



Rs. 50.00  
ISSN-0566-2257

# UNIVERSITY NEWS

*A Weekly Journal of Higher Education*

**Association of Indian Universities**

Vol. 64 • No. 14 • April 06-12, 2026

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## Announcement

### AGM Special Issue of 'University News'

A **Special Number of University News** on the theme '*Shaping Self-Reliant Bharat through Knowledge and Innovation*' is being brought out on **April 27, 2026**.

The **Special Issue** will cover the articles of eminent educationists on the afore-mentioned theme. Readers of the University News are also invited to contribute to the Special Number by submitting papers/articles on the above theme by **April 17, 2026**. The papers will be published in the Issue subject to the approval of the Editorial Committee of the University News. The contributions are invited on the following Subthemes:

#### **Integrating Traditional Wisdom in Curriculum and Research**

- *Embedding Indian Knowledge Systems (IKS) into Curricula & Faculty Development.*
- *Interdisciplinary Research Linking Ancient Wisdom with Modern Science & Technology.*
- *Futuristic Dimensions of IKS.*

#### **Promoting Sustainability and Social Responsibility in HEIs**

- *Research and Innovation in HEIs for Sustainable Development Goals (SDGs).*
- *University Social Responsibility (USR) for Promoting Swadeshi.*
- *Futuristic Digital and Technological Pathways to Sustainability.*

#### **Promoting Entrepreneurship & Startups in Higher Education Institutions (HEIs)**

- *Education for Increasing Entrepreneurship Mindset in Students.*
- *Establishing Incubation and Innovation Centres to promote Techno-Nationalism.*
- *University–Industry Collaboration for Startup Development.*

#### **Creating AI & Quantum-enabled HEIs**

- *Integrating AI and Quantum Technologies into Higher Education Curriculum, Pedagogy and Governance.*
- *AI-Driven Indigenous Research and Product Development.*
- *Global Regulatory Framework for AI and Ethics in AI.*

#### **Self-reliant Bharat through Swadeshi, Economic Patriotism and Techno-nationalism**

- *Redesigning Educational Ecosystem to Promote Swadeshi.*
- *Promoting Research and Development in Indigenous Technologies.*
- *Economic Patriotism Leading to Economic Indigenisation.*

#### **Any Other Relevant Subthemes**

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## Five Years of the National Education Policy: A Critical Review

Upinder Dhar\* and Santosh Dhar\*\*

National Education Policy released on 29<sup>th</sup> July 2020 represented a paradigm shift in restructuring the education system in India, targeting the reform of the existing system to make it more inclusive, multidisciplinary, and skill-based. The policy, which includes promises such as early childhood care reforms, overall curriculum redesign, digital inclusion, and multilingual education, has yet to deliver on its promises with mixed outcomes. It is these reforms that are considered essential in enabling and empowering the vision that guides so much of what is set before the students today. This article is a critical review of the policy, pointing out the effective interventions as well as the current challenges. It highlights the disparities and revenue limitations between the Centre and states, and the institutional inertia that has been impeding progress in a broad exchange. It is also an attempt to introspect on the use of the public consultation process, organisation of governance and the changing political influence on education reform in India.

The preceding National Policy on Education, introduced in 1986 and revised in 1992, had lost track of the requirements of a dynamic society in the 21<sup>st</sup> century. As the needs for innovation, globalisation, and all-inclusive development emerged and intensified, the leaders of all fields demanded a paradigm shift. One of the biggest consultation processes in the history of Indian policy involved educators, students, researchers, policymakers, as well as civil society, which formed the basis of the National Education Policy—2020 (NEP—2020). Such a participatory framework provided the policy with a firm democratic background and the feeling of ownership, as it closed the dimensions between reality and hope on the ground. The NEP 2020 has been drafted to reform the learning systems and help in reconstituting and setting a new academic agenda in a fast-changing socio-economic and technological environment.

The vision of NEP-2020 is to have an education system whereby creativity, critical thinking and ethical bindings are developed at all levels within an education system. The policy aims to reform curricula in support of diminishing rote learning, encouraging vocational and interdisciplinary studies and promoting multilingualism. The central concern of democratizing education, which has always been there, is the drive to regional, gender, caste and income equity in education. Such a

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vision closely relates to Sustainable Development Goal-4, i.e., quality education, making India sensitive to local challenges as well as actively contributing to global solutions.

### **Future-orientation**

With its strong focus on flexibility, digital literacy, and institutional autonomy, NEP–2020 aims to raise a generation of citizens who will be able to develop in an ethical and globalised way. This policy aligns knowledge to employability, creativity to citizenship, and technology to the tradition - raising the bar past the traditional parameters of measuring their success to design inclusive and future-ready education ecosystems. The implementation of NEP–2020 in school education is gearing up through institutional processes, redesigning of curriculum, and changes in pedagogy, a transformation of classroom processes in favour of an inclusive and skill-based education.

NEP–2020 is assisted by national organisations such as the National Council of Educational Research and Training (NCERT), State Councils of Educational Research and Training (SCERTs), and recently established PARAKH (Performance Assessment, Review, and Analysis of Knowledge as Holistic Development) to accomplish its colossal goals. To implement the plan, a phased roadmap was initiated by the Ministry of Education, with the priority given to Foundational Literacy and Numeracy (FLN), early childhood care, and teacher development. The Centre-state level coordination can be achieved by using such platforms as Vidya Samiksha Kendra, which can ensure real and minute-to-minute tracking of the data and provide academic assistance. Alongside the given frameworks, dis-homogeneity in adaptation within the state and lack of capacity serve as some of the key constraints to cohesive reform.

One of the main changes to be considered under NEP is the change of curriculum towards a more flexible and competency-based curriculum. The National Curriculum Framework (NCF) on School Education is concerned with experiential learning, interdisciplinary achievements, and less use of rote memory. The 5+3+3+4 curricula structure contributes to age-appropriate pedagogical teaching and differentiation of learning paths. Subjects in the areas of vocational studies, coding, and environmental education have now been integrated

into the core curricula and are seen as an attempt to fill the holes between academic and in-life skills. There is a focus on conceptual clarity and relevance as a foundation before volume and repetition on the one hand and relevance on the other, represented by this reorientation.

The pedagogy of classrooms is under re-conceptualisation to promote inquiry-based, student-focused classrooms. The teachers are strongly advised to embrace multilingualism in their teaching strategies, the localisation of contexts, and the active provision of reflective discourse. Foundational classes ECCE reforms guarantee that classes (pre-primary to Grade 2) are centred on interplay, stories and engage with pupils. Resource centres and modules on teacher training facilitate inclusive education of disabled children and children of marginalised communities. Socio-emotional learning and ethical ways of thinking are primary competencies promoted by the policy, and the digital tools increase access and personalisation of learning materials.

PARAKH is going to provide a centralised system to evaluate the learning outcome beyond high-stakes testing. Formative assessment and diagnostic feedback are concentrated on to determine classroom activities. States are modifying the Angles of report cards by emphasising skills, attitudes and improvement at different levels. Although implementation has progressed in certain districts, it cannot be successful long-term with support only in funding, teacher empowerment and policy stability.

### **Reforms in Higher Education**

NEP–2020 transforms India into a higher education sector that is very flexible, multidisciplinary, and more institution-focused across campuses by promoting openness, multidisciplinary education, and institutional independence. The importance of economic development as the core vision of NEP regarding higher education is in moving the structure of the curriculum to a more flexible pattern. The new four-year undergraduate structure, where the student has the option to enter and exit at different stages, gives students discretionary power to learn at their own pace. Credit portability and lifelong learning are rolled out with credit-based systems and the Academic Bank of Credits. Such modularity breaks the fixed disciplinary boundaries, to create harmony among

science, humanities, technology and the arts, which is required to develop holistic thinkers and problem-solvers.

It is also encouraging universities and colleges to transform themselves into autonomous institutions to have better governance structures. The establishment of Multidisciplinary Education and Research Universities (MERUs) and the enhancement of the research ecologies are expected to increase the academic standards and competitiveness on an international scale. Advanced infrastructures supporting innovation in STEM, cultural interaction and online learning are part of the campuses, and reforms are supporting collaboration between academic institutions, industry and civil society. The National Research Foundation (NRF) holds research capacity, particularly on socially affecting and frontier technologies.

The redesigning of classroom scenarios is in motion to support critical pedagogy, inquiry-based learning and outcome-based teaching. The priority is given to faculty development based on constant training and international exchange programs. The more institutions introduce multidisciplinary electives, internships, and skills labs with the interests of the nation and international benchmarks, the higher they will be rewarded. Social relevance and diversity among the learners is created through these approaches to the curricula building through inclusion of the Indian knowledge systems and values, ethics and gender sensitivity.

### **Early Outcomes**

NEP-2020 has shown encouraging tendencies regarding core literacy, online education, and curriculum transformation as well, but issues related to scale, equity, and conformity to institutions have become urgent. Some states have even recorded positive results in the early-grade reading and numeracy levels. States such as Uttar Pradesh and Tamil Nadu adopted localised content and training plans, and this aspect helped to achieve improved learning among primary schools. The *Anganwadi* centres are also becoming a part of official ECCE, which facilitates a better transition to Grade 1. Nevertheless, the lack of equality in rural infrastructure and teacher capacity has persisted to influence uniformity across districts.

After the pandemic, there was a marked improvement in NEP with its concerns about digital

learning. Innovations such as DIKSHA and PM eVIDYA have opened up multilingual, multi-grade resources to students and teachers. New pedagogical techniques have been learned by educators through the use of professional development modules, which are accessed both online and offline. However, there is still a reality of digital divides that occurs in distant and disadvantaged societies, and this presents difficulties to the fair distribution of technologically-based learning.

The National Curriculum Framework has already started to transform classroom practices in competency-based interdisciplinary learning. States are developing textbooks in the use of regional languages, stories, and content that is relevant to the context. The improvement of this reform is in line with the multilingual vision of NEP and improves the engagement of the students. Multiple pilot projects on modular learning and vocational integration have been early adopters in the urban agglomerations, and policy intervention is needed for rural scalability.

The framework of PARAKH will alternatively substitute the high-stakes assessments and culture with diagnosis and formative assessments. Now, the content of the reworked report cards focuses on social-emotional development, collaboration with peers, and progress in each subject. Such preliminary changes are reassuring the reform of the classroom, although the long-lasting success will be determined by the greater matching of boards and institutions.

### **Way Forward**

Strategic modifications, continued investments and substantial federal collaboration will be critical as NEP-2020 seeks to accomplish its transformative potential in the heterogeneous education sphere in India. There must be a more nimble and cooperative form of governance that standardises NEP objectives among states. Context-responsive execution is possible through regular review mechanisms, decentralised planning and innovation hubs at the state level. By bringing in convergence of the ministry of education, skill development, and social welfare on common platforms, the delivery of policy initiatives would be simplified, and silos would be less in the administration.

Curriculum reforms should not only be focused on textbooks, but they should also facilitate

in disseminating local systems of knowledge, local language, as well as local connections. Customisation of content through geographic and socio-cultural contexts (particularly tribal and remote) can enhance the effectiveness of learning, knowledge and maintenance. The tools of education technology must not displace but instead support the diversity of languages so that the people can have inclusive access to language in India (multilingual context).

Strength in capacity-building is vital in terms of investing in teachers. Lifelong learning, mentorship networks, and blended learning models will enable teachers to be ready to adapt to the pedagogical change. They should increase their resource centres that provide curriculum support, digital tools, and partnerships in communities that cover the value of equity and assist the underserved regions. Policy refinement is advisable using a data-informed method. In addition to PARAKH, India requires long-term instruments to determine equity gaps, social-emotional achievements, and regional inequalities. NEP will also have dedicated financing to ensure gender-sensitive education, inclusion of special needs, and rural areas are digitalized will support the equity vision of NEP. The scale and mobilisation of innovation can be achieved through public-private efforts.

India needs to compare the results of NEP with international standards without losing the richness of its culture. A further way to increase impact is to join international education exchanges and leverage best practices into Indian

contexts. In the end, NEP will only work as long as policy intent is combined with long-term, inclusive, and adaptive policymaking.

## Conclusion

NEP-2020 has become as visionary as a process of work. Its holistic vision, which is to democratise the learning process and to align the educational system of India with the international standards, has led to a paradigm shift at the individual, university, and policy levels. Curriculum flexibility, digital learning, and equity-oriented program reforms demonstrate some promising trends early on but still have major impediments related to federal coordination capacity and teacher ability and accessibility in rural areas. NEP needs to progress beyond structural change to continuous practice where innovation, accountability and inclusive collaboration are characteristic features. Participatory governance and investing intelligently can help India to transform education into a reality that learners can enjoy. The forthcoming years will not only help to revise the blueprint that NEP provides, but also to create a new society that is aimed at the future through lifelong learning and responsible evolution.

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2. <https://www.insightsonindia.com>
3. <https://www.vajiraoinstitute.com/upsc-ias-current-affairs>
4. <https://visionias.in/current-affairs/news-today>



## To Our Readers

Knowledgeable and perceptive as they are, our contributors must not necessarily be allowed to have the last word. It is for you, the readers, to join issues with them. Our columns are as much open to you as to our contributors. Your communications should, however, be brief and to the point.

Dr Sistla Rama Devi Pani, Editor

# Environmental Education as a Catalyst for Skill Development: Aligning NEP–2020 and NCFSE 2023 Towards Realising *Viksit Bharat* 2047

Pankaj Mehta\*, Ravi Ahuja\*\* and Preeti Verma\*\*\*

*Environmental education (EE) has emerged as a transformative instrument for promoting sustainable development, responsible citizenship, and future-ready competencies in the twenty-first century. In India, the National Education Policy (NEP) 2020 and the National Curriculum Framework for School Education (NCFSE) 2023 envision an education system that is holistic, competency-based, experiential, and deeply embedded in ecological and societal realities. This paper critically examines the role of environmental education in fostering multidimensional skill development within the frameworks of NEP 2020 and NCFSE 2023 and situates this discussion within the national aspiration of Viksit Bharat 2047. Drawing upon systematic literature review, policy analysis, and conceptual synthesis, the study demonstrates how environmental education nurtures cognitive, socio-emotional, vocational, and life skills essential for sustainable livelihoods, green employment, and ecological resilience. A conceptual framework is proposed to illustrate the alignment between environmental education, competency-based pedagogy, and national development goals. The paper argues that mainstreaming environmental education across curricular and pedagogical domains is indispensable for preparing environmentally responsible, skilled, and innovation-driven citizens capable of contributing to India's long-term developmental trajectory (Abstract).*

India stands at a critical developmental crossroads where economic growth, social inclusion, and environmental sustainability must advance in synergy (George, 2023). Escalating climate change

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impacts, environmental degradation, biodiversity loss, and widening socio-economic inequalities underscore the urgent need for an education system that cultivates ecological consciousness alongside employable skills (Sakarya et al., 2023; Yadav, 2023). Education, therefore, functions as a foundational driver of sustainable transformation (Jensen & Schnack, 1997).

Environmental education (EE) equips learners to comprehend complex human–environment interrelationships and to respond innovatively and ethically to environmental challenges (Short, 2009). Beyond awareness-building, EE fosters critical thinking, systems thinking, collaboration, adaptability, and entrepreneurial competencies—skills central to the emerging green economy (Krasny & Tidball, 2009; Stapp et al., 1983).

Recognising this imperative, NEP 2020 and NCFSE 2023 integrate sustainability, experiential learning, and competency development into mainstream education (Puri et al., 2021; Yadav & Kumar, 2026). These frameworks align environmental education with the vision of *Viksit Bharat 2047*—a developed, inclusive, self-reliant, and environmentally sustainable India by the centenary of Independence (Kaur, 2024; Pant, 2024). This paper develops a conceptual and policy-oriented analysis of environmental education as a catalyst for skill development and national transformation (Figure 1).

