



A study of ITEP (B.Sc.-B.Ed.) Syllabus of Regional Institute of Education (NCERT) Bhopal from the perspective of Indian Knowledge System

Dr. Jayant Shankar Boargaonkar¹, Sucharita Panigrahi ², Dr.Dharmendra Patil³

¹Assistant Professor, Department of Education, Regional Institute of Education, NCERT, Bhopal, Madhya Pradesh.

²Research Scholar, Regional Institute of Education, NCERT, Bhopal, Madhya Pradesh. B.Ed.- M.Ed. Three Year Integrated, Bhopal, Madhya Pradesh

³ Junior Project Fellow, Regional Institute of Education, NCERT, Bhopal, Madhya Pradesh

Abstract

This study analyses the syllabus of B.Sc. - B.Ed. - Integrated Teacher Education Programme (ITEP) prescribed for the undergraduate students of RIE, Bhopal. It simply studies the various aspects of the syllabus from the perspective of Indian Knowledge System (IKS) which aims to incorporate traditional Indian Knowledge into the course curriculum. This research also studies ways in which ancient Indian Knowledge is blended with modern teaching aspects in the syllabus in order to cater to the needs of 21st century to make Indian Education System align with the global standards. It aims to examine and analyse if the current B.Sc.-B.Ed.- ITEP syllabus taught at Regional Institute of Education (NCET), Bhopal aligns with the newly introduced UGC guidelines for incorporating Indian Knowledge System into the higher education system or not. It also investigates if the syllabus truly fits into the frame of vision set by NEP 2020 regarding Integrated Teacher Education Programme.

Keywords: Indian Knowledge System (IKS), syllabus, ITEP, perspective, UGC guidelines, NEP 2020, Science, B.Sc. - B.Ed., Ancient India

1. Introduction

India's intellectual and philosophical heritage has long been recognized as one of the oldest and richest traditions of knowledge in the world. The Indian Knowledge System (IKS) encompasses a wide range of disciplines such as Ayurveda, Mathematics, Astronomy, Architecture, Political Science, Art, and Philosophy that have evolved through centuries of reflection, experimentation, and documentation. Ancient scholars like Aryabhata, Charaka, Susruta, Chanakya, Panini, and Patanjali contributed immensely to world knowledge, laying the foundation

for rational thought and holistic development. Their works demonstrate the deep interconnection between science, ethics, and spirituality, and emphasize harmony between human life and nature.

The National Education Policy (NEP) 2020 recognizes this vast heritage, stating that "the pursuit of knowledge (Jnana), wisdom (Prajna), and truth (Satya) was always considered in Indian thought and philosophy as the highest human goal." The policy emphasizes that India's educational system must

nurture and preserve this ancient wisdom by integrating it into modern pedagogy, research, and curriculum development. This vision reflects a paradigm shift from merely acquiring information to internalizing holistic, value-based, and multidisciplinary learning rooted in the Indian ethos.

In alignment with NEP 2020, the Integrated Teacher Education Programme (ITEP) was introduced by the National Council for Teacher Education (NCTE) as a four-year dual-major holistic undergraduate degree, combining professional teacher education with disciplinary knowledge. Launched in 2023–24 in selected institutions including IITs, NITs, and Regional Institutes of Education (RIEs), the ITEP aims to produce teachers who are not only competent in contemporary pedagogies but also grounded in India's cultural and intellectual traditions. From 2030 onwards, ITEP will serve as the minimum qualification for teacher recruitment in India, reflecting its significance in shaping future educators.

Within this context, RIE Bhopal, a constituent unit of NCERT, has adopted the B.Sc.–B.Ed. (ITEP),

2. Literature Review

Afroz (2020) examined the attitudes of teacher educators toward the Four-Year Integrated Teacher Education Programme (ITEP). The study found that while most educators support the integration of pedagogy and subject knowledge, many express concerns regarding curriculum load and institutional readiness for effective implementation.

Avinash (2024) explored Ancient Vedic Mathematics and its educational value. He demonstrated that the rare computational methods of Vedic mathematics enhance analytical reasoning, mental agility, and problem-solving skills, making it a relevant component for integration into modern teacher education curricula.

