Behaviour, E-waste Management, E-wom Management Ph.D. from IIIT Allahabad Home Town: Allahabad, Uttar Pradesh Email: saumya	
11	**Dr. Suman** **Assistant Professor** Specialization: Colonialism, Post-colonialism, Imperialism and Romance Literature Ph.D. from Indian Institute of Technology Delhi. Home Town: Faridabad Phone: 01905-267919, Email: suman.sigroha	

12	**Dr. Surya Prakash Upadhyay** **Assistant Professor** Specialization: Sociology of Religion, Urban Sociology, Post-Reform India Ph.D. from Indian Institute of Technology Bombay Home Town: Lucknow, Uttar Pradesh Phone: 01905-267136, Email: surya	
13	**Dr. Varun Dutt** **Associate Professor (Affiliate till November 2021)** Specialization: Judgment and Decision Making, Environmental Decision-making, Artificial Intelligence, Human-Computer Interaction Ph.D. From Carnegie Mellon University, USA Home Town: Lucknow, Uttar Pradesh Phone: 01905-267150, Email: varun	

RESEARCH PROJECTS

EXTERNALLY SPONSORED RESEARCH PROJECTS

S. No.	IIT Mandi Reference/ Project No.	Project Title	Sponsoring Agency	Principal Investigator & Coordinator(s)	Department/ School	Amount Sanctioned	Duration of Project
1	IITM/RDD-HP/RT/201	Time and motion study of MGNREGA in Himachal Pradesh	Rural Development Department, Himachal Pradesh	Dr. Ramna Thakur (PI), Dr. Rajeshwari Dutt (Co-PI)	School of Humanities & Social Sciences	19,38,000	3.3 year (12.06.2018 to 11.09.2021)
2	ITM/TDD-HP/RT/231	Socio-economic profile of tribes of Himachal Pradesh	Tribal Development Department, Himachal Pradesh	Dr. Ramna Thakur	School of Humanities & Social Sciences	500000	18 months (15.03.2019 to 14.03.2022)
3	IITM/ICSSR/RT/289	Do health policies require to address gender-related unique needs to control non-communicable diseases in India	ICCSR	Dr. Ramna Thakur	School of Humanities and Social Sciences	10,00,000	2 years (19.10.19 to 18.10.2021)
4	IITM/ICSSR/SSG/264	A study of the intersections of oral history and religion for sustainable development in the fragile Himalayas located in Himachal Pradesh	ICSSR	Dr. Suman Sigroha	School of Humanities and Social Sciences	5,00,000	2 years (01.09.19to 31.08.2021)
5	ITM/LU-SW/SYS/330	Coal-based economics in developing countries: An environmental, health and cost evaluation around mega thermal power plants	Linkoping University	Dr. Sayantan Sarkar (Coordinating PI at IIT Mandi), Dr. Shayamasree Dasgupta (Co-PI)	School of Engineering &School of Humanities & Social Sciences	30,83,500	3 years (20.03.21 to 31.12.2024)
6	IITM/BSU-USA/SDG/353	Race and Ethnicity as the determinants of racialized coastal experiences in the Indian oceans region	BOISE State University USA	Dr. Shyamasree Dasgupta	School of Humanities & Social Sciences	12,89,300	9 months (06.01.22 to 31.08.2023)
7	IITM/DST/MTH/319	Sustainable irrigation Advisories for Mid-	Department of Science and	Dr. Manas Thakur (Indian) Dr.	School of Computing &	9929444	3 years (09.03.21 to

		Himalayan Farmers using Smart Satellite Image Analytics (SaIAFarm)	Technology, GoI	Yvonne Dettrich (Denmark) Dr. Ramna Thakur, Dr. Shyam K. Masakspalli, Dr. Srikant Srinivasan	Electrical Engineering, School of Basic Sciences & School of Humanities & Social Sciences		08.03.2024)
8	IITM/RDD-HP/RT/201	Time and motion study of MGNREGA in Himachal Pradesh	Rural Development Department, Himachal Pradesh	Dr. Ramna Thakur (PI), Dr. Rajeshwari Dutt (Co-PI)	School of Humanities & Social Sciences	19,38,000	3.3 year (12.06.2018 to 11.09.2021)

SEED GRANT PROJECTS

S. No.	IIT Mandi Reference/ Project No.	Project Title	Sponsoring Agency	Principal Investigator & Coordinator(s)	Amount Sanctioned	Duration of Project
1	IITM/SG/NC/77	Opening the Himalayan hinterland: Infrastructural development in the scheduled area of Lahaul	Seed grant	Dr. Nilamber Chhetri	6,20,000	3 years (01.04.21 to 31.03.24)
2	IITM/SG/DSE/65	The Kangra earthquake (1905): A social and political history	Seed grant	Dr. Devika Sethi	5,00,000	3 years (17.04.18 to 16.04.21)
3	IITM/SG/SDG/57	Comprehensive valuation of forest ecosystem services and understanding the method of value formation: A case study in Himachal Pradesh	Seed grant	Dr. Shyamasree Dasgupta	5,00,000	4 years (03.05.2017 to 03.05.2021)

BOOK CHAPTERS PUBLISHED

Book Chapters:

1. Manu V. Devadevan, *The Vachanas*, in Lydia H. Liu and Anupama Rao (eds.), Global Language Justice: Ecology, Diversity, Digital Vitality, Columbia University Press, New York, accepted for publication.
2. Sigroha, S. How to Analyze Leting in Comics. In How to Analyze and Review Comics edited by Forrest C. Helvie, Sequart, (2021).

Book Reviews:

1. Sethi, Devika. "Book Review: A. R. Venkatachalapathy, Who Owns That Song? The Battle for Subramania Bharati's Copyright." The Indian Economic & Social History Review, vol. 58, no. 2, Apr. 2021, pp. 286–289, DOI:10.1177/0019464620987922

PAPER PUBLISHED IN INTERNATIONAL/NATIONAL JOURNALS

1. Singh, P., & Ray, S. S. (2021). Arnetta technologies: minimum viable product. The CASE Journal. Emerald Publishing. https://www.emerald.com/insight/content/DOI/10.1108/TCJ-08-2019-0076/full/html
2. Alam, M.K., Dasgupta, S., Barua, A., Ravindranath, N.H. (2022). Assessing climate-relevant vulnerability of the Indian Himalayan Region (IHR): A district-level analysis. *Natural Hazards*. 112, 1395–1421.
3. Logovoy, O., et. al., (2021) Towards a Zero-Carbon Electricity System for India in 2050: IDEEA Model-Based Scenarios Integrating Wind and Solar Complementarity and Geospatial Endowments. *Energies*, 14(21), 7063
4. Saunders, H., Roy, J., Azevedo, I. M.L., Chakravarty, D., Dasgupta, S., et al. (2021), Energy Efficiency: What Has Research Delivered in the Last 40 Years? *Annual Review of Environment and Resource.* 46 (October 2021), https://DOI.org/10.1146/annurev-environ-012320-084937
5. Das, N., Dasgupta, S. Roy, J., Langhelle, O., Assadi, M. (2021). Emission Mitigation and Energy Security Trade-Off: Role of Natural Gas in the Indian Power
6. Varghese, N. And Sigroha, S. Understanding Rivalry: Staging Jealousy in Karnad's "Broken Images". Anglica Wratislaviensia, 59, 37-48 (2021).
7. Venu, Amrutha N., Sigroha, S., and Shankar, S. Dynamics of Social Networks and Collective Behavior: A Social Identity Approach. Frontiers of Human Dynamics, 3:676190.
8. Faizan, M. A., & Thakur, R*. Measuring the level of energy and health expenditure among energy-poor and non-poor households in India: A disaggregated analysis, *Energy Sources, Part B: Economics, Planning, and Policy*, (Taylor

& Francis) 1-28, 2022. [SJR-Q1]DOI: 10.1080/15567249.2022.2038732

9. Sujata and Thakur, R*. The unequal burden of equal risk factors of diabetes between different gender in India: a cross-sectional analysis Scientific Reports (Nature Publishing Group) 11(1), 1-12, 2021. [SJR-Q1] DOI: 10.1038/s41598-021-02012-9
10. Sangar, S. & Thakur, R*. Infectious diseases in India: assessing the role of household amenities and socio-demographic determinants Journal of Public Health (Springer) 1-9, 2021. [SJR-Q3] 1-9, 2021. [SJR-Q3]

WORKSHOPS/ CONFERENCES ORGANIZED

1. Pathania, A., Dixit, S. and Rasool, G. "'When birds of a feather flock together'- Understanding Online Herding in Wearable Technology Adoption", AMA –Winter Conference, February 10-11, Virtual.
2. Dutta, S and Dixit, S. "Exploring 360˚ Virtual Tour Experience of Tourist: A Grounded Theory Approach", AMA – Winter Conference, February 10-11, Virtual.
3. Title of the Paper: Contested Belongingness in Himalayan Borderlands: Roadside Settlements and Urban Expansion in Kalimpong. Presented at the 4th annual meeting of South Asia across the Nordic Region (SANR 2021) in Copenhagen, 27-28 May 2021. (Online Presentation) Dr. Nilamber Chettri.
4. Title of the paper: Elusive Identities, Enduring Demands: Recognition struggle and scalar expression amongst the Hatti of Trans-Giri region in Himachal. Presented at the workshop on "Sustainability and Culture in Himalayan Societies" organized by the University of Haifa on 13-16 March 2022. Dr. Nilamber Chettri.
5. Title of the paper: Remaking the made: Challenges of infrastructural development in the Eastern Himalayas. Presented at the conference "Himalayan Journeys: Circulations and Transformations" held on 22-24 June 2022 in Paris/Aubervilliers, France. Dr. Nilamber Chettri.
6. Dutt, Rajeshwari (2022), "The Link That Divides: The Troubled History of the Nicaragua Canal", Latin American Studies Association, USA.
7. Dutt, Rajeshwari (2022), "News of 1857: The Indian Uprising and Belize during Yucatan's Caste War," American Historical Association, USA.
8. Dutt, Rajeshwari (2021, August), "Sepoy Mutiny and Belize" in Zoom Public Meeting of Ameena Gafoor Institute and the Indo-Caribbean Cultural Center, Trinidad.
9. Dutt, Rajeshwari (2021, July), "Race, Imperialism and Transatlantic Rivalry in the Quest for the Nicaraguan Canal", Transatlantic Studies Association Conference, Lisbon.
10. Dutt, Rajeshwari (2021, July), "Mutiny and Empire: The Indian Uprising of 1857 and the Circum-Caribbean", Society for Caribbean Studies Conference, UK.
11. Dutt, Rajeshwari (2021, May), "The Caste War of Yucatán", Broadcasted interview at the Mexican Cultural Institute, Washington D.C. https://instituteofmexicodc.org/index.php/in15minutes/
12. Dutt, Rajeshwari (2021, April), "Emancipation and Imperialism in a Borderland: The Challenge to Settler Sovereignty over Slavery in Belize in the 1820s." Belize Symposium in Pennsylvania State University.
13. Panel Discussion on **"New Education Policy 2020: Philosophy, Preparedness, and Implementation" on 05.03.2022 via online mode. The Panellist is mentioned below:**
    Prof. Anurag Mehra
    Prof. Bhagawantrao N Jagatap
    Prof. Poonam Batra
    Prof. Pritha Chandra
    Dr. Surya Prakash Upadhyay
14. Organized a workshop on "Statistical Techniques and Data Analysis using STATA" conducted by the School of Humanities and Social Sciences, IIT Mandi in association with the "Scheme for Promotion of Academic and Research Collaboration (SPARC), Ministry of Education, GoI, from 22nd– 26th March 2022.
15. One-Day Workshop on "Perceived Work Environment Change Post COVID and Managing Learning: Insight from Cognitive Load Theory "Conducted on April 2021
16. A one-day workshop titled "**Perceived work environment change post-COVID and managing learning: Insight from Cognitive Load Theory**" conducted by the School of Humanities and Social Sciences (SHSS), IIT Mandi in collaboration with IEEE, IIT Mandi. The event consists of three different sessions. The event had a participation of ~40.

PROFESSIONAL AWARDS & ACHIEVEMENTS

S. No.	Faculty/Student	Achievements, Significant Research	Paper/Awards Description	Guide/ Faculty Advisor
1.	Dr. Varun Dutt, Shashank Uttrani (MS Student), Anam Siddique (BTech Student), Neena Sreekumar S (MA DS Student), Aug 2021	Research work titled, "Risk perception, fear, social distancing, mask, and treatment preference regarding COVID-19 in India and the United States of America," undertaken with students of MS (by research), ISTP, and 2020 MS DS batch got accepted for a presentation at the Colloquium proposed by the French Presidency of the UNESCO Intergovernmental Committee Bureau - Management of Social Transformations (MOST)		Dr. Varun Dutt
2.	Ms. Arya Priyadarshni Roll No: D18066 (Ph.D. Scholar) June 2021	Newton Bhabha Fund - Ph.D. Placement - 2020-2021	The award of Newton Bhabha Ph.D. Placement Grant 2020-21 under the ICSSR (India)-British Council (UK) Newton-Bhabha Programme.	Dr. Suman
3.	Mr. Jaideep Gaikwad Roll No: A19015 (M.A. Student) Jul 2021	SBI Youth Fellowship Programme for India	SBI Youth for India is a flagship program of the SBI Foundation. It's a 13-month-long fellowship that enables the fellow to work on rural development projects in partnership with experienced NGOs.	Dr. Devika Sethi (FA)
4	Ms. Akanksha Singh Roll No: A19003 (M.A. Student) Jul 2021			
5.	Mr. Sahil Gaikward Roll No: A19006 (M.A Student) in Sep 2021	The prestigious Mahatma Gandhi National Fellowship program is administered by the IIMs.	This 2-year fellowship program has been designed at the initiative of the Ministry of Skill Development and Entrepreneurship (MSDE), Government of India (GoI), and implemented in collaboration with State Skill Development Missions (SSDMs). The student will be a member of the '2021-2023' cohort and will begin training at the Indian Institute of Management, Kozhikode, the nodal institute for the fellows who have been assigned to the state of Nagaland.	
6	Dr. Rajeshwari Dutt	fellowship at the Linda Hall Library	She will be using the Library's holdings for researching her current book project which examines the failed quest to build the Nicaragua Canal. As far as we know, she is the only Indian to ever receive this fellowship.	
7	Mr. Ritriban Chakraborty, Roll No: D20039		Ritriban Chakraborty has been awarded the Asian Graduate Student Fellowship 2022 (AGSF) at the Asia Research Institute (ARI), National University of Singapore (NUS).	

Various Projects: *Undertaken by the Students of MA in Development Studies*

- Dr. Devika Sethi (Supervision) of MA Development Studies Development Practicum II (August - December 2021) - Mr. Akash Sharma, Ms. Neena Sreekumar, Ms. Anagha TV, Mr. Diamond Narzary.
  Project title: Community History and Memory: The Past and Present of the Namdhari Community of Mandi City.

- Dr. Devika Sethi (Supervision) of MA Development Post Graduate Project (Internship) (February - June 2022) - Mr. Vikas Shinde. **Project title: Internship with Siddhant Vikas Samaj Sanstha, Maharashtra.**

4. A BRIEF REPORT ON COLLABORATION (MoU)

(BETWEEN INDIAN INSTITUTION 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 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. The exchange visits are being performed as per the terms and conditions of the MoU/agreements.

Under an existing MoU with Worcester Polytechnic Institute (WPI), USA, IIT Mandi invites a team of 25 undergraduate students and two faculty mentors from WPI to visit the Institute for two months between mid-March and early May, and these students worked with a similar number of IIT Mandi undergraduate students in solving a number of socioeconomic issues concerning the local communities in Mandi and Kamand but due the pandemic situation, this year this visit could not be performed.

International Students at IIT Mandi

- 18 International students enrolled for Masters and Ph.D. programs at IIT Mandi. Of these, 05 students are from Bangladesh, 07 students are from Nepal, 05 students are from Ethiopia and 01 student is from Pakistan.
- Ms. Souad ABOU ZEID from the University of Paris-Saclay visited IIT Mandi in March 2022 as a part of the exchange visit under the SPARC project. Mr. Benjamin Schwetz, a Ph.D. student from IT University Denmark visited IIT Mandi as part of a project in March 2022.

Events with International Participation

There were many workshops/Talks conducted online at IIT Mandi involving visitors from universities abroad between April 2021 and March 2022. The details of these workshops/talks are given below.

- Foundations of Machine Learning and Applications an Online Executive Workshop. A 4-day weekend workshop titled "Foundations of Machine Learning and Applications" was successfully organized by the IIT Mandi iHub and HCI Foundation and the Indian Institute of Technology Mandi from 28th to 29thAugust 2021 and 4th to 5th September 2021. The workshop targeted motivated executives and working professionals willing to work in the area of Machine Learning. Dr. Satyajit Thakor was the coordinator and convener of this workshop. International expert speakers were Dr. Shih-Chun Lin from NTU, Taiwan, and Dr. Stefano Rini from NYCU, Taiwan. The workshop had a diverse audience with 34 registered participants; 22 from India and 12 from overseas. Students and faculty members from different technical institutes such as NYCU (Taiwan), NTU (Taiwan), IITs, NITs, Indian state government institutes, and private Indian institutes participated in the workshop.
- Indian Institute of Technology Mandi hosted the 3rd Winter School on Cognitive Modeling (WSCM - 2021). The WSCM started on 13th November 2021. The WSCM is hosted in collaboration with the IIT Mandi iHub and HCI Foundation, the University of Groningen, the University of Waterloo, Stanford University, and the Indian Institute of Technology Roorkee. The inaugural event included 50+ participants, speakers, and students from various countries across the globe. The international speakers include 1. Prof. Marieke van Vugt from the University of Groningen, Netherlands 2. Prof. Neils Taatgen from the University of Groningen, Netherlands 3. Dr. Percy Mistry from Stanford University, USA 4. Prof. Terrence C. Stewart from the University of Waterloo, Canada.
- The INDO-US symposium on Molecular Virology 2022 was successfully held from 15th to 17th February 2022. The convener of the symposium was Dr. Rajanish Giri and the international team includes Prof. Vladimir Uversky USA, Prof. Richard J. Kuhn (Purdue University) Indiana, Dr. Douglas J. LaCount (Purdue University), Prof. Indira U. Mysorekar (Baylor College of Medicine) Texas, Prof. Vladimir N. Uversky (University of South Florida) USA, Prof. Uversky, Prof. Tom C. Hobman (University of Alberta) Canada, Dr. Andrew Tuplin (University of Leeds) London. In the symposium, 22 eminent speakers and nine young investigators from all over the globe discussed various topics of virology.
- A two-day short-term training course on the theme "Application of unsaturated soil mechanics on the analysis of slopes" was organized by IIT Mandi in collaboration with Durham University UK and UniversitiKebangsaan Malaysia from 24th to 25th February 2022. The short training course was organized as a part of the project "Understanding Landslide Susceptibility and Adaptability in South East Asia (SEAL)" funded by a UKRI-NERC grant. More than 400 participants from around 14 countries registered for the course and were attended by more than 250 participants.
- Dr. Rajeshwari Dutt, School of Humanities and Social Sciences,has been awarded a three-month fellowship at the Linda Hall Library, which is one of the world's foremost research libraries devoted to science, engineering, and

technology. Dr.Dutt's book project examines the failed quest to build the Nicaragua Canal and explores how histories of failure can illuminate the human aspects of technological projects.

- A two-day international workshop on the theme "Landslides Susceptibility and Adaptability in South-East Asia: Theory to Practice" was jointly organized by IIT Mandi India and Durham University UK from 29th to 30th March 2022. The workshop was organized as a part of the project "Understanding Landslide Susceptibility and Adaptability in South-East Asia (SEAL)" funded by a UKRI-NERC grant. About 350 participants from more than 25 countries covering six continents registered and more than 214 participants attended online including 20 participants who attended in person at IIT Mandi. The sessions were enriched by the felicitous presentations by renowned speakers and marked overwhelming presence of students, early career researchers and practicing engineers from India, the UK, Canada, Singapore, Malaysia, Thailand, Vietnam, Australia, Brazil and many other countries
- A two-day online international workshop was organized under the SPARC grant by Dr. Aditi Halder from the school of Basic Sciences. 22 Faculties from MIT, USA, Europe, Israel and Australia gave invited talks and nearly 450 participants attended this symposium.
- IIT Mandi students visiting Institutions abroad

Many IIT Mandi graduate and undergraduate students visited several EU institutions under academic exchange in the year 2021. The undergraduate visits included: 04-students to RWTH Aachen, 04-students to the Technical University of Munich, 02 students to the University of Stuttgart, 01 student to the Technical University of Dresden and 02-students of M. Tech to Germany under the DAAD (KOSPIE) program.

IIT Mandi faculty visiting Institutions abroad

A few IIT Mandi faculty visited institutions in UK and Israel in 2021-2022 to participate in international workshops. The visits include one faculty member from the School of Engineering and two faculty members from the School of Humanities and Social Sciences.

International Visitors at IIT Mandi

- The High Commissioner of the Republic of Seychelles, Mr. Thomas Selby Pillay, Ms. Nim Chuki Sherpa (PA to High Commissioner), and Mr. Franklin Massih (Protocol) visited IIT Mandi in February 2022.
- Prof. Yvonne Dittrich from IT University, Denmark visited IIT Mandi as part of a project in March 2022.

MOU

IIT Mandi signed MoU with the Consortium of Finnish Universities, Finland (Higher Education Institutions, Finland) in August 2021 and with Université de Pau et des Pays de l'Adour, France in January 2022.

5. THRUST AREA RESEARCH CENTRES

5.1 Advanced Material Research Centre (AMRC)

Overview

Materials play the most important role in the development of a society. The growth of human civilization has further paced up with the invention of new scientific tools for tailor-made materials. Modern scientific and engineering methods and interdisciplinary approaches have opened various unforeseen avenues in material research and new products of significant importance have emerged. IIT Mandi, which was established in 2009, identified and developed one of its corefocuses towards material research. To achieve these objectives, the Advanced Materials Research Center (AMRC) was founded in the year 2013, to support and nurture the requirements of materials researchers by establishing the state-of-the-art experimental facility. For the last 10 years, the Centre has fostered many research ideas and played a very important on catering research facilities not only to IIT Mandi but also to several research institutions and industries throughout the country. The center has fulfilled the aim of one equipment-many-user policy effectively for the maximum utilization of the equipment at its best.

The Advanced Material Research Centre's (AMRC) Annual report for April 2021 –March 2022 provides a summary of the services, research, activities, and users of the Centre. In the year 2021-22 research output of IIT Mandi, has scaled a new height with a good number of qualitative research paper publications using AMRC facilities. It paved the path for the students of IIT Mandi to achieve Ph.D. and Post-doctoral positions and Job opportunities in renowned universities and companies globally. Like previous years we have also extended our support to external academic institutes and research laboratories throughout India to promote the research quality of the country wherever it was required. We have installed a new machine named ICPMS, HPLC and centrifuge this year. We have arranged training sessions for several sophisticated instruments, where 56 research scholars including a few staff of AMRC got trained in sophisticated instruments like FESEM, PXRD, Confocal, Raman, XPS and a few other basic instruments. AMRC also continued to expand its services for the internal researcher, support for faculty across the disciplines, and outreach to all external academic institutes, research labs and industries.

Instrumental facilities at AMRC

AMRC has high-end instrument facilities which can be broadly classified into various categories: (i) Microscopy (ii) Advance Spectroscopy (iii) Electronic transport & Magnetism (iv) General characterization facility. The main equipment in these facilities is mentioned below:

The Centre has procured one new sophisticated instrument 'Inductively Coupled Plasma Mass Spectroscopy (ICPMS) equipped with HPLC for the Physical characterization and the quantitated analysis of the chemical compositions of the materials. The cost of the equipment is approx. Rs 1.3 Crore. The Centre procured a new Centrifuge for the chemical synthesis of the material, which cost approx. Rs 3.75 Lakh.

Fig: ICPMS instrument with HPLC and Microwave Digester

Fig: Centrifuge instrument

Research Publications:

The internal (IIT Mandi) users of the AMRC facility have published more than 140 research articles in high-quality journals. The number of research publications from the users has shown consistent growth, with the cumulative number reaching more than 1200 in the short span of 9 years. Some of the selected publications in the year 2021-22 are:

- Reusable piezocatalytic water disinfection activity of CVD-grown few-layer WS2 on a sapphire substrate. Deepa Thakur, Moolchand Sharma, Viswanath Balakrishnan, Rahul VaishEnviron.Sci:Nano 2022, 9,805
- Electron-Phonon Coupling, Thermal Expansion Coefficient, Resonance Effect, and Phonon Dynamics in High-Quality CVD-Grown Monolayer and Bilayer MoSe2 Deepu Kumar, V. Kumar, R. Kumar, M. Kumar, and Pradeep Kumar. Phys. Rev. B 2022, 105, 085419
- Entropic topography associated with field-induced quantum criticality in a magnetic insulator DyVO4.Dheeraj Ranaut & Kaustav Mukherjee. ScientificReports 2022, 12:56
- Nanoarchitectonics of phosphorylated graphitic carbon nitride for the sustainable, selective and metal-free synthesis of primary amides. P Choudhary, A Kumar, V Krishnan. Chem Eng Journal, 2022, 431,133695

- Reusable MoS2-Modified Antibacterial Fabrics with Photothermal Disinfection Properties for Repurposing of Personal Protective Masks Praveen Kumar, Shounak Roy, Ankita Sarkar, Amit Jaiswal ACS Appl. MaterACS Appl. Mater. Interfaces 2021, 13, 11, 12912
- Absorption and emission of light in red emissive carbon Neeraj Soni, Shivendra Singh, Gayatri Batra, Kush Kaushik, Chethana, Navneet Chandra Verma, Bhaskar Mondal, Aditya Yadav, Chayan Kanti Nandi. Chem. Sci. 2021, 12, 3615-3626
- Mono- and Rare Trinuclear Zn(II) Complexes with Near-Infrared Emissive Ligands: Anion-Responsive Nuclearity Control, Interconversion, Solid-State NIR Emission, and Latent Fingerprint Imaging. Ranjit Singh, Chullikkattil P. Pradeep. Cryst. Growth Des. 2022, 22, 2910
- Ultralong-Term Super-Resolution Tracking of Lysosomes in Brain Organoids by Near-Infrared Noble Metal Nanoclusters Kangqiang Qiu, Aditya Yadav, Zhiqi Tian, Ziyuan Guo, Donglu Shi Chayan K. Nandi*, and JiajieDiao*. ACS Materials Lett. 2022, 4, 1565
- The interplay between Thermal Stress and Interface Binding on Fracture of WS2 Monolayer with Triangular Voids. Divya Verma, Pawan Kumar, Sankha Mukherjee, Deepa Thakur, Chandra Veer Singh, and Viswanath Balakrishnan ACS Appl. Mater. Interfaces 2022, 14, 14, 16876
- Unraveling the structural and morphological stability of oxygen vacancy engineered leaf-templated CaTiO3 towards photocatalytic H2 evolution and N2 fixation reactions. A Kumar, M Kumar, VN Rao, MV Shankar, S Bhattacharya, V Krishnan. J. Mater. Chem. A, 2021,9, 17006
- Quaternary ammonium substituted pullulan accelerates wound healing and disinfects Staphylococcus aureus infected wounds in mouse through an atypical 'non-pore formingpathway Shounak Roy, Monika Kumari, Prakash Haloi, Saurabh Chawla, V Badireenath Konkimalla, Ajith Kumar, Hemant K Kashyap, Amit Jaiswal. Biomater. Sci., 2022,10, 581
- Anodic corrosion of heteroatom-doped graphene oxide supports and its influence on the electrocatalytic oxygen evolution reaction.ChetnaMdan, Lalita Sharma, Sanjeev Mukherjee, Aditi Halder. Int Jour of Hydrogen Energy,2022,47,54,22738
- Molecular-level insights into the self-assembly driven enantioselective recognition process. Diksha Gambhir, Bhaskar Mondal, Rik Rani Koner Chem. Commun., 2021, 57, 2535-2538
- Planar Hall Effect in Cu intercalated PdTe2. Sonika, M.K.Hooda, Shailjasharma, CS Yadav. Applied Physics Latter.2021.119, 261904,
- The piezo-photocatalytic activity of mechanochemically synthesized BiVO4 for dye cleaning.Manish Kumar,Rahul Vaish, Samia Ben Ahmed. Journal of the American Ceramic Society 2022, 105(3), 2309
- Solution-Processed Photoinduced Multilevel Resistive Switching Devices Based on Lead-Free All-Inorganic perovskiteRay, R., Pal, S. K. IEEE Electron Device Letter, 2021, 42, No9, September.
- Magneto-Transport and High-Resolution Angle-Resolved Photoelectron Spectroscopy Studies of Palladium Doped Bi2Te3. S Sharma, CS Yadav, S Kumar, GC Tewari, G Sharma, EF Schwier, K Shimada. Physical Review B,(2022) 105, 115120

External User Statistics: Besides the more than 300 internal users, the AMRC facility is being used by researchers of various academics and industries researchers from Himachal Pradesh as well as from all over the country. The user statistics are shown in the pie chart. The list of some Institutional utilizing our facility is as follows:

Name of the Institutes in Himachal Pradesh

1.	NIT Hamirpur, HP	10.	Laureate Institute of Pharmacy, Kangra, HP
2.	CSIR-IHBT Palampur, HP	11.	M Pharmacy Institute, Jwalamukhi, HP
3.	HPU Shimla, HP	12.	Indus International University, Bathu, Una, HP
4.	Shoolini University, HP	13.	A.P.Goyal Shimla University, Shimla, HP
5.	Sri Sai University, Palampur, HP	14.	Baddi University, Baddi, HP
6.	Jaypee University, HP	15.	Eternal University, Baru Sahib, Kangra, HP
7.	Carrier Point University, HP	16.	School of Pharmacy and Emerging Science, Baddi
8.	Arni University, Kangra, HP	17.	YS Parmar University, Solan, HP
9.	Maharaja Agra Sen University, Baddi, HP		

Name of the institutes other than Himachal Pradesh

1.	NIT Manipur	13.	JNU New Delhi
2.	NIT Delhi, New Delhi	14.	CSIR NPL New Delhi
3.	NIT Durgapur, W.B	15.	IISC Bangalore, Karnataka
4.	NIT Karnataka	16.	INST Mohali, Chandigarh, Punjab
5.	NIT Trichy, Tamil Nādu	17.	Jamia Millia Islamia University, New Delhi
6.	IIT Gandhinagar	18.	Doon University, Uttarakhand
7.	IIT Ropar, Punjab	19.	Kurukshetra University, Kurukshetra
8.	IIT Guwahati, Assam	20.	Agra University, Agra
9.	IIT Kharagpur	21.	Punjab University, Patiala
10.	IIT Delhi	22.	Manipur University
11.	IIT Patna, Bihar	23.	Shiv Nadar University, New Delhi
12.	IIT Madras, Tamil Nadu	24.	HNBG University, Uttarakhand Indian Institute of Petroleum, Dehradun

Name of the Industries

1. Crystal morphix Technology, Hyderabad

Total expenditure and Revenue generation from User charges:

Total expenditure of the financial year 2021-22 was Rs.2,35,22,610/-, which includes the procurement of two new instruments: ICPMS (Rs.1,29,79,646) and Centrifuge (Rs.3,75,000), the renewal of Annual Maintenance Cost of equipment, repairing of the instrument and the consumable cost.The Centre generated a sum of Rs.40,46,462/- in the financial year 2021-22 from the user charges.

