INDIAN INSTITUTE OF TECHNOLOGY MANDI

8th Annual Convocation
12th December 2020, Saturday

CHIEF GUEST

Dr. R. A. Mashelkar

Padma Vibhushan, Padma Bhushan, and Padma Shri
National Research Professor
Former Director General of Council of Scientific and Industrial Research
Former Chairman of National Innovation Foundation

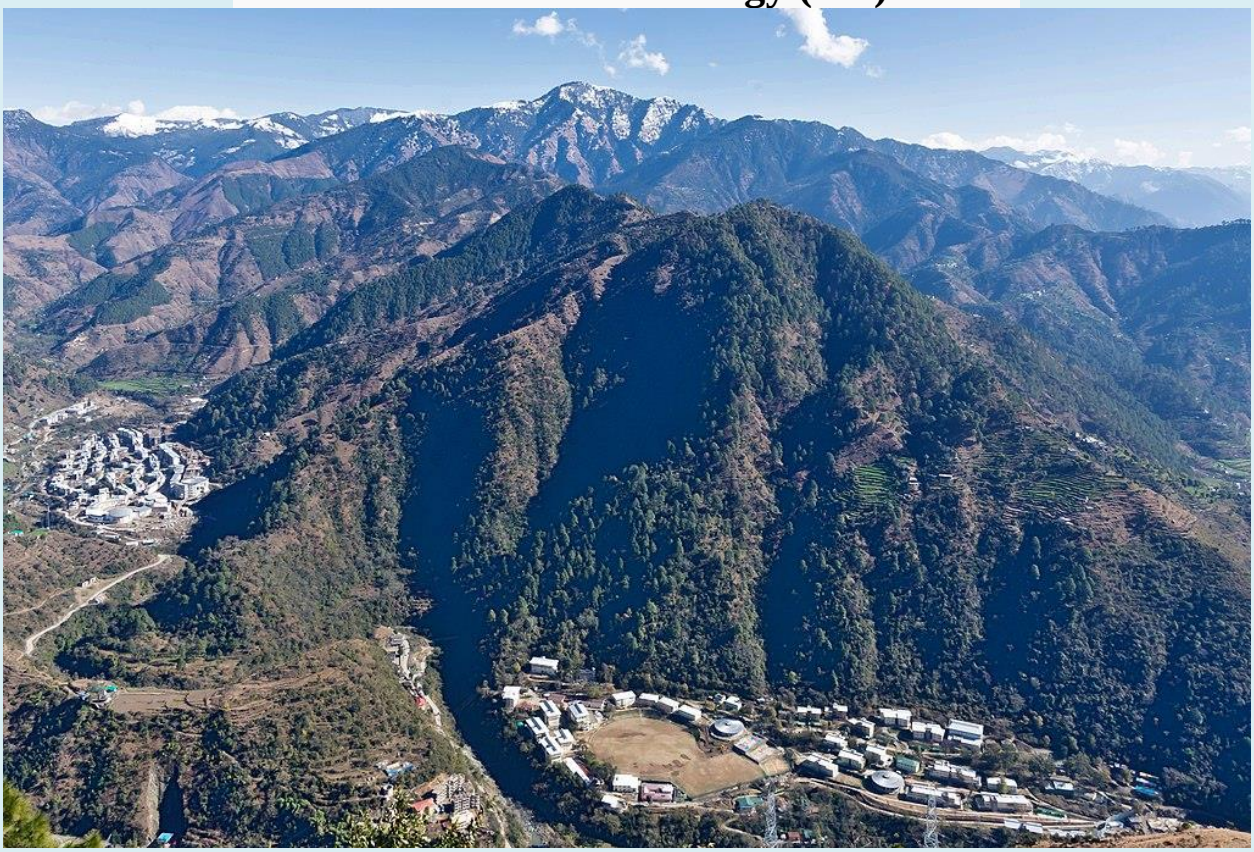
CHAIRPERSON, BOARD OF GOVERNORS

Prof. Prem Vrat
Retired Professor, IIT Delhi, and
Founding Director, IIT Roorkee

DIRECTOR

Prof. Ajit Kumar Chaturvedi
Director, IIT Mandi

Indian Institute of Technology (IIT) Mandi



WELCOME TO IIT MANDI

Indian Institute of Technology Mandi (IIT Mandi) welcomes you to its 8th Convocation Ceremony on 12th December 2020. As part of this Convocation, 39 Ph.D., 11 M.S. (by Research), 97 M. Tech., 77 M.Sc., 12 M.A. and 147 B.Tech. students will graduate from IIT Mandi.

IIT Mandi is nestled in the Shivalik Range of the Himalayas, away from the bustle of the metropolis. It is situated about 18 km away from the historic town of Mandi, in Kamand and Salgi near the bank of the river Uhl. Since its inception in 2009, IIT Mandi has reached commendable heights in terms of teaching, research, industrial collaboration, and outreach. In this very short span of time, it now has a fully residential campus with world-class academic and research facilities. The Institute has made a debut in the Atal Ranking of Institutions on Innovation Achievements, Ministry of Education, Government of India, and has been ranked #7 in the centrally funded institutions category of ARIIA 2020. IIT Mandi is the only institute from the second generation of IITs to be featured in ARIIA 2020.

CONVOCATION PROGRAM

12th December 2020, 3-5:30 PM

National Anthem

Chairperson (BoG) declares the convocation "Open"

Welcome speech and report by the Director, IIT Mandi

Address by the Chairperson, Board of Governors, IIT Mandi

Convocation address by the Chief Guest

Award of Degrees and Medals

Graduates' Pledge

Address by Valedictorian

Chairperson (BoG) declares the convocation "Closed"

National Anthem

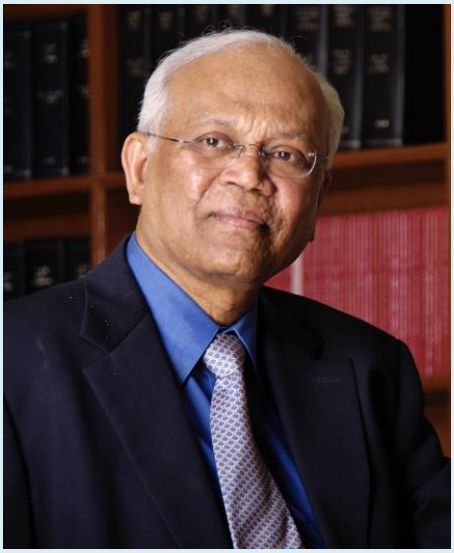
VISION & MISSION OF IIT MANDI

VISION

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

MISSION

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



Dr. R. A. Mashelkar
PADMA VIBHUSHAN, PADMA BHUSHAN, and PADMA SHRI
National Research Professor
Former Director General of Council of Scientific and Industrial Research
Former Chairman of National Innovation Foundation

ADDRESS BY THE HONORABLE CHIEF GUEST of THE 8TH CONVOCATION OF IIT MANDI

Reinventing Post-COVID India

Hon'ble Chairperson of the Board of Governors, Prof Prem Vrat, Director of IIT Mandi, Prof Ajit Chaturvedi, distinguished members of the Board of Governors, distinguished Deans and Faculty, proud graduates of the day, their equally proud parents, ladies, and gentlemen:

I deem it a special privilege and an honour to deliver this convocation address of one of our youngest IITs. Let me say at the outset that IIT Mandi has an advantage. Why? Ambience and ambition matter. Ambition without ambience will not work. Ambience without ambition will not work either. In terms of ambience, you have one of the best in India. And I have witnessed your rising ambition. All this augurs well.

I want to begin by congratulating the parents first. Education is the best gift that you could have given to your children. Then I want to congratulate the graduates of the day. This is a very special day in your life. When our generation graduated, India was a third world country. When you are graduating, India is well on its way to becoming the third most powerful country in the world. And my friends, it is you, who will be charged with building this great future of our great nation.

They say that institutions can't build the future of the young, but they can build the young for the future. You are fortunate that IIT Mandi has equipped you fully with skills and tools to deal with this challenge most confidently.

You all are also entering a world, which is exciting as well as challenging, as we are living in a VUCA world, which is volatile, uncertain, complex, and ambiguous. We have seen that 2020 will go down in the history as the VUCA year of the century, due to the unexpected onset as well as unprecedented aftermath of the Coronavirus pandemic. We have seen vast devastation of lives as also livelihoods. While we repair and recover, there is also an opportunity to rethink, reimagine, reinvent a new India of our dreams.

In that direction, our visionary Prime Minister has given the clarion call for '*Atmanirbhar Bharat'*, which means self-reliant India. But in today's globalised world, the idea of self-reliance cannot be about a return to import substitution, or to license-permit raj and inspector raj, but an active participation in post-COVID global supply chains, coupled with a strategy to attract foreign direct investment. *Atmanirbhar Bharat* must be built with *Atmavishwas*, with self-confidence, it is all about standing up confidently in the VUCA world. And it is you, my young friends, who give me that *Atmavishwas*.

In 2020, there is suddenly an opportunity in adversity for India. With the Chinese Government and its companies being viewed with great suspicion by the global business community, India has a great opportunity to establish itself as a global manufacturing hub. India will be able to attract global investment provided it brings in the much-needed reforms in terms of land, labour, law, logistics, and cost of inputs. And the Government is well on its way to accelerating these reforms.

The second opportunity for India is from the accelerated pace at which digitalisation is taking place in India. Innovation in digital India will accelerate due to four powerful drivers that are all in favour of India. These are namely the exponential nature of technology in terms of sharply rising performance and simultaneously plummeting costs, creative convergence of technologies into new combinations, the emergence of digital platforms, and declining entry costs due to affordable cloud-based computing and open-source software.

India will have to use DARQ power to drive innovation. That means a combination of distributed ledger technology, artificial intelligence, extended reality, and quantum computing. While we may look at the sky for these innovation frontiers and ground-breaking innovations, there are some harsh realities on the ground that will cry for innovations focusing on inclusion and sustainability.

Post-COVID, India needs accelerated inclusive growth. And also, a sudden rise in inequality will need disruptive and not incremental innovation. Digital transformation can be a great force multiplayer here. Here are some illustrative examples. Take education. Post-COVID, one-third of the 1.6 billion children around the world, who suddenly went out of school, do not have access to online learning due to digital deprivation. We need innovations that will provide digital access equality despite income inequality. India had made headway during 2001-2005, innovating to create extremely affordable indigenous tablets, such as Simputer, Akash, and Mobilis. But then missed the journey from ideas to impact. We need to restart this innovation journey with renewed zeal. Just as we became the pharmacy of the world by supplying high quality affordable generic drugs to the world, India can be a leader in supplying high quality affordable digital devices to the world.

Digital reengineering can transform our healthcare system. Look at an illustrative example of the challenge of shortage of ICUs during the pandemic and the power of Indian inclusive innovation that was led by digital reengineering.

In my mother's name, I have created the 'Anjani Mashelkar Inclusive Innovation Award'. This is the tenth year of the award. Just look at the two winners this year, Dozee, who precisely achieved this objective. Startup Dozee, using IoT, set up a continuous contact-free vitals monitor with remote monitoring capabilities and alert system that converts any bed into a step-down ICU quickly (a few minutes) and affordably (5% of the cost of a full-fledged ICU system). It has a proven medical-grade accuracy of 98.4%. The data are uploaded to the cloud to give remote access so that the clinicians can access the data from a safe distance. The data are further analysed using advanced machine learning and artificial intelligence algorithms. Not just coronavirus pandemic but the perennially persisting pandemic of poverty will need innovations.

The second winner of the Anjani Mashelkar Inclusive Innovation Award 2020, namely startup JioVivo created an IOT based solution, Save Mom with a culturally aligned user-friendly wearable maternal healthcare device, which (together with a suite of apps) monitors a mother's health and uploads the data in the cloud for doctors to view it remotely. It saves the lives of pregnant women in remote villages. Their solution is already deployed in 100+ villages in southern states. The cost? Just one rupee per day!

Summing up, India can do digital reengineering of everything, from education to health to financial services and at a pace that India has not ever witnessed before. And that is how we can reinvent India.

The third opportunity is provided by the New Education Policy (NEP), which could be transformative. To meet the challenges of the digital world in which we are going to spend our future, we must do a nationwide audit of all the higher educational technological institutions to understand the current level of preparedness in terms of exponential technologies, industry 4.0, and the needs of future jobs, that will replace the old jobs that were prevalent in Industry 3.0.

These exponential technologies are the Internet of things (IoT), Artificial Intelligence (AI) (Machine Learning), Robotics Process Automation (RPA), Virtual/Augmented/Mixed Reality, Sensors, 3D Printing, 3D Visualisation, Mobile Internet and Cloud, Big Data Analytics/Open Data and Blockchain

New skills in the era of industry 4.0 will be the ability of the students with complexity, critical thinking, emotional intelligence, cognitive flexibility, creativity, etc. Considering creativity, India's education system has given more importance to logical thinking and reasoning capabilities, but now, with Al, the new jobs will be more focused on creative thinking.

IIT Mandi will need to transition towards a learner-centered education model where learning and work go hand in hand. Customised learning modules coupled with adaptive, dynamic, and agile life-long learning should be the focus of the universities to create a workforce with long-term sustainability.

Indian academia must adjust to the power of open disruptions such as open knowledge (Udacity, Courser, a Kahn), open-source development/collaboration (GitHub), open innovation (Quirky), and open research (Materials project, OSDD). The disruptions post-COVID in terms of the huge acceleration of digitalisation must be factored into NEP, which was written in the pre-COVID era.

Then only India will move from ‘right to education’ to ‘right education’ to ‘right way of education’ taking full advantage of the great disruption that exponential technology is going to create.

In the end, my young friends, I will give you five Mashelkar Mantras, which have helped me in my life. I hope they will help you too. Here they are:

First, The beginning of your own life is not in your hands, but where you end up is. So remember, your aspirations are your possibilities, and therefore, keep your aspirations always high. When someone tells you that it can’t be done, take it that it is more a reflection of his or her limitation, not yours.

Second, there is no substitute for hard work for becoming successful. Like instant coffee, there is no instant success. I have myself worked 24x7, week after week, month after month, year after year, and will do so till I take my last breath. The golden rule is the following. Work hard in silence. Let success make all the noise.

Third, Perseverance matters. Always too early to quit. Quitters are never winners and winners are never quitters. Interpret FAIL as the first attempt in learning.

Fourth, be always a part of a solution, never part of a problem. If you can’t find the way, create your new way. You will keep on knocking on the doors. Don’t get frustrated if they don’t open. Create your doors.

Fifth, I strongly believe that there is no limit to human endurance, no limit to human achievement, and no limit to human imagination, excepting the limits you put on your mind yourself. Be `limitless’ in terms of your imagination. So, every day, when you wake up, no matter how old you are, say to yourself that my best is yet to come, and maybe today is that day.

