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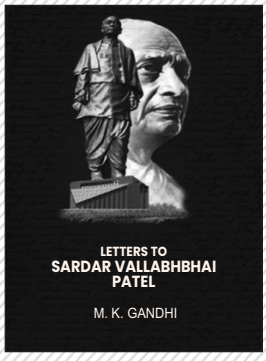

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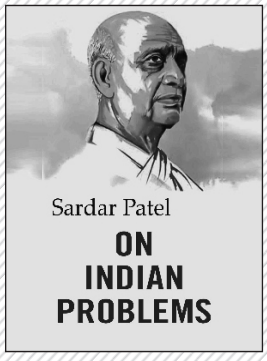

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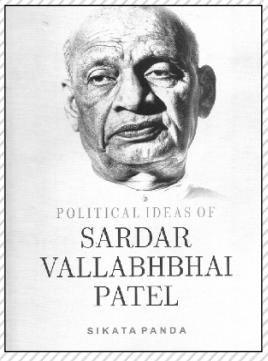

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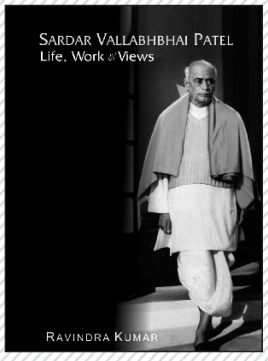

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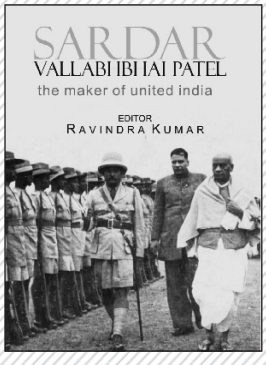

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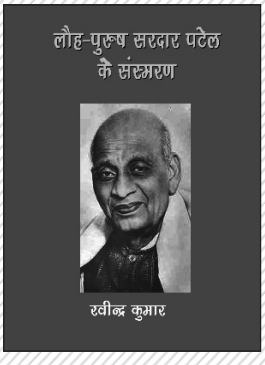

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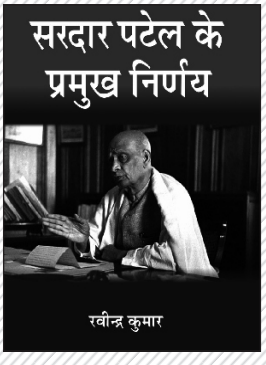

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Viksit Bharat Shiksha Adhishthan Bill: Reimagining Higher Education Governance in India Part-I[#]

J Madegowda*

The governance of higher education in India is currently at a critical juncture. Increasing global integration, rapid expansion, and rising diversity of institutions have intensified concerns about quality, accountability, and coordination. Therefore, policy debates have increasingly recognised that governance structures, rather than institutional performance alone, drive and shape system-wide outcomes. Against this context, the proposed *Viksit Bharat Shiksha Adhishthan* (VBSA) Bill represents an important attempt to reconfigure India's higher education regulatory framework.

Background and Context

Since Independence, India's higher education system has undergone a profound transformation. It has evolved from a small, elite system serving limited social constituencies into one of the largest higher education ecosystems in the world. In terms of enrolment, it is now the third largest in the world (Sethy & Mahapatro, 2025). However, this substantial quantitative expansion, predominantly over the previous two decades, has not always been accompanied by proportionate enhancements in quality, equity, or institutional effectiveness (Venkareddy, 2025).

Evolution of higher education regulation in India reflects a complex historical trajectory. From the colonial, Macaulay-influenced system to the post-Independent nation-building phase, successive policy interventions sought to strike a right balance between access, quality, and accountability (Saxena, 2025). Regulatory authority, in the early post-Independence period, was largely centralised through the establishment of the University Grants Commission (UGC) under the UGC Act, 1956. The UGC was entrusted with the responsibility of coordinating university education, including academic programs offered by the universities and other higher education institutions (HEIs), and maintaining academic standards (University Grants Commission, 1956). Over the years, discipline/sector-specific regulatory bodies emerged to address discipline-based quality concerns. These bodies include the All India Council for Technical Education (AICTE), the National Council for Teacher Education (NCTE), and specialised councils governing medical and legal education (Damor & Patel, 2025).

Although these bodies contributed to system expansion and standard-setting, their parallel functioning gradually resulted in a

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fragmented regulatory architecture. Academics have felt this architecture as one marked by inconsistent standards, overlapping jurisdictions, and bureaucratic inefficiencies (Rani & Oli, 2025). HEIs were often required to comply simultaneously with norms set by the state governments, UGC, professional councils, and affiliating universities. Consequently, this has resulted in high compliance costs and an inspection-driven regulatory culture, rather than outcome-oriented governance (Jandhyala, 2014). This regulatory focus increasingly shifted from academic outcomes to procedural conformity, constraining innovation and institutional autonomy.

Against this context, although a few expert committees recommended the consolidation and rationalisation of regulatory mechanisms (Saxena, 2025), a comprehensive reform remained elusive. However, with the implementation of the National Education Policy (NEP) 2020, higher education governance reform was explicitly framed as a systemic priority. It (NEP 2020) recognised that the current regulatory system needs a complete overhaul, and called for a transparent, coherent, and facilitative governance framework (Ministry of Education, 2020). This marked a crucial conceptual shift towards autonomy, accountability, and trust-based regulation.

Viksit Bharat Shiksha Adhishthan Bill

The *Viksit Bharat Shiksha Adhishthan* (VBSA) Bill is a legislative attempt to translate the governance vision of NEP 2020 into an operational statutory framework. NEP 2020 proposed a unified Higher Education Commission of India (HECI) to replace the existing multiplicity of regulatory bodies (Sharma, 2020; Pandey, 2025). Based on these recommendations, the draft Bill was prepared by the Ministry of Education of the Government of India (GoI) with the primary objective of establishing an integrated regulatory and coordinating authority for higher education (Reddy & Reddy, 2023). The Bill seeks to institutionalise a national-level governance framework that subsumes a few existing regulatory arrangements, such as UGC, AICTE and NCTE. Its stated objectives comprise, among others, improving coordination, reducing regulatory overlap, and promoting innovation, quality, and global competitiveness in Indian higher education.

In this context, the proposed framework envisions governance through multiple functionally distinct verticals, encompassing regulation, accreditation, and academic standard-setting (Sethy & Mahapatro, 2025). This framework reflects the focus of NEP–2020 on separating roles to avoid conflicts of interest and improve regulatory effectiveness. It may be noted here that, following Cabinet approval, the Bill was introduced in Parliament by the Minister for Education (2025). However, as its legislative trajectory has been contested, due to objections raised by opposition political parties, state governments, and academic stakeholders, the Bill was referred to a Joint Parliamentary Committee (JPC) for detailed study. This referral stresses the constitutional complexity and political sensitivity of higher education reform, particularly given that education is a subject in the Concurrent List.

The above facts bring the point to the fore that the stakeholder responses have been sharply divided. On the one hand, supporters vehemently argue that the proposed framework will rationalise regulation, dismantle inspector-raj practices, and empower HEIs to function with greater administrative and academic autonomy. On the other hand, critics caution that excessive centralisation may undermine institutional diversity and weaken the role of states and universities in academic governance. Teachers' federations have also expressed concerns about academic freedom, curricular autonomy, and the scope of regulatory discretion.

Research Problem and Objectives

Although there is a broad consensus on the need for governance reform, the design and implementation of such reform remain deeply contested. The key research issue/problem addressed in this study concerns whether the VBSA Bill strikes a right balance between coordination and control. Nevertheless, coordination is necessary in a large and diverse system to ensure minimum standards and international comparability. Of course, excessive centralisation risks eroding institutional autonomy, contextual responsiveness, and federal principles. While inefficient, the historically fragmented regulatory architecture provides some space for institutional differentiation and state-level variation (Damor & Patel, 2025). Notably, earlier reform efforts failed not due to lack of intent, but due to insufficient attention to stakeholder trust, constitutional realities, and institutional capacity. Even the international experience suggests that unified regulatory frameworks, if poorly designed,

can lead to homogenisation and regulatory overreach (Teshome, 2025).

In the above backdrop, a critical, evidence-based appraisal of the proposed Bill is necessary to assess whether it represents a genuine shift towards facilitative governance or a reconfiguration of authority under a new institutional regime. In light of this, the extant study aims to address the following objectives:

(a) To analyse the governance framework proposed under the VBSA Bill.

(b) To examine the implications of the proposed framework for institutional autonomy, academic freedom, quality assurance in higher education, and cooperative federalism.

(c) To make a comparative study and assessment of international higher education governance models and draw relevant lessons for India.

(d) To recognise the potential design and implementation challenges and suggest evidence-based policy refinements to improve the effectiveness and legitimacy of the proposed governance model.

Scope and Structure of the Paper

The study focuses on higher education governance in India, excluding medical and legal education, as these are governed by separate statutory frameworks. Furthermore, the study adopts a qualitative, policy-analytical and doctrinal approach, drawing on official policy documents, legislation, and scholarly literature.

The paper is structured into 11 sections. Following this introduction, a review of the literature and methodology is presented. Subsequent sections present the historical evolution of higher education governance in India, examine the NEP 2020 governance vision, and analyse the salient features of the proposed VBSA Bill. The later sections provide critical analysis, stakeholder perspectives, and comparative insights. The paper concludes with policy implications, reform recommendations, and concluding reflections.

Review of Literature

Earlier studies on higher education governance provide a strong foundation for analysing the proposed reform initiative. Researchers have examined different governance models from global, national, and constitutional perspectives, with increasing emphasis on autonomy, accountability, and coordination. In the context of India, the studies discuss persistent regulatory challenges and competing reform narratives. In this backdrop, this section reviews key strands of global and Indian scholarship and identifies gaps that the present study seeks to address.

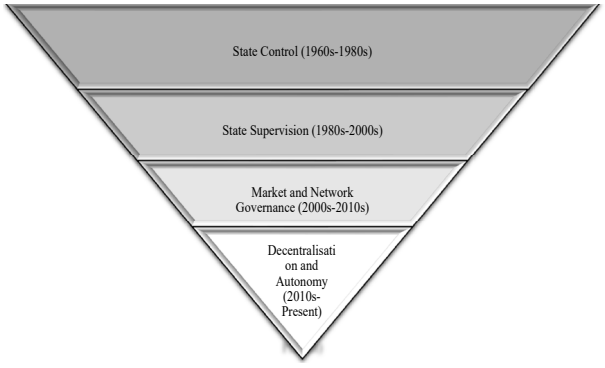
Global Perspectives on Higher Education Governance

Global literature conceptualises higher education governance through distinct regulatory models, showing different governance traditions and philosophical orientations. Early studies largely framed governance in terms of state control, i.e., governments exercising direct authority over institutional structures, finances, curricula, etc (Burton, 2023; Lavanya, 2024). This model was historically prevalent in many European and Asian systems. Over the years, state-control models gave way to state-supervision approaches. These approaches emphasise comparatively lighter regulatory frameworks, institutional self-governance, and the use of buffer bodies, with governments steering systems through broad policy objectives instead of direct intervention (Mandiuk et al., 2025). Furthermore, market-oriented governance models, particularly in Anglo-American systems, emphasise quality assurance through performance measurement, competition, and institutional differentiation.

In addition, comparative studies reveal a global shift towards coordination-based and outcome-oriented regulation. This model recognises that neither rigid control nor complete laissez-faire governance adequately balances quality assurance with institutional innovation (Paulo Santiago et al., 2008; Rani & Oli, 2025). Notably, outcome-based regulation lays emphasis on learning outcomes, graduate competencies, and research performance rather than input controls. Studies also stress the need for careful calibration between centralisation and decentralisation. Systems with stronger institutional autonomy often demonstrate greater innovation and responsiveness to societal needs (Hoa & Nhung, 2025). However, insufficient coordination can also lead to the proliferation of low-quality institutions and inequitable access (Farukh & Aziz-ur-Rehman, 2024). Experts/researchers caution against uncritical adoption of centralised or market-driven governance models. Marginson (2024) argues that higher education systems are embedded in specific social and cultural contexts. Governance reforms must

therefore be sensitive to institutional diversity, national traditions, and federal arrangements. These insights are particularly relevant for large and diverse systems like India (Figure 1).

Figure 1: Global Shifts in Higher Education Governance Frameworks



Indian Scholarship on Higher Education Governance

In the context of India, studies consistently characterise higher education as under-governed and over-regulated. From the days of the establishment of the UGC in 1956, regulation has been regarded as necessary for standard-setting in an expanding system. These studies have also documented how regulation gradually became compliance-driven, emphasising procedural approvals, staff ratios, and infrastructure norms, rather than academic outcomes (Jandhyala, 2014; Damor & Patel, 2025). This UGC-centric model has faced sustained criticism for delayed approvals, excessive bureaucratic processes, and one-size-fits-all regulatory approaches, ignoring institutional diversity (Saxena, 2025). Furthermore, the proliferation of professional councils such as AICTE and NCTE complicated the regulatory landscape. In addition, Agarwal (2009) and other scholars note that overlapping jurisdictions and inconsistent standards discouraged innovation and increased uncertainty for institutions.

Empirical studies by UGC and National Institute of Educational Planning and Administration (NIEPA) show how regulatory multiplicity raises transaction costs and disproportionately affects HEIs, particularly public universities and state institutions (Malik, 2017). However, some scholars observe that regulatory fragmentation, while inefficient, enabled limited differentiation and responsiveness to sector-specific needs (Farukh & Aziz-ur-Rehman, 2024). Notably, an important theme in the literature is the erosion of institutional autonomy. Indian universities enjoyed limited administrative and academic freedom when compared to their global counterparts. Research on graded autonomy indicates that while procedural autonomy improves at higher grades, substantive decision-making freedom remains constrained by financial dependence and regulatory interference (Gupta, 2023; Chakrabarti, 2025). This paradox has strengthened the demand for comprehensive governance reform.

NEP–2020 and Governance Reform Studies

Adoption of the NEP–2020 has generated extensive scholarly engagement, specifically regarding its proposals on governance reform. It is widely seen as a paradigmatic shift, advocating a transition from fragmented, control-oriented regulation to a facilitative and outcome-based governance framework (Ministry of Education, 2020; Sethy & Mahapatro, 2025). At the heart of this vision is the proposal to establish a unified Higher Education Commission of India (HECI). The Government made a similar attempt to establish the HECI in 2018; however, it did not materialise (Madegowda, 2018). The studies examine HECI's proposed structure, functional separation, and implications for regulatory rationalisation (Sarita Kumari, 2023). It is argued that NEP–2020 aligns Indian governance with international best practices, provided regulatory bodies operate with independence and clear role demarcation. However, many scholars caution that NEP 2020 remains aspirational. Studies have also pointed out the ambiguity in accountability mechanisms and institutional design. Furthermore, implementation-focused studies highlight challenges related to institutional readiness, uneven state capacity, faculty shortages, digital divides, and financing constraints (Rani & Oli, 2025; Pandey, 2025; Neha and Rohitash, 2024).

