A study of ITEP (B.Sc.-B.Ed.) syllabus of RIE Bhopal from the perspective of Indian Knowledge System

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DECLARATION

I hereby declare that this dissertation entitled "**A study of ITEP (B.Sc.-B.Ed.) syllabus of RIE Bhopal from the perspective of Indian Knowledge System**" has been carried out by me during the academic year 2022-2025 in the partial fulfilment of the requirement for the degree of B.Ed.-M.Ed. Three Year Integrated Course of Barkatullah University, Regional Institute of Education, Bhopal, Madhya Pradesh.

This study has been conducted under the guidance and supervision of **Dr.Jayant Shankar Boargaonkar,** Assistant Professor, Department of Education, Regional Institute of Education, (NCERT), Bhopal, Madhya Pradesh.

I also declare that the research work done by me is an original work. This dissertation has not been submitted so far in part or full, for the award of any degree or diploma in any University or Institution.

Date: 09/06/2025
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CERTIFICATE

This is to certify that **Sucharita Panigrahi**, student of B.Ed.–M.Ed. Three Year Integrated course in the academic session 2022-2025 of Regional Institute of Education, Bhopal has worked under my guidance and supervision for her dissertation on topic **"A study of ITEP (B.Sc.-B.Ed.) syllabus of RIE Bhopal from the perspective of Indian Knowledge System".** I further certify that this work is original and worthy of submission for the requirement of the degree of B.Ed.- M.Ed. Three Year Integrated. course of Barkatullah University, Bhopal, Madhya Pradesh.

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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.

The research study aims to examine and analyse if the current B.Sc.-B.Ed.- ITEP syllabus taught at RIE, 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 in para 15.5.

According to NEP 2020 para 15.5-

"The 4-year integrated B.Ed. offered by such multidisciplinary HEIs will, by 2030, become the minimal degree qualification for school teachers. The 4-year integrated B.Ed. will be a dual major holistic Bachelor's degree, in Education as well as a specialized subject such as a language, history, music, mathematics, computer science, chemistry, economics, art, physical education, etc. Beyond the teaching of cutting-edge pedagogy, the teacher education will include grounding in sociology, history, science, psychology, early childhood care and education, foundational literacy and numeracy, knowledge of India and its values/ethos/art/traditions, and more."

Thus, the research study is titled as

"A study of ITEP (B.Sc.-B.Ed.) syllabus of RIE Bhopal from the perspective of Indian Knowledge System"

The objectives of the study emphasizes on the analysis of the various prescribed aspects of the syllabus such as, its instructional content, its modules, learning outcomes, modes of transaction, practicum, assessment and references of its reading materials. Its other objectives 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 and vision of NEP 2020.

3. To analyse the components of the syllabus from Indian Knowledge system perspective in disciplinary major and minor subject.

4. To find out whether the present syllabus fulfil the needs of the 21st century undergraduate learners or not.

5. To explore the aspects of the syllabus and its modules that needs to be modified.

In alignment with these objectives certain research questions are to be formulated to streamline the research process. Some of the research questions are like:

1. What are the prescribed aspects of the B.Sc.-B.Ed. Syllabus of ITEP of RIE Bhopal?
2. Do the practical aspects align with the theoretical aspects of the syllabus?
3. Does the objectives of the syllabus align with the guidelines of UGC 2023 regarding the incorporation of IKS into the higher education system?
4. How does the prescribed syllabus fit into the frame of vision of NEP2020 regarding ITEP and IKS?

Qualitative research is to be carried out through document analysis method that most appropriately suits the research problem. After critical analysis of the syllabus, the findings and suggestions are to be mentioned before concluding the research.

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Place: RIE,Bhopal B.Ed.-M.Ed. (Integrated)

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TABLE OF CONTENT

Chapter	Section	Details of the content	Page No.
Chapter 1		**Introduction**	10-14
	1.1	Introduction	
	1.2	Guidelines of UGC for incorporating IKS in higher education	
	1.2.1	General Guidelines	
	1.2.2	Guidelines for IKS in UG Programmes	
	1.3	ITEP	
	1.4	Syllabus of ITEP of RIE,Bhopal	
	1.5	Statement of the problem	
	1.6	Rationale of the study	
	1.7	Objectives of the study	
	1.8	Research questions	
	1.9	Delimitations	
	1.10	Chapterization	
Chapter 2		**Review of literature**	15-19
	2.1	Introduction to related-literature review	
	2.2	Review of related literature	
Chapter 3		**Research Methodology**	20-21
	3.1	Design	
	3.2	Procedure	
Chapter 4		**Analysis of the syllabus of semester I**	22-28
	4.1	Introduction	
	4.2	F.E I: Evolution of Indian Education	
	4.3	AE & VAC I: Language I	
	4.4	AE & VAC II: Art Education	
	4.5	AE & VAC III: Understanding India	
	4.6	Analysis of the whole first semester syllabus from IKS Perspective	
Chapter 5		**Analysis of the syllabus of semester II**	29-34
	5.1	Introduction	
	5.2	AE & VAC IV: Language 2	
	5.3	AE & VAC V: Understanding India II	

	5.4	AE & VAC VI: Teacher and Society	
	5.5	Analysis of the whole second semester syllabus from IKS Perspective	
Chapter 6		**Analysis of the syllabus of semester III**	35-38
	6.1	Introduction	
	6.2	FE II- Child Development and Educational Psychology	
	6.3	CP I: Content-cum-Pedagogy courses: General	
	6.4	Analysis of the whole third semester syllabus from IKS Perspective	
Chapter 7		**Analysis of the syllabus of semester IV**	39-44
	7.1	Introduction	
	7.2	FE III- Philosophical and sociological perspectives of education I	
	7.3	CP II and III: Content-cum-Pedagogy Courses	
	7.4	Analysis of the whole fourth semester syllabus from IKS Perspective	
Chapter 8		**Analysis of the syllabus of semester V**	45-48
	8.1	Introduction	
	8.2	CP IV and CP V: Content-cum-Pedagogy courses- I	
	8.3	AE and VAC VII : Information and communication technology(ICT) in Education	
	8.4	SE-I: Pre-Internship Practice	
	8.5	Analysis of the whole fifth semester syllabus from IKS Perspective	
Chapter 9		**Analysis of the syllabus of semester VI**	49-53
	9.1	Introduction	
	9.2	FE-IV: Assessment and Evaluation	
	9.3	FE –V: Inclusive Education	
	9.4	CP VI and CP VII: Content-cum-Pedagogy courses-III	
	9.5	AE and VAC VIII: Mathematical and Quantitative Reasoning	
	9.6	SE II: School Observations	
	9.7	Analysis of the whole sixth semester syllabus from IKS Perspective	
Chapter 10		**Analysis of the syllabus of semester VII**	54-57
	10.1	Introduction	
	10.2	FE –VI: Perspectives on school leadership and management	