My young friends, all my best wishes and choicest blessings will be always with you, when you keep on climbing on this limitless ladder of excellence and bring glory not only to yourself, to your family, but also our beloved nation, our glorious motherland.

Dr. R.A. Mashelkar

Prof. Prem Vrat
CHAIRPERSON, BOARD OF GOVERNORS, IIT MANDI
CHAIRPERSON, BOARD OF GOVERNORS, IIT (ISM) DHANBAD
RETIRED PROFESSOR, IIT DELHI
&
FOUNDING DIRECTOR, IIT ROORKEE

ADDRESS BY THE CHAIRPERSON, BOARD OF GOVERNORS, IIT MANDI

Honourable Chief Guest Dr. R. A. Mashelkar, Esteemed Director Prof Ajit Chaturvedi members of the Board of Governors, the Senate, esteemed faculty, graduating batch of 2020, dear students, staff, distinguished invitees, ladies, and gentlemen!

I am delighted to welcome our very distinguished Chief Guest Dr. R.A. Mashelkar and express our gratitude to him for having accepted our invitation to grace the occasion as the Chief Guest and deliver the convocation address. I am sure that his presence, though virtual, will be a great source of inspiration to not only the graduating batch but the entire IIT Mandi family.

It gives me immense pleasure to congratulate the graduating students of IIT Mandi on the occasion of its 8th Convocation ceremony. My hearty congratulations also to the faculty and staff of IIT Mandi, who have made this journey possible in the face of unprecedented crisis humanity has been confronted with in recent times. It is the beginning of a new journey for the graduating students, and I am sure a challenging, yet successful career path lies ahead of you. I sincerely hope that the knowledge and skill the graduating students have acquired and the ethos they have imbibed during their stay at IIT Mandi will stand them in good stead through the coming years of new challenges and opportunities. Also, these students would help contribute significantly in diverse ways to the country's development and the welfare of humanity.

I feel quite happy to note the impressive progress the Institute has made since its foundation in 2009. Eleven years down the line, the residential campus in the Himalayas currently houses nearly seventeen hundred students, more than a hundred faculty and staff members, offers six B.Tech. programs, along with a B.Tech. – M.Tech. the integrated dual degree program, and multiple postgraduate programs including M.Tech., M.Sc., M.A., MS (by Research), and Ph.D. The

innovative feature of our B.Tech. the program has been the incorporation of hands-on project-based courses. Similarly, the five-week induction program, introduced in 2016, for the new B.Tech. students have also been unique in its objectives and execution. IIT Mandi is the first IIT to launch an induction program of this scale and scope for the fresh batch of B. Tech. students. The induction program is aimed at initiating and integrating the incoming B. Tech. students into the thriving academic milieu on the campus through interactive modules. These modules are entirely mentored by faculty, and these are designed to impart a diverse set of academic, social, and physical skills and ethos. I congratulate the faculty and staff of the Institute on this remarkable accomplishment.

The Institute has also made its mark in research, collaboration, and international linkages established over the past decade. It is an outstanding achievement to have research projects worth more than a hundred crores so far. I am delighted that a Technology Innovation Hub (TIH) is being set up in the area of human-computer interaction under the "National Mission on Interdisciplinary Cyber-Physical Systems (NM-ICPS)" alongside the existing business incubation program of IIT Mandi Catalyst. In this context, it gives me also great joy and satisfaction in acknowledging the achievements of the IIT Mandi Catalyst. Initiated in 2016 as the first Technology Business Incubator (TBI) in Himachal Pradesh, it has established itself over the past four years. Catalyst has a strong and reliable mentoring presence in the innovative entrepreneurial/start-up landscape of Himachal Pradesh. It has to be mentioned to its credit that IIT Mandi Catalyst has so far received more than 1000 applications and supported well above 100 start-ups. It has to date disbursed about INR 3.5 crores for prototyping and commercialization of diverse start-ups in clean energy, environment, health care, agriculture, enterprise management, biotech, education, manufacturing, and consumer internet. The fact that one-fifth of the total start-ups have been founded by the IIT Mandi faculty, staff, and students underline the innovative and entrepreneurial spirit of IIT Mandi once again.

It is noteworthy to report that alongside the academic and entrepreneurial milestones of the Institute in its short history, the Institute has also been its sensitive social face in the comprehensive and successful outreach of Enabling Women of Kamand (EWOK). The idea of and plan for EWOK grew out of a project study conducted by a few B.Tech. students on the glaring gender imbalance in education and employment among the population in the Kamand valley. Aimed at addressing gender skewness in the local community, EWOK, established by the Women Cell at IIT Mandi in June 2016, has been promoting and fostering various enterprises run by women in the Kamand valley and surrounding areas. It brings excellent contentment to our social conscience as an Institute to see that EWOK has contributed significantly towards the empowerment of local women through its growing regional network of social entrepreneurship.

Partnerships with other institutes and universities of excellence across the globe have been central to the expanding international academic outreach of IIT Mandi. Since 2013, over 50 of our students have spent a semester at RWTH Aachen University, the Technical University of Munich, IT University of Copenhagen, Blekinge Institute of Technology, Hepia, Switzerland, and McMaster University, Canada as part of the semester exchange program. It is a matter of pride that IIT Mandi has been made the national coordinating institution for Germany under the SPARC (Scheme for Promotion of Academic and Research Collaboration). In the past ten years, the Institute has signed MoUs with as many as 11 international universities. We have been leading among the eight-second generation IITs in attracting students from SAARC nations.

It fills me again with immense pride and joy on this occasion to list here a couple of notable academic achievements of our faculty members and students. Dr. Manu Devadevan, Assistant Professor, School of Humanities and Social Sciences (SHSS) was awarded the prestigious Infosys Prize in 2019 for his outstanding research on the cultural, literary, economic, and political vividness of South India. In a similar vein of academic excellence, Dr. Syed Abbas, Associate Professor, School of Basic Sciences (SBS), was one of the forty scientists to be inducted last year as a member of the prestigious Global Young Academy (GYA) for a term of five years. IIT Mandi students won the top three positions in the Institute of Electrical and Electronics Engineers, Industry Application Society (IEEE – IAS) Student Thesis Contest 2020 in the non-PhD category. Above all, looking back and reflecting upon the last academic year, it is immensely gratifying to note that even in the face of immense challenges posed by the COVID-19 pandemic, the Institute has been able to keep on track most of its academic and research programs by switching to digital and hybrid modes. The Institute even rose to the occasion on the research front, for instance, by inventing a UV-C Disinfection Box and a Foot Operated Hand Sanitizer Dispenser to minimize the risk of COVID-19 infection.

Dear graduating batch: you were privileged to get admission in one of the most reputed IIT brand and your teachers have nurtured you to the best of academic standards. Use your knowledge and wisdom for the good of society and contribute to the process of nation-building. As alumni of IIT Mandi, your relationship with your alma mater is a lifelong one. A good engineer has to be a good human being first and I am sure that you will contribute with full enthusiasm, a positive attitude, and good human values and professional ethics to bring glory to your alma mater and the nation.

I am sure that IIT Mandi, with its newly enriched sense of pride, added confidence and commitment, strengthened resolve, drive, and focus would keep scaling the heights of excellence in times to come. I would conclude by offering my heartfelt congratulations to the graduating class of 2020, their parents, the faculty, and the Institute's staff on reaching yet another milestone in these trying times and wish them all the very best in their future endeavors. May God bless you all. Thank you, JAIHIND.

Prof. Prem Vrat

BOARD OF GOVERNORS

Chairperson (Nominee of the visitor)

Shri. Prem Vrat
Chairperson, Board of Governors, IIT Mandi

Director (Ex-officio)

Prof. Ajit K Chaturvedi
Director, IIT Mandi

Nominees of the State Government

Chief Secretary / Secretary (by designation)
Technical Education, Government of Himachal Pradesh, Shimla - 171002

Nominees of the IIT Council

Additional Secretary (TE)/ Joint Secretary (Ex-Officio)
MHRD, Government of India, Shastri Bhawan, New Delhi-110001

Shri Hemant Sood
Managing Director & Promoter (Financial Services group)
Findoc Financial Services Group, 5th Floor, Kartar Bhawan, Near PAU, Gate No.1
Ferozpur Road, Ludhiana-141001 (Punjab)

Shri Kishan Chandra Sharma
Site Head & Sr. Vice President
Manufacturing, LUPIN Pharma Limited, 198 - 202, New Industrial Area No. 2
Mandideep - 642046, Distt, Raisen (M.P)

Dr. Pradeep Kumar Agrawal
Scientist Directorate of Special Projects, D.R.D.O. Hyderabad
H.No. 16-142, Green Rich Avenue, Badangpet Nagar Panchayat, Hyderabad-500058

Nominees of the Senate

Prof. S.C. Jain
Emeritus Professor, School of Engineering, IIT Mandi
Kamand Campus, VPO Kamand, District Mandi - 175075, Himachal Pradesh

Dr. Subrata Ghosh
Associate Professor, School of Basic Sciences, IIT Mandi
Kamand Campus, VPO Kamand, District Mandi - 175075, Himachal Pradesh

Secretary

Shri K.K. Bajre
Registrar (Ex-Officio), IIT Mandi
Kamand Campus, VPO Kamand, District Mandi - 175075, Himachal Pradesh

DIRECTOR'S REPORT

Prof. Ajit Kumar Chaturvedi
DIRECTOR, IIT MANDI

Dr. Raghunath Mashelkar, Chief Guest of the 8th Convocation of IIT Mandi; Professor Prem Vrat, Chairman of the Board of Governors; Members of the Board of Governors, IIT Mandi; Members of the Academic Senate; Faculty and Staff Members of the Institute; graduating students and their family members; distinguished guests: I welcome you all on the occasion of the 8th Convocation of the Indian Institute of Technology Mandi. I would like to take this opportunity to congratulate the graduating students for achieving this milestone in their lives. I'm sure this is a moment of pride for them and their families.

Today, we are delighted to have with us Dr. Raghunath Mashelkar as the Chief Guest. Dr. Mashelkar was conferred the Padma Vibhushan in 2014 and has been honoured as a Fellow of the Royal Society, Foreign Fellow of the US National Academy of Science and US National Academy of Engineering, Foreign Associate of the American Academy of Arts and Science, and Fellow of the US National Academy of Inventors. 42 universities from around the world have conferred honorary doctorate degrees to him.

I'm delighted to announce that 383 candidates will be graduating on the occasion of the 8th Convocation of IIT Mandi. This includes 147 B.Tech, 97 M.Tech., 77 M.Sc., 12 M.A., and 50 Research Scholars. Of the 50 Research Scholars, 11 are being awarded M.S. (by Research) degrees and 39 are being conferred Ph.D. degrees.

1. GRADUATING STUDENTS

147 B.Tech., which includes 2 B.Tech. (Honours) and 56 B.Tech. with Minor, 97 M.Tech. (23 in Mechanical Engineering with specialization in Energy Systems; 14 in Energy Engineering with specialization in Materials; 17 in Structural Engineering; 9 in VLSI; 14 in Power Electronics and Drives and 10 in Communications and Signal Processing), 77 M.Sc. (26 in Chemistry, 29 in Applied Mathematics and 22 Physics), 12 M.A. (Development Studies), 11 M.S. (by Research)

and 39 Ph.D. candidates will be graduating today. The following is a summary of the research being recognized today by the award of these degrees:

- **GRADUATING RESEARCH STUDENTS: Doctor of Philosophy**

1. AJAY

Ph.D. Supervisor: Dr. Samar Agnihotri
Title of the Thesis: Device-To-Device Multicast in Underlay Cellular Networks
The thesis introduces the problem of device-to-device (D2D) multicast in underlay cellular networks, provides various novel insights into this problem, and pragmatic solutions for the same.

2. KARAN SINGH

Ph.D. Supervisor: Dr. Kaustav Mukherjee
Title of the Thesis: Magnetic, Thermodynamic and Electrical Transport Properties of Ce-based Intermetallics: Ce1-xLaxGe (x = 0.0-0.76), Ce1-xYxNiGe2 (x = 0.0-0.4) and CeAlGe
The thesis addresses some of the open problems around the research on 4felectron-based compounds under the application of external non-thermal parameters like a magnetic field, dopng, etc.

3. SUMEET KUMAR SHARMA

Ph.D. Supervisor: Dr. Vishal S Chauhan and Dr. S. C. Jain
Title of the Thesis: Electromagnetic Radiation Detection from Ferroelectric Ceramics for Wireless Sensing Applications
The thesis carries out theoretical and experimental investigation on wireless signal emission characteristics of the ferroelectric materials under the application of electric field, impact loading, and at low and high-temperature conditions.

4. VIBHA GUPTA

Ph.D. Supervisor: Dr. Arnav Bhavsar
Title of the Thesis: Ensemble and Deep Learning-based Approaches for Microscopy Image Analysis
The thesis work involves developing ensemble learning and deep learning algorithms for the classification of HEp2 cell images and breast cancer histopathology images; it also includes automatic methods to select features that are more important for the classification task.

5. SURENDER LAL

Ph.D. Supervisor: Dr. C. S. Yadav and Dr. Kaustav Mukherjee
Title of the Thesis: Structural, Magnetic, Dielectric and Thermodynamic Studies of Layered Perovskite $LnBaCuFeO_5$ (Ln = Rare-earth element) and its Derivatives
The thesis focuses on the exploration of the physical properties of layered perovskite compounds LnBaCuFeO5 (Ln = Rare-earth element) and its derivatives, which are promising multiferroic materials.

6. ANSHUL THAKUR

Ph.D. Supervisor: Dr. Padmanabhan Rajan
Title of the Thesis: Automatic Pattern Analysis of Bioacoustic Signals: Exploring Shallow and Deep Learning Frameworks
This thesis proposes machine learning approaches to the problem of the classification of bioacoustic signals like bird and frog vocalizations.

7. MANU SHREE

Ph.D. Supervisor: Dr. Shyam Kumar Masakapalli
Title of the Thesis: Mapping Central Carbon Metabolism of Xanthomonas Oryzae and Xanthomonas Campestris by Integrating Metabolic Systems Biology approaches
The thesis decodes the precise metabolic phenotypes of agriculturally and industrially relevant phytopathogens - Xanthomonas campestris and Xanthomonas oryzae by integrating robust metabolic systems biology approaches of comparative genomics, 13C tracer based metabolic pathway mapping, and 13C Metabolic Flux Analysis (13C MFA.

8. SHAIFU GUPTA

Ph.D. Supervisor: Dr. Dileep A.D. and Dr. Timothy A. Gonsalves
Title of the Thesis: Online Resource Usage Prediction and Failure-Aware System for Resource Provisioning in Cloud Datacenters
The thesis focuses on improving the prediction of future resource usage and proactive prediction of resource contention failures of cloud resource provisioning system by analysing the nature of cloud workloads and by applying machine learning techniques.