Bharat and Gnawali (2023) discussed the role of the Guru as an academic leader in Vedic tradition. They highlighted that the Guru was not merely a transmitter of knowledge but also a moral and spiritual guide, emphasizing holistic learning through discipline, reflection, and ethical conduct.

Denis (2024) analyzed how 'traditional Indian knowledge systems' can be integrated into the present education framework. His findings emphasized that blending traditional wisdom with modern scientific

programme with a comprehensive syllabus integrating modern scientific knowledge with the essence of IKS. The course framework emphasizes foundational areas such as Early Childhood Care and Education (ECCE), Foundational Literacy and Numeracy (FLN), inclusive education, and understanding of IKS, aiming to nurture teachers who are intellectually competent, ethically sensitive, and culturally rooted.

This research paper titled "A Study of ITEP (B.Sc.-B.Ed.) Syllabus of RIE Bhopal from the Perspective of Indian Knowledge System (IKS)" seeks to analyze how the ITEP syllabus embodies the principles of IKS as envisioned by NEP 2020. It explores the integration of indigenous knowledge, pedagogical approaches, and cultural values in teacher preparation. The study further investigates whether the curriculum effectively bridges traditional wisdom with 21st-century global competencies, preparing teachers capable of fostering holistic, inclusive, and value-oriented learning in India's school education system.

knowledge fosters both innovation and cultural identity, in line with NEP 2020 objectives.

Meenakshi (2023) explored 'student-teachers' perceptions of ITEP', revealing that most participants appreciated the multidisciplinary approach and holistic structure of the program. However, the study also identified a need for continuous evaluation and faculty training to ensure effective curriculum delivery.

Manjeet Kaur Gill (2019) critically evaluated ITEP and found that its design aligns with NEP 2020's vision for competency-based and integrated teacher preparation. The study also emphasized the necessity of infrastructural support and interdepartmental coordination in its implementation.

Monika (2024) analyzed the concept of 'Panchakosha-Vikas' the Five-Fold Development framework described in NCF 2023. She explained that nurturing the physical, emotional, intellectual, and spiritual dimensions of learners ensures comprehensive development and reflects the essence of the Indian Knowledge System (IKS).

Nico (2019) presented teaching as a 'normative and ethical practice', arguing that education should cultivate values, reasoning, and emotional balance

rather than mere technical competence. His perspective resonates with the philosophical underpinnings of IKS that emphasize holistic education.

Piku (2016) focused on ‘ancient Indian education’ as an inclusive and holistic system that valued intellectual, physical, and moral development. The study noted that ancient institutions like ‘Takshashila’ and ‘Nalanda’ embodied inclusive pedagogies that can inform modern educational reforms.

Pavan (2023) provided an overview of IKS, describing it as a structured system encompassing ‘Jnan’ (knowledge), Vijnan (science), and ‘Jeevan Darshan’ (life philosophy). He emphasized its interdisciplinary nature, integrating observation, experimentation, and reflection in all aspects of learning.

Rupak (2022) discussed strategies for implementing ITEP in accordance with NEP 2020. He highlighted challenges such as faculty readiness, infrastructural support, and curriculum synchronization. The study concluded that ITEP can revolutionize teacher education when supported by strong institutional mechanisms.

Rimmi Datta and Jayanta Mete, in their paper “Indian Knowledge System: Analysis of Traditional Wisdom and Modern Integration,”* discuss how the NEP 2020 promotes the inclusion of traditional knowledge like Ayurveda, Yoga, Vedic Mathematics, and classical arts in modern education. They note rising enrollments in Ayurvedic and art programs, the widespread adoption of yoga in schools, and improved analytical skills through Vedic Mathematics. Government support and digital platforms have made traditional learning more accessible, reflecting a successful blend of ancient wisdom with modern education.

Sheikh (2025) examined the relationship between IKS and ‘sustainable development’. He argued that ancient Indian wisdom, emphasizing ecological balance and ethical living, can contribute significantly to achieving modern Sustainable Development Goals (SDGs).

According to various researchers, the Gurukul system represents a holistic model of education that fosters self-discipline, moral strength, and humanism. Jayalakshmi and Smrithi Rekha (2022) note that living with teachers helps students internalize values through daily life. Sengupta (2021) emphasizes the system’s focus on ethics and respect for all beings, while Singh

(2022) highlights its experiential learning in subjects like philosophy, yoga, and medicine. Adhikari (2023) and Pareek (2021) point out its role in nurturing compassion, spirituality, and social responsibility. Shrinivasa (n.d.) adds that integrating Indian Knowledge Systems (IKS) and local languages under NEP 2020 can strengthen cultural roots and inclusivity in modern education.

