

DIRECTOR'S REPORT

Hon'ble President of India Shri Ram Nath Kovind, the Chief Guest of the function, Mr. Kumar Mangalam Birla, Chairman, Board of Governors, Members of the Board and the Senate, Degree recipients, Distinguished Guests, Colleagues, Ladies and Gentlemen, it is a great pleasure for me to welcome you all to this 48th Annual Convocation of Indian Institute of Technology Delhi, and to present to you a brief report highlighting our activities, achievements and future plans. We are highly honored and pleased to have with us Shri Ram Nath Kovind the Hon'ble President of India, who has kindly agreed to be the Chief Guest on this solemn occasion. Hon'ble President is also the Visitor of our Institute implying he is also the head of our family and that makes this occasion even more significant.

Shri Kovind is the 14th President of India and prior to assuming the charge, Shri Kovind served as the 36th Governor of the state of Bihar from August 16, 2015, to June 20, 2017. Shri Kovind obtained the degrees of B.Com. and L.L.B. from Kanpur University and in 1971, he enrolled as an Advocate with the Bar Council of Delhi. Shri Kovind was Union Government Advocate in the Delhi High Court from 1977 to 1979 and Union Government Standing Counsel in the Supreme Court from 1980 to 1993. He became Advocate-on-Record of the Supreme Court of India in 1978. He practised at the Delhi High Court and Supreme Court for 16 years till 1993. Shri Kovind was elected as a member of the Rajya Sabha from Uttar Pradesh in April 1994. He served for two consecutive terms of six years each till March 2006. Shri Kovind served on various Parliamentary Committees and was also a Member of the Board of Management of the Dr. B.R. Ambedkar University,

Lucknow, and Member of the Board of Governors of the Indian Institute of Management, Kolkata.

India as a country is in a very unique stage in the history of this universe. We have the capacity as well as aspiration to be a global leader in the most advanced of the technologies like space and atomic energy while still trying to address the very basic needs of our vast population with challenges like open defecation, malnutrition etc. This report underlines the efforts as well as achievements of IIT Delhi not only in imparting high quality technical education but also towards addressing a very large range of societal needs through application of Science & Technology. We are working towards the triple objectives of *Excellence, Expansion and Inclusion*.

It is my great pleasure and privilege to share that IIT Delhi's rank rose 13 places to 172 (for the year 2018) from last year's position at 185 in Quacquarelli Symonds (QS) World University Rankings 2018. The only other two Indian institutes in 200 university rankings are IIT Bombay (179) and IISc Bangalore (190). Department of Electrical Engineering at IIT Delhi with a QS rank 49 is the World's highest ranked department from India for 2018. Many engineering departments at IIT Delhi are also ranked within the top 100 in the QS World rankings which is a significant achievement for the institute. IIT Delhi is ranked first among engineering colleges in India for 2017 by India Today as well as by Outlook India. IIT Delhi is ranked fourth among engineering colleges by the National Institutional Ranking Framework (NIRF) in 2017 and fifth overall.

For the year 2016-17, the actual recurring expenditure Non-Plan & Plan were to the extent of ₹ 36200.73

lakhs and ₹ 4273.05 lakhs respectively and Plan Non-Recurring expenditure was ₹ 12508.48 lakhs. The Institute generated about 23.89% of the actual recurring expenditure through internal revenue generation from fees, sponsored research, consultancies and continuing education programmes.

The Institute has also made consistent efforts in upgrading its infrastructure to cater to the needs of its expansion plans and for better amenities. Besides planning and building new hostels and additional academic space, the Institute is also engaged in a massive exercise of renovation of old houses, hostels and sports facilities.

The Institute recognizes the outstanding contributions made by the alumni in various areas by conferring the Distinguished Alumni Awards each year. This award is the highest honor conferred by the Institution to its alumni to recognize their achievements and outstanding contributions to academics, business, profession and/or public service. This year the same will be conferred on Prof. Saumitra Dutta (Dean, Cornell University), Mr. Sunil Sood (MD & CEO, Vodafone India Ltd.), Mr. Saurabh Mittal (Founder & Chairman, Mission Holdings) and Dr. Kiran Bedi (Lieutenant Governor, Puducherry).

RESEARCH & EXCELLENCE

Over the years, at IIT Delhi, we have built a robust research tradition, which can be seen by the inspiring statistics in terms of different research parameters. Specially, we have continuously improved our credentials in research as evidenced by way of publications, citations and Ph.Ds per faculty, which are among the highest for any institution in India and compare favorably with the best in the World. Total research publications of IIT Delhi indexed in Scopus database for November 2016 to October

2017 is 1779. During the said period, total number of citations received is 831. Our target of continuously searching for and significantly increasing the intake of quality candidates into our Ph.D. programmes is showing results over the past few years. Over 60% of the students currently on rolls at IIT Delhi are post-graduate students.