9. NAINA ARORA

Ph.D. Supervisor: Dr. Amit Prasad
Title of the Thesis: Immuno-Proteomic Profiling of Excretory-Secretory Proteins of Taenia Solium Metacestode
The thesis provides a study about the role of Taenia solium proteins in the immunopathogenesis of neurocysticercosis and host immune modulation. A new diagnostic tool for neurocysticercosis was established during this study.

10. INDU YADAV

Ph.D. Supervisor: Dr. Hitesh Shrimali
Title of the Thesis: Design and Analysis of Front-End Electronics for CMOS Pixel Detectors
The thesis presents a design methodology for radiation hard CMOS pixel detectors along with its noise and crosstalk analyses. The work is supported with the measurement results of the fabricated chip in 180nm BCD technology for a pixel size of 288.

11. ADIL USMAN

Ph.D. Supervisor: Dr. Bharat Singh Rajpurohit
Title of the Thesis: Fault Diagnosis in Brushless Permanent Magnet Synchronous Motor Drive

This thesis provides a new fault modeling technique offering less computational time and a novel fault diagnostic signature for detecting, identifying, and localizing faults in the Permanent Magnet electrical machines.

12. ASHISH SHIRISH JOSHI

Ph.D. Supervisor: Dr. Satinder Kumar Sharma and Dr. Hitesh Shrimali
Title of the Thesis: Multivalent Energy-Efficient CMOS Amplifiers and Data Converters for Signal Processing Applications
The thesis presents an energy-efficient design of low noise instrumentation amplifier and ADC for a low frequency-based sensor, and biomedical applications such as EEG, ECG, and EMG.

13. GADHAVE KUNDLIK BHAGWAN

Ph.D. Supervisor: Dr. Rajanish Giri
Title of the Thesis: The Dark Side of Alzheimer's Disease and Amyloid Formation by Signal Peptide of Amyloid Precursor Protein
The thesis provides substantial insights on the intrinsic disorder profile of proteins from the amyloid cascade signaling and the Ubiquitin-Proteasome System and reports that the Signal Peptide of APP can self-assemble into β-sheet rich cytotoxic amyloid-like aggregates.

14. DEEPAK KUMAR

Ph.D. Supervisor: Dr. Rajanish Giri
Title of the Thesis: Zika Virus Helicase: From Biophysics to Drug Discovery of a Moving Target
The thesis deals with the wholistic study of intrinsically disordered proteins of Zika virus proteome and further focuses on a Zika virus protein NS3 helicase which utilizes the intrinsic disorder to gain multifunctional abilities. The biophysical characterization of NS3 helicase was carried out to establish structure-function relationships.

15. SUBRATA MONDAL

Ph.D. Supervisor: Dr. Rajesh Ghosh
Title of the Thesis: Biomechanical Analysis and Design Considerations of Tibial Component for Total Ankle Replacement
The thesis focuses on investigating the load transfer, strain distribution, implant-bone micromotion, measurement of wear depth and the implant-induced bone adaption, and their relationships with the failure risk, using finite element (FE) analysis.

16. NAVNEET CHANDRA VERMA

Ph.D. Supervisor: Dr. Chayan Kanti Nandi
Title of the Thesis: Single Molecule Blinking and Localization Based Superresolution Microscopy of Carbogenic Fluorescent NanoDots
The thesis establishes carbogenic fluorescent nanodots (FNDs) as a specific bio-labeling probe for new-age 3D, deep-tissue confocal, super-resolution microscopy, and electron microscopy. FNDs were explored for their use as an efficient probe for the most advanced correlative light and electron microscopy.

17. RAJESH DHAYAL

Ph.D. Supervisor: Dr. Muslim Malik and Dr. Syed Abbas
Title of the Thesis: Study of Deterministic and Stochastic Differential Equations with Applications in Control Problems
The thesis deals with the investigation of various kinds of deterministic and stochastic differential equations in finite as well as in infinite-dimensional spaces. It provides insight into the different types of controllability, existence, uniqueness, stability, and existence of optimal controls for non-instantaneous impulsive differential equations of order one, two, and non-integer.

18. SHEKHAR SINGH

Ph.D. Supervisor: Dr. Syed Abbas and Dr. Muslim Malik
Title of the Thesis: Study of Dynamic Equations on Time Scale with Applications
In this thesis, the focus is to derive oscillatory results for the first and second-order dynamic equations on a time scale. The results are established by using less restrictive conditions. Furthermore, a new unified derivative of continuous, discrete, and quantum calculus is introduced.

19. MEDHA KUMAR

Ph.D. Supervisor: Dr. Varun Dutt
Title of the Thesis: Understanding and Improving Human Decisions Against Climate Change via Computer Simulation Tools
The main contribution of this thesis is the use of simulation tools and computational models to understand people's decisions individually or in a group against climate change via the use of microworlds and public goods game for studying climate change decision making, and reinforcement learning techniques to model learning and decision making.

20. SHIKHA GUPTA

Ph.D. Supervisor: Dr. Dileep A.D.
Title of the Thesis: Dynamic Kernels and Semantic Representations for Recognition of Varying Size Scene Images
This thesis addresses issues in designing dynamic kernel-based SVM classifier for varying size scene image recognition and to learn semantic multinomial representation as a semantic representation of scene images that captures the constituent concept information better and further bridges the semantic gap for improving the recognition performance.

21. BANDHANA DEVI

Ph.D. Supervisor: Dr. Aditi Halder and Dr. Rik Rani Koner
Title of the Thesis: Metal-Organic Materials Derived Nanostructures for Energy Conversion and Storage Applications
The thesis deals with the design and synthesis of electrocatalysts from metal-organic materials (MOMs) through controlled pyrolysis processes. To evaluate the newer strategies for coupling energy conversion devices with energy storage devices like supercapacitors, both electrochemical study and device fabrication were carried out.

22. SHIVANI

Ph.D. Supervisor: Dr. Hitesh Shrimali and Dr. Satinder Kumar Sharma
Title of the Thesis: High-K Gate Dielectrics for Two-Dimensional Multilayer Hafnium Disulfide based Interdigitated Electrodes-Field-Effect Transistors: Next-Generation Technology
In the thesis, a high purity 2DML HfS2 is chemically synthesized through the Hot injection method to utilize as a channel material for the μ-IDEs-FETs applications.

23. IMRAN AHAMED

Ph.D. Supervisor: Dr. Arti Kashyap
Title of the Thesis: Ab-initio studies of exotic properties of ϵ-Fe_2O_3: A rare polymorph of iron oxide
The thesis investigates the exotic properties of ε-Fe2O3 which is a rare polymorph of iron oxide. He has also explored the heterostructure of ε-Fe2O3/α-Fe2O3 for reducing the electron-hole pairs recombination for a better photocatalytic activity.

24. ROHIT PATHAK

Ph.D. Supervisor: Dr. Arti Kashyap
Title of the Thesis: First-Principles Investigation of Some Rare-Earth Free Permanent Magnets
The thesis investigated three different kinds of materials: transition metal borides, cobalt-based intermetallic, and binary (four phases of Fe-Pd) and ternary (four phases of boron-doped Fe-Pd) intermetallic compounds. All of them are important and potential candidates for rare-earth free permanent magnets.

25. PRAVAT KUMAR JENA

Ph.D. Supervisor: Dr. Sarita Azad
Title of the Thesis: Observed and Projected Changes in Indian Monsoon Rainfall Extremes Under Changing Climate RCP8.5 Scenario
The thesis aims to identify and predict extreme events such as drought and flood in the Indian Summer Monsoon by analysing the observed data and Coupled Model Intercomparison Project Phase 5 (CMIP5) model simulations of time period 1901-2014 and 2006-2100, respectively.

26. NITIN SHARMA

Ph.D. Supervisor: Dr. Rajanish Giri
Title of the Thesis: Zika Virus: Role of Envelope Protein in Entry and Therapeutics
The thesis is on viral entry mechanisms, in particular the drug discovery and folding analysis of Envelope protein. It led to the identification of a drug F1065-0358 that inhibits Zika virus, using structure-based drug discovery and following the antiviral experiments using Zika virus cultures.

27. ABHILASH M

Ph.D. Supervisor: Dr. Manu V. Devadevan
Title of the Thesis: Land Regime, Agricultural Production and the Politics of Credit Money in Eighteenth-Century Malabar

The thesis investigates the institution of landed proprietorship in eighteenth century Malabar and its relationship with tenancy, mercantile credit, and politics and demonstrates the emergence of a contradictory relationship between ground rent and interest-bearing credit money, which transformed the region's political economy in general and landholding patterns.

28. SANDEEP KUMAR SHUKLA

Ph.D. Supervisor: Dr. Satvasheel Powar and Dr. Rahul Vaish
Title of the Thesis: $BaTiO_3$ Based Ferroelectric Ceramics for Bacterial Remediation in Aqueous Systems
The thesis outcome indicates that ferroelectric materials may be a sustainable and effective tool to combat bacterial and organic impurities in water carrying systems.

29. ABHIMANYU

Ph.D. Supervisor: Dr. Deepak Swami
Title of the Thesis: Fate and Transport Study of contaminant through Saturated Porous Media
The thesis deals with the model development for contaminant transport through a heterogeneous porous medium. The developed model is versatile and semianalytical solved.

30. RAJESH MANJIBHAI PINDORIYA

Ph.D. Supervisor: Dr. Bharat Singh Rajpurohit and Dr. Rajeev Kumar
Title of the Thesis: Experimental Investigation of Acoustic Noise and Vibration of High-Performance PMSM Drive
The thesis focuses on the reduction of Acoustic Noise and Vibration and the development of rotor position sensor-less operation of Permanent Magnet Synchronous Machine drive.

31. KRISHAN SHARMA

Ph.D. Supervisor: Dr. Renu M. Rameshan
Title of the Thesis: Exploring Geometrical Structures in Image and Video Data for Classification: From Subspaces to Matrix Manifolds
The thesis deals with the creation of geometrical - subspace and manifold - models for image sets and video and kernels whose underlying function preserves the distance in manifold were designed.

32. HARMANPREET SINGH

Ph.D. Supervisor: Dr. Pradyumna Pathak
Title of the Thesis: Phonon Assisted Non-Linear Interaction and Quantum Entanglement in Semiconductor Cavity Quantum Electro Dynamics
In this thesis, proposals for entangled photon sources and nonlinear interaction is explored in semiconductor nanophotonic systems.

33. MANOJ DAS

Ph.D. Supervisor: Dr. Pradyumna K Pathak
Title of the Thesis: Study of Hybrid Optomechanical Systems
In this thesis, optomechanical systems and generating quantum states of mechanical motion are explored.

34. JUHI PANDEY

Ph.D. Supervisor: Dr. Ajay Soni
Title of the Thesis: Light-Matter Interactions in Metal Chalcogenides Investigated by Optical Spectroscopy
The thesis is on the study of light-matter interaction in chalcogenide materials for excitonic excited states, charge density wave, electron-phonon interactions, and ferroelectric polarization and plasmon-phonon coupling in typical materials.

35. PIYUSH KUMAR AVASTHI

Ph.D. Supervisor: Dr. Viswanath Balakrishnan
Title of the Thesis: Surface Engineering of CVD Grown Carbon Nanostructures for Supercapacitor Electrode Applications
The thesis is mainly focused on the surface engineering of carbon-based materials for supercapacitor performance. Different CVD-grown materials have been investigated for tuning their contact angle by electrolyte engineering, conformal coating of metal oxides, and plasma treatment. Detailed electrochemical measurements have been carried out in symmetric and asymmetric device configurations.

36. MD ZAHID

Ph.D. Supervisor: Dr. Rajneesh Sharma And Dr. Syed Abbas
Title of the Thesis: Two-Scale Thermo-Mechanical Analysis of Multidirectional Carbon/Carbon Composites using Image-based Finite Element Method
The thesis developed a novel technique for the realistic implementation of the finite element method for the thermos-mechanical characterization of multidirectional c/c composites. The method is applied to predict the thermal shock behavior of 3D hybrid and 4D inplane c/c composites. The results are in good agreement with the experiments.

37. ASHISH TIWARI

Ph.D. Supervisor: Dr. Jaspreet Kaur Randhawa
Title of the Thesis: Magneto-fluorescent carbon-coated superparamagnetic iron oxide nanoarchitectures (SPIONs) for multimodal imaging and cancer theranostics
The central hypothesis of this thesis was to enable multimodal imaging ability in magnetic nanoparticles by associating fluorescence into their structures and in-situ tuning of the magneto-fluorescent properties. This thesis accomplished all the above biomedical applications and significantly addresses the challenges as stated above and stand potentially in achieving the high throughput results in real-time cancer theranostics.

38. SHARAD KUMAR GUPTA

Ph.D. Supervisor: Dr. Dericks Praise Shukla

Title of the Thesis: Computational Mapping of Landslide Susceptibility Zones Using Satellite and Field Data
The subjectivity in weightage selection, selection of scale and study area, selection of factors, and finally problems associated with data imbalance in the general practice of landslide susceptibility mapping are few important issues that have been addressed and attempted to solve in this research thesis.

39. MOHAMMAD AMIR

Ph.D. Supervisor: Dr. Mohammad Talha
Title of the Thesis: Geometrically Nonlinear Analysis of Functionally Graded Cellular Panels with Material Stochasticity
In this thesis, an effort has been made to study the large amplitude free flexural vibration analysis of the geometrically nonlinear functionally graded shell panels, graded cellular panels, and sandwich panels with the graded cellular core in a deterministic and stochastic environment

- **GRADUATING RESEARCH STUDENTS M.S. (by Research)**

1. PRAKASH PRATIK

M.S. Thesis Supervisor: Dr. Kunal Ghosh
Title of the Thesis: Modelling and Analysis of Thermal Profile of Photovoltaic Module Installed on Rooftop
The thesis develops a numerical model for analyzing the thermal profile of photovoltaic modules under different operating conditions.

2. SEEMA KUMARI

M.S. Thesis Supervisor: Dr. Arnav Bhavsar
Title of the Thesis: Learning-Based Depth Map Estimation: Considering Noise and Scene Categories
In this thesis, novel deep learning-based methods are proposed to enhance depth maps, and estimate depth maps from corresponding single intensity images, for different types of scenes and noise conditions.

3. AKASH K RAO

M.S. Thesis Supervisor: Dr. Varun Dutt
Evaluation of Human Performance in Indirect Visual Displays and Virtual Reality
The thesis evaluated human performance in the indirect visual display (IVDs) and virtual reality (VR) interfaces under varying target-distractor base-rates, manned or unmanned training, and difficulty training.

