

## **Director, IIT (ISM) Dhanbad**

Changing a well-entrenched institutional legacy is an uphill battle. Fortunately, with my intimate knowledge of IITs and, more importantly, with the enthusiastic support of active, young faculty and students, the difficult task of converting an old university system into an IIT was relatively easy. I am deeply indebted to my young colleagues and students at IIT(ISM) for their initiative, diligence, and sincerity in striving to make IIT(ISM) a name to reckon with.

Together, we made significant changes at IIT(ISM), despite nearly two years lost to Covid, some of which are listed below.

### **A. Academic**

1. Both the UG and PG curriculum have been completely revamped with the introduction of choice-based credit system (CBCS) along with department and open electives. Double Major, Dual Degree and integrated PhD programs were introduced.
2. PhDs awarded increased from 222 in 2018 to 434 in 2022.
3. The PhD program was made rigorous by requiring (i) course work, (ii) one q1/q2 journal paper of Web of Science (WOS) for thesis submission, and (iii) Indian and foreign examiners primarily from IITs/IISc and QS200 ranked foreign institutions respectively for thesis evaluation.
4. Invested ~Rs. 70 crores since 2018 in substantially upgrading UG/PG laboratory and Central Research Facility infrastructure.
5. Several new programs were started: (i) M.Tech. in Data Analytics and Pharmaceutical Science and Engineering, (ii) MBA in Business Analytics, and (iii) MA in Digital Humanities and Social Science. Two Executive M.Tech. programs have been approved by the BOG.
6. Ensured that all scheduled classes were held and student attendance requirement was strictly monitored and implemented.
7. Manuals containing comprehensive rules and regulations for UG/PG/PhD programs were made for the first time. The website has complete, updated data on academic programs, course templates, and course catalogue.
8. Pre-registration and physical registration were introduced for the time.
9. A consolidated grade sheet reflecting the academic performance of students during their entire stay at IIT(ISM) was introduced.
10. Complete migration from manual to online system for academic registration, elective allotment, attendance, grading, and no dues for students.
11. Set-up 11 smart classrooms and 2 studios in 2021 for recording (i) NPTEL lectures, (ii) Executive M.Tech., and (iii) Executive Development programs. 4 NPTEL courses were recorded for the first time in AY 2021-22.

### **B. Research and Development**

1. Funds sanctioned for R&D (sponsored) projects increased from Rs 15 crore in FY 2018-19 to Rs 69 crores in FY2022-23.
2. The quality of publications increased significantly. From 2018 - 2022, the number of q1/q2 publications increased from 523 (52%<sup>1</sup>) – 919 (72%). This corresponded to a productivity increase from 1.8 to 2.7 publications per faculty. The ratio of q1/q2 publications to total publications increased from 30% to 49%.
3. Set-up the Rs 23 crore Tata Steel Innovation Center on Mining and Mineral Research with funds from Tata Steel.

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<sup>1</sup> Proportion of q1 and q2 publications in the total WOS basket.

4. Set up the Rs 10 crore Naresh Vashisht Center for Hydrogen and CCUS Technologies with a gift from our Petroleum Engineering Alumnus, Mr. Naresh Vashisht.
5. Started faculty mobility program for promoting industry-academia interaction.
6. Started Sandwich Program for PhD students to spend up to 6 months for research in a foreign university.
7. Advanced negotiations were underway to set-up two pilot plants in association with industry: (i) 2t/h high ash coal gasification plant with IOCL and L&T and (ii) composite ammonia dissociation and hydrogen combustion unit with Technip Energies in our proposed industrial park at the new campus in Nirsa.

### **C. Innovation and Entrepreneurship**

1. Created a vibrant Institute Innovation Hub (I2H) consisting of:
  - a) TEXMIN Foundation, a Rs. 110 crore company specializing in cyber-physical technology development, services, and human resource development in the areas of mining and exploration at IIT(ISM) Dhanbad. It has collaboration with major technology providers and mining companies and has assets worth more than Rs 450 crores.
  - b) The Naresh Vashisht Centre for Tinkering and Innovation (NVCTI) for training and product development in AI, digital technologies, robotics, and smart manufacturing for systematically leveraging the “untapped” potential of undergraduate students. It was set-up with a gift of Rs. 8 crores from Mr. Naresh Vashisht.
  - c) ACIC Foundation, a section 8 company of the Atal Innovation Community Centre with a major focus on women empowerment.
2. Started a minor in Product Development Internship for UG students where students develop a product.
3. Started a unique field-based course on Social Entrepreneurship to give students exposure to problems at the ground level in education, health, environment, and marginalized communities.
4. Started the Jharkhand School Innovation Challenge (JH-SIC, Avishkaar) in 2021, which is continuing. Schools from across Jharkhand participate in this competition.