Subash (2005) explored science in ancient India, documenting remarkable progress in mathematics, astronomy, logic, medicine, and linguistics. He argued that these disciplines reflected a deep scientific temper and rational inquiry long before modern scientific paradigms emerged.

Syllabus (ITEP-B.Sc. B.Ed.) of the Regional Institute of Education (NCERT), Bhopal integrates theoretical and practical courses reflecting NEP 2020. It emphasizes foundational literacy, inclusive education, ICT integration, and Indian Knowledge System elements across its curriculum.

Taj (2019) identified ‘issues and challenges’ in implementing the Four-Year ITEP. The paper stressed the importance of aligning institutional policies, faculty training, and infrastructure to ensure successful operationalization of the integrated model.

UGC (2023a) issued guidelines for incorporating Indian knowledge in higher education curricula, encouraging universities to include Indian heritage, philosophy, and sciences to foster national identity and cultural awareness among students.

UGC (2023b) provided frameworks for courses on Indian heritage and culture, emphasizing experiential learning, interdisciplinary understanding, and the inclusion of traditional texts in modern higher education.

Tirath Das and Astha (2024) discussed ‘ancient Indian teaching and learning principles’, such as experiential learning (Anubhavadharit Shiksha), self-reflection (Swadhyaya), and discussion (Vada). They found these approaches highly relevant to the learner-centered pedagogy proposed in NEP 2020.

National Education Policy (2020) laid the foundation for reforms in teacher education and curriculum development, recommending the integration of IKS in all disciplines to promote holistic, values-based, and multidisciplinary learning.

Avinash (2024) reiterated the relevance of ‘Vedic mathematical techniques’ for enhancing cognitive skills and creativity among learners. He argued that such traditional tools can make mathematics teaching more interactive and conceptually grounded.

Denis (2024) in another related work reinforced that the ‘integration of traditional Indian knowledge’ helps develop global competencies rooted in indigenous understanding, fostering both innovation and ethical leadership.

Meenakshi (2023) confirmed that ‘student-teachers in ITEP programs’ gain a better appreciation of pedagogical integration, multidisciplinary approaches, and reflective teaching practices elements deeply inspired by IKS.

Rupak (2022) again highlighted that curriculum realignment and teacher preparation remains key to

ITEP’s success, calling for the inclusion of regional knowledge, cultural studies, and moral education within ITEP syllabi.

Summary

The collective insights from these 25 scholars and sources reveal that the Indian Knowledge System offers a profound framework for holistic education. It emphasizes moral, intellectual, and spiritual development alongside academic excellence. The Integrated Teacher Education Programme (ITEP), guided by NEP 2020 and supported by UGC frameworks, seeks to revitalize this heritage in modern education. However, successful integration depends on careful curriculum design, institutional readiness, and educator training.

3. Need of the study

The Integrated Teacher Education Programme (ITEP) is a revolutionary approach in teacher education. It aims to provide holistic development to future teachers by combining academic knowledge, practical skills, and values. However, such a major change in the education system requires careful planning and proper implementation. This study focuses on the key

features of ITEP and its connection with the Indian Knowledge System (IKS), showing how it can improve teacher education in India. It also highlights the importance of bringing back our ancient knowledge, culture, and traditions, and combining them with modern education to meet the fast-changing needs of today’s world.

4. Research Objectives

The research objectives of the study were selected which are as follows:

1. To gain a deeper insight into the traditional Indian Knowledge System.
2. To compare ITEP (B.Sc.-B.Ed.) syllabus to that of the guidelines of UGC-2023 and vision of NEP 2020.
3. To analyse the components of the syllabus from Indian Knowledge System (IKS) perspective.
4. To analyse the various prescribed aspects of the syllabus such as, its instructional content, learning outcomes, and modes of transaction, practicum, assessment and references of its reading materials.