4. BHARAT VARDANI

M.S. Thesis Supervisor: Dr. Narsa Reddy
Title of the Thesis: A Single Stage Inductive Wireless Power Transfer Using Matrix Converter for an Electric Vehicle Application
The thesis work proposes a control strategy for a single-stage wireless power conversion topology that is easy to implement and more importantly can achieve a unity power factor (UPF) using a single controller.

5. TEJINDER THAKUR

M.S. Thesis Supervisor: Dr. K V Uday
Title of the Thesis: Study on the Factor Contribution of Micropile Pullout Resistance
The thesis investigates quantitative factor contribution to improve the micropile uplift capacity revealed that the displacement is influenced by the soil unit weight and grouting pressure, whereas the higher uplift capacity can be achieved by varying the geometry of the micropile.

6. CHANDNI

M.S. Thesis Supervisor: Dr. Deepak Swami
Title of the Thesis: Modelling of Solute Transport through Saturated Porous Media: Experimental and Numerical Approach
The thesis deals with the application of the model based on a random walk and dual porosity bifurcation of the porous medium, along with the application of the various porosity models, for heterogeneous porous medium.

7. BODHAYAN NANDI

M.S. Thesis Supervisor: Dr. Shubhajit Roy Chowdhury
Title of the Thesis: Closed-Loop Control of Blood Glucose Level through Simultaneous Estimation of Blood Insulin and Glucose
The thesis presents the design and implementation of a model predictive controller for the artificial pancreas and adds to the body of knowledge in compartmental modelling techniques for modelling different physiological phenomena of the blood glucose system.

8. NAYAN PUNDHIR

M.S. Thesis Supervisor: Dr. Sunny Zafar and Dr. Himanshu Pathak
Title of the Thesis: Impact Behaviour of Microwave-Assisted Compression Moulded HDPE/Kenaf and HDPE/MWCNT Composites
The thesis work deals with a novel manufacturing route, microwave-assisted compression moulding (MACM), for fabricating high-density polyethylene (HDPE) based composites. The composites were tested for impact applications, using experimental and simulation techniques.

9. SHETE SNEHAL DILIP

M.S. Thesis Supervisor: Dr. Srikant Srinivasan and Prof. Timothy A. Gonsalves
Title of the Thesis: Image Analysis and Synthesis for Maize Phenotyping
In this thesis, a computer vision system (algorithms) for phenotyping maize is developed and shown to be efficacious on images taken in natural field environments. Deep learning is also used for the synthesis of artificial data, to make up for the paucity of natural data.

10. PRAVEEN KUMAR

M.S. Thesis Supervisor: Dr. Varun Dutt and Dr. K. V. Uday
Title of the Thesis: Slope Movement Prediction and Early Warnings via Machine Learning Algorithms and IoT Technologies

The thesis deals with the development, deployment, and calibration of a new low-cost IoT-based landslide monitoring system. Also, it deals with the development of different machine learning algorithms to predict slope movement captured by the landslide monitoring system.

11. AIJAZ HAMID LONE

M.S. Thesis Supervisor: Dr. Srikant Srinivasan
Title of the Thesis: Effect of Scaling on Tunnel Magnetoresistance and Thermal Stability in Magnetic Tunnel Junction
Quantum transport and magnetization dynamics study of magnetic tunnel junctions were carried out to study the effect of size downscaling and to investigate different regimes of device operation. The contribution of different conducting modes towards the magnetoresistance was explicitly investigated and quantified, aiding in a better understanding of spintronic devices.

2. ACADEMIC ACTIVITIES

- **Current Students**

Currently, 4-year B.Tech. programs are offered in six branches, viz., Civil Engineering (CE), Computer Science and Engineering (CSE), Electrical Engineering (EE), Mechanical Engineering (ME), Data Science and Engineering (DSE), and Engineering Physics (EP) along with B. Tech. – M.Tech. integrated dual degree in Bioengineering (5–year program). There are three M.Sc. programs in Physics, Chemistry, and Mathematics; M.Tech. in Mechanical Engineering with Specialization in Energy Systems and Materials, M. Tech. in Power Electronics and Drives, M.Tech. in Communications and Signal Processing, M.Tech. in Biotechnology, M.Tech. in Structural Engineering, and M.Tech. in VLSI. There is one MA program in Development Studies, one MS (by Research) program, and a Ph.D. program.

Four schools are hosting the academic programs: Schools of Basis Sciences (SBS), School of Computing and Electrical Engineering (SCEE), School of Engineering (SE), and School of Humanities and Social Sciences (SHSS). In 2020, 310 B.Tech. students, 101 M. Tech. students, 109 M.Sc. students, and 13 M.A. students secured admission at IIT Mandi. We now have a total of 1,833 students including 352 Ph.D., 62 M.S., and 22 I-Ph.D. research scholars.

- **Life after IIT**

Despite several disruptions created by the pandemic, the Career and Placement Cell (CnPC) at IIT Mandi worked actively throughout the year and conducted several career counseling sessions. During the 2019-20 placement season, 85% of the registered undergraduate students received job offers. A total of 45 companies took part in campus placement. Among the registered postgraduate students, 35% received job offers from good companies, including core companies. Some of the students decided to go for higher education in institutes, such as the University of Glasgow, Scotland; University of Bristol, England; Delft University of Technology, Netherlands; Indian Institute of Management, Calcutta; Indian Institute of Management, Kozhikode; Indian Institute of Technology Kanpur; Indian Institute of Technology Roorkee; Indian Institute of Technology Bombay; Indian Institute of Technology Delhi; and Indian Institute of Science, Bangalore, etc.

- **Major institute-level achievements during the past year**

  - Owing to the thriving academic environment of the Institute along with the presence of effective business incubation, i.e., IIT Mandi Catalyst, IIT Mandi has made a debut in the Atal Ranking of Institutions on Innovation Achievements, Ministry of Education, Government of India. The rankings were announced on 18th August 2020, by the Hon'ble Vice President Shri. M. Venkaiah Naidu. The Institute has been ranked #7 in the centrally funded institutions category in India of ARIIA 2020. IIT Mandi is the only institute from the second generation of IITs to be featured in ARIIA 2020. Before this achievement, the Institute was also ranked 6th in India by India Today among the centrally funded institutions in India.

  - IIT Mandi has also set up a Technology Innovation Hub (TIH) in the human-computer interaction area under the "national mission on the interdisciplinary cyber-physical system (NM-ICPS)" supported by DST. Under this project, the TIH (a section-8 company) titled, "IIT Mandi iHub and HCI Foundation," has been established, which will focus on the verticals of technology (interface) development and evaluation, HRD & skill development, incubation and entrepreneurship, and collaborations. This project is headed by several faculty from SCEE and SBS working in HCI and AI/ML areas, and it is the largest such project bagged by the Institute since its inception in 2009 worth INR 110 crores.

- **Selected achievements by faculty and students**

  - There are some notable achievements by the faculty and the students on the academic front. IIT Mandi researchers had more than 300 peer-reviewed publications during the academic year 2019-20. This includes peer-reviewed journals, books and book chapters, and conference proceedings.

  - Dr. Manu Devadevan, Assistant Professor, School of Humanities and Social Sciences, IIT Mandi, won the prestigious Infosys Prize in 2019 for his extensive research on the cultural, literary, economic, and political vividness of South India.

  - Dr. Syed Abbas, Associate Professor, School of Basic Sciences, is among the 40 young scientists, globally, to be inducted as a member of the prestigious Global Young Academy (GYA) for a term of 5 years, i.e. from June 2020 to May 2025.

  - IIT Mandi students gained top three positions in the Institute of Electrical and Electronics Engineering, Industry Application Society (IEEE - IAS) Student Thesis Contest 2020 under the non - Ph.D. Category.

- **Significant research and technology development:**

  - There are some significant contributions to technology development. Dr. Anil Sao and Dr. Arnav Bhavsar have contributed to developing an Artificial Intelligence-powered point-of-care device to screen for cervical cancer by analysing microscopy images with high accuracy. This project has been taken up in collaboration with Aindra Systems Pvt. Ltd.,

Bengaluru. This Artificial Intelligence-powered device does away with the need for women, especially those in remote and rural areas, to make the trip to a hospital to get themselves tested. A patent has been filed.

- Dr. Satvasheel Ramesh Powar and Dr. Atul Dhar, along with their research scholar Mr. Ankur Kaundal, have designed the innovation of Atuvik, an affordable cooking stove to combat indoor air pollution and decrease dependency on firewood. Atuvik produces a range of cooking and heating solutions from the simple single-burner cooking stove to the integrated cooking and heating solution for higher elevation areas. A patent has been filed.

- Technology development and scientific research also remained significant in terms of next-generation spintronic technology, jute and kenaf fibre reinforced plastics through microwave energy, environmentally safe and cost-efficient heterogeneous catalysts for industrial applications, and the effectiveness of drug used in treating opioid addiction in reversing some type 2 diabetes-associated adverse events, etc.

- In the face of the outbreak of the pandemic, IIT Mandi researchers worked relentlessly to develop various affordable health intervention technology: Wi-Fi Operated Smart Ventilator, UV-C Disinfection Box and Foot Operated Hand Sanitizer Dispenser to minimize the risk of COVID-19, Indigenous technology for high-efficiency face Masks from waste 'PET bottles' are few of them.

- Dr. Varun Dutt and Dr. K. V. Uday with a team of B.Tech. graduate students, and members from their faculty-led startup, iIoTs, helped the Indian army by developing and deploying A social distancing app, ACSA, in the Indian army canteens. This app has successfully catered to more than 15,000 army personnel since its inception during the prevailing COVID-19 pandemic.

3.INTERNATIONAL LINKAGES

IIT Mandi has remained an attractive destination for international students and faculty and fostered its linkages with the wider academic world through student and faculty mobility, as well as joint research projects and MoUs. In the past 10 years, the Institute has signed MoUs with as many as 11 international universities. IIT Mandi has been made the national coordinating Institution for Germany under the Scheme for Promotion of Academic and Research Collaboration (SPARC) of the Government of India. Additionally, it has also assumed leadership among the eight-second generation IITs for attracting students from SAARC nations.

Since 2013, over 50 of our students have had the chance to go for semester exchange to RWTH Aachen University, Technical University of Munch, Blekinge Institute of Technology, Hepia, Switzerland, IT University of Copenhagen, and McMaster University, Hamilton, Ontario. Over 120 international students have experienced the project-based learning and other academic offerings of IIT Mandi since 2015, the majority from Worcester Polytechnic Institute (WPI), USA.

Fulbright Fellow at IIT Mandi: Prof. Sumant Nigam, Distinguished Professor, Department of Atmospheric and Oceanic Science, University of Maryland (USA) opted to take up a fellowship funded by the Fulbright-Nehru program and based himself at IIT Mandi. He was invited as the Chief Guest at the 11th Foundation Day program of the Institute on 24th February 2020.

International Students at IIT Mandi: However, several international students visited IIT Mandi between 1st April 2019 and 31st March 2020. These included 5 students from Germany, 1 student from France, 1 student from Bhutan, 1 student from Bangladesh, and 3 students from Ethiopia. 6 international students joined the Institute in August/September 2019, 1 student joined in February 2020, and 3 joined in September 2020 (from Nepal, Bangladesh, and Ethiopia) for master's and Ph.D. programs.

IIT Mandi students visiting Institutions abroad: Several IIT Mandi students visited several EU institutions under academic exchange in 2019. The undergraduate visits included 4 students to TU Munich (Germany) 4 students to RWTH Aachen (Germany), 2 students to University of Stuttgart (Germany), and 3 students to Aalto University (Finland). 3 students of IIT Mandi's M.Tech. the program visited Germany under DAAD (KOSPIE) program. As of November 2020, despite the pandemic situation, 6 IIT Mandi students (2 B.Tech. and 4 M.Tech.) are currently in Germany at our partner institutions on semester exchange programs.

IIT Mandi Faculty visiting Institutions abroad: IIT Mandi faculty members visited institutions in Singapore, Sweden, France, Germany, UK, Poland, China, Italy, Japan, Taiwan, USA, Russia, Spain, Ireland, Switzerland, Greece, UAE, Jerusalem, Sweden, Mozambique, Belgium, Czech Republic, Netherlands, Egypt, Thailand, and Tanzania in 2019-20 academic session for attending conferences and furthering industry and academic collaborations.

MoUs: IIT Mandi signed an MoU with the Norwegian University of Science and Technology (NTNU) Limited in February 2020. IIT Mandi also extended or initiated Student Exchange Agreements with TU Munich and TU Dresden (Germany).

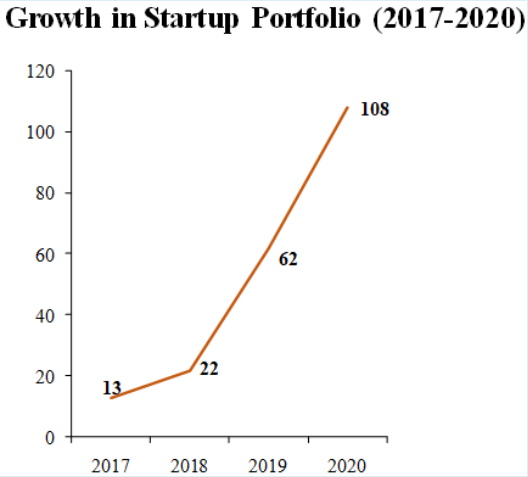
Events with International Participation: There were a number of workshops conducted at IIT Mandi involving visitors from universities abroad including the 7th International Congress on Computational Mechanics and Simulations (ICCMS 2019) was organized during 11-13 December 2019. The congress had witnessed a total of 270 participants, including 15 plenary speakers, 10 keynote speakers, four invited speakers, and technical contributors from Australia, Canada, Germany, India, Japan, the UK, and the USA. The list of participants includes heads of several internationally reputed institutes and research laboratories.

4. SPONSORED RESEARCH AND INDUSTRY INTERACTIONS

This year marked a significant increase in the number of sponsored research projects and total funding. In 2020, the number of projects sanctioned to date is 29 with a total sanctioned amount of Rs. 13.17 Crores. Out of this, 19 are Government-sponsored projects amounting to Rs. 12.52 Crores and 10 are Industry sponsored projects amounting to Rs. 0.65 Crores. The total number of projects sanctioned to date is 311 and the total sanctioned amount is Rs. 112.11 Crores.

