

Nirma University Institute of Technology

School of Technology

Institutional Development Plan

(2025 – 30)

Web Site Version

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Institute of Technology
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**Institutional Development Plan of the School of Technology
(2025 – 30)**

Executive Summary

The Institutional Development Plan (IDP) 2025-30 for the School of Technology, Institute of Technology, Nirma University outlines a development roadmap to enhance academic excellence, research innovation, networking and collaboration, and digital enablement. Aligned with the NEP 2020, UGC IDP guidelines, and national priorities, the plan focuses on equipping students with future-ready skills, fostering interdisciplinary research, strengthening the industry-academia relationship, and integrating emerging technologies into the curriculum. It emphasises student-centric learning, global exposure, sustainability, and social responsibility, ensuring that graduates are not only technically proficient but also socially conscious innovators.

The compilation of the developmental plan underwent a series of meetings with stakeholders, internal members, and external experts. The meticulously drafted IDP takes care of the holistic development of students, featuring an industry-oriented curriculum with the involvement of industry professionals. Moreover, thoughtful and effective faculty development through R&D activities, training on emerging tools and technologies. The world is undergoing a transformation on the political, economic, social, and technological fronts. Policy dynamics, economic fluctuations, social security, and AI/ML-driven disruptive technology have given rise to new opportunities in the academic front. On one hand, where the world is moving towards AI-based autonomous decision making, on the other hand, security concerns are also on the rise.

The technology is quite adaptive, which is why its penetration is so apparent. The ever-changing scenarios have affected all the disciplines and domains. The regulatory frameworks also reflect the same. Benchmarking with leading institutions is a testament to the continuous efforts for ensuring a progressive IDP, based on the self-assessment and trend analysis.

The School is geared up for the upcoming five years with a detailed Institutional Development Plan. The plan's key goals include creating a conducive academic environment, empowering

faculty through research and industry exposure, fostering collaborations, and supplementing the academic ecosystem with digital enablement. These IDP goals are also aligned with the vision and mission of the University. For each goal, strategies are laid out. Departments have been assigned the responsibility to ensure that the SoT meets the goals. Year-wise targets are assigned along with the Key Performance Indicators and a planned distribution of metrics.

The first goal focuses on creating a conducive environment for academic excellence, which includes the inclusion of multidisciplinary and interdisciplinary courses with advanced laboratories, as well as new programmes with a focus on skill development and industry standards. The R&D culture of the SoT defines the profile of the Institute. Students' involvement in R&D activities, industry, and in-house publications of students and faculty members, sponsored projects, patents, and innovation are promoted. The IDP has a goal of carrying out the networking and collaborative activities in association with alumni, industry, academia, and NGOs. The alumni and industry experts can mentor the students, offer references for placements, and conduct research and development activities. In the pursuit of making a global citizen, NGOs can provide collaborative activities. This will add value to the student, transforming them from a technocrat to a socially responsible citizen. Digitization is an ever-increasing process. The services must be made available as you go. Flexible curriculum execution through online courses, the use of adaptive technology, and the arrangement of digital literacy drives or programmes are required for students and faculty members. Some programmes will also be designed for the supporting staff members.

Yearly budgets are provided under each goal to meet the desired targets. The Departments can use this budget to achieve their targets. A structured monitoring and reviewing mechanism is also proposed to track the achievement of each goal's target. This is a regular reviewing mechanism. Institute and department-level core teams are formulated to carry out the half-yearly self-evaluation, discuss the challenges involved in achieving the targets, and propose the mitigation strategies.

The entire IDP compilation process had a core function of strategic direction and vision alignment, comprehensive self-assessment and planning, structured growth, quality assurance, sustainability, accountability, and continuous improvement. The IDP proposed herewith is a holistic, actionable, and evaluative framework for the SoT to excel, respond to stakeholders' needs, and cope with contemporary technological challenges.

1. Need of the Institutional Development Plan (IDP)

During the past two and half decades, technology education scenario, globally and nationally, has undergone a massive change. While the demand for good quality technical education has increased steadily, the number of Engineering Schools has also dramatically increased. Today, various estimates place the number of engineering schools in India at more than 6000. New IITs/ IIITs that have been set up in recent years have resulted in an intense competition for high-calibre students and engineering faculty. The major challenge in this scenario is "to stay relevant through a focused approach to holistic quality and progression of our Institute".

We believe that “Failing to Plan” is equivalent to “Planning to Fail”.

Figure 1 shows the School’s philosophy, which believes in the all-round growth of the Institute.