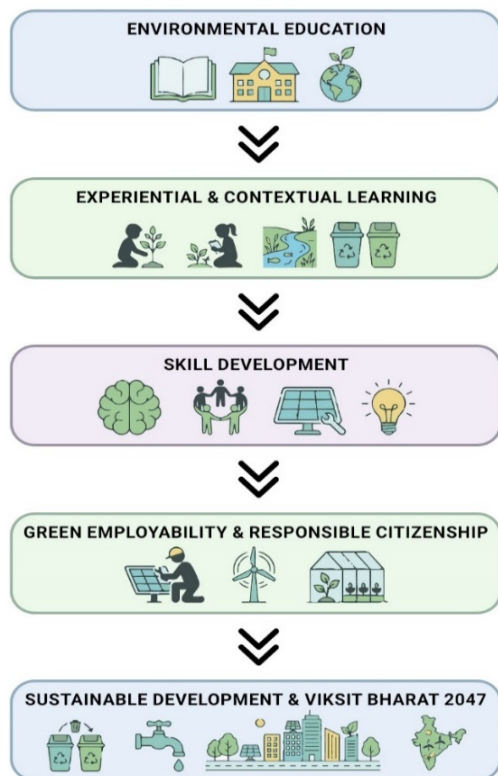
## Environmental Education: Conceptual Foundations and Scope

Environmental education is defined as a lifelong, interdisciplinary process enabling individuals to acquire awareness, knowledge, values, attitudes, skills, and commitment necessary for environmental stewardship (UNEP, 1990). Its scope extends beyond disciplinary boundaries and integrates scientific inquiry, ethical reflection, socio-cultural understanding, and civic engagement.

Key dimensions include:

- Ecological literacy and systems understanding

**Figure 1. Conceptual Framework Linking Environmental Education, Skill Development, and Viksit Bharat 2047**



Source: Dr. Pankaj Mehta

- Value-based environmental responsibility
- Practical competencies for sustainable living
- Community participation and action-oriented engagement

Environmental education thus serves as a contextual and integrative framework for meaningful, real-world learning.

### Skill Development in the 21st Century Context

Contemporary skill development transcends narrow vocational training and encompasses multiple domains identified by OECD, UNESCO, and ILO frameworks:

#### Cognitive Skills

Cognitive skills are the core mental abilities that help us learn, think, reason, remember, solve problems, and make decisions. They are the brain-based skills needed to carry out any task—from simple daily activities to complex professional work. In simple words, cognitive skills are the mental tools

of the brain. This also includes design thinking, systems thinking and analytical reasoning.

#### Socio-emotional Skills

Socio-emotional skills (also called social and emotional skills or life skills) are the abilities that help individuals understand and manage emotions, build healthy relationships, make responsible decisions, and navigate social situations effectively. These skills include empathy, teamwork, leadership, and ethical reasoning.

#### Life Skills

Life Skills help you live and work successfully. These are the abilities that enable individuals to effectively handle the demands and challenges of everyday life.

They help a person make informed decisions, communicate effectively, think critically, manage emotions, and build healthy relationships. These skills include decision-making, adaptability and resilience.

#### Green and Vocational Skills

Vocational skills are practical, job-specific skills that prepare individuals for particular trades, occupations, or professions. They focus on hands-on training and industry-relevant competencies rather than purely theoretical knowledge. Green Skills are the knowledge, abilities, values, and attitudes required to support a sustainable, resource-efficient, and environmentally responsible economy. These include sustainable agriculture, renewable energy, waste management, and conservation. Environmental education provides an ideal pedagogical platform for cultivating these competencies through inquiry-based, experiential, and community-centred learning (Figure 2).

### Environmental Education in NEP–2020

NEP–2020 marks a paradigm shift from rote-based instruction to holistic, multidisciplinary, and competency-oriented education (Agarwal et al., 2025). Sustainability and environmental consciousness are embedded across policy provisions.

#### Policy Provisions Supporting Environmental Education

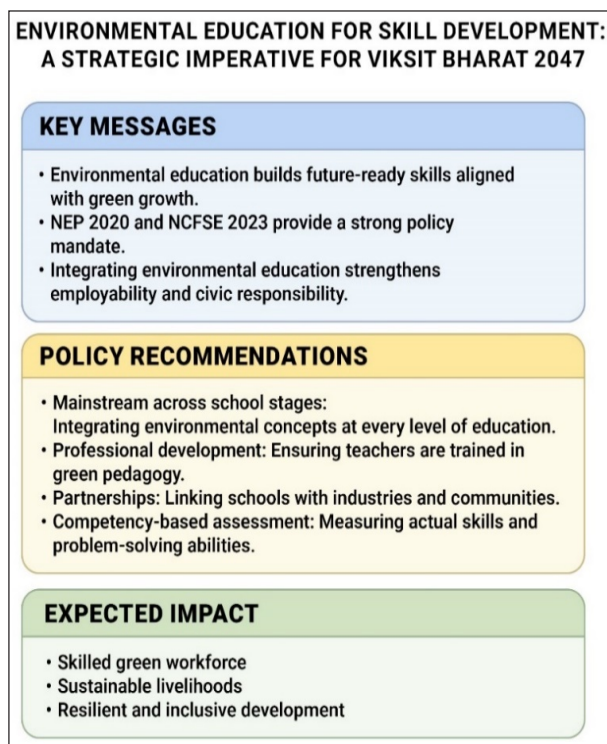
NEP 2020 emphasises:

- Holistic development integrating ethical and ecological values

- Experiential and project-based learning
- Multidisciplinary curricular integration
- Education for Sustainable Development (ESD)

The policy advocates contextual learning rooted in local environmental realities. Environmental education within the National Assessment and Accreditation Council (NAAC) quality parameters is mapped in (Table-1).

**Figure 2. Environmental Education as a Multidimensional Skill Development Platform**



Source: Dr. Pankaj Mehta

### ***Environmental Education as a Skill-Building Mechanism***

Environmental education under NEP 2020 promotes:

- Scientific temper and inquiry
- Collaborative problem-solving
- Sustainability-driven entrepreneurship
- Responsible and ethical citizenship

### **Environmental Education in NCFSE 2023**

NCFSE 2023 operationalises NEP 2020’s vision through competency-based curriculum design and experiential pedagogy.

#### ***Competency-Based Integration***

Environmental themes such as biodiversity, sustainability, and climate change are integrated across subjects and stages rather than treated as standalone units.

#### ***Pedagogical Strategies***

NCFSE promotes:

- Inquiry-based learning
- Project-based and problem-based learning
- Fieldwork and experiential activities
- Service learning and community engagement (Table 2).

### **Environmental Education and Viksit Bharat 2047**

The vision of *Viksit Bharat 2047* encompasses sustainable economic growth, innovation-led

**Table 1. Mapping Environmental Education within NAAC Quality Parameters**

NAAC Criterion	Contribution of Environmental Education	Indicators
<b>Curriculum Design &amp; Development</b>	Integration of sustainability and skill-based themes	Multidisciplinary curriculum
<b>Teaching–Learning &amp; Evaluation</b>	Experiential and competency-based approaches	Student projects and measurable outcomes
<b>Research &amp; Innovation</b>	Sustainability-focused research initiatives	Publications, case studies
<b>Extension &amp; Outreach</b>	Community environmental engagement	Social impact metrics
<b>Institutional Values &amp; Best Practices</b>	Green campus initiatives	Sustainability audits

Source: Yadav, S. (2023). *Cultivating Sustainable Behavior and Critical Consciousness Towards the Environment: Environmental Education for Sustainability*. In K. Sood et al. (Eds.), *The Impact of Climate Change and Sustainability Standards on the Insurance Market* (pp. 333–348). Wiley. <https://doi.org/10.1002/9781394167944.ch21>

**Table 2. Pedagogical Strategies in Environmental Education and Associated Skill Outcomes**

Pedagogical Strategy	Learning Activities	Skill Outcomes	Assessment Methods
Experiential Learning	Field visits, ecological observation	Inquiry, observation	Reflective journals
Project-Based Learning	Waste audits, biodiversity mapping	Data analysis, teamwork	Project reports
Problem-Based Learning	Local environmental case studies	Critical thinking	Rubric-based presentations
Service Learning	Community sustainability drives	Leadership, empathy	Portfolio assessment
Digital Integration	GIS mapping, virtual labs	Analytical and digital skills	Competency-based evaluation

*Source: Monroe, M. C., Andrews, E., & Biedenweg, K. (2008). A Framework for Environmental Education Strategies. Applied Environmental Education & Communication, 6(3–4), 205–216. <https://doi.org/10.1080/15330150801944416>*

development, human capital enhancement, and ecological resilience. Environmental education contributes by:

- Preparing youth for green jobs
- Supporting sustainable entrepreneurship
- Strengthening community resilience
- Promoting ethical and responsible citizenship

Strategic Alignment of Environmental Education with Policy Frameworks and National Goals is provided in Table 3.

## Review of Literature

### Global Studies

Research across countries indicates that environmental education significantly enhances learners' skills. (Ballantyne & Packer, 2005) found that environmental learning experiences improve

critical thinking and reflective abilities. (Mbokazi et al., 2021) reported that students engaged in environmental projects exhibit higher levels of civic engagement and problem-solving skills.

UNESCO's Education for Sustainable Development (ESD) framework highlights environmental education as essential for developing competencies required for sustainable societies.

### Indian Studies

Indian studies reveal similar trends. (AlHusban, 2025) observed that environmental education positively influences students' environmental awareness and responsible behaviour. (Azeri & Mirzoev, 2020) highlighted the role of eco-clubs and project-based environmental learning in enhancing leadership and teamwork skills among school students.

**Table 3. Strategic Alignment of Environmental Education with Policy Frameworks and National Goals**

Environmental Education Component	Skills Developed	NEP 2020 Provision	NCFSE 2023 Alignment	Contribution to Viksit Bharat 2047
Environmental Literacy	Critical & systems thinking	Holistic education	Competency-based learning	Informed citizenry
Project-Based Sustainability	Problem-solving	Experiential learning	Activity-based pedagogy	Innovation-driven workforce
Community Engagement	Leadership	Service learning	School–community connect	Participatory development
Green Vocational Exposure	Technical & entrepreneurial skills	Vocational integration	Skill pathways	Green economy
Ethical Environmental Values	Life skills & ethics	Value-based education	Dispositions & competencies	Sustainable growth

*Source: Wason, R., Arora, P., & Hoda, M. N. (2024). Role of National Education Policy 2020 in Viksit Bharat 2047 through the lens of Sustainable Development Goals 2030. Proceedings of the 2nd ICSSR Conference, 126–137.*

Recent policy-oriented studies underline that NEP-2020 and NCFSE 2023 provide unprecedented opportunities to institutionalise environmental education as a skill-development strategy within mainstream education, as shown in Figure 3.

### Implementation Strategies

To maximise the impact of environmental education on skill development, the following strategies are recommended:

#### Curriculum Integration

Embed environmental themes across subjects and stages.

#### Teacher Capacity Building

Continuous professional development in EE pedagogy.

#### School-Community Partnerships

Collaboration with local bodies, NGOs, and industries.

### Assessment Reforms

Shift towards competency-based and performance-based assessment.

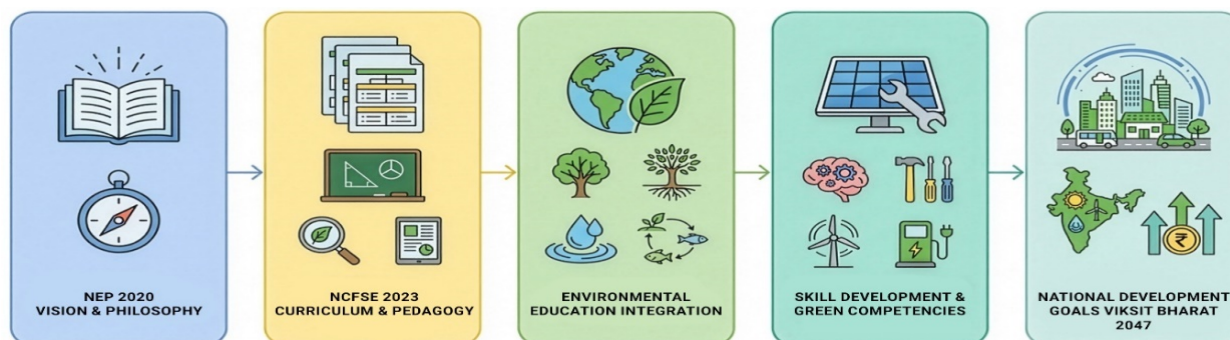
### Digital and Experiential Resources

Use of virtual labs, field-based learning, and local case studies (Chavan, 2024). Table 3 illustrates the strategic integration of environmental education within the policy frameworks of NEP 2020 and NCFSE 2023, demonstrating how skill development, experiential learning, community participation, vocational exposure, and ethical grounding together support India's transformative developmental agenda envisioned under Viksit Bharat 2047. Table 4 depicts the alignment of Environmental Education with skill domains and policy framework.

### Challenges and Way Forward

Despite strong policy backing, implementation challenges persist, including limited teacher

Figure 3: Policy Integration Model



Source: Dr. Pankaj Mehta

Table 4: Alignment of Environmental Education with Skill Domains and Policy Frameworks

Environmental Education Component	Skills Developed	NEP 2020 Provisions	NCFSE 2023 Alignment	Contribution to Viksit Bharat 2047
Environmental awareness & literacy	Critical thinking, systems thinking	Holistic & multidisciplinary education	Conceptual understanding & competencies	Informed and responsible citizens
Project-based environmental learning	Problem-solving, collaboration	Experiential & inquiry-based learning	Project and activity-based pedagogy	Innovation-driven workforce
Community-based sustainability projects	Leadership, civic responsibility	Community engagement & service learning	School-community connect	Inclusive & participatory development
Green vocational exposure	Technical & entrepreneurial skills	Integration of vocational education	Skill-based learning pathways	Green jobs & sustainable economy
Ethical & value-based environmental education	Ethical reasoning, life skills	Value-based education	Values & dispositions	Sustainable and ethical growth

Source: Agarwal, G., Chakraborty, A., Sood, D., Sharma, P., Malviy, A., K, S., & Bhagat, A. (2025). Educators' reflections on competency-based learning: Reflecting 5 years of NEP 2020 (pp. 1-37). Australian Council for Educational Research. <https://doi.org/10.37517/978-1-74286-804-2>

preparedness, resource constraints, and examination-centric evaluation systems. Addressing these barriers requires:

- Systemic curriculum integration
- Continuous professional development
- Institutional support and funding
- Competency-oriented assessment reforms

Environmental education must be positioned not as an additional subject, but as an integrative pedagogical framework for holistic education.

## Conclusion

Environmental education occupies a strategic intersection between sustainability, skill development, and nation-building. This study demonstrates that integrating environmental education within NEP 2020 and NCFSE 2023 offers a transformative pathway for nurturing multidimensional competencies essential for the twenty-first century.

By embedding environmental perspectives across curricular domains and pedagogical practices, education transitions from knowledge transmission to experiential, socially relevant, and competency-driven learning. Environmental education thus becomes a catalyst for cultivating innovation, ethical reasoning, and ecological responsibility.

For India to realise the vision of *Viksit Bharat 2047*, environmental education must be institutionalised as a foundational pillar of mainstream education. Strategic investments in curriculum integration, teacher capacity building, experiential pedagogy, and competency-based assessment will ensure that economic progress, social equity, and ecological integrity advance harmoniously.