	10.3	FE-VII: Curriculum planning and development	
	10.4	AE & VAC IX: Arts and Creative Expressions	
	10.5	AE & VAC X: Sports , Nutrition and Fitness	
	10.6	SE III: School Based Research Projects	
	10.7	SE-IV: Internship in teaching	
	10.8	Analysis of the whole seventh semester syllabus from IKS Perspective	
Chapter 11		**Analysis of the syllabus of semester VIII**	
	11.1	Introduction	
	11.2	FE VIII: Philosophical and sociological perspectives of Education -II	
	11.3	FE IX: Education Policy Analysis	
	11.4	FE X: Elective Papers	
	11.4.1	Adolescent Education	
	11.4.2	Education for Mental Health	
	11.4.3	Education for Sustainable Development	
	11.4.4	Emerging Technologies in Education	
	11.4.5	Gender Education	58-63
	11.4.6	Education for Peace	
	11.4.7	Sports, Health and Fitness Education	
	11.5	AE &VAC XI: Yoga and Understanding Self	
	11.6	AE & VAC XII: Citizenship Education, Sustainability and Environmental Education	
	11.7	SE-V: Post Internship	
	11.8	SE-VI: Creating Teaching Learning Material (TLM)/ Work experience	
	11.9	Community Engagement & Service	
	11.10	Analysis of the whole eighth semester syllabus from IKS Perspective	
Chapter 12		Relevance and Findings	64-66
Chapter 13		Conclusion	67-68
		References	69-70

CHAPTER 1: INTRODUCTION

1.1 INTRODUCTION

India's ancient sciences encompass a broad range of systems of knowledge that have gradually changed or evolved over thousands of years including Ayurveda, Mathematics, Philosophy, Astronomy, etc. Ayurveda as the ancient medical system puts a thrust upon harmony of mind-body-spirit and holistic bodily treatments. *Aryabhatta's* contributions to mathematics and astronomy; *Chanakya's* contributions to political science and governance through scriptures like *Arthashastra* throws light upon the ancient Indian sciences and legacy of Indian intellects that serve as a source of influence for contemporary disciplines in modern India. From the deep philosophical knowledge of Vedanta to the profound practices of Ayurveda, sciences, mathematics, architecture, etc. have sustained societies for millennia spanning across various domains of human endeavours.

Research on Indian Knowledge System reflects on a journey that leads to revitalization of vast wealth of knowledge and wisdom embedded in India's treasure box. It offers profound insights into various domains of human lives.

According to National Educational Policy (NEP 2020),

"The heritage of ancient and eternal Indian Knowledge System and thought has been a guiding light for this policy. The pursuit of knowledge (*Jnana*), wisdom (*prajna*), and truth (*Satya*) was always considered in Indian thought and philosophy as the hihest human goal. The Indian education system produced great scholars such as *Chanakya, Charaka, Susruta, Aryabhata, Varahamihira, Bhaskaracharya, Bramhagupta, Chanakya, Chakrapani Datta, Madhava, Panini, Patanjali, Nagarjuna, Gautama, Pingala, Shankardev, Maitreyi, Gargi* and *Thiruvalluvar*, among numerous others, who made seminal contributions to world knowledge in diverse fields such as mathematics, astronomy, metallurgy, medical sciences and surgery, civil engineering, architecture, ship building and navigation, yoga, fine arts, chess and more. Indian culture and philosophy have had a strong influence on the world. These rich legacies to world heritage must be nurtured and preserved for posterity and researched, enhanced, and put to new uses through our education system."

1.2 GUIDELINES BY UGC FOR INCORPORATING IKS IN HIGHER EDUCATION CURRICULA

In order to implement the above stated vision of NEP 2020, University Grants commission laid down some guidelines with the help of an expert committee with the mission of introducing Indian Knowledge System into the Higher Education System curricula (undergraduate and postgraduate curricula).

1.2.1 General guidelines: (UGC, 2023.)

1. In view of the importance accorded in the NEP 2020 to rooting our curricula and pedagogy in the Indian context and in the corpus of Indian Knowledge System, every student enrolled in a UG or PG programme should be encouraged to take credit courses in IKS amounting in all to at least 5% of the total mandated credits.

2. At least 50% of the credits appointed to the IKS should be related to the major discipline and should be accounted for the credits assigned to the major discipline.

3. Special care should be taken to ensure that the course materials are based on authentic sources- such as source texts, historical accounts, inscriptions and other records, material and other evidence, and also rigorous sociological records of current practices of different communities.

4. The continuity of the Indian Knowledge traditions from ancient times up to the relatively recent period of the eighteenth or nineteenth century must be emphasized in the design of the course content.

5. Efforts must be made to highlight the characteristics features such as the objectives, methodology, and core concepts of the Indian Knowledge Traditions.

6. Wherever possible, contemporary applications of Indian Knowledge Traditions must be indicated.

7. The medium of instruction for the IKS courses could be any of the Indian languages which have been approved as a medium of instruction in higher education, apart from English and Sanskrit.

8. All the technical terms and citations from the Sanskrit sources should be given in the Devanagiri script as well as in English transliteration for any course materials prepared in English.

1.2.2. Guidelines for IKS courses in UG programmes: (UGC, 2023.)

It emphasizes on**:**

1. Five percent of mandated credits to IKS courses; half of these mandated credits should be related to major discipline.

2. Compulsory Foundational courses for all the students in IKS, which is designed to present an overall introduction to all the streams of IKS relevant to the UG programme.

3. All UG- teaching institutions should offer a large number of elective courses in IKS,from which the students may choose appropriately so as to complete a requisite number of courses and credits in IKS.These courses could be in any disciplines that are part of IKS, which are related to the field of specialization that the student is pursuing in the UG programme.

4. The students may be allowed to opt for internship/apprenticeship in any of the disciplines that are part of IKS.

5. Wherever possible, the students may be encouraged to choose a suitable topic related to IKS for their ptroject work in the 7^{th} / 8^{th} semesters of the UG programme.

1.3 INTEGRATED TEACHER EDUCATION PROGRAMME (ITEP)

Various committees and commissions have been set up by the Government of India, for the development of educational system since its independence. And, the latest one is NEP 2020. A lot has been discussed in the NEP 2020 about the education system and teacher education is not an exclusion either. Traditionally, a student had to complete a minimum of 3 years degree programme like, Bachelors in Arts/Science/Commerce or a Master's degree programme and then must enrol in a 2 years B.Ed programme if he/she wanted to pursue his/her career in teaching (Justice Verma Committee). Before that, other integrated programmes like B.A- B.Ed (Integrated) and B.Sc- B.Ed (Integrated) were also offered by many teacher education institutes (TEIs) like R.I.Es and other colleges.But, now NEP 2020 has come up with another teacher eduction programme called Integrated Teacher Education Programme (ITEP).

ITEP is a 4 –year, dual major, holistic under-graduate degree that was launched by NCTE in 57 TEIs from the academic session 2023-2024.According to the recent count of 2024-2025, there are in aggregate 64 institutions providing Integrated Teacher Education Programmes including numerous IITs, NITs, Central Universities, State Universities and colleges

recognized by NCTE. To prepare efficient and competent teachers on par with other professions like legal, engineering, and medical science, and to meet the challenges of 21st century globalized world, ITEP is expected to revamp the whole teacher education sector in India. As per NEP 2020, from the year 2030, teacher's engagement will only be through ITEP (as a minimum degree of qualification).The admission process will be carried out by NTA (National Testing Agency) through NCET (National Common Entrance Test).

ITEP is intended to not only impart cutting-edge pedagogy in specialized subjects, but will also establish a foundation in ECCE, and FLN, inclusive education and an understanding of Indian Knowledge System (IKS) that is India and its age old values, knowledge, practices, arts, traditions, ethos, culture among others. It aims to include IKS as a base for teaching the aspiring teachers. Prospective teachers passing out of this course through a multi-disciplinary environment grounded in Indian values, and traditions will be instilled with the needs of 21st century global standards.

