Dr B R AMBEDKAR NATIONAL INSTITUTE OF TECHNOLOGY JALANDHAR

Five Year Strategic Plan

Many Voices, One Vision-Moving Forward

Dated: 30-03-2022

Proposed Five Year Strategic Plan:

a. An academic plan showing the courses proposed and a research plan focusing on current thrust/niche area (s) of expertise and proposed plan in pursuit of excellence in those areas

Academic and Research Plan

Starting of New UG Programmes

- B Arch programme
- Integrated BTech programme in Fashion & Apparel Technology

Starting of New PG Programmes (Any two)

- M Tech in Earthquake Engineering
- M Tech in Apparel Technology & Management
- M Tech in Biotechnology
- M Tech in Filtration Science and Engineering

Setting up of Centers (Any two)

- Center for Advanced Software Development
- Centre for Concrete Construction
- Center for Bio Process Engineering and Bio Informatics
- Centre for Biomedical Engineering and Healthcare Technologies
- Centre for Robotics
- Center for Nano Materials

Attracting sponsored R&D and industry sponsored consultancy projects in the following areas:

- Information Security
- Wireless Sensor Networks
- Natural Language Processing
- Data Mining and Warehousing
- Concrete Construction
- Earthquake Resistant Design of Structures
- Geotechnical and Geo-environmental Engineering
- Water Resources
- Construction Management
- Biomedical Engineering and Healthcare Technologies
- Robotics
- Mechatronics System Dynamics & Control
- Composite Materials/Nano Materials

0-5 Year Plan

a. To enhance the number of seats in each BTech programme to 150

b. To enhance the number of seats in each M Tech programme to 70

c. To start at least 2 new M Tech programmes, to be decided by the Institute

d. To start at least 2 additional Centers of Excellence, to be decided by the Institute

b. A faculty recruitment policy and plan to meet the academic plan requirements and to achieve 1:10 faculty students ratio.

Based upon the expected student's strength, the faculty positions shall be estimated. The recruitment of faculty shall be made twice a year based upon rolling advertisement. It is hoped that the with the modified recruitment rules in place, the recruitment of faculty will be a smooth process.

c. Appointing faculty from industry, Government, Non-profit organizations, etc. including foreign faculty

- Appoint, retain and reward diverse faculty who are recognized as global leaders in their fields by providing a world-class, collaborative work environment
- Comprehensive regional and national higher education jobs websites
- Member collaboration on facilitating dual-career employment and state-of-the art dual-career search technology
- Conference attendance to reach out to student jobseekers with a special emphasis on their professional skills
- Partnerships with associations, societies, and publications

d. Student admissions policy to select Indian and foreign students

The Institute presently admits Indian students to BTech and MTech programmes through All India Entrance Tests and foreign students through DASA. The Institute proposes to continue with the existing system for admitting of students. The present process of admitting PhD students through internal test and interview is also proposed to be retained.

e. Scholarships to meritorious students

The students admitted to various BTech programmes shall be offered scholarship as per the following Table. These scholarships will be applicable only for the 1st semester and for subsequent semesters, a comprehensive policy based on the academic performance of the students shall be worked out.

%age of Tuition Fee Waiver	All India Rank range of JEE-Main for General category students	All India Rank range of JEE-Main for SC/ST/OBC category students
100%	1-500	1-10000
75%	501-2000	10001-20000
50%	2001-4000	20001-40000

f. Developing research laboratories

Establishing New Laboratories and Modernization of Existing Laboratories:

Thrust Area	Department	Action Plan
Bioprocess Engineering, Production of Green and Clean Bio-fuels, Bioinformatics.	Biotechnology	Establishment of new laboratories and modernization of existing laboratories
Concrete for Sustainable High Performance Infrastructure, Geotechnical and Geo-environmental Engineering, Earthquake Engineering	Civil Engineering	Modernization of laboratories and establishing of new laboratories
Environment, Energy, Material Science.	Chemical Engineering	Establishment of Membrane Science, Biodiesel Reactor, Rotary Vacuum Evaporator, and Flash point Apparatus
Software Engineering and Internet of Things, Image and Natural Language Processing, Wireless Sensor and Optical Networks, Information Security, Data Mining and Warehousing	Computer Science and Engineering	Establishment of new laboratories and Modernization of existing ones with statistical data miner and other software tools
Smart Polymers, Nanosurface and Nanoenvironmental Chemistry, Synthetic Organic Chemistry	Chemistry	Establishment of R&D Laboratories with equipments like HPLC, Establishment of Nanosurface and Nanaoenvironmental Laboratories Modernization of existing laboratories
VLSI Circuit Design, Intelligent systems and Wireless Communication, Biomedical Signal Processing	Electronics and Communication Engineering	Establishment of new laboratories and modernization of existing laboratories
Business Management, Entrepreneurship, Communication Skills	Humanities and Management	Modernization of existing Communication Laboratory
Industrial Automation and Industrial Robotics, Process Control,	Instrumentation and Control Engineering	Establishment of new laboratories and modernization of existing laboratories