Besides, a critical strand of literature examines tensions between NEP's autonomy aspirations and its coordinating mechanisms. Additionally, critics warn of centralising tendencies despite stated commitments to autonomy, raising concerns about concentrated regulatory authority and potential marginalisation of states (Tayade, 2024; Kuriakose & Nikhil, 2025).

Federalism, Autonomy, and Constitutional Concerns

Notably, federalism has emerged as a key analytical lens in evaluating higher education

governance reform. Comparative studies of federal systems bring the point to the fore that central coordination must be balanced with sub-national autonomy to accommodate regional diversity (OECD, 2010). In the context of India, scholars highlight persistent tensions between centrally sponsored reforms and state-level implementation capacities. It is argued that universities are intellectual communities rooted in local contexts. Excessive standardisation risks homogenising curricula and research agendas. Furthermore, reforms perceived as encroaching on state powers are likely to face political resistance, undermining implementation effectiveness.

Research studies have also raised concerns regarding academic freedom. Even when aimed at quality improvement, concentrated regulatory authority may enable bureaucratic or political influence over academic decision-making. Therefore, researchers and experts stress the need for explicit statutory safeguards to protect universities from undue interference (Albach & Salmi, 2011).

Research Gaps

Notwithstanding a substantial body of literature, a few important gaps remain. Most of the studies emphasised policy intent rather than legislative design, leaving statutory implications underexplored. There is also a limited analysis of implementation dynamics, including institutional capacity and transition management. Furthermore, international comparative insights are often discussed in isolation, without systematic linkage to India's constitutional and institutional context. This study makes an attempt to address these gaps by providing a comprehensive, policy-oriented evaluation of the proposed VBSA Bill. It integrates historical analysis, comparative perspectives, constitutional considerations, and stakeholder implications to evaluate the reform's transformative potential within India's higher education ecosystem.

Methodology and Analytical Framework

This study employs a policy-oriented methodological approach appropriate to the analysis of governance reform in higher education. Given the normative, institutional, and constitutional nature of the research problem, qualitative methods are most apposite. This section presents the research design, data sources, methods of analysis, and analytical lenses employed. It also summarises the limitations of the study.

As already mentioned, this study employs a qualitative, doctrinal, and policy-analytical research design. Its focus is on exploring the proposed legislative and governance framework rather than measuring behavioural outcomes. Therefore, qualitative analysis is appropriate for capturing institutional intent, governance logic, and constitutional implications.

Doctrinal legal analysis is used to evaluate the features of the VBSA Bill, relevant constitutional provisions, and existing higher education regulatory frameworks. However, the study does not test any hypotheses or rely on primary survey data. Instead, it focuses on systematic interpretation, critical evaluation, and normative assessment of policy instruments. Furthermore, policy analysis methods are employed to evaluate the rationale, objectives, and design of the proposed reform. This includes analysis of the NEP 2020, ministerial statements, policy working group reports, and implementation guidance. This approach enables a contextual understanding of governance reform within India's higher education system, which is moulded by historical legacies, federal structures, and political economy considerations. In addition, a comparative perspective is incorporated, situating the proposed governance reform within the broader international higher education governance debates. Comparative references draw selectively on experiences from Australia, East Asia, the European Union, and the United Kingdom with the objective of not direct comparison, but principle-based benchmarking.

This study relies exclusively on secondary data sources, selected for authenticity, policy relevance, and public accessibility. The primary documentary sources include the draft VBSA Bill, the NEP 2020, parliamentary debates, etc. Secondary sources also include peer-reviewed academic literature on higher education governance, regulatory reform, institutional autonomy, and federalism.

The analysis proceeds through three interrelated methodological steps: (i) Doctrinal and textual analysis to examine objectives, structural features, functional provisions, and accountability mechanisms of the proposed governance framework; (ii) A policy analysis approach is applied to examine alignment between stated reform objectives and proposed institutional arrangements; and (iii) A comparative analysis lens to used focus on governance principles such as functional separation, regulatory independence, outcome-based accountability, and transparency.

Furthermore, the analytical framework of the extant study integrates insights from three complementary theoretical perspectives: (i) Institutional Theory - to analyse how regulatory structures shape organisational behaviour through formal rules, norms, incentives, and legitimacy mechanisms (Scott, 2001); (ii) Federalism and Constitutional Governance - As education is a subject in the Concurrent List of the Indian Constitution, federalism provides a critical lens for examining the distribution of authority between the Centre and the states (OECD, 2010); and (iii) Regulatory State Theory and New Public Management (NPM) principles emphasise efficiency, role separation, transparency, and performance-based accountability. These perspectives collectively enable a multidimensional evaluation of the proposed Bill, encompassing legal design, policy effectiveness, and governance legitimacy.

Of course, this study is subject to certain limitations. As the Bill is now referred to a JPC, the final legislative provisions may differ from the version analysed in this study. The analysis is not based on primary data from stakeholders such as university administrators, faculty members, or policymakers. At this stage, implementation outcomes also cannot be assessed. Impacts are likely to vary across institutional types and states.

Notwithstanding the above limitations, the methodological approach of this study provides a robust foundation for informed policy critique and constructive recommendations.

An Overview of the Evolution of Higher Education Governance in India

The governance of higher education in India has evolved through multiple phases, driven and shaped by societal priorities, economic strategies, and constitutional arrangements. Each phase introduced new regulatory institutions and practices, often layering reforms over existing structures. However, these historical trajectories created enduring governance patterns and institutional path dependencies. Anyhow, understanding this evolution is desirable for contextualising contemporary reform initiatives, viz., the proposed VBSA Bill.

Pre-Independence and Early Post-Independence Phase

Higher education traditions in India show diverse influences comprising ancient gurukul systems centred on personalised learning, Islamic madrasah traditions, British colonial education structures, and nationalist visions of education as a tool for nation-building (Sharma, 2020). Notably, the colonial period institutionalised universities in Calcutta, Bombay, and Madras in 1857. These universities followed an affiliative and examination-centric model under strong central control. The colonial governance prioritised administrative uniformity and credentialing; largely, universities functioned as examining bodies, while teaching occurred in affiliated colleges. Academic autonomy was limited, and governance remained bureaucratic and centralised. This structural model persisted into the early post-Independence period.

Higher education was viewed, after Independence, as vital to social transformation and national development. Constitutionally, education was initially assigned as a State Subject, signifying federal principles. The establishment of the UGC in 1953, with statutory status under the UGC Act, 1956 (became a statutory organisation in 1956 through the enactment of the UGC Act, 1956), created a central coordinating body with advisory, funding, and standard-setting functions (Government of India, 1956; Saxena, 2025). This early settlement reflected a deliberate balance - States retained primary responsibility for education, while the centre exercised influence through funding and coordination. However, universities were formally recognised as autonomous institutions, signifying commitments to academic freedom (Ganie, 2019). On the other hand, in practice, governance remained centralised and input-driven. Moreover, institutional autonomy was constrained by regulatory prescriptions and financial dependence.

Expansion and Regulatory Proliferation (1960s–1990s)

India, from the 1960s onward, entered a phase of rapid expansion in higher education. New universities were established, student enrolments increased, and institutions spread across regions (Sethy & Mahapatro, 2025). This expansion was a response to growing social demand and developmental priorities. Moreover, to address discipline-specific quality concerns, sectoral regulatory bodies were created: AICTE and NCTE. However, by the 1980s, concerns regarding quality amid rapid expansion prompted the establishment of quality assurance mechanisms. In this regard, the National Policy on Education of 1986, and its revised version of 1992, sought to balance expansion with autonomy and quality.

However, regulatory proliferation created systemic challenges - overlapping jurisdictions, inconsistent standards, delayed approvals, and bureaucratic complexity became persistent features of the governance landscape (Damor & Patel, 2025). Notably, the institutions offering multiple programs of study often fell under multiple regulatory authorities simultaneously. Additionally, governance during this period remained inspection-driven. Regulatory emphasis focused on infrastructure norms, teacher–student ratios, and procedural compliance, and the quality assurance was equated with rule adherence rather than academic outcomes. The affiliating university system further diluted accountability, as colleges were governed by universities while regulated by multiple external bodies (Jandhyala, 2014).

Liberalisation, Massification, and Quality Concerns

Post-1991 economic liberalisation marked a major turning point in higher education governance. Private sector participation, more specifically in professional and technical education, expanded rapidly. The system entered a phase of massification; gross enrolment ratios increased sharply, and student numbers increased significantly (Ravi, Shamika et al., 2019). Of course, while some states experienced rapid expansion, others lagged significantly (Rani & Oli, 2025). However, this quantitative expansion intensified concerns about quality, equity, and regional disparities (Venkareddy, 2025). Student support systems, research productivity, infrastructure, and faculty capacity struggled to keep pace with enrolment growth.

From a marginal presence, private higher education evolved to serving a substantial share of students. However, regulatory frameworks, originally designed for government/public institutions, were strained by this diversity. Therefore, regulatory bodies responded by tightening inspections and norms, reinforcing bureaucratic rigidity. Experts and researchers described this phase as one of "over-regulation and under-governance," where increased regulatory intensity did not yield commensurate enhancements in outcomes (Agarwal, 2009). In response to these developments, mechanisms such as the National Assessment and Accreditation Council (NAAC) were introduced. Furthermore, limited autonomy was granted through schemes for autonomous colleges and deemed-to-be-universities. However, these initiatives operated within the existing regulatory architecture, and therefore, autonomy remained conditional, uneven, and closely monitored.

From Regulatory Control to Governance Reform Narratives

By the early 2000s, the reform debate shifted from incremental adjustments to demand structural change (Sharma, 2020). Expert committees questioned the effectiveness of the prevailing regulatory framework. Additionally, critics emphasised regulatory fragmentation, lack of role clarity, compliance burden, and conflicts arising from multiple functions of the UGC (Saxena, 2025; Damor & Patel, 2025). For example, the Yashpal Committee Report (2009) played a crucial role in shaping reform debates. It criticised disciplinary compartmentalisation and regulatory proliferation, and called for an integrated and holistic governance approach (Government of India, 2009). In addition, policy discussions increasingly emphasised outcomes, global competitiveness, and institutional performance.

Besides, international rankings and cross-border academic engagement exposed limitations in India's governance framework, especially with respect to research autonomy and institutional differentiation (Albach & Salmi, 2011). These discourses culminated in the NEP 2020, which explicitly recognised the failures of fragmented regulation and proposed comprehensive governance restructuring (Ministry of Education, 2020; Pandey, 2025).

Notwithstanding reformist intent, higher education governance in India exhibits strong path dependencies. Institutional practices, regulatory cultures, and political expectations shaped over decades continue to influence reform trajectories. While centralisation has often been justified in the name of equity and standardisation, decentralisation has been approached cautiously due to disparities in institutional and state capacity. This historical context emphasises that governance reform is not merely a technical exercise, but a deeply political and institutional process. Any attempt to reimagine governance, such as through the VBSA Bill, must contend with entrenched regulatory habits, federal sensitivities, and the diverse realities of India's higher education system.

NEP–2020 and the Genesis of the New Governance Framework

The NEP–2020 marks a decisive moment in

India's higher education reform discourse. While earlier initiatives focused on incremental adjustments, this policy explicitly recommends structural transformation of governance arrangements. It recognises that persistent challenges, viz., quality deficits, uneven access, regulatory overload, limited global competitiveness, etc., are systemic rather than merely institutional. Thus, NEP–2020 places governance reform at the heart of higher education transformation.

Governance Vision under NEP–2020

NEP–2020 explicitly recognises that existing governance structures limit the flexibility required for 21st-century higher education. It articulates a governance vision grounded in autonomy, transparency, trust, and accountability (Ministry of Education, 2020; Sharma, 2020). It also critiques the prevailing input-based and inspection-driven regulatory regime. Excessive procedural control has constrained institutional innovation and discouraged interdisciplinary and research-intensive activity - NEP 2020 argues. The policy emphasises a transition from regulatory compliance to a culture of quality. Institutional autonomy is situated as a key enabler of excellence, balanced by robust accountability mechanisms (Sethy & Mahapatro, 2025). It proposes graded autonomy for HEIs, allowing them to design academic programs, curricula, and internal governance structures within transparent quality frameworks. Furthermore, governance reform is closely linked to broader policy objectives, such as multidisciplinary education, research integration, internationalisation, and inclusive access (Tayade, 2024).

Conceptualisation of a Unified Regulator

At the centre of NEP 2020's governance framework is the recommendation to establish HECI as a unified regulator for higher education, excluding legal and medical education (Reddy & Reddy, 2023). This recommendation seeks to replace the existing multiplicity of regulatory bodies with a single, coherent institutional architecture. It (HECI) is envisaged as operating through three functionally distinct verticals. These include regulation, accreditation, and academic standard-setting (Sethy & Mahapatro, 2025). Each vertical is expected to function independently, while remaining coordinated within an overarching governance framework. This design aims to eliminate conflicts of interest arising from the concentration of multiple roles within a single body. NEP 2020 describes this approach as "light but tight" regulation (Ministry of Education, 2020; Reddy & Reddy, 2023). Regulation should be limited to minimum standards, ethical compliance, and public interest objectives. Excessive approvals and micromanagement are explicitly discouraged. Independence from direct governmental control is emphasised, with governance structures expected to include diverse stakeholder representation. This conceptualisation reflects global governance principles that focus on functional differentiation as essential for regulatory credibility and institutional performance (Paulo Santiago et al., 2008).

Intended Shift from Regulation to Facilitation

As mentioned earlier, NEP–2020 explicitly frames governance reform as a shift from control-oriented regulation to facilitative oversight (Sharma, 2020), where facilitation is understood as enabling institutions to achieve excellence by removing structural constraints and supporting capacity development. This shift suggests several changes in regulatory approach: emphasis shifts from process compliance to outcomes, prescriptive rules give way to broad frameworks, and one-size-fits-all norms are replaced by context-sensitive regulation (Tayade, 2024). Regulatory engagement is expected to emphasise dialogue, technical assistance, and collaborative problem-solving rather than punitive enforcement (Sethy & Mahapatro, 2025). It (NEP 2020) also reduces physical inspection and promotes self-disclosure and digital governance. Institutions are expected to demonstrate compliance through transparent reporting. Similarly, regulators are envisaged as supervisors and enablers rather than controllers. This facilitative orientation is expected to align Indian policy with global best practices, particularly in systems where autonomous institutions are held accountable through strong quality assurance mechanisms rather than procedural controls (Albach & Salmi, 2011).

Continuities and Departures from Earlier Reform Attempts

It (NEP–2020) is both continuity and a departure in India's higher education reform trajectory. Continuities include long-standing commitments to access, quality assurance, and institutional autonomy within coordinated national frameworks (Sharma, 2020). However, the departures are significant. Unlike earlier reforms that operated within existing statutory structures, NEP–2020 proposes comprehensive

regulatory consolidation and explicit outcome-based governance (Pandey, 2025). It lays stronger emphasis on academic freedom, curricular flexibility, and international engagement. Of course, earlier reform efforts, including recommendations of expert committees, largely resulted in partial and uneven changes. Incremental adjustments failed to address structural problems such as regulatory fragmentation and role confusion. In this regard, NEP–2020 differs in its recognition that effective governance reform requires legislative restructuring rather than mere administrative modification.