1.4. SYLLABUS OF ITEP(B.SC.-B.ED) OF RIE, BHOPAL

The syllabus of ITEP (B.Sc.-B.Ed.) encompasses a clearly defined outline of the course including content of instruction arranged in defined units, learning outcomes, suggestive modes of transaction, practicum, mode of assessment, and reading materials.

1.5 STATEMENT OF THE PROBLEM

The statement of the problem is

"A study of ITEP (B.Sc.-B.Ed.) syllabus of RIE Bhopal from the perspective of Indian Knowledge System"

1.6. RATIONALE OF THE STUDY

The concept of ITEP is revolutionary in nature and encompasses unique aspects to be introduced in the field of teacher education programme. It claims to bring holistic development among the budding teachers. But, such a sudden change in the system requires careful and organized implementation too.

This research will highlight the important aspects of ITEP-B.Sc.-B.Ed syllabus and its connection with Indian Knowledge System that can revamp the teacher education system in the country. It also emphasizes on the need to bring back our ancient knowledge, culture, and traditions and integrate it with the contemporary system coping with the rapid advancement in technology and other aspects in the world.

To carry out such a programme, it requires resources (including humans), time (may be more than 4 years), practice, skills, intensive research, proper implementation and monitoring strategies, training and most importantly, change in perspectives. The study aims to explore all these aspects in the contexts of their alignment with several guidelines set by the Ministry of Education under UGC, NEP 2020 and NCF 2023.

1.7 OBJECTIVES OF THE STUDY

The central objectives of the study 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 perspective in disciplinary major and minor subject.

4. To analyse of the various prescribed aspects of the syllabus such as, its instructional content, learning outcomes, modes of transaction, practicum, assessment and and references of its reading materials.

5. To find out whether the present syllabus fulfil the needs of the the 21st century undergraduate learners or not.

6. To explore the aspects of the syllabus and its modules that needs to be modified.

1.8 RESEARCH QUESTIONS

1. Is Indian Knowledge System really necessary in today's world?
2. Whether 4 years are enough to impart all the required skills of 21st century?
3. What is the scope of IKS in the field of science education?
4. What are the prescribed aspects of the B.Sc.-B.Ed. Syllabus of ITEP of RIE Bhopal?
5. Do the practical aspects align with the theoretical aspects of the syllabus?
6. Does the objectives of the syllabus align with the guidelines of UGC 2023 regarding the incorporation of IKS into the higher education system?
7. How does the prescribed syllabus fit into the frame of vision of NEP2020 regarding ITEP and IKS?
8. How is the integration of IKS into ITEP going to change the perspectives of the students as future teachers?

1.9. DELIMITATION

This research work will delimit itself only to the analysis of syllabus of the undergraduate science stream of Integrated Teacher Education Programme at RIE, Bhopal and delve deeper into the aspects of Indian Knowledge System of the education part of the syllabus.

1.10. CHAPTERIZATION

This thesis is structured in thirteen chapters. The first chapter is an introductory chapter including the introduction and background of the study, rationale of the study, objectives and research questions. It is then followed by the second chapter on review of literature that explores the existing literature on the Indian Knowledge System and ITEP.The third chapter is on methodology that has been adopted for the study. The rest of the chapters give a detailed view of the syllabus and its content, modules, learning outcomes, modes of transaction, practicum, suggested readings,etc. The twelfth chapter gives a detailed view of the findings and relevance of the syllabus in contemporary times. Finally, the last chapter is on conclusion that gives the summary of the study and suggested researches that will contribute to the current knowledge repository, further scope of study,etc.

CHAPTER 2: REVIEW OF LITERATURE

2.1. INTRODUCTION TO RELATED LITERATURE REVIEW

A literature review of a study is a critical analysis of existing research on a particular topic that provides insights into current repository of knowledge, key findings, identify gaps and establish credibility. Its purpose is to place one's own research study in the context of existing research for the researcher in order to show his understanding of the research and let his/her contribute to the field efficiently.

2.2. REVIEW OF RELATED LITERATURE

- **Subash C. Kak** of Louisiana State University (in 2005) in his detailed study of **"Science in Ancient India"** stated about how Vedic knowledge embraced physics, mathematics, astronomy, logic , cognition and other disciplines. He also brings to light the "Ancient Indian Chronology" book of the historian of science, P.C.Sengupta in 1947 by highlighting the models used in Vedic cognitive science and reviewing mathematics, astronomy, grammar, logic and medicine.

- **Shrinivasa Varakhedi,** Vice Chancellor of Central Sanskrit University, New Delhi, in his article **"Integration of IKS and ILs in Indian Education through NEP 2020"** states "In order to discover the self of Bharat, the exploration of Indian wisdom is the only key. Since the inception of NEP2020in Indian Education, IKS- Indian Knowledge System, has been a focal point of discussion.For the last two centuries, the western perception has been leading the influencing factor in our education. The Indian origin knowledge is either rejected or ignored in mainstream education. Indian world view is totally missing in the society. "Living" with "full of means" has become the lone objective of current education; whereas the "meaningful life" is the goal of Indian Education.This change of direction remains a challenging job until complete integration of Indian Knowledge System takes place in nation's education."

- **Denis Vaz,** Assistant professor, Rosary college of Commerce and Arts, Navelim- Goa in his paper **"Integrating Traditional Indian Knowledge into the Education System" (2024)** remarks that the integration of Indian Knowledge System into the modern education system is pivotal for revitalization and preparation for the challenges presented by the 21st century and the 4th industrial revolution. He gave instances of other nations- "The United Nations, for instance, implemented the 1968 Bilingual Education Act and subsequent legislation that established a legal and financial framework, empowering native American communities to control their education.This approach facilitated the integration of indigenous knowledge and cultural practices into the curriculum, enhancing the overall educational experiences for Native American students. Emulating such strategies, India can enrich its educational landscape, by incorporating elements of holistic education, encompassing a comprehensive curriculum comprising life skills, ethics, and traditional Indian Knowledge Systems."

- **Manjeet Kaur Gill,** Principal, J.D. College of Education, in her paper **"Integrated teacher Education Programme: A Critical Evaluation" (2019)** stated about the features, pros and cons of ITEP (Integrated Teacher Education Programme".

- **Rupak Chakraborty (2022)** , in his research paper **"Strategies to implement, Integrated Teacher Education Programme (ITEP) in respect to NEP 2020"** wrote in his findings about how ITEP is going to be revolutionary in the field of teacher education.

- According to **NCF-2023**, "*Panchakosha vikas* (Five-fold Development) is a key stone in the Indian tradition of the imagination of the development of human beings. The child is a whole being with *Panchakoshas* or five sheaths. The layers are *Annamaya kosha* (physical layer), *Pranamaya kosha* (life force energy layer), *Manomaya kosha* (mind layer), *Vijnanamaya kosha*(intellectual layer), *Anandamaya kosha* (inner self). Each layer exhibits certain distinct characteristics. The holistic development of a child takes into account the nurturing and nourishment of the five layers."

- **Tirath Das Dogra** and **Astha Chaudhry** in their review article **"Teaching and learning principles of Ancient Indian Education System and its relevance with NEP 2020**" states "The ancient Indian principles and best practices are extremely relevant even in today's times. This is explained by the re-emphasis of all these principles in the recently introduced NEP which signifies the about turn that Indian Education is taking to take us back to Indian roots. The Indian ancient education system also included the principles of adult teaching and learning which are currently popularized for higher education in the modern education. The understanding of these principles and practices would help all the academicians in building strong individuals who are competent, skilled, employable as well as morally responsible citizens of the nation."