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# Academic Libraries as Strategic Drivers of NIRF Perception: Repositioning Libraries for Institutional Reputation and Ranking Excellence

Sandeep Bhavsar\* and Sonia Bhavsar\*\*

*In recent years, institutional ranking systems have taken centre stage in the formulation of higher education policy, governance, and public perception. The National Institutional Ranking Framework (NIRF) has become the most prominent benchmarking tool in India, with direct impact on institutional exposure, funding agendas, student preferences, and academic partnerships. Perception (PR), although with the lowest weight of 10 per cent among the five parameters that make up the core of the index, has become the most complicated and challenging aspect that the institution can affect, as it is based on the subjective ratings by academic colleagues and employers and not the self-reported information. In spite of significant gains in the quality of teaching, the volume of research, and the state of infrastructure, several institutions still lag in the PR parameter. This continuing disparity shows a structural lack of correspondence between internal scholarly prowess and external reputational authority. This paper contends that academic libraries, which are traditionally discussed as support services, have untapped strategic potential in closing this gap. Libraries can take an active role in the perceived image of institutions by peers and employers through systematic increases in research visibility, managing scholarly identities, facilitating employer-focused information literacy, and taking advantage of national platforms like IRINS.*

*The article suggests a holistic system of rebranding the academic libraries as reputation-generating machines in the NIRF eco-system. It highlights that legacy or branding is not a purpose as much as a means of perception, which can be quantified through visibility, credibility, and engagement, where modern academically-oriented libraries seem to take a decisive part (Abstract).*

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The Metrics and benchmarks, as well as ranking frameworks, are the more predominant models of governance in higher education systems all over the world. The global ranking systems, including QS World University Rankings, Times Higher Education (THE) and Shanghai Ranking, have brought a revolution in how universities are rated, how they are financed and how they are perceived. The new system of evaluation culture, which has been institutionalised in India by the National Institutional Ranking Framework (NIRF), which has been introduced by the Ministry of Education, has provided a structured, transparent, and nationally contextualised evaluation mechanism.

NIRF considers institutions based on five general parameters, which include Teaching, Learning and Resources (TLR); Research and Professional Practice (RP); Graduation Outcomes (GO); Outreach and Inclusivity (OI); and Perception (PR). Most parameters are based on quantifiable and verifiable data, but the Perception parameter is, in essence, a qualitative and externally motivated parameter. It shows the perception of an institution by the peers of academia, employers and professionals who are reputable.

One of the trends seen through the NIRF outcomes is that those institutions that have strong teaching and research credentials frequently have low PR scores in disproportion. It means that the quality of academics does not necessarily result in reputational capital. This is not necessarily a performance problem but a visibility, communication and engagement problem.

This paper will argue that academic libraries have a special strategic position in solving this challenge. Since they are the custodians of scholarly communication, dissemination of research, and information literacy, libraries can turn institutional accomplishments into finite, believable and evaluable products that have immediate and direct impact on perception.

## **Understanding NIRF Perception (PR): Structure and Assessment Logic**

The Perception (PR) parameter under NIRF carries 100 marks with a weightage of 0.10.

Unlike other parameters, PR scores are not derived from institutional submissions but from surveys conducted among:

- Academic peers from reputed institutions
- Employers and professionals across sectors

These respondents base their evaluations on their awareness and understanding of an institution's academic standing, research culture, and graduate quality. Indicators influencing perception include:

- Visibility of research output and citations
- Presence in national and international academic platforms
- Credibility of publications and journals
- Graduate employability and professional competence
- Institutional engagement in scholarly and industry networks

PR is therefore a reputational proxy, which sums up the degree to which an institution portrays its scholarly value to the external ecosystem. Such evaluation logic supports the significance of the systematic and sustained visibility systems, as opposed to the single publicity attempts.

### **Review of Literature**

The increased popularity of national and international ranking systems has led to a significant academic concern focusing on the way in which ranking systems in higher education work, their efficacy, and constraints. National Institutional Ranking Framework (NIRF) has been a subject of much scholarly examination in the Indian context, especially on its parameters, weightage processes, and the perceived discrepancies.

The section examines the important pieces of literature pertinent to perception-based assessment, performance measures, methodology, and analytical techniques of NIRF rankings, hence putting the current study into context with current literature.

### **Perception-Based Evaluation and Ranking Methodologies.**

The article by Srinivasan, Jain, and Dharmaraja (2020) is one of the greatest works in the domain of perception-based analysis of higher education rankings. The authors applied a soft approach to computing and analysed the

impact of perception-based indicators on the overall performance of institutions of higher learning. They found out that the perception parameters are subjective, but can be modelled in a systematic way, through computational techniques, in order to decrease the ambiguity and bias. The results have pointed out that the perception-based indicators usually have a skewed effect on the end-of-rankings, which makes it necessary to make institutions mindful of reputational aspects. The study was, however, more algorithmic in nature and did not investigate institutional mechanisms that may have an active influence on perception, i.e. libraries or research support systems.

In addition to this analytical focus, Chugh et al (2017) suggested a powerful methodology of self-assessment of institutions of higher learning in the context of the national ranking of engineering institutions in India. They focused their work on the role of internal audit, data validation, and performance evaluation by parameters to contribute to an enhancement of ranking outcomes. Although the research offered a sound framework to carry out self-assessment, it was more focused on quantitative indicators and the administrative processes, and this gave minimal understanding about the qualitative and visibility-based aspects of perception that contribute to external stakeholder assessments. Indicators and Approaches of Performance. As the data on ranking becomes more and more accessible, several researchers have used computational and data-driven models to investigate performance indicators.

Babu et al. (2023) approached the performance indicators in the form of a comparative analysis of the GRD ensemble methods to evaluate the quality improvement of the Indian educational institutions. Their results emphasised the multidimensionality of ranking performance and showed that ensemble models are able to recognise major indicators that can be used to determine the quality of the institution. Even though the study made some significant progress in methodological rigour, the parameters that are related to perception were regarded as variables, but not as the result of the institutional practices.

Correspondingly, Goyal et al. (2023) examined predictive models of undefined or vaguely defined parameters in the framework of NIRF. The authors have tried to approximate perception-related

aspects that cannot be quantified in other ways by using computational intelligence. This paper has supported the thesis that perception parameters are still analytically difficult and methodologically undeveloped. Nevertheless, it did not go as far as exploring the ways in which institutions can take the initiative to affect these parameters by means of academic visibility, research publication, or stakeholder participation.

### **NIRF Parameter and Institutional Performance Analysis**

Several works have directly examined NIRF parameters in order to learn about their comparative effects on rankings. Kumar, Singh, and Siwach (2021) have analysed the NIRF 2020 of the 100 top universities and have given a parameter-wise analysis of the scores and performance of the institutions. Their results showed that there was a great difference in the perception scores, even in institutions whose research and teaching results were similar. The authors observed that perception is a distinguishing factor in rankings but failed to examine the cause of such fluctuation.

Continuing on the topic of the effectiveness of parameters, Hebbale et al. (2024) provided an in-depth examination of NIRF 2023 rankings on the top engineering institutes. Their research assessed the input of each parameter and indicated discrepancies between objective measurement and perception-based measures. The authors have noted that the perception parameters often add volatility to the rankings, and more openness and institutional approaches can be used to deal with the reputational dimensions.

Debunking NIRF rankings, Singh and Rao (2024) critically analysed inconsistencies that state that the year-to-year variance and ambiguity of the methodologies make the rankings less convincing to stakeholders. Their discussion indicated that perception scores are seldom clearly explained by any performance of the institution, and the subjectivity issue is revisited. Such a critical point reinforces the argument that one should seek specific, institutionally governed processes, which can have a systematic impact on the results of perception.

### **Weightage Determination, Tools and Ranking Stratification**

Abhishek et al. (2018) made a contribution to the discussion by creating an academic web

tool to calculate the weight of ranking parameters. They stress the importance of transparency and analytical clarity in ranking methodologies and suggest technological interventions that could help institutions to learn more about the dynamics of ranking. Although it took into consideration the weightage of the parameters, the tool failed to consider the qualitative drivers of perception, like research visibility, digital presence, or even academic outreach.

Later, De et al. (2025) measured the ranking patterns of elite Indian colleges and discovered structural and reputational factors that make the top-ranked colleges unique. They concluded that sustained visibility, academic networking and perceived institutional legacy are important and serve as critical factors in sustaining elite status. Even though the study recognised reputational capital, it failed to study the operational units, which facilitate this visibility, which are the academic libraries.

### **Synthesis and Research Gap**

The literature reviewed indicates that there is a high focus on methodological modelling, parameter analysis, and computational techniques for comprehending NIRF rankings. Although perception is generally accepted as a significant but problematic element, literature on the subject does not focus much on it as a statistical variable or a methodological issue. Little empirical or theoretical research has been done on the institutional production, management and improvement of perception. There is a distinct lack of literature on a specialised analysis of how academic libraries can be considered a strategic agent in the determination of the research visibility, scholarly communication, digital identity management, and stakeholder engagement, which directly contribute to the perception of peers and employers.

This is a gap that cannot be overlooked, considering the core role of libraries in the management of institutional repositories, IRINS profiles, bibliometrics and information literacy programs. This gap is filled in the present study by repositioning the academic libraries as agents to NIRF Perception (PR), beyond algorithmic analysis, to institutional strategy. This research adds a new dimension to the current literature pertaining to the subject of higher education rankings in India by

connecting the library services to the perception-based outputs.

### **Academic Libraries and Institutional Reputation: A Conceptual Shift.**

Historically, the academic libraries have been considered as infrastructure units that facilitate teaching and learning. Nevertheless, libraries are becoming more identified as active participants in research ecosystems, digital scholarship and institutional branding in the contemporary knowledge economy. Libraries are in the middle of the production, dissemination, and evaluation of research. They control access to knowledge in the academic field, organise institutional knowledge, and help to find and reuse research outputs. All these functions have a direct bearing on the perception of an institution by the outside stakeholders. Changing the position of libraries as reputation builders: this will need a change of thought, of turning passive repositories into proactive centres of knowledge and visibility.

### **Developing an Institutional Image of Research Intensity.**

#### ***Visibility Engines: Institutional Repositories***

Institutional repositories (IRs) are some of the most effective tools in increasing the visibility of research. Libraries should make certain that all scholarly products, faculty publications, theses, dissertations, conference papers, and technical reports are systematically stored, well characterised, and made openly available wherever feasible.

A well-managed IR increases:

- International research discovery.
- Citation potential
- Maintaining institutional knowledge in the long-term. Since citations and research visibility are only indirect contributors to the RP and PR parameters, the IR becomes a strategic resource and not a compliance one.

Open Access Advocacy Libraries are also vital in enhancing Open Access (OA) publishing by:

- Faculty education about OA models and predatory journals.
- Helping with copyright and licensing matters.
- Helping to adhere to funder requirements.

The democratisation of knowledge by Open Access is not only effective, but also the effects of citation are enhanced, which increases peer recognition.

### ***Research Data Management (RDM)***

The capability to handle, maintain and disseminate research data is gradually being considered as an indicator of research maturity. The libraries that provide RDM services demonstrate the alignment between the research standards at the international level and increase the credibility of the institutions to the international community of scholars.

### **IRINS and National Research Visibility**

Indian Research Information Network System (IRINS), which is created by INFLIBNET, offers an authenticated, centralised system of collecting institutional research information.

IRINS incorporates publications, citations, patents, and researcher profiles based on reliable sources like Scopus and Web of Science.

### ***IRINS and Peer Perception***

IRINS is an effective source of information to assess, amongst academic peers, in surveys related to NIRF perception.

- Levels of depth and disciplinary prowess of research.
- Areas and partnerships of active research.
- Publication integrity and authenticity
- Integrity of publication records and integrity of publication.

By controlling the IRINS, libraries are able to control the accuracy of the data, update it on a regular basis and represent it in a consistent manner, which are essential factors of reputational trust.

### ***IRINS and Employer Perception***

Employers are also beginning to put value on institutions that have high research cultures, since this is where critical thinking, innovation and solving of problems thrive. A dynamic IRINS profile, therefore, indicates academic seriousness and intellectual acumen, which indirectly supports trust in the graduates by the employer.

### **Managing Researcher Digital Identity**

ORCID Integration Open Researcher and Contributor ID (ORCID) is now an internationally

recognised researcher identifier. The libraries must be at the forefront to facilitate institutional activities to ensure the adoption of the ORCID system by faculty and research scholars. When used in combination with IRINS, institutional repositories and citation databases, ORCID will guarantee:

- Proper attribution of research.
- Eradication of name ambiguity.
- Better monitoring of academic contributions.

### ***Research Analytics and Bibliometrics***

There is more training in bibliometric indicators of h-index, counts of citations, and altmetrics, offered in libraries. These services enable scientists to learn and improve their academic presence, and this aspect subsequently influences peer perception.

### **Scholarly Communication and Strategic Content Curation**

Search engine optimisation (SEO) of the research. Institutional repositories can be optimised to be found by Google and Google Scholar through metadata optimisation. To maximise search visibility, libraries have to be consistent in titles, abstracts, keywords and author affiliations.

### ***Academic Newsletters and Publicity***

Libraries can assemble regular newsletters that point out:

- High-impact publications
- Major research grants
- Citation milestones
- New databases and resources

Specific publicity to alumni, partners and employers enhances the presence of the institution beyond the campus.

### ***Indexing Institutional Journals***

Indexing involves the process of searching and identifying information so as to meet the requirements of the users. In the case of institutions that publish journals or proceedings, libraries need to seek to be indexed in DOAJ, Scopus, or Web of Science. Indexed journals increase the credibility and academic prestige of the institution.

## **Enhancing Employer and Professional Perception**

### ***Career-Focused Information Literacy***

Modern academic libraries increasingly deliver *workplace information literacy*, grooming students with skills to locate, evaluate, and apply industry information such as market reports, standards, and professional data.

Graduates with strong information literacy are perceived as job-ready, analytical, and adaptable, qualities highly valued by employers.

### ***Professional Skill Development***

Libraries curate access to digital learning platforms offering courses in artificial intelligence, data analytics, project management, communication skills, and emerging technologies. Such initiatives directly contribute to graduate employability.

### ***Collaboration with Career Services***

By partnering with career services, libraries can support resume writing, interview preparation, and career research workshops, producing well-rounded graduates who positively influence employer perception.

### **Strengthening Academic Peer Perception**

Academic peer perception is closely tied to research quality and scholarly engagement. Libraries support this by:

- Assisting with systematic reviews and meta-analyses
- Supporting grant proposal literature reviews
- Ensuring access to high-quality scholarly databases
- Facilitating accreditation and academic audits

High-quality, visible research output built on credible resources enhances institutional standing among peers.

### ***Libraries as Strategic Resources to attain a High PR Score***

Libraries can directly affect the determinants of NIRF Perception by changing their role from reacting to the service unit to becoming proactive knowledge hubs. Their effects are seen in terms of research visibility, graduate quality, scholarly credibility and stakeholder engagement. The

libraries, hence, play the role of institutional ambassadors in which academic performance is converted into reputational capital.

## Conclusion

NIRF Perception parameter is a subjective parameter, which is not arbitrary or uncontrollable. The paper reveals that academic libraries play key roles in institutional reputation formation. Libraries translate academic excellence into a visible and credible reputation through strategic management of research visibility, digital identities, employer-focused services and national platforms, e.g., IRINS. To the institutions that have a desire to increase or maintain high NIRF rankings, the need to invest in library-based reputation strategies is not a choice but rather a necessity.