The year-wise growth of the revenue generated from the user charges is given in the chart below:

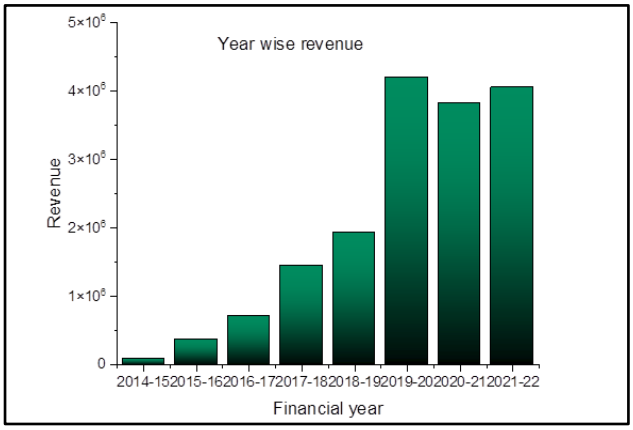


Fig. Year-wise growth in revenue generation

Outreach Activity and Training

- AMRC Facility visit by some eminent personalities and School students of H.P.
- Training of XPS & ICPMS instrument

Fig. (a) XPS training *(b) ICPMS installation* *(c) ICPMS with HPLC training*

Fig. AMRC instrument facility demonstration to School students of Himachal Pradesh

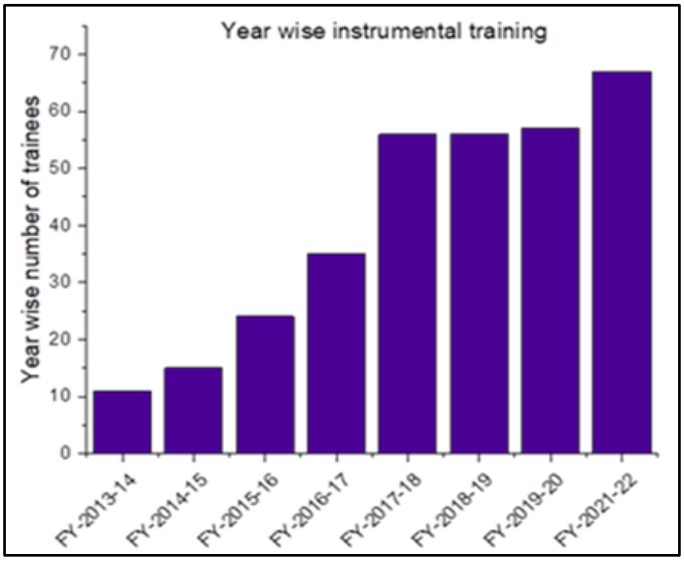


Fig: Year-wise Training statistics

Visits of the Eminent Personalities and Scientists

- Dr. Y J Park, Director, Indo-Korean Center New Delhi and Shri Hyo Hee Lee, the Science and Technology Attaché at the Embassy of the Republic of Korea. (17th June2022)
- Prof. Chin-Tsan Wang, Director of Taiwan MOST in India, TECC, and Ms. Yi Ting Chiang (Ellie), Assistant Director of S&T division, TECC, the Taiwan Embassy. (3rd August 2022)
- Ambassador of the Republic of Seychelles. (23rd February 2022)
- Chairman BOG IIT Mandi. (17th March 2022)
- Dr. Lalit K Awasthi, Director NIT Uttarakhand.(23rd June 2022)
- Dr. Deepak Arora IIT Jodhpur. (26th May)
- Mr. Rakesh Gupta, Babafine Chemicals. (18th April 2022)
- Dr. Robin Kumar, Amity University. (17th May 2022)
- Dr. KrishanuViswas, IIT Kanpur (1st June2022)
- Mr. Bhagya Chander (Head of HPGA) (26th April 2022)
- Prof. Sanjeev Khosla, Director, IMTECH, Chandigarh. (13th May 2022)

Visit by Chairman BOG IIT Mandi

AMRC Team:

- Dr. Rik Rani Koner was the AMRC coordinator and Dr. Chandrashekhar Yadav was the co-coordinator of AMRC. The other team members are: Ms. Isita Mahanty Nandi (Project Scientist), Mr. Arjun Baernwal (Project Engineer), Mr. Puneet Sood (Project Engineer), Mr. Sunil Kr (Project Engineer), Mr. Naveen Kumar (Project Engineer), Mr. Dushyant Gumra (Office Assistant), Mr. Karm Singh Thakur (Lab Attendant)

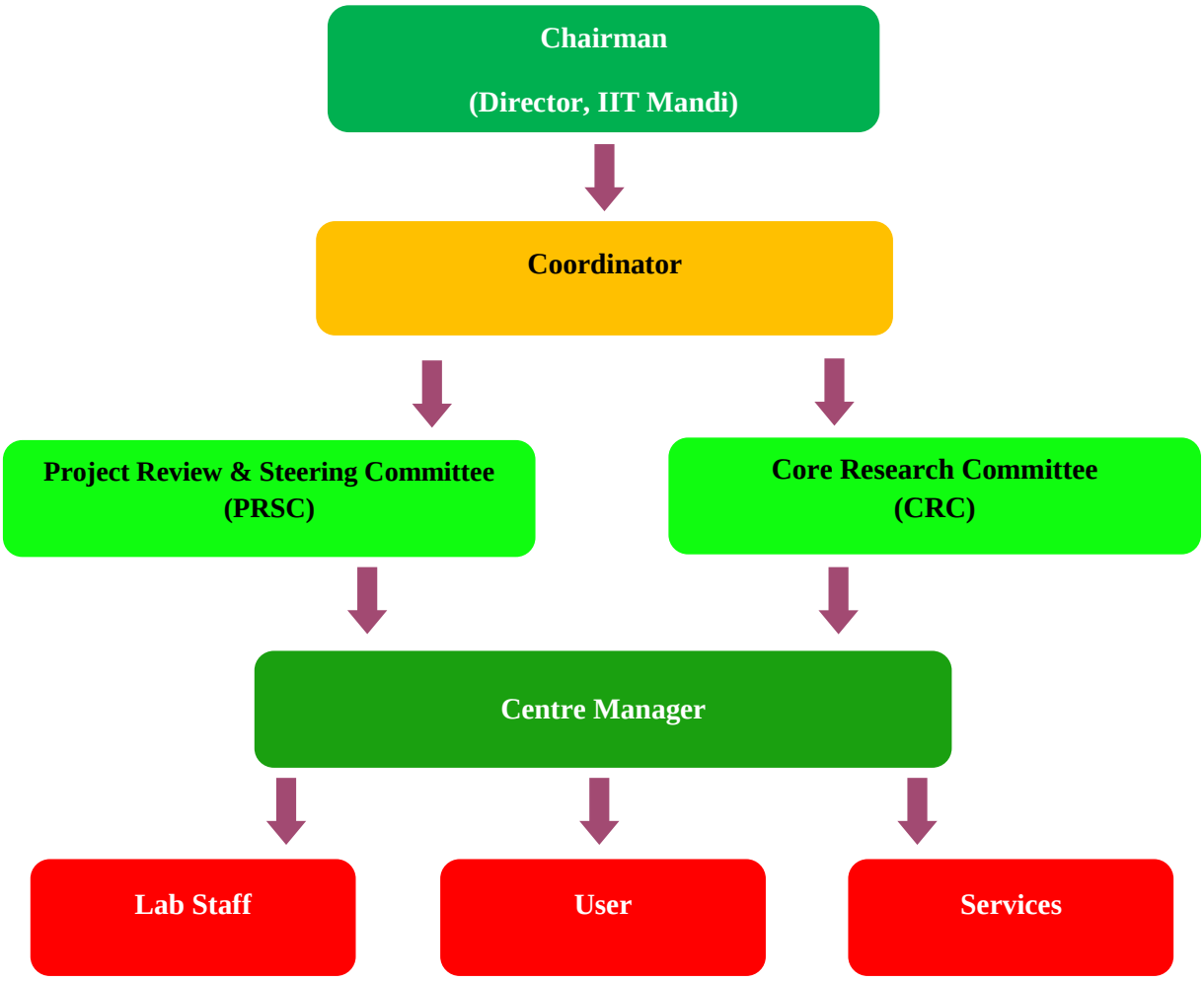
5.2 Centre for Design & Fabrication of Electronic Devices, (C4DFED)

@ Indian Institute of Technology (IIT)-Mandi, (Himachal Pradesh), India

Co-ordinator: Prof. Satinder Kumar Sharma

https://c4dfed.iitmandi.ac.in

Organizational Structure C4DFED Facility



Project Review & Steering Committee (PRSC)

Prof. Satinder Kumar Sharma (SCEE, IIT Mandi)	**Coordinator**
Prof. Laxmidhar Behera	Chairman,Director IIT Mandi
Prof. Timothy A. Gonsalves (SCEE, Emeritus Prof.)	Founder Director/ Member
Prof. Kenneth Gonsalves (SBS, IIT Mandi)	Distinguish Prof./ Member
Prof. Subrata Ghosh (SBS, IIT Mandi)	Member
Dr. Hitesh Shrimali (SCEE, IIT Mandi)	Member
Dr. Viswanath Balakrishnan (SE, IIT Mandi)	Member
Dr. Ajay Soni (SBS, IIT Mandi)	Member
Dr. Ankush Bag (SCEE, IIT Mandi)	Member
Dr. Amit Jaiswal (SBS, IIT Mandi)	Member

Core Research Committee (CRC)

S. No.	Name	School	Email id
1	Dr. Ajay Soni	SBS, IIT Mandi	ajay@iitmandi.ac.in
2	Dr. Amit Jaiswal	SBS, IIT Mandi	j.amit@iitmandi.ac.in
3	Dr. Ankush Bag	SCEE, IIT Mandi	ankushbag@iitmandi.ac.in
4	Dr. C. S. Yadav	SBS, IIT Mandi	shekhar@iitmandi.ac.in
5	Dr. Gaurav Bhutani	SE, IIT Mandi	gaurav@iitmandi.ac.in
6	Dr. G. Shrikanth Reddy	SCEE, IIT Mandi	gopishrikanth@iitmandi.ac.in
7	Dr. Hitesh Shrimali	SCEE, IIT Mandi	hitesh@iitmandi.ac.in
8	Dr. Kunal Ghosh	SCEE, IIT Mandi	kunal@iitmandi.ac.in
9	Dr. Pradeep Kumar	SBS, IIT Mandi	pkumar@iitmandi.ac.in
10	Prof. Pradeep Parameswaran	SBS, IIT Mandi	pradeep@iitmandi.ac.in
11	Dr. Rahul Shrestha	SCEE, IIT Mandi	rahul_shrestha@iitmandi.ac.in
12	Prof. Satinder K. Sharma	SCEE, IIT Mandi	satinder@iitmandi.ac.in
13	Dr. Satvasheel Ramesh Powar	SE, IIT Mandi	satvasheel@iitmandi.ac.in
14	Dr. Shubhajit R. Chowdhury	SCEE, IIT Mandi	src@iitmandi.ac.in
15	Dr. Srikant Srinivasan	SCEE, IIT Mandi	srikant@iitmandi.ac.in
16	Dr. Srinivasu Bodapati	SCEE, IIT Mandi	srinivasu@iitmandi.ac.in
17	Prof. Subrata Ghosh	SBS, IIT Mandi	subrata@iitmandi.ac.in
18	Dr. Swati Sharma	SE, IIT Mandi	swati@iitmandi.ac.in
19	Dr. Venkata Krishnan	SBS, IIT Mandi	vkn@iitmandi.ac.in
20	Dr. Viswanath Balakrishnan	SE, IIT Mandi	viswa@iitmandi.ac.in

Executive Summary:

This document serves as the **Centre for Design & Fabrication of Electronic Devices (C*4*DFED)'s** official annual report for FY 20-21 ending March 31, 2021. C*4*DFED facility at IIT Mandi is a unique facility for multidisciplinary research on device design and fabrication at IIT Mandi where many state-of-the-art facilities and utilities are housed inside class 100, class 1000 and class 10000 clean laboratories. This high-endstate of the art facility was inaugurated by **Shri R. Subrahmanyam, Secretary (HE),** Ministry of Human Resource Development (MHRD), Government of India on 31st October 2018.

The ultimate goal of this Centre is to cater to the different needs of the IIT Mandi research and scientific community for various ongoing projects and futuristic and also train the students to provide skilled professionals and researchers to serve India and semiconductor industries/society in the long run. The C*4*DFED facility at IIT Mandi is fully operational for the **last two years** and is now capable of handling research projects like the 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. A good number of researchers, students from the institute and neighboring institutes are benefited from the infrastructure available at IIT Mandi and this is also a source of revenue generation for the self-sustainability of the facility. The user charges collected in two past quarters are around 4 Lakhs. Along with that, many governments institute like ISRO, DRDO, DST, etc., or industrial-funded projects have been completed or still going on. In the present projects, the center manager, two project staff and instrument operators are hired for the proper day-to-day operations of center facilities. Whereas,

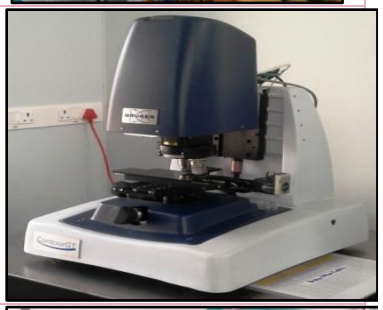
two technical staff members are taking care of the complete clean room & plant room operations, which are equipped with AHUs, MAUs, Chillers, UPS and BMS.

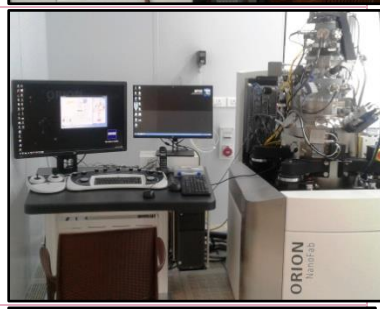
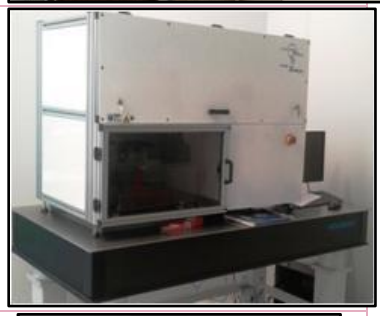
To make C4DFED facilities self-reliant and self-sustainable, a cumulative effort has been started. In this regard, an expert committee from different institutes/organizations from India (IIT Mandi, IIT Delhi, IISc, IIT Ropar, ISRO, DRDO and company, etc) and abroad have visited in person/skype IIT Mandi C4DFED facility, on 11th Dec 2019 and as per their suggestions center is going to organizing more training programs, workshops and conference like previous year.

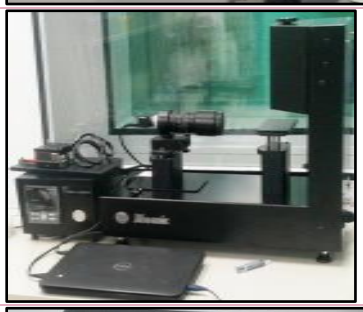
Highlights of C4DFED

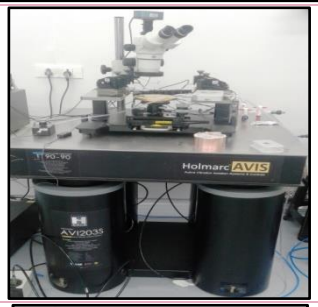
S. No.		
1	Users	• All IIT Mandi faculties have similar research interests. • Masters and Ph.D. students of IIT Mandi & other institutes • Academic, Research & Industrial institutes
2	Total Cost of the project	Rs. 10 Crores + Rs. 40 Crores Equipment
3	Electrical Power required	600 KVA
4	Class 100 area	1200 Sq Ft
5	Class 1000 area	450S q Ft
6	Class 10000 area	350 Sq Ft
7	Class 100000 area	2000 Sq Ft

List of Facilities/Equipment at C4DFED

S. No.	Equipment	Model	Make	Category	Images
1	Atomic Force Microscope	Dimension ICON PT	BRUKER	Sophisticated Equipment	
2	Optical Profilometer	CONTOURGT-K Automated System	BRUKER	Sophisticated Equipment	
3	Ellipsometry	EP4	Accurion	Sophisticated Equipment	

4	Field Emission Scanning Electron Microscope	GeminiSEM 500	Carl Zeiss Microscopy	Sophisticated Equipment	
5	Helium Ion Beam Lithography	ORION Nano Fab	Carl Zeiss Microscopy	Sophisticated Equipment	
6	Maskless Lithography	SF - 100 Xpress Maskless Exposure	Intelligent Micro Patterning	Sophisticated Equipment	
7	Electron Beam Lithography	eLINE Plus	RAITH	Sophisticated Equipment	
8	Mask Aligner	EVG610	EV Group	Sophisticated Equipment	

9	Atomic Layer Deposition (ALD)	S100 G2	Savannah	Sophisticated Equipment	
9	Stylus Profilometer	Nano Map - LS	AEP Technology	Sophisticated Equipment	
10	Glove Box	SGI 200/750TS	SciLab - Vigro Gas Purification tech.	General Characterisation Instrument	
11	Optical Microscope	BX 51	Olympus	Sophisticated Equipment	
12	Contact Angle	SEO Phoenix 300	SEO (Surface electro Optics) Phoenix 300	Sophisticated Equipment	
13	Electro Chemical Analyzer	CH Instruments	CH Instruments	General Characterization Instrument	

14	Spin Coater	WS-650MZ-23NPP	Laurell	Sophisticated Equipment	
15	Sputtering System	Self-Assembled	Advance Process Technology	Sophisticated Equipment	
16	Reactive Ion Etching	Planar RIE-6S	PLANAR Tech.	Sophisticated Equipment	
17	Thermal Evaporator	BC-300	Hind High Vacuum	Sophisticated Equipment	
18	Electrical Characterization System	Keitheley 4200 SCS	Tektronics (Keithley)	Sophisticated Equipment	
19	Nanofiber Unit	Super-ES2	E-Spin nanotech	Sophisticated Equipment	

20	3 Zone Furnance	Lindberg Blue M	Thermofisher scientific	General laboratory equipment	
21	Vacuum Oven		Nanosemi Technology	General laboratory equipment	
22	Hot Air Oven	MAC	MACRO Scientific Works	General laboratory equipment	
23	Centrifuge	Spinwin MC 03	Tarsons	General laboratory equipment	
24	Probe Sonicator	Frontline FS-750 Sonicator		General laboratory equipment	
25	Ultra Sonicator		Riviera Glass	General laboratory equipment	

26	3D Printer		XYZ Printing Pro	General laboratory equipment	
27	Weighing Machine	ME-204	Mateller Toledo	General laboratory equipment	
28	Hot Plate	M10102003	Axiva Sichem Biotech	General laboratory equipment	
29	Vacuum Filter		Axiva Sichem Biotech	General laboratory equipment	

Number of Students/Researchers Benefited from C4DFED facility at IIT Mandi so far

i) Academic year (2021-2022): 64

List of publications and patents from C4DFED

A total of 08 publications have been generated from the C4DFED facility for FY. 2021-22. The list is as follows:

Publications in Journals:

1. Two-Dimensional Van Der Waals Hafnium Disulfide and Zirconium Oxide-Based Micro-Interdigitated Electrodes Transistors Shivani Sharma, Subhashis Das, Robin Khosla, Hitesh Shrimali, Satinder K. Sharma. IEEE Transactions on Electron Devices (2022,) DOI.org/10.1109/TED.2022.3202510
2. Highly efficient quasi-cubic structured perovskite for harvesting energy from artificial indoor LED light source Ranbir Singh, Vivek Kumar Shukla, Mritunjaya Parashar, Vikrant Sharma, Satinder K. Sharma. Solar Energy, Volume 245, Pages332-339 (2022) DOI.10.1109/JFLEX.2022.3189946
3. Light-sensitive PVDF-TrFE: PDI Hybrid Nanofibers based Flexible Bimodal Piezoelectric Nanogenerator Pankaj Kumar, Sumit Choudhary, Kumar Palit Sharma, Satinder K. Sharma, Ranbir Singh. IEEE Journal on Flexible Electronics (July 2022) DOI.10.1109/JFLEX.2022.3189946

4. Macrocycle Network-Aided Nanopatterning of Inorganic Resists on Silicon Santu Nandi, Lalit Khillare, Mohamad G. Moinuddin, Sunil Kumar, Manvendra Chauhan, Satinder K. Sharma, Subrata Ghosh, Kenneth E. Gonsalves. Applied Nano Materials(2022) DOI.org/10.1021/acsanm.2c01321
5. A Steep Slope MBE-Grown Thin p-Ge Channel FETs on Bulk GeSi Using HZO Internal Voltage Amplification, Sumit Choudhary, Daniel Schwarz, Hannes S. Funk, D. Weibhaupt, Robin Khosla, Satinder K. Sharma, Jorg Schulze IEEE Transactions on Electron Devices, VOL. 69, NO. 5,(2022) 10.1109/TED.2022.3161857
6. Deep Learning approach for inverse design of metasurfaces with a wider shape gamut Soumyashree S. Panda, Sumit Choudhary, Siddharth Joshi, Satinder K. Sharma, Ravi S. Hegde. Optics Letter Vol. 47, No. 10, (2022) DOI.org/10.1364/OL.458746
7. Organotin-bearing polymeric resist electron beam lithography Midathala Yogesh, Mohamad G. Moinuddin, Lalit D. Khillare, Srinivas Chinthalapalli, Satinder K. Sharma, Subrata Ghosh, and Kenneth E.Gonsalves. Microelectronic Engineering Volume 260, (2022) 111795 DOI.org/10.1016/ j.mee.2022.111795
8. Low-Latency and Reconfigurable VLSI-Architectures for Computing Eigenvalues andEigenvectors Using CORDIC-Based Parallel Jacobi Method Rahul Sharma, Rahul Shrestha, Satinder K. Sharma IEEE Transactions on Very LargeScale Integration Systems, (2022) DOI.org/10.1109/ TVLSI.2022.3170526

Publications in Conferences:

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Ongoing Projects and funding at the Centre:

- C4DFED (Clean Room) Facility Project (IITM/INT/C4DFED-CO/27) funded by IIT Mandi.
- Fund for Improvement of S&T Infrastructure (FIST) program 2020, “Engineering Sciences-FIST 2020”. Funded by Department of Science & Technology (DST), Govt. of India: ~92 Lakhs (Dec 2021 –Dec 2026)

National and International distinguished visitors at the Center:

- Dr. Sanjeeb Patjoshi, IPS, Chairman & Managing Director (Food & Civil Supplies), visited the center on 25/09/2022.
- Prof. Sajal K. Das, Professor & Daniel St. Clair Endowed Chair, Missouri University of Science and Technology, visited the center on 05/09/2022.
- Dr. Nikhil Bhalla, Ulster University, UK, visited the center on 03/09/2022.
- Shri, Rakesh Kumar Prajapati, IAS, Director (Industries) Himachal Pradesh, visited the center on 27/08/2022.
- Prof. Ravinder Dahiya, University of Glasgow UK, visited the center on 01/08/2022.
- Dr. Lalit K. Awasthi, Director, NIT Uttarakhand, visited the center on 23/06/2022.
- Dr. Y J Park, Director Indo-Korean Center for Research and Innovation, New Delhi and Shri Hyo Hee Lee, visited the center on 17/06/2022.
- Dr. Chin Tsan Wang, National Ilan university, Director of Taiwan MOST in India, TECC, visited the center on 09/06/2022.
- Dr. Rajeev Ahuja, Director, IIT Ropar, visited the center on 04/06/2022.
- Prof. Vikram Tripathi, TIRF, Mumbai, visited the center on 03/06/2022.
- Dr. Arun Arjunan, University of Wolverhampton UK, visited the center on 02/06/2022.
- Dr. Deepak Arora, IIT Jodhpur, visited the center on 17/05/2022.
- Dr. Sanjeev Khosla, Director, CSIR, IMTECH, visited the center on 14/05/2022.
- Dr. Upendra Sharma, CISR-IHBT, visited the center on 13/05/2022.
- Dr. Alan Mickelson, from the University of Colorado at Boulder, USA, visited the center on 11/05/2022.
- Prof. Prem Vrat Chairman (BOG) IIT Dhanwad & IIT Mandi, visited the center on 17/03/2022.
- Dr. V K Sarswat NITI Aayog, New Delhi, visited the center on 06/03/2022.
- AVM Pranay Sinha VSM (Retd). Visited the center on 02/03/2022.
- T selby Pillay High Commissioner of the Republic of Seychelles, New Delhi, visited the center on 23/02/2022.
- Dr. Avijit Goswami, Assistant professor, Department of Chemistry, IIT Ropar, visited the center on 03/12/2021.
- CEERI Pilani Team (Dr. Kuldip Singh, Dr. Manish Mathew, & Dr. Ravindra Kukhiya), visited the center on 07/10/2021. Dr. Suresh Kumar, Associate Professor, Deptt, of Physics and Astrophysics, Delhi University, Visited the Center on 18/08/2021.

APPENDIX:

Rate Structure for C4DFED Facility Users:

C4DFED-based facilities are available to internal and external users at nominal charges. Below is the rate structure of the C4DFED facility, which is also available online.

S.No.	Equipment	Make/Model	Academic Subsidized Charges for Internal Users	Charges for External Academic users	Charges for Industry users
1	FESEM	Zeiss	750	1875	3750
2	HE Ion Microscope	Orion, Zeiss	2000	5000	10000
3	AFM	Bruker	500	1250	2500
4	Raith EBL (exposure only)	Raith	1000	2500	5000
5	Ellipsometer (Data Acquisition)	Accurion	500	1250	2500
6	Ellipsometer (Modeling & Analysis)	Accurion	2500	6250	12500
7	Maskless Lithography (Exposure only)	Intelligent Micro Patterning	200	500	1000
8	Optical Lithography	EV Group	250	625	1250
9	Stylis Profiler	AEP Technology	100	250	500
10	Optical Profiler	Bruker	150	375	750
11	RIE	Planer Tech.	300	750	1500
12	E-Spin	E-Spin nanotech	100	250	500
13	Sputtering	Advance Process Technology	400	1000	2000
14	Optical Microscope	Olympus	100	250	500
15	Keithley System with Probe Station	Keithley	100	250	500
16	Glove Box	SciLab SG1200/750TS	150	375	750
17	Thermal Evaporation	Hind High vacuum	300 (per run)	750 (per run)	1500 (per run)
18	ALD		950	2375	4750
19	Spin Coater (Controlled atmosphere)	Laurell	75 (per sample)	200 (per sample)	600 (per sample)
20	Spin Coating (In air)	Spectro Spin	50 (per sample)	125 (per sample)	250 (per sample)
21	Contact Angle	SEO Phoenix 300 Touch Contact Angle	50 (per sample)	125 (per sample)	400 (per sample)
22	3D printer	XYZ Printing Pro	100	250	500
23	Electro Chemical Analyzer	CH Instruments	100	250	500
24	Three Zone Furnace 1000 °C	Thermofisher scientific	100	250	500
25	Vacuum Oven	Nanosemi Technology	100 per day	250 per day	500 per day
26	DI Water	Millipore	50 per liter	125 per liter	250 per liter
27	Clean Lab Space (5'x5')	-	2000 per day	5000 per day	10000 per day

Events Organized

- Online Workshop on "International **Colloquium on Technology Readiness for High Volume Chip Manufacturing (Fab)(ICTFAB)-2021**"
  Date: (2 days from November 15th 2021 to November 16th 2021.)
  Organizing Institute: Indian Institute of Technology (IIT) Mandi.
  Organized by: Director, IIT Mandi, Prof. Satinder Kumar Sharma, Prof. Subrata Ghosh, Prof. Kenneth E. Gonsalves.

5.3 BioX

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 in 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 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 healthcare regimes need to be evolved.

Toward these goals, IIT Mandi has taken the initiative to conduct interdisciplinary research and developments including faculties from various 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 the 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. 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 a 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 forms 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).

BioX Coordinator: Dr. Prosenjit Mondal
Project Associate: Prodipta Mukherjee Ray

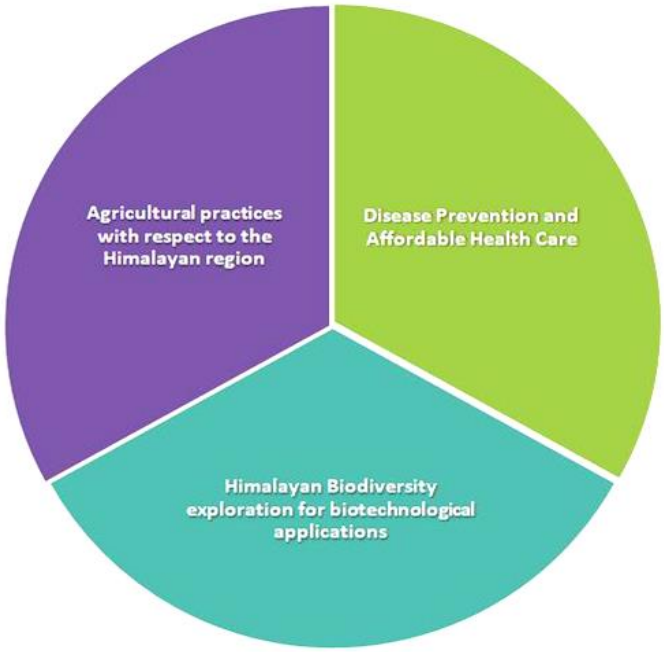

Figure: Thrust areas of research being carried out at IIT Mandi

The Thrust Areas of Research which are being Focused at the Centre

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 for the Himalayan region

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

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)
- The High-Performance Computing facility
- Molecular and Systems biology
- Nanotechnology
- Next Generation Sequencing facility
- Animal House facility
- Cell and Tissue culture facilities
- Expanding into other Omics

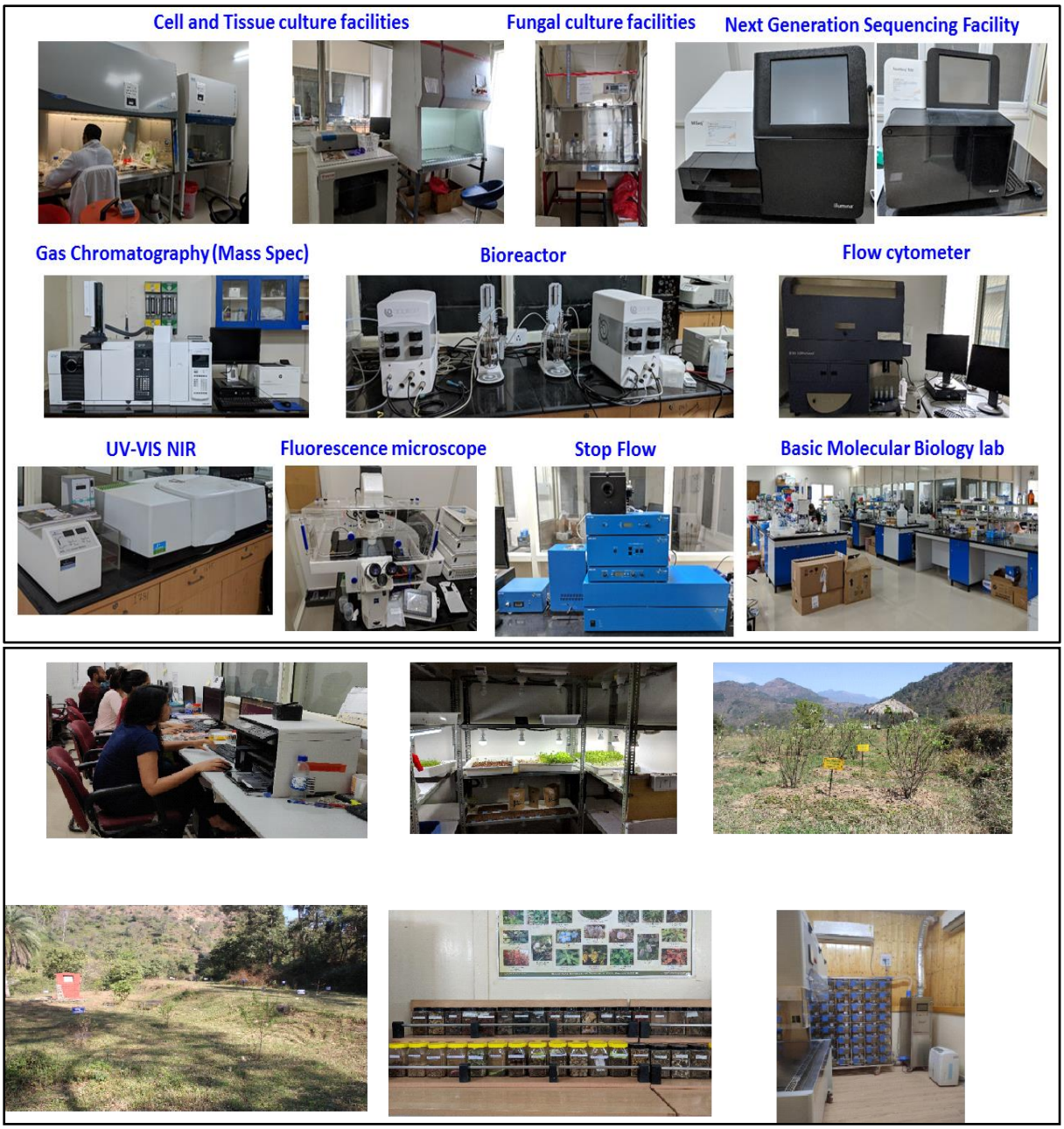

Figure: Existing research facilities at the BioX Centre

The Centre facilities are also an integral part of the ongoing MTech in Biotechnology program of the School of Biosciences and Bioengineering (SBB) at IIT Mandi. The M.Tech. in Biotechnology program was started in August 2016 to train the next generation of students with cutting-edge knowledge and skills suitable for biotechnological research and bio-pharma-based industry. M.Tech. in the Biotechnology program at IIT Mandi is intended to nurture and train students with a strong interest in research and Bio-industry to meet the existing challenges of the biomedical research/industry. The curriculum is directed toward the 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”.

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 Ph.D. degrees in related areas, are using the facilities developed at the BioX Centre. The BioX Center faculty have been able to publish their research work in peer-reviewed international journals of high impact.

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Projects Sanctioned/Ongoing

1. **Title:** High-resolution plasma proteomic and lipidomic analysis of fibrosis-related metabolic assessment in dilated cardiomyopathy patients (DCM) in India: A Multi-center based study".
   Amount Sanctioned: INR 90 lakhs
   Period: 2021-2024
   Funding Body: Indian Council of Medical Research (ICMR), Govt. of India
   Principal Investigator: Dr. Trayambak Basak

2. **Title:** Sustainable irrigation advisories for mid-Himalayan farmers using smart satellite image analytics.
   IIT Mandi Reference/Project no.: IITM/DST/MTH/319
   Sponsoring agency: Awarded DST Indo-Danish project
   Amount Sanctioned: 99,29,444 INR
   Duration of project: 3 years (March 2021 to 2024)
   Principal Investigator and Co-ordinator: Dr. Shyam Masakapalli

3. **Title:** Drug Discovery and folding mechanism against RNA dependent RNA polymerase of Japanese Encephalitis virus
   Sponsoring agency: DHR (ICMR)
   Duration of project: 24/02/2021-23-02-2022 (Extendable)
   Amount Sanctioned: 5.66 Lakhs (1st Year Budget)
   Principal Investigator: Dr. Rajanish Giri

4. **Title:** Role of inter-tissue communication of stress response to maintain organism-wide proteostasis.
   Budget: INR 42.5 lacs
   Funding agency: DBT
   Duration: 5 years

Principal Investigator: Dr. Prasad Kasturi

5. **Title:** How does ataxin-dependent stress-granule assembly contribute to neurodegenerative disease?
   Funding agency: India Alliance DBT Wellcome
   Budget: INR 36,073,321 (India Alliance DBT Wellcome Intermediate Fellowship)
   Duration: 5 years (2020-2025)
   Principal Investigator: Dr. Baskar Baski

6. **Title:** Evaluation and design of novel synthetic microbial consortia for the bioprocessing of natural and synthetic rubber waste to industrial biomolecules
   Funding agency: SERB-CRG (ongoing, Awarded Date: February 2020)
   Budget: Rs 41 Lakhs
   Principal Investigator: Dr. Tulika Prakash Srivastava

7. **Title:** Folding perspective and inhibitor discovery of Zika virus NS2B-NS3 protease complex
   Funding agency: ICMR (ongoing 22.11.21 to 21.11.22)
   Budget: Rs 16,30,893
   Principal Investigator: Dr. Rajanish Giri

8. **Title**: Targeted Mass Spectrometry based approach to measure plasma acetylated high mobility group box 1 level as a surrogate marker for hyperinsulinemia.
   Funding agency: ICMR (ongoing 15.09.21 to 14.09.24)
   Budget: Rs. 45,19,450
   Principal Investigator: Dr. Prosenjit Mondal (PI)

9. **Title**: Wearable NIR triggered on-demand drug release skin patch containing microneedles loaded with gold nanocapsules for localized cancer treatment
   Funding agency: SERB (ongoing 28.01.22 to 27.01.25)
   Budget: 46,88,729
   Principal Investigator: Dr. Amit Jaiswal

10. **Title:** Roles for small heat shock proteins in protective protein aggregation and proteome protection.
    Funding agency: SERB (ongoing 23.02.22 to 22.02.25)
    Budget: 54,78,000
    Principal Investigator: Dr. Prasad Kasturi

11. **Title**: Process optimization and up-scale production of lignocellulosic extremozymes from Himalayan microbes for biomass valorization/depolymerization
    Funding agency: DBT (ongoing 29.03.22 to 28.03.25)
    Budget: Rs 33,26,120
    Principal Investigator: Dr.Tulika P Srivastava

12. **Title**: Sewage surveillance of SARS-CoV-2 genome: a useful technique for tracking the epidemiology of COVID-19 through wastewater system in Himachal Pradesh
    Funding agency: SERB (ongoing 28.06.22 to 27.06.23
    Budget: Rs. 41,91,000
    Principal Investigator: Dr. Tulika P Srivastava

13. **Title:** The Role of Ectopic Liver Fat-Derived Systemic Factors in Regulating Beta-cell Function
    Funding agency: DBT (16/03/2019- 15/03/2022)
    Budget: Rs 60,61,000
    Principal Investigator: Dr. Prosenjit Mondal

14. **Title:** Function and mechanisms of Sorcin in diet-induced fatty liver diseases and lipid metabolism
    Funding agency: SERB (ongoing 21/03/2020- 20/03/2023)
    Budget: Rs. 55,50,000
    Principal Investigator: Dr. Prosenjit Mondal

Award/Achievement of Faculty

Dr. Amit Jaiswal received the INSA Medal for Young Scientists 2021.

Awards & Achievements of Research Scholar

Mr. Shounak Roy, a Ph.D. student under Dr. Amit Jaiswal received the SRISTI GYTI Appreciation award and DST AWSAR 2021 award for the best story under the Ph.D. category.

Defended Ph.D. Students (BioX, SDBS)	Supervisor
Dr. Ankur Kumar	Dr. Rajanish Giri
Dr. Rimanpreet Kaur	Dr. Amit Prasad
Dr. Aditi Jangid	Dr.Tulika P. Srivastava
Dr. Maneesh Lingwan	Dr. Shyam K Masakapalli
Dr. Poonam Jyoti	Dr. Shyam K Masakapalli
Dr. Pankaj Shitole	Dr. Rajesh Ghosh
Dr. Ajay Kumar	Dr. Rajesh Ghosh
Dr. Gaurav Sharma	Dr. Shubhajit Roy Chowdhury

Events Organized

1. Indo-UK symposium on "Fluxomics of Microbe and Plant Systems (FluxMAPS 2021)"
   Date: March 24-25, 2021.
   Organizing Institutes: Indian Institute of Technology Mandi, India and University of Oxford, UK.
   Organized by: Dr. Shyam K Masakapalli
2. **BioX Annual Conference (BAC-22**) held on 13-14th May 2022. **Venue:** IIT Mandi,
   Organizer: BioX Centre.