- **Md Afroz Alam** of **Maulana Azad National Urdu University** in his paper, **"Transforming Teacher Education: The Impact of NEP 2020 on ITEP implementation"** writes- "The NEP 2020 is poised to transform teacher education in India by putting ITEP into practice. It seeks to develop a new generation of educators who are prepared to influence the direction of Indian Education by encouraging an interdisciplinary, creative and culturally sensitive approach to instruction. Future educators will be profoundly impacted by the ITEP since it not only improves teacher competency but also elevates the teaching profession, which will ultimately lead to better educational outcomes nationwide. The NEP 2020's vision for a comprehensive, adaptable and integrated educational system is strongly aligned with the introduction of multidisciplinary approaches in teacher education, in addition to receiving support from academic research."

- **Pavan Mandavkar,** principal of **Indira Mahavidyalaya** in his article **"Indian Knowledge System (IKS)"** introduces Indian Knowledge system as-"The Indian knowledge system (IKS) is the systematic transmission of knowledge from one generation to next generation. It is a structured system and process of knowledge transfer rather than a tradition. The IKS is based on Vedic literature, the Upanishads, the Vedas, and the Upvedas." He further states "The Indian Knowledge system comprises of Jnan, Vignan and Jeevan Darshan that have evolved out of experience, observation, experimentation and rigorous analysis. This tradition of validating and

putting into practice has impacted our education, arts, administration, law, justice, health, manufacturing, and commerce. This has influenced classical and other languages of Bharat that were transmitted through textual, oral and artistic traditions. It includes knowledge from ancient India and its successes and challenges, and a sense of India's future aspirations specific to education, health, environment, and indeed all aspects of life."

- **Shankar Kumar Lal ,Sanjay Srivastava, Vibhooti Narayan, Nisha Pal, Rajesh Kumar** and **Samiksha Sinha of** Babasaheb Bhimrao Ambedkar University, Lucknow in their article **"Indian Knowledge System: Challenges and Its Application in Higher Education For Sustainable Future Development"** have stated that- "Rooted in holistic principles , IKS offers a distinctive approach to understanding the world by emphasizing the interconnectedness between humanity and nature, the necessity for balance the and ethical living, and the potential for harmonious co-existence. For India and indeed the global academic community, IKS holds valuable lessons , especially in addressing the modern day challenges of climate change, resource depletion, social inequalities, and other critical sustainability issues. Integrating IKS into higher education framework however, possess unique challenges."

- **UGC** in its **"Guidelines for the Introduction of Courses Based on Indian Heritage and Culture"** stated that India's cultural heritage is immensely proliferated and enriched. Its culture is unique and its elements have remained intact for millenniums. This territory, the birthplace of various religions, is home to celebrating several lovely and enchanting festivals. The Indian Knowledge system, Languages, Scripts, Arts, Cultural-Philosophical-Religious-Mythological and literary articulations, Architecture and Artifacts, Unique system of Yoga and wellness evolved in India are the points of attraction for people from across the world. Several popular forms of music and dance like Bharat Natyam, Odissi, Kathak, etc are also attributed to Indian soil. Hindustani Music and Carnatic music are two main streams of Indian classical music that are well known. India's widely recognised folk dances include Bhangra of Punjab; Bihu of Assam; Jhumar and Domkach of Jharkhand; Chhau of Odisha; Ghoomar of Rajasthan; Dandia and Garba of Gujarat; Yakshagana of Karnataka; Lavani of Maharashtra; Dekhni of Goa *etc*. It has always been the interest of the global community to read the Indian literature, to practise Indian music and Yoga, to inspire from Indian Philosophy, to get familiar with divergent and multiple facets of the knowledge system, partaking in Indian festivals, and experiencing the essence of Indian cultural and intellectual heritage. In view of the relevance of these very curiosities and interests, such programmes are proposed to be introduced as an approach to acquaint the global community with the Indian cultural and intellectual heritage.
- **Shireesh kumar, S. Rudrawar, Shyam K. Gore, and N. G. Popatwar** in their paper, **"Education System in Ancient India"** have stated that Curriculum plays an essential role in the education system. It was dynamic and not static; it was made up of different stages. The fundamental goal of building a good curriculum was to develop students physically and mentally. The curriculum consists of four Vedas, six vedangas, Upnishads, darshanas, Puranas, Tarka Shastra. The six vedangas were Shiksha, Chhandas, Vyakarana, Nirukta, Jyotisha, and Kalpawhile the darshanas were Nyaya,

Baiseshika, Yoga, Vedanta, Sankhya, Mimasa. Algebra, Geometry, and grammar were also given more importance at that time. Panini was famous in the domain of grammar at that time. The curriculum of the Buddhist system consists of pitakas, Abhidharma, and sutras. Besides this medicine, Vedas were also given importance. Hindu learning was a part of Buddhist learning, although more emphasis was given to Buddhist learning. Both the systems were going hand in hand at that time. The education was totally through orals and debates, and the exams were conducted every year. The education system of the ancient period focused on subjects like warfare, military, politics, religion.

- **Shireesh kumar, S. Rudrawar, Shyam K. Gore, and Dr. N. G. Popatwar** in their paper, **"Education System in Ancient India"** have also stated about various ancient Universities. For eg. About Nalanda University they have stated "Nalanda University is a very old university located in Rajgir, Bihar, India. The ancient place Nalanda flourished in 5th and 6th century under Gupta period. Today it is UNSECO world heritage site in India. The center had eight separate compounds, 10 temples, meditation halls, classrooms, lakes and parks. It had a nine-story library where monks meticulously copied books and documents so that individual scholars could have their own collections. It had dormitories for students, perhaps a first for an educational institution, housing 10,000 students in the university's heyday and providing accommodations for 2,000 professors.During its peak period the university had students from all over the world like China, Tibet, Korea along with Indian students and scholars. Nalanda was destroyed thrice by different dynasties. Mamluk Dynasty of Delhi Sultante destroyed the place Nalanda. Students of Nalanda studied Mahayana and Hinayana texts of Buddhism. Some of the other subjects that were there in the university were Vedas, Logic, Sankrit grammar, medicine and Samkhya. Chinese scholars like Xuan Zang and I-Qing visited Nalanda University in 7th century. Later Xuan Zang himself became a student of Nalanda to study Yogashastra."

CHAPTER 3: RESEARCH METHODOLOGY

3.1. 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.

3.2. 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.

CHAPTER 4: ANALYSIS OF THE SYLLABUS OF SEMESTER 1

4.1. INTRODUCTION

The syllabus for semester I contains 7 papers or courses or subject categories in total including two major disciplinary course papers (DC-I and DC-II) and one minor disciplinary course paper (DCM-I).

The disciplinary major subjects for B.Sc- B.Ed- ITEP semester I includes Physics/Chemistry/Mathematics/Botany/Zoology as optional each carrying hundred marks and four credits in total. The disciplinary minor subjects for the same syllabus includes the same subjects (Physics/Chemistry/Mathematics/Botany/Zoology) as optional and alternatives of hundred marks and 4 credits each.

The internal marks for each subject is fifteen, while theory or external marks is sixty. The remaining twenty-five marks is for their practical session. It is specially noted that the practical of subject mathematics is internal.