Federalism and Implementation Challenges

Notwithstanding its reformist approach, NEP –2020 has also led to debate regarding federalism and implementation. As already stated, education is a subject in the Concurrent List, making cooperation between the Centre and states necessary. However, critics argue that a unified regulator risks centralising authority and weakening the role of state governments, especially in relation to public universities and state-funded institutions. Besides, NEP–2020 recognises the significance of consultation and coordination. However, it provides limited detail on institutional mechanisms to operationalise cooperative federalism. Scholars caution that without explicit safeguards, governance reform may face resistance at the state level, undermining both legitimacy and effectiveness. However, implementation challenges extend beyond federal concerns. Institutional readiness differs significantly across states and institutions. Capacity constraints, uneven infrastructure, and resource disparities raise questions about the pace and sequencing of reform.

From Policy Vision to Legislative Genesis

Notably, the governance vision articulated in NEP–2020 provides the normative and intellectual foundation for the VBSA Bill. Therefore, the Bill represents an attempt to translate policy aspirations into a binding statutory framework. Unquestionably, legislation requires precision, enforceability, and constitutional alignment. It must clearly define powers, accountability mechanisms, and institutional relationships. Therefore, the proposed Bill must reconcile NEP–2020's emphasis on autonomy and trust with the imperatives of standardisation, accountability, and federal balance.

Salient Features of the VBSA Bill

The VBSA Bill represents the legislative instrument through which the governance vision of NEP 2020 is sought to be operationalised. Instead of incremental regulatory reform, the Bill proposes a comprehensive restructuring of higher education governance. It introduces a new institutional architecture focused on coordination, functional separation, and facilitative oversight. This section outlines the principal structural and functional features of the proposed framework and positions them within India's evolving regulatory context.

Objectives and Scope of the Proposed Authority

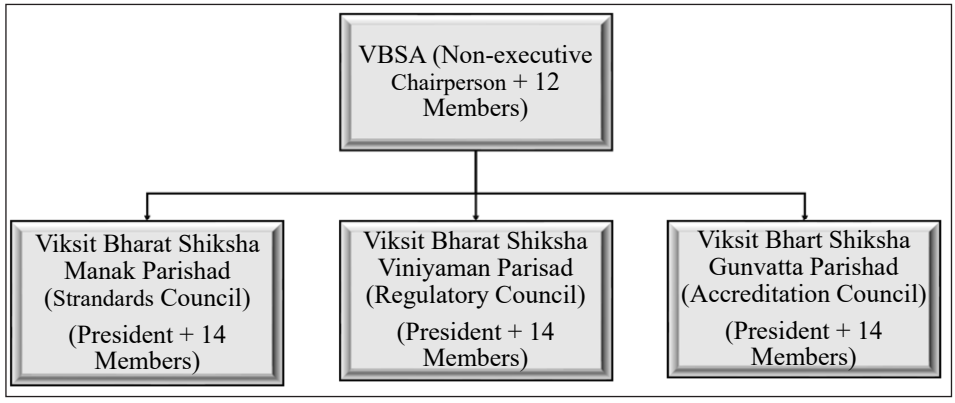
The Bill, at its core, seeks to establish a single overarching national authority for higher education governance. But it excludes legal and medical education, which will continue to remain under the existing separate statutory councils. The key objectives of the proposed authority comprise, among others, consolidating fragmented regulatory mechanisms, ensuring equitable access and inclusion, promoting institutional autonomy with accountability, strengthening quality assurance and learning outcomes, facilitating academic innovation, (Reddy & Reddy, 2023). These objectives closely align with NEP 2020's emphasis on "light but tight" regulation and trust-based oversight. The scope of the proposed framework extends to public HEIs, private institutions seeking regulatory recognition, and higher education programs across disciplines (Sharma, 2020). Thus, the Bill positions the new authority not merely as a regulator, but as a coordinating and enabling institution.

Organisational Structure and Functional Reorganisation

A defining feature of the Bill is the functional separation of governance roles, marking a departure from India's historically centralised and overlapping regulatory framework. Consistent with NEP 2020, the proposed authority is envisaged as operating through distinct verticals responsible for regulation, accreditation, and academic or qualification frameworks (Figure 2).

Vertical independence is intended to ensure that regulatory, accreditation, and standard-setting functions operate without hierarchical subordination. This is expected to reduce conflicts of interest. International governance literature suggests that such role differentiation enhances regulatory credibility and institutional trust (Paulo Santiago et al., 2008). The organisational structure also envisages governance

Figure 2: Proposed Structure of VBSA



through an apex board with representation from government, academia, industry, and civil society, signifying a multi-stakeholder approach. Of course, the effectiveness of this structure will depend on the degree of operational autonomy granted to each vertical and the clarity of coordination mechanisms across them.

Rationalisation of Existing Regulatory Bodies

The Bill seeks to rationalise the existing regulatory ecosystem by subsuming, replacing, or realigning the functions of bodies such as the UGC and discipline-specific councils, viz., AICTE and NCTE insofar as they relate to higher education governance. This embodies a decisive break from decades of regulatory proliferation. As already mentioned, Indian scholarship has consistently identified regulatory multiplicity as a constraint on innovation and institutional effectiveness (Jandhyala, 2014; Agarwal, 2009). By consolidating oversight within a unified framework, the Bill intends to simplify compliance and reduce bureaucratic discretion. Simultaneously, the scholars also caution that consolidation should not result in excessive concentration of authority. There are apprehensions that legacy regulatory practices may persist within the new institutional form unless explicit safeguards and role clarity are ensured.

Institutional Autonomy, Academic Freedom, and Self-Regulation

An important feature of the proposed framework is its stated commitment to improving institutional autonomy. This part of the Bill aligns with NEP 2020's graded autonomy approach - HEIs demonstrating academic and governance capacity are afforded greater autonomy in curriculum design, pedagogy, internal governance, and research orientation (Sharma, 2020). It (Bill) focuses on reduced physical inspections, self-disclosure, and digital reporting. HEIs are expected to comply with minimum standards and ethical norms while being held accountable through transparent quality assurance processes. Draft provisions also reiterate the protection of academic freedom, safeguarding faculty autonomy in teaching, research, and curriculum development within outcome-based frameworks (Sharma, 2020). This model reflects global trends where autonomy is paired with robust accreditation and performance review mechanisms (Albach & Salmi, 2011). However, the realisation of autonomy will depend on regulatory culture, enforcement philosophy, and the availability of effective appeal mechanisms.

Quality Assurance and Accreditation Framework

Another important aspect is the quality assurance that occupies a central place in the proposed governance model. Accreditation is envisaged not as a one-time compliance exercise but as a continuous quality improvement process. The Bill proposes to link accreditation outcomes to institutional autonomy and funding eligibility, thereby incentivising performance instead of procedural conformity (Sethy & Mahapatro, 2025). This signifies a shift from input-based regulation to outcome-oriented evaluation, encompassing learning outcomes, research performance, governance practices, and societal engagement (Paulo Santiago et al., 2008; Malik, 2017). Flexible curriculum frameworks are intended to support multidisciplinary education while maintaining minimum standards (Tayade, 2024).

Centre–State Relations and Federal Dimensions

Since education is a subject in the Concurrent List, the Bill has significant implications for Centre–State relations. Although the proposed authority operates at the national level, its decisions directly affect state public universities and colleges, which account for a large share of India's higher education system. On the one hand, supporters vehemently argue that national coordination is necessary to ensure uniform standards and international comparability,

(contd. on pg. 16)

Exploring Colonial Hangover's Other Side

K Paddayya*

Thomas Macaulay's Utilitarianism-driven Education Minute of 1835 is immeasurably condescending both in its tone and content and can easily provoke repulsive feelings even in the quietest of the Indian minds. It virtually sought enslavement of the Indian minds through the medium of education. And it provided the right grist for Prime Minister Modi's Ramnath Goenka Memorial Lecture in New Delhi last month (17 November 2025). His was again a sparkling oration which threw off some sparks alongside projection of his own set of colloquialisms. He has set a ten-year limit for bidding the final good-bye to the colonial mindset.

Colonial rule anywhere is a form of open theft and we know that thieves are not Santa Clauses but only love to leave with loot and plunder. The debate about the deep economic and political scars left behind by the British rule in India is a longstanding one and its scope is still wide open. But, given the binary moves of human minds, sometimes unimaginable and unintended things do happen. Didn't the recent White House meeting between President Trump and the freshly elected New York mayor Zohran Mamdani surprise everyone in the world? We all recognize that history leaves behind a pile of burdens and also simultaneously some benefits. So, the unfortunate scars notwithstanding, a good sense of history requires us to consider whether the British rule has another side to it and, if so, explore its results. Professor Kenneth Galbraith, who served as the U.S. ambassador in India for a full term during Nehru's term as the prime minister, once said that the British rule was something good that had happened to India. Opinions like this, albeit expressed in hushed tones, are not exactly rare even now amongst us in India. Let us then explore the possible contents of this Other Side.

Ancient India studies are one of its prominent components. Mile-to-mile mapping of the land right up to Mount Everest braving grave hazards, introduction of country-wide postal-telegraph and railway services, development of major river valley irrigation projects, and initiation of geological, zoological, botanical, linguistic and anthropological surveys between 1851 and 1916 are other developments of the colonial era.

It is true that some wild and prejudiced interpretations like religion-based periodization of history made by James Mill and other writers and tracing cultural origins to Greek-Roman sources were imposed on our past. But there is some grain too amidst this chaff. It is this idea which the Harvard University Orientalist Daniel Ingalls was trying to convey when he wrote that "...instead of arguing about approaches and motives of scholarship, (let us) concentrate our criticism on the results. On the results, "I think, we will find ourselves essentially in agreement" (1960: 197).

Proceeding from this advice, we may take a relook at Macaulay' Minute and how it was actually implemented in the Presidencies (for details, see Nurullah and Naik 1943: Chapters V and VI). The basic task which Macaulay was entrusted with was one of suggesting useful ways of spending one lakh rupees sanctioned by the Company Directors for educating the Indian peoples of conquered territories. True to the spirit of Utilitarianism, Macaulay wanted the money to be spent on those Indians who were interested in European learning and would subsequently join the colonial administrative services. While stating this purpose, he did make without any warrant negative comments about Indian character and country's ancient learning and landed himself in deep waters. Our castigations of his prejudiced judgements get toned down somewhat when it is realized that he strongly opposed the introduction of Christianity into native school education. Secondly, as President of the General Committee on Public Instruction in Bengal, he did pay respect to the local languages in his Report of 1836: "…We are deeply sensible of the importance of encouraging the cultivation of vernacular languages…We consider the formation of vernacular literature to be the ultimate goal…" (as quoted by Nurullah and Naik 1943:112).

More importantly, Macaulay was undeterred by and even prepared for the prospect of Indians benefitting from European learning and eventually developing nationalist feelings and rising against colonial rule. He voiced his views while speaking on

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the Charter Act of 1933 in the House of Commons: "… that having become instructed in European knowledge, they may, in some future age, demand European institutions. Whether such a day will ever come, I know not. But never will I attempt to avert or avoid it. Whenever it comes, it will be the proudest day in English history… Victory may be inconstant to our arms. But there are triumphs which are followed by no reverse. There is an empire exempt from all natural causes of decay. Those triumphs are the pacific triumphs of reason over barbarism; that empire is the imperishable empire of our arts and morals, our literature and our laws" (as quoted by Nurullah and Naik 1943: 114). In short, Macaulay's final goal was one of facilitating Indians benefit from the ideals of Enlightenment Age and elevates themselves to a higher civilizational state.

Let us next consider how Macaulay's Minute itself, irrespective of its threatening tone, was actually implemented by the Presidencies. When the Sanskrit College (now Presidency University) was started in Kolkata in 1823, the Bengal government totally ignored Raja Ram Mohan Roy's plea for the introduction of European learning and stuck to the teaching of ancient Indian learning. Later, while heeding Macaulay's recommendations to introduce European subjects ranging from algebra and geometry to philosophy to geography and history in school education with English as the medium, it did continue its support to the Oriental institutions (madarsas and Sanskrit colleges) it had already started and also continued the payment of salaries to teachers and stipends to students. Annual expenditure for Oriental learning stretched beyond 31,000 rupees. Over 150 educational institutions were opened in the Presidency by 1854, incurring an annual expenditure of six lakh rupees. Also we must note that the government stoutly resisted the many moves of missionaries to introduce Christianity into the curriculum of its schools.

The lead taken by the Bombay Presidency in this pragmatic implementation of the education policy is particularly instructive. The government formed the Bombay Education Society (1820-1840) for this purpose. By 1840 as many as 115 primary/ secondary schools were established in the districts. Interestingly, although the subjects taught were European, Marathi was chosen as the medium of instruction, necessitating a massive programme of translating European texts.

Mountstuart Elphinstone, the Presidency's first and famed Governor, established the Hindoo College (the nucleus of Deccan College which is now Deemed to be University) in Pune in 1821, just three years after he wrested the Deccan territories from the Peshwas. The Company Directors sitting in London took strong objection to Elphinstone's opening of the Hindoo College without their explicit consent and in fact severely reprimanded him for introducing ancient Hindu learning as the exclusive focus of study. Far from being crestfallen, Elphinstone boldly stuck to his stand and replied that the college would continue with the study of native learning and that European learning would be added to it in due course (that happened in 1842). What is even more important, while justifying his stand to stick to indigenous learning in the initial stages, Elphinstone made a statement in his famous response which can easily be mistaken for another cry in the ongoing cacophony of voices demanding the recovery of our civilizational basis. In his Reply of 1824 to the Company Directors, he wrote: "...We cannot but think that the future attainments of the natives will be increased in extent as well as in variety by being as it were engrafted on their own previous knowledge and imbued with their own original and peculiar character" (Elphinstone 1824).

The torch lit by Elphinstone was carried forward by his successors in the Bombay Presidency. The Hindoo College reincarnated as the Poona College in 1851 with new additions to European learning in the curriculum. While highlighting this change, the Hon'ble Governor John Warden invited the natives to "develop your intellectual faculties, to multiply your acquirements." Another major development took place in the institution when it shifted to its present campus and was renamed as the Deccan College in 1864. While laying the foundation stone, the Governor Sir Bartle Frere clarified that the institution, hitherto confined to the children of priestly families of Poona, was now open to peasant classes of the entire Deccan region. While envisioning "greatest results" emanating from the exposure of Indian minds to European sciences, literatures and philosophies, Sir Bartle simultaneously chose to praise that "Asia was a mother of intellect and learning at the time when the literature of Greece was yet in its infancy" and went on to refer to "those poets and sages from whom the travellers of twenty-three centuries ago carried to the Father of Grecian history the traces of an earlier

literature and civilization...from whose speculations the great Western philosophers of Alexander's era were not ashamed to gather wisdom" (Frere 1870). An antithesis to Macaulay's bad-mouthed outburst against ancient India three decades earlier!

The above are a few instances to show that Macaulay's song was not sung verbatim everywhere and that the Presidencies exercised their own pragmatism in pursuing the education policy.