5.4 Indian Knowledge System and Mental Health Applications (IKSMHA)

World Health Organization's (WHO)'s 2022 report on global mental health, the largest review of global mental health in two decades, says that about one in eight people lives with mental disorders. Currently, only 10% of patients suffering from mental illnesses receive treatment in India; while all patients have the right to treatment, the shortage of money and psychiatrists hinders accessibility. There is a cyclical link between mental health and poverty in India. **To address the sharp increase in mental health problems, especially among the underprivileged and poor, the Indian Institute of Technology Mandi (IIT Mandi) conducted a Workshop on Indian Knowledge System and Mental Health (IKSMH) between 25th and 27th March 2022.** The Workshop was widely attended by renowned researchers in the Indian Knowledge System (IKS) and Mental Health (MH) from India and abroad. **As a part of the deliberations that took place in the Workshop, the following IKS topics emerged: Mind, brain, and consciousness with applications from consciousness studies, yoga, meditation, Ayurveda, traditional Indian medicine research, and other Indian performing arts (like dance, music, and Indian languages, etc.). Consequent to the IKSMH Workshop, an Indian Knowledge System and Mental Health Applications Centre (referred to as "IKSMHA Centre") has been set up very recently at IIT Mandi. The IKSMHA Centre plans to be a world leader and serve Indian society via research, skill development, translation, and collaborative activities concerning the Indian knowledge system and mental health.** At a nascent stage, the Centre has already planned collaborations with 24 universities/organizations in India and abroad. Also, the M.Tech. (by research) and Ph.D. program of the IKSMHA Centre has been recently floated, and 6 graduate students (2 M.Tech. and 4 Ph.D.) have joined the IKSMHA Centre in the 2022 August-December semester. Recently, the IKSMHA Centre organized a 1-credit course on "Inner Clarity: Contemplations from Yoga and Vedanta" by Shri Adinarayanan, Adjunct Professor of Practice, at IIT Delhi. Also, the Centre is planning to offer 6 different courses to students in Sanskrit, Ayurveda, Yogasutras, Biosensors, Sankhya, and Cognitive Psychology and the Indian Thought System in the future.

6. Research Groups

6.1 Design and Innovation Centre (DIC)

The Design Innovation Centre at IIT Mandi provides the necessary ecosystem for graduates and research scholars to develop much-needed skills that are required to design and develop products and technologies. Since India is moving towards a "Make in India" policy and IIT Mandi's mission and vision are coherent with the country's 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, a state-of-the-art design Centreis being setup on 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 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 a 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 to 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).

This year, the Design and Innovation Centre co-supported the development of the Foundations of Design Practicum Lab at IIT Mandi with the cofounding of 44 lacs from IIT Mandi. The lab is equipped with state of prototype development equipment like a 3D printer, PCB fabrication unit, robotic trainer kits, FPGA boards, NI ELVIS II boards, etc. Here is a glimpse of the lab. Around 299 students registered for the Reverse Engineering practicum and around 292 students registered for the Design Practicum course hosted by the Design and Innovation Centre. The Centre is also introducing a new course known as the Foundations of Design Practicum course for 1st year students in the curriculum.

6.2 Condensed Matter Physics Research at IIT Mandi

Condensed Matter Physics is an active research area at IIT Mandi. The research is driven by a group of experienced, young and dynamic faculty members from the School of Physical Sciences at IIT Mandi. At present, more than ten faculty members have a research focus on condensed matter physics-related activities and the group members are studying the physical properties of materials, by using various experimental techniques, computational protocols and theoretical models. The focus of the research activity is fourfold; (i) Understanding the fundamental physics of the various phase transitions and material properties for technological applications, (ii) Exploratory research for new materials, (iii) Future energy and nanoelectronic applications and (iv) Design and understand the fundamental physics problems using computational tools. Based on the nature of work, these areas have been elaborated as Topological Quantum Materials, Graphene and 2D Materials, Superconductivity and Electron-Electron/Phonon Correlation, Multiferroics, Magnetocalorics, Heusler Alloys, Nano-Science and Nanotechnology, Organic Electronics and Functional Devices, Optical Spectroscopy and Optoelectronics, Thermoelectricity and Energy Conversion Materials, Soft Condensed Matter Physics, Computational and Theoretical Condensed Matter Physics, Electronic Band Structural Calculations, Correlated and Disordered Electronic Systems, Phase Transitions. The faculty members working in experimental condensed matter physics are Dr. Ajay Soni, Dr. Bindu Radhamany, and Dr. Chandra. 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. Girish Sharma and Dr. Sudhir K. Pandey. Along with these members, there are more than 70 researchers (Ph.D. students and Project associates) who are working on the different aspects of condensed matter physics at IIT Mandi.

In the year 2021-2022, condensed matter group members have published research articles in the reputed research journals of the field. The major research journals are Nature Communications, Physical Review B, Physical Review Research, Applied Physics A, Chem Mater, AngewandteChemie, Euro Phys. Letter, J. Phys: Cond. Matter, J. Magn. & Mag. Mater., Appl. Phys. Lett., J. Phys. D: Appl. Phys., Journal of Applied Physics, The Journal of Physical Chemistry C, Computation Material Science, Physical Review Materials. There have been very active representations of these group 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 posters. Currently, the faculty members are pursuing several funded national and bilateral research projects from various external-funding agencies like DST-SERB, CSIR, and Indo-Sweden bilateral grants.

7. CENTRAL LIBRARY

Central Library plays a vital role in furthering the academic and research mission of IIT Mandi and facilitates the creation and dissemination of knowledge. Library provides essential support by offering current library services which are integrated with teaching, learning and research activities. Central library is rapidly developing its collection of books, reference books, reports, periodicals, and electronic resources. The Text Book Collection in the Library provides vital support for ongoing undergraduate teaching programs.

It provides access to the various e-journals databases. This includes access to hundreds of journal titles on different subjects. Central Library is completely automated by using open-source library management software KOHA. All documents are RFID technology enabled. Transaction of books is also automated. The library has introduced various innovative services including CAS/SDI, Online status of ILL, Online reservation of books, Remote access of resources, etc. By using Web OPAC, users can check their borrowing details online. Two workstations have been set up for users to access library holdings.

Locations:

At present three different units of the library are operational at two different campuses i.e., South Campus and North Campus. Details of these libraries are given below:

Central Library @ North Campus (A16 Building)

Maximum collections pertaining to the print books are available within this unit. Almost all collections related to the different course subjects except Physics, Chemistry and Biotechnology are available within this building for circulation purposes. A16 is a big building having three floors having 192 seating capacities.

Satellite Library cum Archive Section @ North Campus (A9 Building – 3rd Floor)

Satellite Library has a facility of a reading room with 150 seating capacity, one meeting room and a collection pertaining to general reading books.

Library @ South Campus (A5 Building – First Floor)

Book Circulation facility along with the Reading room with almost 75 seats are available within this section. Collection pertaining to the different courses (Physics, Chemistry and Biotechnology) is available for circulation along with the Xerox and a scanning facility is also available in this unit.

Software Used in Library

(i) **KOHA:** For automation purposes.
(ii) **DSpace**: For digitization purposes.
(iii) **Linux:** For operating system.
(iv) **Piwigo:** For photographs repository

Collection Development and Management

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

1. Print Documents added during the year 2021-22

During the period of 2021-22, Central Library acquired 237 books. It also added a few periodicals/magazines, besides reprints, technical reports and annual reports of other universities/institutions.

A list of new additions of books is released every month and can be accessed on the library home page. This list was also circulated by Email. An Email alert is also sent to the requesting faculty members(s) about the arrival of publications requested by them.

1.1 Electronic resources subscribed during the year 2021-22

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

1.1.1 Full-text e-journals: Access to 8000+ full-text journals from the following databases:
AIP, ACM Digital Library, ACS, APS, ASME, IOP, Elsevier's ScienceDirect, IEEE Electronic Library, JSTOR, SIAM, Springer Link, Taylor & Francis (S&T and SHSS complete Collections), Annual Reviews, etc.

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

1.2.3 Thesis & Dissertations: Proquest Dissertation and Thesis Database, Institute's Thesis Database, etc.

1.2.4 Archives: Institutional Archives, Sabin Americana

1.2.5 E-Books: Central Library provides access to a collection of more than 21774 e-Books in various disciplines. The e-book collection contains titles that are rigorous recommendations by the subject experts of the institute and cater to the needs of the users. The publishers of the 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-book 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 started. 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. The circulation desk is kept open for 35 hours a week. On average, the monthly circulation transactions are about 430.

3. Digital Library

Central Library has its homepage (http://library.iitmandi.ac.in/), which provides web-based access to its resources, procures over 50000 electronic resources, 21774electronic books and databases.

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 the library web page (http//www.webopac.iitmandi.ac.in/). Besides listing all the documents available in the library, it allows online 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 facility	• Mobile App Services
• Online book reservation, Information search, Patron's library book loan status check	• Research Support Service
• Web OPAC (Web-based Online Public Access catalog)	• Remote Access Service
• Reserve collection development for student's in-house reading	• RFID
• New Arrival Book Section	• Subject Guides
• Reference Service	• Faculty Research Data
• Inter-Library Loan	• Institutional Repository
• Document Delivery Service	• Institutional Archives
• Information Alert Services	• Research Support Service
• E-Journals/Databases	• Remote Access Service
• Digital library services	• Research Support Service
• User education program	• Mobile App Services

6. Future Plans

- Single Search solution.
- Online recommendation platform for different library resources.

8. NINTH CONVOCATION

As part of this Convocation 146 B.Tech.students, 137 M.Tech., 99 M.Sc. (Chemistry, Mathematics, Physics), 11 M.A. in Development Studies, 14 M.S. (by Research) and 45 Ph.D. Scholars graduated from the Institute.

Awards	Student
President of India Gold Medal	Rishi Sharma (B17138)
Director's Gold Medal	Arnav Prasad (B17036)
Institute Silver Medal: CE	Sanjeev Singh Yadav (B17022)
Institute Silver Medal: CSE	Rishi Sharma (B17138)
Institute Silver Medal: EE	Divanshu Gupta (B17011)
Institute Silver Medal: ME	Shreya Prakash Lanjewar (B17142)
Rani Gonsalves Memorial Medal	Manvi Gupta (B17092)
Institute Silver Medal (M.Sc. (Chemistry)	Khushboo Varshney (V19006)
Institute Silver Medal (M.Sc. (Physics)	Vinit (V19050)
Institute Silver Medal (M.Sc. (Applied Mathematics)	Priya (V19097)
Institute Silver Medal (M.Tech. MES)	Shubham Dutt Attri (T19038)
Institute Silver Medal (M.Tech. in VLSI)	Kumari Suravi (T19142)
Institute Silver Medal (M.Tech. in STE)	Ajay Kumar (T19027)
Outstanding Academic Achievement Award (M.Tech. Biotech)	Giredhar Muthiah (T19202)
Outstanding Academic Achievement Award (M.Tech. in CSP)	Tirthashree (T19165)
Outstanding Academic Achievement Award (M.Tech. in EEM)	Anupam Nigam (T19054)
Outstanding Academic Achievement Award (M.Tech. in PED)	Pranav Kumar Jha (T19133)
Outstanding Academic Achievement Award (M.A)	Yash Agarwal (A19011)

9. STUDENTS' AMENITIES AND ACTIVITIES

9.1 GYMKHANA ACTIVITIES

TECHNICAL SOCIETY

SCIENCE AND TECHNOLOGY COUNCIL (SnTC)

Name of respective clubs*

1. Programming Club
2. Robotronics Club
3. Space Technology and Astronomy Cell (STAC)
4. E-Cell
5. Yantrik Club
6. Nirmaan Club
7. SAE Collegiate

*Bioengineering Club was incorporated at the end of the academic year 2021-22

Name of Society Advisor: Dr. Gopi Shrikanth Reddy

Name of all Clubs Advisors and all club's Co-advisor

Club	Advisor
Programming Club	Dr. Jinesh Macchar
Robotronics Club	Dr. Tushar Jain
Space Technology and Astronomy Cell (STAC)	Dr. Arnav Bhavsar
E-Cell	Dr. Saumya Dixit
Yantrik Club	Dr. Anil Kishan
Nirmaan Club	Dr. Dericks P. Shukla
SAE Collegiate	Dr. Arpan Gupta

Name of Secretary: Abhijeet Manhas

Name of Volunteers for each Club

Programming Club	Robotronics Club	Space Technology and Astronomy Cell (STAC)	E-Cell
Paras Jain - B19100 Manan Shah - B19042 Surendra Singh -B19120 Yash Verma - B19144 Kanishk Garg - B20109 Rijul Jain - B20126 Nehal Reshu - B19147 Shubhanshu Agarwal - B19058	Anurag Maurya - B20183 GeetanshuArsiya - B20200 Deepak Khatri - B19158 Deepak kumar Sah - T21260 Janani - B20232	Kushagra Srivastav - B20252 Pranav R Iyengar - B20258 Avni Mittal - B20088 Prashun Pandey - B20306 Ayush Nigam - B20005 Yashi Yadav - V21066 Aayushmaan Jha - B20175 Gautam Dhulipala - B20198 Anjali - V20086 Prachee Mathur - B20257	Murtaza Mehdi Hasan - B20302 Harshit Agarwar - B20287 Himakshi Gupta - B20104 Satyam Saroj - B20066 Shubham Prakash - B20021 Hruday Kumar Talla - B20323 Dikshika Singh - B20194 Rachit Goel - B20309 Vastav Bansal - B20325 Hiya Jain - B20010
Yantrik Club	**Nirmaan Club**	**SAE Collegiate**	
Shashwat Gupta - B20318 Dharma - B20201 Yuvraj Aseri - B20328	Kunal kachawa - B19041 Muhammad Zaman Raza - B19045 Rajshree Tejal Singh Munda - B20060 Satyam Saroj - B20066 Aadarsh Kumar Meena - b20026	C. Giri Varshith -B19242 Sanjana K -B19139 Arjun Khanwalkar - B19239 Shailendra Karki- T21099	

Total number of activities organized: 134

Total number of seminars conducted: 51 (38 intra-college + 13 intercollege)

Total number of student workshops/training programs: 11 (3 intercollege + 8 Intra college)

Total number of guest speakers came: 18 (7 in AstraX + 6 in Xpecto + 5 in Clubs)

Initiatives & Highlights

SNTC is a student body that aims to promote scientific and technical temperament at our institute. It is composed of teams, clubs, and wings. SNTC consists of 8 technical clubs for programming, automotive engineering, robotics, astronomy, mechanics, bioengineering, civil engineering and entrepreneurship. Members of the SNTC also enthusiastically represent the college in national & international events.

This year, we **improved our performance in the Inter-IIT tech meet** by winning a bronze medal in an IOT-based high-prep event and a Silver in a low-prep event in which we designed algorithms for the drone delivery system. Intra-college competitions were conducted for team selection and multiple induction sessions were given, along with resources listed in the discourse. We stood tenth, which was the **best ranking achieved by IIT Mandi in the last 5 years**.

Transitioning from the online phase to offline was challenging; many students were confused and in need of guidance on how to work toward a tech career, since there was limited interaction possible between different batches in online mode. SNTC assisted some students through its **tech mentorship program**. In this program, **185 junior students were assigned 34 mentors from senior batches**. It helped many students to get started with tech depending on their interests, and helped them to contribute to SNTC and their knowledge when they came to campus.

Another initiative of the **institute building project (IBP)** was started that helped students to build their portfolios by working on projects for the institute. In online mode, students worked on revamping the Dean students' website and creating a new alumni website, including improvements to the institute's official website. They are now working on assisting automation of the hiring drive coordinated by the career and placement cell.

Learning comes after DOIng, so SNTC was able to kickstart its first-ever flagship project this year, **Mars Rover**. Our **Team Deimos had successfully qualified for the Preliminary division review round in the international University Rover Challenge**. The team is targeting the next edition of the URC after recruiting new members to finish in the top 36. We learnt from the mistakes and challenges faced this year.

Our Astronomy Club **received a grant of approximately 3.8 lacs from IAU's Office of Astronomy for Development**. The project was among the21 projects selected from a total of 110 project proposals submitted from around the world to the International Astronomical Union. Members of the Robotronics Club volunteered for the Prayas school camp initiative of IIT Mandi and CCE, which aims to impart knowledge of robotics & AI to the school students.
SNTC hosted this year the **first-ever technical fest of IIT Mandi, Xpecto 22**. We received sponsorship of 4 lacs and a total of 7 thousand plus registrations.

Details of IIT Meet (medals):
Inter-IIT Tech Meet 10.0 was hosted by IIT Kharagpur in online mode from 25th to the 27th of March 2022. This edition observed the best performance of SNTC across the span of the last 5 years brought the General Championship ranking of IIT Mandi among all IIT Mandi to the top 10.
Our ranking in the Inter-IIT Tech Meets across the years:

- 2017-18: 13th
- 2018-19: 21st
- 2019-20: 12th
- 2020-21: 12th
- **2021-22: 10th (current)**

Contingent Leader: Ankit Karan (B18159)
Overall Ranking: tenth

1) Bronze medal in Silicons Lab Social Entrepreneurship Challenge *(High Prep)* 🥉

The team developed an end-to-end IoT-based solution pertaining to agriculture for social entrepreneurship. After prototyping, a business model analysis was conducted for implementation.
Captain: Anurag Maurya (b20183), Vice Captain: Shashwat Gupta (b20318)
Members: Shalu (b20229), Lalit Narayan Mudgal (b19012), Ankit Karan (b18159), Ishan Dahiya (b18059), Yash Vardhan Sagar (b21240), Dharma (b20201), Geetanshu Arsiya (b20200), Deepak Kumar Sah (t21260).

2) Silver medal in Blue Yonder's Next Gen Optimized Delivery system *(Low Prep)*
The team developed a cost-optimal deployment and routing plan for the available drones for given delivery points and constraints.
Captain: Surendra Singh (b19120)
Members: Rajat Bansal (b20123), Kanishk Garg (b20109), Aniket Sukhija (b20081), Palak Sharma (b20159)

Details of Inter-College Events Participated:

1. University Rover Challenge (International, Mars Society): Team Deimos of IIT Mandi led by **Khyati Agarwal** qualified Preliminary Design Review (PDR) round of the international URC rover challenge 2021-22. More details about the team on rover.iitmandi.co.in. Below are the results of SAR (system acceptance review) as evaluated by the jury.
2. LOGARITHMIC (IIT Dharwad) - Aug 2021: **Punit Daga (B20058)** and **Jahanvi Chaudhary (B20155)** stood **1st** and **3rd** respectively in the overall leaderboard of the second event (a logo design competition) organized by IIT Dharwad in *Inter IIT Tech Symphony series - a collaboration of 12 IITs.* The photo posted below is the logo of the tech symphony as designed by Punit Daga which won the first prize.
3. Scythe (IIT Roorkee) - Sep 2021: **Gaurav Guleria** from B.Tech. the second year finished **6th** in the overall leaderboard for the Infosec competition organized by IIT Roorkee at the Tech symphony.
4. Programobot (IIT Palakkad) - Oct 2021: **Akash Karnatak** (B19147) from B.Tech. the third year stood **2nd among 84 teams Pan-IIT** registered in the Programobot Event, organized by IIT Palakkad at Tech Symphony.
5. Pecfest Chandigarh - Robo-soccer - April 2022: Team of 4 IIT Mandi students (Pritish Chug (B19187), Ravneet Kaur (B20018), Sweta (B20322), and Rahul Bansal (B20310)) won 3rd prize in the inter-college Robo soccer competition.
6. Pecfest-Chandigarh -Roborace - April 2022: Team of 3 IIT Mandi students won 3rd prize in a Robo Race event organized at PEC Chandigarh.
7. Mohit Verma, Rishabh Maheshwari, Deepak Khatri, Gaurav Guleria, Hritik Chouhan, Chandresh Soni, and Akash Solanki were selected for the Google Summer of Code (GSoC) program in the Linux Foundation.
8. Divyasheel Kumar, Priyam Seth, and Pranshu Kharwal were selected as mentors for the prestigious Google Summer of Code 2022.
9. Ujjwal Rana (B19201) - became a Master on Codeforces - a competitive programming platform.
10. Prajwal Erappa, from IIT Mandi, was the recipient of India's future tycoon collaboration by UNGC for the year 2020, hence had been invited to United Nations SDG School in Mumbai in December 2021 for the boot camp.
11. E-Cell IIT Mandi won Gold Medal in an IPL auction organized at E-Summit, IIT Bombay.
12. Rachit Goel, Himakshi Gupta, and Vastav Bansal pitched their startup that received an incubation offer fromi-hub Gujarat, IIT Kharagpur Empresario and is also funded by IIT Mandi catalyst.The startup also bagged 3rd position in Startup Bootcamp held under IIT Madras E-summit
13. Pranav R Iyengar and Kushagra Srivastav participated in the International Asteroid Search campaign, where they discovered three previously unknown asteroids.

CULTURAL SOCIETY

Name of respective clubs

Art Geeks
Dance Club
Designauts
Drama Club
Ek Bharat Shreshta Bharat

Music Club
Photography and Movie Club

Name of Society Advisor: Dr. Neha Kaushik; **Name of Society Co-advisor:** Dr. Pratim Kundu

Name of all Clubs Advisor:
Art Geeks: Dr. Garima Agrawal
Dance Club: Dr. Srikanth Sugavanam
Designauts: Dr. Satyajit Thakor
Drama Club: Dr. Prateek Saxena
Music Club: Dr. Pratim Kundu
Photography and Movie Club: Dr. Prasanth P. Jose
Ek Bharat Shreshta Bharat: Dr. Nilamber Chhetri

Name of Secretary: Shivani Pandey
Name of Volunteers for each club:
Art Geeks:
Gayatri Shridhar Kapse (B20199)
Khushi Ladha (B20013)
Dikshika Singh (B20194)
Jahanvi (B20155)
Nehal Reshu (B19047)
Sucheta (t21046)
Gayatri (V20039)

Details of IIT Meet (medals): Not conducted
Details of Intra College Events Organized: 39
Total number of activities organized: 58
Total number of student workshops/training programs: 20
Total number of guest speakers came: 6

Independence Day Events
Date: 14th August - 19th August
On the occasion of Independence Day, the Cultural Society organized some competitions based on the theme of patriotism and Indian culture.

Painting Competition
Theme: Unity in Diversity
Dance Competition
Theme: Patriotism
Monoacting Competition
Theme: Aazadi
Infographic Making Competition
Theme: Timeline of a freedom fighter
Photography Competition
Theme: Being Indian

LITERARY SOCIETY

Name of respective clubs

1. Debating Club
2. Writing Club
3. Quizzing Club

4. Student Media Body

Name of Society Advisor and Co-advisor: Dr. Devika Sethi and Dr. Purnima Bajre

Name of all Clubs Advisor and all clubs Co-advisor:

Advisor for Student Media Body: Dr. Sayantan Sarkar

Name of Secretary: Mr. Devansh Kochar

Name of Volunteers for each club:

Debating Club	Writing Club	Quizzing Club	Student Media Body
Satyam Saroj- B20066 Murtaza Mehdi Hasan- B20302 RavinaChirania- B20062 Kanak Dubey- B20293 Aachman Gandhi- B20270 Vastav Bansal- B20325 Titiksha Behal- B20138 Palak Mahajan- T21125	G.K.V. Snigdha- B20195 Hiya Jain- B20010 Jahanvi Chaudhary- B20155 Awantika Deora- B20150 Shiv Shankar Tiwari- T20040 Muskan Kaur- V20010	Aayushmaan Jha- B20175 Ujjwal- B20070 Payal Sah- B20220	Arjun Khanwalkar- B19239

Details of IIT Meet (medals): Second Prize Inter-IIT IIM quiz, IIT BHU

Details of Inter College Events Participated: Inter IIT IIM Quiz, Nihilanth'22, RV QuizCorp Quizzing Fest, ExQuiZite IIT Bhilai, 7 Sins to Hell- ManfestVarchasva IIML, Quizzing Commoners IIML, Almanack'21 IIT BHU. Rostra'22 (BIT Mesra), Steller'22 (Tape-A-Tale), Zozimus (IIT Hyderabad), Shastrarth'21 NMIMS Mumbai.

Details of Inter College Event Organized: General Quiz, Literary Quiz, Web-Series Quiz ("Bazinga!"), Twist-A-Tale, Verses vs Verses, Review Your Favourites, Fanfiction Writing, Meme wars, Secret event, MUN, Recon, Biggest Liar, Stand Up Comedy organized in Ruvaan'22

Details of Intra College Events Organized: Tiranga-Independence Day Quiz, Teachers' Day Quiz, Gandhi Jayanti Quiz, Anime Quiz, Mythology Quiz, Instagram Quiz, Jigyasa-The Mega Quiz (General Quiz), Mysteries of History- History Quiz, Korean Quiz, Informal Anime Quiz

Kavya Kaushal, Voice Your Thoughts (November edition), Voice Your Thoughts (Dec/Jan edition), Voice Your Thoughts (February edition), Wordstakes, New year Special – Game Night, Scavenger Hunt on Instagram

RaktaCharitra- Debate, Gandhigiri, Round Table Discussion - 1, Round Table Discussion - 2, Introductory Moral Debate, Round Table Discussion - 3, It's Controversial - Take 2, Mock debate session - 1, Mock debate session - 2. Lights, Camera, Debate

Total number of activities organized: 85

Total number of seminars conducted: 6 (Mostly in the form of discussion by the external speaker (book discussions), further details in report)

Total number of student workshops/training programs: 4

Total number of discoveries & invention competitions won: 8 (details in the report under inter-college events participated)

Total number of guest speakers came: 20

ANIME QUIZ

Event Name: Anime Quiz

Event Date: Sunday, 31st October 2021

Quiz Master: Aayushmaan Jha

Qurosity, the Quizzing Club of IIT Mandi, successfully organized the first-ever anime quiz in the college on Sunday, 31st October 2021. A total of 45 people participated in the quiz. The quiz consisted of 3 types of questions having 1, 2 and 3 marks respectively, based on the difficulty level of the questions.

MYTHOLOGY QUIZ

Event Name: Mythology Quiz

Event Date: Friday, 19th November 2021

Quiz Master: Prakhar Uniyal

Qurosity, the Quizzing Club of IIT Mandi, successfully organized a mythology quiz in the college on Friday, 19th November 2021. A total of 45 people participated in the quiz. The quiz consisted of 15 questions.

JIGYASA- THE MEGA QUIZ

Event Name: JIGYASA- THE MEGA QUIZ

Event Date: Tuesday, 28th December 2021

Quiz Masters for Round 2: Pranjal Soni, Pranshu Kharkwal, Raman Soni, Satyam Saroj, Shubrah Gupta, Vineet Ahuja
Quiz Master for Round 3: Aryan Patel (5th year senior, Quizzing Club IIT BHU) Qurosity, the Quizzing Club of IIT Mandi, successfully organized JIGYASA- THE MEGA

QUIZ in the college on Tuesday, 28th December 2021. A total of 185 people registered for the quiz.

HISTORY QUIZ

Event Name: History Quiz

Event Date: Sunday, 16th January 2022

Quiz Master: Murtaza Mehdi Hasan

Qurosity, the Quizzing Club of IIT Mandi, successfully organized a history quiz in the college on Sunday, 16th January 2022. A total of 77 people participated in the quiz. The quiz consisted of 10 questions

KOREAN QUIZ

Event Name: Korean Quiz

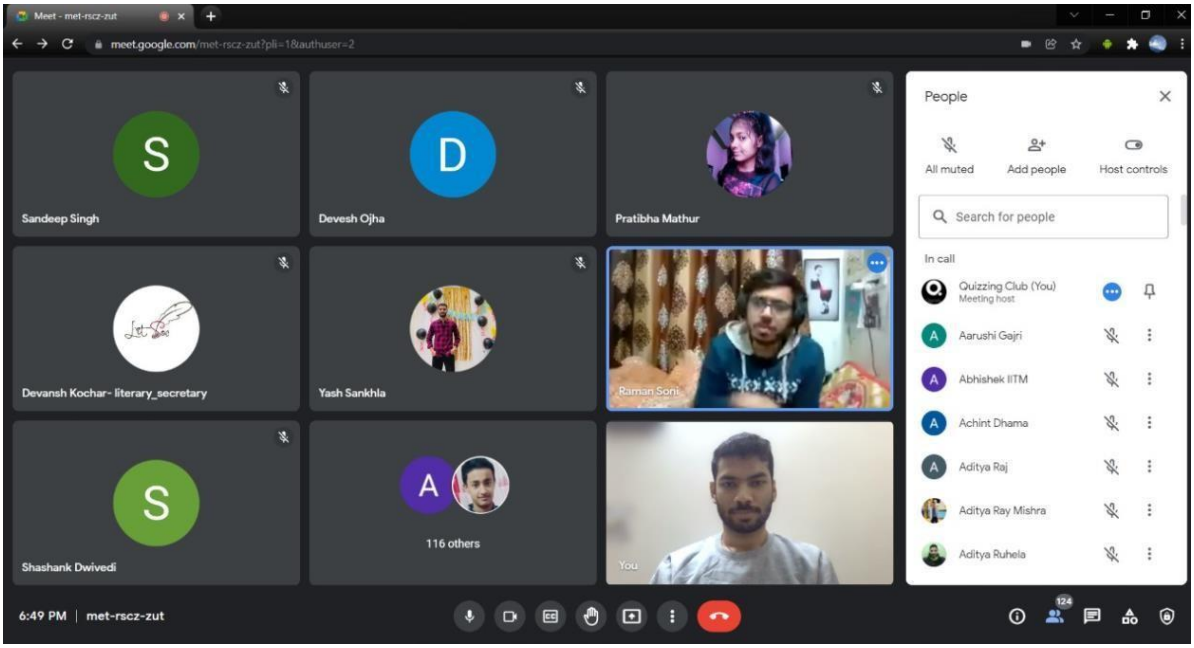
Event Date: Saturday, 22nd January 2022

Quiz Master: Aayushmaan Jha

Qurosity, the Quizzing Club of IIT Mandi, successfully organized a Korean Quiz in the college on Saturday, 22nd January 2022. A total of 55 people participated in the quiz. The quiz consisted of 10 questions and 11 tiebreakers.

TIRANGA- INDEPENDENCE DAY QUIZ

This is the annual Independence Day Quiz organized by Quizzing Club on Independence Day wherein this time the answers were taken from the participants in a google form, and the slides were presented on the screen, which had the questions. The winners were rewarded accordingly.



GANDHI JAYANTI QUIZ

This is the annual Quiz based on Mahatma Gandhi organized by Quizzing Club on Gandhi Jayanti wherein this time the answers were taken from the participants in a google form, and the slides were presented on the screen, which had the

questions. The winners were rewarded accordingly.

SPORTS SOCIETY

Name of respective clubs: Athletics, Badminton, Basketball, Cricket, Chess, Football, Hockey, Lawn Tennis, Table Tennis, Volleyball, Weightlifting and Mountain Biking Club.

Name of Society Advisor and Co-advisor: Dr. Rahul Shreshtha (Sports Advisor) and Dr. Moumita Das (Sports Co-advisor)

Name of all Clubs Advisor and all clubs Co-advisor (if any): Dr. Adarsh Patel (Mountain Biking Club Advisor)

Name of Secretary: Jai Prakash Yadav

Name of all game heads/Volunteers

S. No.	Name	Roll No.	Email ID
1	Sahil Sharma (Overall head, PG Men)	D17051	d17051@students.iitmandi.ac.in
2	Niharika (Overall head, PG Women)	A20006	a20006@students.iitmandi.ac.in
3	Animesh Choudhary (Overall head, UG Men)	B18006	b18006@students.iitmandi.ac.in
4	Akansha Sinha (Overall head, UG Women)	B19125	b19125@students.iitmandi.ac.in
5	L Jayabalaji (Web head)	B19213	b19213@students.iitmandi.ac.in
6	Ankit Pal (Content head)	B20181	b20181@students.iitmandi.ac.in
7	Pardeep Singh (Game head, Basketball Men)	B19254	B19254@students.iitmandi.ac.in
8	Kushi Ladha (Game head, Volleyball Women)	B20013	b20013@students.iitmandi.ac.in
9	Akansha Gautam (Game head, Badminton Women)	B20146	b20146@students.iitmandi.ac.in
10	(Sagnik Sen, Game head, Lawn Tennis)	B21320	B21320@students.iitmandi.ac.in
11	Aryansh Singla (Game head, Table Tennis Men)	B20085	B20085@students.iitmandi.ac.in
12	Ayush Nigam/Anmol Agarwal (Game head, Cricket)	B20005/ T21045	b20005@students.iitmandi.ac.in/T21045@students.iitmandi.ac.in
13	Mohit Samant (Game head, Badminton Men)	B19095	b19095@students.iitmandi.ac.in
14	Jainan Tandel (Game head, Chess)	B19224	b19224@students.iitmandi.ac.in
15	Manav Sharma (Game head, Athletics Men)	B20298	b20298@students.iitmandi.ac.in
16	Dikshika Singh (Game head, Athletics Women)	B20194	b20194@students.iitmandi.ac.in
17	Sahil Kumar (Game head, Volleyball Men)	B20265	b20265@students.iitmandi.ac.in
18	(Deepak Gupta/Sushant Game head, Weightlifting)	B20024	B20024@students.iitmandi.ac.in
19	Ravneet Kaur (Game head, Basketball Women)	B20018	B20018@students.iitmandi.ac.in
20	Om Kshatriya (Game head, Football)	B20209	b20209@students.iitmandi.ac.in
21	Sonam Chauhan (Game head, Table Tennis Women)	B20169	b20169@students.iitmandi.ac.in
22	Aman Saini (Game head, Hockey)	B19149	b19149@students.iitmandi.ac.in

MTB Club Volunteers

01	Chirag	B19006	b19006@students.iitmandi.ac.in
02	Harsh	B20043	b2003@students.iitmandi.ac.in
03	Vinay	T21006	t21006@students.iitmandi.ac.in
04	Nancy	V21054	v21054@students.iitmandi.ac.in

Details of Inter College Events Participated: PAN IIT YOGA COMPETITION 2022-23, Cycling championship | Spardha'21, PAN IIT Cycling competition.

Details of Inter College Event Organized: Online workout program, KPL season 3 badminton, Fit India Freedom run, Foundation day tournament, Chess tournament -1, chess tournament -2, KPL Season 3 - Cricket, KPL Season 3 - volleyball, AAGAAZ- inter-year championship, Various MTB Rides and Fitness Sessions.