Sl. No.	Subject name	Paper code	Credits	Max. Marks	Internal Marks	Practical marks	Theory/External marks
1.	Mathematics Botany/ Physics/ Chemistry/ Zoology/	DC-I	3+1	100	15	25	60
		DC-II	3+1	100	15	25	60
2.	Physics/ Chemistry/ Mathematics Botany/Zoology	DCM-I	3+1	100	15	25	60
Total			12	300	45	75	180

Table-1 CREDITS AND MARKS DISTRIBUTION OF MAJOR AND MINOR SUBJECTS OF SEMESTER I

The modules of the subjects include their learning outcomes, five units of instructional content each, suggested readings and their practicum contents. There is evidently no trace of ancient Indian Knowledge in the major and minor disciplinary course papers. However, the Education part containing papers FE-I and AE-VACs I, II and III contain full-fledged traces of Indian Knowledge System with varying marking systems.

Sl.No.	Subject name	Paper code	Credits	Max. Marks	Internal marks	Theory/ External marks
1.	Evolution of Indian Education	FE-I	4	100	40	60
2.	Language-1	AE & VAC- I	4	100	40	60
3.	Art Education	AE & VAC-II	2	50	20	30
4.	Understanding India-I	AE & VAC-III	2	50	20	30
Total			12	300	120	180

Table -2 CREDITS AND MARKS DISTRIBUTION OF FE-I AND AE-VAC-I, II AND III PAPERS OF SEMESTER

4.2 FOUNDATION OF EDUCATION (F.E-I)- EVOLUTION OF INDIAN EDUCATION

The course paper is categorized into five modules or units that ensures to develop an understanding of evolution of Indian Education from pre-Vedic period to modern independent Indian Education System among the students.

The learning objectives that the course aims at achieving are:

-The ability of the students to discuss the genesis, evolution and vision of education in ancient India to the contemporary India.

- To enable the students to shape their perspectives as an effective pupil teacher.

The first unit of the paper is "Ancient Indian Education: Vedic period" which encompasses all the necessary aspects of the education system during the Vedic period such as *guru-shishya parampara*, critical understanding of aims, knowledge, origin and agencies of the Vedic education system. It also tresses upon teaching the students relevance of the Vedic educational practices to contemporary times.

The second unit emphasizes on teaching the students about the Buddhist and Jain education system, including their foundation & social development like economic activities, commerce, cultural and social practices. Having a knowledge about the ancient educational institutions, their educational practices and their relevance to contemporary times is also prescribed in the syllabus.

The third unit is all about making the students understand about the Islamic education system during the Mughal period.

The fourth unit emphasizes on teaching the students about the evolution of education system during the British period from 1813 to 1944 through various document analysis and their recommendation.

The fifth unit provides an overview of the Indian thinkers whose efforts in changing the education system in India during the pre-independence era is remarkable like Mahatma Gandhi, Sabitribai Phule, Dr. B. R. Ambedkar etc.

The last unit focuses on the education in India after independence throwing light upon various acts, commissions, policies and schemes.

The suggestive practicum is quite interesting one as it suggests various activities for enhancing students skills through

The suggestive mode of transaction includes infusing modern technologies like power point presentations and techniques like seminars, webinars, team teaching and group discussions to enhance the teaching methods.

The suggestive mode of assessment will be based on tests and assignments as per syllabus. It also gives suggestive readings of very well-known books, journals and papers to enhance students reading skills.

4.3 AE & VAC-I: LANGUAGE-I (AS PER THE 8TH SCHEDULE OF THE CONSTITUTION OF INDIA)

Language as the major means to all kinds of learning enables students to understand new concepts, ideas and communicate effectively. The NEP 2020 envisages on imparting language skills to lay thrust upon enhancing linguistic skills for the development of students' cognitive, psychomotor as well as affective domains. It is meant for the holistic personality development of the learners.

The course paper carries hundred marks with four credits in total and emphasizes on obtaining learning outcomes like:

-Developing the capacity of the learners to read, write, speak and listen effectively.
- Linking cognitive development of the learners to their linguistic skills.
- Building interpersonal relationship and social learning skills.
- Learning regional language (L1) and developing its connection to foreign language (L2).

(As per the syllabus)

Like FE-I, this course paper also consist of six units but with different instructional contents. It includes development of reading, writing, speaking and listening skills through:

-Reading comprehension
-Vocabulary development
-Writing for various purposes (essays, letters, and reports)
-Role Plays
-Activities to develop speech, discussion, story-telling, illustrations, debates, etc.
-Modelling good listening behaviours, etc.

Moreover, it also emphasizes on multilingualism, grammar, phonetics and their components.
The practicum aspect suggests learners to reflect upon their reading, preparing reports, and analysing videos for improving their pronunciations and communication skills.
The teachers are suggested to use interactive lectures, discussions, role-plays, projects, simulations, workshops, language awareness activities to develop critical thinking and problem solving abilities of the students.
The syllabus also prescribes different, well-suited reading materials as well as modes of assessments for assessing the students.

4.4 AE & VAC II: ART EDUCATION (PERFORMING AND VISUAL) AND CREATIVE EXPRESSIONS; EXEMPLAR 1- PUPPETRY

Engaging students with artwork make them develop their psychomotor skills. It is through various forms of art that students will express themselves and develop their cognitive, affective and psychomotor dimensions. Making art an important aspect of educational theory and practice, seems to be the main motto of this course paper. It aims to develop a habit of thinking independently creating and reflecting upon their own thinking using their 3Hs- Hand, head and heart in one space. Hands on training in performing arts is emphasized in the syllabus.

The objective of this paper is to let students up skill their abilities in teaching, learning, developing teaching-learning materials & contents of other subject areas where ever possible and articulate the importance of aesthetic sense among the students.

The syllabus has taken the example of puppetry to make the students as well as teachers understand about the course more appropriately. The students are supposed to create puppets and perform a short puppetry show. This is to be done in small groups.

Unlike the other two papers, this paper is divided into three instructional contents. The first unit emphasizes on the importance of aesthetics & art education through discussions about the basics ideas of arts, its value, uses and differences between popular art and high art. It also suggests to introduce Bharata's NAVARASA & RASA theory of arts to the students. The NAVARASA theory describe nine emotions that can be incorporated in performing arts. It can also be essential for enhancing emotional intelligence in students. The RASA theory describes the generation of feelings in audience through performing arts based on three basic BHAVAs of Vibhav, Anubhav and Sancharibhav, that creates an art that is full of RASA.

The second unit focuses upon designing puppets through development of students' imagination, visualisation and technical abilities. From designing finger puppets to designing paper puppets with newspapers, they will learn it all as per the syllabus.

The third unit describes how the students will perform the puppetry by creating short engaging stories. Initially from playing with their own puppets to playing in pairs to finally performing skits in small groups, they will have to discuss and do it all. It will help future teachers to incorporate these kind of activities into their teaching practices.

The teacher can also suggests books of performing arts or documents to the students. The pedagogy of this paper is based upon complete experiential learning and the mode of assessment is to be determined by the faculty members as per UGC norms.

4.5. AE & VAC-III: UNDERSTANDING INDIA (INDIAN ETHOS AND KNOWLEDGE SYSTEM)

The course paper provides an overview of India's ancient wealth of knowledge, traditions & heritages across key themes of economy, society, polity, law, environment, culture , ethics, science & technology and philosophy.

The first unit of syllabus is all about the historical evolution of india as an ancient civilization, as a seat of higher learning centre, as a society,an ancient culture , fine arts and performing arts.