Actually, studies of Ancient India stretched far beyond the confines of the government. With the fillip given by the Asiatic Society which the redoubtable Sir William Jones established in Kolkata in 1784 for investigating 'Man and Nature' in Asia ('whatever is performed by the former and whatever is produced by the latter'), organized efforts commenced to know about ancient India. Soon a whole group of private persons and government officers in India and Europe seriously attached themselves to the task of translating religious and other texts, deciphering ancient scripts, and studying coins, epigraphs, art and architecture, literatures, religions and philosophies of ancient India. The net result was that by the mid-19th century Europe experienced a new intellectual awakening. This is what Raymond Schwab (after Alexander Quinet) called Oriental Renaissance which, as he wrote, brought to Europe "an antiquity more profound, more philosophical and more poetical than that of Greece and Rome" (Schwab 1984).

As a field archaeologist I am also persuaded to mention that it was again the colonial workers who, in addition to their official duties, started recording the remotely located mound-bearing archaeological sites in the country from the beginning of the 19th century. This was at a time when, out of ignorance or whatever, local people and even their Rajas were using these places for treasure hunting and quarrying away soils, bricks and stone materials for their own constructional purposes. We have the famous example of the Surveyor General Colin Mackenzie who not only discovered in 1797 the famous ancient site at Amaravati on the Krishna but recorded details about its stupa and mud fort and also prepared a map of the whole site area as per scale in 1817 (Mackenzie 1822). This is the first cartographic map of an archaeological site in the world! Or take the case of the famous Deccan administrator Colonel Meadows Taylor who discovered a group of stone circle graves of the Iron Age at Jewargi on the Bhima river in North Karnataka and excavated some of these employing the stratigraphic method as a matter of common sense in the 1840s. This is again the first of its kind in archaeological excavations in the world! Taylor published his findings in three major papers (Taylor 1941).

It is the ruinous condition of archaeological sites which made the retired military engineer Alexander Cunningham to submit a memorandum in 1861 in which he indicted the government by stating that "During the one hundred years of British dominions in India, the government has done little or nothing towards the preservation of its monuments..." (Cunningham 1871). The Governor General Lord Canning found sense in it and established the Archaeological Department towards the end of the same year. Cunningham himself was appointed as its Head. The yearly and well-documented field investigations of all major historical sites stretching from Bengal to Pakistan which Cunningham carried out for 20 years and the unfailing annual reports which he published on his investigations form a glorious chapter in the history of Indian archaeology. As Lord Curzon later said, these Reports are "a noble mine of information" and are a necessary reading even now for initiating research on the historical sites of North India. Cunningham is fondly remembered as the father of historical archaeology.

The hard rock geologist Robert Bruce Foote, who joined the Geological Department in 1858, accomplished a similar feat in prehistoric archaeology in the southern part of the country. Swayed by the birth of prehistory in Europe in 1859 and commencing with his recovery of a spearhead-shaped stone tool at Pallavaram (now part of Chennai) in 1863, Foote found over 450 prehistoric sites during his three-decade-long geological surveys in different parts of southern India and even a portion of Gujarat. He stayed back in India after retirement (his grave is in Salem hills) and became an informal professor of prehistory in the last 15 years of his life (1897-1912). He used his collections of objects and well-kept field notes to publish three volumes. He grouped all his sites under Palaeolithic, Neolithic and Iron Ages, gave an outline of the people's lifeways in each age, and treated these as "consecutive stages in the development of civilization in India" (Foote 1916). He amazingly already underscored the anthropological nature of prehistoric studies. Through his various writings in India and outside Foote single-handedly brought Indian prehistoric

sites to the notice of European scholarship in the 1870s when Africa was practically unheard of. No wonder then Foote and Indian prehistory are treated as synonymous.

In sum, instead of disposing off matters relating to colonial rules lock, stock and barrel, it is prudent to avoid the unpardonable deed of casting away the baby with bathwater. It is good to know that there are institutions in the country which recognize the pioneering role played by Macaulay in opening the world of learning to the society at large and call him a Mahatma.

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and on the other, critics contend that inadequate state representation and consultation may undermine cooperative federalism and policy legitimacy. Although draft provisions indicate coordination with state governments and continued roles for state-level bodies, the operational clarity remains limited. The referral of the Bill to a JPC reflects these concerns and highlights the significance of designing institutional mechanisms for meaningful state participation.

Accountability, Transparency, and Oversight

The Bill lays strong emphasis on accountability and transparency. Proposed mechanisms comprise public disclosure of norms, digital platforms, periodic performance reviews, and stakeholder feedback processes (Sethy & Mahapatro, 2025). HEIs are expected to operate under outcome-based assessments and regular accreditation cycles. Through transparency mechanisms, the authority itself is envisaged as accountable to the Ministry of Education, Parliament, and the public (Reddy & Reddy, 2023). The literature on governance suggests that such measures are crucial to mitigate regulatory arbitrariness. Of course, transparency alone is not sufficient without clearly defined appeal mechanisms and checks on regulatory discretion (OECD, 2010; Chakrabarti, 2025).

Transitional and Implementation Considerations

Notably, the transition from a multi-regulator ecosystem to a unified authority presents a few major implementation challenges: integration of existing bodies, redeployment of human resources, and harmonisation of institutional cultures (Reddy & Reddy, 2023). Earlier, reform experience shows that inadequate transition planning can undermine even well-designed reforms (Government of India, 2009). Therefore, the success of the proposed framework will depend not only on statutory design but also on continuous policy learning, phased implementation, and stakeholder engagement.

To be contd.....

Higher Education in India and the United States: A Comparative Analysis of Resources, Assessment, Governance, Transparency, and Curricular Flexibility

Maharaj Singh*

India and the United States host some of the world's largest and most diverse higher education systems. Any comparison must therefore account for breadth and heterogeneity: India comprises central and state universities, Institutes of National Importance, autonomous colleges, and a rapidly growing private sector, etc. The United States includes public multi-campus systems, private non-profit and for-profit institutions, liberal arts colleges, and research universities. Rather than rank systems, this article offers a thematic comparison across policy-relevant dimensions that influence student learning, faculty work, and institutional outcomes. The emphasis is on structures that shape incentives: funding architecture, assessment of cultures, governance roles, accreditation and quality assurance, and the degree of curricular flexibility granted to learners and instructors.

Our approach is descriptive-analytic, drawing on policy documents and widely observed institutional practices. We highlight convergences—such as the shift toward outcome-based education and competency-aligned syllabi—alongside enduring differences rooted in history, regulation, and labour-market expectations. Comparative points are organised to serve practitioners—registrars, deans, provosts, vice chancellors, and faculty—tasked with improving student success while safeguarding academic standards.

Resources: Funding, Infrastructure, and Student Support

Resource availability affects everything from admissions capacity to student services and research. U.S. institutions generally exhibit higher per-student expenditure, multiple revenue streams (tuition, endowments, philanthropy, auxiliary services, research grants), and extensive student support infrastructures such as advising, counselling, writing/math centers, and career services. Research-intensive universities feature substantial laboratory facilities and sponsored projects administration. At the same time, resource stratification within the U.S. is pronounced: community colleges and regional publics often operate under tight fiscal constraints relative to elite privates and flagship publics.

In India, public funding remains pivotal, with the Union and state governments supporting universities and colleges, alongside specialised bodies for premier institutions. Private universities and deemed-to-be universities have expanded rapidly, diversifying resources through tuition and industry partnerships. Infrastructure quality varies widely across sectors and regions. Initiatives under NEP 2020 encourage multidisciplinary institutions, research foundations, and stronger student support; however, per-student expenditure remains more constrained. The consequence is a persistent focus on scalability and access, with incremental investment in laboratories, libraries (including e-resources), and student success centers.

Examination and Assessment: Continuous Evaluation vs. Terminal Exams

Assessment of cultures differs markedly. The U.S. model typically emphasises continuous evaluation—quizzes, assignments, projects, presentations, and participation—supplemented by midterms and finals. Authentic assessment (e.g., portfolios, experiential learning, undergraduate research) is encouraged to promote higher-order skills. Course syllabi articulate learning outcomes mapped to rubrics, and grading is distributed across the term. Academic integrity policies and proctoring are enforced through honour codes and technology.

Historically, Indian universities relied on annual or semester-end examinations with high stakes and centralized evaluation, especially across affiliated colleges. Reforms—Choice Based Credit System (CBCS), outcome-based accreditation metrics, and continuous internal assessment—have widened the toolkit, yet implementation varies significantly by university and discipline. Many institutions now

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blend internal assessment (periodic tests, assignments, practical) with summative exams, while professional councils specify minimum standards. The trajectory is toward diversified assessment, though capacity and class sizes can constrain frequency and feedback quality.

Grading Systems: Divisions, Percentages, and Grade-Point Averages

The U.S. predominantly uses letter grades (A–F) translated into grade points (e.g., a 4.0 scale) and cumulative grade point averages (CGPAs). Many institutions permit pass/fail options, grade replacement for repeated courses, and transcript annotations for withdrawals or incompletes. Ongoing debates concern grade inflation and equity in evaluation.

India historically classified outcomes into divisions—First, Second, and Third—based on percentage thresholds, with some universities awarding 'distinction.' Under CBCS and outcome-based education, many Indian institutions have adopted credit systems with letter grades and grade points (e.g., 10-point scales), moving toward CGPA reporting. Transitional complexities persist as legacy transcripts, university autonomy, and employer expectations intersect with new frameworks.

Quality Assurance and Accreditation

Quality assurance in the U.S. is largely conducted by independent regional accreditors recognized by the U.S. Department of Education and the Council for Higher Education Accreditation (CHEA), supplemented by specialised bodies (ABET for engineering, AACSB for business, CCNE for nursing, among others). Accreditation cycles involve self-studies, site visits, and public action letters. Institutions publish consumer information—graduation rates, costs, and financial aid—especially in the public sector.

In India, the University Grants Commission (UGC) and bodies such as the National Assessment and Accreditation Council (NAAC) and National Board of Accreditation (NBA) oversee institutional and program accreditation. NEP 2020's emphasis on outcome measures, research capacity, and holistic education has spurred revised manuals and data-driven quality indicators. As with the U.S., transparency varies by institution; routine publication of program outcomes and student success metrics is expanding.

Governance: Registrar and Vice Chancellor vs. President, Provost, and Dean

Governance architecture reflects historical and legal differences. In India, the Vice Chancellor (VC) is the chief executive and academic head of the university, supported by Pro-Vice Chancellors, Deans, the Registrar (custodian of records, statutory compliance, and academic administration), the Finance Officer, and statutory bodies (Syndicate/Executive Council, Academic Council, Boards of Studies). Affiliated colleges introduce additional layers between the university and the classroom.

In the U.S., the President (or Chancellor) serves as chief executive; the Provost is the chief academic officer overseeing curricula, faculty affairs, and academic units led by Deans and Chairs. Shared governance—faculty senates, curriculum committees—plays a prominent role in academic policy. Boards of Trustees/Regents provide fiduciary oversight. Professional staff (Registrar, Enrollment Management, Sponsored Programs) manage operations analogous to Indian registrar functions.

Transparency and Accountability

Transparency influences trust and student choice. U.S. public institutions publish extensive dashboards on enrollment, costs, financial aid, time-to-degree, and graduation/retention rates; many also release assessment and accreditation summaries. Open records laws apply to public institutions. Private non-profits disclose less by statute but increasingly share outcome indicators for competitiveness.

In India, transparency norms have strengthened via regulations and the Right to Information framework applicable to public universities. NAAC/NBA processes encourage public disclosure of program outcomes, syllabi, and governance documents. Implementation still varies; institutions with robust websites and academic handbooks tend to outperform peers on student-facing clarity around curricula, examination rules, and grievance processes.

Curricular Flexibility and Student Choice

U.S. degree architectures typically combine general education breadth with major/minor depth, enabling elective exploration, double majors, and interdisciplinary programs. Credit transfer pathways (e.g., from community colleges) and flexible modalities (online, hybrid) increase individualisation. Advising

systems help students navigate requirements while accommodating experiential learning and internships for credit.

In India, curricula have historically been more structured, especially in affiliated colleges with university-prescribed syllabi. CBCS and NEP 2020 aim to increase flexibility via elective baskets, multidisciplinary options, and multiple entry/exit possibilities (e.g., certificates, diplomas, four-year degrees with research). Adoption is uneven but trending toward greater choice, aided by academic bank-of-credits mechanisms.

Syllabus Design and Instructor Autonomy

U.S. instructors typically craft syllabi within departmental templates, articulating learning outcomes, assessment mix, schedules, and policies (e.g., integrity, accessibility). Academic freedom is protected institutionally and culturally, though tempered by programmatic standards and accreditation. Peer review of teaching and course evaluations create feedback loops.

In India, instructor autonomy varies by institutional type. Autonomous universities and institutes allow for greater customisation of readings, assessments, and pedagogy; affiliated colleges often follow university syllabi with limited deviation. Reforms encourage outcome mapping and innovative pedagogy (project-based, blended learning), yet class sizes, contact-hour prescriptions, and examination calendars can constrain experimentation.

State/Public vs. Private Institutions

Both countries host public and private sectors with distinctive missions and constraints. In the U.S., public institutions receive state appropriations and pursue access and workforce alignment at scale; private non-profits rely on tuition and philanthropy, often emphasizing mission-driven education; for-profit providers occupy a regulatory niche with variable outcomes. Tuition differentials, financial aid models, and governance autonomy vary widely.

In India, central and state universities anchor public provision, while private universities and colleges have grown rapidly, responding to demand in professional fields and urban regions. Fee structures, faculty contracts, and research infrastructure differ by sector. Regulatory frameworks aim for parity in quality while acknowledging distinct funding realities. Public institutions typically carry stronger mandates for inclusion and affordability; private institutions can be nimble but must guard against commodification.

Comparative Tables

Table 1. Comparative Summary Matrix.

Dimension	India (General Tendencies)	United States (General Tendencies)
Resources	Public funding central; rapid private growth; variable infrastructure; student support expanding	Higher per-student spend, diversified revenues, stratification across sectors
Assessment	Historically, terminal exams; increasing internal/continuous assessment under CBCS/ NEP	Continuous evaluation, common, authentic assessment; finals supplement
Grading	Legacy divisions/percentages; growing CGPA with 10-point scales	Letter grades (A–F), GPA on 4.0; pass/fail options
Quality Assurance	UGC/NAAC/NBA-led; outcome-based reforms under NEP 2020	Regional & specialised accreditation; public disclosure norms
Governance	VC as chief executive; Registrar key admin; statutory councils	President/Provost leadership; Deans/ Chairs; Boards & shared governance
Transparency	RTI framework; improving web disclosure; variability remains	Public dashboards at publics; private non-profits variable
Flexibility	CBCS & NEP push electives, multidisciplinary options; uneven adoption	Gen ed + majors/minors; transfers; experiential credit
Instructor Autonomy	Varies by autonomy; affiliated colleges are more prescriptive	High within program standards; academic freedom norms
Public vs Private	Public central/state universities; fast-growing private sector	Public systems, private non-profits, for-profits; diverse finance

Source: Author's synthesis of policy documents and widely observed practices.