Total number of activities organized: 26

Total number of student workshops/training programs: 2

Total number of discoveries & invention competitions won: 3 (details in the report under inter-college events participated)

INTERNATIONAL YOGA DAY

Activities Organized

S.No.	Activity	Date
1	OWP - fitness	23 June - 23 August 2021
2	Introduction to the Sports Clubs of IIT Mandi	25th August
3	Fit India freedom rum	14th August 2021
4	Online Chess Tournamnet - 1	3rd October 2021
5	Sports farewell	1 October 2021
6	Auction-based on-campus tournament for Badminton (KPL: Season 3)	15th October - 31st October 2021
7	Online Chess tournament - 2	1st January - 2nd January 2022
8	Introduction session MTB Club	1st Jan 2022
9	Sports Events for the Foundation Day Celebration	17th February - 23rd February 2022
10	Ride to Navlay and Doohaki	12th March - 13th March 2022

11	Sports Trials - 2022 - PG	9th March - 11th March 2022
12	KPL Season 3 cricket	12th March - 10th April 2022
13	KPL Season 3 Volleyball	16th March – 25th March 2022
14	Mtb ride- riyagrarhi and arnehar	26th and 27th March 2022
15	Sports Trials - 2022 - UG	28th March – 29th March
16	MTB - Girls' special ride	3rd April 2022
17	YOGA Sessions	11th April - 30th June 2022
18	MTB ride to Bagi and Kandhi	23rd April - 24th April 2022
19	Mtb - navlay and dyna park	30th April - 1st May 2022
20	AAGAAZ 2022 - Inter year Sports Championship	3rd,7th and 8th May 2022
21	Mtb ride to Riyagarhi	8th May 2022
22	MTB ride to Rewalsar	22nd May 2022
23	Fitness camp for girls	From 6th May
24	Safety Protocol Session for MTB	18th May 2022
25	7-day yoga workshop	14th to 20th June
26	10 days training camp girl	2nd July to 12th July 2022
27	Swimming pool facility	4th July 2022
28	Inter IIT summer sports camp	15th July to 5th August 2022

HOSTEL AFFAIRS SOCIETY

Name of Society: Hostel and Mess Committee

Chief Warden - Dr. Sunny Zafar

Hostel Affairs Secretary - Ms. Anjali Choudhary

Wardens

1) Dr. Sunny Zafar - Chief Warden
2) Dr. Gopi Srikant Reddy - Dashir
3) Dr. Ramna Thakur - Gauri Kund
4) Dr. Pratim Kundu - Parashar
5) Dr. Moumita Das - Chandrataal
6) Dr. Md Talha - Suvaalsar
7) Dr. Himanshu Pathak - Beas Kund
8) Dr. Mahesh Reddy Gade - Nako
9) Dr. Pradeep Kumar - Suraj Taal

Mess Selection Committee

1) Dr. Sunny Zafar - Chief Warden
2) Dr. Gopi Srikant Reddy
3) Dr. Ramna Thakur
4) Dr. Himanshu Pathak
5) Dr. Moumita Das
6) Mr. Pavin Samuel
7) Mr. Anirudh Singh - Gymkhana General Secretary
8) Ms. Anjali Choudhary - Gymkhana Hostel Affairs Secretary
9) Ms. Pooja Patidar - Gauri Kund
10) Mr. Aditya Jeengar - Suraj Taal
11) Mr. Rajan Garhwal - Beas Kund
12) Mr. Varindar Singh - Dashir
13) Mr. Hanuman Shukla - Suvalsar
14) Ms. Suman Rai - Chandrataal
15) Mr. Nitin Dhiman - Parashar
16) Mr. Bhumit Luhar - Nako

The Members of Mess Committee (April 2022 - August 2022)

1) Ms. Pooja Patidar - Gauri Kund
2) Mr. Aditya Jeengar - Suraj Taal
3) Mr. Rajan Garhwal - Beas Kund
4) Mr. Varindar Singh - Dashir
5) Mr. Hanuman Shukla - Suvalsar
6) Ms. Suman Rai - Chandrataal
7) Mr. Nitin Dhiman – Parashar
8) Mr. Bhumit Luhar–Nako

Activities Organized

S. No.	Activity	Date
1.	Dussehra	15/10/2021
2.	Choti Diwali	03/11/2021
3.	Diwali	04/11/2021
4.	Christmas	25/12/2021
5.	New Years Eve	31/12/2021
6.	New Year 2022	01/01/2022
7.	Garba Night	11/04/2022
8.	Shaam-E-Ghazal	04/05/2022
9.	Exuberance	20/05/2022 21/05/2022 22/05/2022
10.	Hostel General Championship	20/05/2022 21/05/2022 22/05/2022

Dussehra (Date: 15/10/2021)

A Dussehra special dinner was organized on both the North and South campuses. Dussehra marks Lord Rama's victory over the evil King Ravana. The day was celebrated with a special dinner.

Choti Diwali (Date: 3/11/2021)

Timings: 4pm – 7pm

Venue: Half Basketball Court, North Campus

Event: Food and Game Stalls.

The event was conducted very smoothly and all the students and faculties were invited to the events. The students enjoyed it very much as this type of event was happening for the first time. The faculties also enjoyed it very much. It was fun, the participants prepared food and set up different games. The event was over by 7 pm. Nearly 400 students were present for the events.

Link to the photos:https://drive.google.com/drive/folders/1ZNRRZ4r2Tii919-e73OoRQPfHwGTFM5B?usp=sharing

Diwali (Date: 3/11/2021)

Event: Rangoli Competition

Timings: 11AM – 3PM

Venue: D2 Mess South Campus and Pine Mess North Campus

We all made rangoli during Diwali at home and the rangoli competition is something that we all enjoy.The event was conducted smoothly and there were 6 participants on North Campus and 5 participants on South Campus. The Rangolis were made successfully by all the participants on time and the event was over by 3 PM.

Event: Ethnic Dress Competition

Date and Timings: 3/11/2021, 6:30 PM - 7:30 PM
Venue: Pavillion South Campus, Pine Mess North Campus
Ethnic Dress competition is something all the students were interested in and what better day than Diwali. The event was conducted smoothly and there were 10 participants on North Campus and 15 participants on South Campus. All the participants were on time and the event was over by 3 PM.
Other than the above-mentioned events, games were also conducted on both campuses and there were around 100 participants. This was followed by decoration and aarti on both campuses.

Christmas Eve (Date: 24/12/2021)
Event: Christmas Eve Celebration
Timings: Till 12 AM
Venue: D2 Mess South Campus and Pine Mess North Campus
The event was music night on both campuses which was followed by a bonfire. The event was conducted smoothly and all the students were invited to the celebrations. In addition, there were some exciting games and decorations at both venues. There was music, dance, and celebration and all the participants had fun. The event was over by midnight. Nearly 500 students were present.
Link to the photos: https://drive.google.com/drive/folders/1N3cAq_4lA6paq0-mj2zRPplreV2t57nE?usp=sharing

Christmas (Date: 25/12/2021)
A Christmas special dinner was organized on both North and South campuses and in addition pastries were also served on both campuses.
Link to the photos: https://drive.google.com/drive/folders/1N3cAq_4lA6paq0-mj2zRPplreV2t57nE?usp=sharing

New Year's Eve and New Year
Date: 31/12/2021 and 01/01/2022
List of the events being organized:
Event: Time - Venue (North) and Venue (South)

- Food Stalls: 4PM - 7PM - opp. B23 and D2 Mess
- DJ (OAT): 7PM – 10PM - OAT
- DJ (near B14): 7PM – 10PM - near B14
- Bonfire: 11PM: 12AM - Half-Basketball Court and Outside D2 Mess
- Countdown: 11:55 PM - 12 AM - Pine Mess and D2 Mess
- Cake Cutting: 12AM - Pine Mess and D2 Mess

Food Stalls
The event was conducted very smoothly and all the students and faculties were invited to the events. The students and the faculties also enjoyed it very much. It was fun, the participants prepared delicious food and everybody enjoyed it. The event was over by 7 pm.
It was then followed by the DJ night and all the students were invited. The event was over by 10 PM. It was then followed by the amazing bonfire where all the students sat together and some of them sang songs, etc. The event was over by midnight. Then followed by the countdown and cake cutting. All the students were invited and the final event concluded smoothly.

9.2 NATIONAL SERVICE SCHEME (NSS)

ACTIVITIES UNDERTAKEN

S. No.	Activity	Date
1.	Plantation Drive and Cleanliness Drive at Dyna Park	15.08.2021
2	Interaction Session on AIDS	01.12.2021
3	Movie Screening on the Occasion of National Youth Day	26.02.2022

CLEANLINESS/PLANTATION DRIVE

Men with good character are usually pious and God-fearing. They stick to certain morals in their life. Thus, having a God-fearing or clean heart is the first step to being godly. In other words, godliness should begin from the heart.

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 school and college students of India participated in this event.

To support this idea of "Swachh Bharat Mission and Swachh Himachal Mission-2021" and on the occasion of the 75th Independence Day celebration, NSS unit IIT Mandi organized a cleanliness and plantation drive on 15th August 2021 at Ghogardhar, Mandi and about 8 student/staff volunteers participated to make it successful. The volunteers planted 10 Banyan trees and 20 trees Neem. Everyone who participated in the cleanliness and plantation drive put in a lot of effort to clean our environment. One of the central pillars of our plans is to serve society by maintaining the beauty of the scintillating Himalayan landscape.

INTERACTION SESSION ON AIDS

AIDS is not a virus, but a set of symptoms (or syndrome) caused by HIV. 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 may lead to death.

On the occasion of World AIDS day, the Red Ribbon Club of NSS unit IIT Mandi organized an awareness interaction session in collaboration with the District Red Ribbon Club of Zonal Hospital Mandi, AIDS and about 30 volunteers actively participated in the session. Dr. A. Roy, the District Programme Coordinator of AIDS delivered the talk on the occasion.

9.3 GUIDANCE AND COUNSELING SERVICE (GCS)

Apart from the regular guidance sessions and facilitating counseling for students in need, the Guidance and Counseling Service (GCS) conducts various student outreach, wellness and motivation activities throughout the year. Activities conducted by the GCS during the academic year 2021-22 are detailed below.

1. JEE Open house for prospective undergraduate students, 23.10.2021

An online open house for prospective UG students was organized to popularize the B.Tech.Programs at IIT Mandi. 90 prospective candidates and their parents attended the open house. A team consisting of Deans, B.Tech.Program faculty

advisors, Chief Warden, Career and Placement advisor, JEE Chair, and student representatives answered queries about the admission process, and course details of different B.Tech.Programs, campus life, future prospects, etc.

2. Admission help desk Induction program for First year B.Tech.Students November 2021.

The JEE (adv) and undergraduate admission schedule was disrupted due to the pandemic and the first year students joined the Institute in November 2021. An online admission helpdesk was set up by GCS volunteers to help with admission formalities and queries related to the Institute. The help desk was managed by JS-GCS and 60 student volunteers.

A seven-day Induction program was conducted for incoming undergraduate students from 25.11.2021 to 30.11.2021. About 50 faculty members mentored first-year B.Tech. students for English and Communication, Exploring Engineering and Soft skills.

3. Orientation programs for PG and Ph.D. students

- For PG and Ph.D. students, Online Orientation programs were organized as per the following details. The program includes sessions on academic and professional skills.
- Aug-Dec 2021 semester: For MSc/M.Tech./MA/MS/Ph.D./iPh.D. students on 6th to 8th August 2021.
- Feb-June 2022 Semester: For MS/Ph.D. students, 9th to 14th Feb 2022.

The welcome function by Director and Deans and introduction to the program structure and familiarization with the research facilities by the School chairs and faculty mentors was followed by online sessions on different topics relevant to the scholars. These included sessions on Professional ethics and etiquette, Study hacks: Reading, Listening and Note-taking, Presentation skills and public speaking, the Art of internet surfing and Online tools, and Work-life balance. Handling Stress and Managing failure, creating a Professional and Gender Sensitive Work Environment, Introduction to international Opportunities, campus facilities like Library, High-performance computing facility as well as a workshop by the Teaching and Learning Committee.

4. Session on Gender Sensitivity and Grievance redressal: July-Aug, Nov-Dec 2021.

Sessions were conducted in collaboration with the Women's center committee and ICC to create awareness about building a gender-sensitive workplace environment. Interactive sessions were held batchwise with B.Tech., PG and Ph.D. students.

5. Wellness and Mental health and Awareness Campaign

- Yoga sessions: Organized a 9 days Yoga training session in collaboration with PGIMER, Chandigarh in October 2021.
- Organized a monthly online morning wellness session in May-June 2021.
- Meditation session in collaboration with IIT Delhi: Number of online sessions held = 28 (between April 2021-March 2022)
- Talk by Dr. Akshay Anand, PGI Chandigarh on Health care and yoga on 22nd June 2021.
- Social media friend or Foe by YourDOST on 15th April 2021
- Own your time by YourDOST on 18 June 2021
- Mind Hacks by YourDOST, 20 September 2021
- Mental health making it ok, by YourDOST 20th October 2021
- Barefoot counseling for faculty by YourDOST on 9th Feb 2022.

9.4 CAREER AND PLACEMENT CELL (CnPC)

Career and Placement Cell (CnPC) helps students find suitable careers by organizing various career and guidance sessions. The CnP Cell also conducts campus internship and placement drives in which companies from various domains participate and recruit interns and employees from IIT Mandi.

Career and Placement Cell organized the following Career Sessions in the academic year (April 2021 to March 2022)

1. Webinar on Career Opportunities After B.TECH./B.E. (GATE/ESE/PSUs) on 16th May 2021:
The topics covered in this session were:
1. Significant career opportunities were available for engineering graduates (GATE, ESE, PSUs Jobs, State Service Commission, IT / Private sector Jobs) and other competitive exams.
2. Opportunities available through various competitive examinations and indirect benefits.
3. The salient features of all the competitive examinations like the pattern of the examination, eligibility criteria, and branches eligible.
4. Strategies for competitive exam preparation.
Speaker: Mr. Anand Kumar (Sr. Faculty Member ACE Engineering Academy)

2. CAT vs. GMAT vs. GRE on 28th May 2021:
Speaker: Mr. Navneet Anand (Head, MBA division Career Launcher)

3. How Digital Transformation impacts Future Entrepreneurs on 16th June 2021:
Speaker: Ms. Deepa Sayal (Deepa Sayal is an Entrepreneur, Mentor, Incubator, Digital Transformation Specialist, Start-up Coach, and tech evangelist with 20 years of rich experience in the Information Technology domain and was featured in CNBC TV-18 amongst the 32 most impactful women changing the Digital world. She has also been featured in the Top 100 Women Entrepreneurs Compendium in India conferred by Mr. Nitin Gadkari (MSME Industry).

4. How to get a Startup Internship on 19th June 2021:
Speaker: Scool Team (Scool is a post-learning platform fueled by a curated mentor community, delivering personal growth and meaningful connections)

5. Webinar on TOEFL Talk on 27th June 2021:
Speaker: Sheena Kumar (Sheena Kumar is a master trainer trained and certified by ETS. She has been teaching English for the past 23 years. She has a master's in English from Delhi University. Before joining the Learning Links Foundation, she was the chief drafting officer of a Law Firm. Before that, she taught at an Engineering college in Goa for almost five years. Her forte is conducting workshops, seminars, webinars, and talks on various English language facets.

6. Mastering MBA admissions + live profile counseling on 3rd July 2021:
Key takeaway of this session were:
1. Masters and MBA education abroad.
2. Best countries to go to for studying abroad.
3. Admission criteria for universities.
4. STEM courses and the advantages of DOIng STEM courses.
Speaker: Mr. Soumyo Gupta, CEO, of Jamboree education.

7. Career guidance session for Civil core on 25th July 2021:
Speaker: Mr. Atharv Saukar and Mr. Huzaifa S. Electricwala (M.Tech. STE 2019-21 batch, currently working at L&T).

8. Career Guidance session for CSE core on 29th July 2021:
Speaker: Mr. Aman Jain is an IIT Mandi alumnus who graduated in 2020. He is currently working in Codenation and got the on-campus offer from Service now and Toppr. He was the student coordinator of the Career and Placement Cell in his 3rd year and overall coordinator in the 4th year of B.Tech.

9. Career Guidance Session for EE core on 31st July 2021:
Speaker: Mr. Piyush Patil is an IIT Mandi alumnus who graduated in 2020. He is currently working in Intel and got the on-campus offer from Marvell and off-campus offers from Ceremorphic, AMD & Intel. He was the student coordinator of the Career and Placement Cell in his 3rd and 4th year of B.Tech.

10. Career Guidance Session for DSE core on 1st August 2021:
Speaker: Mr.Jay P. Jangid is a B.Tech. CSE, IIT Mandi alumnus who graduated in 2015. Currently working as Data Scientist at Bank of America.

11. Webinar on the topic "Career in Product Management" on 29th August 2021:

Topics covered in this session were different avenues to get started in this field, a sneak peek at core product management roles and responsibilities, and Pros/Cons of the field.

Speaker: Mr. Mukul Tuli, Product Manager at American Express for the last six years.

12. Webinar on Solving consulting problems through logical structuring on 3rd September 2021:

This session discussed how to have a heads-up in solving a business consulting problem.

Speaker: Mr. Pranav Chudgar, Director of the FSRM practice under Business Consulting in EY India.

13. **Webinar on Studying in Germany on 3rd October 2021:**

This webinar informs the students of the opportunity to study in Germany.

Speaker: Mr. Bharat Chaudhary, founder and CEO of 'Bharat in Germany and BiG Academy.

14. **Session on ASK TI - All About Digital Engineering on 28th October 2021:**

Topics discussed were: How VLSI engineers are changing the world, How TI India is a worldwide leader in R&D, If process node matters, and if it's true that lesser the node, more challenging and enjoyable the work becomes, How TI as a workplace compare to other semiconductor design firms in India.

Speaker: Mr. SubhashChander, Director of Global Hardware R&D connectivity.

15. **Webinar on "Evolution in Design Techniques and Challenges on 23rd November 2021:**

Discussion about how the design challenges are increasing daily due to technological advancement (shrinking nodes) and design complexity. What are the various techniques used to solve these challenges, and also which challenges stay unresolved, providing opportunities for young engineers to innovate and help take the industry forward?

Speaker: Mr. Atul Bhargava is working for STMicroelectronics as a Principal Engineer. He manages the design enablement team and has vast experience in design and backend methodology.

16. **Session on an Overview of Higher Education Opportunities in the U.S. for Graduate Students on 9th December 2021:**

The proposed session covered the following topics: Reasons to choose the U.S. as a study destination, Shortlisting universities, Financing your studies via different sources of funding, and how to cut costs, Components of the application process - Standardized tests for graduate students including the GRE, GMAT, GRE Subject Tests, and language proficiency tests, Writing effective essays and resume, Student Visa and Pre-departure Orientation - what you must establish as a student visa applicant and preparations for adjusting to a new environment, Education USA Services.

Speaker: Education USA is a U.S. Government program and the official source of information on U.S. higher education.

17. Webinar on preparation strategy for UPSC Civil Services Examination on 26th February 2022:

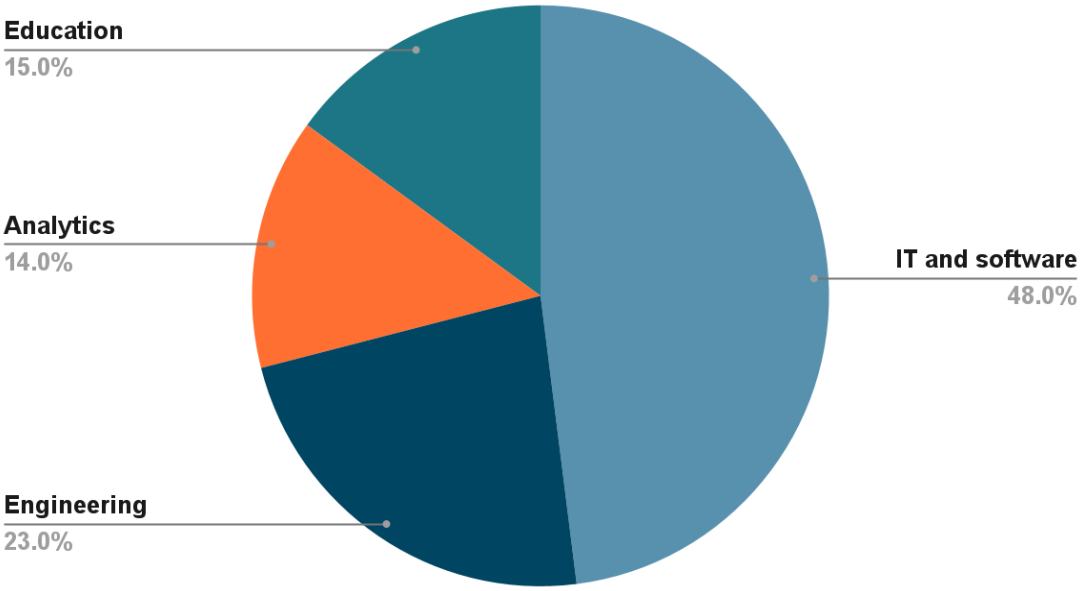
Speakers of the session - Mr. G. Chandeesh, IPS, Tamil Nadu Cadre, and Mr. Ajay Chauhan, Faculty, Next IAS.

18. Career Orientation Webinar on the topic 'Career after graduation in India and Abroad' on 13th March 2022.

This session includes Career opportunities after Graduation, Master's in India or Abroad, Emerging Sectors in Post Covid Era, and Online Vs. Offline Studies.

Speaker: Mr. Saurabh Jaiswal, Director, T.I.M.E Chandigarh

Graph 1: Sector-wise break-up of placements 2021-22



Placement Highlights in Brief

Total Number of offers	303
Total no.of Accepted offers	246
Total no. Pre- Placement offers	56
Total no. of international offers	8
Median Salary B.Tech. (LPA)	21
Median Salary PG (LPA)	11.52
Top Recruiting Sector	IT and Software

9.5 ALUMNI AFFAIRS CELL

Introduction: Indian Institute of Technology (IIT) Mandi is now an Institute that has 1000+ alumni and this number will grow to larger proportions in the future. As the alumni are valued members of the Institute, it is important to engage them in Institute building activities.

Mission: The Mission of the Alumni Affairs Cell shall be:

- To contribute to the Institute's vision of being recognized among the world's leading institutions in academics, research, outreach, and innovation;
- To provide a vibrant forum that promotes interaction and networking among alumni of the Institute;
- To help alumni achieve their professional and societal goals;
- To facilitate the association of alumni with their Alma Mater;
- To function on a charitable basis, and to run the Affairs Cell on a 'no profit no loss' basis;
- To create awareness about the Institute and its alumni in the public;
- To assist deserving students from socially and economically disadvantaged sections of society; and
- To help alumni in their hour of need.

Membership: A graduate who has received a degree awarded by the Institute is considered an alumna/alumnus/alumni of the Institute automatically.

Alumni Chapters

City	Name of Secretary
Bangalore	Mr. Chamundeswar
National Capital Region	Mr. Vivek Sharma
Hyderabad	Mr. Ayush Yadav
Mumbai	Mr. Ravi Kumar

Alumni Engagement Activities

Webinar	Topic of the event	Date of the event	Name of Alumni	Graduated
Ask me Anything	How to prepare for UPSC?	25.07.2021	Mohit Rawat	2015

Notable Alumni

Name	Graduated Year	Roll No.	Achievement
Mohit Kumar Malhotra	2013	B09066	Scientist-Defense Ministry of Govt. of India
Deepanshu Rastogi	2013	B09086	Engineering Services Examination-2015, AIR – 58. Assistant Director in National Power Committee Division of Central Electricity Authority
Amanjot Kaur	2013	B09004	Data Scientist in Rubicon Toronto Canada.
Dhirendera Kumar Singh	2014	B10057	First Entrepreneur of IIT Mandi
Athar Aamir Khan	2014	B10055	CSE 2015, AIR - 2
Pradeep Seervi	2015	B11070	Gate 2015, AIR - 1
Shubham Ajmera	2015	B11035	First IIT Mandi Student Placed At Google
Aditya Chauhan	2015	S12021	Received Youngest Scientist Award
Anil Jhajharia	2015	B11003	Assistant commissioner of Income Tax
Manish Ladla	2015	B11066	Assistant Commissioner of Police, DANIPS service
Aman Agarwal	2016	B12110	CAT 2015, 99.91%
Abhijit Sachdev	2016	S13004	GATE, AIR – 99.7%
Aman Gupta	2017	B13106	CEO,ApplyNordic, Oslo Norway
Lalit Shakywal	2017	B13313	Scientist B, Group A Officer, Government of India at DRDO
Raspreet Singh	2017	B13325	196th Rank UPSC-2020
Dr. Navneet Chandra Verma	2017	D14009	Inyas Award-2021
Dr. Neha Sharma	2018	D12087	Assistant Professor, IIIT Una
Dr. Shubit Kumar Jain	2018	D12070	Assistant Professor, Mathematics, NIT Hamirpur
Dr.Thirumurugan C	2019	D11045	Assistant Professor, Vellore Institute of Technology, Tamil Nadu
Divanshu Gupta	2020	T18133	Assistant Professor, Punjab College of Technical Engineering
Dr. Shaifu Gupta	2020	D14002	Assistant Professor, IIT Jammu
Dr. Indu Yadav	2020	D14030	Assistant Professor, IIIT Una
Dr. Sandeep Kumar Shukla	2020	D14015	Assistant Professor, Galgotias University, Noida
Dr. Abhilash Malayil	2020	D14007	Assistant Professor, Department of Collegiate Education Government of Kerala

9.6 WOMEN CELL

Women call is committed to create a gender-sensitive environment at IIT Mandi and in this regard organizes internal as well as external seminars from time to time. On Mar 8, 2021, as part of the Women's day celebration, a panel discussion about the inclusion of gender in NEP2020 was also organized along with the seminar of Dr. Shashibala Singh, Director NIPER Hyderabad.

10. MEDIA, OUTREACH AND RANKING CELL (MORC)

The Media, Outreach and Ranking Cell (MORC) of the Institute was constituted with a mandate to serve as an 'umbrella cell' to coordinate several of the existing activities of the Institute related to media, branding, Institute reports, ranking, etc.

The Committee comprises the following Members:

Prof. Pradeep C. Parameswaran **Chairperson and Professor (SBS)**	
Members **Dr. Aditi Halder** Associate Professor, SBS	 **Dr. Varun Dutt** Associate Professor, SCEE
Dr. Puran Singh Associate Professor, SHSS	**Dr. Sayantan Sarkar** Assistant Professor, SE
Shri Anuj Kumar Dubey Member Secretary Assistant Registrar (Audit & Legal)	
Manika Gupta: Assistant Office Executive	

MEDIA COVERAGE

Media Outreach 2021-22

In the year 2021-22, there was approximately a total of 1727 press coverage for IIT Mandi which included print coverage, online coverage and electronic coverage for IIT-Mandi. There were 33 press releases were done. Publications that have Covered IIT Mandi the Most include the Hindu, Hindustan Times, The Statesman, The Pioneer, Telangana Today, The Times of India – Education Time, The Economic Times, Deccan Herald, The Hans India, Dainik Jagran, The Tribune, Hindustan, The Hindu Business Line, The Financial Express, Mint, Education World, WesternTimes, Morning India and many more.

Press Releases

Date of Press Releases	Topic	Faculty Connected
5th April 2021	IIT Mandi researchers develop algorithms to predict the functioning of vehicular Internal Combustion Engines	Dr. Tushar Jain
19th April 2021	IIT Mandi researchers develop an anti-bacterial, self-cleaning material for Face Masks and PPE Equipment	Dr. Amit Jaiswal
3rd May 2021	IIT Mandi researchers invent a new technique to detect abnormal brain characteristics associated with Ischemic stroke	Dr. Shubhajit Roy Choudhary
27th May 2021	IIT Mandi researchers reveal the structure of the NSP1 C-terminal region in isolation, a key protein in the COVID-19 virus in the host cell environment	Dr. Rajanish Giri
14th June 2021	IIT Mandi researchers discover the molecular mechanism by which excess sugar consumption causes fatty liver disease	Dr. Prosenjit Mondal
21st June 2021	IIT Mandi to host a Workshop on Deep Learning for Executives and Working Professionals	Dr. Aditya Nigam
28th June 2021	IIT Mandi & WileyNXT come together to launch a professional certification program in Full Stack Development	Dr. Satyajit Thakor
12th July 2021	IIT Mandi shows the way to detect disease in Potato Crops using the Photograph of its Leaves	Dr. Srikant Srinivasan

2nd August 2021	Shri Rajesh Kumar Prajapati, Director, Dept. of Industries, H.P., flags off the Startup Exploration Batch at IIT Mandi Catalyst	Prof. Ajit k. Chaturvedi
12th August 2021	IIT Mandi develop Smart Road Monitoring System to prevent Accidents and Enhance Traffic Management	Dr. Kala Venkat Uday
30th September 2021	Researchers from IIT Mandi, IIT Delhi and Yogi Vemana University develop leaf-like catalytic structures for solar-driven production of green hydrogen and ammonia	Dr. Venkata Krishnan
1st October 2021	IIT Mandi to host International Colloquium on Technology Readiness for High Volume Semiconductor Chip Manufacturing (FAB) 2021	Prof. Kenneth Gonsalves and Dr. Satinder Sharma
23rd October 2021	452 students, including 45 Ph.D. Scholars Graduate at IIT Mandi's Ninth Convocation	Prof. Ajit K. Chaturvedi
15th November 2021	IIT Mandi Catalyst invites Applications for Startup Grand Challenge	Dr. Puran Singh
15th November 2021	"High Volume Semiconductor Chip Manufacturing is inevitable for strengthening India's position as a leading stakeholder in the international arena": Dr. V.K. Saraswat at ICTFAB-2021 hosted by IIT Mandi	Prof. Kenneth Gonsalves and Dr. Satinder Sharma
22nd November 2021	IIT Mandi researchers show the possible role of signal peptide aggregation on Alzheimer's disease	Dr. Rajanish Giri
1st December 2021	Placements at IIT Mandi: 137 Students Placed till 1st December 2021	Dr. Tushar Jain
2nd December 2021	IIT Mandi signs MoU with AIIMS Bilaspur; Collaborates for Academics and Research	Prof. Arnav Bhavsar
14th December 2021	IIT Mandi Catalyst announces winners of the Startup Grand Challenge	Dr. Puran Singh
20th December 2021	IIT Mandi scientist develops mathematical models to study the effects of non-invasive brain simulation methods	Prof. S.R. Chowdhury
27th December 2021	Hon'ble Prime Minister Shri Narendra Modi reviews the Landslide Monitoring and Early Warning System developed by IIT Mandi	Dr. K. V. Uday & Dr. Varun Dutt
29th December 2021	Shri. Rajendra Arlekar, Hon'ble Governor of Himachal Pradesh visits IIT Mandi to discuss Landslide Risk Management	Prof. Ajit K. Chaturvedi, Prof Bharat Singh Rajput, Dr. K. V. Uday, Dr. Varun Dutt
30th December 2021	IIT Mandi witnesses a successful 2021 with achievements in Entrepreneurship, R&D and Innovation	Prof. Ajit K. Chaturvedi
6th January 2022	IIT Mandi Researchers Plot Covid-19, Past Pandemics Across Seasons, Give Recommendations for Future	Dr. Sarita Azad
13th January 2022	Prof. Laxmidhar Behera was appointed as the New Director of IIT Mandi	Dr. Laxmidhar Behera
17th January 2022	IIT Mandi Researchers discover Phytochemicals in a Himalayan Plant that inhibit the COVID-19 Virus	Dr. Shyam Masakapalli
1st February 2022	IIT Mandi signs MoU with District Disaster Management Authority Kangra	Dr. Laxmidhar Behera& Dr. K.V Uday
9th February 2022	IIT Mandi signs MoU with DDMA Mandi to deploy Landslide Monitoring and Early Warning Systems in Himachal Pradesh	Dr. Laxmidhar Behera& Dr. K.V Uday, Dr. Varun Dutt
23rd February 2022	IIT Mandi researchers use orange-peel derived hydrochar to convert biomass-derived chemicals into biofuel precursors	Dr. Venkata Krishnan
6th March 2022	Press Release - IIT Mandi 13th Foundation Day	Dr. Laxmidhar Behera
14th March 2022	IIT Mandi to organize a School Camp on Robotics and Artificial Intelligence in July	Dr. Tarun Jain
23rd March 2022	IIT Mandi researchers produce new photocatalysts that convert plastics to hydrogen and other useful products	Dr. Prem Fexil Siril
28th March 2022	IIT Mandi organizes workshops on the Indian Knowledge System and Mental Health	Dr. Laxmidhar Behera, Dr. Varun Dutt. Dr. Arnav Bhavsar

Major Highlighted News

Inclusion of UG students in the research domain will strengthen it

Astha.Hemant
@timesgroup.com

The advancements in technology need to be accompanied by holistic training that will enable students to stay mentally and physically fit, says **Laxmidhar Behera,** the newly appointed director of IIT Mandi. In an exclusive conversation with *Education Times*, he highlights the way forward for the institute.

Being research-oriented

The institute is focusing on becoming research oriented. "Rather than focusing only on the master's students conducting research, IIT Mandi wants to involve undergraduate (UG) students in the research infrastructure as well," tells Behera. At the IITs, research should primarily focus on areas that will have a positive societal impact. "Robotics and AI can be used as the means for innovations in areas such as climate-controlled agriculture, bio-medicine, telemedicine and bio-energy," says Behera.

Entrepreneurship creates jobs

Underlining the increasing demand to create knowledge generation and using technology to create avenues for the local population to come up with innovative startups has been the focus of the institute. "The institute's incubation cell 'Catalyst' has been working closely with students to guide them in their journey to become a startup founder. Besides, becoming an expert in their chosen domain, students need to focus on the bigger mandate of job creation, for which entrepreneurship is the key, adds Behera.

Girls and Engineering

While the lower ratio of girls in STEM courses is a worldwide phenomenon, in India, girls are more adventurous than boys when it comes to related fields, says Behera. "Girls face societal and financial bottlenecks in their journey to become engineers. For the latter, we have made Engineering education free for girls. This has increased the percentage of girls at IIT Mandi to 35%," he tells.

Focus on rankings

Rankings have become a way of life for HEIs for aspects such as funding as well as to attract good quality students and teachers, so no institute can do without them. "The idea should be not to give them undue importance but focus on making the institute an educational hub. Addition of good and innovative programmes that improve the quality of students coming to the institute is required," tells Behera.

Improving quality of teaching-learning

"Initiating a student into a subject with extensive lab courses will increase their interaction with faculty and encourage them to delve into the theoretical material to enhance their understanding. The hands-on experience will improve the quality of teaching-learning," tells Behera.

The Times of India – Education Times

Kangra to get early warning system for landslides

STATESMAN NEWS SERVICE
SHIMLA, 1 FEBRUARY

Kangra district will soon get Landslide Monitoring and Early Warning Systems (EWS) as the administration on Tuesday signed a MoU with Indian Institute of Technology Mandi.

The MoU is for the duration of five years, and both parties can extend it upon mutual discussion.

The purpose of the MoU is to develop and deploy 10 Landslide Monitoring and Early Warning Systems (EWS) at certain sites based upon site visits and analysis of these sites as per InSAR- based analysis and in confirmation with the district administration.

This will also help in development of machine learning approaches for predicting InSAR-based and EWS-based outcomes for generating prediction-based warnings.

The MoU was signed between Prof Laxmidhar Behera, Director, IIT Mandi and Dr Nipun Jindal, Deputy Commissioner, Kangra.

Speaking about the MoU, Prof Laxmidhar Behera said IIT Mandi has a mission to solve problems of society. "I am very happy to note that this project is a unique example of IIT Mandi mission to help address problems of Himachal Pradesh (landslides) while working with the District Disaster Management Authority Kangra," he added.

Dr Nipun Jindal, DC Kangra, expressed his happiness to collaborate with IIT Mandi in the Landslide Early Warnings system that will be deployed in the Kangra district.

He stated that this will help to reduce the lives lost due to landslides. The early warning will also enable the DDMA to prepare better and be ready with mitigations.

"Site locations shall be confirmed based on site historical evidence, initiation of slides or falls, and other locations as per satellite imaging, which shall be confirmed after site visits by representatives of both parties and further approval from district administration. All the deployed systems will be maintained for five years from date of installation as per the project terms. Any further maintenance will require funds as communicated by concerned agencies at the time," he added.