The second unit is all about ancient Indian polity & economy. It includes kingship, Dharma & its sources, *Chanakya niti, Arthashastra*, Indian economy from the stone age to the *Gupta*s, *Indo-Roman* contacts, etc.

The third unit is all about ancient Indian society, environment and health traditions. It includes society's perceptions of natural resources, sustainable architecture and urban planning that are solving today's environmental challenges (best practices from indigenous knowledge) and India's health traditions like *Ayurveda, Siddha, Ashtavaidya, Unani, Yoga Darshan, Atman,* Lessons from *Sushruta Samhita* and *Charaka Samhita* etc.

4.6. ANALYSIS OF THE WHOLE 1st SEMESTER SYLLABUS FROM IKS PERSPECTIVE:

"IKS is all about how indigenous knowledge differs fundamentally from western scientific paradigms by recognizing interdependence among the natural systems, making IKS particularly relevant to addressing ecological and sustainability challenges."

Agrawal (1995)

The FE-I paper is completely in accordance with the above statement. It also follows the UGC general guidelines for mandatory credit system to the IKS and its application as well. It gives students an opportunity to learn and explore the evolution of Indian education through various activities and learning sources as well. The syllabus does not neglect the teaching aspects as per the UGC guidelines 2023(orientation of faculty on IKS) as it allows teachers to infuse various modern technology into the traditional teaching methods to enhance student learning and achievement through tests and assignments. It emphasizes on efforts that must be made to meet the learning outcomes as prescribed.

The constitutional provisions relating to the languages in the eighth schedule occur in the article-351 of the constitution which provides that

"it shall be the duty of the union to promote and spread of the Hindi language to develop it so that it may serve as a medium of expression for all the elements of the composites culture of India and to secure its enrichment by assimilating without interfering with its genius , the forms, style and expressions used in Hindustani and in other languages in India specified in the eight schedule, and by drawing, wherever necessary or desirable for its vocabulary, primarily, on Sanskrit and secondarily on other languages."

Presently, there are 22 languages in the eighth schedule of the constitution of India. To adhere to the above article, it is required for the education system to focus on the medium of instructions as well as teaching in various languages in the class room because India's classroom are linguistically diverse in nature. Not only in the present day but also much before from during the ancient times language and communications skills has been mentioned in Buddhism in its eight fold path to cessation of suffering.

Hence the course paper AE & VAC-I-Language-I is also in alignment with all these aspects and also with the guidelines of UGC-2023 regarding IKS in higher education curriculum and the eighth schedule of the constitution. Suggestive reading materials like, 'SAHI HINDI SUNDAR HINDI', 'HINDI BHASA SHIKSHAN', etc. are also in alignment with the article-351. Moreover, the grammar and phonetics part could be linked to the Vedic grammar system in *Vykarana (Vedangas).* The speaking skills and communication aspects of the syllabus could also be linked to the Buddhist education system.

The range of performing arts is broad that encompasses various forms like music, dance, theatre,etc. It is not at all possible to teach all of these to the students within one semester. Hence, the the course paper of 'Art Education and Creative Expressions' (AE & VAC-II), has only prescribed three basic units taking the exemplar of puppetry.But, if not all , there are some traces of Indian traditional arts system in it.

Bharata muni's NAVARASA and RASA theory which is dated to second century BC (200 BCE) has been mentioned in the paper for the students to learn and apply in their teaching

strategies because, after all, teaching is also an art. The NAVARASA Theory describes nine emotions that can be incorporated in performing arts. They are as follows:

9 RASAS (EMOTIONS)	MEANING
Shringara	Beauty
Hasya	Laughter
Karuna	Sorrow
Raudra	Anger
Veera	Heroism
Bhayanaka	Fearful
Bibhatsa	Disgust
Adbutha	Wonder
Shanta	Peace

Table 3- Nine rasas in the NAVARASA Theory

The RASA theory tells about the evoking of feelings in the audience through performing arts and it is based upon three basic bhavas of *Vibhav, Anubhav*, and *Sancharibhav* that creates an art full of rasa or emotions.

These aspects of the course paper are in alignment with the NCF 2023, NEP 2020, and UGC guidelines on IKS under holistic learning, creative thinking, critical thinking, collaborative learning, art education, performance based assessment and holistic assessment.

"Through Indian Knowledge System, we are looking back only to create the future."**(Prof. Gautam R. Desiraju- Bharat 2.0).**

ITEP aims at catering to the needs of 21st century by inculcating basic skills in the students through IKS. IKS comprises of eternal Indian Knowledge and its rich heritage. It comprises of *Jnan, Vigyan, and Jeevan Darshan* that have evolved out of observations, experiences, experimentations and rigorous analysis.Whether it comes to India's historical evolution, polity, economy , environment and health, we always get the best practices from the indigenous knowledge, community led efforts, etc. We are at an Indian educational Revolution today. Hence, the prescribed course for Understanding India (Indian Ethos and Knowledge System)- AE & VAC III- is in accordance with model curricula of courses set by the UGC for incorporating IKS in the higher education curricula and also with the aims of NCF 2023.

CHAPTER 5: ANALYSIS OF THE SYLLABUS OF SEMESTER II

5.1 INTRODUCTION

The syllabus for semester II is divided into seven papers in total including four disciplinary major papers (Physics/Chemistry/ Mathematics/Botany/Zoology) such as DC-III, DC-IV, SEC-I, and SEC-II. The other three papers are of AE & VACS under the education part.The credit and marking system for the Disciplinary Major papers are follows:

Sl. No.	Subject Code	Paper Code	Credits	Max. Marks	Internal Marks	Practical marks	Theory marks
1.	DC (Major)	DC-III	3+1	100	15	25	60
		DC-IV	3+1	100	15	25	60
		SEC-I (Related to major course)	2	50	10	-	40
		SEC-II (related to Major course)	2	50	10	-	40
		Total	12	300	50	50	200

Table 4: Marking and credit system for disciplinary majors and SECs related to major courses in Semester II

The education part contains three papers of AE &VACs such as AE VAC-I, II and III titled as Language –II, Understanding India-II, and Teacher and Society, respectively. The marking and credit system for the papers are as follows:

Sl.No.	Subject name	Paper code	Credits	Max. marks	Internal Marks	Theory marks
1.	Language-2	AE & VAC-IV	4	100	40	60
2.	Understanding India -II	AE & VAC - V	2	50	20	30
3.	Teacher and Society	AE & VAC- VI	2	50	20	30
Total			8	200	80	120

Table-5: Marking and credit system for AE &VACS in Semester-II

5.2.AE & VAC-IV: LANGUAGE-2 (OTHER THAN LANGUAGE 1)

Like AE & VAC –I, this paper also emphasizes upon language training of the students. It mainly stresses upon the processes of formation of languages like sound system, words, and sentences, semantic and pragmatic aspects. It also prescribes the same LSRW (Listening, Speaking, Reading, and Writing) skills for the students to enhance their metacognition and communication skills through practical sessions.

The objectives of the paper is to let the students demonstrate their skills in language-2(L2), create connection between language and cognitive skills, anfd develop their social and interpersonal skills.