Table 2. Governance Structures at a Glance

Role	India (Typical Responsibilities)	United States (Typical Responsibilities)
Chief Executive	Vice Chancellor: academic & executive head; statutory bodies oversight	President/Chancellor: chief executive; external relations; strategy
Chief Academic Officer	Pro-VC/Deans; Academic Council; Boards of Studies	Provost: academic affairs; curricula; faculty appointments & promotion
Registrar	Records, examinations, compliance, affiliation, statutes	Registrar/Enrollment: records, registration, compliance (FERPA, etc.)
Deans/Chairs	Faculty affairs within faculties/schools; exam coordination	Deans & Department Chairs: program quality; budgeting; hiring
Governing Bodies	Syndicate/Executive Council; Academic Council	Board of Trustees/Regents; Faculty Senate/ committees

Source: Author's synthesis.

Discussion and Implications

Both systems are converging on outcome-based frameworks, competency-aligned curricula, and evidence-driven quality assurance, but they proceed from different baselines. India's reforms prioritise scale, access, and standardisation across a vast affiliating ecosystem; the U.S. values institutional autonomy and program differentiation, tempered by accreditation and market accountability. Three implications emerge:

First, 'autonomy with accountability' should be operationalised through transparent dashboards, program-level outcomes, and third-party audits that reduce compliance burden while increasing trust. Second, assessment must combine continuous evaluation with rigorous summative checks to curb grade inflation and enhance validity—rubric calibration and moderation are key. Third, curricular architecture should support student agency—electives, minors/double majors, multiple entry/exit—without sacrificing disciplinary integrity; advising capacity and credit recognition systems are crucial enablers.

For administrators, cross-system partnerships can accelerate capacity building: joint centers for teaching and learning, accreditation mentorships, and data-sharing on student success. For faculty, communities of practice around authentic assessment, undergraduate research mentoring, and interdisciplinary course design can diffuse innovation. For regulators, simplification and digitisation of reporting, coupled with targeted funding for student support services, can improve outcomes at scale.

Conclusion

The comparison of India and the United States in higher education underscores a shared commitment to widening participation and enhancing quality, albeit through distinct governance traditions and resource envelopes. No single model suffices, effective borrowing respects context. A pragmatic synthesis—combining continuous evaluation with credible summative checks, transparent quality assurance, and flexible, student-centered curricula—can advance equity and excellence in both settings. The role of institutional leaders is to convert policy intent into implementable routines; the role of faculty is to translate autonomy into learning-rich classrooms; and the role of regulators is to align incentives with student success.

Endnotes

1. Continuous evaluation refers here to multiple, distributed assessments across a term, including authentic tasks (projects, portfolios) and low-stakes quizzes.
2. Autonomy with accountability denotes instructional and curricular freedom within a framework of transparent outcomes, peer review, and external accreditation.

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Five Years of National Education Policy: Transforming India's Learning Landscape

Amit Kumar Shrivastava*

India's education system has seen significant changes over the past five years since the National Education Policy (NEP)- 2020 was introduced. Touted as a significant reform, the policy aims to make learning more inclusive, adaptable, and based on Indian principles while meeting global standards. Looking back, we are seeing signs of progress, especially in more flexibility in higher education, quality education through large-scale teachers' training programmes, etc.

More Flexibility and Choice in Higher Education

Student experiences are changing at the higher education level as a result of changes including interdisciplinary learning, various entry and departure options, and the Academic Bank of Credits (ABC). More and more universities are allowing students to pursue a wide range of academic interests without being restricted to strict subject lines. The Academic Bank of Credits (ABC), launched by the Ministry of Education, is making remarkable strides in building a unified digital academic ecosystem. As per the latest data, a total of 33.85 crore students have been issued an APAAR (Academic Performance, Assessment and Accumulation Register) ID, of which 23.80 crore have already been verified. At present, 2790 higher education institutions are registered on the platform, and 2015 of them have uploaded credit data for the years 2021 to 2025. Notably, 2.22 crore unique student credit awards have been seeded with APAAR IDs, while 7.27 crore academic records have been successfully mapped with verified credit data. These figures highlight the rapid adoption of the ABC platform and its growing role in ensuring transparency, authenticity, and lifelong portability of academic achievements for students across India.

Students from all around the nation can now compete on an even playing field thanks to the Common University Entrance Test (CUET), which further standardises admissions. The Common University Entrance Test (CUET-UG) has emerged as one of the largest admission gateways for higher education in India, with participation continuing on a massive scale in both 2024 and 2025. According to data released by the National Testing Agency (NTA), CUET-UG 2024 saw 13.47 lakh registrations, while in 2025 registrations rose to 13.54 lakh. The test, conducted in 300 cities (including 15 overseas) in 2025, reflects its growing global outreach. The exam expanded in scope with 322 question papers in 13 languages in the year 2025 compared to just 99 in 2024. Female participation increased from 6.30 lakh in 2024 to 6.47 lakh in 2025. With over 58 lakh subject tests administered in 2025, the CUET has consolidated its position as a transformative step in streamlining admissions, offering students, especially from rural and remote areas, greater access and flexibility in seeking entry to India's premier universities.

The introduction of engineering in Indian languages, such as Hindi, Tamil, Telugu, and Marathi, has been an especially daring move. This approach makes difficult subjects easier to understand while opening access for gifted students from non-English backgrounds by lowering reliance on English. This is complemented by the All India Council for Technical Education's (AICTE) e-KUMBH (Knowledge Unleashed in Multiple Bhartiya Languages) online portal. The platform democratizes access to technical education and empowers students across the country by offering high-quality translations of engineering and management books in 12 Indian languages. Since its launch by the Hon'ble President of India on 11th November 2022, the portal has been accessed by over 3 million students and faculty members, with different books being downloaded nearly 6 lakh times.

Technology and Teachers: The Two Foundations

The success of the NEP is still largely dependent on its teachers. Lakhs of faculty from higher education and school education have seen an improvement in their skills thanks to extensive

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training programs offered through platforms like DIKSHA, NISHTHA, Malaviya Mission Teacher Training Programme, AICTE Training and Learning (ATAL) Academy, etc.

DIKSHA (Digital Infrastructure for Knowledge Sharing) initiatives highlights the growing impact of the platform in advancing digital education across India. With 1.97 crore registered users and 1.05 lakh daily active users, it has become a significant hub for learners and educators. The platform has recorded an impressive 565.68 crore learning sessions and over 6,564.59 crore learning minutes, reflecting its extensive usage. In terms of content, DIKSHA hosts 7,512 energized textbooks and 3.62 lakh e-contents, providing rich learning resources. The course metrics further underline its success, with 18.41 crore total enrolments and 14.66 crore completions, showcasing its effectiveness in enhancing learning outcomes at scale.

The NISHTHA (National Initiative for School Heads' and Teachers' Holistic Advancement) programme has been playing a pivotal role in enhancing teacher capacity across all levels of education through both face-to-face and online modes. At the elementary level (face-to-face), it has engaged 120 NRGs and 23,500 SRGs across 34 States/UTs, reaching 17.5 lakh teachers and school heads in 17 States/UTs. Through the online mode, NISHTHA Elementary offers 18 courses in 11 languages, covering 24 lakh teachers across 30 States/UTs and 8 autonomous organisations. Similarly, the secondary-level online programme provides 12 generic and 1 pedagogy course in 10 languages, targeting 10 lakh teachers and school heads across 33 States/UTs. Under NISHTHA FLN for NIPUN Bharat, 12 online courses in 11 languages have been introduced, aiming to benefit 25 lakh teachers at the pre-primary and primary levels in collaboration with 5 autonomous organisations. Furthermore, NISHTHA ECCE delivers 6 courses in 2 languages, covering 36 States/UTs, and also targets 25 lakh teachers and school heads at pre-primary and primary levels with support from 5 autonomous organisations. This large-scale initiative demonstrates the government's commitment to strengthening school education by equipping educators with the right training and resources.

The Malaviya Mission Teacher Training Programme (MMTTP), implemented through the Malaviya Mission Teacher Training Centres (MMTTCs), has emerged as a flagship initiative to build teacher capacity in line with the goals of the National Education Policy (NEP). The programme has conducted a total of 3679 NEP Orientation and Sensitization Programmes benefiting 2,24,233 faculty members, along with 513 GURU-DAKSHTA Faculty Induction Programmes for 40,934 participants. Additionally, 1248 short-term programmes have trained 75,807 teachers, while 1488 refresher courses have benefitted 1,03,090 faculty members across universities and institutions in the country. This large-scale training effort reflects a strong commitment to fostering academic excellence, professional development, and innovative teaching practices in higher education.

The Road Ahead

The NEP–2020 has set in motion a transformation that is beginning to reshape India's classrooms from remote village schools to urban universities. The progress of the last five years offers hope and the NEP could define a more equitable, knowledge-driven future for generations of Indians, laying a strong foundation for a *Viksit Bharat*. ❑

Integrated Teacher Education Programme: Awareness, Importance and Challenges

Mohd Noor Alam*, Tanvi Pahwa, Aerum Khan***and Rejaul Karim Barbhuiya******

The education landscape is ever evolving and dynamic in nature, and teacher education programs should be upgraded to match the futuristic educational demands. The New Education Policy (2020) outlines the Integrated Teacher Education Programme, which has emerged as a significant initiative aimed at bridging gaps in teacher training by integrating comprehensive pedagogical methods and multidisciplinary knowledge. The course will contribute to restoring and upgrading the whole teacher education system. Integrated Teacher Education Programme is a dual-major bachelor's degree programme, such as B.A/B.Com./B.Sc.Ed integrated courses of 4 year duration divided into eight semesters, with one major in Education and the other in a disciplinary/interdisciplinary branch of knowledge (Nial et al., 2024). It is a comprehensive initiative designed to enhance the quality of teacher education. It aims to provide a cohesive and multidisciplinary approach to training teachers, combining theoretical knowledge with practical experience. From 2030, teachers will only be appointed to the teaching profession through the Integrated Teacher Education Programme (ITEP) (Gill, 2019; Nial et al., 2024). ITEP is based on a multidisciplinary curriculum approach that provides opportunities to learners where they can engage in learning values, traditions and culture of India and develop holistically (Chakraborty, 2022). ITEP is structured to address the unique educational needs of learners and to prepare teachers who are well-equipped to handle inclusive classrooms, integrate modern teaching methods, and adapt to various educational environments (Kundu, 2021; Meenakshi, 2023). By enhancing pedagogical skills, incorporating modern technology, and promoting continuous professional development, ITEP ensures high-quality education and better student outcomes (Gill, 2019). It also fosters leadership abilities and improves career prospects for teachers, making it essential for the evolving educational landscape. One of the most significant components of ITEP curriculum framework is school experience and internships, where the student-teacher gets extensive teaching experience where they connecting the theory to real-world situations and making this programme more effective (Kundu, 2021). The National Council for Teacher Education (NCTE) has prepared a draft syllabus of ITEP for each of the four stages of school education, i.e., Foundational, Preparatory, Middle and Secondary. The National Common Entrance Test (NCET) conducted by the National Testing Agency (NTA) will be mandatory to seek admission in a 4-year ITEP course integrated teacher education programme (Nial et al., 2024). Student teachers graduating from such a course will be experienced and skilled to provide education with a multi-disciplinary approach, inculcating the Indian values and traditions.

ITEP represents a paradigm shift in teacher education, emphasising the importance of cultural competency, experiential learning, and interdisciplinary approaches. This holistic approach to teacher preparation is crucial in creating inclusive classrooms for diverse learners. ITEP helps educators understand and appreciate this diversity, creating an inclusive environment where all learners can thrive. It will help the educators to be competent to adapt to the essential modifications that are needed in a diverse classroom (Nial et al., 2024). By valuing each student's unique background, teachers can foster a sense of belonging and engagement, which is essential for effective learning. ITEP focuses on experiential learning and ensures that educators gain practical skills and insights that transcend traditional classroom instruction. Through continuous learning, active participation in projects and internships, teachers learn to apply theoretical knowledge in real-world contexts, enhancing their teaching effectiveness and student learning outcomes (Alam, 2020; Patil & Venkatesh, 2021). ITEP emphasises on the skills of the 21st century such as critical thinking,

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problem-solving, communication, and collaboration. By preparing educators to teach these skills, ITEP ensures that learners are equipped to navigate the complexities of the modern world. It fosters a culture of continuous professional development, encouraging educators to stay updated with the latest educational trends and technologies. This ongoing learning is essential for maintaining high standards of teaching and adapting to new educational challenges (Alam, 2020). By providing a comprehensive and integrated approach to teacher education, ITEP empowers educators to take on leadership roles in their schools and communities. This empowerment is crucial for driving positive change in the education system and ensuring that all learners receive a high-quality education. (Warsi, 2023).

Need and Significance of the Study

In 2014, the one-year B.Ed. programme in India was extended to a two-year programme to address several critical needs in teacher education. The primary motivation was to enhance teacher preparedness, as the one-year program was considered to be insufficient to equip educators with the depth of theoretical and practical knowledge. The two-year program allowed for a more balanced and comprehensive curriculum. Now there is a shift from a 2 year B. Ed program into a 4-years integrated program. Therefore, there is a need to understand the future prospects of the Integrated Teacher Education Programme (ITEP) from the perspectives of both pre-service and in-service teachers. By understanding the key aspects of ITEP, teachers can shed light on the futuristic needs and demands of teacher training programs. Identifying gaps in their awareness can help in devising targeted strategies for the dissemination and promotion of ITEP among educators. It offers an opportunity to develop a deeper understanding of pedagogical concepts through hands-on training, better preparing them for the realities of teaching. This study evaluates the Integrated Teacher Education Programme (ITEP) by examining its implementation and impact across several dimensions. It helps in understanding the career development of ITEP graduates to assess their performance and student outcomes compared to traditional (2-years) B.Ed. graduates. This research explores ways to balance theoretical and practical components in the ITEP curriculum while incorporating new educational technologies and methodologies. It investigates the challenges faced by institutions, including infrastructure, faculty training, and resource allocation, etc., and examines any resistance to change and strategies to overcome it. The study collects feedback from in-service and pre-service teachers and student-teachers to identify strengths and areas for improvement., Finally, to use the findings of this input to inform policy and curriculum adjustments, and to provide a comprehensive evaluation of ITEP.

Research Objectives

1. To find out the level of awareness about the Integrated Teacher Education Programme (ITEP) among pre-service and in-service teachers in the Delhi-NCR region.
2. To explore the perceived importance and potential impact of ITEP among pre-service and in-service teachers in the Delhi-NCR region.
3. To study the challenges in implementing ITEP from the viewpoint of pre-service and in-service teachers in the Delhi-NCR region.

