



The Institutional Development Plan (2025-30)

Institute of Science, Nirma University

Executive Summary

The Institutional Development Plan (IDP) 2025–30 of the Institute of Science, Nirma University (ISNU) presents a strategic roadmap to strengthen its position as a premier centre for teaching and research in the biological sciences. Anchored in the National Education Policy (2020) and the University’s vision of excellence in education, research, and innovation, the plan outlines a holistic approach to academic expansion, students’ success, research and innovation, and career development.

Since its inception in 2004, ISNU has steadily evolved into a hub for postgraduate education and research in Biotechnology, Biochemistry, and Microbiology, complemented by a growing doctoral programme. The institute has developed robust research facilities and nurtured strong collaborations with industry, hospitals, and national research organizations. Building on this foundation, the IDP 2025–30 envisions transforming ISNU into a multidisciplinary centre of excellence recognized nationally and internationally.

The plan emphasizes academic expansion through the introduction of a five-year integrated B.Sc.-M.Sc. Programme, the recruitment of additional faculty across diverse fields, and the establishment of modern teaching and research laboratories. To ensure student success, ISNU will strengthen its teaching–learning practices through faculty development programmes, specialized laboratories, and personalized academic mentoring.

In the research and innovation domain, ISNU seeks to advance translational research by fostering partnerships with industry and hospitals, upgrading research infrastructure, and supporting faculty through seed funding and collaborative projects. The institute aims to increase the number of high-quality publications, patents, and innovative outputs that address societal challenges in health, food, and the environment. Career development forms another major pillar of the plan. ISNU will introduce career-oriented courses in intellectual property rights, regulatory affairs, and business management, while also providing structured support for competitive examinations and entrepreneurship training. Alumni engagement will be strengthened through mentorship, recruitment support, and fundraising initiatives.

A robust monitoring and review framework underpins the plan, with periodic reviews by advisory committees and scientometric analyses to track progress. By 2030, ISNU aspires to be recognized as a centre of excellence in life sciences education and research, producing industry-ready scientists, innovators, and socially responsible professionals who contribute to the nation’s growth and global knowledge economy.

1. Need of the Institutional Development Plan

Institute of Science, Nirma University (ISNU) has made rapid strides in its last 20 years of existence. The institute is transforming itself from an academic institution to an institution that imparts its academic teaching through research. This requires crafting a development plan that is consistent with the overall vision, mission and goals of the institute as well as of the university; widely understood and unequivocally supported by faculty, staff, students, and other key stakeholders and responsive to the key competitive forces in the environment; and provides a powerful framework capable of guiding development decisions and action plans to constantly innovate and improve all aspects of the institute activities.

The institutional development plan is based on the overarching aspiration for the Institute that it will be one of the most sought-after institutions in the western zone, known for its high-calibre teaching, training, and research activities. The main elements of the development plan include goals, strategies that define the areas of focus, and an implementation plan for achievement. The plan develops a set of metrics for assessing institutional progress towards the objectives. The procedure for assessment should be developed and used at the time of implementation of this development plan and in consultation with the specific coordinators.

The development planning process was initiated with brainstorming sessions in July-November 2024 in order to provide the institute with a roadmap capable of achieving the institute's aspirations. The process was mainly focused on addressing the four questions: (a) who are we as an institution? (b) Where are we now, and where do we want to go? (c) How do we get there? and (d) how do we know we are getting there?

2. Process of Development of the Institutional Development Plan

An Institutional Development Plan Formation Steering Committee was initially constituted. Following the constitution of the committee, the Institutional development planning process was initiated with a discussion of the previous Institutional development plan (2020-25) implementation. This was followed up with several brainstorming sessions within the committee from July to early December 2024 in order to provide the institute with a roadmap capable of achieving the institute's aspiration. In addition, various components of the Institutional Development Plan were discussed with external experts, including peers from academia and industry, through the involvement of our newly constituted Scientific Advisory Committee (SAC) on 25th October, 2024. The overall process was mainly focused on addressing the four questions: (a) who are we as an institution? (b) Where are we now, and where do we want to go? (c) How do we get there? and (d) how do we know we are getting there? These questions address the need to understand and interpret our vision and mission statement and identify the core values of our institute. The answer to these questions will act as a compass that will guide all decisions and initiatives. The second question refers to goals or directions towards which the institute should work over the next five years, while the third relates to actions needed to move in these directions. Assessing the results of the actions taken using metrics and indicators is essential to know the progress towards goals, which the final question seeks to address.

Additionally, a meeting was held with groups of current MSc and PhD students, along with alumni, to seek their input for the Institutional Development Plan. Placement Officer was also consulted for her insights and to obtain feedback from recruiters considering current and future job scenarios. The minutes of all these meetings were prepared for reference.

3. Environmental Assessment and Analysis (International, National and State Scenario)

International Scenario

The development of modern biological science in India is not an organic extension of the earlier tradition. It is an implant by the British in a language that was alien to its people. It needed nourishment and nurturing to be absorbed into society. Science was looked upon as an appendage thrust by the British for their own benefit, and biological science education was hugely neglected. Internationally, the number of institutions with modern biological sciences has increased, and the biological output in terms of research output in the last decade has also increased. Over the last decade, the number of students enrolled in Modern Biological science programmes has also increased. The major reason for the sharp shoot in the inflow is attributed to growing opportunities in the biological sciences in research, industry, and academia. Employment of microbiologists is projected to grow 5 % from 2018 to 2028, about as fast as the average for all occupations.