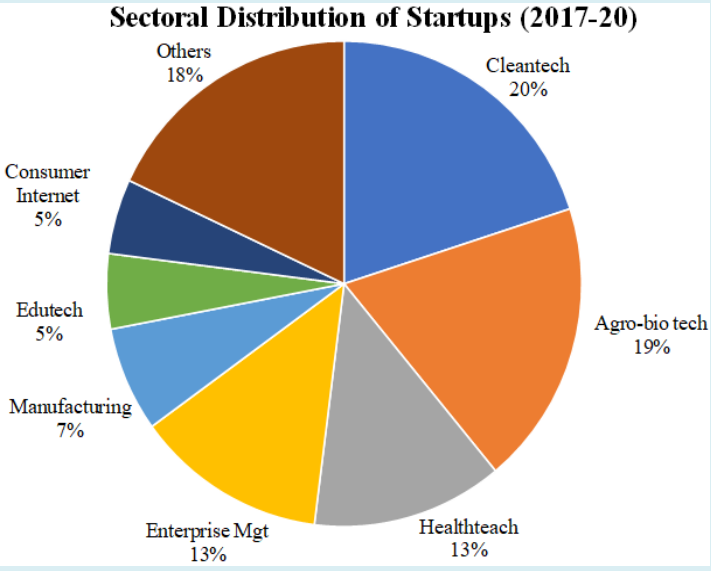
5. BUSINESS INCUBATION

IIT Mandi Catalyst was launched in 2016 by IIT Mandi as the first Technology Business Incubator (TBI) in the state of Himachal Pradesh. Away from pollution, long commute, noise, and other big-city problems, it offers a low-cost, peaceful, and high-tech destination to early-stage startups.



In only four years of its existence, Catalyst has emerged as one of the leading incubators in the region and is among the more active incubators in the country. In its short journey, Catalyst has received over 1000 applications and supported over 100 startups in a range of sectors including clean energy, healthcare, enterprise management, agriculture, manufacturing, biotech, education, and consumer internet. Of the startup portfolio of Catalyst, about one third is either from the Himalayan region or working towards building solutions for the Himalayan region. One-fifth of the total startups have been initiated by IIT Mandi faculty, staff, or students. The incubation program of Catalyst plugs the skill gaps of the startup founders through various training/coaching programs. Catalyst has hosted close to 100 such programs. Further, the funding needs of startups in the early stages are also met through the program. Catalyst, to date, has disbursed about INR 3.5 Cr for prototyping and commercialization purposes to the startups.

Catalyst aspires to be known as a high-touch incubator that provides personalized handholding support that the early-stage startup ideas need. The effectiveness of the incubation program of Catalyst is indicated by over 30 awards/recognitions that the startups have won at national and international levels. Also, the startups have generated employment for over 250 individuals which indicates the social impact of the incubation program. 10% of the startups supported by Catalyst have been able to raise further funding.



By regularly organizing entrepreneurship-related activities on campus, Catalyst has created a vibrant startup ecosystem in the state. Its annual flagship event, Himalayan Startup Trek has brought over 50 prominent startup ecosystem experts to the IIT Mandi campus. Also, as many as 40 faculty members of IIT Mandi have participated in Catalyst related events over the years. In many ways, Catalyst has been building bridges between academia and industry. Such activities have raised the profile of IIT Mandi as well as of the state of Himachal Pradesh on the national entrepreneurship map. In the

year 2020, IIT Mandi was ranked 7th in 'Atal Rankings of Institutions on Innovation Achievements' that reflected the start-up and innovation activity on campus to which Catalyst was a significant contributor.

Despite Covid-19 restrictions in 2020, Catalyst exhibited its commitment to the cause of entrepreneurship by initiating its first online start-up batch of 30 start-ups in August 2020. As 'digital' became the new normal, Catalyst overcame the challenge and ensured that the start-up ideas saw the light of the day.

Through the strong support of Central and State Governments, Catalyst has raised total funding over INR 35 Cr as of November 2020. Over the next few years, Catalyst aims to incubate at least 50 start-ups every year and disburse over 28 Cr to the start-ups. This includes the latest funding scheme of the state government under which Catalyst will disburse INR 10 Cr to the start-ups from the state of Himachal Pradesh. To further strengthen the innovation ecosystem on campus, Catalyst is setting up a dedicated hardware fabrication laboratory that is funded by DST. With the strong support of the IIT Mandi community, Catalyst is bound to scale greater heights in the time to come.

6. CAMPUS DEVELOPMENT

The South Campus has a fully functional infrastructure of about 40,000 sq. mt. area. This campus presently provides for 760 students and 50 faculty/staff members. Another 500-capacity hostel block with a dining hall, five 2-BHK, and forty-five 3-BHK apartments are being added to this campus. The construction of these buildings, which combinedly make up 20,000 sq. mt. of built-up area, is expected to end by June 2021.

The North Campus, on the other hand, has buildings of 100,000 sq. mt. of the area presently. This part of the campus houses around 1,000 students and 101 faculty/staff members. The Sports Complex and Hospital are now fully functional. The remaining 50,000 sq. mt. of construction, which includes two 350-seater smart classrooms and other spaces for co- & extracurricular activities, is at an advanced stage of construction and shall be completed by June 2021. Since October 2019, we were able to add 47 studio apartments for married scholars, a hostel building with 40 rooms, twelve 3-BHK apartments, and an academic building of 6372 sq.m. area to this campus. The Hockey field, Tennis, Basketball, and Volleyball courts shall also be completed by March 2021. Construction work for a double lane motorable bridge connecting the North Campus to Ghoda Farm and a Cycle path connecting the North with the South Campus shall commence next year. On completion, these will make the movement of residents among the two parts of the campus easy.

7. EXTRACURRICULAR ACTIVITIES

IIT Mandi has developed a vibrant culture of learning as well as imbibing life-lessons through participation in competitive as well as non-competitive activities. I am happy to report the following achievements of our graduating students.

- Students from the graduating batch have brought laurels to IIT Mandi in various inter-IIT competitions. To name a few achievements from the past year: IIT Mandi won the Bronze Medal in Cricket at the Inter-IIT Sports meet at IIT Kharagpur in December

2019. IIT Mandi students secured 2nd position in 51-hour movie making, and 3rd position in street play at Inter-IIT cultural meet, 2019 at IIT Bombay. The IIT Mandi team also won the gold medal in the coding hackathon, and bronze medals in a case study and route optimization algorithm at the Inter-IIT Tech-meet held at IIT Roorkee in December 2019.

- Mr. Hardeep Malik of the graduating batch founded his company Omnibulls in his final year. Mr. Malik has given lectures, tutorials, and workshops, etc. to different institutes in India including IITs, IIMs, and abroad on stock-market and wealth management as part of his startup venture.

- Mr. Shreyas Bapat of the graduating batch of B. Tech. electrical engineering students developed 'EinsteinPy', a Python package for general relativity. He presented the package at the Space Telescope Science Institute, USA in J2019. The package has over 25 thousand downloads till now.

- IIT Mandi hosted its inter-college sports festival, Rann Neeti, between 11th to 13th October 2019. Over 1200 students from colleges in HP, Haryana, Punjab, Rajasthan, and Delhi participated in 9 different sports.

- IIT Mandi also hosted two new inter-college fests this year. The first-ever Inter College Literature Festival of IIT Mandi was organized on 29th February and 1st March 2020. Srijan 2020, Civil Engineering fest, was organized from 21st to 23rd February 2020. Both events saw enthusiastic participation from college students from all over the country.

- In addition to these notable achievements, the academic calendar was abuzz with a wonderful array of special events, including VIBGYOR (the art festival), ANUSANDHAN (research fair), and AAGAZ (the annual inter-year sports tournament), and many other events. The Hiking and Trekking Club organised treks to Kareri Lake, Nag Tibba, and other places in Himachal, thus taking full advantage of the Institute's spectacular location.

8. CONCLUDING REMARKS

Each Convocation is a time for celebration as our Institute sends forth its best and brightest into the real world, where they must – and will – prove their mettle against competition from all over the globe. It is also a time for commending the entire campus community as their collective efforts make the annual renewal of the Institute – in terms of students, ideas, products – possible. The graduating batch this year deserves a special mention. Due to the prevailing pandemic, this year we are having a virtual convocation. I understand this is not how you had imagined bidding farewell to the campus or your friends. It has been a challenging year for all of us; however, I encourage you all to remember 2020 as the year you stepped up to play bigger roles by growing through these uncertain times.

SCHOOLS

Currently, IIT Mandi has four schools. The institute encourages multi- and inter-disciplinary research for the balanced growth of its students and scholars. Hence, the labs and other resources of the schools are mixed and shared. Subject specialist faculties are proactively dedicated to improving the schools continuously. IIT Mandi has national and international linkages and practices collaborations with leading and developing institutes and industries.

School of Computing and Electrical Engineering

This School brings together faculty involved in the key technologies of the information age. These include computer science, AI/ML, cognitive science, communication, signal processing, VLSI, microelectronics, and electrical energy. The underlying fundamental principles are information theory, theory of computation, communication theory, cognitive theory, quantum mechanics, and the laws of electromagnetism.

Faculty members and their specialization

6. ***Dr. Samar*** (Chairperson: Associate Professor; Information Theory, Wireless Communications)
7. ***Dr. Adarsh Patel*** (Assistant Professor: Statistical Signal Processing, Wireless Communications)
8. ***Dr. Aditya Nigam*** (Assistant Professor; Biometrics, Computer Vision, Image Processing)
9. ***Dr. Amit Kumar Singha*** (Assistant professor: Control System, DC-DC Converter)
10. ***Dr. Anil K. Sao*** (Associate Professor; Image processing)
11. ***Dr. Ankush Bag*** (Assistant Professor; Semiconductor Devices, Epitaxy and Compound Semiconductors)
12. ***Dr. Arnav Vinayak Bhavsar*** (Associate Professor; Image analysis, Computer vision)
13. ***Dr. Arti Kashyap*** (Associate Professor (Joint Appointment); Magnetism and magnetic materials)
14. ***Dr. Astrid Kiehn*** (Visiting Associate Professor; Distributed Algorithms, Verification, Theoretical Computer Science)
15. ***Prof. B. D. Chaudhary*** (Emeritus Professor; Software Technology)
16. ***Dr. Bharat Singh Rajpurohit*** (Associate Professor; Power Electronics Application to Power Systems)
17. ***Dr. Dileep A. D.*** (Associate Professor; Pattern Recognition, Kernel Methods for Pattern Analysis, Machine Learning, Speech Technology, Computer Vision)
18. ***Prof. Deepak Khemani*** (Mentor Professor; Artificial Intelligence)
19. ***Prof. Enakshi Bhattacharya*** (Mentor Professor: MEMS processing and sensors)
20. ***Dr. Gopi Srikanth Reddy*** (Assistant Professor; Communications, Antennas and Wave Propagation, RF and Microwave Passive component Design)
21. ***Dr. Himanshu Misra*** (Assistant Professor; Electrical Drives, DFIG systems, Electric Vehicle, Renewable Energy, Power Converters)
22. ***Dr. Hiteshbhai Kantilal Shrimali*** (Associate Professor; Analog and Mixed-signal VLSI design, analog-to-digital converters and design of radiation hard circuits (space application)
23. ***Dr. Jinesh Machchar*** (Assistant Professor: Geometric modeling, Simulation, Design)

24. ***Dr. Kunal Ghosh*** (Associate Professor; Solar Photovoltaics)
25. ***Dr. Manas Thakur*** (Assistant Professor: Program analysis, compilers, programming languages)
26. ***Dr. Moumita Das*** (Assistant Professor: Power Electronics)
27. ***Dr. Narsa Reddy Tummuru*** (Assistant Professor; Hybrid Energy Storage Applications in Future Microgrids, Efficient Power Electronic Interfaces in Renewable Energy Applications and Smartgrid Communication Networks)
28. ***Dr. Padmanabhan Rajan*** (Associate Professor; Speech processing, speaker recognition)
29. ***Dr. Pratim Kundu*** (Assistant Professor: Power Systems)
30. ***Dr. Rahul Shrestha*** (Asst. Professor; VLSI Design and Circuits & Systems for Signal Processing and Wireless Communication)
31. ***Dr. Rameshwar Pratap*** (Assistant Professor: Algorithms in Data Science and Machine Learning, Theoretical Computer Science)
32. ***Dr. Renu M. Rameshan*** (Assistant Professor; Image Processing)
33. ***Prof. Rajan Kapur*** (Adjunct Professor, Renewable Energy, Industrial Electronics, Head Mounted Displays)
34. ***Prof. Ramesh Oruganti*** (Adjunct Professor; Power Electronics, Solar photovoltaic energy systems)
35. ***Prof. Ravindra Arora*** (Visitor Professor (Retired from IIT Kanpur): High Voltage)
36. ***Dr. Satinder Kumar Sharma*** (Associate Professor; Nano-electronics, Sensors, Photovoltaic & self-assembly)
37. ***Dr. Satyajitsinh Ajitsinh Thakor*** (Assistant Professor; Communication Theory, Information Theory, Network Coding)
38. ***Dr. Shubhajit Roy Chowdhury*** (Associate Professor; Biomedical Embedded Systems, Non-invasive diagnostic systems, Near-Infrared Spectroscopy, VLSI Architectures)
39. ***Dr. Siddhartha Sharma*** (Assistant Professor; Resource allocation in Wireless Networks, Wireless Energy Harvesting, and Crowdsensing)
40. ***Dr. Sreelakshmi Manjunath*** (Assistant Professor, Communication Networks, Vehicular Networks, Control Systems, Non-linear Dynamics, Time-delayed Systems, Non-linear Controller Design)
41. ***Dr. Srikant Srinivasan*** (Associate Professor; Big-Data acquisition and analysis, Nanoelectronics, Spintronics)
42. ***Dr. Srikanth Sugavanam*** (Assistant Professor: Photonics)
43. ***Dr. Srinivasu Bodapati*** (Assistant Professor: VLSI Design, Nanoelectronics, Hardware security, Cryptography and FPGA based system design)
44. ***Dr. Sriram Kailasam*** (Assistant Professor; Distributed Systems, Cloud Computing)
45. ***Prof. Timothy A. Gonsalves*** (Emeritus Professor (Honorary); Computer networks and distributed software systems)
46. ***Dr. Tushar Jain*** (Assistant Professor; Control theory, fault-tolerant control, industrial process control)
47. ***Dr. Varun Dutt*** (Associate Professor; SCEE, SHSS; Artificial intelligence, Human-Computer Interaction, Cognitive Science)
48. ***Dr. Varunkumar Jayapaul*** (Assistant Professor: Algorithms and Data Structures)
49. ***Prof. Yvonne Dittrich*** (Adjunct Professor; Software Development, and Software Engineering)

School of Basic Sciences

This School includes Mathematics, Physics, Chemistry, and Life-Sciences. While some faculty may work in pure research, others work on applied research in collaboration with colleagues in the Engineering Schools.