Research Methodology

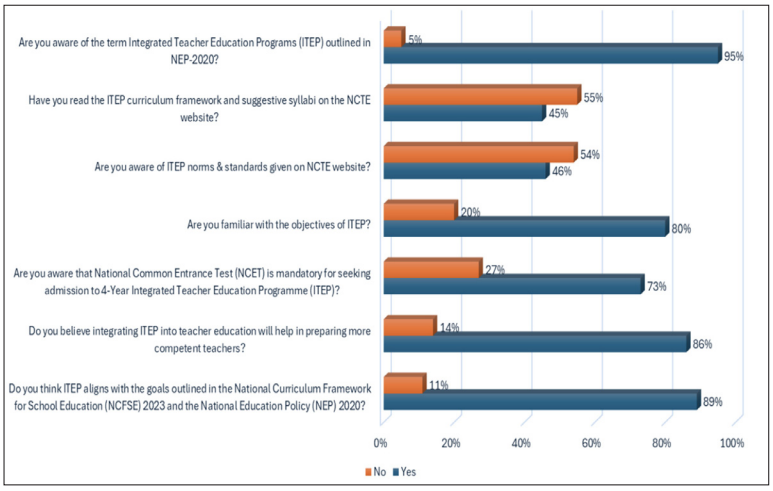
This study utilises a descriptive survey design to evaluate the awareness, perceived importance, potential impact, and challenges associated with the Integrated Teacher Education Programme (ITEP) among pre-service and in-service teachers in the Delhi-NCR region. A self-developed questionnaire was used to gather quantitative data from a sample of 112 participants. Participants were selected randomly to ensure a diverse representation of teachers from various educational institutions. Data collection was conducted via an online survey, distributed through WhatsApp and email. The collected data was analysed using MS Excel.

Results and Discussion

Awareness about ITEP among Pre-service and In-service Teachers

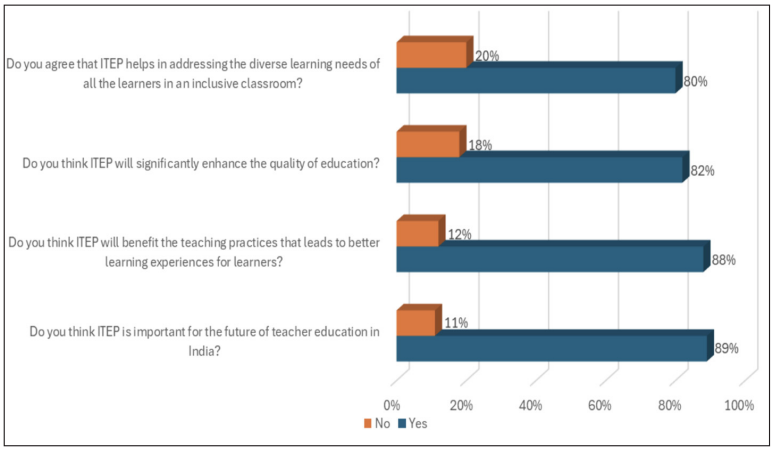
Figure 1 shows varied levels of awareness and understanding of ITEP among the respondents. 95% of respondents are aware of the term Integrated Teacher Education Programme (ITEP) and 80% of respondents are familiar with the objectives of ITEP, which is crucial for effective implementation and support. On the other hand, only 46% of respondents are aware of the ITEP norms and standards available on the NCTE website, indicating that more than half (54%) are not. 55% of respondents haven't read the ITEP curriculum framework, suggestive syllabi and norms and standards on the NCTE website, which indicate substantial gaps in detailed knowledge about ITEP. 89% of respondents believe that

Fig. 1 Awareness about ITEP among pre-service and in-service Teachers



ITEP aligns with the goals outlined in the NCFSE 2023 and NEP 2020. This high level of agreement indicates a strong consensus among teachers that ITEP is consistent with both the National Education Policy (NEP) 2020 and aligned with the National Curriculum Framework for School Education (NCFSE) 2023. 86% of respondents believe that integrating ITEP into teacher education will help in preparing more competent teachers. This reflects a positive perception of the program's potential to enhance the quality of teacher education and produce well-trained, capable teachers. 73% of respondents are aware that the National Common Entrance Test (NCET) is mandatory for seeking admission to the 4-Year Integrated Teacher Education Programme (ITEP). The remaining 27% indicate a gap in awareness that needs to be addressed through targeted awareness campaigns. This significant gap highlights the need for better dissemination of information regarding the specific standards and guidelines of the program.

Fig. 2 Importance of ITEP as Perceived by pre-service and in-service Teachers



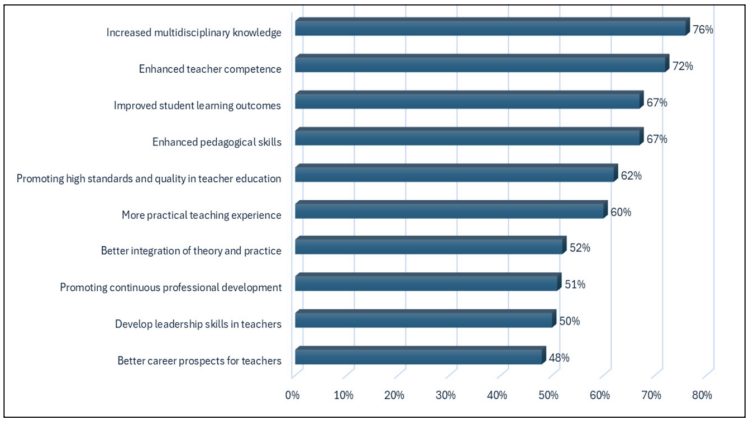
Importance of ITEP from the Viewpoint of Pre-service and In-service Teachers

Figure 2 provides the perceived importance of the Integrated Teacher Education Programme (ITEP) among pre-service and in-service teachers. 80% of the respondents agreed that ITEP will help in addressing the unique educational needs of all learners in an inclusive classroom. 82% of the respondents believe that ITEP will significantly enhance the quality of education by preparing well-trained and competent teachers. 88% of the respondents agreed that ITEP will benefit teaching practices and lead to better learning experiences for learners by having better infrastructure, which has modern laboratories for hands-on learning experiences, active classrooms, power supply with backup generators, digital library, etc. 89%, believe that ITEP is crucial in defining its role in shaping the next generation of in-service teachers.

Impact of ITEP from the Viewpoint of Pre-service and In-service Teachers

Figure 3 shows how pre-service and in-service teachers perceive the potential impact of the Integrated Teacher Education Programme (ITEP). Majority of respondents (76%) agreed that ITEP will enhance multidisciplinary knowledge among teachers, while 72% foresee an improvement in teacher competence, indicating that the program will boost their professional skills and enable them to provide higher-quality education. Additionally, 67% predict that ITEP will lead to better student learning outcomes, reflecting an expectation that well-trained teachers will positively impact learners' academic performance and overall educational experience. Teachers highlight the enhancement of pedagogical skills as a key benefit, with 67% pointing to the program's potential to refine teaching methods and incorporate innovative instructional strategies. 62% of respondents believe that ITEP will help to upgrade educational benchmarks in teacher education. 60% of respondents believed that the inclusion of more practical teaching experiences are significant and emphasized the value of hands-on experience in translating theoretical

Fig. 3 Impact of ITEP as perceived by pre-service and in-service teachers



knowledge into practical application. The importance of aligning educational concepts with real-world teaching scenarios is acknowledged by 52% of respondents. Continuous professional development is identified as a benefit by 51% of teachers, underscoring the necessity for ongoing learning and skill enhancement to keep educators updated with the latest trends and best practices. Developing leadership skills in teachers is another perceived potential impact, recognized by 50% of respondents. 48% believe that ITEP will improve career prospects for teachers, suggesting that the program is seen as a pathway to better job opportunities and professional recognition.

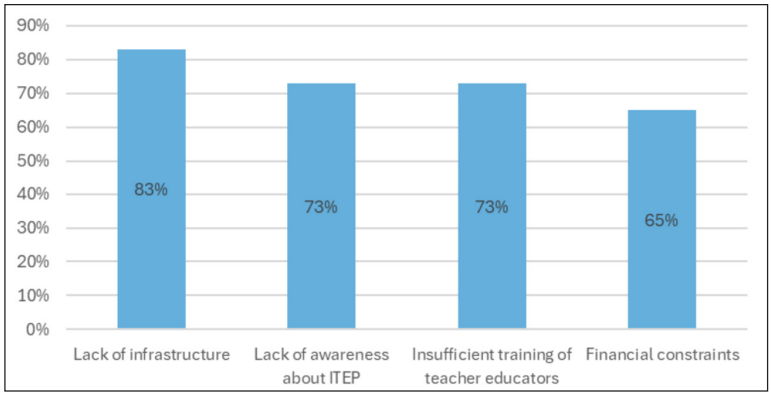
Challenges in Implementing ITEP from the Viewpoint of Pre-service and In-service Teachers

Figure 4 highlights several significant challenges anticipated by pre-service and in-service teachers in implementing the Integrated Teacher Education Programme (ITEP). The majority of respondents (83%) reported that the lack of infrastructure is the major challenge in implementing the ITEP. This indicates a widespread perception that existing facilities are inadequate to support the comprehensive requirements of ITEP. 73% of respondents identified a lack of awareness about ITEP as one of the major challenges and insufficient training for teacher educators is the most significant barrier. The readiness of teacher educators is crucial for the program's success and addressing this gap is imperative. 65% of the respondents believe that financial constraints are major concerns in the implementation of ITEP. Resistance to change among teachers was reported by 61% of respondents as a potential challenge. Addressing these challenges will be essential for the effective implementation and sustainability of ITEP, ensuring that it can fulfil its objectives in transforming teacher education.

Major Findings of the Study

- Majority of respondents (95%) are aware of the term Integrated Teacher Education Programme (ITEP).
- 55% of respondents haven't read the ITEP curriculum framework and suggestive syllabi and norms and standards on the NCTE website.
- 54% of respondents are not aware of the ITEP norms and standards available on the NCTE.
- 86% of respondents believe that integrating ITEP into teacher education will help in preparing more competent teachers.
- 80% of the respondents agreed that ITEP will help in addressing all the unique learning needs of learners in an inclusive classroom.
- 82% of the respondents believe that ITEP will significantly improve the quality of education by preparing well-trained and competent teachers.
- 88% of the respondents believed that ITEP will benefit teaching practices and lead to better learning experiences for learners.
- Majority of respondents (76%) found that ITEP will enhance multidisciplinary knowledge among teachers.
- 72% of respondents foresee an improvement in teacher competence, indicating that the program will boost their professional skills.

Fig. 4 Challenges in implementing ITEP as perceived by pre-service and in-service teachers



- The majority of respondents (83%) reported that lack of infrastructure is the major challenge in implementing the ITEP.
- 65% of the respondents believe that financial constraint is one of the major concerns in the implementation of ITEP.
- 61% of respondents identified resistance to change among teachers as one of the potential challenges in the implementation of ITEP.

Conclusion

The shift from the two-year B.Ed. programme to the 4-year Integrated Teacher Education Programme marks a major change in teacher education that aimed to fix the issues prevalent in the older system. This study shows that both pre-service and in-service teachers have different levels of awareness about ITEP, highlighting the need for better communication and information sharing. ITEP will attract more talented individuals to the profession. The structured and extended training program can help make teaching a more attractive career option. Teachers see the value in ITEP, recognising that its mix of classroom learning and hands-on practice can provide a more complete training experience. However, challenges such as resistance to change among teachers, lack of infrastructure and resources, insufficient training of teacher educators and financial constraints and lack of awareness about ITEP among teachers need to be addressed. With proper support, ITEP can improve the quality of teacher education by meeting both national and global standards, leading to better-prepared, competent and more skilled teachers who will be able to handle all the needs of a modern classroom.

Suggestions for Future Research

1. Future research may be conducted longitudinally to assess the long-term impact of ITEP on both teacher performance and student outcomes.
2. Studies exploring the challenges faced by institutions in implementing ITEP, such as infrastructure, faculty training, and resource allocation, may be conducted.
3. Researchers may assess the impact of ITEP-trained teachers on diverse student populations, including those from marginalised communities. Exploring how ITEP addresses the special educational requirements would provide important insights to prepare better competent teachers.
4. Researchers may examine the role of policy support in the successful implementation of ITEP across different regions.

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Guiding Principles of Life: Commitment, Involvement, and Confidence

Polavarapu Mallikharjuna Prasad, Chairman-cum-Managing Director, Coal India Limited delivered the Convocation Address at the 21st Convocation Ceremony at the National Institute of Technology, Rourkela on January 20, 2024. He said, *"I urge all of you to dedicate yourself to the cause, ideals, principles, and requirements of our motherland. Inculcate the spirit of accommodation, concept of values, perception of the future, association with the best, capacity to invite, strength of character, and the power to right the wrong, and not wrong the right. Have an open and balanced mind. When you disagree with someone please try to at least understand in what way they could be right. A true professional is one who is prepared to accept a superior idea even from his inferior if it has merit."* Excerpts

To begin with, I offer my Heartiest Congratulations and Best Wishes to the young graduates of today. I feel humbled to be standing in the holy hall of this 62 year old premium national level institute that has been impartingquality technical education in the country, igniting many young minds.

Dear students, feel proud that you are alumni of an institute that is filled with a long line of academic excellence, values, ethics, heritage and rich learning culture.

On this graduation day ceremony or *'Deekshaant Samaaroh'* the oath that you undertake "we shall utilise our knowledge, experience, and skills to the best of our ability to the service of the nation upholding the dignity and the integrity of our profession" is truly profound. In years to come, whatever professional career you may embark upon, let this oath be your guiding principle.

Today is a momentous day not only for those who have graduated, but also for the teachers who have academically nurtured yet another batch and for the parents as well who witnessed the culmination of cherished dreams in their children. The vibrancy, enthusiasm, excitement, thrill, and the pride of the graduation day is evident in the air. Today also marks the successful conclusion of many sleepless nights, sacrifices, struggles, the virtue of merit and the long hard labour. Cherish and remember the well-deserved moment.

You have successfully completed the knowing part. Now begins the growing part. The time has come for you to translate the acquired knowledge into action. Till now, as students you have been under the cocoon of protection and watchful eyes of your caring professors and parents who tended you with affection, and at times with admonition. From now on, you step into life as independent young individuals responsible for every action and decision that you make. You shall be embarking upon a great adventure called professional career. Be well prepared for it. Think hard and set up your career goals. Be guided by your own individual passion. Follow the profession that you most enjoy. Pursue what appeals you the best. An independent thinking mind is more potent than thoughts that are institutionalized. Unlike in the past, there are multiple opportunities spread before you today to create your own name and establish yourself as you want to be. What matters most is commitment, involvement, and confidence.

The beauty of human endeavour lies in possibilities. So, never stop dreaming and keep challenging yourself.

That way you will keep evolving and become a better version of yourself. No matter where you work or who you work with, be sensitive to your peers, helpful to your juniors and respectful to your seniors. In the words of Aurobindo, 'the purpose of life is not to live alone but to be of service to others'. Have a true concern for social responsibility.

As our great Nation is emerging as one of the fastest growing economies in the world, you are living in exciting times that offers diversified opportunities for professional growth. You are living in the times of information and communication explosion, you are living in the times of rapid technological advancements, you are living in the times of globalization and digitalization, you are living in the times of skill development and you

are living in times of expanding business opportunities.