We believe in -

- Leveraging our strengths to adapt to the dynamically changing scenario on the academic front,
- Assessing our weaknesses to realise the potential gaps,
- Working on opportunities to foster the overall growth of the Institute and to bridge the potential gaps,
- Tracking and mitigating the challenges to develop strength, resilience, self-confidence, and self-worth.

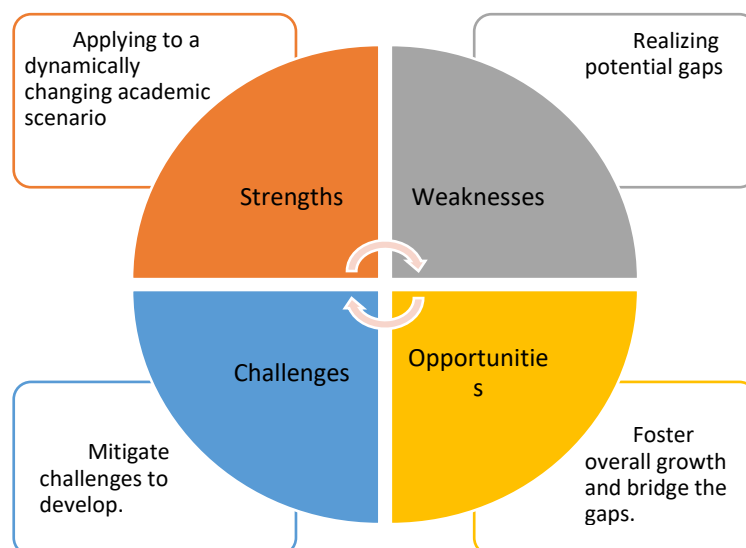


Figure 1. School’s Philosophy of Development

2. Process of Development of Institutional Development Plan

An intensive study of the educational trends was conducted, and their implications were examined for the growth of the Institute. SWOC analysis and PEST scenario for the School of Technology were carried out. Several policy documents and reports published by the Government/Non-Government organisations were referred to. The IDP of the SoT is developed based on discussions with several internal and external stakeholders. A few of the essential documents are listed in the references. Figure 2 shows the process followed in developing the IDP.

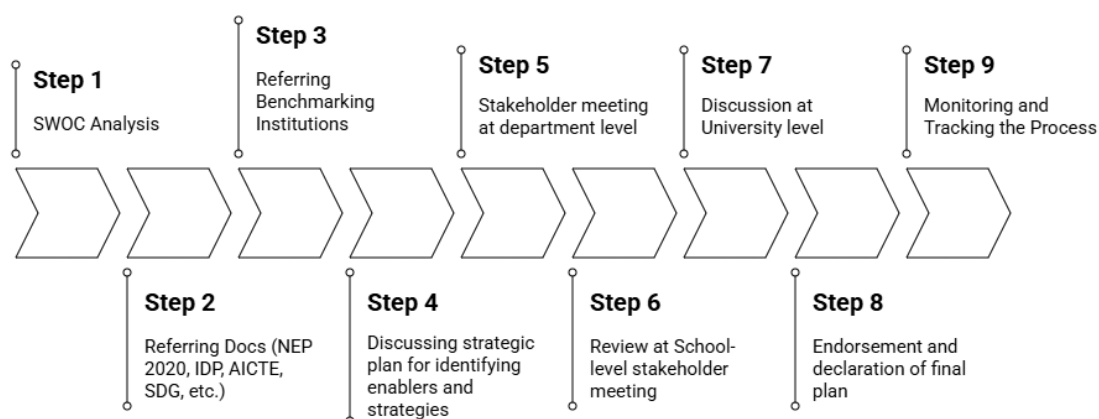


Figure 2. Process followed in developing the IDP

The entire plan is developed based on thorough discussion and deliberations at different levels. Apart from the Heads of Departments, the senior faculty members of the School were also involved in the planning process. The academic leaders have enthusiastically participated in identifying the key strategic goals, objectives, and critical milestones and have made significant contributions. Direct and indirect feedback from various stakeholders (academic peers, industry experts, alumni, parents, etc.) was also considered while finalising the IDP.

3. Environmental Assessment and Analysis

3.1 External Environment Analysis

Strategic planning is a dynamic process that needs frequent checks and time-to-time fine-tuning of the strategies and implementation of action plans. It undergoes a process of ongoing assessment, including the evaluation of the conditions under which the plan is developed and implemented. The external factors can introduce dynamic changes in the plan during the

execution in the upcoming five years. However, the values, aspirations, and goals will remain the constants in the process of satisfying the vision and mission of the School.