Faculty members and their specialization

1. ***Dr. Syed Abbas*** (Chairperson; Associate Professor; Difference equations, stochastic control, differential equations, and Ecological modelling)
2. ***Dr. Aditi Halder*** (Associate Professor; Design and development of new functional nanomaterials for the application of renewable energy)
3. ***Dr. Ajay Soni*** (Associate Professor; Nanomaterials and Experimental Condensed Matter Physics)
4. ***Dr. Amit B Pawar*** (Assistant Professor; Organic Chemistry)
5. ***Dr. Amit Jaiswal*** (Assistant Professor; Nano-Biotechnology)
6. ***Dr. Amit Prasad*** (Assistant Professor; Immunology/Microbiology)
7. ***Dr. Aniruddha Chakraborty*** (Associate Professor; Theoretical Chemistry)
8. ***Dr. Arti Kashyap*** (Associate Professor; Computational magnetics and material informatics)
9. ***Dr. Bhaskar Mondal*** (Assistant Professor; Computational Chemistry and Catalysis)
10. ***Dr. Bindu Radhamany*** (Associate Professor; X-ray spectroscopy)
11. ***Dr. C. S. Yadav*** (Associate Professor; Strongly Correlated Electron Physics, Superconductivity, Magnetism, Topological states)
12. ***Dr. Chayan K. Nandi*** (Associate Professor; Physical Chemistry)
13. ***Dr. Garima Agrawal*** (Assistant Professor; Polymer Science and Technology, Materials Chemistry, Nanotechnology)
14. ***Dr. Girish Sharma*** (Assistant Professor; Theoretical condensed matter physics)
15. ***Dr. Hari Varma*** (Associate Professor; Atomic and Molecular Physics)
16. ***Dr. Kalpesh Haria*** (Assistant Professor; Operator Theory)
17. ***Dr. Kaustav Mukherjee*** (Associate Professor; Experimental Condensed Matter Physics)
18. ***Prof. Kenneth Gonsalves*** (Visiting Distinguished Professor; Materials Synthesis)
19. ***Dr. Manoj Thakur*** (Associate Professor; Optimization, Soft Computing, Machine Learning)
20. ***Dr. Muslim Malik*** (Associate Professor; Differential Equations)
21. ***Dr. Nitu Kumari*** (Associate Professor; Differential Equations, Dynamical Systems, Nonlinear Dynamics)
22. ***Dr. Pradeep Kumar*** (Assistant Professor; Raman and Infrared Spectroscopy)
23. ***Dr. Pradeep Parameswaran*** (Associate Professor; Inorganic, Materials, Nano-Chemistry)
24. ***Dr. Pradyumna Kumar Pathak*** (Associate Professor; Quantum Optics, Quantum Information, and Nanophotonics)
25. ***Dr. Prasad Kasturi*** (Assistant Professor; Proteostasis, Aging, Stress Response and C.elegans)
26. ***Dr. Prasanth P. Jose*** (Assistant Professor; Soft condensed matter physics)
27. ***Dr. Prem Felix Siril*** (Associate Professor; Chemistry of Nanomaterials)
28. ***Dr. Prosenjit Mondal*** (Associate Professor; Molecular Endocrinology and Metabolism)
29. ***Dr. Qaiser Jahan*** (Assistant Professor; Harmonic and Wavelet Analysis)
30. ***Dr. Rajanish Giri*** (Assistant Professor; Biophysics and Protein Folding, Intrinsically Disordered Proteins, Chimeric Antigen Receptor based Cancer Immunotherapy, Protein Engineering)
31. ***Dr. Rajendra K. Ray*** (Associate Professor; Numerical Methods for PDEs, Computational Fluid Dynamics, Mathematical Image Processing)
32. ***Dr. Sarita Azad*** (Assistant Professor; Statistical Time Series Analysis)
33. ***Dr. Shyam Kumar Masakapalli*** (Associate Professor; Metabolic Systems Biology – Fluxomics and Metabolomics, Plant and Microbial Metabolism, NMR and GC- MS)
34. ***Dr. Subrata Ghosh*** (Associate Professor; Organic Chemistry)

35. ***Dr. Suman Kalyan Pal*** (Associate Professor; Fast and Ultrafast Laser Spectroscopy)
36. ***Dr. Trayambak Basak*** (Assistant Professor; Metabolic diseases, extracellular matrix, Proteomics)
37. ***Dr. Tulika Prakash Srivastava*** (Associate Professor; Systems Biology, Metagenomics, NGS Applications, Bioinformatics)
38. ***Dr. Venkata Krishnan*** (Associate Professor; Materials Chemistry, X-ray Science)

School of Engineering

This School covers tangible physical structures and artifacts such as transport vehicles, transport systems, machines, materials, manufacturing, designs, etc. The underlying principles are classical mechanics, atomic physics, and thermodynamics. Many faculties from the traditional departments of Mechanical, Civil, Aerospace, and Metallurgy Engineering are a part of this School.

Faculty members and their specialization

1. ***Dr. Viswanath Balakrishnan*** (Chairperson; Associate Professor; Growth of Functional Materials/Thin Films, Electron Microscopy & in-situ Exploration of structure-property Relationships)
2. ***Dr. Arpan Gupta*** (Associate Professor; Acoustics, Vibration, Biomechanics, Computational methods-FEM, CFD, Lattice Boltzmann Method)
3. ***Dr. Atul Dhar*** (Associate Professor; Alternative Fuels & Emission Control)
4. ***Dr. Dericks Praise Shukla*** (Associate Professor; Remote Sensing & GIS, Hydro-geo-chemistry, Water contamination mostly and other Heavy metals, Natural Hazards Assessment, and Mapping)
5. ***Dr. Mohammad Talha*** (Associate Professor; Solid Mechanics, Composite Structures, Functionally Graded Materials, Structural Mechanics)
6. ***Dr. Rahul Vaish*** (Associate Professor; Glasses for Electrical Applications, Solid State Refrigeration, Pyroelectric Energy Harvesting Materials and Methods, Piezoelectric Energy Harvesting Materials and Methods)
7. ***Dr. Rajeev Kumar*** (Associate Professor; Solid Mechanics, Vibration, FEM, Optimization)
8. ***Dr. Rik Rani Koner*** (Associate Professor; Hybrid Material)
9. ***Dr. Vishal Singh Chauhan*** (Associate Professor; Design Engineering, Electromagnetic Radiation during Deformation of metals and alloys, Solid Mechanics, FEM)
10. ***Dr. Amit Shukla*** (Assistant Professor; Robotics Control Systems, Mechatronics, Artificial Intelligence, Electric Vehicle)
11. ***Dr. Ashutosh Kumar*** (Assistant Professor; Soil-Structure interaction, Engineering behavior of unsaturated soils, Geotechnical Earthquake Engineering, Seismic performance of heritage structures)
12. ***Dr. Deepak Swami*** (Assistant Professor; Groundwater Flow and Transport Modelling, Water Resources Development and Management, Disaster Mitigation especially related to Floods and Flash flood)
13. ***Dr. Gaurav Bhutani*** (Assistant Professor; Multiphase flows, Polydispersed flows, Computational Fluid Dynamics, Finite Element Methods for fluid flows, Population balance modelling, Application of the above techniques to process flows, biomedical flows and snow avalanches, Microfluidics with applications to lab-on-a-chip devices)
14. ***Dr. Himanshu Pathak*** (Assistant Professor; Extended Finite Element Method, Meshfree Methods, Fracture Mechanics and Functionally Graded Materials)
15. ***Dr. Jaspreet Kaur Randhawa*** (Assistant Professor; Nanodrugs delivery systems, Biosensors, Microporous membranes)
16. ***Dr. Kaustav Sarkar*** (Assistant Professor; Durability Design of Concrete, Sustainable Concrete Production, Finite-Element Analysis, Soft-computing)
17. ***Dr. Maheshreddy Gade*** (Assistant Professor; Earthquake Engineering and Engineering Seismology)
18. ***Dr. Mousumi Mukherjee*** (Assistant Professor; Geomechanics, Constitutive modeling of frictional material, Material instability analysis, Modeling of debris flow, Numerical modeling, Non-destructive testing of soil)
19. ***Dr. P. Anil Kishan*** (Assistant Professor; Computational Fluid Dynamics)
20. ***Dr. Parmod Kumar*** (Assistant Professor; Interface Capturing, Entrainment Dynamics, Mesoscale

Simulations, Probes and Instrumentation for Two-Phase Flows)

21. ***Dr. Pradeep Kumar*** (Assistant Professor; Fluid Mechanics, Thermal Science, Thermal Radiation, Solar Radiation, Optics, Collimated Beam Radiation, Non-gray Radiation Properties Calculations, Interfacial Phenomena of Radiation, Computational Tools)
22. ***Dr. Rajesh Ghosh*** (Assistant Professor; Solid Mechanics, Biomechanics, Finite Element Analysis)
23. ***Dr. Sandip Kumar Saha*** (Assistant Professor; Performance-Based Earthquake Engineering, Resiliency of Civil Infrastructure, Seismic Vibration Control, Uncertainty Quantification)
24. ***Dr. Satvasheel Ramesh Powar*** (Assistant Professor; Perovskite Solar Cells, Solar Thermal utilization, Energy Storage, Process development)
25. ***Dr. Sayantan Sarkar*** (Assistant Professor; Atmospheric Chemistry, Aerosols, Climate Change)
26. ***Dr. Subhamoy Sen*** (Assistant Professor; Stochastic System Identification (SSI), Structural Health Monitoring (SHM), Digital Signal Processing (DSP), Inverse problems, Kalman filtering, Bayesian Updating)
27. ***Dr. Sudhir Kumar Pandey*** (Assistant Professor; Condensed Matter Physics & Material Science)
28. ***Dr. Sumit Sinha Ray*** (Assistant Professor; Filtration and Separation, Heat Transfer, Energy Storage)
29. ***Dr. Sunny Zafar*** (Assistant Professor; Microwave Material Processing, Surface Engineering, Experimental Tribology, and Advanced Welding and Manufacturing Processes)
30. ***Dr. Swati Sharma*** (Assistant Professor; Carbon-based Micro/ Nano Devices, Microstructure, and Crystallinity of sp2 Carbons, Waste-Derived Carbon)
31. ***Dr. Venkata Uday Kala*** (Assistant Professor; Geotechnical Engineering, Slope stability, Landslide (Early warning, Preparedness, and Mitigation), Retaining Structures, Geosynthetics, Environmental Geotechnics)
32. ***Dr. Prateek Saxena*** (Visiting Assistant Professor; Sustainable manufacturing, Additive manufacturing, Paper-packaging, Product design, and Tribology)
33. ***Dr. Ajit P. Annachhatre*** (Visiting Professor; Anaerobic Treatment, Heavy Metal, Biological Wastewater Treatment, Environmental Engineering)
34. ***Dr. Balthasar Novák*** (Adjunct Professor; Design of bridges, Development of bridge management systems, Reinforcing structural elements using carbon fiber, Earthquake earthquake design of concrete structures, Safety and security of bridges and tunnels under natural and manmade disasters, Effect of predicted climate change on prestressed concrete structures)
35. ***Dr. Satish Chandra Jain*** (Emeritus Professor; Vibration, Noise, Tribology, and Computer-Aided Design**)**
36. ***Dr. Subrata Ray*** (Distinguished Visiting Professor; Physical metallurgy, Composites, and Tribology)
37. ***Dr. Sumant Nigam*** (Distinguished Visiting Professor; Climate Dynamics, Hydroclimate Variability and Change, Absorbing Aerosols and Asian Monsoon Onset)
38. ***Dr. Sunil R. Kale*** (Mentor Professor; Heat Transfer, Fluid Mechanics)
39. ***Dr. Tarun Kant*** (Distinguished Visiting Professor; Solid & Structural Mechanics - FEM, Composite Mechanics, Plates & Shells)

School of Humanities and Social Sciences

Modern engineers work in teams to create, improve, and apply technology for the good of society. A good understanding of language, culture, sociology, economics, management, ecology, etc. is essential for the well-rounded engineer and development of technologies, products, and processes that will see widespread use. This School is thus an important part of IIT Mandi.

Faculty members and their specialization

1. ***Dr. Suman (***Chairperson; Assistant Professor; Colonialism, Postcolonialism, Imperialism and Romance Literature)
2. ***Dr. Aruna Bommareddi*** (Assistant Professor; Comparative Literature, Indian Literature in English)
3. ***Dr. Devika Sethi*** (Assistant Professor; Modern Indian History, Colonialism and Decolonization, Free Speech and Censorship)
4. ***Gokul Somasekharan*** (Teaching Fellow; Specialization: German Literature, Philosophy)
5. ***Dr. Ingrid Shockey*** (Adjunct Associate Professor; Environmental Sociology)
6. ***Dr. Manu V. Devadevan*** (Assistant Professor; Literary practices in South Asia, Political and economic processes in pre-modern South Asia & South Asian Epigraphy)
7. ***Dr. Neha Kaushik*** (Assistant Professor; Translation Studies, Women's Writing, Comparative Linguistics & German Studies)
8. ***Dr. Nilamber Chhetri*** (Assistant Professor; Sociology)
9. ***Dr. Puran Singh*** (Assistant Professor; Corporate Finance, Financial Inclusion, Entrepreneurship)
10. ***Dr. Rajeshwari Dutt*** (Assistant Professor; Latin America, Social & Cultural History, Indigenous Studies)
11. ***Dr. Ramna Thakur*** (Assistant Professor; Development Economics)
12. ***Dr. Saumya Dixit*** (Assistant Professor; Post Consumption Consumer Behaviour, E-Waste Management, E-Wom Management)
13. ***Dr. Shyamasree Dasgupta*** (Assistant Professor; Energy and Environmental Economics)
14. ***Dr. Surya Prakash Upadhyay*** (Assistant Professor; Sociology of Religion, Urban Sociology, Post-Reform India)
15. ***Dr. Varun Dutt*** (Associate Professor; SHSS, SCEE; Artificial intelligence, Human-Computer Interaction, Cognitive Science)
16. ***Dr. Venkataraman Ranganathan*** (Visiting Distinguished Professor; Economics, Energy, Environment & Climate Change)

Medals and Prizes

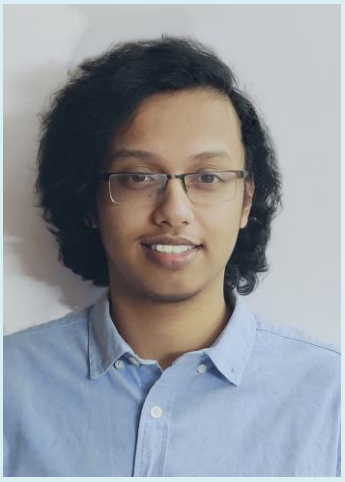
PRESIDENT OF INDIA GOLD MEDAL

Mr. Neelotpal Dutta
B16106
Mechanical Engineering

DIRECTOR'S GOLD MEDAL

Mr. Anand Ramrakhyani
B16124
Computer Science and Engineering

INSTITUTE SILVER MEDALS



Mr. Abhigyan Khaund
B16082
Computer Science and Engineering

Mr. Ram Lakhan
B16138
Electrical Engineering

Mr. Neelotpal Dutta
B16106
Mechanical Engineering

Mr. Gaurav Meena
B16130
Civil Engineering

INSTITUTE SILVER MEDALS

Mr. Abhishek Jain
V18033
M.Sc. Chemistry

Mr. Bhisma Narayan Mahanty
V18079
M.Sc. Physics

Ms. Alka Singh Chauhan
V18008
M.Sc. Applied Mathematics

Mr. Vagish Kumar
T18127
M.Tech. Mechanical Engineering with Specialization in Energy Systems