With India on a high growth orbit industrially, professional opportunities for young engineers like you are plenty. Hon'ble Prime Minister of India, has recently said that the world looks at India as a pillar of stability, a trusted friend, and a global growth engine. India's power sector is growing exponentially with increase in capacity addition. So is renewable energy sector with solar and wind as twin growth engines. Steel, cement, construction and other infrastructure industries are booming. With the continuing structural reform and globalization, India is accelerating its growth rate. The growing Indian economy promises a brighter future for young engineers. Globalization means additional job opportunities. Because of its vast and highly talented Human Resource, India has become a favourite destination for many MNCs to set up their production lines in the country. The future is bright and you are part of that future in India.

Also, the country's Central Public Sector Enterprises match with the best global entities in terms of professional approach and compensatory packages, becoming favorite employment destinations.

You are living in a digital era marked by advanced technology which is disruptive in nature and in this landscape innovation and entrepreneurship have become more important than ever.

Some of you may go on your own, establishing businesses as young entrepreneurs. My best wishes to those bold individuals. I truly admire their spirit of adventurism for they will not only be fulfilling their own dream but help generate employment opportunities for others. It is essential for an entrepreneur to be adaptable and resilient to thrive in dynamic environments. Also be creative and innovative, self-reliant and independent.

Make your alma mater and the country proud of you. Alma Mater in Latin means "nourishing mother". NIT, Rourkela has nourished your education. Always give back to your Institute in whatever manner you can. It is not a mere obligation but a moral responsibility.

The propensity of life is that, it offers you success and failure, pleasure and pain in equal or at time in disproportionate amounts. This is a big change that you have to cope with as young adults. Take them in your stride with equal composure. Do not be deterred by setbacks. They do not stay long. They are like fleeting clouds which will be swept away by winds of your confidence.

Thomas Alva Edison, the inventor of electric bulb, put his failures in a brilliant perspective. He famously said that—he found 2000 ways of how an electric bulb does not work before he got it right.

I am sure you have all heard of Michael Jordan - the basketball legend. Once, he was asked what makes him such a successful player. He said "I've missed more than 9,000 shots in my career. I've lost almost 300 games. On 26 occasions, I have been trusted to take the game-winning shot but missed. I've failed over and over again in my life. And that is why I succeeded".

This teaches us one thing. Success is neither magical nor mysterious but a natural consequence of consistent application of basic fundamentals - the time tested hard work, perseverance, honest and sincere efforts.

Always be honest about your strengths, weaknesses and responsibilities. Coal India Limited, the company that I am a part of, is the largest corporate employer in the country and our greatest asset is Human Resource. I deal with many Executives at different levels. This experience has taught me one thing. I have noticed that the most successful executives are those who are confident about their strengths, at the same time being aware of their weaknesses. They are also the ones who are very conscious of their responsibilities. They also who do not hesitate to flag off the harsh realities and bring them to the attention, instead of dusting them under the carpet. This is intellectual honesty.

As young engineers, you are all aware of what Synergy is. That is, the combined effect is greater than the sum of separate effects. This is the perfect example of a *Team*. Concerted efforts produce better result than individual results. Always be a team member. Individually you may be brilliant but nurturing and developing team is important.

Leading a company like Coal India is a day to day challenge. We have been given a target to produce 780 Million Tonnes of coal by the end of this financial year. This, by any means is a daunting task, after having breached the 700 MTs production mark for the first time only a year ago. Most of our

mines are located in difficult geo-mining conditions. The engineers of these coal mining areas and skilled manpower have not been discouraged by these challenges and hardships. They encounter many difficulties, yet their unified concerted purpose is to produce the precious energy resource that the country needs for its development and progress. As a result, we are on course with the target. The point of my saying is that, difficulties will be many but one has to face them with confidence, composure and sense of responsibility.

Nearly 70% of India's electricity generation is coal based. Producing 80% of the country's entire coal production, Coal India's coal contributes to bulk of this generation. We load thousands of railway wagons every day to ensure our coal reaches the far flung corners of the country. We produce coal minimizing the impact on environment. Our operations continue round the clock, throughout the year in sweltering hot conditions, to heavy downpour, to chilling cold. We do not have the comfort of working in closed conditions. Our operations are exposed to the harsh natural elements.

In all the modesty I say, if we claim to be a successful coal mining company it is because we work as a *Team*. Some of our subsidiaries produce higher quantities of coal than their respective targets, and stand up for others lagging behind. But finally it is the *Team* Coal India that succeeds. I am also pleased to inform you that both our establishments share cordial and mutually beneficial relations. Mahanadi Coalfields Limited, our Odisha based subsidiary funded a few projects in 'Foundation to Technology & Business Incubation'- (FTBI) at NIT Rourkela. Under MCL's CSR umbrella we have supported the construction of 500 seated girl's hostel at NIT Rourkela. In principle approval in place to fund for the construction of Kendriya Vidyalaya - NIT Rourkela as well. Dear young friends, the country is in need of your knowledge and energy. With self- confidence it is time for you to go out and make a mark for yourself.

I am confident that many of you shall carve out successful careers. Amidst the soaring path of success, never let go of the human element in you. Keep the 'person' in you close to the 'professional' in you. Have an open and balanced mind. When you disagree with someone please try to at least understand in what way they could be right. A true professional is one who is prepared to accept a superior idea even from his inferior, if it has merit.

On this special day of your life I urge all of you to dedicate yourself to the cause, ideals, principles and requirements of our motherland. Inculcate the spirit of accommodation, concept of values, perception of the future, association with the best, capacity to invite, strength of character and the power to right the wrong, and not wrong the right.

Let that Character in you tower over the Power. That is the sign of a truly successful person.

Jai Hind !

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University News
Wishes its Readers
A Very Healthy and Happy
New Year 2026

International Seminar on Emerging Research Trends

A two-day International Seminar on 'Emerging Research Trends in Computer Science' was organised by the Department of Computer Science, St. Anthony's College, Shillong, Meghalaya through hybrid mode, recently. The event brought together distinguished experts and scholars from across the globe to discuss cutting-edge developments in computer science.

The large language models and industry transformation speaker, Mr. Biswajeet Mishra, Google Gemini, USA delivered insights on LLMs' revolutionary impact on industry practices, highlighting their evolution from basic autocomplete systems to sophisticated tools capable of complex problem-solving and creative tasks. His presentation emphasised the transformative potential of multimodal models and their applications across healthcare, education, and gaming sectors.

AI, crowdsourcing, and gamification speaker, Dr. Rajiv Vaid Basaiawmoit, Aarhus University, Denmark presented innovative approaches combining artificial intelligence with crowdsourced solutions. His session demonstrated how gamification platforms like Foldit and Genes in Space have solved complex scientific problems through collective intelligence, highlighting the potential for citizen science initiatives.

The quantum computing and IoT innovation speaker, Mr. Shrikrishna S. Chippalkatti, C-DAC Bangalore, detailed India's indigenous technological developments, focusing on Hexa-scale supercomputing initiatives, Indigenous microprocessor development, IoT research lab innovations, and Quantum technology advancement programs.

The speaker of the session on 'Large Language Models: An Introduction' was Prof. Jugal Kalita, College of Engineering and Applied Science, University of Colorado. He recounts his journey through the evolution of language modelling, from ancient grammatical systems to modern neural networks and large language models like ChatGPT. Drawing from his recent lecture. He explored key developments in the field, including rule-based modelling, statistical n-gram models, and the transformative impact of neural architectures—particularly transformers. He also reflected on the applications, benefits, and challenges posed by tools like ChatGPT in educational contexts and beyond. This is not only a technological shift but a cultural and ethical one, demanding critical engagement from educators, researchers, and policymakers alike.

AI-Augmented Robotic Neurorehabilitation Speaker, Prof. Shyamanta M. Hazarika, Indian Institute of Technology Guwahati presented groundbreaking work in robotic neurorehabilitation, demonstrating how AI-integrated prosthetic devices and exoskeletons are revolutionising healthcare. His research showcased the integration of EEG and EMG signals with machine learning techniques for personalised rehabilitation solutions.

Mr. Subhash Puyam, North Eastern Space Applications Centre, Indian Space Research Organisation, spoke during the session on 'Space Technology Applications'. He highlighted the transformative role of space technology in governance and societal applications, particularly focusing on disaster management systems, environmental monitoring, AI-driven spatial analytics, and regional development initiatives.

The event was supported by the State Council of Science, Technology and Environment, Meghalaya, and NEEPCO, Shillong, enabling comprehensive coverage of emerging trends in computer science. The event successfully fostered cross-disciplinary knowledge exchange, industry-academia collaboration opportunities, research networking platforms, and future technological innovation pathways. The seminar concluded with a strong emphasis on continuing research collaborations and technological innovation, setting the stage for future editions and cementing its position as a premier academic event in the region.

International Conference on Policy to Practice

A two-day International Conference on 'Policy to Practice: Integrating the SDGs for Inclusive Development' is being organised by the Department

of Sociology, University of Madras, Chennai, Tamil Nadu from February 05-06, 2026 through hybrid mode. Bringing together academicians, researchers, policymakers, and practitioners cum development agents, the conference promotes interdisciplinary dialogue to generate evidence-based insights that foster inclusive and sustainable growth aligned with the UN SDG Agenda of 2030. The event serves as a platform to critically explore how the United Nations Sustainable Development Goals (SDGs) are translated into effective policies and transformative practices around the globe. In the context of growing inequalities, climate challenges, and rapid technological changes, it aims to bridge the gap between global agendas and local developmental realities. The event focuses on transforming the SDGs from vision to action through research, policy innovation, and social engagement. The Subthemes of the event are:

Basic Needs, Human Well-being and Social Inclusion

- Pathways to Sustainable Poverty Eradication.
- Zero Hunger: Food System and Social Justice.
- Transforming Health System for a Sustainable Future.
- Inclusive and Equitable Education for All.
- Advancing Gender Equality for Building the Future.
- Reducing Inequalities within and among Nations.

Water, Sanitation and Environment

- Sustainable Sanitation Systems and Hygiene for All.
- Energy Justice and the Path to Net Zero.
- Climate Action for a Resilient Planet.
- Conserving Land and Sea for Future Generations.

Labour, Industry and Economic Growth

- Transforming Economies through Decent Work and Innovation.
- Smart Infrastructure, Building Sustainable Societies.
- From Smart Cities to Sustainable Communities.

Peace, Justice and International Relations

- Peaceful Nations, and Empowering Human Rights.
- Building Partnerships for Global Progress.

For further details, contact Conference Director, Prof. M Thamilarasan, Professor and Head, Department of Sociology, University of Madras, Chepauk, Chennai 600005, E-mail: *socinc2026@gmail.com.* For updates, log on to: *www.unom.ac.in/events/*

International Conference on Literature and Culture

A two-day International Conference on 'Literature and Culture in the Digital Age' is being organised by the Department of English and Culture Studies, Mizoram University, Aizawl, Mizoram from April 29-30, 2026.

The digital age has transformed how literature and culture are produced, circulated, and experienced. Though literary forms have continually evolved, the core power of literature—the emotion, insight, and truth carried through language—endures, even as it reaches audiences through diverse, technologically mediated channels.

Where writers once slowly built readerships and shaped cultural sensibilities, today's literary landscape is defined by rapid shifts driven by digital technologies and shrinking attention spans. Literature and cultural production now compete with fast-moving trends and fleeting digital spectacles. In this continuous flow of information, there is a growing risk of normalisation, where war, trauma, hunger, disease, violence, and even religion become consumable fragments within an endless media stream.

Historically, literature has illuminated human truth and reshaped individual and collective consciousness. In the present moment, however, technology, including digital platforms, algorithms, and artificial intelligence plays an increasingly central role in generating and disseminating narratives. This raises urgent questions about authorship, authenticity, and the evolving place of literature when human and technological modes of storytelling intersect. The themes of the event are:

- Authorship and Creativity in the Digital Era.
- Indigenous Voices and Intersectional Identities in the Digital Age.
- Body, Performance and Representation in Digital Literature.
- Digital Cultures and Communities: Fan Fiction and Online Readerships.

- Literature, Culture, and Artificial Intelligence: Philosophical, Ethical, and Cultural Implications.
- The Posthuman Body in Literature and Media.
- Pedagogy and Research in the Digital Age: E-learning, Digital Pedagogy, Open Access, Future of Literary Scholarship.
- Posthumanism, AI and Future of Cultural Studies.

For further details, contact Organising Secretary, Department of English and Culture Studies, Mizoram University, Aizawl, Mizoram-796004, Mobile No: 09862296755 / 09717339807, E-mail: *ecs.iclc2026@gmail.com.* For updates, log on to: *https://mzu.edu.in/events/*

National Conference on Transforming India's Counter-Terrorism Strategy

A two-day National Conference on 'Transforming India's Counter-Terrorism Strategy in *Amritkal*: Emerging Trends and Security Dilemmas' is being organised by the Centre for International Politics, Organisation and Disarmament School of International Studies, Jawaharlal Nehru University, New Delhi from February 26-27, 2026. The event is supported by the Indian Council of Social Science Research (ICSSR), New Delhi.

Terrorism has been one of the most persistent and complex threats to India's national security. Over the decades, India has confronted diverse forms of terrorism—cross-border militancy in the Jammu, Kashmir, and the Ladakh region, insurgencies in the Northeast, leftwing extremism, and their sophisticated urban terror networks. These threats have evolved gradually with a definite scope, intensity, and operational methods that are motivated by technological innovation, shifting geopolitical realities, and the globalisation of radical and extremist ideologies. The Themes/Subthemes of the event are:

- Transformation of India's Counter-Terror Framework in the *Amritkal.*
- Historical Evolution of India's Counter-Terrorism Framework and Institutional Architecture.
- Technology and Hybrid Threats: Cyber Terrorism and Radicalisation and Counter-Radicalisation Strategies.
- Cross-border Terrorism and Regional Security Architecture.
- Intelligence-Sharing/Coordination and Inter-Agency Coordination.
- International Cooperation and India's Role in Global Counter-Terrorism Diplomacy.
- Pakistan: The Epicentre of International Terrorism.
- Return of Taliban in Afghanistan and Terror Threats to India.
- Cross-border Terrorism in Jammu and Kashmir, Surgical Strikes and Air Strikes.
- India's Action on the Transnational Terror Financing Network.
- Terrorism as a Political Tool, the Myth of Just and Unjust War.
- Pahalgam Terror attack, 'Operation Sindoor', and Afterwards.
- Legal Frameworks, Human Rights Concerns, and Accountability.
- Women under the Shadow of Terrorism.

For further details, contact the Organising Secretary, Centre for International Politics, Organisation and Disarmament School of International Studies, Jawaharlal Nehru University, New Delhi-110067. E-mail: *conferenceseminarpsahoojnu@gmail.com*. For updates, log on to: *www.jnu.ac.in/events/* ❑

THESES OF THE MONTH

SCIENCE & TECHNOLOGY
A List of doctoral theses accepted by Indian Universities
(Notifications received in AIU during the month of Nov-Dec, 2025)

AGRICULTURAL & VETERINARY SCIENCES

Agronomy

1. Kuldeep Kumar. **Enhancing productivity of chickpea based intercropping through foliar spray of NPK and gibberellic acid**. Department of Agronomy, Birsa Agricultural University, Ranchi.