Thrust Area	Department	Action Plan
Advanced Biomedical Instrumentation and Healthcare Technologies, Virtual Instrumentation, Smart Virtual Grid,		
Advanced Machine Processing	Industrial and Production Engineering	Modernization of existing Laboratory.
Finite Element Methods for Partial Differential Equations, Wavelet Method for Partial Differential Equations, Sampling Statistics	Mathematics	--
Composites and Nano-Composites. Mechatronics, System Dynamics and Control, Heat Transfer in Combustion Systems, IC Engine Diagnostics, Computational Fluid Dynamics, Hybrid Fuels	Mechanical Engineering	Establishment of new laboratories for Mechatronics, IC Engine, and Composite Manufacturing and Testing Laboratories
High energy Physics, Environment Monitoring and Assessment of Radiation Risks, Plasma	Physics	Establishment of new laboratories and modernization of existing laboratories
Medical Textile Research, Non-woven and 3D Fabric Manufacturing, Textile Composite Research, Product Design, Polymer Nanocomposites, Aerosol Filtration, Extraction/coloration with Natural Dyes	Textile Technology	Establishment of new laboratories and modernization of existing laboratories

g. Teaching and Research Collaboration with Global Universities figuring in the most reputed global rankings

Today's universities are typically focused on attracting the best students and scholars from around the world, launching partnerships with overseas institutions and businesses, incentivizing cross-border research collaborations and educating their students to become "global citizens".
Further, the number of research publications with co-authors from different countries has increased and even faster than the overall growth in the number of papers. The economic and cultural drivers for a globalized, inter-connected world are so strong that such interconnectedness will remain one of the "defining characteristics" and it is clear that universities care about internationalization.
Here are some points which may be helpful for planning of Teaching and Research Collaboration with Global Universities:

1. Most important thing is to have a real international network of alumni; and if these alumni feel they have been trained and educated well, they are all ambassadors for what is going on in the world.
2. By increasing the number of international agreements for dual degrees, may be helpful.
3. If Faculty members choose the partners that are best suited to their research, this naturally leads to a very high degree of international collaboration.
4. **Research collaborations:** These days, a lot of research is collaborative and universities with international faculty are more likely to facilitate such collaborations, whether with faculty at their alma mater or with colleagues and friends with whom they attended graduate school and who are now placed at other institutions.

   On the other hand, faculty-to-faculty collaborations across institutions in India and abroad, when based on common research interests and old ties and trust, are usually more successful.
5. **Benefits for students:** There is no doubt that international faculty would benefit students and other faculty as well. With the launching of the Global Initiative of Academic Networks, students are getting better exposure to international faculty than before but most such exposure will be short-term. There is really no substitute for hiring regular international faculty who can play mentorship roles over a fairly long period.
6. Willingness to engage in curriculum development and joint degree programs, whereas only curriculum development was on top of the chart for a few state and central institutions.

h. Networking plan outlining the teaching and research collaborations and partnerships

- Hosting local, regional and international events
- Engaging external advisory boards with representation throughout the global enterprise
- Grow workforce development services, including on-campus, global online and in-plant professional training projects
- Increase entrepreneurship of our students and stakeholders by providing support services to start-up companies in India and beyond

i. Accreditation from International Agencies as well as marketing and promotion

To maintain highest academic standards, the institute proposes to go for Accreditation Board for Engineering and Technology (ABET) accreditation in next 5 years.

j. Involving the alumni in the management of the institute.

- Encouraging alumni to support institute activities through strengthening industry relations, facilitating interactions between aspiring students, faculty, entrepreneurs, transforming fund-raising to a professionally managed development effort
- Advisory Board consisting of representatives from the various stakeholders
- Building mutually beneficial relations with the alumni
- Creating alumni group pages or blogs to carry out online real time discussions
- Tele-calling and other personalized efforts to actively engage with alumni
- Face to face interactions with the alumni from time to time
- Inviting alumni faculty members in foreign universities for catalyzing collaborations

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