National Scenario

Life sciences and allied sectors are gaining more importance in India than ever before, be it industry, biomedical and basic research, or the understanding of our spectacular biodiversity. India can be envisioned as a nucleus for research in frontier areas in the near future, but for this to happen, it is imperative to foster a world-class community of scientists, administrators, and policy makers. Recognizing the crucial role played by S&T in the process of economic growth and social transformation, major emphasis has been given to higher science education during the early years of independence. The demand for higher education in biological sciences has increased. The level of higher education is determined by the size of the institutional capacity of the higher education system in the country. The size of the higher education system, in turn, is determined mainly by three indicators, namely the number of educational institutions, universities, and colleges, the number of teachers, and the number of students. Higher education in biological sciences has witnessed many-fold increases in its institutional capacity since independence. The biological scientists in India are in growing demand owing to the

exponential growth in the research and development activities in biotech and pharmaceutical companies, academic and research institutions, and the health sector.

State Scenario

Academic growth of applied life science streams such as Biotechnology, Microbiology, and Biochemistry has been exponential in the state of Gujarat in the past decade. This growth was mainly attributed to the pharma industry and the genomic facility providing services in the state. With the thrust of the Government to strengthen the biotech education and industry, and implementation of the State Biotechnology policy, Ahmedabad and Gandhinagar have become the epicentre for offering quality education in the life sciences and allied streams. Department of Science and Technology, Government of Gujarat, along with Gujarat State Biotechnology Mission, has empowered the life sciences academia and research. With the advancement in knowledge and awareness among the student community on the potential of life sciences, demand for quality training and research has drastically escalated. This has resulted in many HEIs shifting their focus from basic research to applied/translational research. With an abundance of options and alternatives available to the students, the growth and opportunity for life science education within the state are highly promising and encouraging.

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

Political / Regulatory

1. **National Education Policy (NEP) 2020:** NEP promotes multidisciplinary, flexible education models, aligning with ISNU's new integrated B.Sc.-M.Sc. Programme.
2. **UGC, DBT, DST, ICMR frameworks:** ISNU must comply with evolving national regulations for curriculum design, research funding, and faculty qualifications.
3. **Government support for biotech & pharma:** Both central (DBT, DST) and state-level (Gujarat State Biotechnology Mission) policies strongly promote life sciences, aiding ISNU's translational research agenda.
4. **Accreditations and rankings:** NAAC (A+) accreditation and SIRO recognition need to be maintained/enhanced, influencing governance and quality systems.

Economic

1. **Rising demand in the life sciences sector:** Growth in pharma, biotech, nutraceuticals, and healthcare industries in Gujarat and India is driving the need for trained scientists.
2. **Funding dependencies:** Expansion relies on competitive extramural funding (DBT-BUILDER, DST-FIST, ICMR grants). University-level infrastructure support is also required.
3. **Advantage of Regional bio-pharma hub:** ISNU's location near Ahmedabad/Gandhinagar strengthens industry linkages and employability opportunities.
4. **Global economic uncertainties:** Competition for international research collaborations and grants may be influenced by shifting global research priorities and funding streams.

Social

1. **Student demographics:** Many from vernacular backgrounds face challenges coping with English-medium, research-intensive programmes.
2. **Increasing interest in applied sciences:** Growing social demand for courses linked to health, environment, and entrepreneurship matches ISNU's programme expansion (e.g., IPR, regulatory affairs).
3. **Alumni engagement gap:** Currently weak, though targeted strategies aim to build mentoring, fundraising, and recruitment pipelines.
4. **Youth employment focus:** Society expects higher education institutions to deliver employability. ISNU is responding with skill-based courses, start-up sensitization, and competitive exam coaching.
5. **Shift towards socially responsible science:** Translational research (e.g., cancer biology, infectious diseases, environmental sustainability) resonates with societal needs.

Technological

1. **Research infrastructure expansion:** Plans for advanced laboratories (bioinformatics, cancer research, structural biology, microbial culture, etc.).
2. **Digital learning and bioinformatics:** Need for high-end computing labs, online teaching-learning tools, and integration of computational biology.
3. **Translational research technologies:** Push towards patents, product development, and industry-academia collaborations require cutting-edge tools (e.g., genomics, proteomics).

4. **Global benchmarking:** Institutions like IISER, Salk Institute, and Rockefeller University emphasize innovation, requiring ISNU to adopt international-level research technologies.
5. **Sustainability & modernization:** Upgradation of equipment, air-conditioned labs, and energy-efficient infrastructure are part of plans.

ISNU operates in a favorable political and technological environment with strong policy and industry support. Economic challenges include tuition affordability and dependence on external funding, while social factors highlight the need for inclusivity, employability, and stronger alumni ties. Harnessing Gujarat's biotech ecosystem and investing in translational research technologies will be key to achieving its goal of becoming a Centre of Excellence in life sciences by 2030.

5. Developmental Goals

- Goal 1: To start with a new education programme initiative
- Goal-2: To enhance students' success by strengthening teaching-learning processes.
- Goal 3: To improve research & innovation.
- Goal 4: To enrich student placement opportunities

6. List of strategies for each goal

Goal 1: To start with a new education programme initiative

1. Initiating 5 Year Integrated BSc-MSc Programme
2. Adding and improving the general infrastructure

Goal-2: To enhance students' success by strengthening teaching-learning processes.

1. Scaling-up faculty development
2. Adding specialized facilities for teaching

Goal 3: To improve research & innovation.

1. Expanding scope of translational research
2. Filing patents and expanding publications

Goal 4: To enrich student placement opportunities

1. Improving student support
2. Sensitizing students to start-ups and entrepreneurship

7. Monitoring and Review Mechanisms of Institutional Development Plan

1. Half-Yearly Review by Research Progress and Review Committee
2. Annual Review Meeting with Advisory Council
3. Periodic analysis of scientometric data of the Institute and its faculty, sourced from third-party platforms like Google Scholar, Scopus, and Research Gate.