RANI GONSALVES MEMORIAL MEDAL (Joint)

Ms. Palak Gupta

B16067

Computer Science and Engineering

Ms. Vishnu Priya Jindal

B16041

Computer Science and Engineering

OUTSTANDING ACADEMIC ACHIEVEMENT AWARDS

Ms. Nikita Deshwal
T18208
M.Tech. Biotechnology

Mr. Ankit Chakraborty
T18033
M.Tech. Communication and Signal Processing

Mr.Mohit Barthwal
T18151
M.Tech Energy Engineering with Specialization in Materials

Mr. Saswath T
T18004
M.Tech. VLSI

Mr. Mahipal Kulariya
T18109
M.Tech Structural Engineering

Mr. Patel Parth Hasmukhbhai
T18069
M.Tech Power Electronics and Drives

Mr. Rajat Chaudhary
A18008
M.A. Development Studies

DETAILS OF GRADUATING STUDENTS

B. Tech. (Computer Science and Engineering)

AASHISH KUMAR(B16001)
ABHINANDAN (B16002) (With Minor in Management)
ABHINAV DIXIT(B16003)
AJ R LADDHA (B16004) (With Minor in Management)
AKHILESH DEVRARI(B16005)
AKUL GUPTA (B16006) (With Minor in Management)
AMAN KHANDELWAL(B16007)
AMIT RAJAIN(B16009)
AMRENDRA SINGH (B16010) (With Minor in Management)
ANANT MISHRA(B16011)
ANSHUL GUPTA(B16012)
ASHUTOSH JAMADARI(B16014)
BHARAT LODHI (B16015) (With Minor in German Language) & (With Minor in Management)
BHAVYA BHATT(B16016)
DHRUBODEEP BASUMATARY(B16017)
DILIP KUMAR CHAUHAN (B16018) (With Minor in Management)
HEMANT KUMAR (B16019) (With Minor in German Language)
KARAN KALRA(B16020)
KAUSTUBH VERMA(B16021)
NAVEEN KUMAR CHOUHAN (B16022) (With Minor in Management)
NIKHIL GUPTA(B16023)
NIRAJ YADAV(B16024)
PRASHANT SHEKHAR GUPTA(B16025)
PRATYUSH GAURAV(B16026)
PRIYANSHU KHANDELWAL(B16027)
ROHIT KAUSHAL (B16028) (With Minor in Management)
HRISHIKESH SAGAR(B16029)
SAJAL BORIS (B16030) (With Minor in German Language) & (With Minor in Management)

SAMMARTH KAPSE(B16031)
HRUSHIKESH SUDAM SARODE(B16032)
SARTHAK SHEKHAWAT (B16033) (With Minor in Management)
SHASHWAT GARG(B16034)
SHUBHAM CHOUDHARY (B16035) (With Minor in Management)
SUJETTH RANGANNATH NELLUTLA(B16036)
SURYAVANSHI VIRENDRASINGH BASANTLAL (B16037) (With Minor in Management)
SYLVIA MITTAL (B16038) (With Minor in Management)
VINAYAK KUTHIALA(B16039)
VISHAL ANAND(B16040)
VISHNU PRIYA JINDAL (B16041) (With Minor in Management)
AMAN JAIN (B16044) (With Minor in Management)
ARPIT BATRA (B16047) (With Minor in Management)
GAGANDEEP TOMAR (B16056) (With Minor in Management)
LAKSHYA ARORA(B16060)
LOKESH KUMAR (B16061) (With Minor in Management)
NAVNEET SHARMA (B16065) (With Minor in Management)
NIKHIL T R(B16066)
PALAK GUPTA (B16067) (With Minor in Management)
PRABHAKAR PRASAD (B16069) (With Minor in Management)
RAJAN BAJAJ (B16072) (With Minor in Management)
SHIVAM VERMA (B16077) (With Minor in Management)
ABHIGYAN KHAUND(B16082)
ADITYA SINGH (B16085) (With Minor in Management)
ANIRUDH PRASAD NISTALA(B16091)
ANMOL PASSI(B16092)
CHIRAG VASHIST (B16094) B.Tech (Honours) with Minor in Management)
HRITIK GUPTA (B16097) (With Minor in German Language)
SURYAKANT BHARDWAJ(B16117)
YASH AGRAWAL (B16120) (With Minor in Management)
ANAND RAMRAKHYANI(B16124)
SOLANKI PINANK HITESHBHAI (B15135)

B. Tech. (Electrical Engineering)

AGRAWAL PARESH KISHANLAL(B16042)
AJAY KUMAWAT(B16043)
ANAND KUMAR(B16045)
ANURAG MAURYA(B16046)
ASHISH KUMAR MEENA(B16048)
AVINASH KUMAR ARYAN(B16049)
BHAVESH KUMAR(B16050)
CHAHAK GODARA(B16051)
DAKSH SAGAR(B16052)
DEEPAK JARWAL(B16054)
DEVASHISH SINGH(B16055)
GAURAV KUMAR (B16057) (With Minor in Management)
KADARU SAHITH (B16058) (With Minor in Management)
M AMUDHAN(B16062)
MANISH SHARMA (B16063) (With Minor in Management)
MOHD NADEEM(B16064)
PIYUSH (B16068) (With Minor in Management)
PURVESH CHHAJED(B16070)
RACHIT MAHESHWARI(B16071)
RAKSHIT MATTA (B16073) (With Minor in Management)
RAKSHIT RAJ (B16074) (With Minor in Management)
ROHAN AGRAWAL (B16075) (With Minor in Management)
SHASHI MOHAN(B16076)
SIRASALA VENKAT RAM(B16078)
SONALI JAGARWAL(B16079)
TIRUPATI MISHRA(B16080)
VEDANT AGGARWAL (B16081) (With Minor in Management)

AMAN ROHILLA(B16008)
MUKUL JANGID(B16103)
PATIL PIYUSH RAJENDRA(B16109)
RITWIK SAHA(B16110)
VIVEK SHARMA(B16119)
ANKIT KUMAR(B16125)
AYUSH MEGHWANI (B16127) (With Minor in Management)
RAM LAKHAN (B16138) (With Minor in Management)
RANDHEER KUMAR(B16139)
SHREYAS BAPAT (B16145) (With Minor in Management)
SHUBHAM KUMAR(B16146)
SIDDHARTH SINGH(B16147)
SURENDER KUMAR(B16148)
NITESH KUMAR(B14222)

B. Tech. (Mechanical Engineering)

ABHIJEET RAJPUT(B16083)
ABHISHEK KUMAR BHASKAR(B16084)
AJAY KUMAR(B16086)
AKASH KUMAR(B16087)
AKKAPELLI AKHIL(B16088)
AMIRTH VARSHAN(B16089)
AMIT RANJAN (B16090) (With Minor in Management)
BASUPALLY ROHITH(B16093)
GAGANDEEP SINGH(B16095)
GARVIT MATHUR (B16096) (With Minor in Management)
KASHYAP PARAM PRABHAKAR (B16098) (With Minor in Management)
KULDEEP ANJANA (B16100) (With Minor in Management)
KUMAR ABINASH MISHRA (B16101) (With Minor in Applied Physics)
MOTHI KAILAASH S(B16102)
NAMAN CHAUDHARY (B16104) (With Minor in Management)
NAVEEN KUMAR (B16105) (With Minor in Management)
NEELOTPAL DUTTA (B16106) B.Tech (Honours) with Minor in Management)
NISHANT RANA(B16107)
SAQUIB RAZA(B16111)
SATPAL MEENA(B16112)
SHANTANU KAUSHIK (B16113) (With Minor in Management)
SHIVAM CHAUDHARY (B16115) (With Minor in Intelligent Systems)
STANZIN TSOGNIS(B16116)
VIKAS KUMAR MEHARDA(B16118)
SHISHIR ASTHANA (B16144) (With Minor in Management)
KOKA RAJESH (B16059)

B. Tech. (Civil Engineering)

ABHAY KUMAR(B16121)
AJAY KUMAR(B16122)
ASHUTOSH KUMAR(B16126)
BHANU SINGH(B16128)
CHIRAG SINGH(B16129)
GAURAV MEENA(B16130)
HARDEEP MALIK (B16131) (With Minor in Management)
HARSH GARG(B16132)
MOHIT GOUNIYAL(B16133)
NIDHIKA KADELA (B16134) (With Minor in Management)
NIYUSH KATHERIA(B16136)
PARIMAL KUMAR (B16137) (With Minor in Management)
RIJUL(B16140)
ROHIT KUMAR(B16142)
SAURABH KUMAR(B16143)
VIJAY KUMAR(B16149)
VISHAL MAHAR(B16150)
YOGESH MEERWAL(B16151)
KIRTI JORWAL (B16099) (With Minor in Management)
ROCKY VERMA B16141

Master of Science (M.Sc. Chemistry)

AKHIL BHARDWAJ(V18031)
CHANJOT KAUR(V18032)
ABHISHEK JAIN(V18033)
KRITI KOCHAR(V18034)
RITU(V18035)
PAVITRA SRIVASTAVA(V18036)
ANJALI NEGI(V18037)
AASTHA JAIN(V18038)
POOJA SHARMA(V18039)
DEEKSHA SHARMA(V18040)
SRISHTI GUPTA(V18041)
ADITYA PRASUN(V18042)
PARUL SHARMA(V18043)
GULNAAZ(V18044)
RAJDIP SONI(V18045)
RAJAT SAINI(V18046)
SHRIYA RAWAL(V18047)
KRITI SHAKYA(V18048)
MOHAMMAD ZEESHAN ALAM(V18049)
ANKIT PATEL(V18050)
HIMANSHU SAINI(V18051)
SUNIDHI(V18052)
NISHCHAL CHAUHAN(V18053)
SANIYA(V18054)
NEHA(V18056)
BHOLA NATH GUPTA(V18057)

Master of Science (M.Sc. in Applied Mathematics)

SANTOSH(V18001)
ARISHI ORRA(V18002)
NISHA(V18003)
MONIKA NANDAL(V18004)
DIVYA AGRAWAL(V18005)
ANURAG TIWARI(V18006)
ALKA SINGH CHAUHAN(V18008)
NAMRATA MANI TRIPATHI(V18009)
SONU(V18010)
HIMANSHU CHOUDHARY(V18011)
POONAM(V18012)
VIKASH KUMAR POONIYA(V18013)
RISHABH SAINI(V18014)
AMIT KUMAR YADAV(V18015)
SANJAY(V18016)
AWANDKAR ASHISH NANDKISHOR (V18017)
MAHESH KUMAR OLA(V18018)
PAYAL(V18019)
KM YATNESH(V18020)
NAWANG THAKUR(V18022)
MOHIT KAPOOR(V18023)
MANTU PRASAD GUPTA(V18024)
SIDHARTHA SANKAR PRADHAN(V18025)
RAHUL(V18026)
VISHNU SHARMA(V18027)
YASH KUMAR(V18028)
ANJU BAWRA(V18029)
VIMAL KUMAR(V18030)
NIKHIL RAGHAV(V17043)

Master of Science (M.Sc. Physics)

AKASH(V18061)
PANKAJ KUMAR(V18062)
SAGAR REWADIA(V18063)
JAGRITI AHUJA(V18065)
SHUMILE AHMED SIDDIQUI(V18066)
POOJA MANRAL(V18067)
SARDAR DILBAG SINGH KHALSA(V18068)
MONU MEHTA(V18069)
YOGESH YADAV(V18070)
ARSHAD(V18071)
NIKESH KUMAR(V18072)
ANURAG KUMAR(V18073)
EKTA KUMARI(V18074)
RAHUL DHANKHAR(V18076)
SANTOSH KUMAR SAHU(V18077)
DEENBANDHU SHARMA(V18078)
BHISMA NARAYAN MAHANTY(V18079)
SONU KUMAR KULDEEP(V18080)
RAHUL SHARMA(V18081)
GOURAV(V18082)
KIRTI(V18083)
SUNITA TAREI(V18084)

Master's in arts (MA in Development Studies)

TAJ UD DIN MALIK(A18001)
NAMALA SATYA KISHAN KUMAR(A18002)
SRIVIDYA R(A18003)
MRIDU BALA(A18004)
NIKITA AGGARWAL(A18005)
SHASHANK SHEKHAR(A18006)
ANUPREET KAUR(A18007)
RAJAT CHAUDHARY(A18008)
SOURABH YADAV(A18009)
ABBA ROHITH(A18011)
PIYUSH KUMAR(A18012)
MANISHA(A18013)

Master of Technology in Mechanical Engineering with specialization in Energy Systems (MES)

SUBHAV CHAUHAN(T18121)
RENU TEWARI(T18122)
PAWAN SINGH BISHT(T18123)
AMIT KUMAR CHOUDHARY(T18125)
VAGISH KUMAR(T18127)
JAIPRAKASH ANAND(T18128)
SANDEEP YADAV(T18129)
AMAN KUMAR SONI(T18130)
KARAN (T18131)
SONU KUMAR(T18132)
DIVANSHU GUPTA(T18133)
VIJAY TIWARI(T18134)
SATYAM SINGH THAKUR(T18135)
TARUN PRATAP SINGH(T18136)
MANMOHAN SINGH PATEL(T18137)
KUNWAR PRATAP SINGH YADAV(T18138)
GAIKWAD DEEPAK GANGADHAR (T18140)
ANSHUL MEHROTRA(T18141)
VARUN KUMAR(T18142)
RAMEEZ RAJA KHAN(T18143)
SAMANVAY ANAND(T18144)
PRAKASH GIRI (T18145)
ASHUTOSH RAINJAN DEV(T16002)

Master of Technology in Energy Engineering with specialization in Materials (EEM)

MOHIT BARTHWAL(T18151)
ANKIT JOSHI(T18152)
ABHISHEK GOEL(T18153)
DHARMENDER KUMAR(T18154)
HARSH ARORA(T18163)
GAURAV KUMAR(T18168)
KAWADE SAYALI MARUTI(T18169)
CHHAIL BIHARI SONI(T18175)
MARUTI NANDAN TRIPATHI(T18176)
SHOBHIT NIGAM(T18177)
RAHUL SINGH(T18178)
MOHD UZAIR KHALIDI(T18179)
VAIBHAV KUMAR MITTAL(T18180)
VIKRAM BISHT(T18181)