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## Invitation to Authors

Authors are invited to contribute articles on contemporary issues in higher education in general and Indian higher education in particular for publication in the ‘University News’. The articles addressing the Editor University News be sent as an e-mail attachment in MS WORD to: [unaiu89@gmail.com](mailto:unaiu89@gmail.com); [ramapani.universitynews@gmail.com](mailto:ramapani.universitynews@gmail.com); [universitynews@aiu.ac.in](mailto:universitynews@aiu.ac.in).

Dr Sistla Rama Devi Pani, Editor

# Higher Education and National Transformation: Building *Viksit Bharat@2047*

Gedam Kamalakar\*

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*Higher education plays a pivotal role in shaping India's journey toward achieving the vision of Viksit Bharat@2047, a developed and self-reliant nation. As a driver of human capital formation, innovation, and knowledge creation, higher education serves as the backbone for socio-economic transformation. By fostering critical thinking, research, entrepreneurship, and skill development, universities and institutions of higher learning are uniquely positioned to address the nation's developmental priorities—ranging from technological advancement and sustainable growth to social equity and inclusive governance. Strengthening higher education through quality reforms, international collaborations, digital integration, and alignment with the needs of Industry 4.0 can accelerate India's global competitiveness while ensuring equitable access for marginalized communities. This paper explores the transformative potential of higher education in nation-building, highlighting the need for holistic reforms, policy innovation, and investment to nurture a knowledge-driven economy. It argues that empowering higher education is not merely an academic agenda but a national imperative for realising the aspirations of Viksit Bharat@2047 (Abstract).*

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The vision of *Viksit Bharat@2047* represents India's long-term national aspiration to emerge as a developed, self-reliant, and globally competitive nation by the centenary of its independence. At the heart of this transformative agenda lies higher education, which serves as both the engine and the enabler of social progress, economic growth, and national integration. The higher education sector has the unique responsibility of nurturing human capital, advancing research and innovation, and fostering the values of equity, inclusivity, and sustainability that are central to nation-building.

India's demographic dividend, with one of the world's largest youth populations, positions higher education as a decisive factor in harnessing potential for innovation, entrepreneurship, and

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leadership. In the era of rapid technological change, marked by Industry 4.0, artificial intelligence, and digital governance, higher education institutions (HEIs) must reorient curricula, pedagogy, and research ecosystems to prepare students for future challenges while contributing to global knowledge production.

Furthermore, the transformation of higher education is critical for bridging social and regional disparities. Expanding access for marginalised groups, ensuring gender equity, and strengthening quality standards are essential not only for individual empowerment but also for collective national progress. Initiatives such as the *National Education Policy (NEP) 2020* provide a strategic roadmap for reimagining higher education through multidisciplinary learning, digital integration, and international collaborations.

This article situates higher education as a cornerstone of national transformation and explores its potential contributions toward realizing the goals of *Viksit Bharat@2047*. It highlights the need for systemic reforms, innovative policies, and holistic strategies to create a knowledge-driven economy that is globally competitive yet deeply rooted in inclusivity and sustainability.

## **Role of Higher Education**

India stands at a historic crossroads, at the cusp of a transformative journey, envisioning itself as *Viksit Bharat* – a developed nation by 2047. This vision is characterised by equity and sustainability, inclusion and innovation, prosperity and self-reliance, all of which are based on the foundation of education (*Vidya*). Higher education is a crucial lever for this process of transforming India into *Viksit Bharat*. It is the philosophical and cultural foundation upon which civilisations are built. India's march towards becoming a *Viksit Bharat* will be substantially determined by how effectively it can harness the power of higher education to create knowledge, foster innovation, and produce leaders capable of navigating through an increasingly complex world with ability and nobility.

Higher Education in Ancient India Education in India is deeply embedded in its ancient philosophical tradition, where Vidya was seen not merely as the accumulation of knowledge but as the means for holistic self-empowerment. It laid emphasis on the concentration of the mind rather than mere collection of facts. In the ancient Indian texts, it is said that “The wealth of knowledge is indeed the supreme among all forms of wealth and ‘True education is that which liberates one from the shackles of ignorance. This philosophical framework celebrates knowledge as a force that shapes individuals to escape the constraints of ignorance. In Indian culture, attaining knowledge is a sacred duty.

From the Gurukuls of ancient India, where students imbibed not only academic knowledge but also arts, ethics and philosophy, to the modern education system, the country has always regarded education as a means to both personal and societal upliftment. This culture of a continuous pursuit of knowledge scented the classrooms of Takshashila, Nalanda, Vikramshila, Odantapuri, Vallabhi, Kashi, Ujjain and Pushpagiri. These centres of learning, established several millennia ago, were unparalleled in their time, attracting hundreds of students and scholars from across the world as far as Japan in the east and Greece in the west. With the emergence of large educational centres, legendary accounts in the non-canonical Buddhist Jataka prose describe students journeying to Takshashila to study under renowned teachers. In later well-documented instances, students travelled across India to attend prestigious institutions such as the universities of Nalanda and Vallabhi, or the temple schools in Kanchi, among others. (Scharfe, 2002) Similarly, Takshashila was one of the earliest multidisciplinary universities in the world, where numerous branches of learning were studied, ranging from painting and handicraft to medicine and economics. Charaka, the Ayurvedic healer who was one of the leading authorities on Indian medicine, is known to have studied at this institution. The Sanskrit grammarian Panini and Chanakya (also known as Kautilya), the author of the Arthashastra, worked at this University (Lowe & Yoshihito, 2016). These institutions laid the foundation for a culture that revered education, critical thinking, and global perspectives. Their collapse and destruction due to invasions in the early centuries of the second millennium marked a significant setback for Indian

higher education. However, their legacy remains a source of pride and inspiration as India seeks to reclaim its intellectual heritage on the world stage.

### **Indian Higher Education Sector**

At the time of India’s independence in 1947, the country’s education system was fraught with challenges. India had only 17 universities and 636 colleges serving about 2.38 lakh students. The literacy rate was alarmingly low at 14%, and expenditure on education constituted less than 0.5% of the national income (Naik, 1947). This situation underscored the urgent need for comprehensive education reforms to establish a robust system capable of addressing the country’s needs. India realized the importance of education in national development and social progress early on in its trajectory as an independent nation. It was built upon the visionary ideas of influential educators and leaders of the time who sought to create a higher education system that would focus on expanding access and improving quality. The vision was to create an ecosystem that would balance India’s rich cultural heritage while addressing contemporary challenges in an increasingly modernizing world. To transform the higher education landscape, various education commissions were constituted and policies implemented. These efforts laid the foundation for the significant expansion and evolution of India’s higher education sector that we see today. To understand the course of development of the current educational policy, we trace its development in different phases: Post-Independence Foundational Phase (1947-1985), Economic Liberalization and Expansion Phase (1986-2005), Globalization and Reform Phase (2005-2019), and Contemporary Transformation Phase (2020-Present) (Borthakur et al., 2024).

### **Role of Higher Education in Independence and Nation-Building**

As India stands at the cusp of a transformative journey, envisioning itself as a *Viksit Bharat* by 2047, the role of human capital is the most fundamental. The children and youth of India can be nurtured to become competent, productive and responsible only through the foundation of education. Hence, education, especially higher education, is a crucial lever in this process of transforming India into a *Viksit Bharat*, and a crucial pillar to sustain the edifice of a *Viksit Bharat*. With the world’s largest working-age population — a demographic

advantage extending over the next two decades — and the second largest higher education system in the world, India is uniquely positioned to meet the human capital demands of our growing economy and become a global talent and innovation hub. The National Education Policy (NEP) 2020, which has come at an opportune time, provides a transformative roadmap for this purpose. Central Universities and Institutes of National Importance are the flagship institutions of higher education in India that excel in frontier areas of knowledge on national and international platforms. However, it is the 495 State Public Universities and their over 45,000 affiliated institutions that account for 81% of the total student enrolment and hence play a vital role in ensuring access to higher education across the length and breadth of India.

Technically, Universities established or incorporated by a Provincial Act or by a State Act, and funded by the State Government, are called State Public Universities (SPUs). Hence, they come under the predominant responsibility of State Governments. However, given their phenomenal reach and hence their vital role in grooming talent across the country that is vital for becoming a Viksit Bharat, their transformation into institutions of excellence is a collective national responsibility. Over the last 70+ years, the nationwide growth and expansion of SPUs has been primarily driven to increase access to affordable higher education, particularly in remote and underserved regions. This has been essential in meeting the rising demand for higher education and addressing regional imbalances in educational access. Hence, SPUs serve as regional hubs for higher education, catering to over 3.25 crore students across India. By 2035, the NEP 2020 target is to double enrolment in our higher education institutions from 4.33 crores to nearly 9 crore students. Bulk of these will continue to be in SPUs. Hence, it is of utmost importance that SPUs transition from focusing on access to higher education to delivering quality higher education. The current study has been initiated with the objective of catalysing and facilitating this very transition with comprehensive policy recommendations.

### **Higher Education in India – Centre & States: Current Scenario**

Higher Education in India is one of the largest and most diverse systems in the world, reflecting the federal structure where both the Centre and

the States play a crucial role in its governance, funding, and expansion. The sector is governed by the concurrent list of the Constitution, which allows joint responsibility in policy-making and implementation. This dual structure creates both opportunities and challenges in ensuring quality, access, and equity across the nation.

#### ***Central Institutions***

The Central Government, through bodies such as the University Grants Commission (UGC), All India Council for Technical Education (AICTE), and professional councils, plays a pivotal role in policy direction, regulation, and standard-setting. Central universities, Indian Institutes of Technology (IITs), Indian Institutes of Management (IIMs), and research institutes like IISERs and AIIMS represent the apex of higher education, with greater funding, autonomy, and visibility. These institutions are often seen as models of excellence, driving research, innovation, and global collaborations.

#### ***State Institutions***

State Governments manage the majority of India's higher education system, as nearly 85% of colleges and over 60% of universities fall under their purview. State universities and affiliated colleges provide access to millions of students, particularly from rural and marginalized backgrounds. However, challenges of underfunding, faculty vacancies, limited research output, and infrastructural deficits are more pronounced in state institutions. Despite these limitations, many state universities serve as vital hubs of regional knowledge production, local skill development, and social inclusion.

### **Current Trends and Challenges**

#### ***Access and Equity***

Gross Enrolment Ratio (GER) has improved to around 28% (AISHE 2021–22), but disparities persist across states, with southern and western states outperforming northern and eastern regions. Gender parity has improved, though rural and marginalized communities still lag behind.

#### ***Quality Concerns***

While central institutions excel in global rankings, state institutions struggle with outdated curricula, inadequate research facilities, and governance bottlenecks.

#### ***Funding Gaps***

Central institutions receive a larger share of funding, creating imbalance, while state institutions

rely heavily on state budgets, which are often constrained.

### Policy Reforms

The National Education Policy (NEP) 2020 emphasizes multidisciplinary education, autonomy, digital integration, and equitable growth, offering a framework to bridge central-state disparities.

### Globalization & Digitalization

International collaborations, online education, and digital universities are reshaping the sector, but uneven infrastructure across states widens the digital divide.

India's higher education landscape reflects a dynamic but uneven growth trajectory, with central institutions leading in excellence and state institutions providing mass access. Balancing this asymmetry is crucial for India's aspiration of becoming a knowledge-driven economy and achieving *Viksit Bharat@2047*. Collaborative governance, enhanced funding, faculty development, and research support across both central and state institutions are necessary to build a cohesive, inclusive, and globally competitive higher education system.

### Current Scenario

India is one of the youngest nations in the world with a median age of 28.2 years (World Population Prospects, 2022). Youth in the age group of 15-29 years made up 27.2% of the population in 2021, which is expected to decrease to 22.7% by 2036, but will still remain large in absolute numbers at 34.5 crores. (Report of the Technical Group on Population Projections for India and States 2011-2036, Ministry of Health & Family Welfare, July 2020) India accounts for nearly 20% of the world's young population. (World Economic Forum, 2018) This gives it a significant advantage since its share of the working-age population is high and rising vis-à-vis its dependent population, with the prospect for many more people to participate in the labour market and contribute to economic growth. This is an enormous opportunity that is likely to last till 2047. Hence, policymakers have been and need to further ensure efficient pathways for youth to acquire quality higher education. This article focuses on the efforts of the Central and State Governments to enhance the quality and accessibility of higher education in India, particularly in the last decade. Various indicators like access, quality, research and innovation, funding and financing, and governance

of HEIs have been considered while evaluating the performance of each state in this sector.

**Table 1: Growth of Colleges in India**

Year	Number of Colleges
1950–51	578
1960–61	1,819
1970–71	3,277
1980–81	6,963
1990–91	5,748
2000–01	10,152
2010–11	32,974
2019–20	42,343
2020–21	43,796
2025 (est.)	45,000

Source: <https://aishe.gov.in/>

Higher education in India has witnessed remarkable expansion since independence, reflecting the country's commitment to creating educational opportunities for its rapidly growing population. Colleges play a crucial role in this system, serving as the primary access points for undergraduate and postgraduate education across disciplines such as arts, science, commerce, engineering, medicine, and vocational studies. At the time of independence in 1950–51, India had only 578 colleges, reflecting the limited educational infrastructure available to the population. Over the decades, this number has grown exponentially due to government policies, increasing literacy rates, and the rising demand for skilled professionals. By 1960–61, the number of colleges increased to 1,819, and by 1970–71, it reached 3,277. This steady growth highlights the early efforts of both central and state governments to expand access to higher education.

The expansion accelerated significantly in the 1980s and 1990s. By 1980–81, the number of colleges rose to 6,963, while the year 2000–01 saw 10,152 colleges nationwide. This growth was accompanied by the establishment of private colleges, which supplemented public institutions and offered modern facilities and professional courses in response to the changing demands of the economy. In the last two decades, the growth of colleges in India has been even more pronounced. According to the All India Survey on Higher Education (AISHE) 2020–21, there were approximately 43,796 colleges, reflecting the tremendous expansion in higher education infrastructure. Estimates for 2025 suggest that India could have around 45,000 colleges, indicating

continued efforts to improve accessibility and provide diverse educational opportunities (Table 1).

The proliferation of colleges has several significant implications. First, it has increased enrollment rates, allowing more students, especially from rural and underprivileged backgrounds, to pursue higher education. Second, it has diversified academic offerings, including vocational and professional courses, to meet the evolving needs of the labour market. Finally, it has fostered regional development by establishing colleges in smaller towns and cities, thereby reducing educational migration to urban centers.

The growth in the number of colleges in India reflects the nation's commitment to expanding access to higher education. From a mere 578 colleges in 1950 to nearly 45,000 in 2025, India's higher education landscape has transformed dramatically, ensuring that education is more accessible, inclusive, and aligned with national development goals.

**Table-2: Growth of Universities in India**

Year	Number of Universities
1950–51	27
1960–61	45
1970–71	82
1980–81	110
1990–91	184
2000–01	254
2010–11	621
2019–20	1,043
2021	1,168
2025 (est.)	~1,200

Source: <https://aishe.gov.in/>

### University Types in India: An Overview

Higher education in India is a vast and diverse system, encompassing thousands of institutions that cater to millions of students across the country. Central to this system are the universities, which vary in their establishment, governance, funding, and purpose. Broadly, universities in India are classified into five main types: Central Universities, State Public Universities, State Private Universities, Deemed-to-be Universities, and Institutes of National Importance (INIs). Each type plays a unique role in shaping the academic landscape and contributing to national development.

Central Universities are established by an Act of Parliament and are funded and managed by the Central Government. These universities set high academic standards and promote research and innovation at the national level. Institutions like Jawaharlal Nehru University (JNU) and Banaras Hindu University (BHU) exemplify the quality and diversity of programs offered by central universities. They attract students from all over the country, ensuring a culturally rich and intellectually stimulating environment.