3.2 International Scenario

Technology is a critical driver of economic development today, and globalisation promises to bring that relationship to all societies of the world. Engineers are crucial for effective technology management. At the same time, educating engineers who can adapt successfully to the ever-changing fields and complexity of technology and technology-based systems is a significant challenge.

Most of the societal grand challenges, such as cybersecurity, sustainability, healthcare, and energy, require global solutions. With the evolution of the Internet and the pervasive use of Information Technology, globalisation has become a driving force for the expansion of companies from being local to going global. The evolution of AI/Generative-AI is going to impact the world, leading to a multi-trillion-dollar economy. We must, therefore, prepare engineering graduates to adapt to the challenges of ever-changing technology.

With globalisation of education, there is an increase in partnerships beyond boundaries, student mobility, international branch campuses, online programs, course credit transfers, etc. The schools are now offering joint degrees and exchange programs. The technology integration has led to AI and LMS-based digital transformation, growth of online learning platforms, enhanced digital infrastructure, and cybersecurity. The geopolitical and economic factors, such as changes in visa policies, political unrest and instability, trade dynamics, and catering to students belonging to a particular diversity, also influence the flow and number of students joining an organization.

To meet global requirements, many institutions are seeking international accreditations, where the emphasis is on quality assurance, benchmarking, and global standards. All institutions must focus on the Sustainable Development Goals (SDGs) in education, too. The curricula are hence always under revision, to ensure smooth transition from technology-driven solutions for climate change, sustainable development, managing and handling inequalities, etc.

An institution cannot develop on its strength, working in silos. International research collaboration is expected to increase funding and favour collaborative international research. Access to a global research network is mandated for innovation. Competitive scholarships, research opportunities, career support, and simplified visa processes are required to ensure international student support services.

It is hence required to build global partnerships through alliances with other universities, industry, and NGOs. These alliances can increase student and faculty exchange programmes, dual degree programmes, collaborative teaching and learning, technological development, etc. The time is right to make the stakeholders feel the global scenario locally. The strength of an (international) academic organization may be used to complement the teaching of a course. This improves the globally inclusive campus culture, leading to offering international curricula, language training, and global partnerships.

A step further can lead to the establishment of research centres focused on global issues, participation in international grants and knowledge-sharing consortia, joint participation in competitive events, etc.

Hence, it is mandatory to improve R&D through assessment of citations, employer reputation, international outlook, global academic networks, etc., to achieve the global standards in the educational environment.

3.3 National Scenario

The expectations of the industry from engineering graduates have changed significantly in the last decade. The fast-growing industrial sectors demand engineering graduates to know recent trends, proficiency in software programming, problem-solving ability, critical thinking skills, positive attitude, professionalism, etc. Looking at the global emerging trends and geopolitical scenario, the national focus is on technologies like Semiconductor Technology, IC Fabrication, Assembly, Testing and Packaging, Data Science, Quantum Computing, AI, Industrial Automation, 5G/6G Communication Technology, IoT, Robotics, Augmented and Virtual Reality, Cyber Security, Data Analytics, and Cloud Computing.

Today, India is poised to enter the list of developed countries with the vision of VIKSIT BHARAT to become a five trillion-dollar economy. The availability of trained workforce will be a crucial factor in achieving the required industrial and overall GDP growth. If we look at the overall industry workforce requirement, there are three types of jobs, viz, jobs requiring problem-solving skills, rule-based process-driven jobs, and repetitive action-based jobs. To become a knowledge-based economy, India needs to prepare graduates/postgraduates who are ready for new industrial requirements in the AI era. Research and innovation-based education systems will be required to create problem-solvers.

4. Political, Economic, Social, Technological (PEST) Analysis

The proposed IDP is envisaged considering the national and global scenario, not just in the Indian context, but the world. The United Nations documented the 17 Sustainable Development Goals for the overall peace, growth, and development of all countries. India is committed to achieving the Sustainable Development Goals. Majorly, the following global factors influence the development of the Institutional Development Plan:

Political: The Indian Government seems to be sensitive to the policy changes that influence the overall growth and sustainability of the country. We have been able to achieve a stable government, leading to geopolitical stability, economic viability, and confidence in the community. Various strategies, including AI Policy, Cyber Security Policy, Indian Semiconductor Mission, Gujarat Semiconductor and Electronics Mission, National Quantum Mission, Cyber-Physical Systems, Atmanirbhar Bharat, Make in India initiative, National Education Policy, and Startup India, are instrumental in framing the Institutional Development Plan.