The Statesman

IIT Mandi team uses orange peel to get biofuel precursors

The method will contribute towards producing green power from biomass for sustainable fuel development

TIMES NEWS NETWORK

Indian Institute of Technology (IIT) Mandi researchers have used hydrochar from orange peels as a catalyst to convert the biomass derived chemicals into biofuel precursors. The development will in the development of bio-based fuel to address the low petroleum reserves.

The findings have been published in the journal *Green Chemistry*.

The research team was led by Venkata Krishnan, associate professor, School of Basic Sciences, IIT Mandi, and was co-authored by his students Tripti Chhabra and Pracheeti Dwivedi.


Venkata Krishnan, associate professor, IIT Mandi with his student Tripti Chhabra

Biomass derived products from naturally occurring materials is currently the fourth most significant energy source that can meet the energy needs after coal, oil, and natural gas.

"One of the driving interests among the renewable energy community is the development of relatively clean and energy efficient processes to convert biomass into useful chemicals, including fuel," said Venkata Krishnan.

The simplest and most cost-effective catalyst that has been studied by the researchers for biomass conversion reactions is hydrochar. It is typically obtained by heating the biomass waste (orange peels in this case) in the presence of water through hydrothermal carbonisation process.

The researchers have used hydrochar from orange peels to catalyse the conversion of biomass-derived chemicals into biofuel precursors.

The researchers heated dried orange peel powder with citric acid under pressure in a hydrothermal reactor (a pressure cooker) for many hours. The hydrothermal that was produced was then treated with other chemicals to introduce acidic sulfonic, phosphate and nitrate functional groups to it.

The creation of such catalysts for biomass conversion can help the country's biofuel sector. India is said to be a pioneer in biomass-based power in recent years. In 2015, India announced its goal to achieve 15 GW of power from biomass, small hydropower and waste-to-energy plants. Within five years, the country has achieved the 10 GW target of biomass power.

The Times of India

MOUNTAIN OF HOPE

Himalayan plant may have ability to thwart Covid: study

AKHIL KADIDAL
BENGALURU, DHNS

Amid a worldwide scramble for new biochemicals to arrest the novel coronavirus, researchers at Indian Institute of Technology, Mandi, have found that phytochemicals in the petals of a Himalayan flowering plant have the potential to inhibit the virus.

The plant in question is *Rhododendron arboreum*, known as Burans in Hindi, which has long been consumed by the local population for its supposed health benefits.

That supposition has now been bolstered by hard science after researchers from IIT, Mandi and the International Centre for Genetic Engineering and Biotechnology (ICGEB) found that hot water extracts from these petals were rich in quinic acid and its derivatives.

The scientists conducted molecular dynamics studies on the petals using the 2020 B.1 variant of the novel coronavirus, which was available at ICGEB. They discovered that the phytochemicals affect the Sars-CoV-2 virus in two ways.

One, the phytochemicals bind to the main protease of the virus which is an enzyme that plays a role in the ability of the virus to replicate itself. They also bind to the Ace-2 receptor of the host cells, which allows the virus to infect the human cell.

The scientists also found that in an animal study, non-toxic doses of the petal extracts could inhibit Covid-19 infection in Vero E6 cells, without any adverse effects on the cells themselves.

Dr Sujatha Sunil, Vector Borne Disease Group, ICGEB, said that "a combination of the phytochemical profiling, computer simulations and in-vitro antiviral assays showed that the extracts from the Burans petals inhibited the replication of the Covid-19 virus in a dose-dependent manner."


The Rhododendron arboreum flower.
PHOTO COURTESY IIT MANDI

Associate Professor Dr Shyam Kumar Masakapalli of IIT Mandi's BioX centre and research team leader told *DH* that the study has its origins in the team cataloguing unique or rare plants in the Himalayas from 2019.

"We had analysed 22 plants, many of which were of the medicinal variety. When the pandemic began in 2020, we thought we should determine if any of the plants had phytochemicals that could be used to inhibit the Sars-CoV-2 virus which causes Covid-19. Only one plant did - the *Rhododendron arboreum*," Masakapalli said.

He said additional studies will be conducted in mice models to determine the exact biochemical compound that is able to elicit an antiviral response.

"Because this compound will be a multi-antiviral compound, it could also have value in treating influenza and Sars-1," he added.

The findings of the research team have been recently published in the journal *Biomolecular Structure and Dynamics*.

Deccan Herald

Scientists come up with study to identify Covid hotspots in India

STATESMAN NEWS SERVICE
SHIMLA, 6 JANUARY

The researchers from Indian Institute of Technology, Mandi have identified the states with a high probability of being the first hotspots for the spread of Covid by reviewing the spread of viral disease and past pandemics in India for the study.

The researchers have also identified the states and districts where the government should have a more tailored and targeted approach in case a future outbreak occurs.

According to the study that was performed on 640 districts from April 1 to December 25, 2020, the hotspots of the pandemic in India have been states with high international migration and districts located close to large water bodies.

States such as Maharashtra, Tamil Nadu, Gujarat, Rajasthan, Karnataka, Delhi, Uttar Pradesh, and Andhra Pradesh were the hotspots for the COVID-19 pandemic in India. In almost all of these states, international migration is a significant factor. For this reason, the researchers recommend that in future cases of pandemic outbreaks, travel to and from these states should be carefully monitored.

Researchers reviewed the past pandemics and found common patterns between the Spanish Flu (1918-1919), H1N1 (2014-2015), Swine Flu (2009- 2010), and COVID-19 (2019-2021) outbreaks. It shows water bodies have a strong influence on a region's microclimate in terms of temperature and humidity, contributing significantly to regional climate change which is commonly referred to as the lake effect.

The research was led by Dr Sarita Azad, Associate Professor and co-authored by Neeraj Poonia, research scholar, IIT Mandi. The findings of the research have been published in Current Science, a prestigious peer-reviewed journal.

Explaining the key findings of this research, Dr Sarita Azad said, "There has been a striking similarity in the focal point and route of transmission of different epidemics in India, such as Spanish flu, H1N1, Swine flu and Covid-19. Mostly all the pandemics have started and found their epicenters in the northern, western, and southern parts of India. Later, we also found that districts with direct access to large water bodies had a sudden increase in cases during monsoon (as high as 800%) compared to the preceding season. Hence, strict precautionary measures should be imposed in these districts before the beginning of monsoon season during an outbreak." Furthermore, the researchers have examined the temperature variations across districts that are close to large bodies of water to understand the spread of Covid in these areas. The average minimum and maximum temperatures in these districts are about 3 and 5 degree Celsius lower than neighborhoods in July, which is attributed to the lake effect. The cooler climate conditions may have contributed to the increase in cases in districts that are close to water bodies.

The Statesman

11. CONSTRUCTION (INFRASTRUCTURE & SERVICES)

The Institute Deanery of Infrastructure and Services is responsible for planning, designing and construction of infrastructure facilities and providing the following facilities on the campus.

- Health Care
- WING, Network and Telecommunication Facility
- Website and Intranet Services
- Estate Management
- Landscaping & Horticulture
- House Keeping Campus
- Sanitation & Waste Management
- House Allotment & Commercial Allotment
- Guest House & Transport Services
- Campus School & Day Care facilities
- Security Services

The teams under the Deanery of Infrastructure consist of dedicated Technical and Non-technical staff working round the clock to ensure the ceaseless functioning of the Institute. An important and tedious responsibility of the Infrastructure unit is the operation, maintenance, upgradation and furnish services to the campus.

DEANERY OF INFRASTRUCTURE & SERVICES	
Dean	**Associate Dean**
Prof. Bharat Singh Rajpurohit A-7 Building, First Floor, South Campus Phone: 267278; Email ID: deaninfra@iitmandi.ac.in	Dr. Kaustav Sarkar A-10 Building, Third Floor, North Campus Phone: 267901; Email: srkr@iitmandi.ac.in
Infrastructure Planning and Design Cell	**Faculty In-charge (Electrical)**
	Dr. Narsa Reddy A11.04.41, North Campus Phone: 267225; Email: tummuru@iitmandi.ac.in
Faculty In-charge (Civil)	
Dr. Sandip Saha A10-408, North Campus, North Campus Phone: 267907; Email ID: sandip_saha@iitmandi.ac.in	
Office: Infrastructure and Services	
Ms. Monika Kashyap Sr. Superintendent A-9 Building, Third Floor, North Campus Email: monika@iitmandi.ac.in	Mr. Ankush Sharma Office Assistant A-9 Building, Third Floor, North Campus Email: ankushoa@iitmandi.ac.in

INFRASTRUCTURE

Aerial view of North Campus

The South Campus has a fully functional infrastructure of about 61,646 sq m area. This campus presently provides for 1100 students and 54 faculty/staff members. 500-capacity hostel block with a dining hall, 10-2BHK, and 45 3-BHK

apartments are added to this campus having an area of 22000 sq m two hostel blocks, a dining block and three faculty housing blocks are completed in the current year.

On the other hand, North Campus presently has buildings of 1,55,260 sq m area. This part of the campus has hostels/houses for 1260 students and 141 faculty/staff members. The Sports Complex including the swimming pool and Hospital are now fully functional. The remaining area of 4,111 sq. m which includes the Dining hall cum Student Activity Centre shall be completed by Oct 2022.

During the current year, we were able to add one Hostel Block, one Academic Block and Hockey field, Tennis Basketball and Volleyball courts having an area of 12,272 sq m to this campus.

Infrastructure Team	
Er. Sunil Kapoor Superintending Engineer Construction Wing, South Campus Phone: 267020; Email: sunil@iitmandi.ac.in	**Er. Siddharth Jamwal** , AE (Civil) Construction Wing, South Campus Phone: 267200; Email: siddharth@iitmandi.ac.in
Er. Vikas Chaudhary AE (Civil) A-7 Building, Room No.200, First Floor, South Campus Phone: 267028; Email: vikas_kumar@iitmandi.ac.in	**Er. Neeraj Chauhan** AE (Electrical)/Estate Officer I/c Construction Wing Phone:267127; Email: neerajchauhan@iitmandi.ac.in
Mr. Daulat Ram Field Supervisor (Land Acquisition) Construction Wing Phone: 7018163487	**Er. Mandheer Bali** JE (Civil) Infrastructure Planning & Development Cell Email: mandheer@iitmandi.ac.in
Er. Deen Dyal JE(Civil) C-29, Ground floor at North Campus Phone: 89880-22935; Email: deenta@iitmandi.ac.in	**Er. Chirag Vaidya** JE (Electrical) Construction Wing Phone: 267122, Email: chiragiitmndi.ac.in
Er. Omjeet Thakur Junior Engineer (Civil) Construction Wing, North Campus Phone: 267999; Email: omjeet_thakur@iitmandi.ac.in	**Er. Gavin Dhiman** Junior Engineer (Civil) Construction Wing, South Campus Phone: 267200; Email: gavin_dhiman@iitmandi.ac.in
Er. Navish Sharma T.A (Civil) Construction Wing, South Campus Phone: 267029 ; Email: navishta@iitmandi.ac.in	**Er. Jitender Kumar** Technical Assistant (Civil) Construction Wing, North Campus Phone: 267999 ; Email: jitender@iitmandi.ac.in
Er. Atul Sen Technical Assistant (Civil) Construction Wing Phone: 9459778881	**Er. Yashpal Thakur** Technical Assistant (Electrical) Construction Wing, North Campus Phone: 267999 ; Email: ythakur@iitmandi.ac.in
Mr. Anil Kumar Junior Assistant Construction Wing Phone: 267295; Email: aniloa@iitmandi.ac.in	
Mr. Ashok Office Assistant Housekeeping Department Mob. No. 9816151700	**Mr. Abhinav** Office Assistant Housekeeping Department Mob. No. 9816151700

Park behind Auditorium

Village Square, North Campus

Aerial View of North Campus

SERVICES

HEALTH CENTRE

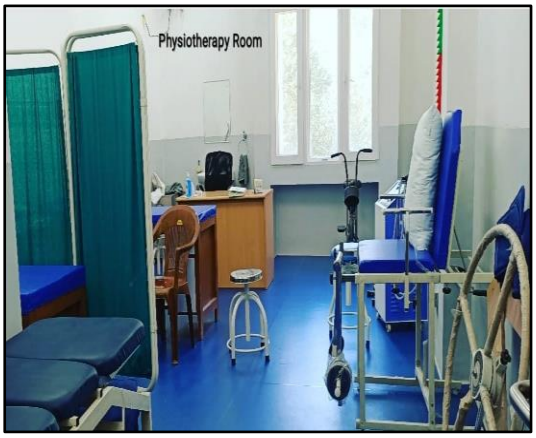
Health Centre, IIT Mandi is situated on the North campus, having one extension unit on the South campus. It is a non-dieted patient care unit that provides routine and emergency medical cover to all faculty, staff and students of Kamand. It also provides first aid and emergency care to Mind Tree school students and workers/casual laborers of the campus, with the scope of referral to higher Centre who require admission and special care as and when required via 24 hr. ambulance service. The Health Centre consists of a team of full-time Medical Officers, Visiting Specialists and Para Medical staff.

North Health Centre

South Health Centre

The following facilities are available at Health Centre:

- **Routine OPD:** taken care of by medical officer and visiting consultant.
- **Emergency care:** with the provision of Multipara monitor, ECG, Nebulization, oxygen concentrator, and central oxygen system and minor surgical room.
- **Pharmacy:** Reliable quality medicines are available to beneficiaries on doctor's prescription during OPD hours as well as emergency timings without any cost. Routine over-the-counter medicines are provided by Para medical staff themselves/after consultation with the doctor on duty during emergency hours.
- Visiting Consultant of ENT, Medicine, Obs & Gynae, Pediatrics and Orthopaedic.
- Dental service & physiotherapy are also fully functional.



- **CLINICAL PATHOLOGY LAB**: Trained laboratory staff providing their services, which include routine blood tests and urine tests. Some specialized tests through kits include CRP, malaria, scrub typhus, pregnancy test, HIV, VDRL, HBs AG, typhoid, etcare also available.
- **Further, Dr. Lal's Path Lab staff** also visits the health center twice monthly to enhance the services of the Lab on the IIT campus. Health Centre will be coming up in near future with additional facilities like an ALS ambulance, a minor OT room, X-ray and Ayurveda Panchakarma Therapy. All these processes are already in the pipeline.

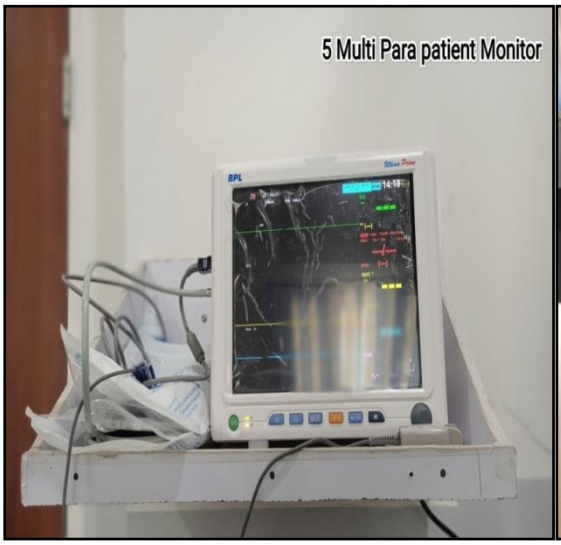
- **Coming Up Projects in IIT Mandi Health Centre**

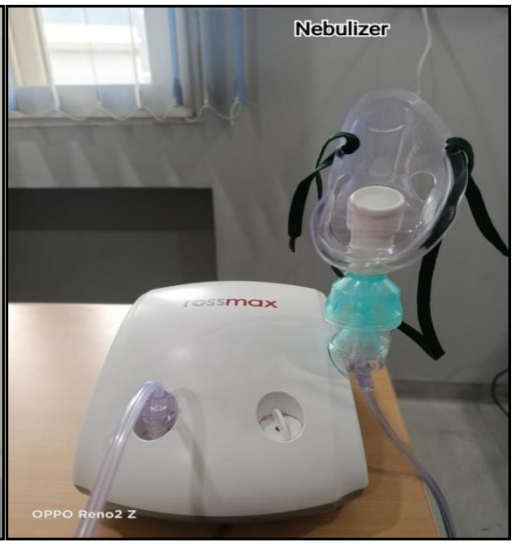
  Health Centre will be coming up in near future with additional facilities like a Minor OT room, X-ray and Ayurveda Panchakarma Therapy. All these processes are already in pipeline.

- **Emergency Services**

  - Health Centre OPD hours, Health Centre only caters to serious patients requiring Beyondmedical help at the campus.
  - The doctor is only available on a call basis.
  - Two Ambulances on call are available on both campuses.
  - No investigation facility is available in an emergency.
  - Drugs for an emergency are available for immediate relief.
  - After giving First Aid treatment patient may be referred to higher-impaneled hospitals

Institute also has MOU with super specialty hospitals like Max care and Fortis hospital in Mohali, Chandigarh where critically ill patients are referred via ALS Ambulance.





NAME	DESIGNATION	OFFICE EXT.	EMAIL ID
Dr. Chander Singh	Medical Officer	267849	dr.chandersingh
Dr. O. P. Mahindru	Medical Officer	267849	opmahenderu
Dr. Milan Behl	Medical Officer (Ayurveda)	267238	milan
Dr. Utsav Thakur	GDMO	267849	utsavthakur
Dr. Rushali	GDMO	267849	rushali
Kamlesh	Staff Nurse	267014	Kamlesh_saklani
Seema Kumari	Staff Nurse	267849	Seema_kumari
Namita Kumari	Staff Nurse	267849	namita_kumari
Bhavneshwari	Staff Nurse	267849	bhavneshwari
Chandni Thakur	Staff Nurse	267849	Chandni
Jagriti Thakur	Staff Nurse	267849	jagrititthakur
Sarika Sharma	Staff Nurse	267849	sarikasha1506@gmail.com
Vijay	Pharmacist	267014	vijay_kumar
Lakhmi Chand Yadav	Junior Lab Assistant	267849	lakhmiyadav
Kant Kumar	Lab Technician	267849	
Kamal Kishore	Office Assistant	267849	medicaloa

	Prof. Prem Felix, Chair
	Dr. Rajesh Ghosh
	Dr. Viswanath Balakrishnan
	Dr. Shubajit Roy Chowdhuri
Health Services Management Committee	Dr. Rajeshwari Dutt
	AR (Admin)
	Dr. Milan Behl
	Student General Secretary, Ex-officio
	Hostel Affair Secretary, Ex-officio
	Dr. Chander Singh, Member Secretary

Health Centre Email ID: healthcentre@iitmandi.ac.in

Emergency Number

North Campus: 9816663003; South Campus: 7807330895

(24X7) HELPLINE NUMBER: 98166 63003

Specialist Doctor's Visiting Schedule North Campus Health Centre

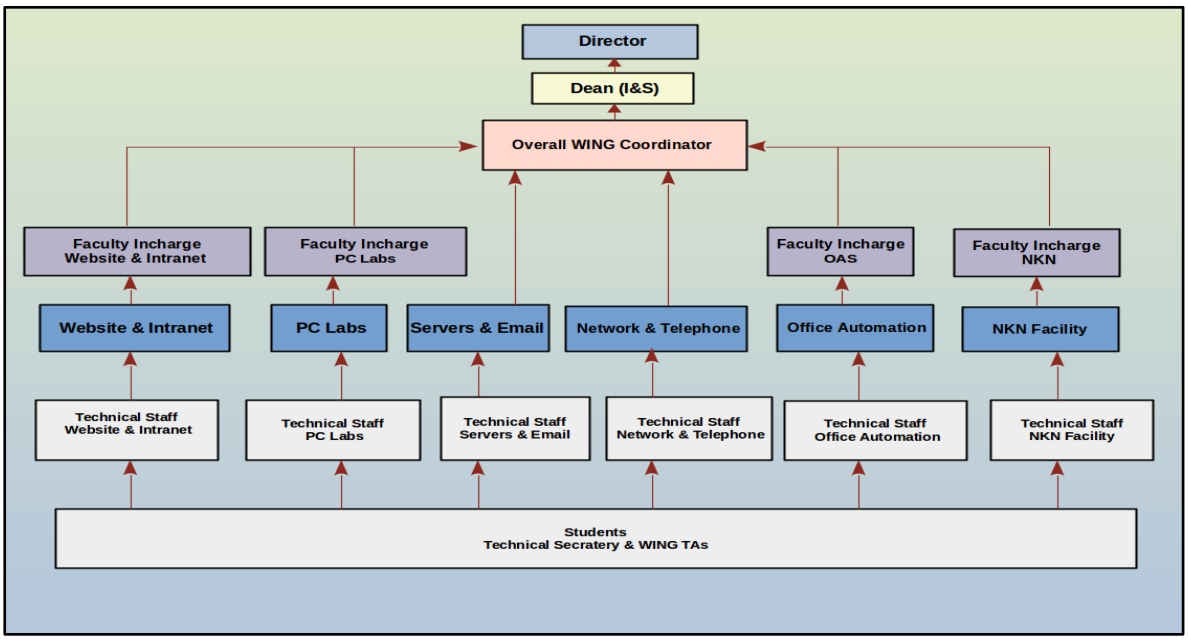
Doctors Name	Specialization	Days	Timings
Dr. D.K. Arora	ENT	Thursday & Friday	3.00 PM to 6:00 PM
Dr. Manjul Sharma	Medicine	1st & 3rd Friday	3:00 PM to 6:00 PM
Dr. Meena Sharma	Obstetrics/Gynecolog	2nd & 4th Tuesday	3:00 PM to 6:00 PM
Dr. Navdeep Malhotra	Orthopedic Surgeon	2nd & 4th Saturday	3:00 PM to 6:00PM
Dr. Sharad Vaidya	Prosthodontist	Every Thursday & Friday	3:00 PM to 6:00PM
Dr.Tarush Paul Singh Thakur	Prosthodontist	Every Wednesday	2.00 PM to 6:00 PM
Dr. Paras Sehgal	Physiotherapist	Tuesday & Friday	2.00 PM to6:00 PM
Dr. Neha Tandon	Physiotherapist	Monday & Thursday	12:00 PM to 4:00 PM
Dr. Dharmender Kapoor	Pediatrician	Every Tuesday	02:00 PM to 5:00 PM

Web Information and Networks Group (WING)

WING, Website Information and Networks Group, IIT Mandi is a faculty, staff &students' group which is involved in the development, management, budgeting, monitoring and maintenance of the institute's websites, networks, software and voice/data communication. WING is responsible for providing the IT infrastructure, and implementing the governance for the use of network and information systems and it assists the IIT Mandi community by providing them with the functionality they need. It is ensured that the organization's systems, networks, data and applications all connect and function properly. WING has a skilled technical team to deploy and maintain the web applications, services and IT infrastructure like Servers, Networks and Storage, etc.

Webpage: https://wing.iitmandi.ac.in [Local Portal]; **Email:** wing@iitmandi.ac.in

WING Organizational Structure



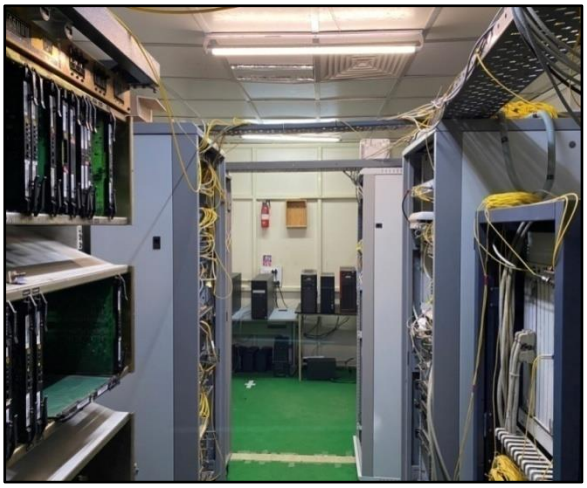
WING Services

- Server, Software and Email Services.
- Network and Telecommunication Services.
- Computer Labs.
- Websites and Intranet Services.
- Office Automation/ERP System.
- NKN and Video Conferencing Services.

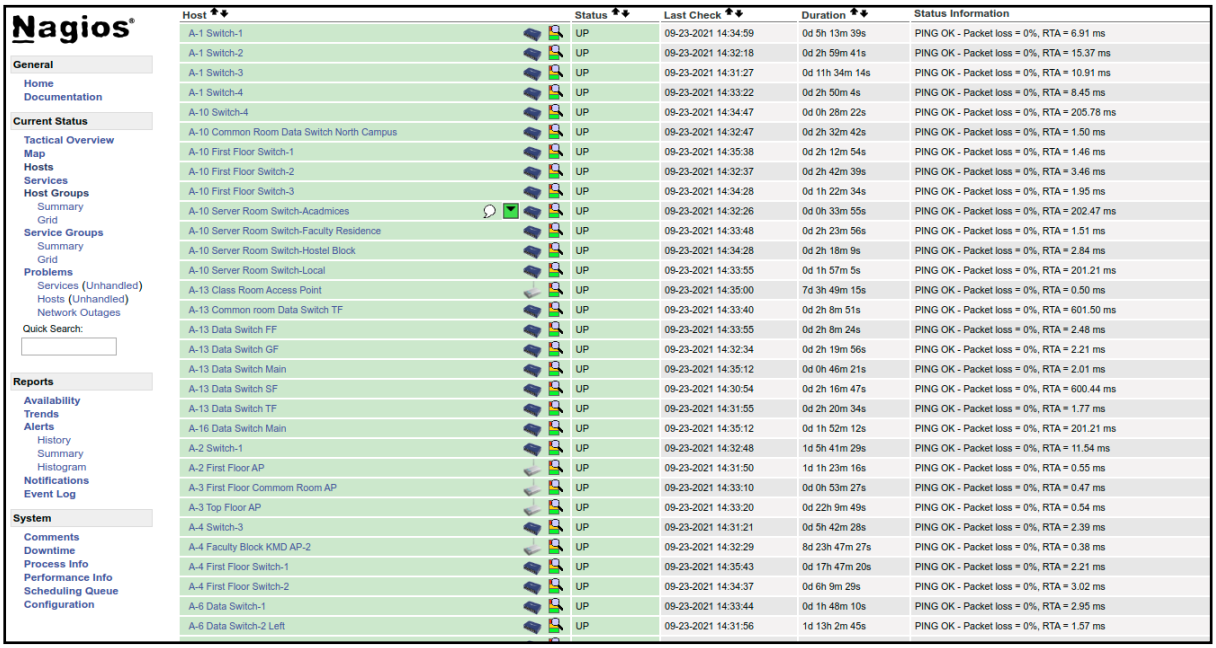
Servers, Software and Email Services

WING has deployed various software and web services locally oncampus. Physical Rack Servers are used to host the local as well as the global web portals. E-learning platforms, cloud storage, ERP system, centralized authentication, internet access, tally solutions, etc. are a few services that WING offers to the IIT Mandi community. WING provides personal Email accounts with the IIT Mandi domain to all the students/staff and faculty. WING is responsible for the upkeep of the various services offered and managing the backups/restore to avoid service failure losses.

Rack Servers: Mini Cluster



A5 Server Room: South Campus



Nagios

General
Home
Documentation

Current Status
Tactical Overview
Map
Hosts
Services
Host Groups
Summary
Grid
Service Groups
Summary
Grid
Problems
Services (Unhandled)
Hosts (Unhandled)
Network Outages
Quick Search:

Reports
Availability
Trends
Alerts
History
Summary
Histogram
Notifications
Event Log

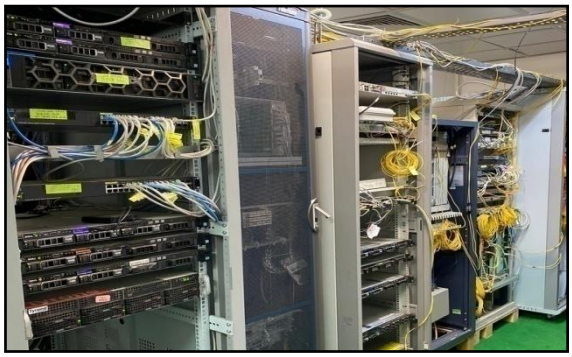
System
Comments
Downtime
Process Info
Performance Info
Scheduling Queue
Configuration

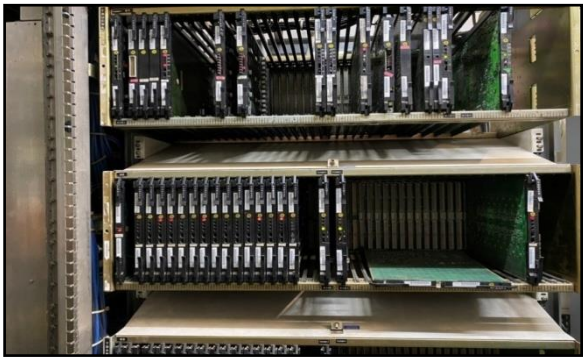
Host	Status	Last Check	Duration	Status Information
A-1 Switch-1	UP	09-23-2021 14:34:59	0d 5h 13m 39s	PING OK - Packet loss = 0%, RTA = 6.91 ms
A-1 Switch-2	UP	09-23-2021 14:32:18	0d 2h 59m 41s	PING OK - Packet loss = 0%, RTA = 15.37 ms
A-1 Switch-3	UP	09-23-2021 14:31:27	0d 11h 34m 14s	PING OK - Packet loss = 0%, RTA = 10.91 ms
A-1 Switch-4	UP	09-23-2021 14:33:22	0d 2h 50m 4s	PING OK - Packet loss = 0%, RTA = 8.45 ms
A-10 Switch-4	UP	09-23-2021 14:34:47	0d 0h 28m 22s	PING OK - Packet loss = 0%, RTA = 205.78 ms
A-10 Common Room Data Switch North Campus	UP	09-23-2021 14:32:47	0d 2h 32m 42s	PING OK - Packet loss = 0%, RTA = 1.50 ms
A-10 First Floor Switch-1	UP	09-23-2021 14:35:38	0d 2h 12m 54s	PING OK - Packet loss = 0%, RTA = 1.46 ms
A-10 First Floor Switch-2	UP	09-23-2021 14:32:37	0d 2h 42m 39s	PING OK - Packet loss = 0%, RTA = 3.46 ms
A-10 First Floor Switch-3	UP	09-23-2021 14:34:28	0d 1h 22m 34s	PING OK - Packet loss = 0%, RTA = 1.95 ms
A-10 Server Room Switch-Acadmices	UP	09-23-2021 14:32:26	0d 0h 33m 55s	PING OK - Packet loss = 0%, RTA = 202.47 ms
A-10 Server Room Switch-Faculty Residence	UP	09-23-2021 14:33:48	0d 2h 23m 56s	PING OK - Packet loss = 0%, RTA = 1.51 ms
A-10 Server Room Switch-Hostel Block	UP	09-23-2021 14:34:28	0d 2h 18m 9s	PING OK - Packet loss = 0%, RTA = 2.84 ms
A-10 Server Room Switch-Local	UP	09-23-2021 14:33:55	0d 1h 57m 5s	PING OK - Packet loss = 0%, RTA = 201.21 ms
A-13 Class Room Access Point	UP	09-23-2021 14:35:00	7d 3h 49m 15s	PING OK - Packet loss = 0%, RTA = 0.50 ms
A-13 Common room Data Switch TF	UP	09-23-2021 14:33:40	0d 2h 8m 51s	PING OK - Packet loss = 0%, RTA = 601.50 ms
A-13 Data Switch FF	UP	09-23-2021 14:33:55	0d 2h 8m 24s	PING OK - Packet loss = 0%, RTA = 2.48 ms
A-13 Data Switch GF	UP	09-23-2021 14:32:34	0d 2h 19m 56s	PING OK - Packet loss = 0%, RTA = 2.21 ms
A-13 Data Switch Main	UP	09-23-2021 14:35:12	0d 0h 46m 21s	PING OK - Packet loss = 0%, RTA = 2.01 ms
A-13 Data Switch SF	UP	09-23-2021 14:30:54	0d 2h 16m 47s	PING OK - Packet loss = 0%, RTA = 600.44 ms
A-13 Data Switch TF	UP	09-23-2021 14:31:55	0d 2h 20m 34s	PING OK - Packet loss = 0%, RTA = 1.77 ms
A-16 Data Switch Main	UP	09-23-2021 14:35:12	0d 1h 52m 12s	PING OK - Packet loss = 0%, RTA = 201.21 ms
A-2 Switch-1	UP	09-23-2021 14:32:48	1d 5h 41m 29s	PING OK - Packet loss = 0%, RTA = 11.54 ms
A-2 First Floor AP	UP	09-23-2021 14:31:50	1d 1h 23m 16s	PING OK - Packet loss = 0%, RTA = 0.55 ms
A-3 First Floor Commom Room AP	UP	09-23-2021 14:33:10	0d 0h 53m 27s	PING OK - Packet loss = 0%, RTA = 0.47 ms
A-3 Top Floor AP	UP	09-23-2021 14:33:20	0d 22h 9m 49s	PING OK - Packet loss = 0%, RTA = 0.54 ms
A-4 Switch-3	UP	09-23-2021 14:31:21	0d 5h 42m 28s	PING OK - Packet loss = 0%, RTA = 2.39 ms
A-4 Faculty Block KMD AP-2	UP	09-23-2021 14:32:29	8d 23h 47m 27s	PING OK - Packet loss = 0%, RTA = 0.38 ms
A-4 First Floor Switch-1	UP	09-23-2021 14:35:43	0d 17h 47m 20s	PING OK - Packet loss = 0%, RTA = 2.21 ms
A-4 First Floor Switch-2	UP	09-23-2021 14:34:37	0d 6h 9m 29s	PING OK - Packet loss = 0%, RTA = 3.02 ms
A-6 Data Switch-1	UP	09-23-2021 14:33:44	0d 1h 48m 10s	PING OK - Packet loss = 0%, RTA = 2.95 ms
A-6 Data Switch-2 Left	UP	09-23-2021 14:31:56	1d 13h 2m 45s	PING OK - Packet loss = 0%, RTA = 1.57 ms

Network Monitoring System: NAGIOS

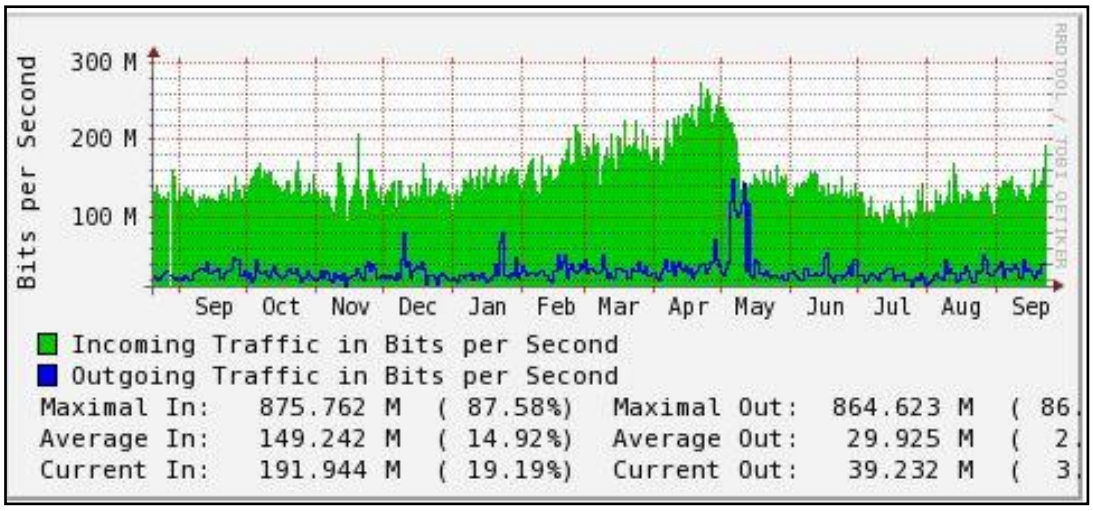
Network and Telecommunication Services

WING is responsible for designing and implementing both the physical and wireless networks, maintaining network performance, managing the electronic equipment that activates any network pieces, troubleshooting network problems and researching & integrating new technologies into the network life cycle. WING takes care of telecommunication systems in an organization such as telephone lines, WAN links, NKN VC links, etc. The team ensures that these technologies work uninterruptedly.