State Public Universities are founded by state legislatures and primarily funded by state governments. These universities provide higher education access to students within their respective states and often focus on region-specific courses. Prominent examples include Osmania University in Telangana, the University of Mumbai, and the University of Calcutta. State universities serve as the backbone of India's higher education system, enrolling the largest number of students across the country.

State Private Universities are established by state acts but are privately funded and managed. They have gained prominence in recent decades due to their emphasis on modern infrastructure, specialised courses, and industry-oriented programs. Universities like Amity University, Manipal University, and Shiv Nadar University are notable for their innovation-driven approach and global collaborations, providing students with contemporary skills and international exposure.

Deemed-to-be Universities are institutions recognised by the University Grants Commission (UGC) under Section 3 of the UGC Act, 1956, for maintaining high academic standards. These universities enjoy autonomy in designing curricula, admission procedures, and awarding degrees. Examples include the Indian Institute of Science (IISc), Symbiosis International University, and Bharati Vidyapeeth. Deemed universities contribute significantly to research excellence and academic innovation in India.

Institutes of National Importance (INIs) are specialised institutions established by Acts of Parliament due to their strategic significance in sectors such as engineering, medicine, and management. These institutions, including the Indian Institutes of Technology (IITs), National Institutes of Technology (NITs), All India Institutes of

Medical Sciences (AIIMS), and Indian Institutes of Management (IIMs), serve as centres of excellence, producing skilled professionals who contribute to national development and global competitiveness.

In conclusion, India's higher education system is characterised by its diversity and adaptability. The multiple types of universities ensure a balance between accessibility, quality, specialisation, and innovation. Central and state universities provide widespread educational opportunities, while private, deemed, and national institutes contribute to advanced research, international standards, and skill development. Together, these universities play a vital role in shaping the intellectual and professional future of the nation.

### **Roles of Centre and States**

Higher education in India has undergone a significant transformation over the last few decades, reflecting the nation's efforts to promote knowledge, research, and skill development. The sector is characterised by a complex interplay between the central and state governments, private institutions, and regulatory bodies such as the University Grants Commission (UGC), All India Council for Technical Education (AICTE), and National Medical Commission (NMC). Understanding the current scenario requires examining both the central and state-level initiatives, challenges, and trends shaping higher education today.

#### ***Role of the Centre***

The central government plays a pivotal role in formulating national policies, setting academic standards, and funding premier institutions. Central initiatives such as the Rashtriya Uchchatar Shiksha Abhiyan (RUSA), National Institutional Ranking Framework (NIRF), and the National Education Policy (NEP) 2020 aim to improve quality, promote research, and foster innovation. Central universities, Institutes of National Importance (INIs), and centrally funded technical and medical institutions set benchmarks for academic excellence, often serving as hubs for advanced research and global collaborations.

#### ***Role of the States***

State governments are primarily responsible for establishing and managing state universities and colleges, ensuring access to higher education across regions. States play a crucial role in implementing

policies that address local educational needs, vocational training, and skill development. State initiatives often focus on increasing enrollment rates, improving infrastructure, promoting inclusivity for marginalised communities, and aligning curricula with regional and national economic priorities. Examples include scholarship programs for backward classes, state-level research grants, and the establishment of knowledge hubs in smaller towns.

### ***Current Trends***

India currently has over 1,138 universities and around 45,000 colleges, reflecting the scale of higher education expansion. While central institutions maintain high academic standards, state universities face challenges such as faculty shortages, infrastructure gaps, and uneven research output. Private universities and deemed-to-be universities are playing a complementary role by offering specialized courses, modern facilities, and industry-oriented programs. Digital initiatives, online learning platforms, and MOOCs are bridging gaps in accessibility and quality, particularly in remote areas.

### ***Current Challenges***

Despite rapid growth, the sector faces several challenges. Quality assurance remains uneven across states, with many institutions struggling to meet global academic standards. Research output is concentrated in a few central institutions, and the employability of graduates often depends on the alignment between academic curricula and industry requirements. Funding disparities between states, coupled with regulatory bottlenecks, also limit the potential of higher education institutions to contribute effectively to national development.

The current scenario of higher education in India reflects a delicate balance between central oversight and state-level implementation. While central initiatives ensure quality, standardisation, and international collaborations, state governments drive accessibility, inclusivity, and regional development. Moving forward, a coordinated approach, supported by innovation, technology, and enhanced funding, is essential to strengthen India's higher education system, improve research output, and ensure that it contributes effectively to national and global knowledge economies.

### ***Skilling and Employability Enhancement***

In today's competitive global economy, acquiring a university degree alone is no longer

sufficient to secure meaningful employment. Skilling and employability enhancement have become critical components of higher education, aimed at preparing students to meet the dynamic demands of industry, entrepreneurship, and societal development. Across disciplines—be it science, technology, engineering, arts, commerce, or vocational streams—students require a combination of domain knowledge, practical skills, and soft competencies to thrive in the workforce.

### ***Importance of Skilling***

Skilling refers to the systematic development of knowledge, technical abilities, and professional competencies that enable students to perform effectively in their chosen fields. The rapid growth of technology, digitalisation, and global markets has led to a significant skill gap among graduates. According to recent surveys, many students lack industry-relevant skills, practical experience, and problem-solving capabilities, making them less employable. Bridging this gap through structured skill development programs is essential to enhance productivity, innovation, and economic growth.

### **Initiatives for Employability Enhancement**

Governments, educational institutions, and private organisations are increasingly focusing on employability enhancement programs. In India, initiatives such as the National Skill Development Mission (NSDM), Pradhan Mantri Kaushal Vikas Yojana (PMKVY), and university-level career and skill development cells aim to provide students with practical training, internships, and mentorship opportunities. Industry-academia partnerships allow students to gain real-world experience, develop critical thinking, and acquire domain-specific skills that align with current labour market demands.

### **Skills Across Streams**

- ***STEM (Science, Technology, Engineering, and Mathematics):*** Coding, data analysis, artificial intelligence, and research-oriented skills are essential for innovation and technology-driven careers.
- ***Commerce and Management:*** Financial literacy, entrepreneurship, leadership, and digital marketing skills are increasingly valued.
- ***Arts and Humanities:*** Critical thinking, communication, design thinking, and creativity are emphasised for roles in media, content creation, and social development.

- ***Vocational and Skill-Based Streams:*** Hands-on skills, craftsmanship, and technical certifications enhance immediate employability in trade and service sectors.

### **Role of Educational Institutions**

Colleges and universities play a central role in fostering employability. Incorporating skill-based courses, organising workshops, promoting internships, and facilitating placement drives are essential measures. Soft skills such as communication, teamwork, and adaptability are equally important, ensuring students are prepared to face the challenges of the modern workplace.

Skilling and employability enhancement are vital for transforming students into competent professionals capable of contributing meaningfully to society and the economy. By integrating practical training, industry partnerships, and interdisciplinary skill development across streams, higher education institutions can ensure that students are not only academically proficient but also job-ready. A sustained focus on skilling will bridge the gap between education and employment, empower the workforce, and contribute to the nation's overall growth.

### **Digitalisation of Higher Education**

As India marches toward its centenary of independence in 2047, higher education is poised to play a transformative role in building a “Viksit Bharat”, or a developed India. Among the most critical drivers of this transformation is the digitalisation of higher education, which promises to enhance access, quality, inclusivity, and employability across the nation. The integration of digital technologies into teaching, learning, research, and administration has emerged as a key strategy to modernise India's higher education system, making it globally competitive and socially impactful.

### ***The Role of Digitalisation in Higher Education***

Digitalisation encompasses the use of technology to deliver, manage, and enhance education. This includes online learning platforms, virtual laboratories, e-libraries, artificial intelligence-driven personalised learning, Massive Open Online Courses (MOOCs), and cloud-based academic management systems. By leveraging digital tools, institutions can provide high-quality education to students across remote and underserved regions, thereby addressing historical inequities in access.

## Key Initiatives in India

India has initiated several programs to promote digital higher education. The National Digital University (NDU), SWAYAM platform, DIKSHA, and e-PG Pathshala provide online courses, resources, and certification opportunities for students nationwide. Universities are also adopting Learning Management Systems (LMS), digital assessments, and virtual collaborations with international institutions to enhance both the reach and quality of education. These initiatives align with the National Education Policy (NEP) 2020, which emphasises technology integration to ensure holistic and flexible learning experiences.

### ***Benefits of Digitalisation***

***Access and Inclusivity:*** Students from rural and remote areas can access courses, lectures, and learning resources without geographical constraints.

***Flexibility and Lifelong Learning:*** Digital platforms enable learners to pursue education at their own pace and continue learning throughout their careers.

***Enhanced Research and Collaboration:*** Digital tools facilitate data-driven research, global collaborations, and knowledge sharing among students and faculty.

***Skill Development and Employability:*** Technology-enabled learning equips students with digital literacy, coding, AI, and other industry-relevant skills essential for the future workforce.

Despite its promise, digitalisation faces challenges, including the digital divide, limited internet access in rural areas, low digital literacy among faculty and students, and cybersecurity concerns. Addressing these issues requires robust infrastructure investment, faculty training, affordable internet access, and the development of localised digital content. The digitalisation of higher education is central to India's vision of *Viksit Bharat@2047*. By enhancing access, quality, and employability, digital initiatives can transform higher education into a powerful instrument of national development. As India integrates technology across universities and colleges, it not only empowers its students but also strengthens the knowledge economy, promotes innovation, and ensures that the country remains competitive on the global stage.

## Challenges in Higher Education

India's vision of *Viksit Bharat@2047* places higher education at the centre of national transformation, aiming to create an inclusive, innovative, and globally competitive knowledge economy. While the sector has witnessed remarkable expansion, several challenges persist that could hinder its ability to contribute to national development fully. Addressing these challenges is crucial for ensuring that higher education drives economic growth, social equity, and technological advancement.

### ***Access and Equity***

Despite the growth in universities and colleges, access to higher education remains uneven across regions, socio-economic groups, and gender. Rural areas, marginalised communities, and economically disadvantaged students often face barriers due to limited infrastructure, high costs, and socio-cultural constraints. Achieving equitable access is essential to harness the full potential of the nation's human capital.

### ***Quality and Academic Standards***

Many institutions, particularly at the state and private levels, struggle with quality assurance, outdated curricula, and inadequate teaching methodologies. Research output remains concentrated in a few central institutions, while many colleges focus primarily on enrollment rather than academic excellence. Ensuring quality education across all institutions is vital to produce skilled and employable graduates.

### ***Faculty Shortages and Skill Gaps***

The shortage of qualified faculty, particularly in emerging fields such as artificial intelligence, biotechnology, and renewable energy, limits the ability of institutions to provide advanced education and research opportunities. Faculty development, training, and incentives for research are critical to bridge this gap.

### ***Funding and Infrastructure Constraints***

Many public institutions face inadequate funding for research, infrastructure, and digital resources. This limits the capacity to adopt modern technology, build laboratories, and provide world-class learning experiences. Private institutions often fill the gap but may prioritise profit over academic quality.

### ***Research and Innovation***

India's research ecosystem remains underdeveloped relative to global standards. Limited industry-academia collaboration, inadequate funding, and a lack of research culture in many universities impede innovation and knowledge creation. Strengthening research and fostering innovation-driven education is essential for global competitiveness.

### ***Digital Divide***

While digitalisation offers transformative potential, unequal access to technology and internet connectivity creates disparities in learning opportunities. Students in remote and rural areas may miss out on online courses, virtual labs, and digital skill development programs.

### ***Employability and Industry Relevance***

Despite increasing enrollment, many graduates face challenges in securing employment due to a mismatch between academic curricula and industry requirements. Higher education must integrate skill-based learning, internships, and vocational training to enhance employability across streams.

While higher education is poised to drive India's journey toward *Viksit Bharat@2047*, significant challenges must be addressed. Bridging gaps in access, quality, faculty, research, infrastructure, and digital inclusion is crucial. Through coordinated efforts by the central and state governments, educational institutions, and industry stakeholders, India can transform its higher education system into a robust engine of national development, innovation, and global competitiveness.

### **Recommendations**

India's vision of *Viksit Bharat@2047* demands a transformative approach to higher education, aligning it with global standards while retaining national priorities. The following recommendations focus on policy, infrastructure, research, equity, and technology, aiming to create an ecosystem that fosters knowledge, innovation, and inclusive growth.

### ***Strengthening Governance and Institutional Autonomy***

- Grant greater autonomy to universities to design curricula, establish research priorities, and manage finances efficiently.

- Streamline regulatory frameworks by consolidating multiple agencies into a unified higher education authority to reduce bureaucratic delays.
- Encourage performance-based accountability, linking funding with institutional outcomes in research, employability, and social impact.

### ***Curriculum Innovation and Multidisciplinary Learning***

- Integrate multidisciplinary education to bridge traditional divides between arts, sciences, and technology.
- Incorporate emerging fields such as AI, data science, renewable energy, climate studies, and biotechnology to prepare students for future challenges.
- Promote skill-based learning alongside theoretical knowledge to enhance employability and entrepreneurship capabilities.

### ***Research and Innovation Ecosystem***

- Increase investment in research, prioritising areas crucial for national development such as green energy, healthcare, digital governance, and sustainable agriculture.
- Establish centres of excellence and innovation hubs in collaboration with industry and international partners.
- Encourage publication and patent generation, providing incentives for faculty and students to contribute globally recognised research.

### ***Digital Transformation of Higher Education***

- Expand digital infrastructure in universities, ensuring access to high-speed internet, virtual labs, and e-learning platforms.
- Integrate AI-powered tools for personalised learning, academic advising, and research assistance.
- Promote blended learning models, combining online courses with traditional classroom experiences to reach remote and underserved regions.

### ***Equity, Inclusion, and Social Responsibility***

- Strengthen access for marginalised communities, including SC/ST, tribal, and economically disadvantaged students.

- Implement gender-sensitive policies to improve female participation and retention in higher education.
- Foster community engagement, encouraging institutions to address local challenges through research, outreach, and service-learning projects.

#### ***Industry-Academia Collaboration and Skill Development***

- Establish strategic partnerships with industry, linking curricula with real-world needs and emerging job markets.
- Promote internships, apprenticeships, and entrepreneurial incubation to create a skilled and job-ready workforce.
- Develop continuous learning programs for alumni and professionals to ensure lifelong skill enhancement.

#### ***Global Engagement and Internationalisation***

- Encourage international collaborations for research, student exchange, and faculty development.
- Align academic standards with global benchmarks, while promoting India-specific knowledge systems and cultural heritage.
- Facilitate foreign student enrolment to strengthen India's position as a global education hub.

#### ***Sustainable and Green Campuses***

- Implement eco-friendly infrastructure and renewable energy solutions in universities.
- Promote research on sustainability and climate action, integrating it into teaching and campus operations.
- Encourage green practices among students, preparing a generation committed to environmental responsibility.

#### ***Monitoring, Evaluation, and Continuous Improvement***

- Adopt data-driven decision-making to monitor student outcomes, research impact, and institutional performance.
- Regularly review policies to ensure alignment with national priorities, labor market trends, and global developments.
- Encourage feedback mechanisms from students, alumni, and employers to refine teaching, curricula, and skill programs.

To achieve *Viksit Bharat@2047*, higher education must evolve from a traditional knowledge delivery system into a dynamic ecosystem of learning, innovation, equity, and global engagement. By implementing these recommendations, India can nurture talent, drive research, and build a socially responsible, technologically advanced, and economically robust nation. The goal is not just academic excellence but transformative societal impact, positioning India as a global leader in education and innovation by 2047.