Economic: The economic growth of India is an outcome of stable, productive, and policy-driven implementations. The country is leading in all aspects owing to the development of online transactions, transparent economic platforms, investment policies, inviting global MNCs to invest in India, ease of doing business, Make in India, and Atmanirbhar Bharat. The country is now able to produce in-house, offer quality products, and attract customers to use in-house products.

Social: The Indian scenario is diverse and dynamic, influenced by its rich cultural heritage, complex social structures, and rapid modernization. The country's social fabric is shaped by factors such as ethnicity, religion, language, caste, gender, and economic status, and these factors often intersect in complex ways. Cultural diversity is the most critical asset of our country. However, the government is impacted by the use of AI, UPI, mobile phones, online portals, social network platforms, navigation tools, etc. People of various social stratifications are impacted because of these technology-centric tools in their day-to-day activities.

5. Developmental Goals

After several meetings and brainstorming sessions, it was decided first to identify the essential goals for the next five years. Subsequently, strategies for each goal were identified. For each specific strategy, assessment pointers were decided. Targets were finalised for each pointer.

The essential goals are as follows:

1. Conducive academic environment for excellence in teaching-learning processes
2. Enriching Institute Research and Innovation Profile
3. Strengthening networking and collaborative activities with alumni, industry, academia, and NGOs
4. Complementing academics with digital enablement

6. List of Strategies for Each Goal

After several meetings and brainstorming sessions, it was decided first to identify the essential goals for the next five years. Subsequently, strategies for each goal were identified. For each specific strategy, assessment pointers were decided. Targets were finalised for each pointer.

The essential goals are as follows:

1. Conducive academic environment for excellence in teaching-learning processes
 - To enrich multi- and inter-disciplinary programmes and courses in the areas of emerging technologies
 - To adopt employability and skill enhancement activities
 - To promote professional activities among faculty members
 - To involve industry professionals in academics
 - To Propose New Programmes
2. Enriching Institute Research and Innovation Profile
 - To increase industry-based research projects
 - To strengthen research publications
 - To offer mentorship and support to startup ideas and entrepreneurship
 - To increase exposure in research and innovation
 - To get funded projects and funding
3. Strengthening networking and collaborative activities with alumni, industry, academia, and NGOs
 - To strengthen alumni networks that contribute to mentorship, domain expertise, supporting research, and infrastructure development
 - To enrich collaboration with industry for job placement, consultancy, and internships aligned with dynamic industry needs
 - To collaborate with global universities and research centres for academic and R&D activities

- To collaborate with NGOs and social service organizations for addressing societal challenges
- 4. Complementing academics with digital transformation
 - To create and publish digital content
 - To promote national/international teaching activities through digital platforms
 - To Implement Adaptive Learning Technology (learner-centric approach, custom-tailored content)
 - To arrange Digital Literacy Training programmes (Faculty, Staff, and Students: Community of Practice)

7. Monitoring and Review Mechanisms of Institutional Development Plan and Alignment: Structure and Systems

The School of Technology is focused on strategically implementing, monitoring, and reviewing the Institutional Development Plan regularly. The plan will be implemented and closely monitored at two levels:

7.1 Institute Level Core Team

The Institute Level Core Team will have the following members:

- Director
- All HoDs
- Institute IQAC Coordinator
- Academic and Research Advisory Board (ARAB)

The Institute Level Core Team will meet at least once every six months and review the progress of the Institutional Development Plan. The Core Team will guide the Department Level Committees in the effective implementation of the plan. The progress reports received from the Department Level Committees will also be discussed in the Institute Level Core Team, and the progress report will be submitted to the University.

7.2 Department Level Committee

The Department Level Committee will have the following members:

- Head of the concerned department
- Senior faculty members and PG Coordinators
- Department IQAC Coordinator
- Department Level Research Committee

Over and above, the following meetings and processes are followed to review the Institutional Development Plan:

- Stakeholder Meeting to review curricula
- Budget Planning
- Academic Audits: Department / Institute / University level
- PhD RAC Meetings
- IIICell Placement Reviews
- Industry Institute Partnership Meets
- Research Conclaves
- Alumni interaction and meets
- IQAC Meetings

Every six months, the self-evaluation of the research plan of individual faculty members is to be reviewed by the DRC. The Department Level Committee will hold review meetings regularly (at least twice in six months) and see that the plan is implemented effectively. The Committee will discuss the progress, difficulties faced by the individual as well as the department, probable solutions, new initiatives to be taken, etc. The Committee will also send its report to the Institute Level Core Team.