5. Research Questions

Based on the research topic and objectives, the study focuses on the following questions:

1. How important is the Indian Knowledge System (IKS) in today’s world?
2. Are four years sufficient to teach all the skills required for the 21st century?
3. What is the role and scope of IKS in science education?
4. What are the key components of the B.Sc.-B.Ed. syllabus of ITEP at RIE Bhopal?
5. Do the practical activities in the syllabus match the theoretical content?
6. Do the syllabus objectives follow the UGC (2023) guidelines for integrating IKS into higher education?

7. How does the syllabus align with the vision of NEP 2020 regarding ITEP and IKS?

8. How will the integration of IKS in ITEP influence the perspectives of students as future teachers?

6. Delimitations

This research will focus only on the analysis of the undergraduate science stream syllabus of the Integrated Teacher Education Programme (ITEP) at the Regional Institute of Education (NCERT), Bhopal. It will specifically examine and explore the aspects of the Indian Knowledge System (IKS) included in the education portion of the syllabus.

7. Research Methodology

7.1. Design

This study applies a well-suited document analysis as the method which enables an in-depth analysis of the study of the syllabus of ITEP (B.Sc.-B.Ed.) of Regional Institute of Education, Bhopal. Here, the prescribed syllabus itself and various pre-existing literature like the document of NEP-2020 and the UGC Guidelines for Incorporating Indian Knowledge in Higher Education Curricula-2023 serve as primary data sources. Document analysis seemed appropriate for the study as it allows for a critical review and comprehensive understanding of the syllabus as the central document, giving deeper insight into its context and practical application from the Indian Knowledge System perspective.

7.2. Procedure

By employing two data collection methods- one is, collecting the syllabus primarily from the students

and faculty members of the Department of Education and the Department of Science (Botany, Zoology and Chemistry), RIE, Bhopal and secondly, collecting all the pre-existing documents and literatures from various websites like, Shodhganga@INFLIBNET, Shodhgangotri, ResearchGate.in, Academia Edu, etc.- ensured a nuanced and comprehensive understanding of the syllabus of ITEP (B.Sc.-B.Ed.) and its various aspects. Then, carrying out step by step procedures of analysing the data through document analysis, critically reviewing the syllabus to identify all the strengths and weaknesses to address all the research questions and narrating analysis in the findings, further enhanced the process of the research. This approach was particularly useful for assessing the ITEP syllabus and provide advanced insights for syllabus refinement.

8. Findings

Education in ancient India is of high esteem and stated as:

“ Swadesh Pujiyate Raja, Vidwan sarvatra pujiyate.”

According to Dr. F.E. Key, “ To achieve their aim, not only did the ancient Indians created a system of education which survived even in the events of crumbling of empires and the changes of society, but they also through all those thousands of years, kept a glow of torch of higher learning.”

The education system of Vedic period has qualities which were not found in any ancient education system

throughout the world. It can be a source of inspiration for education in modern times as it was aimed at all-round and inclusive development of a student.

NEP 2020 emphasizes on the relevance of IKS in contemporary education in India. It compels the researchers to delve deeper into the ancient Indian educational values and aspects that could be incorporated in the present day education system. Whether it comes to addressing contemporary challenges through sustainable solutions (eg. drawing from *Ayurveda*, *Unani*, etc into modern day healthcare

system and unit), addressing societal issues, promoting cultural heritage, identity and unity, developing holistic skills, etc, IKS has the capacity to pave the way for construction of one of the best education system. By engaging with these traditions and skills, students will develop critical thinking skills, ethical values and a deeper connection to their roots, their local culture and knowledge.

According to the UGC guidelines, for the introduction of Indian Knowledge in Higher education curricula, the syllabus for ITEP of RIE Bhopal truly includes:

- Adequate number of courses in IKS so that the total credits amount to at least five percent of the total mandated credit and fifty percent of the credits apportioned to the IKS are related to the major discipline.
- There are a number of foundational course papers that are relevant to IKS and to the UG programme.
- The foundational course subjects are broad based and cover introductory material on all aspects.
- The continuity of Indian Knowledge traditions up to recent period of eighteenth or nineteenth century are emphasized in the design of the course paper.
- Characteristic features of core concepts of the Indian Knowledge traditions are highlighted and distinguished from other knowledge traditions of the world.
- Contemporary applications of the IKS are emphasized.
- Elective courses in the eighth semester are offered from which students are allowed to choose appropriately so as to complete a requisite number of courses and credits in IKS.
- Students are also allowed to opt for apprenticeship or practical/application based activities in topics that are related to IKS.
- Students are also encouraged to choose a suitable topic for their project work in seventh semester and work experience in eighth semester.