#### **Conclusion**

Higher education stands at the heart of India's vision for *Viksit Bharat@2047*, catalysing national transformation, innovation, and inclusive growth. As India approaches its centenary of independence, the challenges of global competitiveness, technological disruption, and social equity demand a higher education system that is flexible, multidisciplinary, research-driven, and socially responsible. By strengthening governance, promoting autonomy, fostering innovation, integrating digital technologies, and ensuring equitable access, India can create universities that are not only centres of learning but engines of societal progress. Collaboration with industry, international institutions, and communities will further ensure that education contributes directly to national development, economic prosperity, and global leadership. Ultimately, the transformation of higher education is inseparable from the larger goal of building a knowledge-based, sustainable, and inclusive India. With visionary policies, strategic investments, and committed implementation, higher education can empower generations, drive research excellence, and shape an India that is innovative, equitable, and globally respected by 2047—truly realising the dream of *Viksit Bharat*.

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## AIU Publication on

### IMPLEMENTING NATIONAL EDUCATION POLICY–2020: A ROADMAP

By

**Dr (Ms) Pankaj Mittal & Dr Sistla Rama Devi Pani**

**‘Implementing National Education Policy—2020: A Roadmap’** edited by Dr (Ms) Pankaj Mittal and Dr S Rama Devi Pani is a step towards getting to understand the concept of NEP and its rollout expectations from the side of the practitioners of education. It is a collection of essays by some of the greatest thinkers in the field of Indian higher education. Each essay in the book examines one or more of the critical topics and provides solutions and methods to overcome the issues involved in the implementation of NEP—2020. The book generates a corpus of new ideas that are significant for reforming the Indian higher education system to align with the Policy. The book aims to provide a roadmap to the government as well as the universities to gear themselves towards becoming more responsive to the Policy which in turn can secure the present and future demands of higher education. The Book is available at the AIU Website: [www.aiu.ac.in](http://www.aiu.ac.in)

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# The Quantum Leap: Exploring Tomorrow's Technologies

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**V Narayanan, Distinguished Scientist, Secretary, Department of Space and Chairman, Indian Space Research Organization delivered the Convocation Address at the 21<sup>st</sup> Convocation Ceremony at the National Institute of Technology Tiruchirappalli, Tamil Nadu on July 26, 2025. He said, “*The success, both personal and professional, depends on how we think, how we act and what we believe in. Develop inner strength of character. You should always be honest & trustworthy.*” Excerpts**

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I feel really happy to be with you and to share this significant moment and the happiness of students receiving their degrees here today. I am so excited to be in the best and most sought-after NIT of the country. NIT, Trichy has a great history and legacy of 61 long years, right from its inception in 1964 as REC. Renamed as NIT from 2003, this institute is a real marvel in engineering education in the country.

I am a native of this state, Tamil Nadu and right from my student days, I have heard the name of this Institute and it was anybody's dream to get admission and study in this great institute. You are the privileged set of students who could get admission and study in this institute through your sheer merit and hard work and let me wholeheartedly congratulate each and every one of you. I had the opportunity of working few months in BHEL, Trichy, before I joined ISRO in 1984 and hence I am very much aware of the capabilities and the talent pool of NIT, Trichy. The very fact that it has the Distinction of ‘*Best Industry Linked NIT in India*’ by Confederation of Indian Industry is a really great compliment.

I am happy to note that students receiving degrees here today belong to undergraduate and Postgraduate programmes of various Engineering and allied disciplines. I am sure the Management & Faculty here have contributed in a big way in leading the students towards providing true education. The education that ensures absorption of knowledge, accumulation of wisdom and appreciation of the experience.

I have always been a person who believed that all the good qualities of a student, be it behaviour, character, ethics, compassion, empathy and so on, are brought in mainly by the teachers.

The stars of today's function are the students receiving their degrees. Let me take this opportunity to greet each and every one of you. More than anything else, I have felt that Convocation is a

function for you to look back to remember and thank all those good souls who have helped you to reach this level.

Apart from your hard work and dedication, you owe the degree you are receiving today to your parents, who have educated you to see your bright future. Let me salute each of the parents present here today.

Convocation is one of the happiest occasions in one's life. You all are entering into a new phase of your life with great maturity, knowledge and a good degree from a great institution. On this occasion, I wish to reiterate the message of Swami Vivekananda ‘*Arise, Awake and Stop not till the goal is achieved*’.

We are all in a very high mood right now as our own Astronaut, Shubanshu Shukla has just become the first Indian to reach the International Space Station and land back in Earth safely. I had the great privilege of associating with this Axiom mission in a big way. All of us had a busy time last month in US at the Kennedy Space centre and we were happy to contribute in our own way in ensuring the safe launch of Shukla and 3 other astronauts to ISS. It is a big stepping stone as we move towards our own human space program – *Gaganyaan* quite shortly.

Since the time I have taken over as Chairman, ISRO, i.e., beginning of this year, we have achieved some key successes within a short time. India has become the 4<sup>th</sup> country to successfully achieve Docking and Undocking in Space with the success of SPADEX mission, in which we demonstrated precise docking and undocking of the Chaser and Target. In January this year, we had the successful 100<sup>th</sup> launch of the GSLV F15/ NVS-02 mission from Sriharikota. I am also so happy to get the final approval for the Third launch pad, catering to the launch of our future generation of launch vehicles, which will take Indians to the Moon.

Dear friends, with the knowledge you have gained till now, you are starting to serve our country, which has completed 77 years of independence and the progress we have made during this period is phenomenal. One has to understand that at the time of independence, 97.5% of our people were below the poverty line with an average life expectancy of 32 years. From that state of affairs today we have grown in every sector. In the agriculture sector, we had the green revolution and became self-sufficient in food production. In health sector, we have world-class hospitals & doctors and have increased the average life span of Indians from 32 years to 72 years.

- India as a nation has grown by leaps and bounds in Science and Technology since its independence.
- In India over the years, we have made significant progress in various sectors through movements like the Green Revolution, White Revolution, Grey Revolution and Blue Revolution
- Literacy level which was alarmingly low, pegged at around 12% soared to 79.7% as of date. Number of primary schools which numbered around 2825 at Independence, has soared to about 8.40 lakhs. We could create world class Institutions of National importance like IITs, IISc, IIMs, AIMS, NITs, IISERs, etc. wherefrom the pass-outs are accepted and respected worldwide. We could also establish a number of other schools and colleges of international repute. At present, we have 742 medical colleges and 4351 Engineering colleges in India, rolling out trained men and women to add value-added services to our country. The average enrolment of students in colleges in India is the largest in the world (30.6 million).
- From receiving food aid in the 1950s and 1960s to becoming a net exporter, India has seen a turnaround in food production. Aided by the Green Revolution, total food production, which stood at 54.92 million tonnes in 1950, has risen to 305.44 million tonnes. In agriculture, we have made 5 fold increase in production since independence. The green revolution has taken us to this growth today. We too had the white revolution for dairy products and the blue revolution for fisheries.
- Only 3,061 villages had access to electricity in 1950. Currently, all of India's villages 5,97,464

in total, have been electrified. The total power generating capacity has increased from meagre 1362 MW in 1947 to 403 GW. The per capita electricity consumption, which can be directly equated as an index of development, was a mere 16.3 kWh and has increased to 1208 kWh. The country has achieved total self-reliance adopting a threefold combination of hydroelectric, Thermal and nuclear power stations along with tapping others like tidal, wind, solar, etc. Nuclear power plants have been set up at a fast pace ever since Homi Jahangir Bhabha started the research activities at BARC.

- India's GDP stood at Rs 2.7 lakh crore at Independence. Now it has reached Rs 135.13 lakh Crore. India is now the 4th largest economy in the world, overtaking UK itself. We have the potential of becoming the third-largest economy by 2031, as per Bank of America. Our vision is to have an economy of 300 lakh crores by the end of this decade.
- Indian Railway, the longest railway system in the world, expanded by over 14,000 kilometres, reaching 67,956 kilometres in route length by end of 2021. We have added a host of metros in most major cities and fast moving Bullet trains.
- Roads have expanded exponentially in the last 75 years. In 1950, India only had 0.4 million kilometres of roadways, which has grown to 6.4 million kilometres. This is a 16-fold rise in the total length of roadways, making India's road network the second largest in the world. We have an extensive network of waterways, too, spread across states and intercontinental water passages. Our national highways and expressways are rated among the best in the world, connecting the length and breadth of this vast country.

Our unique programmes like "Make In India" have revolutionised the engineering sector in the country. Hence, it is imperative that there are plenty of opportunities for all of you to contribute to making India a developed country when we celebrate Azadi ka Amrit Mahotsav, 100 years of independence in 2047.

Our country has built world-class institutions over the years and achievements have been plenty.

Take the case of DRDO, over the years, they have developed large range of weapons like the

Arjun battle tank, Zarovar light tank, Brahmos long range supersonic missile system, Agni & Prithvi series of missiles, Tejas light combat aircraft, Pinaka, a multi barrel rocket launcher, Akash, a comprehensive air defence system and so on leading India to become a defence power.

In Atomic energy too, we have made a mark and at present, we have 23 nuclear reactors across 8 major nuclear plants, starting from Tarapur and including the Bhabha Atomic Research Centre (BARC). At present, we have the capability to generate 8180 Mega Watts power but we are still a long way to go.

We have world-class CSIR Labs under the Department of the Council of Scientific and Industrial Research.

Our country has built world-class institutions over the years and achievements have been plenty - DST, DRDO, IGCAR, Tata Institute of Fundamental Research, Kalpakam and Kudamkulam Nuclear plants, Medical Technological Institutes like AIIMS - Eradication of fatal diseases like Smallpox, Diphtheria, Malaria, etc., Commissioning of hundreds of roads, bridges and railway lines, National Educational Institutions like IITs, IISc, IIMs, RGIPT, Metro trains, World's biggest Statue - Statue of Unity, High Speed Rail Corridor, etc.

Dear friends, on this important day of your life, let me share a few of my thoughts

### **Give Back to Society**

Dear Graduates, education is a privilege that you enjoy for which you are deeply indebted to the society of which you are a member. For the degree you are receiving today, so many have contributed,

- 1) Your parents who have sacrificed their comfort to educate you and see you as great leaders in future.
- 2) Your school teachers who have taught you and given you a good foundation.
- 3) Your college teachers and staff members who have given high-quality education and shaped & molded your career.
- 4) The fellow citizens who have provided you good ambience for your education.
- 5) The common man, the taxpayers and the society of our country, who have funded for your education indirectly.

Is it not your responsibility to give back something to society?

Noble leaders like the father of our nation, Mahatma Gandhi, Pandit Jawaharlal Nehru, Sardar Patel and so many others have sacrificed their entire lives for our country. As a valuable and responsible citizen, you also have to work for the welfare & development of the institutes where you have studied, care for the citizens of our country and build up the nation.

- **Learning is a Continuous Process**

To update your knowledge, excel in your profession and reach greater heights in life and to contribute to the betterment of society, you should learn continuously. Dr. Radhakrishnan, the great scholar & our former President, once said, "The habit of reading is one of the greatest resources of mankind".

- **Work Hard and Earn Your Happiness**

Dear Graduates, you all know that there is 'No substitute for Hard & Smart work.

I have learned from '*Wings of Fire*', the Autobiography of our former president, Dr AP.J. Abdul Kalam, "Total commitment is a pivotal quality for those who want to reach the very top of their profession". It is true. I myself have experienced.

- **Develop Inner Strength of Character**

The intellectual education influences the mind, whereas the value-based education influences the heart. A person with a high academic record with intellectual education and bankrupt value-based education is of no use to society. The success, both personal and professional, depends on how we think, how we act and what we believe in. Develop inner strength of character. You should always be honest & trustworthy.

- "Dream & Aim for greater things, Set high targets and work for it. Dreams are internal monitors. Dreams are powerful tools of an individual to achieve his goals.
- Be imaginative, Innovative & Creative. A person who uses his imagination and creativity will overpower the one who has more resources.

- Self-confidence and Self Motivation is another important requirements for success “Can-do approach is an essential requirement for the one for reaching greater height you should be persistent in achieving your goals.
- Teamwork with a win-win approach and calculated risk-taking ability is another important requirement for success.
- You should develop a noble leadership quality. Above all, you should become a good human being.

### **Accomplishments and Future Plan of the Indian Space Programme**

I am today standing before you in the capacity of Secretary, Department of Space/Chairman, ISRO. When India started its space programme in 1962, and ISRO was formed on August 15<sup>th</sup>, 1969, one should keep in mind that Yuri Gagarin had gone to outer space and came back safely in 1961 itself. We also had Neil Armstrong landing on the moon in 1969. Hence, we were something like 60 years behind the advanced nations in space technology. But over the years we could more or less bridge this gap and also come out with flying colours in many areas.

- From the first launch of the tiny rocket from Indian soil on 21<sup>st</sup> November 1963, till today we have launched more than 4000 sounding rockets from India.
- The First launch vehicle – SLV3 was launched successfully in 1980. To our credit, we have so far developed 6 generations of launch vehicles (SLV3, ASLV, PSLV, GSLV, LVM3 & SSLV) and launched 101 launch vehicle missions.
- As far as satellites are concerned, in 1975, we had the launch of our first spacecraft, Aryabhata. From that humble beginning, till today, we have developed and realised a total of 132 satellites serving us in various applications. Over the years, the designed life of satellites has increased from 7 to 15 years and the power handling ability has increased from 6 kW at 42V to 20 kW at 70V. We have also launched 433 satellites of 34 foreign countries and other student satellites.
- Chandrayaan 1 mission was a great success and became the first mission in the world to find presence of water on the moon. We all are aware that our Chandrayaan – 2 mission had placed an orbiter with the best OHRC camera, which is still functioning but we narrowly missed the soft landing in the last 2.10 km. I had the privilege to be the Expert Committee Chairman to identify possible anomalies and make suitable recommendations for the next mission. My team did extensive analysis and came out with more than 100 recommendations, all of which were effectively implemented in the Chandrayaan 3 mission, ensuring 100% success, making India proud and made history of becoming the first country in the world to soft land near the south pole of the moon.
- The Mars Orbiter Mission (MOM) was also a well-acclaimed mission, which our honourable PM has described as the expense per kilometre travel was less than Auto fare and also total expenditure less than many Hollywood movies. We were the first country successfully accomplish this mission on the first attempt.
- India holds the world record of placing in orbit 104 satellites in a single launch, for the first time. We also had a successful re-entry of the spacecraft capsule in SRE-1 in first attempt.
- Indigenous cryogenic development after technology denials is another proved development. I was so proud to be the Project Director of C25 cryogenic stage, where we have three world records during the development.
- We also placed One Web 1 & 2, putting 72 commercial satellites in precise orbits last year using our LVM3 vehicle.
- We have also successfully placed our Aditya spacecraft in the Legrangian point L1 of the sun thus becoming only the 4<sup>th</sup> country to have a satellite to study the sun.
- India became the fourth country in the world to achieve Docking of spacecraft in space just less than 4 months ago.
- Over the years, our satellites have provided applications ranging from Communication, Meteorology, Cartography, Disaster Warning, Television broadcasting, Telemedicine, Tele education, Village Resource Centres, Remote Sensing, Oceanography, Mineral/Resource mapping just to name a few. India has gifted a satellite for the benefit of all SAARC countries. The Indian NAVIC system has a constellation of

spacecrafts which is also serving the country in various domains. Real Time Tracking system is also introduced for 8700 trains. The satellites have played a major role in disaster warning, giving early warning, saving thousands of lives.

