# Scaling Greater Heights - The Defining Factors behind IIT Mandi's Rise in NIRF Rankings

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Every year in April, government-funded higher education institutes and many private institutes in India gear up for the results of the National Institute Ranking Framework (NIRF) released by the Ministry of Human Resource Development (MHRD). They rank institutes and organizations across the country on specific parameters identified as emblematic of an academic institution of the highest standard.

This year, the rankings brought for us at the Indian Institute of Technology Mandi, the reassurance that we were going right somewhere, and that we must continue to tread on the path for ensuring a holistic approach to education.

IIT Mandi improved its position by jumping up six positions in the Engineering category in NIRF 2019, compared with the preceding year. The Institute was ranked #20 in the Engineering category in NIRF 2019 compared to #26A in NIRF 2018.

A review of our scores revealed that we had achieved most progress on the *Outreach and Inclusivity* (OI) parameter, with an increase from 54.64 in 2018 to 65.65 this year. The 65.65 score is the highest among all IITs on the OI parameter. A high score in OI reflects excellence in performance on indicators such as the types and numbers of refresher and orientation courses, teacher training and related outreach activities, participation in e-content creation programmes (such as e-PG Pathshala and CEC, NME-ICT, among others), apart from an improvement in faculty interaction with industry. It is also an indicator of an increase in the female student percentage and enhanced diversity amongst the international and national students, which are some of IIT Mandi's significant achievements this year.

In addition, our *Perception* score has doubled since last year, from 9.96 to 18.72, indicating improvements in the perceptions of the Institute by employers, research investors, peer groups including academicians and the public, in addition to better competitiveness. This has been no mean feat but achieved through a concerted campaign aimed at creating an enabling environment for our students, faculty, and ensuring equity in all respects. The significant improvement in the *perception* score can be attributed to the increase in applied research by faculty, who published in top Science and Engineering journals. During semester breaks, faculty from other IITs doing research visit our campus, where the progress being made at our institute becomes a key takeaway, shaping perceptions.

There has been a marginal increase in the Institute's score on the *Teaching, Learning and Resources* (TLR) parameter with IIT Mandi being ranked 3rd among the second generation IITs and 8th among all 23 IITs. This owes to several factors, primary among which is a faculty-student ratio of 1:9, the best among all IITs. In addition, IIT Mandi boasts of opportunities for and experiences of the faculty for working on consultancy projects with industry on research and development. For example, at IIT

Mandi, the research collaborations between faculty and industry have grown exponentially in areas such as machine-learning and artificial intelligence (AI) for better healthcare services, and the like. Under the *Uchhatar Avishkar Yojana*, IIT Mandi along with the start-up NMS Works is helping the telecom industry with telecommunication network monitoring.

The paucity of female enrolment in engineering is often referred to in academic discourse. What are measurable steps taken to address this problem? Prof. Timothy Gonsalves, Director IIT Mandi, led a committee that suggested several measures to ensure a higher female enrolment rate. One such approach was to instate what we call supernumerary seats. This allowed us to push our total intake capacity by a few seats in the likelihood that we have not met the target percentage of female candidates during an admission session. To incentivise women further to join our Institute, we also offered a merit scholarship of a full-tuition fee waiver for women in their first year along with a stipend of Rs. 1000 per month for ten months, which becomes subject to their performance in the subsequent years. We also hosted the pan-IIT helpdesk during admissions that particularly sought to address the queries of potential female candidates on key issues such as logistics and safety on campus. Furthermore, the Women in Science and Engineering (WISE) programme at the Institute organizes several initiatives through the year focussed on providing an interactive platform for the women to discuss placements, internships, scholarships, hosting guest lectures by entrepreneurs, etc.

Apart from furthering the number of women in the Institute, we also actively seek to enhance international diversity on campus. One would often find more students from developing countries seeking academic opportunities in the West. It is a no-brainer then that we had to push the envelope to make studying at IIT Mandi attractive for students from other countries, at least to those with similar socio-economic milieu like ours. To this end, several faculty delegations from IIT Mandi have visited engineering institutions across Bangladesh, Nepal, Bhutan, Kenya, and more, encouraging their students to consider our institute for further studies. Our strong ties with TU9 universities in Germany also attract a few students every year who spend up to one to two semesters on campus. Apart from this, about 20-25 students from Worcester Polytechnic Institute in Massachusetts, USA visit the Institute for a couple of months every year and participate in the Interactive Socio-Technical Practicum (ISTP) programme through which they spend time with local communities to understand their problems and devise technological and social interventions to address them. At the end of this programme, the Worcester Polytechnic Institute (WPI) and IIT Mandi students host an open house where they present the outcomes and solutions.

IIT Mandi, while having improved its *Graduation Outcomes* (GO) score from 63.07 last year to 68.06 this year, reports focus on an approach that looks at both careers and placements holistically, instead of stressing undue importance on the latter alone.

The NIRF rankings are but one factor that is encouraging and emblematic of the successes of the Institute's efforts and initiatives. There are several aspects such as our innovative curriculum which are not considered in the rankings of institutions. Merely ten years old, IIT Mandi is rapidly maturing as an institution and some of its research areas such as Material Science and Engineering, Condense Matter Physics, BioX, Design and Fabrication of Electronic Devices, and AI are emerging as centres of

excellence in India and abroad. Even if one or two of these areas become the best internationally or in India in the next five years, it would be indicative of our success and will encourage us to do better, alongside improving student diversity and quality of research.

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