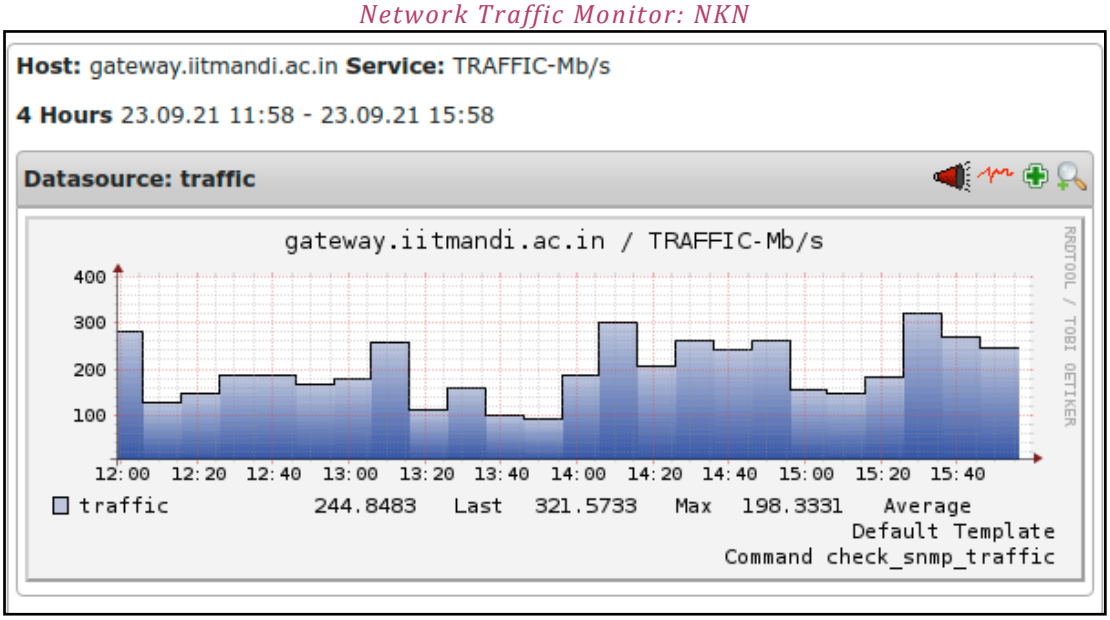




Switch Panel: Server Room Telephone Exchange: Line Cards



Network Traffic Monitor: NKN



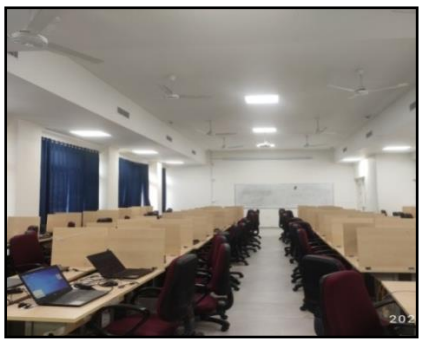
Internet Traffic: Gateway Server

Computer Labs

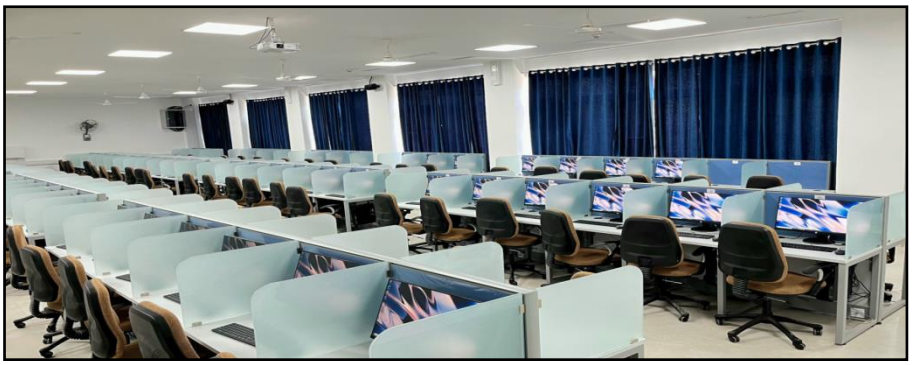
The computer lab serves as the Centre for learning and research. WING provides computer lab facilities to the students, faculty and staff for various activities like lab courses, workshops, online exams, placements, online interviews, etc. Our computer labs have a total capacity of 300 computers as of now in four separate labs. These labs are also being used by NTA/AICTE for conducting online examinations like JEE Main, UGC-NET, CUET, etc.

Computer Lab 2: A5 South Campus

Computer Lab 1: A5, South Campus



Computer Lab 3: A10, North Campus

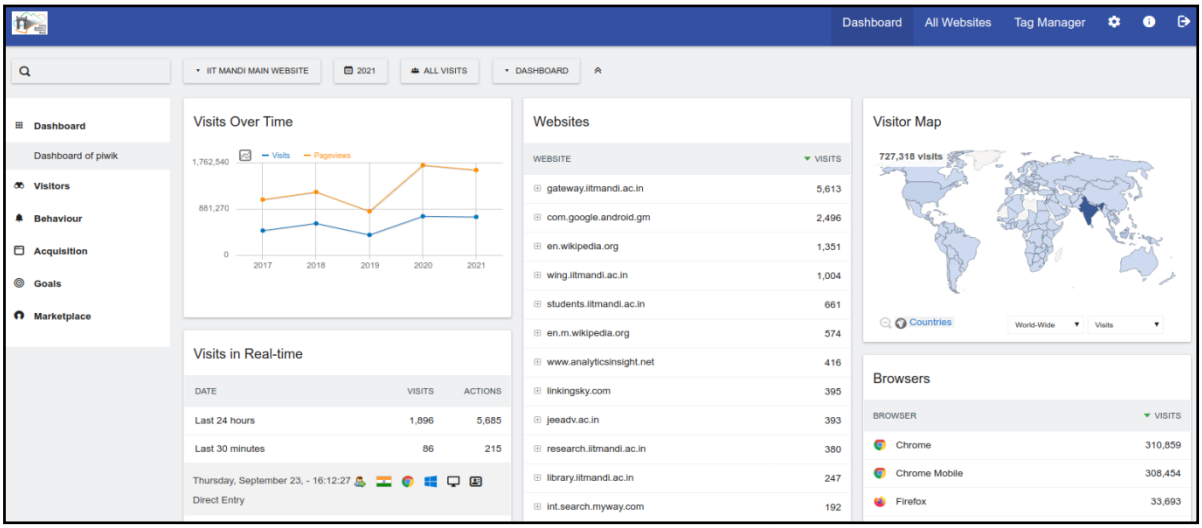


Computer Lab 4: A11, North Campus

Websites and Intranet Services

WING manages all the contents of the main website and Intranet portal and updates them from time to time. The web development team coordinates with each section/department to get content to upload and update on the web portals. It also manages databases, design and user interphase of web portals. The team uses tools like word press, drupal, laravel, etc. to design the web portals as and when needed for events like conferences, workshops, convocations, etc.

Intranet Portal: INSITE



Web Analytics: PIWIK

COMMITTEE	
Telephone & Internet Facilities	Dr. Prasanth Jose, Faculty In-charge
Advisory Committee- WING	Dr. Prasanth Jose, Chair
	Dr. Samar Agnihotri
	Dr. Sriram Kailasam
	Dr. Gaurav Bhutani
Network and Website Administration	Dr. Prasanth Jose: Overall Coordinator and Network In-charge
	Dr. Aditya Nigam and Dr. M. Talha: Office Automation In-charge
	Dr. Manas Thakur: Website and Internet In-charge
	Dr. Sriram Kailasam: PC Lab In-charge
NKN Room Coordinator	Dr. Rahul Shrestha, Coordinator
	Dr. Srinivasu Bodapatti, Co-coordinator
HPC Cluster Management	Dr. Gaurav Bhutani, Coordinator
	Dr. Manoj Thakur, Co-coordinator

WING Staff

NAME	DESIGNATION	OFFICE EXT.	EMAIL ID
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Debashrita Roy Chowdhury	Web Content Developer	267129	webcontent@iitmandi.ac.in, debashrita@iitmandi.ac.in
Desh Raj	Junior Lab Assistant	267000	deshraj@iitmandi.ac.in
Rakesh Sharma	Network Engineer	267100	rakeshsharma@iitmandi.ac.in
Gopal Sharma	Junior Lab Assistant	267034	gopla_sharma@iitmandi.ac.in
Naveen	Project Associate	267034	naveen_k@projects.iitmandi.ac.in
Hemant Kumar Singh	Project Engineer		hemantk_singh@projects.iitmandi.ac.in
Khem Chand	Project Assistant	267100	khem_chand@projects.iitmandi.ac.in
Lokesh Rana	Project Associate	267909	lokesh_rana@projects.iitmandi.ac.in

Office Automation/ERP System

The IIT Mandi has an ERP system named OAS (Office Automation System) which helps to automate various Academics and Administrative processes of the Institute. The OAS helps various departments/sections to digitize and assist in various processes. The various modules like Academics, Estate, Establishment, SRIC, Hostel, Accounts, Accounts, and Guest House, etc are utilized by the Institute to assist Faculty, Students, Staff and Project Staff.

Office Automation System (OAS) Development & Implementation	**Dr. Aditya Nigam and Dr. M Talha, Faculty In-charge, Chair and co-Chair**
Committee	AD (Courses)
	AD (SRIC)
	Dr. Nitu Kumari
	Registrar
	DR. (S&P)
	DR. (F&A)
	Estate Officer
	Ms. Monika Kashyap
	Mr. Hardeep Kumar Singh, Member Secy.

OAS Staff

NAME	DESIGNATION	OFFICE EXT.	EMAIL ID
Rahul Thakur	Project Associate	267199	oasoffice3@iitmandi.ac.in
Kouthavarapu Vijaya Durga	Project Associate	267199	oasoffice2@iitmandi.ac.in
Monika Thakur	Project Assistant	267199	oasoffice1@iitmandi.ac.in

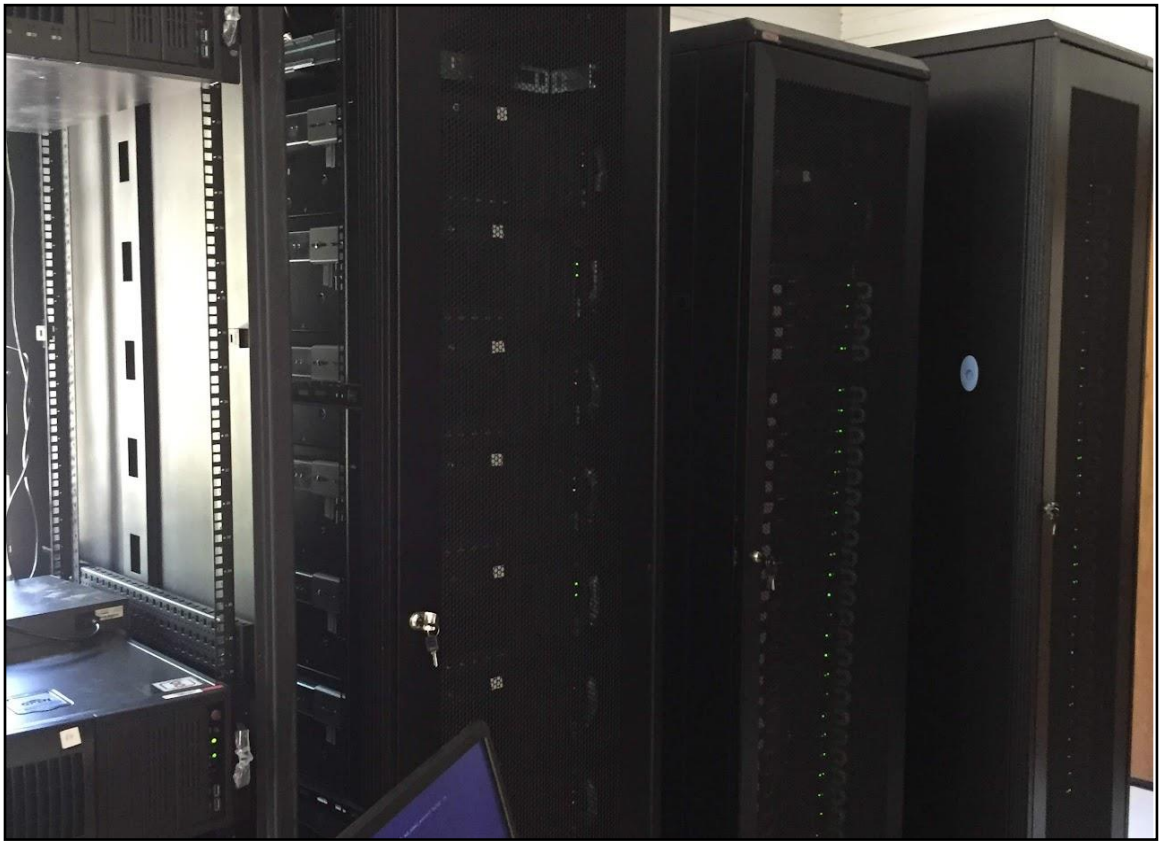
High-Performance Computing (HPC) facility at IIT Mandi

There are 674 users at IIT Mandi who are using this facility. IIT Mandi hosts a high-performance computational (HPC) facility with a cluster containing 171 nodes based on Intel Xeon processors that have 3000 processor cores, a memory of 12 TB and a 986 TB storage space. In addition, the facility hosts a GPU cluster of 33 Nvidia graphical processing units (GPU) best suited for deep learning and molecular dynamics applications. The nodes are connected through dedicated Gigabit and 10 Gigabit Ethernet. The facility has 400+ registered users from the research community of IIT Mandi working on applications including avalanc dynamics, multiphase flow modeling, engineering, biotechnology, molecular dynamics, and computational chemistry, amongst others.

The facility currently hosts two sub-clusters -- CPUHPC and GPUHPC, both running Cent OS 7. The CPUHPC cluster hosts compute nodes optimized for CPU-parallel jobs whereas the GPUHPC cluster hosts nodes containing high-end Nvidia GPU cards optimized for GPU-intensive parallel jobs. Two file systems are available on the HPC clusters: home and working directories with limits of 10 GB and 2 TB, respectively. Standard libraries are software are installed on the cluster. State-of-the-art containerization is enabled on the clusters for the users to install their software without

depending on the HPC administrators, drastically reducing the waiting time and increasing productivity. Account creation on the cluster is automated through the scripting codes that take care of the approval process, the creation of new accounts, and sending off welcome Emails.

Various queues are available to the users depending on the expected size and runtime of the job. All details are available on the cluster website, available to college users post-authentication.



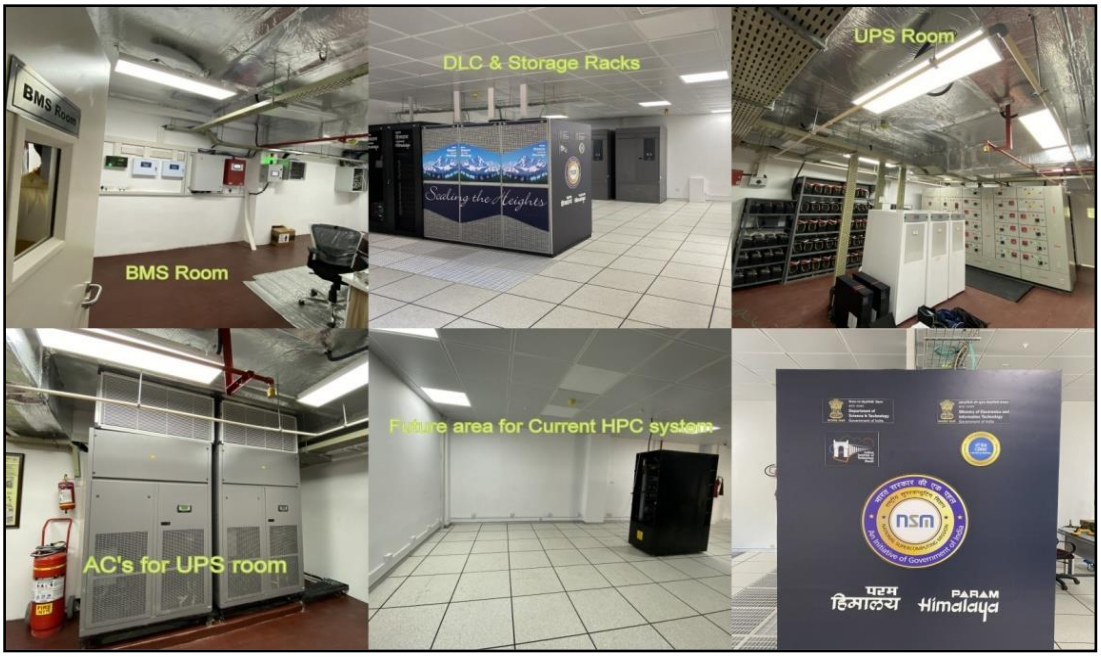
HPC cluster at IIT Mandi

Establishment of Supercomputing facility Param Himalaya

A supercomputer is a computer that has a very high speed in its operation and higher memory. This supercomputing system can perform assigned tasks including multiple tasks at very high speeds than any other normal personal computer and in many cases able to operate at speeds that are millions of times faster than ordinary PCs.

IIT Mandi has established a Supercomputer in Param Himalaya.

- Speed is 650 Teraflop's. Documented 833 Teraflops with GPU documents
- 3 DLC Racks. 2 utility rack service nodes and service node.
- Computer Nodes: 75
- 39 High Memory Nodes
- GPU-ready nodes: 32
- GPU nodes: 10
- 3 Spare nodes
- Total – 159



1. (BMS) A building management system (BMS) is a control system that can be used to monitor and manage the mechanical, electrical and electromechanical services in a facility. Such services can include power, heating, ventilation, air-conditioning, and physical access control, pumping stations, elevators and lights.
2. DLC racks are having to compute and GPU nodes, with a Storage system in Storage racks.
3. 500 KVA DG for 24x7 electricity for Param Himalaya.
4. High-performance Computing lab for student research.
5. InRow AC for current HPC Hot aisle containment.
6. Novec fire suppression system and Vesda fire safety system.

Water Supply Scheme of IIT Mandi (0.50 MLD Capacity)

WTP Stage-1

WTP stage-1 is established near Kamand Bridge on the UHL River which is passing along the Reyagadi road. From UHL River, a suction pipe of dia6 inches lifts water through 7.5HP mono submersible pumps to raw water tank-1 of capacity 1,00,000 litres. 40HPSubmersible pumps lift water through a G.I. pipe of dia 6" from raw water tank-1 to raw water tank-2(Stage-2) of capacity 3, 35,000 litres.

WTP Stage-2

WTP stage-2 is established in the Gharpa area (LP-6) of the South Campus of IIT Mandi. Water flows under gravity from Raw water tank-2(Stage-2) of Capacity 3,35,000 to the Pre-Settling tank, then to the flocullator, then to the settling tank and then through the Slow sand filter bed. After all these filtration processes water gets collected in a Clear Water tank of capacity 3,35,000 litres. Water from the clear water tank gets lifted by 100HP Submersible pumps from the clear water tank to the Main overhead storage tank of capacity 3,35,000 litres.

Main OHT

In the OHT tank chlorination of water is being carried out. From here water is supplied under gravity through a 3-inch G.I line to the North Campus OHT tank of capacity 3,50,000 litres and the South Campus OHT tank of capacity 1,00,000 litres. The water supply of both campuses regulates through the gravity line from the OHT tanks of both campuses.

Electrical Power Supply System

The main source of the Power supply of IIT Mandi is Himachal Pradesh State Electricity Board. IIT Mandi is getting the power supply From HPSEBL through the 33 kV HT transmission line from Nandli Substation near the campus. Further, Institute has a house 33/11 kV Receiving Substation (RSS) at the North campus. The total connected load of the IIT Mandi campus is 10.90 MW. For catering, this load Inst. has 2X5 MVA power transformers installed at RSS.

33 kV supply is stepped down to 11 kV and distributed to the different 11/0.415 kV Substations installed at the North and South campuses.

33 kV Indoor panel

11 kV Distribution panel

In addition, Inst. has 4 Substations at the North campus and 3 Substations at the South campus.

Indoor 11/0.415 kV (800 kVA) Transformer

Indoor LT distribution panel

Presently, Institute is being fed through the Nandli substation, which is fed from Mandi 132/33 kV Substation. One more power source, stand by 33 kV HT line from Pandoh to Nandli Substation has been completed by HPSEBL during September 2022.

In near future for getting an uninterrupted power supply to our campus, one more source has been planned and taken up with HPSEBL. The following alternate lines of work are under progress:

- 33 kV feeder from Kullu to Nandli Substation. The power can be transferred on this line in the event of failure of the dedicated feeder.

Online Maintenance Helpdesk

To streamline support requests and better serve you, we utilize a support ticket system. Every support request is assigned a unique ticket number which you can use to track the progress and responses online. For your reference, we provide complete archives and a history of all your support requests. A valid Email address is required to submit a ticket.

Maintenance Work Carried out during 2021-22 (Network & Telecommunication Ticket of South & North Campus)			
Number of Complaints recorded during the period i.e. 01/04/2021 to 30/09/2022	**Complaints resolved during the period i.e. 01/04/2021 to 30/09/2022**	**Pending Complaints**	**Remarks**
1092	818	536	Pending work on the open ticket is in progress.

Green Committee

The mandate of the committee is to ensure proper management and efficient functioning of the "Green Activities" on the Campus. The committee is to make recommendations for the purchase of services, equipment, maintenance and other related activities. As well as preparation of strategic planning & logistics for efficient and effective fulfillment of green activities on campus.

The green activities of the campus are categorized into the following subsections and different sub committee's under the Green committee manage each domain.

1. Beautification and biodiversity conservation: Landscaping and horticulture, biodiversity monitoring and preservation.
2. Waste Management: Waste collection, segregation, processing and disposal. Awareness campaigns.
3. Environmental monitoring: Monitoring air and water quality, groundwater, and land usage.
4. Energy efficiency and conservation: Monitoring energy usage, and assisting in the implementation of green energy technologies on campus.
5. Housekeeping: Cleaning & Upkeep of Campus and its buildings.

<table>
<tr><td>1.</td><td>Total built-up area</td><td>216905.92 sqm</td></tr>
<tr><td>2.</td><td>No. of student hostels and no. of rooms</td><td>
<table>
<tr><th></th><th>South Campus</th><th>North Campus</th><th>Total</th></tr>
<tr><td>No. of Hostels</td><td>13</td><td>16</td><td>29</td></tr>
<tr><td>No. of rooms</td><td>717</td><td>834</td><td>1551</td></tr>
<tr><td>Capacity</td><td>1150</td><td>1250</td><td>2400</td></tr>
</table>
3 no's married students hostel B24, B25 and B26 each has a capacity of 46 rooms; however, B24 is presently partially with catalyst and partially is being used for staff accommodation.</td></tr>
<tr><td>3.</td><td>No. of houses for faculty and staff</td><td>
<table>
<tr><th rowspan="2">S. No.</th><th rowspan="2">Campus</th><th colspan="3">Description of flats</th></tr>
<tr><th>1BHK</th><th>2 BHK</th><th>3BHK</th></tr>
<tr><td>1</td><td>South Campus</td><td>----</td><td>40</td><td>32</td></tr>
<tr><td>2</td><td>Gharpa area South Campus</td><td>-----</td><td>14</td><td>27</td></tr>
<tr><td>3</td><td>North Campus</td><td>24</td><td>12</td><td>122</td></tr>
<tr><td></td><td>Total</td><td>24</td><td>66</td><td>181</td></tr>
</table>
</td></tr>
</table>

<table>
<tr><td>4.</td><td>Academic and administrative buildings (constructed area)</td><td>
<table>
<tr><th>S. No.</th><th>Campus</th><th>Academic buildings</th><th>Administrative buildings</th></tr>
<tr><td>1</td><td>South Campus</td><td>10412 sqm</td><td>1235 sqm</td></tr>
<tr><td>2</td><td>North Campus</td><td>56751 sqm</td><td>6372 sqm.</td></tr>
<tr><td></td><td>Total</td><td>67163 sqm</td><td>7607 sqm</td></tr>
</table>
</td></tr>
<tr><td>5.</td><td>Activities by committees (e.g. green committee)</td><td>IIT Mandi is awarded District Green Champion 2021-22 by MGNCRE-DHE-GOI for exemplary work related to Swatchata Action Plan

Ensured “Green Activities” on the Campus such as Beautification and biodiversity conservation, Waste Management, Housekeeping, etc.
Some key activities:
• Successfully organized Swachata Pakhwada event 01-15th Sept 2022 with a focus on cleanliness drives, pruning, plant pots maintenance, Awareness and advisory camps against Single-use plastic, reducing plastic and waste segregation
• Cleanliness drives on the campus on World environment day
• After successful pilot testing of Sanitary napkin incinerators, expansion across the campus is being taken up
• Plantation drives along with NSS and UBA - about 500 plants were planted in July 2022
• Recently procured >6000 plants (trees largely) covering 39 species and lawn grass ready for plantation in Sept-Oct 2022
• The metallic waste bins are being refurbished
• A swatch action plan for the institute is developed
• A pilot food waste processing plant is installed and is being tested for its efficiency
• A plastic waste management plant is being planned</td></tr>
<tr><td>6.</td><td>Campus development plan for the coming years (significant ones only e.g. campus connectivity)</td><td>Unification of the North & South Campus has been planned by constructing a road from the Campus School to South Campus which shall also connect land parcel recently (forest land) transferred to IIT Mandi and work of preparation of DPR is in progress.</td></tr>
<tr><td>7.</td><td>Campus facilities (e.g. provision store, school, etc)</td><td>A. South Campus:
One provisional Store, One unisex saloon, One fruit and Vegetable shop, and two canteens for catering to the needs of the students.
B. North Campus:
One Super Market Store, One fruit and Vegetable shop, and three canteens for catering to the needs of the students.
C. Mind Tree School</td></tr>
<tr><td>8.</td><td>Any significant achievement which could be highlighted in the Director's Report</td><td>1. Private land (3 Acres) in between the campus near receiving station and JIVA Café private land has been transferred to IIT Mandi.
2. Proposal to construct a hostel for EWS (634 students, another hostel of about 1500 capacity, the academic building of 10000 sqm area and lecture hall complex stands submitted to Ministry of Education for an amount of Rs. 333 Cr. under HEFA.
3. The academic space built over the years started yielding fruits – several new schools and centers are being accommodated in the new buildings. Further infrastructure support is being extended.
4. Our commitment to the green campus in the pristine Kamand valley in the Himalayas is Paramount. Recognizing our efforts, IIT Mandi is awarded District Green Champion 2021-22 by MGNCRE-DHE-GOI for exemplary work related to Swatchata Action Plan
5. The institute pro-actively procured >6000 plants (trees largely) covering 39 species in Sept 2022. These tree species shall make our green campus further eco-friendly.</td></tr>
</table>

Activities carried out during the year 2021-22

- Waste management and housekeeping activities:
  - Cleanliness of academic and residential areas
  - Collection of waste from the house to house by our housekeeping staff and their disposal.
  - The associated challenges of segregation and new ways to adapt for better management are iteratively looked into.
  - Committee planned to test a pilot food waste processing unit
  - Organized routine cleanliness drives on the campus
  - Sewage water treatment plants – operations and maintenance on both campuses.
- Beautification and Biodiversity activities: Maintenance of green areas, lawns and plants by our horticulture staff and gardeners

Water management- "Catch the Rain" National water mission's campaign as "Jal Shakti Abhiyan" on the campus.
To redress the water scarcity situation on the campus following steps are being taken for rainwater harvesting and its conservation:

1. Construction of soak pits for water conversion and recharge of groundwater.
2. Providing earthen gaps in the stormwater drain at every 10 meters interval to recharge the groundwater table.
3. Mass plantation drives along the roads and pathways of the campus.
4. Grey water from kitchens & bathrooms after the treatment in the Sewage treatment plant and ultrafiltration is being used for irrigation purposes in garden areas on the campus.
5. Utilization of treated sewage water from STPs for arboriculture and planning a double piping system for utilizing this treated water for flushing systems.

Horticulture

The IIT Mandi is situated at Kamand Valley which lies about 18 km from Mandi city, an unexplored lush green beautiful valley.

The area is enriched with floral wealth; important species of trees found in the area are Pine (Pinus roxburghii), Mulberry (Morus alba), Willow Tree (Salix alba), Blue Jacaranda (Jacaranda mimosifolia), Tosh (Silver Oak), Walnut (Juglans regia), Gulmohar (Delonix regia), Chinar (Plananusorientalis), Toona (Toona ciliate), Deodar (Cedrus deodara), Cypress Plant (Cupressus sempervirens), Brass (Rhodendronlepidotum), etc.

Besides this there are a lot of medicinal plants and IIT Mandi also maintained the Botanical Garden containing the following main species Senna (Cassia tora), Nerium (Nerium Indicum), Cockscomb (Celosia argentea), Peach (Prunus Persica), Plum (Prunus Domestica), etc.

IIT Mandi also organizes the plantation drive towards creating awareness among students and the IIT fraternity to understand the importance of plants in mitigating the effects of pollution and saving the environment. Some of the photos of the plantation drives on the campus are as below:

Campus Housekeeping & Waste Management

We are using best practices for good housekeeping and our objective is to keep the pollutants away from contacting rain and to avoid dumping waste anywhere on the campus. The door-to-door waste collection system is in place to avoid aforesaid issues.

There is a complete ban on using any kind of toxic cleaning chemicals on campus. The manpower is being trained to follow up on the processes and their safety aspects too.

We are having an effective waste management plan, below are a few benefits of a robust waste management plan:

- Protecting the environment
- Preserving human health
- Minimizing unsightly waste
- Reducing natural resource consumption

Botanical and Medicinal Plant Garden

IIT Mandi is committed to building a Green Campus. Based on the Eco-management plan the Green Panel of the institute recognized that establishing a Botanical Garden would help in achieving the commitment. The Botanical Garden was started in July 2015 with complete support from IIT Mandi with the following main objectives.

- Study of the flora of the Kamand region
- Establish a Botanical Garden with a collection of local flora
- Develop and maintain the Herbarium
- In-situ conservation, collection and maintenance of medicinal plants
- Documentation, digitization and dissemination of the related information
- Undertake R&D in the related area (Phytochemical profiling of selected plants, understanding the local edible plants, Bioengineering plants, etc)

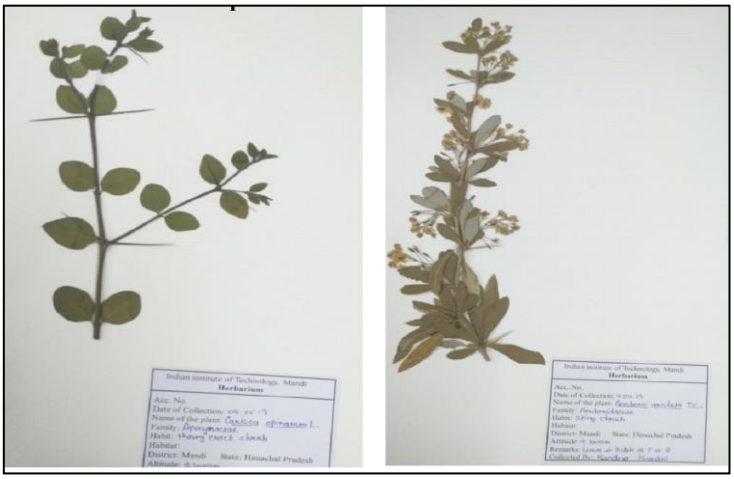
Botanical Garden of IIT Mandi located between North and South Campus

Activities in 2021-22

- Maintenance of the Botanical and medicinal plant garden on regular basis. Involves irrigation, mulching, maintaining the trees, etc.
- Conservation and documentation/digitization of the flora of the Kamand region
- About ~200 plant species in multiple copies exist and growing well.
- For beautification purposes, the rose garden with 65 different varieties is being maintained. Initiated Biofencing with duranta which will be visible in a few years.
- More species added to our existing herbarium – Physical as well as e-herbarium (https://research.iitmandi.ac.in/botanical/herbarium.php)
- Seasonal plantation of various herbs and regular maintenance activities.
- Collection and drying of the herbs for Research work
- Supported with the technology of herbal infusion to EWOK. Planning to formalize the transfer of the technology.
- The Medicinal Plant Lab, IIT Mandi advised and supported EWOK in the formation of Three Farmer Producer Companies with the NABARD grant

- The Medicinal Plant Lab, IIT Mandi completed a research cum outreach project with Himalaya Drug Company (now Himalaya wellness company). The project received a further extension
- The Medicinal Plant Lab, IIT Mandi completed a DST-funded WOS (B) project which led to the promotion of essential oil crops by local farmers.
- Water supply to the Botanical Garden was facilitated by the Deanery

In previous years outreach activities like Botanical Garden visits by several schools and college students of the Mandi district were hosted. Due to Covid, no exposure visits were held this year. We anticipate as the situation improves; outreach activities will resume.



Herbarium of selected plants of Kamand Flora

Green Committee & House Keeping	Dr. Shyam K. Masakapalli, Faculty in-charge
	Dr. Shyam Kumar Masakapalli, Chair
	Associate Dean (Infra)
	Dr. Atul Dhar
	Dr. Ajay Soni
	Dr. Deepak Swami
	Dr. SrinivasuBodapati
	Dr. Dileep A. D.
	Dr. Varun Dutt
	Dr. Saumya Dixit
	Dr. Sreelakshmi Manjunath
	Mr. Parminder Singh

Sewage Treatment Plants

We have well-equipped three Sewage Treatment plants with a total capacity of about 600 KLD (450KLD + 75KLD + 75KLD) based on SBR/MBBR processes. The solid waste & treated water coming out are being used for manure & irrigation purposes respectively.

Children Playground

There are 3 no's children playground facilities on the campus (2 no's in South campus and 1 number in North campus). Photographs of facilities along with area details are as follows:

North Campus: Total area of the Children's playground facility at the North campus is around 297sqm.
South Campus: Total area of this playground facility is around 855sqm.

Near C-6 block South Campus

The total area of this playground facility is around 128 sqm.

Residential & Children Playground Committee	Dr. Ramna Thakur, Faculty In-charge
	Dr. Hari Varma
	Dr. Subhamoy Sen
	Ms. Monika Kashyap
	Ms. Lishma Anand

Guest House Services

C. V. Raman Guest house

IIT Mandi is nestled in the foothills of the Shivalik range of the Himalayas located 18 Kilometers away from Mandi town. Being an institute of National importance, visitors & renowned dignitaries as well as alumni and parents keep visiting the campus for official & personal reasons. To facilitate the lodging & dining services for the guests arriving at the IIT-Mandi campus, guest house services are provided on both campuses. The main guest house is situated on the North campus and is named after the great Indian scientist and Nobel laureate Sir. C. V. Raman. On the South Campus, a Manirang apartment (two accommodations) and a smaller semi-furnished guest house with three rooms (Uhl guest house) are available.

Apart from these two guest houses, there are a few sets of fully furnished apartments available on both campuses to provide accommodation to eminent Institute guests. The guest house remains a pleasant heaven for the Institute's guests, whether from academia, guests from Centre/State Government administration, Institute alumni, or the parents/wards of students.