### **D. Faculty**

1. From 2019 onwards, 135 offer letters were issued and 102 new faculty joined the institute. The Institute has conducted two Special Recruitment Drives during my tenure and a third drive was advertised.
2. Streamlined and set up a rigorous, transparent, 4-stage new faculty selection system and introduced external peer review system for selection to the positions of Associate Professor and Professor.
3. Re-started and systematized the process for selection of Professor (HAG) after more than ten years.
4. Instituted Faculty Mobility Program for enhanced faculty – industry interaction.

### **E. Student Activities**

1. Establishment of Students’ Gymkhana with an elected Senate for active participation in the Institute’s academic and administrative governance system.
2. Setting up a student counselling service at IIT(ISM) for the first time. Also engaged an Online 24x7 counselling Platform “YOUR DOST, ” which has proved to be a boon for students. I personally monitored and engaged with “red-flagged” students.
3. We also started an “Own your Wing” scheme where students of a hostel wing will be collectively responsible for monitoring unusual signals in fellow students, cleanliness, and acts of indiscipline.
4. Started a Parent Portal where parents can independently monitor the grades, attendance, and disciplinary record of their children.

5. Significantly upgraded sports activities (i) by hiring coaches in all sporting disciplines for the first time ever and (ii) improvement in both indoor and outdoor sports infrastructure. **IIT(ISM) came 9<sup>th</sup> in the Inter-IIT sports meet in 2018 and 2019, and 7<sup>th</sup> in 2022 , with the best women athlete prize in 2019.**
6. Student indiscipline, which was rampant, was controlled. **The threat of increased attendance from the minimum 75% up to 90% proved to be a big deterrent.**
7. Students had 24x7 access to me through email, cell phone, WhatsApp, and my “open” office hours. I continuously engaged with them through emails, regular visits to hostels, student activities centre, food court, and presence in nearly all cultural, technical, and sports functions.
8. Students were actively involved in the activities of Media and branding, Alumni Affairs, and NVCTI. Web development and videos were developed by students without any professional help.
9. Rejuvenated and raised the level of the Annual Student Cultural Festival, Srijan and made it financially viable by combining it with the Annual Alumni Reunion, Basant.
10. Raised the quality of the Annual Students Techno-Management Festival, Conchetto by bringing it under the aegis of NVCTI.
11. Integrated the activities of the student clubs with the Institute by merging cultural clubs with Dean, Media and Branding and technology clubs with NVCTI.

#### **D. Alumni Connect**

1. Developed a comprehensive alumni database for 28000 alumni, up from a few hundred in 2018.
2. The endowment fund policy was streamlined. Several large donations for scholarships, faculty chairs, and infrastructure development were received.
3. IIT(ISM) received its first major gift of Rs. 8 crore for setting up a student innovation hub, NVCTI.
4. A gift of Rs. 10 crores for setting up the Centre of Hydrogen and CCUS Technologies.
5. Gifts of Rs. 2.2 crores were received for setting up 9 smart classrooms and 2 recording studios.
6. Alumni contributed Rs 85 lakhs to the PM CARES Fund for covid.
7. A campaign for IIT(ISM)’s centenary building complex, for the much-needed large classrooms, had started attracting funds from alumni.
8. Introduced Silver jubilee and Ruby Jubilee reunions apart from the existing alumni reunion function, Basant.
9. Set-up SAIRC (Student - Alumni International Relations Cell) for active participation of students in alumni related activities.
10. Started Alumni Health Insurance Program.
11. Started IIT (ISM) Newsletter to keep our alumni, students, and visitors up-to-date about the latest news and happenings.

#### **F. Establishment and Administration**

1. Introduced a comprehensive WhatsApp-based communication system for all sections of the institute for fast response.
2. Streamlined PG admissions process by consolidating admissions to the PhD, M.Tech., 2 year MSc, and MBA under Chairman PG Admissions.
3. Approval of a new, comprehensive “Cadre Structure and Recruitment Rules” for non-teaching employees after I joined IIT(ISM).
4. A total of 253 non-teaching staff and officers have been recruited during my tenure. 109 internal employees have been promoted since 2020 when the departmental promotion scheme was implemented.
5. Employees started receiving their dues on the day of their superannuation.
6. File movement was completely automated by implementation of e-office since 2021.

7. Government e-marketplace (GeM) was implemented in letter and spirit.
8. Completely upgraded and streamlined the operations of Student Placement, Campus Management Unit, Store and Purchase section, Health Centre, Guest House, Commercial Establishment and Security Unit to the level of old IITs.
9. Labour laws were strictly implemented in the Institute and Student Hostels.

#### **G. Covid Management**

1. Institute employees and alumni contributed more than Rs. One crore for the PM CARES fund.
2. Provided one meal daily to the disadvantaged sections of Dhanbad and drinks and snacks to traffic police personnel during the early days of Covid.
3. Pre-arranged oxygen cylinders and concentrators before the second wave in 2021.
4. Second wave
  - a) During the second wave, set-up a WhatsApp based governance system which coordinated the identification, transfer, accommodation in the isolation centre, arrangement of food, and regular check-up of covid patients.
  - b) Coordinated with Medanta Hospital Ranchi for treatment of serious patients.
  - c) There were 122 covid patients all of whom recovered.