Entomology

1. Singh, Ankit Kumar. **Population dynamics and management of insect pests on summer Mungbean under agroclimatic conditions of Ranchi, Jharkhand**. Department of Agricultural Entomology, Birsa Agricultural University, Ranchi.

Food Science and Technology

1. Anushree, R K. **Standardization and quality evaluation of value added products prepared by utilization of white finger millet (*Eleusine coracana* L) and Sorghum (*Sorghum bicolor* L)**. (Dr. B S Agarkar), Department of Food and Nutrition, Vasantrao Naik Marathwada Krishi Vidyapeeth, Parbhani.
2. Kamble, Rahul Eknath. **Studies on development of unripe green banana flour (Resistant starch) based functional food products**. (Dr. K S Gadhe), Department of Food Chemistry and Nutrition, Vasantrao Naik Marathwada Krishi Vidyapeeth, Parbhani.

Horticulture

1. Gharate, Pooja Sanjay. **Studies on ampelographic, biochemical and molecular characterization of grapes (*Vitis vinifera* L) Germplasm under sub-tropical climatic condition**. (Dr. G M Waghmare), Department of Horticulture, Vasantrao Naik Marathwada Krishi Vidyapeeth, Parbhani.

Soil Science

1. Aanchal. **Effect of nutrient management practices on carbon and phosphorus dynamics and soil health in maize-wheat cropping system**. (Dr. Sanjay K Sharma), Department of Soil Science, CSK Himachal Pradesh Krishi Vishvavidyalaya, Palampur.
2. Baghel, Chhaviraj. **Effects of boron and molybdenum application on their dynamics and maize-cauliflower productivity in an acid alfisol**. (Dr. Pardeep Kumar), Department of Soil Science, CSK Himachal Pradesh Krishi Vishvavidyalaya, Palampur.
3. Prakriti. **Effect of conservation tillage and weed management practices on nutrient and microbial dynamics in aerobic rice-wheat system**. (Dr. Naveen Datt), Department of Soil Science, CSK Himachal Pradesh Krishi Vishvavidyalaya, Palampur.

BIOLOGICAL SCIENCES

Bio Sciences

1. Lakhbeer Singh. **Elucidating vegetation structure and ecosystem functioning of timberline forests of Western Himalaya**. (Dr. Amit Chawla), Faculty of Biological Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

Biochemistry

1. Navyashree, P. **Diversity oriented synthesis of zerumbone analogues and their anti-inflammatory activity in diabetic animal model**. (Dr .B K Bettadaiah), Faculty of Biological Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

Biotechnology

1. Gupta, Rakesh Kumar. **Bioprocess optimization for nitrogen removal using genomics tools**. (Dr. Anshuman A Khardenavis), Faculty of Biological Sciences, Academy of Scientific and Innovative Research, Ghaziabad.
2. Pallavi, Masannagari. **Combinatorial effects of various antioxidants on stored erythrocytes**. (Dr. Vani R), Department of Biotechnology, Jain (Deemed-to-be University), Bangalore.

Botany

1. Namdev, Renu . **Isolation and identification of endophytic fungi from medicinal plants**. (Dr. Preeti Dass and Dr. R C Verma), Department of Botany, Samrat Vikramaditya Vishwavidyalaya, Ujjain.
2. Solanki, Rekha. **Cytogenetical studies of some important members of series Glumaceae (Monocotyledons) from Dewas and Ujjain Districts of M P**. (Dr. Pinky Dwivedi), Department of Botany, Samrat Vikramaditya Vishwavidyalaya, Ujjain.
3. Vidyashree, C S. **Ecological studies on Algal Flora in the ponds of Kavaledurga Fort, Shivamogga, Karnataka**. (Dr. Somashekar G Malammanavar), Department of Applied Botany, Kuvempu University, Shankaraghatta.

4. Zargar, Shabir Ahmad. **Taxonomic, functional and phylogenetic diversity of native and alien flora in the Trans-Himalayan region of Ladakh**. (Dr. Zafar A Reshi, Prof. Anzar A Khuroo andDr. Aijaz Hassan Ganie), Department of Botany, University of Kashmir, Srinagar.

Life Science

1. Bilung, Carol Jains. **Enrichment of targeted indole alkaloids from Alstonia scholaris through biotechnological approaches and characterization of selected biosynthetic gene**. (Dr. D K Mishra), Faculty of Biological Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

Microbiology

1. Nandakumar, KN. **A prospective randomized comparative clinical study to evaluate the safety and efficacy of synergistic plant metabolite combination in type II diabetes mellitus**. (Dr. Venkataraman P), Department of Microbiology, SRM Institute of Science and Technology, Kattankulathur, Chennai.
2. Yadav, Priyanka. **Impact of green synthesis of silver nanoparticles using Grewia Tenax as a potent antibacterial and antifungal agent**. (Dr. Sreemoyee Chatterjee and Dr. Surendra Nimesh), Department of Microbiology & Biotechnology, IIS (Deemed to be University), Jaipur.

Zoology

1. Mohd Raza. **Agro-pastoral practices and their impacts on wild mammals in Ladakh, Indian Trans-Himalaya**. (Dr. G S Rawat), Department of Bio Sciences, Saurashtra University, Rajkot.
2. Sharma, Surbhi. **Impact of biotic and abiotic factors and role of extension activities for revitalizing silk worm cocoon production in J&K**. (Dr. Meenakshi Sharma and Dr. Shamim Ahmed Banday), Department of Zoology, Sri Sai University, Palampur.

EARTH SYSTEM SCIENCES

Geology

1. Harikrishna, S. **Climate change and coastal geohazards study using remote sensing and GIS from Peravoorani to Pattukkottai Coast Thanjavur District Tamil Nadu India**. (Dr. B Gurugnanam), Department of Applied Geology, The Gandhigram Rural Institute (Deemed to be University) Gandhigram, Dindigul.
2. Rathore, Ankit. **Investigation of neotectonics in man river Basin of lower Narmada Valley in Western Madhya Pradesh**. (Dr. Pramod Kumar Verma and Dr. Shailesh Chaure), School of Earth Science, Samrat Vikramaditya Vishwavidyalaya, Ujjain.

ENGINEERING SCIENCES

Chemical Engineering

1. Dekshinamoorthy, Amuthan. **Surface confined molecular architectures for electrochemical applications**. (Dr. V Saranyan), Faculty of Engineering Sciences, Academy of Scientific and Innovative Research, Ghaziabad.
2. Malekar, Pushpa Vishwanath. **Asymmetric transfer hydrogenation of α-acetyl butyrolactones/ Lactams via dynamic kinetic resolution and new methods for synthesis of dibenzoazepins**. (Dr. C V Ramana), Faculty of Engineering Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

Civil Engineering

1. Japneet Sidhu. **Development of hydrophobicity in geopolymer concrete**. (Dr. Pardeep Kumar), Department of Civil Engineering, National Institute of Technology, Hamirpur.
2. Jena, Subham. **Applications of surface-modified sisal geotextile in geotechnical engineering**. (Prof. Vishwas Nandkishor Khatri and Prof. Lohitkumar Nainegali), Department of Civil Engineering, Indian Institute of Technology, Dhanbad.

Computer Science & Engineering

1. Deepa Rani. **Energy efficient and secure framework for IoT based healthcare**. (Dr. Rajeev Kumar), Department of Computer Science and Engineering, National Institute of Technology, Hamirpur.
2. Dhamodharan, S. **Development of a multi stage pipeline for breast cancer diagnosis in mammograms using preprocessing and machine learning techniques**. (Dr. P Shanmugavadivu), Department of Computer Science and Applications, The Gandhigram Rural Institute (Deemed to be University) Gandhigram, Dindigul.
3. Himanshu. **Optimized security algorithm for images using phase retrieval techniques**. (Dr. Reena Hooda), Department of Computer Science and Engineering, Indira Gandhi University, Meerpur.
4. Jadon, Anil Kumar. **Design of efficient emotion detection and classification techniques using transfer learning and deep neural network**. (Dr. Suresh Kumar), Department of Computer Science and Engineering, Manav Rachna International Institute of Research and Studies, Faridabad.
5. Jaiswal, Updesh Kumar. **Single and multi-objective optimization of software test cases using metaheuristic techniques**. (Dr. Amarjeet Prajapati), Department of Computer Science and Engineering, Jaypee Institute of Information Technology, Noida.

6. Modi, Krishna Pankajkumar. **Development of hybrid learning model for detection of lifestyle diseases**. (Dr. Ishbir Singh and Dr. Yogesh Kumar), Department of Computer Engineering, Indus University, Ahmedabad.
7. Oza, Ravi Rajnikant. **Design and development of model to identify various gestures to determine human behaviour from unstructured data using AI**. (Dr. Dipti H Domadiya), Department of Computer Science, Saurashtra University, Rajkot.
8. Patel, Amitkumar Ranjitbhai. **Modelling students behavior for programming assignments using source code management systems**. (Dr. Hardik Joshi), Department of Computer Science, Gujarat University, Ahmedabad.
9. Praneeth, D. **Diabetic retinopathy detection and classification using machine learning and deep learning techniques**. (Dr. E Aravind), Department of Computer Science & Engineering, Chaitanya (Deemed To Be University), Himayatnagar, Hyderabad.
10. Rimal, Yagya Nath. **Optimizing student's grade prediction model using machine learning techniques**. (Dr. Navneet Sharma), Department of Computer Science & IT, IIS (Deemed to be University), Jaipur.
11. Sharma, Archana. **Meta-heuristic based computational techniques for software effort estimation**. (Prof. Dharmveer Singh Rajpoot), Department of Computer Science and Engineering, Jaypee Institute of Information Technology, Noida.
12. Shrivastava, Vineet. **Design and analysis of hybrid recommender system using machine learning techniques**. (Dr. Suresh Kumar), Department of Computer Science and Engineering, Manav Rachna International Institute of Research and Studies, Faridabad.
13. Soumya, K N. **Investigation of type 2 diabetes patients using knowledge based system**. (Dr. Raja Praveen K N), Department of Computer Science and Engineering, Jain (Deemed-to-be University), Bangalore.

Electrical & Electronics Engineering

1. Bharatheedasan, Kumaran. **Real-time monitoring and prognostics of rotating machinery using hybrid deep learning for bearing fault diagnosis and life prediction**. (Prof. Tanmoy Maity, Prof. L A Kumaraswamidhas and Prof. D Muruganandam), Department of Electrical Engineering, Indian Institute of Technology, Dhanbad.
2. Gadag, Soumya. **Novel segmentation and classification of Melanoma in the framework of deep learning models**. (Dr. Panduranga Rao M V), Department of Electronics Engineering, Jain (Deemed-to-be University), Bangalore.
3. Pardhu, B Sri Satya Ganesh. **Schemes for effective interconnection of non-conventional energy sources to the grid using multilevel inverters**. (Dr. Venkata Reddy Kota), Department of Electrical & Electronics Engineering, Jawaharlal Nehru Technological University, Kakinada.
4. Raghavendra, A. **Development of enhanced security model for IoT devices using stream ciphers**. (Dr. Panduranga Rao M V), Department of Electronics Engineering, Jain (Deemed-to-be University), Bangalore.
5. Sai, C Prasanth. **Certain techniques for performance enhancement solar PV systems under varied operating conditions**. (Dr. M Vijaya Kumar), Department of Electrical Engineering, Jawaharlal Nehru Technological University Anantapur, Ananthapuramu.

Electronics & Communication Engineering

1. Karagthala, Jasmine Jasvantlal. **Speech recognition for regional language using machine learning**. (Dr. Vrushank Shah), Department of Electronics and Communication Engineering, Indus University, Ahmedabad.

Mechanical Engineering

1. Rajat Kumar. **Experimental investigation of heat pipe-assisted battery thermal management system using different types of fluid**. (Dr. Varun), Department of Mechanical Engineering, National Institute of Technology, Hamirpur.
2. Vishal Kumar. **Experimental investigation of biodiesel with nano particles additives in modified diesel engine**. (Dr. Debasish Das), Department of Mechanical Engineering, National Institute of Technology, Hamirpur.

Mining Engineering

1. Mukesh Vikram. **Development of spontaneous combustion classification system of Indian coal using heuristic approach and adiabatic oxidation method**. (Prof. R M Bhattacharjee and Prof. Partha Sarathi Paul), Department of Mining Engineering, Indian Institute of Technology, Dhanbad.
2. Singh, Sanjay Kumar. **Mine planning and sustainable management for mass exploitation of coal deposits: A strategic framework development in Indian context**. (Prof. Dheeraj Kumar), Department of Mining Engineering, Indian Institute of Technology, Dhanbad.

Nanotechnology

1. Sithara, R. **Engineering two-dimensional materials for energy conversion and storage applications**. (Prof. Chandra Sekhar Rout), Department of Nanotechnology, Jain (Deemed-to-be University), Bangalore.

Petroleum Engineering

1. Chakraborty, Rajib. **Laboratory and simulation study of chemical enhanced oil recovery involving alkali surfactant polymer - alkali surfactant flooding for parametric evaluation - Optimization**. (Prof. Ajay Mandal and Prof. Saloma Yomdo), Department of Petroleum Engineering, Indian Institute of Technology, Dhanbad.

MATHEMATICAL SCIENCES

Mathematics

1. Baghel, Shanya. **Robust divergence based inference for one-shot devices**. (Prof. Shuvashree Mondal), Department of Mathematics and Computing, Indian Institute of Technology, Dhanbad.
2. Dubey, Shraddha. **Study of homogeneous cosmological models in f (R, T) theory of gravity**. (Dr. Sudha Agrawal), Department of Mathematics, AKS University, Satna.
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Ayurveda

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4. Jaybhay, Vikas Bharat. **Study the anti-allergic inflammation effect of abhrakbhasma on respiratory epithelium of Rats**. (Dr. Pravat Kumar Dash), Faculty of Ayurveda, Maharashtra University of Health Sciences, Nashik.

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Biotechnology

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Forensic Science

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2. Vidwans, Ruddhida R. **Comparative analysis of bacterial community and keratinophilic fungi from people of different professions**. (Dr. Usha M S), Department of Forensic Science, Jain (Deemed-to-be University), Bangalore.

Pathology

1. Shah, Sweta Bipinchandra. **Analysis of relationship between tumor depth and risk of cervical lymphnode metastasis in oral squamous cell carcinoma**. (Dr. Neelampari Parikh), Department of Oral Pathology, Gujarat University, Ahmedabad.

Pharmaceutical Science

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Physics

1. Abimaheshwari, R. **Investigation on vertically grown SnS2 thin-films by CVD for room temperature NO2 gas sensing applications**. (Dr. Harish S), Department of Physics, SRM Institute of Science and Technology, Kattankulathur, Chennai.

2. Aysha Parveen, R. **Fabrication and evaluation of solution processed robust gas sensor of α-MoO3 nanostructures for NO2 detection**. (Dr.Ponnusamy S), Department of Physics, SRM Institute of Science and Technology, Kattankulathur,Chennai.

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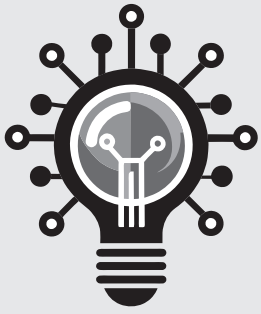

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