Services

Boarding & Lodging: C. V. Raman guest house of the North campus is the largest among all the accommodations available for visitors on the campus. Guest House accommodation comprises of well-appointed 88 rooms including Suites, Double Bed & twin bedrooms. The South Campus has Manirang & Uhl guest houses with double bedrooms. Each room is well furnished & equipped with the basic amenities required by the guests. Wi-Fi connectivity, cable TV, 24 hrs hot & coldwater supply, study table with chair, luggage rack and cupboard.

Suite rooms are provisioned to cater to VVIP guests. Other than the basic room amenities suite rooms have a living area with a Sofa set and a small kitchenette to cater to the guests.

Dining Services: C. V. Raman guest house at the North campus has a dining service that provides buffet-style food arrangements. This dining area can easily accommodate & provide sit-down meal services for up to 50 numbers of

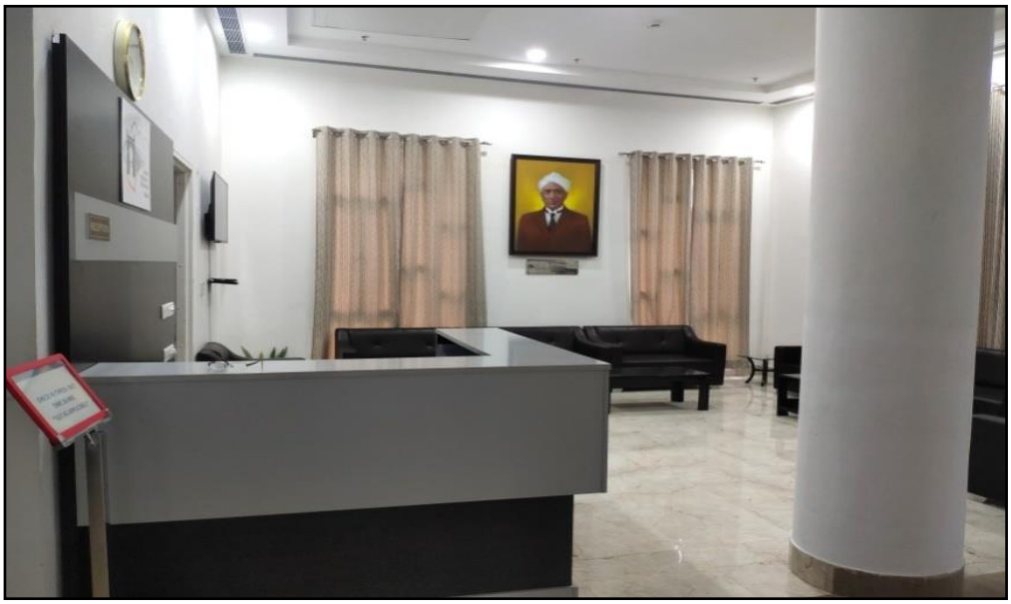
guests during breakfast, lunch & dinner. C. V. Raman guest house dining also serves light snacks to the guests other than meal timings on request during the day as per the availability. For the South campus, dining services can be availed from the canteen and mess in the vicinity of the guest house.

Conference Room: C. V. Raman guest house has a state-of-the-art conference room facility. The conference room can accommodate up to 32 persons and has various facilities such as an overhead projector, and Wi-Fi with audio-visual connectivity for video conferencing.

Logistics: The guest house is also managing logistic services for the guest visiting the IIT-Mandi campus. The fleet of 3 dedicated cars stays ready round the clock to provide travel assistance to our esteemed guests. Apart from institute cars, assistance in taxi booking services is also provided for our guests, faculty & staff, as and when required.

Honorable Guests at C. V. Raman Guest House:

- Shree Rajendra Vishwanath Arlekar (Honourable Governor Himachal Pradesh)
- Shree Bandaru Dattatreya (Honourable Governor Himachal Pradesh 2019-2021)
- Shree Jairam Thakur (Honourable Chief minister- Himachal Pradesh)
- Ms. Tessy Thomas (Director General of Aeronautical Systems and the former Project Director for Agni-IV missile in DRDO)
- Mr. Subodh Bhargava (Independent Director Chairman at Tata Communications Ltd)
- Prof. Ashok Jhunjhunwala (Institute Professor at Indian Institute of Technology, Madras)



Hospitality & Guest House Committee	Dr. C. S. Yadav, Chair
	Dr. Devika Sethi
	Dr. Nilamber Chhetri
	Dr. Rik Rani
	AR (Admin)
	Concerned office Assistant/Executive, Secretary

Staff

Name	Designation	Office ext.	Email
Mr. Rakesh Bhatt	Secretary	267021	rakeshoa@iitmandi.ac.in
Mr. Ashish Srivastava	Manager	267846	managergh@iitmandi.ac.in
Reception		267847/848	

Mind Tree IIT Mandi Campus School

Amidst the verdant hills of Himalaya, Mind Tree IIT Mandi Campus School became five years old in 2022. The undulating mountains, which had beheld our birth and growth, now these recent years witnessed our challenges, struggles and our triumph over the hardships.

We commenced the academic year 2021-22 optimistically to have regular offline classes. Still, we were forced to set back to online classes in April 2022 as the Pandemic Covid-19 lashed out again. The whole Mind Tree team, along with parents and students, was introduced to a new, more effective online platform for classes, Microsoft Teams. This made the teaching-learning process, assignments and exams more convenient and organized. With the unwavering hope of reopening offline classes at the earliest, the Mind Tree team rowed together across the waves. Classes were regular, notebooks and assignments were submitted and checked side by side, regular insights (class tests), periodic tests and the first term exam were conducted timely with due significance. Parents were our backbone these days.

Even in between the hard times, our students participated in inter-school competitions. Swastika Yadav of class 9 participated in Himachal Science Congress and bagged the first prize in the senior category at the state level.


29TH H.P. STATE LEVEL CHILDREN'S SCIENCE CONGRESS – 2021
Theme: Science for Sustainable Living

Final Results Science Activity Corner

Senior Rural

Sr. No.	District	Name of Participants	School	Remarks
1.	Mandi	Swastika	Mind Tree PS, IIT Kamand	Selected
2.	Una	Kanika Sharma	DAV Sr. Sec. Public School, Lathiani	Selected
3.	Hamirpur	Rahul Chadak	Him Academy Sr. Sec. Public School Hamirpur	Selected

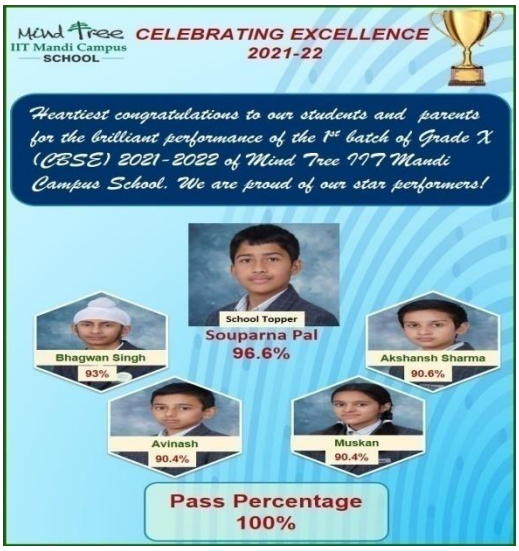
Organized by:
Himachal Pradesh Council for Science, Technology & Environment (HIMCOSTE)
In collaboration with: Department of Education & Samagra Shiksha Abhiyan
Supported & Catalysed by: National Council for Science & Technology Communication (NCSTC) Department of Science & Technology (DST), GoI

Throughout the vehement journey, there was one point that kept us perturbed: our first prestigious batch was getting ready to appear in the CBSE class 10th board exam. Uncertainty prevailed during the first few months. The syllabus, time of exam, mode of exam, and pattern of exam all were tentative. By the middle of the session, things got clearer. But the sudden change in the curriculum and pattern of examination kept both teachers and students on pins and needles. So as soon as the confirmation was received that the schools could resume offline classes for senior classes, we felt relaxed and soon we geared up toward the board exam preparations.

The time ahead was not as easy as we thought. Coming out of the online class and getting back to longer offline hours was the first challenge. It took some time for the students to digest the “full MCQ” exam pattern. The days followed were rigorous revision, tests and retests. Then in the chilling cold December 2021, our first batch confidently appeared for the CBSE Term 1 Examination.

Soon after the term 1 examination, we set up revision classes and tests for term 2. For ease of revision, the students were divided into two groups. With different approaches and methodologies, both groups were groomed simultaneously for the Term 2 Examination.

After months of hard work, our first batch wrote their final exams in April- May 2022. All this hard work and teamwork blessed us with a glorious result. The first class 1 batch came out with flying colors. Souparna Pal topped with 97.6%. While 5 of our shining stars entered the 90% club, no one was there to look behind 50%.In the year 2021-22, Mind Tree again proved that “Dreams will not become reality through magic. It needs determination in dreams and persistence in hard work. When they come together, we don’t need to compromise for anything less than a glorious success.”



Daycare

The daycare facilities are housed in safe and pleasant units with infrastructure available for feeding, sleeping and conducting various indoor and outdoor activities. The division into four sections, i.e. Infants (below 1 year), toddlers (1-3 years), pre-schoolers (3-4 years) and schoolers (above 5 years), help in providing specific care as required. For instance, the infant & toddler sections are provided with separate cribs for sleeping and high chairs for feeding. The pre-schoolers and schoolers are provided help with homework and sleeping facilities after school hours.

Located on the South and North campuses, these facilities provide a fun-filled learning environment for children of IIT Mandi's students and employees. Parents can leave their children confidently in the care of experienced and caring staff appointed after a selection process. The teachers and caregivers tend to the specific needs of infants and children upto

10 years. The tots are kept engaged in age-appropriate schedules that cater to their overall development. Parents can avail of the facilities either part-time or full-time.



Day Care Committee	Dr. Himanshu Pathak, Chair
(North & South)	Dr. Satvasheel Powar
	Dr. Rajanish Giri
	Dr. Srinivasu Bodapati
	Ms. Divya Hari Varma

Facilities

The infrastructure includes facilities to cater to the varying needs of the various age groups of children. The Infants (below 1 year) and Toddlers (1-3 years) sections are provided with separate cribs for sleeping. The comfortable cribs adhere to safety norms for the young ones. Mealtimes are made safe and convenient with high chairs and booster seats that allow them to explore their food while being fed! The Pre-schoolers (3-4 years) and Schoolers (5 years and above) are provided comfortable cots for afternoon naps. A study room provides them with a quiet environment to complete any homework or additional study activities.

Enrolled Kids

At present, a total of 24 kids are enrolled in daycare and availing of the facility. A brief statistic of the enrolled kidsare given below:

S. No.	Age Group	No. of Kids
1	Infants (below 1 year)	3
2	Toddlers (1-3 years)	7
3	Pre-schoolers (3-4 years)	8
4	Schoolers (5 years and above)	6

Transport Facilities

Indian Institute of Technology Mandi is situated in Kamand valley of district Mandi (H.P.). The Institute is offering transport facilities to its students, faculty and staff members at very nominal charges. The Institute shuttle buses are plying between both the campuses (North & South campus of IIT Mandi) and the transport facilities are also available from Mandi Town to the IIT Mandi campus.

The Institute vehicle schedule is regularly updated on the website for information on all. IIT Mandi is also providing an advanced online seat-booking facility to its community. Presently Institute is providing a transport facility from morning 06:00 am to 12:00 am and at present 7 no. of buses (30 seaters) and 1 Van (12 seaters) is operational.

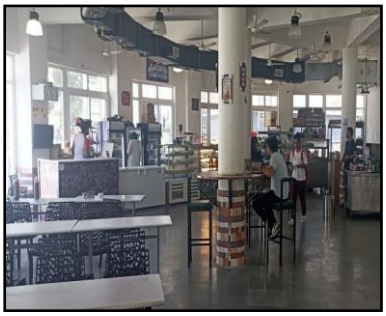
Transport Services Management Committee	**Dr. Himanshu Pathak, Chair**
	Dr. Himanshu Misra
	Dr. Sarita Azad
	Dr. Garima Agarwal
	Mr. Vivek Tiwari
	Ms. Monika Kashyap
	Student General Sceretary, Ex-officio
	Hostel Affair Secretary, Ex-officio
	Mr. Ankush

Commercial Establishments

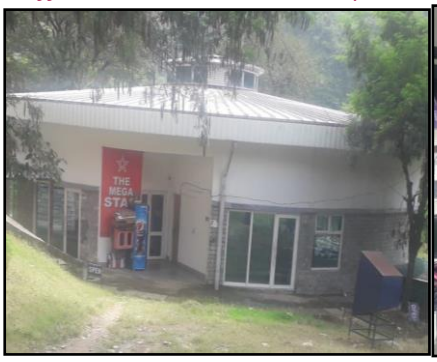
Currently, 9 nos. of commercial establishments are running in the Institute, which include canteens, a provision store, a supermarket, a vegetable & fruit stall, a stationery shop & unisex saloon. The services are available on both campuses. As the infrastructure is developing on the campus, a few more shops are coming up and the same will be allotted to start news services/facilities on the campus.

Griffon Canteen, South Campus

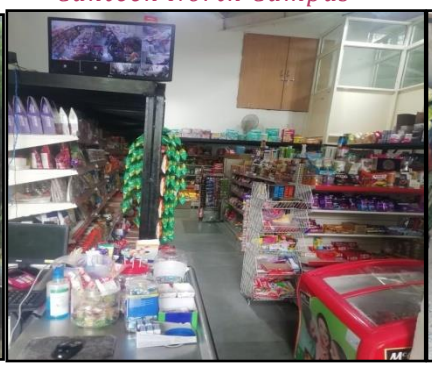
Canteen North Campus



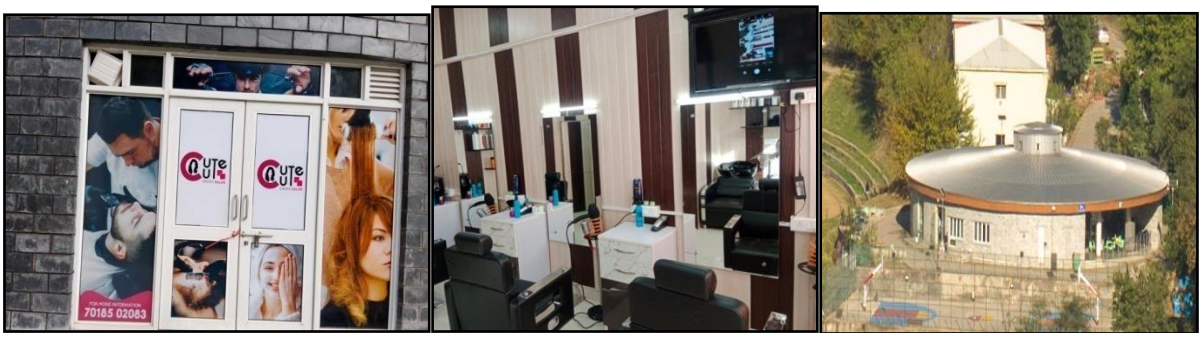
Canteen North Campus



Super Market, North Campus



Vegetable shop North Campus



Unisex Salon, South Campus *Provision Store & Stationery Shop, South Campus*

Commercial Establishment Advisory Committee	Dr. Rajendra Ray, Faculty In-charge
	Dr. Rajanish Giri
	Dr. Jaspreet Kr. Randhava
	DR. (Store & Purchase)
	Estate Officer, Member Secretary

Security and Fire Safety

Strength of Security Section		
Security Officer	01	
Deputy Security Officer	01	
Security Supervisors	03	outsourced security staff
Asst. Security Supervisor	07	
Security Guards	156	
Lady Security Guards	29	

Security section ensured round 'o 'clock safety and security of both campuses during the year in three shifts (daily) at 52 Security Check Posts at various locations. Despite the adverse weather conditions, intense monsoons, and multiple landslides around campus, security staff always ensured the safety of students and residents at the highest level.

Major Activities:

1. Implementation of Covid-19 Safety Protocols: Security section-maintained guidelines and protocols of the Institute Covid Task Force Committee since Lockdown 1.0 onward to ensure the safety of students and campus residents.
2. 418 Travel Certificates/Pass were prepared and issued to the students by the Security section who left the hostels/campus due to a sudden nationwide surge in Covid-19 cases between 5-8 May 2021. These travel passes helped our students to easily cross the inter-state borders while traveling back to their hometowns without any hindrance from the Police.
3. Rescue of students who lost their way in the mountainous forest: Students were rescued safely four times lost their way during trekking to nearby peaks with coordinated search and rescue missions on each occasion.
4. Preparation of SOPs: SOPs were formulated to handle emergencies at Campus e.g., Fire, Earthquake, Drowning and Electric shock for students and Institute employees. Colored prints were displayed on all the main notice boards of the hostels and academic blocks for general awareness under the guidance of the Security Advisory Committee of the Institute.
5. Assistance to CCE & JEE Cell: Continuous assistance is provided to CCE and JEE Cell for the smooth conduct of examinations. Technical assistance was provided to JEE Cell for the preparation of a strong room facility and installation of CCTV cameras at the new JEE cell office.
6. VVIP visits at IIT Mandi Campus: The visit of the following VVIPs was conducted in s professional manner and as per protocols:

- Shri Rajendra Vishwanath Arlekar, Honourable, Governor of Himachal Pradesh visited Campus on 28.12.2021.
- Dr. Vijay Kumar Saraswat, Honourable Member-NITI Aayog, and Chancellor, Jawaharlal Nehru University visited the Campus as Chief Guest on the 13th Foundation Day Program on 06.03.2022.
- Two visits of Shri Jairam Thakur, Honourable CM of Himachal Pradesh on 22 and 27 Aug 2022 were conducted.

7. Landing of VVIP Helicopters: Arrangements for the Landing of VVIP Helicopters twice on the Campus ground were made professionally.

8. CCTVs Cameras at Entry and Exit Points of Campus: The tendering process is underway to install CCTVs Cameras at the Entry and Exit Points of both Campuses to enhance the security of the Institute.

Fire Safety

1. Operational Fire safety checks and Live Fire drill was conducted on 24.11.2021 to train the security and Lab staff to operate the Hydrants System in all Academic buildings and Labs of South Campus (A-1, A-2 (AMRC), A-3, A-4 (C4DFED), A-5, A-6, A-7 and A-8).
2. **Commissioning and operational readiness checks of Fire hydrants system of B-8 Hostel:** Live training session and ops demo was carried out successfully by our fire crew (Security staff) along with NBCC representatives on 28.02.2022 in a newly constructed B-08 hostel at South campus.
3. Regular in-house theoretical and practical training conducted on Fire Safety, Search & Rescue and Disaster Management for all outsourced security staff.

4. Presentation on the Safety of students on the Campus for 72 new PG and B. Tech students of 2020, and 2021 batches were conducted on 16 and 17.12.2021 during the Students' orientation session at South Campus duly organized by Dean (S).
5. Three minor fire incidents were reported in the academic and residential areas and were immediately controlled by the quick response of Security staff due to efforts of continuous in-house fire safety training.

Security Officials		
Hardeep Singh SO Email: so@iitmandi.ac.in	**Hira Singh Negi** DSO Email: dso@iitmandi.ac.in	
Sucha Singh Supervisor Email: securityoffice@iitmandi.ac.in	**Hem Singh** Supervisor Email: securityoffice@iitmandi.ac.in	**Lekh Raj** Supervisor Email: securityoffice@iitmandi.ac.in

12. STATUS OF FILLING UP OF BACKLOG VACANCIES DURING THE YEAR

To report the status of filling up of backlog vacancies in the teaching cadre

The Ministry of Education, Department of Higher Education has intimated all the IITs to implement Central Educational Institutional (Reservation in Teacher's Cadre) Act 2019. Further, the Ministry vide DO Letter No.33-2/2021-TS-III (Pt.I) dated 24th August 2021, has instructed all IITs regarding the filling of backlog vacancies in a mission mode.

The process of recruitment for getting the best candidates from reserved categories is taken up in mission mode through Special Recruitment Drive (SRD) as well as Standing/Specific advertisement mode in which some of the selection processes have been completed and few are under process.

The current status of Faculty recruitment is as under:	
Sanctioned positions (10:1 Students: Faculty ratio)	20:1
Faculty in positions on a Regular pay Scale	140
Vacancy	**61**

Faculty Recruitment has been conducted in June 2022 and August 2022 respectively, details are given below:

Date of conducting the Selection Process	**June 2022**
Total no. of offer letters issued	**19**
Out of 19, offer letters issued in Reserved Category	**04**

Date of conducting the Selection Process	**August 2022**
Total no. of offer letters issued	**15**
Out of 15, offer letters issued in Reserved Category	**06**

13. BOARD OF GOVERNORS

<table>
<tr><td>  </td><td colspan="2">Chairperson
Prof. Prem Vrat
Chairperson, BoG IIT Mandi
Retired Professor, IIT Delhi & Founding Director, IIT Roorkee
1240, Sector-A, Pocket-A
Vasant Kunj, New Delhi-110070</td></tr>
<tr><td colspan="2">Members</td><td></td></tr>
<tr><td>Prof. Laxmidhar Behera (w.e.f. 19.01.2022)
Prof. Ajit K. Chaturvedi (upto 18.01.2022)
Director, IIT Mandi (Ex-officio)
Indian Institute of Technology Mandi
Mandi – 175 075 (H.P.)</td><td>The Chief Secretary/Secretary (TE)
(Ex-officio)
Government of Himachal Pradesh
Shimla – 171 002</td></tr>
<tr><td>The Additional Secretary (TE)/
Joint Secretary (Ex-officio)
MoE, Government of India
Shastri Bhawan,
New Delhi- 110 001</td><td>Shri Kishan Chandra Sharma
Site Head & Sr. Vice President
Manufacturing, LUPIN Pharma Limited
198 - 202, New Industrial Area No. 2
Mandideep – 642 046, Distt, Raisen (M.P.)</td></tr>
<tr><td>Dr. Pradeep Kumar Agrawal
Scientist, Directorate of Special Projects
D.R.D.O. Hyderabad
H.No. 16-142, Green Rich Avenue
Badangpet Nagar Panchyat
Hyderabad- 500 058</td><td>Shri Hemant Sood
Managing Director & Promoter
(Financial Services group)
Findoc Financial Services Group
5th Flr, Kartar Bhawan, Near PAU, Gate No.1
Ferozpur Road, Ludhiana-141 001 (Punjab)</td></tr>
<tr><td>Prof. S. C. Jain (up to 31.12.2021)
Emeritus Professor
School of Engineering
Indian Institute of Technology Mandi
Mandi – 175 075 (H.P.)</td><td>Prof. Suman Kalyan Pal (w.e.f. 01.01.2022)
Chairperson, School of Basic Sciences
Indian Institute of Technology Mandi
Mandi – 175 075 (H.P.)</td></tr>
<tr><td>Prof. Prem Felix Siril (up to 31.12.2021)
Professor
School of Basic Sciences
Indian Institute of Technology Mandi
Mandi – 175 075 (H.P.)</td><td>Prof. Rahul Vaish (w.e.f. 01.01.2022)
Professor
School of Engineering
Indian Institute of Technology Mandi
Mandi – 175 075 (H.P.)</td></tr>
<tr><td>Secretary
Shri K. K. Bajre
Registrar (Ex-officio)
Indian Institute of Technology Mandi
Mandi – 175 075 (H.P.)</td><td></td></tr>
</table>

**During this year, meetings of the Board of Governors were held on 16.09.2021 and 19.03.2022.*

14. FINANCE COMMITTEE

Chairperson (Ex-officio) **Prof. Prem Vrat** Chairperson, BoG IIT Mandi Retired Professor, IIT Delhi & Founding Director, IIT Roorkee 1240, Sector-A, Pocket-A Vasant Kunj, New Delhi-110070	
Members **Prof. Laxmidhar Behera** (w.e.f. 19.01.2022) **Prof. Ajit K. Chaturvedi** (up to 18.01.2022) Director, IIT Mandi (Ex-officio) Indian Institute of Technology Mandi Mandi – 175 075 (H.P.)	**The Addl. Secretary/Bureau Head (T.E.)** (Ex-officio) MoE, Government of India Shastri Bhawan, New Delhi-110 001
The Joint Secretary & Finance Advisor (Ex-officio) MoE, Government of India Shastri Bhawan, New Delhi – 110 001	**Prof. Ashok Gupta** Professor Department of Civil Engineering IIT Delhi, Hauz Khas New Delhi – 110 016
Prof. P. Sriram (up to 31.12.2021) **Registrar I/c, Dean (Admin) & Head** Dept. of Aerospace Engineering Indian Institute of Technology Madras Chennai - 600 036	**Prof. B. K. Mishra** (w.e.f. 01.01.2022) **Professor** Mechanical & Industrial Engineering IIT Roorkee
Dr. Vishal Singh Chauhan **Dean (F & A) (Ex-officio)** Indian Institute of Technology Mandi Kamand – 175075,(H.P.)	**Secretary** **Shri K. K. Bajre** **Registrar (Ex-officio)** Indian Institute of Technology Mandi Kamand – 175 075, (H.P.)

**During this year meetings of the Finance Committee were held on 16.09.2021and 19.03.2022.*

15. BUILDING & WORKS COMMITTEE

Chairman (Ex-officio) **Prof. Laxmidhar Behera (w.e.f. 19.01.2022)** **Prof. Ajit K. Chaturvedi (up to 18.01.2022)** **Director, IIT Mandi (Ex-officio)** Indian Institute of Technology Mandi Mandi – 175 075 (H.P.)	**Dean (I&S) (Ex-officio)** Indian Institute of Technology Mandi Kamand – 175075, Himachal Pradesh
Member **Prof. B. Bhattacharjee** **Professor** Department of Civil Engineering Indian Institute of Technology Delhi Hauz Khas, New Delhi - 110 016	**Er. A.K. Jain** **Senior Consultant, IIT Mandi &** **Special DG, CPWD (retired)** Mandi – 175 075, Himachal Pradesh
Er. K. N. Rai (w.e.f. 01.01.2021) **Former Chief Executive** Civil Works, DRDO (Retired) New Delhi	**Member Secretary** **Er. Sunil Kapoor** **Superintending Engineer (Ex-officio)** Indian Institute of Technology Mandi Kamand Campus, VPO Kamand Distt. Mandi – 175 075, (H. P)

*During this year meetings of the B & W Committee were held on 09.09.2021, 16.11.2021 and 13.12.2021

16. SENATE

Chairman
Prof. Laxmidhar Behera (w.e.f. 19.01.2022)
Prof. Ajit K. Chaturvedi (up to 18.01.2022)
Director, IIT Mandi (Ex-officio)
Institute Members
Prof. Ramesh Oruganti, Adjunct Professor, SCEE, IIT Mandi
Prof. Kenneth E. Gonsalves, Visiting Distinguished Professor, SBS, IIT Mandi
Prof. Rajan Kapur, Adjunct Professor, SCEE, IIT Mandi
Prof. Subrata Ray, Distinguished Visiting Professor, SE, IIT Mandi
Prof. Yvonne Dittrich, Adjunct Professor, SCEE, IIT Mandi
Prof. Ajit Padmakar Annachattre, Visiting Professor, SE, IIT Mandi
Prof. Ing. Balthasar Novak, Adjunct Professor, SE, IIT Mandi
Prof. Tarun Kant, Visiting Distinguished Professor (SE), IIT Mandi
Prof. Sumant Nigam, Visiting Distinguished Professor (SE), IIT Mandi
Prof. B.D. Chaudhary, Emeritus Professor, SCEE, IIT Mandi
Prof. S. C. Jain, Emeritus Professor, SE, IIT Mandi
Prof. Subrata Ghosh, Professor, SBS, IIT Mandi
Prof. Prem Felix Siril, Professor, SBS & Dean (Faculty) [upto31.12.2021], IIT Mandi
Prof. Suman Kalyan Pal, Professor & Chairperson (SBS), IIT Mandi
Prof. Chayan K. Nandi, Professor, SBS, IIT Mandi
Prof. Pradeep C. Parameswaran, Professor, SBS & Dean (Academics) [upto19.04.2021], IIT Mandi
Prof. Bharat Singh Rajpurohit, Professor, SCEE & Dean (I&S) and Dean (Faculty) [from 01.01.2022 to 20.02.2022], IIT Mandi
Prof. Satinder K. Sharma, Professor, SCEE & Co-ordinator, C4DFED & Dean (Faculty) [w.e.f 21.02.2022], IIT Mandi
Prof. Rajeev Kumar, Professor, SE, IIT Mandi
Prof. Rahul Vaish, Professor, SE & Dean (Academics) [w.e.f 20.04.2021], IIT Mandi
Dr. Vishal Singh Chauhan, Dean (F & A), IIT Mandi
Dr. Venkata Krishnan, Dean (SRIC & IR), IIT Mandi
Dr. Manoj Thakur, Dean (Students), IIT Mandi
Dr. Samar Agnihotri, Chairperson (SCEE), IIT Mandi
Dr. Viswanath Balakrishnan, Chairperson (SE) [up to 14.02.2022], IIT Mandi
Dr. Atul Dhar, Chairperson (SE) [w.e.f. 15.02.2022], IIT Mandi
Dr. Suman Sigroha, Chairperson (SHSS) [up to 25.04.2021], IIT Mandi
Dr. Shyamasree Dasgupta, Chairperson (SHSS) [w.e.f. 26.04.2021], IIT Mandi
Dr. Rik Rani Koner, Co-ordinator, AMRC, IIT Mandi
Dr. Prosenjit Mondal, Co-ordinator, BioX Centre, IIT Mandi
Dr. Aditi Halder, Associate Professor (SBS), IIT Mandi
Dr. Srikant Srinivasan, Associate Professor (SCEE), IIT Mandi
Dr. Qaiser Jahan, Assistant Professor (SBS), IIT Mandi
Dr. Gopi Shrikanth Reddy, Assistant Professor (SCEE), IIT Mandi
Dr. Puran Singh, Associate Professor (SHSS), IIT Mandi
Dr. Astrid Kiehn, Chair, Library Advisory Committee (LAC), IIT Mandi (up to 14.06.2021)
Dr. Rajeshwari Dutt, Chair, Library Advisory Committee (LAC), IIT Mandi (w.e.f. 15.06.2021)
Mr. Naresh Singh Bhandari, Deputy Librarian, IIT Mandi
Dr. Amit Jaiswal, Chief Warden, IIT Mandi (up to 14.09.2021)

Dr. Sunny Zafar, Assistant Professor (SE) & Chief Warden, IIT Mandi (w.e.f. 15.09.2021) Shri K. K. Bajre, Registrar & Secretary, Senate, IIT Mandi All other Faculty members, IIT Mandi (Invitee) Student Research Affairs Secretary, IIT Mandi (Special Invitee) Student General Secretary, IIT Mandi (Special Invitee) Student Academic Affairs Secretary, IIT Mandi (Special Invitee)	
Outside Members	
Prof. Sunil R. Kale Professor Deptt. of Mechanical Engg., IIT Delhi	Prof. N. Sathyamurthy Former Director, IISER, Mohali & Honorary Professor Jawaharlal Nehru Centre for Advanced Scient Research (JNCASR), Bengaluru
Prof. Rowena Robinson Professor, SHSS, IIT Bombay	Dr. Nadeem Akhtar M/s. Arista Networks

**During this year meetings of the Senate were held on 10.06.2021, 22.09.2021, 10.12.2021 and 15.03.2022*

17. ACADEMIC OFFICIALS AS ON 31.03.2021

DIRECTOR	
Prof. Laxmidhar Behera (w.e.f. 19.01.2022) **Prof. Ajit K. Chaturvedi (upto 18.01.2022)**	
DEANS	
Prof. Satinder Sharma (w.e.f. 21.02.2022) **Dr. Bharat S. Rajpurohit** Dean (Faculty) **Prof. Prem Felix Siril (upto 31.12.2021)**	**Prof. Bharat S. Rajpurohit** (from 01.01.2022 to 20.02.2022) Dean (Infrastructure and Services)
Dr. Manoj Thakur Dean (Students)	**Dr. Vishal Singh Chauhan** Dean (Finance & Accounts)
Prof. Rahul Vaish (w.e.f. 20.04.2021) **Dr. Pradeep C. Parameswaran (up to 19.04.2021)** Dean (Academics)	**Dr. Venkata Krishnan** Dean (SRIC& IR)
ASSOCIATE DEANS	
Dr. Srikant Srinivasan (w.e.f. 07.04.2021) **Dr. Anil K. Sao (up to 06.04.2021)** Associate Dean (Courses)	**Dr. Tulika Srivastava** (w.e.f 10.02.2022) **Dr. Devika Sethi** (up to 09.02.2022) Associate Dean (International Relations)
Dr. Vishal Singh Chauhan Associate Dean (Finance & Accounts)	**Prof. Chayan K. Nandi** (w.e.f 20.04.2021) **Dr. Rahul Vaish** (up to 19.04.2021) Associate Dean (Research)
Dr. Arnav Bhavsar Associate Dean (SRIC)	**Prof. Prem Felix Siril** (from 01.05.2021 to 31.12.2021) **Dr.Tulika P. Srivastava** (up to 30.04.2021) Associate Dean (Faculty)
Dr. Kaustav Sarkar Associate Dean (Infrastructure)	
CHAIRPERSONS	
Dr. Samar Agnihotri School of Computing and Electrical Engineering	**Dr. Atul Dhar** (w.e.f. 15.02.2022) School of Engineering **Dr. Viswanath Balakrishnan** (up to 14.02.2022)
Prof. Suman K. Pal School of Basic Sciences	**Dr. Shyamasree Dasgupta** (w.e.f. 26.04.2021) **Dr. Suman Sigroha** (up to 25.04.2021) School of Humanities and Social Sciences

18. ADMINISTRATIVE OFFICIALS ASON 31.03.2022

18.1 List of Non-Teaching Staff (Deputation + Permanent + Contract Against Pay Scale)

S. No.	Name(Dr./Er./Mr./Ms.)	Designation
	GROUP 'A'	
1	K. K. Bajre	Registrar (On Deputation)
2	Sunil Kapoor	Superintending Engineer
3	Naresh Singh Bhandari	Deputy Librarian
4	Suresh Kumar Rohilla	Deputy Registrar (Store & Purchase)
5	Vinod Malik	Deputy Registrar (Finance & Accounts)
6	Yadvinder	Project Engineer & Estate Officer
7	Vivek Tiwari	Assistant Registrar (Academics)
8	Parminder Jit	Assistant Registrar (SRIC & IR)
9	Shelika	Assistant Registrar (Staff Admin. & Recruit.)
10	Anuj Kumar Dubey	Assistant Registrar (Audit & Legal)
11	Chander Singh	Medical Officer
	GROUP 'B'	
12	Monika Kashyap	Senior Superintendent
13	Hardeep Singh	Security Officer
14	Chandan Sharma	Superintendent
15	Puneet Kumar	Assistant Engineer (Civil)
16	Siddharth Jamwal	Assistant Engineer (Civil)
17	Vikas Kumar Chaudhary	Assistant Engineer (Civil)
18	Neeraj Chauhan	Assistant Engineer (Electrical)
19	Abhijeet Tiwari	Assistant Library Information Officer
20	Vinod Kumar	Senior Library Information Assistant
21	Sonali Malhotra	Senior Library Information Assistant
22	Jitendra Namdev	Senior Library Information Assistant
23	Lalit Kumar	Junior Technical Superintendent
24	Hardeep Kumar Singh	Junior Technical Superintendent
25	Rakesh Kumar	Junior Technical Superintendent
26	Ramesh Kumar	Junior Superintendent (Accounts)
27	Kaul Singh	Physical Training Instructor
28	Pawan Kumar	Junior Superintendent
29	Lishma Anand	Junior Superintendent
30	Pavin S. Samuel	Junior Superintendent
31	Sushma Kumari	Junior Superintendent
32	Hira Singh Negi	Deputy Security Officer
33	Bhavneswari Devi	Staff Nurse
34	Ankush Kapil	Junior Technical Superintendent
35	Veomesh Rawat	Junior Superintendent
36	Vishal Parmar	Junior Superintendent
37	Girish Pal	Junior Superintendent
38	Rajeev Kumar Sharma	Junior Superintendent
39	Vineet	Junior Superintendent
40	Ajay Kumar Singh	Junior Superintendent
	GROUP 'C'	
41	Suchetna Shachi	Senior Assistant