There are six units in total. The first unit maily focuses upon multilingualism, language variation, sign language learning, and learning in mother tongue in light of NEP 2020 and all the constitutional provisions.The second unit is all about teaching the students, the phonetic elements of the listening skills such as monothongs, dipthongs, junctures, stress, accent, intonation,etc.The third unit contains grammar and various components of phonetics to implement in the daily classroom.The fourth unit is all about basic communication skills in language-II through enhanced reading comprehension abilities and creative writing abilities.The fifth unit highlights the types of writing systems and again classification of speech sounds like that in the unit III with a little additional contents. The last unit focuses only upon developing the critical thinking abilities of the students through various content aspects.

The suggestive practicum of this paper is somewhat similar to that of the AE & VAC-I paper in including recorded audio analysis based on their sounds and phonetics by listening to them and analysing written works and their grammatical constituents. Additionally, there are suggestive modes of transaction through interactive lectures, tutorials and practicals; modes of assessment through projects and communication skill tests and many suggestive materials as well.

5.3.AE & VAC-V: UNDERSTANDING INDIA(INDIAN ETHOS AND KNOWLEDGE SYSTEMS)-II

Like AE & VAC-III, this paper also throws light upon the *Jnan*, *Vignan*, and *Jeevan Darshan* of the Indian Knowledge System and its Value System (IKS and Ethos).This paper also aims to attain objectives like developing and appreciating Indian knowledge traditions, applying these knowledge in multiple disciplines and passing on these knowledge in various situations.

The first unit comprises of various philosophical aspects of the IKS (mainly the schools of philosophy.It includes the differences between the two ideologically different social groups of *Brahmana Sampradaya* and *Shramana Sampradaya*. It also includes the *Astika* schools of philosophies who believed in the authorities of vedas like, *Sankhya, Yoga, Nyaya, Vaishesika, Purva Mimansa and Vedanta; Nastika* schools of philosophy who don't believe in the authority of the vedas like *Buddhist, Jain, Charvaka,and Ajivika.*the unit majorly puts thrust upon understanding the the *Vedanta* Philosophy and its practical aspects for the wellbeing of the students. The second unit is all about the culture and linguistic traditions of India. For example, its food and clothes culture across different traditions, *Yoga* to gain longevity, history of India's linguistic culture, etc.

The third unit consists of India's contributions to the world of knowledge through science and technology in the field of Mathematics, Natural sciences, Metallurgy, Chemistry, Astronomy, Agriculture, Transportation, etc.

A different activity in the suggestive practicum about the organization of a 'Knowledge of India' day in the institution which should be based on different themes. Inviting guest lectures, experts, practitioners, poets and writers is also mentioned in the content of the mode of transaction. Focus Group Discussions (FGDs), screening of historical documentaries to help the students identify ethical issues and dilemma in their daily lives and understanding the importance of ancient ethics and values to resolve those issues is also something to be noted from the mode of transaction.

5.4.AE & VAC-VI: TEACHER AND SOCIETY

A teacher and his/her education is an integral part of an education system of a nation. There is an old saying- "A teacher is the nation builder". Hence there is a need for educating and equipping teachers with proper skills to let them play their roles efficiently and in shaping the society.

The aim of this paper, therefore, is to enable the students to understand the role of teachers and equip them with the capacity, knowledge, and values to help them build the nation and architect the society based on traditions, cultural ethos, and diversity. It also aims at preparing the student teachers for the 21st century by equipping them with the required skills.

The first unit is all about understanding the personal and professional context of a teacher. It is also about exploring the biography of any eminent teacher and their qualities, beliefs, values, aspirations, attitude, aptitude, qualifications, etc. The second unit is quite inclined towards the philosophical nature of teaching: holistic teacher development through nurturing the *panchkoshas (Vedanta)*, ethics of care, etc. The third unit emphasizes on how a teacher can become an architect of the future India by shaping the society through imparting critical pedagogy in the classrooms on topics like globalization, power relations, etc.

The practicum suggests the students to take up a case study of any institution, write a biography of any of their favourite teachers and formulation of a policy based upon any current practices in education. It is basically to improve their skills as a teacher. Various suggestive modes of transactions, assessment and reading materials are also provided in the syllabus.

5.5 ANALYSIS OF THE WHOLE 2nd SEMESTER SYLLABUS FROM IKS PERSPECTIVE:

Linguists use L2 for languages other than the native languages that's being studied. In order to learn or teach a new language, one must be trained in it first. NEP 2020 mandates that all Indian students must atleast learn three languages (3 Language formula-Education Commission 1964-66, NEP 2020) including any one of the foreign languages like English. It is therefore necessary to learn the processes of speaking a new language like phonetics, grammar, semantics, proper pronunciation, intonation, stress, etc.

Now, India is a diverse country of varieties of standard languages, local dialects, and regional varieties of languages. Hence, the classrooms of India are linguistically diverse in nature. To

manage teaching in such classrooms, multilingualism should be should be promoted in schools. (as per NEP 2020). The course paper AE & VAC IV is, therefore, appropriately prescribed for the students. From the IKS perspective, the processes of learning new languages are not new, rather, these are age old practices. Evidences can be found in the book of '*Phonetics in ancient India'* by *W.S Allen* in which he has written about the *grammar of Panini, Pratisakhyas*(500-150 BC), and *Siksas* (800-500 BC) as the sources of anient Indian phonetics and grammar.

The pratisakhyas are the phonetic treaties relating to the pronunciations of four vedas namely:

Rig Veda	*Rk Pratisakhya*
Sama Veda	*Rk- tantra- Vyakarana*
Black Yajur Veda	*Taittiriya-Pratisakhya*
White Yajur Veda	*Vjasaneyi-or Katyayanta-Pratisakhya*
Atharva Veda	*Atharva-pratisakhya*

Table-6 Vedic Pratisakhyas

The *siksas* on the other hand are with some exceptions, less specifically related to any particular Veda. Other grammatical works are found in *Panini's Astadhyayi*, and *Patanjali's Mahabhasya*, and *Vedangas*. In various *Brahmanas, Aranyakas* and *Upanishads* also we may find familiarity with various phonetics categories, eg, 'articulations', 'Vowels', 'fricatives', etc.

Brahmana and *Shramana sampradayas* are two ideologically different social groups that existed in India before 6th century BC at the time of Buddha. Those who accepted the Vedas and rituals based on the Varna system (*Brahmin,Kshatriya,Vaisya,Shudra*)were the *Brahmana sampradayas*. However those who could not adjust to the *Brahmanic* system and did not accept the authority of *Vedas* and *Brahmins* were the *Shramana sampradayas*. According to these sampradayas Indian schools of philosophies are divided into two groups: *Astika-Nyaya, Yoga, Samkhya, Vaishesika, Purva mimansa and Vedanta; and Nastika-Ajivikas, Jain, Buddhist and Charvaka.* In the syllabus of AE&VAC-V, the Vedanta *is given more importance in* order to develop the five Koshas among the students.

Koshas	**Meaning**
1)Annamaya Kosha	Food Sheath
2) Pranamaya Kosha	Vital Energy Sheath
3) Manomaya Kosha	Mental Sheath
4) Vijnanamaya Kosha	Intellect Sheath
5) Anandamaya Kosha	Bliss Sheath

Table-7: Pancha Koshas of Vedanta

Ancient ethos of India is rooted in the term 'Dharma' comprising of a system of custom, attitude and beliefs. The purpose of understanding Indian ethos is to awaken spirituality among

the students, help and guide them in their personal life, developing social harmony, spreading authentic knowledge and making a positive global contribution.

The paper is in complete alignment with the UGC guidelines 2023 and its model curricula including language, knowledge, culture, ethos, philosophy, science & technology. Its also in accordance with the NCF 2023.