As in earlier years several of our faculty colleagues were elected Fellows of professional national/international bodies and received major awards during the last one year. Notable among them was Prof. Naveen Garg who was awarded the prestigious Shanti Swarup Bhatnagar Prize for 2016 in Mathematical Sciences. Other notable recognitions received by our faculty were Prof. K.K. Pant has been elected as a Fellow of the Royal Society of Chemistry, Prof. Swades De of Electrical Engineering Department has been elected a Fellow of The National Academy of Sciences (NASI), Prof. Sunil Nath (DBEB), Prof. Ravi Shankar (DMS) and Prof. Manav Bhatnagar (EE) have been elected as Fellows of the Indian National Academy of Engineering, Prof. Santosh Kapuria has been elected Fellow of the Indian Academy of Sciences (Bangalore), Prof. G. Bhuvaneshwari, elected a Fellow IEEE for 2017. I am also happy to inform you that Prof. Naresh Bhatnagar has received the 7th National Award for Technology Innovation in Petrochemicals and Downstream Plastic Processing Industry (2016-17), constituted by Government of India, Ministry of Chemicals & Fertilizers in recognition for his Technology contribution to “Polymers in Public Health Care”, wherein their designed and developed “Hip Protection Device” meant for old population to prevent fracture of Hip joint during a sudden fall.

Major research initiatives of IIT Delhi spanned from setting up a major research centre named “Joint Advanced Technology Centre (JATC)” in

collaboration with DRDO to setting up of a Common Engineering Facility Centre (CEFC) in collaboration with Automation Industry Association (AIA). The agreement for setting up of DRDO-Joint Advanced Technology Center (JATC) was signed and projects totaling over ₹ 170 crores have been approved by DRDO for the year 2017-18.

During the year 2016-17 under report, 158 Sponsored Research Projects with a total funding of ₹ 219 crores and close to 380 consultancy jobs with a total value of ₹ 38 crores were undertaken. 20 collaborative projects and 06 consultancies with international funding were also undertaken during the period. Institute is expecting a 50% increase in the sponsored research funding for the year 2017-18 based on the new initiatives undertaken last year and the commitments received so far.

In order to jump start the research activities of newly joined faculty members, the Institute provides seed research funding to the new faculty upon joining the Institute to the tune of ₹ 50.00 lakhs (or more when necessary). During the year, the Institute sanctioned the New Faculty Research Grant of a total of ₹ 295.00 lakhs to 27 faculty members out of the total funds of ₹ 500 lakhs earmarked for this purpose.

INTER-DISCIPLINARY RESEARCH

Inter-disciplinary research is so critical for addressing the real challenges of the society. In the 194th meeting of the Board of Governors held on 4th Aug'17, IIT Delhi Board has approved the School of Interdisciplinary Research (SIRe) and creation of a new "Department of Design". These two new academic entities which are expected to start their operations in 2018-19 are expected to give a major boost to the interdisciplinary research and product development activities across the institute.

To promote inter-disciplinary research, IIT Delhi has started a new scheme named Faculty Interdisciplinary Research Projects (FIRP). Faculty members from two different departments/Centers can come together and write a high quality proposal for which IIT Delhi will provide a seed grant. This year IIT Delhi received about 90 projects and after an external review, IRD Unit of IIT Delhi approved 30 of them. Faculty from almost all entities and disciplines of the Institute have been involved. It is expected that each of the FIRP funded faculty members would seek support from external agencies within a year.

At IIT Delhi, we have started a new research project initiative called 1-2-3-4 Discover & Learn. Students drawn from different years come together and work on a problem ensuring continuity, under a faculty member's mentorship with the eventual goal to address a societal problem through a prototype development. Based on an overwhelming response, around 40 such projects are in operation at present in the Institute. Interestingly approved projects cover a wide variety of societal needs ranging from assistance to older people to smart grids, from rural needs to prosthetics.

Among notable foreign research collaborations, IIT Delhi Nanoscale Research Facility (NRF) and the Bio-Nano Electronics Research Centre (BNERC) of Toyo University, Japan offers an access to IITD researchers to access some high end facilities in BNERC using a web based interface.

INNOVATION & TECHNOLOGY ENTREPRENEURSHIP

Eighteen (18) infant technology startups striving to solve problems in fields ranging from automobiles to health, biotechnology and heritage conservation are incubated at IIT Delhi. The startups founded by

IIT alumni get mentoring, infrastructure support and funding through the Foundation for Innovation and Technology Transfer (FITT), IIT Delhi.

As part of our society connect initiative, IIT Delhi jointly with its alumni has started a Women Entrepreneurship & Empowerment (WEE) programme which is helping women from various walks of life to become entrepreneurs. Second batch of WEE students have gone through this programme and many of them have successfully launched their ventures. Over 2000 applications from budding women entrepreneurs have been received from all over the country under this initiative. WEE programme is being mentored by IIT Delhi with active participation of IIT Delhi alumni.

OUTREACH & INCLUSION

In a move to reach out to a large number of engineering students studying in colleges with limited resources, MHRD launched a virtual laboratory scheme. Coordinated by IIT Delhi, nearly one hundred and forty virtual laboratories have been set up in the IITs and some partner institutions across India under the project.