42	Sunil	Senior Assistant
43	Sushil Kumar Pal	Senior Assistant
44	Amit Sharma	Senior Lab. Assistant
45	Sanjay Kumar	Junior Accountant
46	Vikram Jeet	Junior Accountant
47	Desh Raj	Junior Lab. Assistant
48	Dinesh Thakur	Junior Lab. Assistant
49	Tarun Verma	Junior Lab. Assistant
50	Gopal	Junior Lab. Assistant (Technical)
51	Dashmesh Singh	Junior Lab. Assistant (Technical)
52	Lakhmi Chand Yadav	Junior Lab. Assistant (Medical)
53	Aditya	Junior Assistant
54	Prakash Singh Negi	Junior Assistant
55	Anil Kumar	Junior Assistant
56	Nishant Kumar	Junior Assistant
57	Kuldeep	Junior Assistant
58	Prateek	Junior Assistant
59	Anoop Kumar	Junior Assistant
60	Nalini Singh Gill	Junior Assistant
61	Sameem Khan	Junior Assistant
62	Shyam Singh	Driver
63	Manoj Kumar	Attendant
64	Leela Dhar	Junior Attendant (Multi-Skilled)

18.2 LIST OF CONTRACT EMPLOYEES (On Consolidated Emoluments) As on 31.03.2022

S.No.	Name (Dr./Er./Mr./Ms.)	Designation
1	Shib Nath Jha	Principal Sports Officer
2	Ashish Srivastava	Manager (Guest House)
3	Mandheer Bali	Junior Engineer (Civil)
4	Deen Dyal	Junior Engineer (Civil)
5	Nimisha N.B.	Career & Placement Executive
6	Ishita Mahanty Nandi	Project Scientist
7	Debashrita Roy Chowdhury	Web Content Developer
8	Milan Behl	Medical Officer (Ayurveda)
9	O. P. Mahendru	Medical Officer
10	Parul Thakur	Female Medical Officer (GDMO)
11	Arvind Kumar Upadhyay	Assistant Engineer (Horticulture)

19. Student Leadership (Student Gymkhana Office Bearers (Secretaries)

S. No.	Name	Roll No.	Post	Personal Email ID
1	Anirudh Singh	B19207	General Secretary	B19207@students.iitmandi.ac.in
2	Jai Prakash Yadav	B19247	Sports Secretary	B19247@students.iitmandi.ac.in
3	Anjali Choudhary	B19067	Hostel Affair Secretary	B19067@students.iitmandi.ac.in
4	Shivani Pandey	B19266	Cultural Secretary	B19266@students.iitmandi.ac.in
5	Abhijeet Manhas	B18043	Technical Secretary	B18043@students.iitmandi.ac.in
6	Bhumanyu Goyal	B18012	Academic Secretary	B18012@students.iitmandi.ac.in
7	Devansh Kochar	B19245	Literary Secretary	B19245@students.iitmandi.ac.in

20. Students Admitted to the Institute during the Year 2021-22

20.1 PH.D. Scholars – 2021 BATCH

S.No.	Roll No.	Student Name	Department
1	D21001	Kalyani Sanjay Mujumdar	SHSS
2	D21002	Archana Pathak	SHSS
3	D21003	Chalantika Chakraborty	SHSS
4	D21004	Gayathri B	SHSS
5	D21005	Utkarsha Negi	SHSS
6	D21006	Soma Chakraborty	SCEE
7	D21007	Prashant Shah	SCEE
8	D21008	Nitin Chauhan	SCEE
9	D21009	Sonalika Singh	SCEE
10	D21010	Hanumanthu Ravi Teja	SCEE
11	D21011	Ashutosh Rai	SCEE
12	D21012	Abhishek Singhal	SCEE
13	D21013	Mohd Saif Ali Khan	SCEE
14	D21015	Devendra Sharma	SBS
15	D21018	Sonu Kumari	SBS
16	D21019	Pallavi	SBS
17	D21020	Sarikul Islam	SBS
18	D21021	Shivam Kumar Mishra	SBS
19	D21022	Arishi Orra	SBS
20	D21023	Nikhil Chanauria	SBS
21	D21024	Himanshu Choudhary	SBS
22	D21025	Sanket Nemichand Teli	SBS
23	D21026	Alok Kumar	SBS
24	D21027	Aditi Rana	SE
25	D21029	Varun Sharma	SE
26	D21030	Kshitij Tandon	SE
27	D21031	Utsav Rajput	SE
28	D21032	Dhanasree Suresh	SE
29	D21033	Nitesh	SE
30	D21034	Vinod Kumar Solet	SE
31	D21035	Saurabh Tiwari	SE
32	D21036	Pushpendra Kumar	SE
33	D21037	Ankur Kaundal	SE
34	D21038	Naveen Kumar Bankapalli	SE
35	D21039	Rampal	SE
36	D21040	Akumalla Ravi Kiran	SE
37	D21041	Subham Prasad	SE
38	D21042	Manish Singh Rajput	SE
39	D21043	Arpit Kumar Pandey	SE
40	D21044	Sayali Kawade	SE
41	D21045	Bijay Sharma	SE
42	D21046	Harshul Kapoor	SBS
43	D21047	Sanchita Sarkhel	SBS
44	D21048	Khushal Singh	SBS
45	D21049	Abhishek Kapoor	SBS
46	D21050	Vanshika Saxena	SBS
47	D21051	Koppaka Omkar Parleshwar	SBS
48	D21052	Richa Joshi	SBS
49	D21054	Kajal Jaswal	SBS
50	D21055	Riya Joseph	SBS

51	D21056	Bodhidipra Mukherjee	SBS
52	D21057	Mr. Akash Rao	SHSS
53	D21058	Supriya Dey	SE
54	D21059	Bhagyasree Saha	SHSS
55	D21060	Indra Sankar Ghatak	SHSS
56	D21061	Piyush Kumar	SHSS
57	D21063	Zahid Bashir Dar	SCEE
58	D21064	Medapalli Surya Vamsi	SCEE
59	D21065	Kumar Vaibhav Tejan	SCEE
60	D21066	Syed Mohd Hussain	SCEE
61	D21067	Vikash Singh	SCEE
62	D21069	Sudhir Maurya	SCEE
63	D21070	Tusshar Goel	SE
64	D21071	Maninder Pal Singh	SE
65	D21072	Sneha Shekhar	SE
66	D21073	Gaurav Kumar	SE
67	D21074	Man Mohan Singh Patel	SE
68	D21075	Vishal Gupta	SE
69	D21076	Mohd Shadab Ansari	SE
70	D21077	Sontela Kuruba Surya Prakash	SE
71	D21078	Suraj Kumar Mishra	SE
72	D21079	Sunil Kumar	SBS
73	D21081	Devansu Chakraborty	SBS
74	D21082	Sunilkumar V	SBS
75	D21083	Shilpa Verma	SBS
76	D21084	Sonia Deswal	SBS
77	D21085	Chakkar Atul Gangaram	SBS
78	D21086	Arundhati Goldar	SBS
79	D21087	Nagendra S Kamath	SBS
80	D21089	Rhitaparna Pal	SBS
81	D21090	Tuhin Paul	SBS
82	D21091	Jitendra Tanwar	SBS
83	D21092	Divya Agrawal	SBS
84	D21093	Anurag Singh	SBS
85	D21095	Dimpy Bhardwaj	SBS
86	D21096	Sahil Kumar	SBS
87	D21097	Nitika	SBS
88	D21098	Rana Tamnna Omprakash	SBS
89	D21099	Arkaj Singh	SBS
90	D21100	Snata Deka	SBS
91	D21101	Swadhin Kumar Jena	SBS
92	D21102	Prashant Pandey	SBS
93	D21103	Sanchari Chakraborty	SBS
94	D21104	Shubham Saha	SBS
95	D21105	Ashutosh Sahoo	SBS
96	D21106	Prem Chand	SBS
97	D21107	Swati	SBS
98	D21108	Meenakshi Appasaheb Shegane	SBS
99	D21109	Deepanshu Verma	SBS
100	D21110	Rushali Kamath	SBS
101	D21111	Ankit Singh	SE
102	D21112	Prashant Rawat	SE
103	D21113	Asaminew Yerango Shimolo	SBS

104	D21114	Million Mulugeta Habtegebrel	SBS
105	D21115	Mamaru Bitew Alem	SBS
106	D21116	Saurabh Tiwari	SE
107	ERPD2101	Jayakumar Vandavasi Karunamurthy	SE
108	PTD-21001	Yogita Bala	SBS
109	PTD 21002	Jyotsana Sharma	SBS

20.2 MS Scholars - 2021 Batch

S.No.	Roll No.	Student Name	Department
1	S21002	Sowmyashree S	SCEE
2	S21003	Gopal Saikrishnachamarthi	SCEE
3	S21004	Ritwik Ghosal	SCEE
4	S21005	Rajesh R	SCEE
5	S21006	Shivani Thakur	SCEE
6	S21007	A A Dhar Gupta	SCEE
7	S21008	Arjun H Kumar	SCEE
8	S21010	Govind Rajendran	SCEE
9	S21011	Megha Sharma	SCEE
10	S21012	Pandya Naisarg Jayantkumar	SE
11	S21013	Govind Kant Mishra	SE
12	S21014	Aditi Rana	SE
13	S21018	ArkaSamanta	SCEE
14	S21019	Raktim Bhattacharya	SCEE
15	S21021	Shivam Shukla	SCEE
16	S21023	Devesh Kumar	SCEE
17	S21024	Ammu S Bhargav	SCEE
18	S21025	Vivek Sahu	SCEE
19	S21026	Abishek Gourave	SCEE
20	S21027	Anand Mohan	SCEE
21	S21028	Priyanka	SCEE
22	S21029	Sumit Kumar	SE
23	S21030	Pudi Siva	SE
24	S21032	Kapilkumar Jijabrao Patil	SE
25	S21033	Soham Das	SE
26	S21034	Mahajan Nishad Vivek	SE
27	S21035	Arumugaraj S	SE
28	S21036	Ankita Deo	SCEE
29	PTS2101	Nalini	SCEE
30	ERPS21001	Suvranil Banerjee	SBS

21. B.TECH. STUDENTS – 2021 BATCH

B.TECH.-M.TECH. Integrated Dual Degree in Bio-Engineering

S.No.	Roll No.	Student Name
1	B21001	Abhinav Arya
2	B21002	Achint Dhama
3	B21003	Akarshan Kapoor
4	B21004	Arpit Meena
5	B21005	Arya Abhisri
6	B21006	Bhavy Rahangdale
7	B21007	Devangi Chaudhary
8	B21008	Dhruv Gupta
9	B21010	Eshaan
10	B21013	Krishna Kumar Dixit
11	B21015	Mantavya Gupta
12	B21016	Mourya Kondawar
13	B21018	Prateek Kumar Patel
14	B21019	Pratibha Mathur
15	B21020	Priyanshu Raj
16	B21021	Saransh Duharia
17	B21022	Shambhabi Dhar
18	B21023	Shashank Dwivedi
19	B21024	Shivanshu Singh
20	B21025	Uthamkumar M
21	B21026	Vallabhi Upadhyay
22	B21027	Vedant Rastogi

Civil Engineering

S.No.	Roll No.	Student Name
1	B21028	Aayushi Thakur
2	B21029	Abhay Pratap
3	B21030	Abhay Sangwan
4	B21031	Abhishek Kamal
5	B21032	Abhishek Meena
6	B21033	Adarsh Kumar
7	B21034	Aditya Prakash
8	B21035	Aman Ali Khan
9	B21036	Aman Kumar Mohanty
10	B21037	Anand Shankar
11	B21038	Atharv Kumar
12	B21039	Bhawya
13	B21040	Bhumesh Gaur
14	B21041	Biswadeep Purkayastha
15	B21042	Devesh Ojha
16	B21043	Dharkan Anand
17	B21044	Dhruv Yadav
18	B21045	Divye Dixit
19	B21046	Gali Aman
20	B21047	Gyanesh Ranjan Chauhan
21	B21048	Himanshu Meena
22	B21049	Kantamsetti Sashank
23	B21050	Karra Rithika Reddy
24	B21051	Khushi
25	B21052	Khushi Nathawat

26	B21053	Kishan Kumar
27	B21054	Krishna Singh
28	B21055	Mohit Sanjay Mahajan
29	B21056	Mohit Singh
30	B21057	Monika Mina
31	B21058	Neha Rani
32	B21059	Nihal Singh
33	B21060	Paarth Dwivedi
34	B21062	Rahul
35	B21063	Rahul Antil
36	B21064	Rajeev Sharma
37	B21066	Sagar
38	B21067	Saksham Bansal
39	B21068	Sanidhya Singla
40	B21069	Shashank Yadav
41	B21070	Siddhi Jindal
42	B21071	Suraj Raj
43	B21072	Unnat Maaheshwari
44	B21073	Urvashi
45	B21075	Vickey Gyadu
46	B21076	Yashasvi

Computer Science & Engineering

S.No.	Roll No.	Student Name
1	B21077	Aayush Anupam
2	B21078	Adab Singh Mann
3	B21079	Aditi Srivastava
4	B21080	Aditya Khandelwal
5	B21081	Aditya Raj
6	B21082	Aditya Ruhela
7	B21083	Aditya Sahu
8	B21084	Aishal Gupta
9	B21085	Akshat Jain
10	B21086	Aman Sharma
11	B21087	Anubhav Singh
12	B21088	Avisha Singh
13	B21089	Bhuvan Narula
14	B21090	Chatur Alhad Prashant
15	B21091	Chavda Janvi Virabhai
16	B21092	Chhagan Lal Meena
17	B21093	D Alex
18	B21094	Deepanshu Singh
19	B21095	Desai Khilan Sanjaybhai
20	B21096	Dhruv
21	B21097	Dhruv Kamra
22	B21098	Dipam Turkar
23	B21099	Dwiz Garg
24	B21100	Harsh Pahwa
25	B21101	Himanshu Panchal
26	B21102	Jinendra Kumar
27	B21103	Jiya
28	B21104	Jyoti Baberwal
29	B21105	Mahesh Kumar
30	B21106	Mannava Naga Ratna Kalpavalli

31	B21107	Mohit Kumar Saini
32	B21108	Nakka Raj Melchi
33	B21109	Neha N
34	B21110	Niket Kumar
35	B21111	Pankaj Poonia
36	B21112	Peeyush Agarwal
37	B21113	Piyush Jha
38	B21114	Pratham Gupta
39	B21115	Prem Shankar
40	B21116	Ramavath Chennakeshavulu
41	B21117	Rishab Shrinivas Bairi
42	B21118	Riya Arora
43	B21119	Rohan Chaudhary
44	B21120	Rohit Yadav
45	B21121	Ronak Prakash Pamnani
46	B21122	Rvv Sai Kumar
47	B21123	S Chinmayee
48	B21124	Sachit Munjal
49	B21125	Sahil Gupta
50	B21126	Saksham Panpaliya
51	B21127	Sandeep Singh
52	B21128	Saqib Kales
53	B21129	Setti Ramakrishna Vamsi
54	B21130	Shalini Barai
55	B21131	Shantanu Manoj Malakolikar
56	B21132	Shirsat Ravi Purushottam
57	B21133	Shreya Garg
58	B21134	Shreyas M
59	B21135	Shreyas Mehta
60	B21136	Shubham Kumar
61	B21137	SmitiOswal
62	B21138	Somit Gond
63	B21139	Sourabh Sav
64	B21140	Swarnarup Bhunia
65	B21141	Swati Shakya
66	B21142	Tijil Tanmay Kumar
67	B21143	Udayveer Baljit Virk
68	B21144	Vihan Kapoor
69	B21145	Vishwakarma Kaushik
70	B21146	Yajat Mukhija
71	B21147	Yash Gupta

Data Science & Engineering

S.No.	Roll No.	Student Name
1	B21148	Akanksha Bhayekar
2	B21149	Alok Kumar
3	B21150	Amit Kumar
4	B21151	Anuj Solanki
5	B21152	Deepak Kumar
6	B21153	Divyanshu Verma
7	B21154	Ekansh Singh
8	B21155	Ishit
9	B21156	Kunal Gunawat
10	B21157	Lakshya
11	B21158	Maduri Sindhuja

12	B21159	Mothukuri Sujith
13	B21160	Nidamanuri Anil Kishore Babu
14	B21161	Paras Bedi
15	B21162	Rishabh Shrival
16	B21163	SamvaidanSalgotra
17	B21164	Sandeep
18	B21165	Sanikommu Devi
19	B21166	Sher Thaniya
20	B21168	Shujat Ali
21	B21169	SiddheshwarBudamala
22	B21171	Taraksh Sambhar
23	B21172	Vidulaa Anand
24	B21173	Yakkala Tribhuvan Sai Srinivas
25	B21174	Yashika Gupta

Electrical Engineering

S.No.	Roll No.	Student Name
1	B21175	Abhinav Singla
2	B21176	Adarsh Santoria
3	B21177	Aditya Anurag
4	B21178	Aditya Singh Gaharwar
5	B21179	Aman Varshney
6	B21180	Amit Meena
7	B21181	Ankur Rathore
8	B21183	Ayush Gaurav
9	B21184	Ayush Gupta
10	B21185	Darsh Shani
11	B21186	Dhruv Pratap Singh
12	B21187	Dhruv Ranka
13	B21188	Dodda Shivani
14	B21189	Gagan Gupta
15	B21191	Gourav
16	B21192	Harshita Singh
17	B21193	Jadhav Sarvesh Rajesh
18	B21194	JasnoorTiwana
19	B21195	Jigyasa Sharma
20	B21196	Joel Suvisesha Muthu M
21	B21197	Kumar Keshav
22	B21198	Lakhan Dharamvir Gupta
23	B21199	Mahir Jain
24	B21200	Manik Aggarwal
25	B21201	Mannat Mahajan
26	B21202	Maraboina Sai Sruthi
27	B21203	Matta Binduthraya
28	B21204	Mayank Mehta
29	B21205	Navdeep
30	B21206	Naveen Kumar
31	B21207	Nikita Gupta
32	B21208	Nikita Lakha
33	B21209	Pawan Kumar Kachchh
34	B21210	Pothireddy Sri Vivek Kiran Reddy
35	B21211	Pritesh Kumar Gupta

36	B21212	Priyanka
37	B21213	Purwansh Sahu
38	B21214	Rachita Rajneesh Sood
39	B21215	Rajendra Kumar
40	B21216	Rajiv
41	B21217	Ram Singhal
42	B21218	Rattan Nikhil Harblas
43	B21219	Rawal Ram
44	B21220	Ritik Rajput
45	B21221	Samarth Dilip Walse
46	B21222	Sangale Piyush Rajendra
47	B21223	Satyam Patil
48	B21224	Simran
49	B21225	Soham Chongder
50	B21226	Somesh Chandra
51	B21227	Srijan Sood
52	B21228	Srishti Maurya
53	B21229	Suhana
54	B21230	Suryansh Rathore
55	B21231	Tanay Balasaheb Sonawane
56	B21232	Vaibhav Kesharwani
57	B21233	Vasu Jain
58	B21234	VatsalHariramani
59	B21235	Vikas Markam
60	B21236	Vikaskumar Ramsuresh Singh
61	B21237	Vinod Yadav
62	B21238	Vivek Raj
63	B21239	Yash Sankhla
64	B21240	Yash Vardhan Sagar
65	B21241	Yogesh

Engineering Physics

S.No.	Roll No.	Student Name
1	B21242	Aditya Ray Mishra
2	B21244	Arush Samadhia
3	B21245	Arvasu Yogesh Kulkarni
4	B21246	Bhukya Charan
5	B21247	Chinta Bhanushri
6	B21248	Deeksha Gosain
7	B21249	Eddula Darshan Sripadh
8	B21250	Garvit Jain
9	B21251	Jay Shorey
10	B21252	Jihan Arora
11	B21253	Khadap Bhargavi Babanrao
12	B21255	Lakshay Wadhwani
13	B21256	Mihika Yadav
14	B21257	Naveen
15	B21258	Prajwal Erappa K
16	B21259	Rachna Shaw
17	B21260	Raj Singh Bani
18	B21261	Rishi Mittal
19	B21262	Sadiq Ali

20	B21263	Satwik Jaiswal
21	B21264	Saurav Kumar Singh
22	B21265	Soumya Rathore
23	B21266	Tushar Nagar
24	B21268	Vikas
25	B21269	Vinith Samson J

Mechanical Engineering

S.No.	Roll No.	Student Name
1	B21270	Abhishek
2	B21271	Ajay Choudhary
3	B21272	Akash Kumar
4	B21275	Aniket Mehta
5	B21276	Anisha Dhillon
6	B21277	Anjali Jareda
7	B21278	Anjani Sunda
8	B21279	Ankit Kumar
9	B21280	Ashish Meena
10	B21281	Atharva Raut
11	B21282	Ayanar Atharva Ramrao
12	B21283	Ayush Kumar Singh
13	B21284	Aziz Ali Sayeed Bandukwala
14	B21285	Bharat Kumar Prajapat
15	B21286	Bhavay Aggarwal
16	B21288	Deepika Tanania
17	B21289	Divyansh Tripathi
18	B21290	Divyanshu Kumar Dubey
19	B21291	Gopathoti Vamsi Krishna
20	B21292	Harsh Garg
21	B21293	Hemank Soni
22	B21294	Hemant Kumar
23	B21296	Ishmeet Kaur
24	B21297	Jyotishman Gogoi
25	B21298	Kanaram
26	B21299	Keshav Verma
27	B21300	Khushal Sharma
28	B21301	Kumar Love
29	B21302	Kumar Vedant
30	B21303	Lakshay Nailwal
31	B21304	Lokesh Kumar Das
32	B21306	Narayan Rishiteja Reddy
33	B21307	Nikhil Kumar
34	B21308	Nishant Kumar
35	B21311	Payam Karthikeyan
36	B21312	Prakul
37	B21313	Preeti Prajapat
38	B21314	Radhika Gupta
39	B21315	Rashika Gangwar
40	B21316	Rathod Yash Vinod
41	B21317	Ravi H M
42	B21318	Rishika
43	B21319	Sachin Kumar
44	B21320	Sagnik Sen

45	B21321	Shivangi
46	B21322	Shwetank Shekhar Singh
47	B21323	Soma Ananya
48	B21324	Sonam Shrivastava
49	B21325	Sushil Kumar
50	B21326	Utkarsh Yadav
51	B21327	Vatsal Sharma
52	B21328	Ankit

22. M.Sc. STUDENTS – 2021 BATCH

M.Sc. (Chemistry)

S.No.	Roll No.	Student Name
1	V21001	Aakash Yadav
2	V21002	SachinRautela
3	V21003	Bhawna
4	V21004	Sanyam Chhetri
5	V21005	Nilanjan Bhaduri
6	V21006	Janavi Rajput
7	V21007	Rohit
8	V21008	Monika Kanwar
9	V21009	Chirag Goyal
10	V21010	Subhadip Goswami
11	V21011	Adarsh Shukla
12	V21012	Ayush Shukla
13	V21013	Samridhi Surial
14	V21014	Lagan Arya
15	V21015	Naveen Kumar
16	V21016	Rohan Lamba
17	V21017	Manjot Kaur
18	V21018	Arun Kumar
19	V21019	Brijesh Patel
20	V21020	Kajol Prasad
21	V21021	Ankit Kumar
22	V21022	Harajyoti Thausen
23	V21023	Muskan Sharma
24	V21024	Palak Garg
25	V21025	Himanshu Gupta
26	V21026	Jiban Mondal
27	V21027	Shubhangi Goyal
28	V21028	Hemant Latta
29	V21029	Harsh Yadav
30	V21030	Aastha
31	V21031	Akhilesh Nagra
32	V21032	Seema Suthar
33	V21033	Shivani Choudhary
34	V21034	Rahul
35	V21035	Chirag
36	V21036	Ashish Kumar
37	V21037	Animesh Mandal
38	V21038	Rimanshu Bharti
39	V21039	Navneet Kumar

40	V21040	Sushmita Baro
41	V21041	Udisha Sahrawat
42	V21042	Ekta
43	V21043	Shiv Narayan
44	V21044	Love Kumar Meena
45	V21045	Abinash Doley
46	V21046	Pawan
47	V21047	Piyush Sharma
48	V21048	Kaustav Kahali

M.Sc. (Applied Mathematics)

S.No.	Roll No.	Student Name
1	V21051	Mohit Singh Karki
2	V21052	Mukul Kumar
3	V21053	Krishna Garg
4	V21054	Nancy
5	V21055	Mohit Kumar Jain
6	V21056	Simran
7	V21057	Hanuman Shukla
8	V21058	Vaishnav Kumar Soni
9	V21059	Manish Shrivastava
10	V21060	Shubham Garg
11	V21061	Mukesh Prajapat
12	V21062	N Zeeshan Mouzam
13	V21063	Kartik
14	V21064	Vikram
15	V21065	Nikita Rani
16	V21066	Yashi Yadav
17	V21067	Aastha
18	V21068	Shubhneesh
19	V21069	Shubham Kumar
20	V21070	Prateek
21	V21071	Vipulkumar Bakulbhai Chaudhari
22	V21072	Neha Gupta
23	V21073	Arun Singh
24	V21074	Himanshu Gupta
25	V21075	Amit Kumar Parida
26	V21076	Sakshi Vyas
27	V21077	Aabha Jain
28	V21078	Prachi Sharma
29	V21079	Souvik Dey
30	V21080	Himanshu Soam
31	V21081	Mithlesh Saini
32	V21082	Nisha Khandelwal
33	V21083	Rovin Sharma
34	V21084	Pankaj Hemnani
35	V21085	Anchal Jangir
36	V21086	Aditya Choudhary
37	V21087	Mohd Faizan
38	V21088	Parshant
39	V21089	Rahees
40	V21090	Himanshu

41	V21091	Ravi Kumar Meena
42	V21092	Ankita Meena
43	V21093	Ayush Dwivedi
44	V21094	Mohit
45	V21095	Pawan
46	V21096	Sakshi Agarwal

M.Sc. (Physics)

S.No.	Roll No.	Student Name
1	V21101	Satyanand Kuwar
2	V21102	Anant Bir Singh Virk
3	V21103	Nitin Jaswal
4	V21104	Neha Bhatia
5	V21105	Raksha
6	V21106	Banshi Lal
7	V21107	Trishu Verma
8	V21108	Ashish Chhimpa
9	V21109	Lokesh Kumar
10	V21110	Robin Karothiya
11	V21111	Titli Roy Barman
12	V21112	Shevo Lohe
13	V21113	Ajit Meena
14	V21114	Siva Sankar P M
15	V21115	Simrat Pal Singh
16	V21117	Sharmistha
17	V21118	Arpan Gupta
18	V21119	Aakash Singh
19	V21120	Yasir Ul Sadiq
20	V21121	Ravi
21	V21122	Aman
22	V21123	Anu
23	V21124	Sagar Gaur
24	V21125	Subham Ghosh
25	V21126	Adity
26	V21127	Umashankar Pardhi
27	V21128	Yogita Jangir
28	V21129	Aadarsh Savita
29	V21130	Muskan Yadav
30	V21131	Tanu Soni
31	V21132	Shailesh Kumar Verma
32	V21133	Narayan Lal Balai
33	V21134	Ankit Mudgal
34	V21135	Harsh Nishant Rajoriya
35	V21136	Sania Ayoub
36	V21137	Apurav
37	V21138	Amarnath T

23. M.TECH. STUDENTS – 2021 BATCH

M.Tech. (Structural Engineering)

S.No.	Roll No.	Student Name
1	T21281	Subhrajit Roy
2	T21282	Tarun Kumar
3	T21283	Deepak Kumar
4	T21284	Gaurav Sharma
5	T21285	Rohit Kachhawa
6	T21286	Kala J Prasad
7	T21287	Guntrothu Sai Manikanta
8	T21288	Abhishek Semwal
9	T21289	Ajey Singh
10	T21290	Md Armanul Hoda
11	T21291	Prasad Pradeeprao Deshmukh
12	T21292	Deepak Bhardwaj
13	T21293	Anurag Barthwal
14	T21294	Vikas Prasad
15	T21295	Himanshu Rana
16	T21296	BhaweshLohani

M.Tech. (Mechanical Engineering with Specialization in Energy Systems)

S.No.	Roll No.	Student Name
1	T21201	Sasanka Sekhar K Deka
2	T21202	Sudhanshu Gangwar
3	T21203	Shivanand Mishra
4	T21204	Mayand Malik
5	T21205	Amar Bare Shankaranarayana
6	T21206	Kuldeep Yadav
7	T21207	Ankit Kumar Pandey
8	T21208	Smit Mahendra Kansagara
9	T21209	Ashish Jha
10	T21210	Udatha Ram Sai Rohith
11	T21211	Prashant Kumar
12	T21212	Ashish Gupta
13	T21213	Shibli Khan
14	T21214	Shubham Chauhan
15	T21215	Mishra Anurag Brijbihari
16	T21216	Hussain Badshah
17	T21217	Prasant Sharma
18	T21218	Vikki Kumar Sharma
19	T21219	Sharique Hussain
20	T21220	Vaibhav Bhardwaj
21	T21222	Shubham Patel

M.Tech. (Energy Engineering with Specialization in Materials)

S.No.	Roll No.	Student Name
1	T21241	Yogesh Shrivastava
2	T21242	Purnyendu Gain
3	T21243	Yogesh Deepak Deshmukh
4	T21244	Vivek Kumar Singh
5	T21245	Mukesh Kumar Yadav
6	T21246	Priya Singh
7	T21247	Suhas S
8	T21248	Arpit Kshirsagar

9	T21249	Pratul Kant Choudhary
10	T21250	Aayush Mittal
11	T21251	Chayan Mazumdar
12	T21252	Nitesh Kumar
13	T21253	Nameet Hitendra Kumar Dalal
14	T21254	Vijay Kumar Patel
15	T21255	Ritesh Patre
16	T21256	Mohammad Faisal Khan
17	T21257	Umme Rumman
18	T21258	Avinash Yadav
19	T21259	Neha Khokher
20	T21260	Deepak Kumar Sah

M.Tech. in VLSI

S.No.	Roll No.	Student Name
1	T21121	Arjun Saha
2	T21122	Prakash Kumar
3	T21123	Kamal Raj
4	T21124	Prashant Bhatt
5	T21125	Palak Mahajan
6	T21126	Shakti Singh
7	T21127	Ratnesh Kumar Yadav
8	T21128	Arghyadip De
9	T21129	Joyal Basil Paul
10	T21130	Amit Kumar
11	T21131	Vishnu Sisodia
12	T21132	Tanay Srivastava
13	T21133	Anand Shekhar Kaushik
14	T21134	Chandan Kumar Maurya
15	T21135	Lovejeet Singh Rawat
16	T21136	Hitarth Alkeshkumar Patel
17	T21137	Himanshu Tiwari
18	T21138	Aman
19	T21139	Satendra Singh Negi
20	T21140	Ankit Pandey

M.Tech. (Power Electronics and Drives)

S.No.	Roll No.	Student Name
1	T21081	Sanchayan Das
2	T21082	Abhaya Kotnala
3	T21084	Rounak Chakraborty
4	T21085	Harshita Meena
5	T21086	Chitra Bisht
6	T21088	Laxman Singh
7	T21089	Abhishek Ranjan
8	T21090	Arnab Kumar Pal
9	T21091	Asif Khan Kayamkhani
10	T21092	Saket
11	T21093	Subhranil Mondal
12	T21094	Ramavath Rakesh
13	T21095	Ravi Ketan

14	T21096	Abhishek Mukherjee
15	T21097	Rahul Dinda
16	T21098	Nitin Kumar Nagnathrao Reddy
17	T21099	Shailendra Karki
18	T21100	Rohit Singh
19	T21101	Rohit Kumar Goyal
20	T21102	Kurapati Sai Karthik
21	T21103	Saurav Mamgain

M.Tech. (Communication and Signal Processing)

S.No.	Roll No.	Student Name
1	T21001	Anshuman Kumar
2	T21003	Ajin Vinod K
3	T21004	Rakesh Vaishnav
4	T21005	Anamika Kumari
5	T21006	Vinay Visanji Faria
6	T21007	Udit Singhal
7	T21008	Gaurav
8	T21009	Prajyot Prabhakar Morey
9	T21010	Swechchha Ojha
10	T21011	Lakshay Bansal
11	T21012	Satyam Singh
12	T21013	Amit Kumar
13	T21014	Samarth M
14	T21015	Nandan Kumar
15	T21016	Rajan Shukla
16	T21017	Vikas Singh
17	T21018	Rupam Biswas
18	T21019	Deepika
19	T21020	Rahul Kumar

M.Tech. (Biotechnology)

S.No.	Roll No.	Student Name
1	T21151	Meghana Kushwaha
2	T21152	Ritama Basu
3	T21153	Vishwajeet Raj
4	T21154	Nancy Choudhary
5	T21155	Jenifer Julia S
6	T21156	Dipanjana Dolui
7	T21157	Aakash Ram Karan Verma
8	T21158	Sweta Mondal
9	T21159	Jyotirmayee M K Sahoo
10	T21160	Jitesh Adwani
11	T21161	Saumya Shukla
12	T21162	Sandeep Vedanarayana M S
13	T21163	Vipin Kumar Kumar Jha
14	T21164	Nandhana E
15	T21165	Arjita Roy
16	T21166	Raj Karan Pandey
17	T21167	Deepa Mehta
18	T21169	Shubham Kumar Abhishek

M.Tech. (Computer Science and Engineering)

S.No.	Roll No.	Student Name
1	T21041	Harsh Gahlot
2	T21042	Utsav Bansal
3	T21043	Archit Baliyan
4	T21044	Nikhil Sharma
5	T21045	Anmol Agrawal
6	T21046	Sucheta Panda
7	T21047	Srijan Singh
8	T21048	Mahendra Aanjna
9	T21049	Himanshu Ranjan
10	T21050	Ravi Pratap Yadav
11	T21051	Aditya Kumar

M.Tech. (Fluid Thermal and Engineering)

S.No.	Roll No.	Student Name
1	T21311	Pal Akash Gyanprakash
2	T21312	Ayush Sahu
3	T21313	Shubhankar Singh
4	T21314	Ankush Kasaudhan

24. M.A. Students – 2021

M.A (Development Studies)

S.No.	Roll No.	Student Name
1	A21001	Abhishek Priyadarshi
2	A21002	Avinash Sharma
3	A21003	Disha Khurana
4	A21004	Divyal Bhushan Gupta
5	A21005	Lalita Waldia
6	A21006	Madhavi Palepu
7	A21007	Nitin Dhiman
8	A21008	Sampoorna Sarkar
9	A21009	Shalini Jose
10	A21010	Sushil Chakma
11	A21011	Tarun Kumar
12	A21012	Shashi Raj
13	A21013	Madke Neeraj Manohar
14	A21014	Shelja
15	A21015	Sheetal Priyadarshini
16	A21016	Mithuna P M
17	A21017	Nandini Singh
18	A21018	Kumari Suman
19	A21019	Shreya Sharma

25.I-Ph.D. (Physics)

S.No.	Roll No.	Student Name
1	DI-21001	Kartik Madan

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