- For the fishermen, we have developed applications for getting information about their location.
- Potential fishing zones monitoring and informing is yet another success story.
- Bhuvan portal, equivalent to Google is also developed and deployed.
- At present, we are in the advanced development stages of our Gaganyaan, our human space mission, wherein we shall be for the first time taking Indians to space and return them safely using our own launcher. Towards this program, the first unmanned mission is planned very shortly. This is a national program which involves meticulous mission planning and the development of cutting-edge technologies.
- Our Prime Minister has recently rolled out the broad envelope of where our space programme has to reach in the coming years. The Chandrayaan-4 programme is already approved and this mission shall be planned as a sample return mission. The Bharathiya Anthariksh station (BAS) shall be a reality by 2035 for which the initial modules in space shall start as early as 2027. An Indian has to land in moon and return safely by a fully indigenous moon mission by 2040. A Venus Orbiter Mission (VOM) has also been approved where we shall be sending a spacecraft to study planet Venus. A heavy lift Next Generation Launch Vehicle (NGLV) with a recoverable first stage has also been approved by Govt of India. You can imagine the complexity involved in these missions and the degree of quality consciousness and levels to be displayed in

each and every subsystem we are going to roll out.

When we look at ISRO, the organisation is built by generations of leaders and each of them has played their role very well. It had a visionary leader, Dr. Vikram Sarabhai, Institution builder Prof. M G K Menon & Dr. Satish Dhawan, Dedicated first Launch Vehicle PD, Dr. APJ Abdul Kalam, a risk taking, first spacecraft PD and former Chairman Prof. UR Rao, a multifaceted personality – Dr. Kasturirangan, a great visionary and humanitarian leader - Dr Madhavan Nair, the Task Masters – Dr. Radhakrishnan, Shri. Kirankumar, Dr. Sivan and Dr S Somanath.

The Government of India has also rolled out the Space Sector Reform to bring out a vibrant space ecosystem in the country. The success of the Indian Space Programme is due to the organisation's open working culture, teamwork, risk-taking ability and above all the outstanding human resource.

### Summary

Dear graduates, as Dr. APJ Abdul Kalam used to say, you should always be righteous in the heart, which leads to beauty in the character, beauty in the character brings harmony in the home, harmony in the home leads to order in the nation, and the order in the nation leads to peace in the world. As you pass out, you have plenty of opportunities, effectively utilise them and contribute to making *Bharat* a developed nation and also contribute to the peaceful and happy life of the global community.

Once again, let me congratulate all the graduating students. My best wishes to the NIT team for developing good quality human resources required for transforming India into a developed nation. Let me once again thank the NIT, Trichy, for giving me the opportunity to be with you today.

May GOD bless you. Thank you, Jai Hind! □

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## CAMPUS NEWS

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### Capacity Building Programme at CUJ, Ranchi

A two-week Capacity Building Programme on 'Quantitative and Qualitative Research Methods in Social Sciences' was organised for the Social Science Faculty Members by the Department of Education in collaboration with the Department of Economics and Development Studies, Central University of Jharkhand (CUJ), Ranchi, recently. The event was sponsored by the Indian Council of Social Science Research, New Delhi. The programme aimed to strengthen the research capacities of social science faculty members by providing them with comprehensive exposure to contemporary quantitative and qualitative research paradigms, tools and methodologies, and emerging interdisciplinary perspectives of quantitative and qualitative research. A total of 34 participants from different universities and colleges across twelve Indian states attended the event. The participants represented diverse disciplines within the social sciences and their allied fields like Education, Economics, History, Political Science, Global Affairs, Statistics, Anthropology and Tribal Studies, Journalism and Mass Communication, Visual Arts, Sanskrit, English and Korean, etc. A total of twenty-one resource persons from different leading institutions of the country, including Central University of Jharkhand, contributed to the event.

The Inaugural Session was graced by the presence of Prof. C B Sharma, Vice Chancellor, Vinoba Bhave University, Hazaribagh, Jharkhand and Prof. Santosh K Panda, National Fellow, National Institute of Educational Planning and Administration (NIEPA), New Delhi, as esteemed guests. In the inaugural address, Prof. C B Sharma stressed the importance of truth in research, highlighting the need for methodological training in research to promote authenticity and integrity in research. He stated that a researcher should reflect deeply on the purpose, process, and societal relevance of his/her work.

Prof. Santosh K Panda, in his inaugural remarks, highlighted the importance of research for societal development from multidimensional perspectives. He explained its relevance to

the Academic Performance Indicator (API) in educational institutions. He also linked research to global and national academic priorities by referring to the World Happiness Index and the National Credit Framework.

The Presidential Address of the session was delivered by Prof. Kshiti Bhushan Das, Vice Chancellor, Central University of Jharkhand, Ranchi. Prof. Das, in his address, emphasised the indispensable need for capacity-building programmes in research to equip scholars and teachers for the evolving academic landscape. Emphasising that research is driven by passion, curiosity, and critical inquiry, he remarked that every teacher must view himself/herself as a researcher.

The programme enlightened and enriched the participants on the latest perspectives of quantitative and qualitative research methods in the social sciences through forty-eight academic sessions. Quantitative research methods, such as descriptive and experimental research, meta-analysis, and causal inference, as well as qualitative research methods, including grounded theory, phenomenology, symbolic interactionism, ethnography, narrative inquiry, content analysis, naturalistic inquiry, decolonial perspectives of research, etc. were the focal points of discussion in the many sessions of the programme. Extensive emphasis was placed on data analysis using parametric and non-parametric statistics, supported by statistical and analytical software like SPSS, STATA, EViews, JAMOVI, and JASP, along with reference management tools such as Zotero and digital and AI-based research tools in many academic sessions of the programme.

The qualitative research data management, coding, scaling, and analysis had a special place in the academic sessions of the event. Mixed-method research was specifically focused on during the academic sessions of the programme. Sessions on research reporting, research publication, research proposal writing, research grant preparation, and promotion of research culture, including critical reflections on the Indian Knowledge System in research with reference to the perspectives of quantitative research and qualitative research in the programme, provided participants with a holistic

understanding of contemporary research practices. Some of the sessions of the programme further emphasised the effective use of library and e-library resources, complemented by a guided library visit to the Central University of Jharkhand library, which familiarised participants with the academic support services available in the university library.

In an academic session, Prof. Kshiti Bhusan Das, Vice Chancellor, Central University of Jharkhand, engaged the participants with research-oriented interactions, and he appreciated their representation from diverse disciplines, institutions, and states across the country. He remarked that this kind of programme fosters academic excellence by promoting interdisciplinary dialogue and a deeper understanding of social realities. In addition to academic deliberations and interactions, the programme offered hands-on learning through participant-led PowerPoint presentations on research issues, and field exposure-based activities (conducted in anthropological research sites at Patrattu valley and Hundru fall of Ranchi) that connect theory with practice. The academic engagement of the event was further complemented by cultural evening(s), an evening notably graced by Padma Shree, Padma Bhushan and Grammy Awardee Pt. Vishwa Mohan Bhatt, whose captivating performance added a distinguished cultural dimension to the programme. These academic and cultural engagements together enriched the participants' learning experiences and contributed significantly to the holistic success of the programme.

The Valedictory Session was graced by the Chief Guest, Prof. P C Agarwal, Joint Director, National Council of Educational Research and Training (NCERT), New Delhi. Shri K Koshala Rao, Registrar, Central University of Jharkhand, delivered the presidential address marking the successful completion of the two-week capacity-building programme. In his valedictory address, Prof. P C Agarwal emphasised the importance of continuous professional development of the teachers, underscoring that a teacher must constantly update knowledge and competencies to remain relevant in an ever-evolving academic environment. With these insightful remarks, the programme was concluded successfully, marking a significant milestone for sustained academic engagement and scholarly capacity building of social science faculty members.

Prof. Tapan Kumar Basantia, Dean, School of Education, Central University of Jharkhand, Ranchi served as the Course Director of the event, while Dr. Sanhita Sucharita, Assistant Professor, Department of Economics and Development Studies, served as the Co-course Director. The programme not only strengthened participants' research competencies but also led to the development of a vibrant research culture aligned with contemporary academic and societal needs.

### **Summer School on Medical Imaging at IITDM, Kancheepuram**

The Summer School on 'Medical Imaging' is being organised by the Indian Institute of Information Technology, Design and Manufacturing (IIITDM), Kancheepuram from June 15-19, 2026. The event aimed at fostering innovation in clinical imaging procedures, machine learning applications, image processing algorithms, image capture techniques, quantum techniques, AR and VR techniques, imaging modalities etc. Through practical practice with cutting-edge tools and software, participants develop both theoretical understanding and practical abilities. The event brings together researchers, academicians, industry experts, and policymakers to explore transformative solutions for a sustainable future. Such programmes frequently encourage multidisciplinary learning through expert lectures, interactive seminars, and group projects. The Topics of the event are:

- Foundations of Medical Imaging: Basics of image formation and acquisition, Physics and principles behind imaging modalities: X-ray, CT, MRI, Ultrasound, PET, and SPECT, Overview of radiology and its clinical applications.
- Image Processing and Analysis: Preprocessing techniques: noise reduction, filtering, and contrast enhancement, Image segmentation, classification and regression methods.
- Advanced Techniques and Trends: Machine learning and deep learning in medical imaging, 3D and 4D imaging, Multi-modal imaging.
- Applications in Medicine: Imaging in oncology: tumor detection and staging, Cardiovascular imaging: heart and blood vessel analysis, Neurological imaging, etc.
- Emerging Technologies: Role of Quantum computing and nanotechnology in future

imaging, Quantum Machine Learning, Hybrid imaging systems and wearable imaging devices, Applications of Augmented Reality (AR) and Virtual Reality (VR) in imaging.

- Hands-On Sessions: Practical sessions with imaging software (e.g., MATLAB, Python libraries, or proprietary tools), Case studies and problem-solving using real-world datasets, Demonstration of AI-based diagnostic tools.
- Ethical and Regulatory Aspects.

For further details, contact Dr. Priyanka Kokil, Associate Professor, Department of Electronics and Communication Engineering, Indian Institute of Information Technology, Design and Manufacturing (IIITDM), Kancheepuram, Chennai-600127, Tamil Nadu, Mobile Number: 09344998831, E-mail: [susmischool@gmail.com](mailto:susmischool@gmail.com). For updates, Log on to: [www.iiitdm.ac.in/susmi-2026/](http://www.iiitdm.ac.in/susmi-2026/)

### **International Conference on Natural Science and Environment at IIER, Pune**

A two-day International Conference on 'Natural Science and Environment' is being organised by the International Institute of Engineers and Researchers from April 24-25, 2026 at Pune. The event is a premier annual forum for researchers and scholars from multiple disciplines to come together to share knowledge, discuss ideas, exchange information, and learn about cutting-edge research in diverse fields. The event will bring together leading researchers, engineers and scientists from around the world. The Topics of the event are:

#### ***Natural Science***

- Atmospheric Sciences.
- Meteorology.
- Biology.
- Microbiology.
- Botany.
- Mineralogy.
- Bacteriology.

- Neuroscience.
- Chemistry.
- Palaeoecology.
- Environmental Sciences.
- Pharmacology.
- Food Science.
- Physical Sciences.
- Health Sciences.
- Physics.
- Materials Science.
- Physiology.
- Mathematics.
- Plant Sciences.
- Computer Science.
- Computational Science.

#### ***Environment***

- Environmental Science and Technology.
- Environmental Dynamics.
- Meteorology.
- Hydrology.
- Geophysics.
- Atmospheric Physics.
- Physical Oceanography.
- The Global Environmental Change and Ecosystems Management.
- Climate and Climatic Changes.
- Global Warming.
- Ozone Layer Depletion.
- Carbon Capture and Storage.

For further details, contact the Organising Secretary, Department of Research and Conferences, International Institute of Engineers and Researchers, Jagmara, Bhubaneswar-751030, Mobile No: 09007375847, E-mail: [info@theiier.org](mailto:info@theiier.org). For updates, log on to : [www.theiier.org](http://www.theiier.org) □

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## THESES OF THE MONTH

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### SOCIAL SCIENCES

A List of doctoral theses accepted by Indian Universities  
(Notifications received in AIU during the month of Jan-Feb, 2026)

#### Business Administration

1. Bilal Farooq. **Relationship between total quality management practices and organisational performance: A comparative study of select hospitals.** (Prof. Iqbal Ahmad Hakeem), Department of Management Studies, University of Kashmir, Srinagar.
2. Kamal Preet Kaur. **A comparative study of HRM practices on employee engagement in public and private sector banks of Haryana.** (Prof. Arti Gaur), Department of Business Administration, Chaudhary Devi Lal University, Sirsa.
3. Preeti. **Impact of over the top media and entertainment industry on consumer behaviour: An empirical analysis.** (Dr. Rajneesh Ahlawat), Department of Business Administration, Chaudhary Devi Lal University, Sirsa.
4. Vasudevan, M. **Exploring key drivers and optimization factors of new product development efficiency: A perspective-based study in commercial vehicle manufacturing.** Department of Business Administration, Hindustan Institute of Technology & Science, Chennai.
4. Farhat Azad. **Services trade among developing countries: A cross country analysis.** (Dr. S M Shafi), Department of Commerce, University of Kashmir, Srinagar.
5. Jamunarani, H S. **A study on work life balance of women faculties in higher educational institutions in North Karnataka.** (Dr. Rajeena Syed), School of Economics & Commerce, CMR University, Bengaluru.
6. Jhala, Pooja. **Madhya Pradesh mein udhamita vikas ka vishleshanatmak addhyayan-rojgarmulakyojnaoankesandarbh mein: Ujjain evam Ratlam Jile ka tulnatmak addhyayan.** (Dr. L N Sharma), Department of Commerce, Samrat Vikramaditya Vishwavidyalaya, Ujjain.
7. Meghanathi, Priyanka Dineshgiri. **A study of impact of leverage on profitability of selected oil and gas companies in India.** (Dr. Alok Kumar Chakrawal), Department of Commerce, Saurashtra University, Rajkot.
8. Nimbhorkar, Neelima Bhagwanrao. **A study on customers perception and buying behaviour towards hallmarks mandated jewellery.** (Dr. Bhupendra Bahadur Tiwari), School of Economics & Commerce, CMR University, Bengaluru.

#### Commerce

1. Arun Kumar. **A study of critical factors affecting the promotion of tourism industry in India.** (Dr. Nidhi Tandon), School of Commerce, Manav Rachna International Institute of Research and Studies, Faridabad.
2. Chavare, Kavita. **Impact of double materiality on value relevance: A comparative study on principle-wise performance disclosure of cement and pharmaceutical industries.** (Dr. Nethravathi K), Department of Commerce, Jain (Deemed-to-be University), Bangalore.
3. Dongala, Umadevi. **Role of cooperative dairy in rural women empowerment: A study with reference to Mulkanoor women's cooperative dairy.** (Prof. P Rajender), Department of Commerce, Chaitanya (Deemed To Be University), Himayatnagar, Hyderabad.
9. Pul, Kulenso. **Study of consumer awareness, adoption and satisfaction of digital banking in Arunachal Pradesh.** (Dr. Philip Mody), Department of Commerce, Rajiv Gandhi University, Itanagar.
10. Raval, Vatsal Bharatbhai. **A comparative study of the major stock market indices of selected Asian stock market.** (Dr. Alok Kumar Chakrawal), Department of Commerce, Saurashtra University, Rajkot.
11. Sankhala, Deepmala. **Upbhokta santushthi par e-Commerce companiyoan evam vyapariyoan ke prabhav ka tulnatmak addhyayan: Ujjain Jile ke sandarbh mein.** (Dr. S K Bharal), Department of Commerce, Samrat Vikramaditya Vishwavidyalaya, Ujjain.