Another outreach activity IIT Delhi is coordinating is the IIT-Professor Assisted Learning (IIT-PAL) which has been launched under the Swayam Prabha initiative of HRD ministry. All an IIT-JEE aspirant needs is internet connectivity or a DTH setup for TV to access the IIT-PAL content on the SwayamPrabha channels of Govt. of India. From the comfort of their homes, JEE aspirants in the villages/towns/cities can now watch lectures on physics, chemistry, mathematics and biology taught by the selected IIT professors based on the 11th and 12th standard NCERT text books. Over 700 hours of video content is currently available for free online under the IIT-PAL initiative.

IIT Delhi is coordinating the flagship Unnat Bharat Abhiyan (UBA) program of Ministry of HRD, Govt. of India. The program aims to bring a transformational change in rural development by active participation of higher academic institutions with local communities, and reorientation of curricula and R&D design of knowledge institutions. In the year 2017-18, it is expected to bring 500+ participating institutions in the fold of UBA and cover about 300 districts in the country.

Institute has been organizing Open House to exhibit an extensive collection of innovative research and product development projects since last ten consecutive years. The eleventh edition of Open House was held successfully on 22nd April, 2017. Open House targets, among other audiences, young school kids in NCR region and the footfall is approx. 5000 visitors in a day.

IIT-Delhi has registered around 30% increase in the total number of women candidates admitted this year through JEE. The actual number increased from 70 in 2016 to 93 in 2017. PG and Ph.D. programs are continuously seeing an increase in number of women candidates which stands at around 25% at present.

INDUSTRY OUTREACH & COLLABORATION

IIT Delhi in collaboration with NITIE, Mumbai has launched a Post-graduate Program (Executive) in "Visionary leadership for Manufacturing (PGPEX-VLFM)" and first batch of 17 students have been admitted.

Under its 'SAMARTH Udyog' initiative, Department of Heavy Industry, Government of India has approved the setting up of a Common Engineering Facility Centre (CEFC) at IIT Delhi in collaboration with Automation Industry Association (AIA) with a total funding of about ₹ 35 Crore. Under the Uchhatar Avishkar Yojana and the IMPRINT schemes of

MHRD, there are currently 50 projects at IIT Delhi involving industry collaborators with a total approved project outlay of ₹47 crores. There are also multiple Centers of Excellence being created with participation of external agencies/industries at IIT Delhi. Union Minister for Human Resource Development (HRD) Prakash Javadekar launched the Sumant Sinha ReNew Centre of Excellence for Energy & Environment, established jointly with ReNew Power Ventures Pvt. Ltd. and IIT Delhi on September 12, 2017. The symbiosis between the scientific talent at IIT Delhi and industrial expertise at ReNew Power will build an innovative platform for research in renewable energy.

IIT Delhi has also started an Industry Day from this year. Over 170 industries have participated in the first ever Industry Day held at IIT Delhi on September 23, 2017. This gave an opportunity for the industry community to know the research that is happening at IITD. One of the expected outcomes of this initiative is improved placement opportunities for Ph.D. students through exposure of their work to industry. This will henceforth be a regular calendar event at IIT Delhi.

Engagements with Industry are critical for placement of students after graduation. The T&P Unit received job requisitions from 342 Companies for 475 job profiles. Approximately 84% students who registered for placement got placed through T&P. Others were placed through off-campus recruitments.

ACKNOWLEDGEMENT AND CONGRATULATORY MESSAGE

Finally, I would like to acknowledge the support received in abundant measure from the Ministry of Human Resource Development, the various sponsoring agencies, the collaborating industries, institutions and alumni.

I personally acknowledge the support and encouragement I have received from the Chairman and Members of the Board of Governors, and from all my colleagues, and extend my appreciation to the students for their exemplary behavior and their contributions towards enriching the campus life.

Finally, I conclude by conveying my heartiest congratulations and best wishes to each one of the 1941 graduates receiving their degrees and diplomas, and the 108 graduates receiving the awards/medals/cash prizes for their special achievements at the 48th Convocation of the Institute. It is noteworthy to mention that 306 Ph.D. students are receiving their Ph.D. degrees at this convocation. This is the first time IIT Delhi has crossed the 300 mark in terms of the number of Ph.D. students graduating during the convocation.

We are confident that your stay with the Institute has enabled you to continue the process of lifelong learning and to take up challenging careers. We are also confident that you will provide the leadership the country and the world expects from you. We wish you success in whatever you choose to be. Keep in touch with your alma mater, support it in whatever way you can, and keep the IIT Delhi flag flying high. I am sure that you would work for a better world where science and technology are used in socially responsible ways, and in harmony with nature. I once again thank our Chief Guest Hon'ble President of India, Shri Ram Nath Kovind, our Chairman, Board of Governors, Mr. Kumar Mangalam Birla, and all the distinguished guests for being with us on this solemn occasion.

Thank you.

Jai Hind.