According to the previously set objectives and research questions the findings are appropriate and very relevant:

- This research indeed provided a deeper insight into the ancient Indian Knowledge, traditions, ethos and cultures and stands in accordance with UGC 2023

- guidelines and the vision of the new Education policy (NEP-2020).
- It explored the various aspects of the syllabus of ITEP of RIE, Bhopal such as its instructional content, modes of transactions, practicum, assessment etc.
- It finally answers the question of its relevance in 21st century as it is high time for its incorporation into various curriculum models in higher education.
- Nalanda was neither built in a day nor was it destroyed in a day. It takes time for anything like Nalanda to be built again. But, four years cannot be considered as less time. If not all, some aspects of the IKS can be incorporated into the students' lives through rigorous efforts. It takes readiness and willingness of the teachers, students as well as the management system to consider 21st century skills and its integration with IKS as necessary and to take necessary steps towards incorporating them.
- The scope of IKS in science education is dynamic and ranges across various disciplines like Biology, Mathematics, Astronomy, Physical sciences, Medicines, Agriculture, etc. and branches towards multidisciplinary directions.
- The various prescribed aspects of B.Sc.-B.Ed. syllabus of ITEP of RIE Bhopal are- the marks and credits distribution of the subject or courses, their learning outcomes, different instructional modules or units, practicums, modes of transactions, activities, modes of assessments, reading materials, etc.
- The practical aspects smoothly aligns with the theoretical aspects of the syllabus and aligns with the guidelines of UGC regarding the incorporation of IKS into the higher education system. It takes into account the vision and mission of NEP 2020, NCF SE 2023 and other schemes and policies and emphasizes upon the necessary aspects related to IKS.
- The integration of IKS and ITEP is going to change the perspectives of the students with respect to their philosophical, social, cultural, local, environmental and pedagogical context. The student teachers are going to view things from a more holistic and Indian view point that is going to change the whole system of education of the nation and take it to the global forum as the "Viswaguru" - the torch bearer of mankind again.

9. Conclusion

No matter how easy things seem to be, it might take a lot of effort by the stake-holders for bringing all the aspects prescribed in the syllabus into reality. But, the knowledge and insights gained from this qualitative research will forever be retained by the researcher. The syllabus contains wide a range of aspects spanned across eight semesters about Indian Knowledge system. The way it is integrated into the syllabus needs to be truly appreciated. Certain aspects of the UGC model curricula are not integrated into the syllabus which are not necessarily needed because it will overburden the students as well as the teachers with the pressure of completing the syllabus within four years. Effective carrying out of the practical aspects in alignment with the theory is to be focused upon in the prescribed syllabus. ITEP, if effectively carried out is going to change the whole scenario of

education system of the nation. RIE, Bhopal under NCERT has taken a first and efficient step towards implementing this vision of NEP 2020 which is to be appreciated again. Further researches in this field is much needed as it is newly introduced into the system of education. Researches on the practical implementation and evaluation of the programme, teacher recruitment, teaching effectiveness from the perspective of Indian Knowledge system are some suggestive examples.

Overall, the research provided an enriching experience of working on such a new topic and wealth of knowledge to be retained forever. It has paved the way for new budding experiments and researches in the field of education.