12. Suresh, J. **Impact of the green banking practices on public and private sector banks of Karnataka State: A study.** (Dr. T V G Sastry), Department of Commerce & Business Management, Chaitanya (Deemed To Be University), Himayatnagar, Hyderabad.
13. Tanu. **E-cart abandonment and retargeting strategies for improving behavioural intention: A study of online shoppers in India.** (Dr. Ishani Patharia), Department of Commerce, Bhagat Phool Singh Mahila Vishwavidyalaya, Khanpur Kalan.
14. Zha, Rajesh Kumar Sarvanarayan. **Intelligent finance: Role of artificial intelligence based applications in financial decision making.** (Prof. Debabrata Mitra), Department of Commerce, University of North Bengal, Darjeeling.
4. Kamble, Sushma Vishwas. **Impact of yoga on anxiety, mindfulness, and happiness in elementary school students.** (Dr. Jaishree Das), Department of Education, Maharaja Sayajirao University of Baroda, Vadodara.
5. Khan, Reshma Parveen. **Effect of scientific attitude and scientific aptitude on environmental ethics.** (Prof. Rashmi Mehrotra), Department of Education, Teerthanker Mahaveer University, Moradabad.
6. Kohilapriya, R. **Enhancing writing competence in English through Executive control skills among UG Students.** (Dr. A Jahitha Begum), Department of Education, The Gandhigram Rural Institute (Deemed to be University) Gandhigram, Dindigul.
7. Mufti Shahla. **Self-efficacy, locus of control and goal orientation of high and low creative secondary school students.** (Dr. Mahmood Ahmad Khan), Department of Education, University of Kashmir, Srinagar.
8. Mwakila, Silvanus Romanus. **A study of causes of school dropout among secondary school students in Ludewa District.** (Dr. P M Malek), Department of Education, Gujarat University, Ahmedabad.
9. Patel, Dharmendrakumar Prabhatbhai. **A study of the causes of stress of management practices among teachers trainees of teacher training colleges.** (Dr. Chhanabhai Bhinsara), Department of Education, Gujarat Vidyapith, Ahmedabad.
10. Rawat, Pushpendra Kumar. **An analytical study of intelligence and vocational aptitude of senior secondary students in the perspective of psychology and Indian astrology.** (Prof. Minakshi Mishra), Department of Education, Shri Lal Bahadur Shastri National Sanskrit University, New Delhi.
11. Shrivastava, Pooja. **Development and implementation of a learning strategy to enhance reflective thinking among secondary school students.** (Prof. Ashutosh Biswal), Department of Education, Maharaja Sayajirao University of Baroda, Vadodara.
12. Upadhyay, Bhadrash Kanaiyalal. **Study in the context of some variables in the consciousness of gender equality in secondary student teachers of Gujarat.** (Dr. Aartibahen Patel), Department of Education, Gujarat Vidyapith, Ahmedabad.

### Economics

1. Biswas, Annesha. **Empowerment of tribal women through entrepreneurship: Evidences from Jharkhand.** (Dr. Mahesh E), Department of Economics, Christ (Deemed to be University), Bengaluru.
2. Nejar, Bharathraj S. **Role of roads in rural development: A study in Udupi District.** (Dr. B Jayarama Bhat), Department of Economics, Kuvempu University, Shankaraghatta.
3. Vanlalroluahpuia. **Spatial inequality of infrastructure development in Mizoram.** (Prof. Lalhriatpuii), Department of Economics, Mizoram University, Aizawl.

### Education

1. Anu Jain. **Impact of social sensitivity and emotional maturity on the professional development of secondary school teachers.** (Prof. Rashmi Mehrotra), Department of Education, Teerthanker Mahaveer University, Moradabad.
2. Bindu, T P. **Impact of working memory and attention on Bilingual and Multilingual UG Students.** (Dr. A. Jahitha Begum), Department of Education, The Gandhigram Rural Institute (Deemed to be University) Gandhigram, Dindigul.
3. Iyarkkaiyamma. **Value based curricular inputs evidences from teachers perception content analysis and case study at primary level.** (Dr. A Jahitha Begum), Department of Education, The Gandhigram Rural Institute (Deemed to be University) Gandhigram, Dindigul.

## Home Science

1. Garg, Neha. **Creating an enabling environment for enhancing food service satisfaction domains in old age homes in and around Vadodara.** (Prof. Komal Chauhan), Department of Foods and Nutrition, Maharaja Sayajirao University of Baroda, Vadodara.

## Journalism & Mass Communication

1. Gokula Krishnan, B. **Community media and grass-roots development: A study on access, uses and gratifications of community radio and community television by Badaga Community in Nilgiris, Tamil Nadu.** (Dr. Bhargavi D Hemmige), Department of Journalism & Mass Communication, Jain (Deemed-to-be University), Bangalore.
2. Singh, Deepa. **Adoption of new media in progressive farming with special reference to rural Jaipur.** (Dr. Shipra Mathur and Dr. Shelja K Juneja), Department of Journalism & Mass Communication, IIS (Deemed to be University), Jaipur.

## Law

1. Gupta, Lochan. **Honour killing in India: A socio legal study.** (Dr. Madhu Bala), Department of Law, Maharishi Markandeshwar (Deemed to be University), Ambala.
2. Reka, P. **Regulatory regime of unfair trade practice: A study with reference to milk and milk products in Dharmapuri District.** (Prof. V Balaji), School of Law, Tamil Nadu Dr Ambedkar Law University, Chennai.
3. Sahana Florence, P. **Rights of indigenous peoples: A comparative study with reference to international law.** (Dr. Achyuta Nanda Mishra), School of Law, Christ (Deemed to be University), Bengaluru.
4. Sinha, Vijoy Kumar. **Right to education of tribal children with special reference to particularly vulnerable tribal groups in West Bengal: A socio legal study.** (Prof. Rathin Bandyopadhyay), Department of Law, University of North Bengal, Darjeeling.
5. Thiyagarajan, R. **A critical study on compensation to the victim of medical negligence under Consumer Protection Act.** (Prof. Vincent Comraj), School of Law, Tamil Nadu Dr Ambedkar Law University, Chennai.

6. Tiwary, Shikha. **Independence of judiciary and judicial appointments: A critical evaluation of collegiums decisions in last 25 years.** (Dr. P P Rao), Department of Law, Chanakya National Law University, Patna.

## Library & Information Science

1. Joshi, Sonal Vinodbhai. **A study on scholarly communication among research scholars on the National Digital Library of India.** (Dr. N M Kantaria), Department of Library and Information Science, Saurashtra University, Rajkot.

## Management

1. Anjum Ajaz. **Impact of leadership styles on employee engagement in banking sector: An empirical study.** (Dr. Shabir Ahmad Bhat), Department of Management Studies, University of Kashmir, Srinagar.
2. Bhanu Prakash, R. **Career decision making of Gen Z and Millennials: Exploring the influence of psychological, work environmental and social factors on joining start-ups.** (Dr. Harold Andrew Patrick), Department of Management Studies, Jain (Deemed-to-be University), Bangalore.
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5. Duvvuri, Anuradha. **An empirical study on job awareness, employability skills and job readiness among students of higher education institutions: With special reference to the State of Telangana.** (Dr. Jnana Raghavendra I and Dr. Peri Pinakapani), School of Management Studies, GIET University, Gunupur.
6. Girnara, Monaben Rameshbhai. **To study the impact of financial assistance by the government on early stage startups and allied entrepreneurship efforts in Gujarat.** (Dr. Ravi Gor), B K School of Professional and Management Studies, Gujarat University, Ahmedabad.

7. Iravarapu, Venkata Sree Ranganath. **AI Enabled effective employee engagement framework: Enhancing productivity and retention in manufacturing industries of Telangana.** (Dr. N V Jagannadha Rao), School of Management Studies, GIET University, Gunupur.
8. Jasamene Kaur. **Impact of capital budgeting and investment appraisal in manufacturing business expansion in Rajasthan.** (Dr. Swati Choudhary), Faculty of Commerce and Management, Tanta University, Sri Ganganagar.
9. Lakshmi Raj. **Digital content marketing of edtech firms: A study on the effect of uses and gratification motives on course enrolment intention.** (Dr. Mallika Sankar M), School of Business and Management, Christ (Deemed to be University), Bengaluru.
10. Narwat, Khushi. **Grievance redressal mechanism for teachers: An analytical study of K-12 schools.** (Dr. Farhat Mohsin and Dr. Savita Singh), School of Leadership and Management, Manav Rachna International Institute of Research and Studies, Faridabad.
11. Prajapati, Janki Jayeshkumar. **A study on green banking trends and practices in Gujarat: With special reference to Gujarat co-operative banks.** (Dr. Jay Desai), B K School of Professional and Management Studies, Gujarat University, Ahmedabad.
12. Sarkar, Manaskumar. **Impact of talent management practices on retention: A case study of selected E-commerce organisations in India.** (Dr. Anindita Chatterjee), School of Leadership and Management, Manav Rachna International Institute of Research and Studies, Faridabad.
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14. Sharma, Sunita. **Impact of talent management practices on organizational performance: A comparative study of public and private sector banks.** (Prof. Ruchi Jain), Department of Management Studies, IIS (Deemed to be University), Jaipur.
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18. Uzma Nayeem. **Examining the mediating role of marketing strategy on brand image and student enrollment preference in business school.** (Dr. Dinesh N Rao), Department of Management Studies, Jain (Deemed-to-be University), Bangalore.
19. Zothanmawia, R. **A study on the livelihood conditions of urban poor in Aizawl.** (Dr. K Lalromawia), Department of Management, Mizoram University, Aizawl.

#### Physical Education & Sports

1. Bavaliya, Kishankumar Mavajibhai. **A study of the effects of recreational sports and union exercise training on psychological aspects and motor components.** (Dr. Prabhulal Kasundra), Department of Physical Education, Gujarat Vidyapith, Ahmedabad.
2. Bilkeesa Bano. **Attitude of organizers, parents and players of Kashmir Valley towards women sports participation: A critical study.** (Dr. Divansinh Vanar), Faculty of Physical Education, Swarnim Gujarat Sports University, Gandhinagar.
3. Hardeep. **A study of self control, impulsiveness, hopelessness and suicidal ideation among sportsperson and non sportsperson.** (Prof. Ashok Kumar Malik), Department of Physical Education, Chaudhary Devi Lal University, Sirsa.

## Political Science

1. Jamnani, Komal Balram. **A critical study of the implementation of the start-up policies as a tool of capacity building with special reference to Bengaluru City.** (Dr. Deepti Acharya), Department of Political Science, The Maharaja Sayajirao University of Baroda.
2. Piryranjan Kumar. **Bihar mein janjatiyoan kee pehchan aur rajnitik pratinidhitav ka sankat: Ek adhyayan.** (Dr. Md Irshad Ali), Department of Political Science, T M Bhagalpur University, Bhagalpur.
3. Sharma, Manisha. **Implementation of the public distribution system in Assam under the National Food Security Act 2013: A case study of Lakhimpur District.** (Prof. Amit Dholakia), Department of Political Science, The Maharaja Sayajirao University of Baroda.
4. Vegad, Pradip Kumar Bhakabhai. **The refugee issue in South Asia: A critical study of the endorsement and application of International Refugee Law in the region.** (Prof. Amit Dholakia), Department of Political Science, The Maharaja Sayajirao University of Baroda.

## Psychology

1. Bhuvanesware, B G. **Impact of socio emotional learning based intervention on aggression and anxiety in children.** (Dr. Indu Bala and Dr. Sundeep Kumar), Amity Institute of Behavioural and Allied Sciences, Amity University, Gurugram.
2. Gomes, Roseline Florence. **Comparison of dreams and perma interventions in middle school underachievers.** (Dr. Lijo Thomas), Department of Psychology, Christ (Deemed to be University), Bengaluru.
3. Lalawmpuia. **Quality of life psychological distress and coping strategies of parents of children with neurodevelopmental disorder.** (Prof. Zokaitluangi), Department of Clinical Psychology, Mizoram University, Aizawl.

4. Lalmingsangi. **Gender role attitude in relation to emotional maturity, resilient coping and self esteem among Mizo adults.** (Dr. C Lalfakzuali), Department of Psychology, Mizoram University, Aizawl.
5. Pachuau, Lalramhluni. **Impact of social intelligence, personal values and moral identity on culture and communal orientations.** (Prof. C Lalfamkima Varte), Department of Psychology, Mizoram University, Aizawl.

## Social Work

1. George, Susan. **Workplace relationships, psychological safety and employee engagement in the IT sector.** (Dr. Princy Thomas), Department of Social Work, Christ (Deemed to be University), Bengaluru.
2. Mehta, Riddhi Shyamsundar. **Women with disabilities and disaster-With special focus on COVID-19 pandemic: A social work perspective.** (Prof. Bhavna Mehta), Department of Social Work, Maharaja Sayajirao University of Baroda, Vadodara.

## Sociology

1. Bhuva, Surabhi Bharatbhai. **Role conflict of Asha worker: A sociological study (With reference to Rajkot District).** (Dr. Yagnesh M Joshi), Department of Sociology, Saurashtra University, Rajkot.
2. Jacob, Rashmi. **EMO Sapiens: A sociolinguistic study of the emoji enchantment and its influence on contemporary language development.** (Prof. Alka Sharma and Prof. Monali Bhattacharya), Department of Humanities & Social Sciences, Jaypee Institute of Information Technology, Noida.

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No.SGBAU/1/103/3-120/2026 Date: 27/03/2026

Applications are invited for the **Posts of Dean, Faculty of Science & Technology and Dean, Faculty of Humanities**, on or before 30th April, 2026 (upto 5.00 PM)

Particulars of qualifications, pay-matrix, reservation, experience, other terms & conditions are available on the university **website [www.sgbau.ac.in](http://www.sgbau.ac.in)** in Advertisement Section.

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Age and qualifications are as per the rules and regulations of UGC/ M.G. University/ Govt. of Kerala. Application form can be had from the office of the Manager of Colleges, Corporate Educational Agency, Diocese of Kothamangalam at Nirmala College, Muvattupuzha P.O., Pin: 686661 free of cost. Duly filled Applications should reach the office of the Manager **within one month** of the date of this notification.

Government reserves the right to turn down the proposal for approval, if it is revealed later that the appointed post is one which is not sanctioned by the Government or not existing as per the approved staff pattern.

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2. **Statistics** (1 Post)- PwD Category 'A' (Blind)

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03	Assistant Professor	03	Full Time	Open-1, SC-1,ST-1,Vj(A)-1
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- 1) A Master's Degree with at least 55% marks (or an equivalent grade in a point scale whenever grading system is followed) by recognized university.
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2. No T.A./D.A. will be paid for attending the interview.
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| • Full Paper Submission                             | : November 13, 2026 |
| • Acceptance of Full Paper                          | : November 27, 2026 |
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UNIVERSITY



# Admissions Open 2026 - 27

<b>650</b> Acres Campus Area	<b>25 LAKH+</b> Sq.Ft. Educational Built-up Area	<b>200+</b> Laboratories	<b>13</b> Faculties	<b>30+</b> MoUs Signed	<b>125+</b> UG / PG / Ph.D. Programs
<b>1500+</b> Faculty & Staff	<b>10,500+</b> Students	<b>800+</b> Placement Companies	<b>50+</b> Startups in last 3 years	<b>10 LAKH+</b> Alumni	<b>5 LAKH+</b> Learning Resources



ज्ञान - विज्ञान - प्रज्ञान  
KNOWLEDGE - SCIENCE - WISDOM

Engineering and Technology	Commerce, Management and Law	
Sciences	Ayurvedic Medicine	Pharmaceutical Sciences
Physiotherapy	Nursing	Homeopathy
Education	Arts	Design

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