Master of Technology in Structural Engineering (SE)

VARUN SHARMA(T18101)
AJENDRA SINGH(T18102)
HIMANSHU SINGH GANGWAR(T18103)
MD MASIBUL (T18105)
ANAND SHAW(T18106)
GANESH JAISWAL(T18107)
SAURABH KUMAR(T18108)
MAHIPAL KULARIYA(T18109)
SUMIT KUMAR(T18110)
GEETHESH N(T18111)
NAVEEN BHARTI(T18112)
SHAILENDRA KUMAR SINGH(T18113)
GURPREET SINGH(T18114)
SAURKAR ATHARV ANANT(T18115)
KSHITIJ TANDON(T18116)
MOHAMMAD TALAHA SIDDIQUI(T18117)
BHAG CHAND MEENA(T18118)

Master of Technology (M.Tech. VLSI)

SANDEEP PAREEK(T18001)
MONU(T18002)
SASWATH T(T18004)
SHAKTI SINGH(T18005)
NISHANT SINGH(T18006)
PRASHANT SHARMA(T18009)
ASHISH TIWARI(T18010)
KANCHAN SINGH RANA(T18011)
SHUBHAM MISHRA(T18013)

Master of Technology in Power Electronics and Drives (PED)

RAJIV(T18062)
VISHNU PRASAD J(T18064)
ABHINAV SINGH KASHYAP(T18067)
DEEPAL GUPTA(T18068)
PATEL PARTH HASMUKHBHAI (T18069)
KARTIK SHARMA(T18071)
VIVEK KUMAR SHARMA(T18072)
LALWANI ROHAN RAJKUMAR(T18073)
CHANDAN BHARTI(T18074)
MAYANK GUPTA(T18077)
MD IRSHAD ANSARI(T18078)
ABHISHEK KUMAR(T18079)
AJEET KUMAR YADAV(T18080)
POGULAGUNTLA RAVI TEJA(T18081)

Master of Technology in Communications and Signal Processing (CSP)

SUPRIYO BANERJEE(T18031)
PUSHAP DEEP SINGH(T18032)
ANKIT CHAKRABORTY(T18033)
NILESH KUMAR SHUKLA(T18034)
MAHESH KUMAR GUPTA(T18035)
HIMANSHI THAKKAR(T18036)
RISHABH RANJAN(T18037)
SOUVIK MITRA(T18038)
SOMPAL SINGH(T18039)
SUBHANSHU SAHU(T18040)

Master of Technology (M.Tech. Bio-Tech)

ANIRBAN BANDYOPADHYAY(T18201)
VIKAS KUMAR SINHA(T18202)
DEEPANSHU VERMA(T18203)
ANKUR KUMAR(T18204)
GUDIVADA JAYANTHLAL(T18205)
ASHUTOSH KUMAR SINGH(T18206)
PREM CHAND(T18207)
NIKITA DESHWAL(T18208)
MEENAKSHI APPASAHEB SHEGANE(T18209)
GEHI BHUVANESHWARI RAJENDRAKUMAR(T18210)

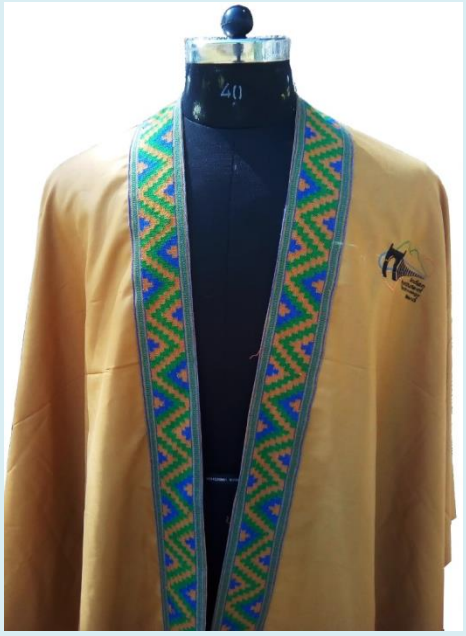
Master of Science (by Research)

PRAKASH PRATIK (S15003)
BODHAYAN NANDI (S16002)
SHETE SNEHAL DILIP (S16014)
PRAVEEN KUMAR (S17007)
BHARAT VARDANI (S17009)
AKASH K RAO (S19018)
SEEMA KUMARI (PTS1501)
AIJAZ HAMID LONE (S17005)
NAYAN PUNDHIR (S16009)
CHANDNI (S17003)
TEJINDER THAKUR (S17006)

Doctor of Philosophy

MANOJ DAS (D12066)	MEDHA KUMAR (D13015)
HARMANPREET SINGH (D12067)	SHAIFU GUPTA (D14002)
SURENDER LAL (D13018)	ANSHUL THAKUR (D14003)
NAVNEET CHANDRA VERMA (D14009)	SHIVANI (D14024)
IMRAN AHAMED (D14012)	KRISHAN SHARMA (D14025)
ROHIT PATHAK (D14016)	JOSHI ASHISH SHIRISH (D14029)
JUHI PANDEY (D14020)	INDU YADAV (D14030)
KARAN SINGH (D14021)	PINDORIYA RAJESH MANJIBHAI (D15041)
PRAVAT KUMAR JENA (D14034)	ADIL USMAN (D15042)
DEEPAK KUMAR (D15017)	SHIKHA GUPTA (D15068)
NITIN SHARMA (D15018)	SANDEEP KUMAR SHUKLA (D14015)
MANU SHREE (D15022)	SUMEET KUMAR SHARMA (D14037)
NAINA ARORA (D15025)	SUBRATA MONDAL (D15007)
RAJESH DHAYAL (D15026)	PIYUSH KUMAR AVASTHI(D15011)
SHEKHAR SINGH (D15027)	ABHIMANYU (D15014)
BANDHANA DEVI (D15035)	MD ZAHID(D16035)
GADHAVE KUNDLIK BHAGWAN (D16070)	ASHISH TIWARI(D15013)
ABHILASH M (D14007)	SHARAD KUMAR GUPTA(D15015)
VIBHA GUPTA (D13009)	MOHAMMAD AMIR (D17001)
AJAY (D13010)	

CONVOCATION DRESS



The festive character of convocation is emphasized by the convocation dress.

IIT Mandi's convocation attire references its location in the Himalayan region. It consists of a cape and a Himachali cap. On both cape and cap, a *patti* (woven border) is appliqued specially designed for IIT Mandi. The *patti* refers to the colors of the IIT Mandi logo: orange, blue, and green. The green parts of the *patti* symbolize vegetation and mountains, the blue parts rivers and limitless sky, and with orange colour paths and energy. The zig-zag pattern is typical for the region.

The base colors of the gowns represent the following categories: Gold: dignitaries; Blue: faculty; Orange: Ph.D. students; Green: M.Sc., MS, and M.Tech. students; Black: B.Tech. students. With this color code, the tradition set by the earlier convocation dress is maintained.

The gown has been designed by the Convocation Gown Committee of IIT Mandi and has been produced with the help of local tailors, weavers, and vendors.

IIT MANDI GRADUATES' PLEDGE

We, the graduates and post-graduates of the Indian Institute of Technology Mandi, hereby pledge That we will be scrupulously honest in all our activities and act with integrity at all times to uphold the honour and dignity of our profession and of our Institute; That we will actively protect and promote the well-being of our environment; That we will uphold and promote the unity and secular ideals of our country; That we will utilize our knowledge in the service of our country in its march towards a just, inclusive, and sustainable society.

VALEDICTORIAN'S ADDRESS

By Neelotpal Dutta

Respected Chief Guest, Dr. R. A. Mashelkar; Director of the institute, Prof. Ajit Kumar Chaturvedi; Chairperson of the Board of Governors; members of the Board of Governors; the members of the Senate; faculty members; guests; staff members; the family members of the graduating students and dear friends - it gives me immense pleasure to extend a warm welcome to you all, on behalf of the 2020 batch, to the 8th convocation of the Indian Institute of Technology Mandi.

It seems rather unfortunate to address you virtually. Today is the day that marks the successful completion of an important phase of our life with this Institute. But, due to the prevailing pandemic, we were unable to gather on the campus to celebrate this occasion. We all had planned a long bucket list of activities for our last semester. But on the day that we returned to our homes, we never realized that it would be our last day on campus as students. The pandemic has taken away a lot of good things from us; however, it has most importantly made us learn to excel even during this period of hardship.

But it is not only the end of our journey that is different. Our batch started this journey of 4 years in a different way too. We were the first batch to undergo the five-week induction program or the '5WIP'. Before arriving on campus, the idea that we would not have classes for 5 weeks seemed very exciting. Little did we know that these five weeks long program would require us to wake up early in the morning and go for the morning physical activity at 6 am every day. I still remember the security officers and caretakers banging on our doors in the morning to wake us up for it. And I can surely say that it was even harder than the most difficult exam of my BTech program. Nevertheless, that was one of the best parts of our life here. It exposed us to the plethora of opportunities that we could explore. It prepared us for the life ahead. But I feel that the most important of all was that the program brought us together as a family. For most of us, the people we met during those five weeks became our closest friends.

The four years at IIT Mandi changed us a lot. We came here as irresponsible and clueless teenagers and today we have roles that affect the lives of many. Throughout these four years, we have created great memories that we shall always cherish. The fests, treks, the club activities, the festivals; it is an impossible task to summarize and express the wonderful period of four years in a speech. After my second semester, I had stayed back on campus to participate in the SAE SUPRA event. For the whole month of June, we used to work day and night in the mechanical workshop trying to build a car. Neither did we have many people, nor any previous experience or a large budget, but we did build the car. That was one of the best experiences in my life. I am sure everyone has several similar stories to tell. But all such experiences have collectively shaped us into responsible professionals.

Like all the previous batches, we too can claim that we have seen the Institute grow. We were present at an important stage of the growth- the transition of activities from a single campus to two permanent campuses. And our batch has made significant contributions to the process. We started with club-almirahs in the small SNTC room and lounge; now we have full-fledged club rooms. We have contributed to the growth of the existing clubs and the formation of new clubs. We have started the culture of clubs organizing their fests. We have also made a significant mark in academics and research activities. People from our batch have made quality research publications in top journals, have presented their work at international conferences, and have participated in research at some of the greatest research organizations. We also have among us, co-founders of startups. And I believe that all of these have contributed to making IIT Mandi one of the top institutes in the country and globally.

When speaking of being a top Institute, I would also like to mention what is perhaps the most important attraction of IIT Mandi which is its academic curriculum. IIT Mandi has a unique component in the curriculum- the Design and Innovation Practicum courses, which emphasizes the application of the theories learnt in class. Besides that, these courses add an enjoyment factor to classroom-learning. We all must have enjoyed disassembling the appliances during the reverse engineering sessions in our first semester. The trips made for the ISTP course taught me important life lessons and I shall always cherish the great memories. Moreover, the number of courses and facilities has increased during these four years- we have new research groups, labs, and research centers. Nevertheless, a lot still needs to be improved and I hope to see those changes in the coming years.

Till now, I have mentioned only the good moments. But, of course, we all have also experienced failures. There have been sad moments. One of the saddest moments of this four-year journey was during our second semester when we lost one of our close friends. There have been many times when everything seemed hopeless- be it a failure to secure the dream job or having an online semester and convocation; the list goes on. But one thing that these four years have taught me is that until we are brave enough to face the challenges and disappointments, we shall never succeed. Real success is in overcoming one’s fears, accepting reality, and being focused on the goal. There will always seem to be an easy way to avoid challenges. But, remember that it's just a trap. “Smooth seas never make skillful sailors”. We must face the challenges and suffer the pains. With time, the pains fade away and what remains are the learnings and beautiful memories like the ones we take away from this journey. What we do and become shall ever remain the reflection of what we learned in the span of these four years.

Finally, I would like to say that when I chose IIT Mandi during JEE counselling, it was not a very well researched choice. However, I can now proudly say that it was one of the best decisions of my life. I shall always miss the evening walks to Peepul point, the celebrations, and most importantly- you people. I know this is not the most ideal way of saying bye, but this is the only choice we have. Dear Faculty members, staff members, and friends, I have been very fortunate to get the opportunity to be a part of this journey with you all. Thank you for making this a wonderful journey.

Best wishes to all the graduating students for your future endeavours. I hope that we all make ourselves, our families, the institution, and the country proud.
Thank you!

Neelotpal Dutta
B16106

CONVOCATION COMMITTEES

Dr. Rajeev Kumar	Coordinator and Committee Chair
Dr. Mohammad Talha	Co-Coordinator
Mr. K. K. Bajre	Chair
Dr. Pradeep Parmeswaran	Chair
Dr. Varun Dutt	Chair
Dr. A. D. Dileep	Chair
Dr. Padmnabhan Rajan	Chair
Dr. Subrata Ghosh	Chair
Dr. Anil Kumar Sao	Team Leader
Dr. Rahul Vaish	Team Leader
Dr. Hitesh Shrimali	Team Leader
Dr. Aditi Haldar	Team Leader
Dr. Shyamasree Dasgupta	Team Leader
Dr. P. Anil Kishan	Member
Dr. Ajay Soni	Member
Dr. Ramna Thakur	Member
Ms. Stuti	Member
Ms. Nalini	Member
Mr. Maneshwar	Member
Dr. Rajendra Kumar Ray	Member
Dr. Narsa Reddy Tummuru	Member
Dr. Saumya Dixit	Member
Mr. Vivek Tiwari	Member

Ms. Sushma Patial	Member
Mr. Kuldeep Sharma	Member
Mr. Vishal Parmar	Member
Ms. Sonia Gupta	Member
Dr. Nitu Kumari	Member
Dr. Amit Shukla	Member
Dr. Gopi Shrikanth Reddy	Member
Dr. Adarsh Patel	Member
Mr. Anoop Kumar	Member
Dr. Parmod Kumar	Member
Dr. Himanshu Misra	Member
Dr. Garima Agrawal	Member
Dr. Neha Kaushik	Member
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Ms. Lishma Anand	Member
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Mr. Ramesh Kumar	Member
Mr. Sunil Kumar	Member
Dr. Sriram Kailasam	Member
Ms. Debashrita Roy Chowdhury	Member
Mr. Gopal Sharma	Member
Dr. Surya Prakash Upadhyay	Member
Dr. Manas Thakur	Member
Dr. Himanshu Pathak	Member

Dr. Bhaskar Mondal	Member
Mr. Lalit Thakur	Member
Mr. Dashmesh	Member
Mr. Deshraj	Member
Ms. Chanchla	Member
Mr. Puneet Sharma	Member
Dr. Atul Dhar	Member
Dr. Amit Jaiswal	Member
Dr. Srikant Srinivasan	Member
Mr. C. L. Sharma	Member
Mr. Suresh Rohilla	Member

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