References

1. Afroz, A. (2020). Attitude of teacher educators towards four years integrated teacher education programme (ITEP). ResearchGate. https://doi.org/10.13140/RG.2.2.18374.34880
2. Avinash, C. (n.d.). Ancient Vedic Mathematics: Rare methods of Indian Mathematics. London Journal of Research in Science: Natural and Formal, 24(11). ISSN: 2631-8490
3. Bharat, P. N., & Gnawali, L. (2023). Guru as an academic leader in Vedic tradition: A review. Bodhi – An International Journal, 9(1), 218–233. ISSN: 2091-0479
4. Denis, V. (2024). Integrating traditional Indian knowledge into the education system. Journal of Propulsion Technology, 45(1). ISSN: 1001-4055
5. Meenakshi, G. (2023). Perception of student-teachers on 4-years integrated teacher education programme (ITEP). International Journal of Creative Research Thoughts (IJCRT), 11(3).
6. Manjeet, K. G. (2019). Integrated Teacher Education Programme: A critical evaluation. JETIR, 6(1).
7. Monika, S. (2024). An exploration into Panchakosha Vikas (Five-Fold Development): A fundamental component of Indian tradition within India's NCF 2023. ResearchGate. https://www.researchgate.net/publication/381760387
8. Nico, A. B. (2019). Teaching as a normative practice. ResearchGate. https://www.researchgate.net/publication/333534451
9. Piku, C. (2016). Ancient India and Inclusive Education. Chitkara University. https://doi.org/10.15415
10. Pavan, M. (2023). Indian Knowledge System (IKS). SSRN. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4589986
11. Rupak, C. (2022). Strategies to implement integrated teacher education programme (ITEP) in respect to NEP 2020. International Journal of Novel Research and Development (IJNRD), 7(9). ISSN: 2456-4184

12. Sheikh, M. M. (2025). Indian Knowledge System and sustainable development: Integrating ancient wisdom with modern sustainable development goals. *Journal of Global Research*, 11(01). <https://doi.org/10.46587/JGR.2025.v11i01.006>
13. Shireesh, K., Rudrawar, S., Gore, S. K., & Popatwar, N. G. (2023). Education system in ancient India.
14. Shrinivasa, V. (2025.). Integration of IKS and ILs in Indian education through NEP 2020. Central Sanskrit University, New Delhi.
15. Subash, C. K. (2005). Science in ancient India. Louisiana State University, LA, USA.
16. Syllabus, ITEP-B.Sc. B.Ed. Regional Institute of Education, NCERT, Bhopal.
17. Taj, H. (2019). Four-year integrated teacher education programmes (ITEP): Issues and challenges. *International Journal of Informative and Futuristic Research*, 6(6), 21–23.
18. UGC. (2023a). Guidelines for incorporating Indian knowledge in higher education curricula. <https://www.ugc.ac.in>
19. UGC. (2023b). Guidelines for the introduction of courses based on Indian heritage and culture. <https://www.ugc.ac.in>](<https://www.ugc.ac.in>)
20. Tirath Das, D., & Astha, C. (2024). Teaching and learning principles of ancient Indian education system and its relevance with NEP 2020. *International Journal of Current Science (IJCSPUB)*.
21. National Education Policy (NEP) 2020. Ministry of Human Resource Development, Government of India. <https://www.education.gov.in>
22. Avinash, C. (2024), Ancient Vedic Mathematics: Rare methods of Indian Mathematics. *London Journal of Research in Science: Natural and Formal*, Vol. 24 No. 11 (2024): *LJRS Volume 24 Issue 11*.
23. Denis, V. (2024). Integrating traditional Indian knowledge into the education system. *Journal of Propulsion Technology*, 45(1).
24. Datta, R., & Mete, J. (2024). Indian knowledge system: Analysis of traditional wisdom and modern integration. *International Journal of Interdisciplinary Research in Arts and Humanities (IJIRAH)*, 9(2), 3. <https://www.dvpublication.com>
25. Meenakshi, G. (2023). Perception of student-teachers on 4-years integrated teacher education programme (ITEP). *International Journal of Creative Research Thoughts (IJCRT)*, 11(3).
26. Rupak, C. (2022). Strategies to implement integrated teacher education programme (ITEP) in respect to NEP 2020. *International Journal of Novel Research and Development (IJNRD)*, 7(9).
27. Adhikari, P. (2023). Holistic learning in ancient Indian Gurukul system: Relevance for modern education. *Journal of Indian Educational Thought*, 12(1), 45-52.
28. Jayalakshmi, R., & Rekha, S. (2022). Value inculcation through Gurukul education: A study of traditional learning systems. *Indian Journal of Education and Psychology*, 15(2), 66–74.
29. Pareek, S. (2021). Spiritual and social dimensions of Gurukul pedagogy. *Indian Educational Review*, 59(3), 102–110.
30. Sengupta, A. (2021). Ethics and moral education in ancient India: Lessons from Gurukul traditions. *Journal of Educational Philosophy*, 8(2), 55-63.
31. Singh, R. (2022). Experiential learning in Gurukul system: A comparative perspective. *International Journal of Indian Culture and Education*, 10(4), 21-29.