According to NEP-2020 para 5.1, "the high respect for teachers and the high status of the teaching profession must be restored to inspire the best to enter the teaching profession. The motivation and empowerment of teachers is required to ensure the best possible future for our children and our nation". It also states that teachers truly shape the future of our children and must be at the centre of fundamental reforms in the education system. It is therefore necessary to re-establish teachers at all levels as the most respected and essential members of our society (NEP-2020, Introduction).

In the Vedic period of Gurukul system, teachers were known as "Guru" or "Acharya" and were highly respected in the society. Their role, responsibility and position have not changed since then. Many Indian thinkers from the ancient times have also agreed to the importance of the role of teachers in the society. Hence, from IKS perspective this paper, AE&VAC-VI (teacher and society) is very relevant and necessary in today's world.

According to UGC guidelines for training/orientation of faculty on IKS-"Integrating IKS in curriculum for capacity building in faculty and educating the students as envisaged by NEP-2020 requires strengthening the role of faculty and evolving them into energised, motivated and capable faculty. The success of NEP-2020 and its special component on Indian Knowledge System relies heavily on the shoulder of the faculty of Higher Education Institutions."

Not only UGC or NEP-2020 or NCF 2005, many other committee reports (eg. Justice Verma Committee, Kothari Commision) as well as NCTE regulations expects teacher education to achieve excellence by enabling learners to understand the role of teachers in various contexts and equip them with adequate knowledge, capabilities and skills for their better future and the society's well-being.

CHAPTER 6: ANALYSIS OF THE SYLLABUS OF SEMESTER III

6.1. INTRODUCTION

The syllabus for semester III contains six papers in total. The disciplinary major part contains three papers carrying hundred marks and four credits each. There is also a disciplinary minor paper carrying hundred marks and four credits. Both the major and minor papers do not contain any traces of IKS.

Sl. No.	Subject code	Subject Name	Paper Code	Credits	Max. Marks	Internal marks	Practical marks	Theory / External marks
1.	DC	Physics/ Chemistry/ Mathematics/ Botany/Zoology	DC-V	4	100	15	25	60
			DC-VI	4	100	15	25	60
			DC-VII	4	100	15	25	60
2.	DCM	Physics/ Chemistry/ Mathematics/ Botany/Zoology	DCM-II	4	100	15	25	60
Total				16	400	60	100	240

Table -8: CREDITS AND MARKS DISTRIBUTION OF MAJOR AND MINOR SUBJECTS OF SEMESTER -III

The rest of the two papers (FE-II and CP-I) belong to the education part and contain traces of IKS in the syllabus.

Sl. No.	Subject Name	Paper Code	Credits	Max. marks	Internal marks	Theory/ External marks
1.	Child development educational psychology	FE-II	4	100	40	60
2.	Content-cum-pedagogy-Secondary course: General	CP- I	4	100	40	60
Total			8	200	80	120

Table -9: CREDITS AND MARKS DISTRIBUTION OF FE-II AND CP-I IN SEMESTER-III

6.2. FE-II (CHILD DEVELOPMENT AND EDUCATIONAL PSYCHOLOGY)

This paper includes six modules in total with the objectives of understanding the developmental processes of the students from infancy to adolescence stage through their childhood. It also emphasizes upon the psychological aspects of education, processes of learning, etc, and their implications for pedagogy.

The first unit emphasizes on learner development through the *Panch-kosha Vikas* (five-fold development), their characteristics through various stages of development and the concept of self (*Manas, Buddhi and Smriti*). The second unit contains development across various domains like physical, moral, cognitive, language, aesthetic, socio economic, in children at their infancu and childhood stage as well as the factors affecting these deveopments.The third is similar to that of the second unit but focuses on the adolescent stage and the experiences of the students at this stage. The fourth unit outlines the different theories related to the learning processes such as, Gestaltism, Behaviourism, Constructivism, Cognitivism, etc. The fifth unit outlines the role, nature, importance and types of motivation. It also focuses upon classroom management and group dynamics to facilitate learning. The last unit is all about the psychological practicum for the students including personality, intelligence, and aptitude test.

6.3. CP-I- CONTENT CUM PEDAGOGY (SECONDARY): GENERAL PEDAGOGY

Pedagogy allows teachers as well as student teachers to use various kinds of knowledge, principles, methods, and skills to teach in classrooms. This course comprises of four different units and a practicum.

The first unit lays stress upon understanding learners based upon their developmental, cognitive and social stages. It aims to bring the unique capabilities of the children to the foreground. The second unit focuses upon understanding the different strategies of teaching and learning. The third unit emphasizes upon the best pedagogical approaches and types of pedagogies like social, Socratic, critical and culturally responsive pedagogy to help the student teachers thrive in an ever changing world. The fourth unit lays emphasis on Continuous Professional development (CPD) and outlines the various activities like workshops, seminars, and conferences needed to develop the professional aspects of teachers. The practicum suggests student teachers to explore the various portals online courses, workshops, seminars, etc., to gain deeper understanding about CPD and its learning aspects.

6.4. ANALYSIS OF THE WHOLE 3rd SEMESTER SYLLABUS FROM IKS PERSPECTIVE:

According to NCF-2023, "*Panchakosha vikas* (Five-fold Development) is a key stone in the Indian tradition of the imagination of the development of human beings. The child is a whole being with *Panchakoshas* or five sheaths. The layers are *Annamaya kosha* (physical layer), *Pranamaya kosha* (life force energy layer), *Manomaya kosha* (mind layer), *Vijnanamaya kosha*(intellectual layer), *Anandamaya kosha* (inner self). Each layer exhibits certain distinct characteristics. The holistic development of a child takes into account the nurturing and nourishment of the five layers."

Integration of the five-fold development (*Panchakosa Vikas*) in education might transform the whole education system by concentrating on holistic development goals including physical,

mental, emotional, social and spiritual growth. The paper FE-II may thus, cultivate each *koshas* in students and increase their wellbeing.

The concept of *self* is in all the *darshanas* including *Samkhya, Yoga, and Vedanta* except in the *Buddhism* and *Charvakas* philosophies who deny the concept of *eternal soul or self*. In *Samkhya Purusha* is the eternal self and the evolution of *Prakriti* gives rise to *Buddhi* (*Mahat*/Intelligence) which includes *Manas* (mind) and ego. Yoga Darshana is the practical aspect of Samkhya. According to Yoga & Ayurveda, *Manas* receives information, *Buddhi* analyses it to reach conclusions and gain knowledges and Smriti (that which is remembered), *Dhee* and *Dhriti* are components of *Buddhi* that stores, retains and retrieve these knowledge. Meditation and Yoga practices helps in the interconnected activities of these three aspects (Buddhi, Manas and Smriti).

So the paper FE-II follows NEP-2020, UGC guidelines for incorporating IKS and NCF-2023 as well.

The act of teaching is known as pedagogy that prepares teachers and students to use various principles, methods, knowledge, competencies and skills to teach in class rooms. According to NEP-2020, pedagogy should always align with the aim for holistic development of the students through various approach and types by understanding the learners completely. From IKS prospective, pedagogy should always aim for five-fold development of the students i.e. the physical, social, mental, emotional and spiritual development according to *Vedanta* and NCF-2023. To follow up NEP-2020, multidisciplinary and activity based learning that leads to holistic development of students should also be incorporated into the curriculum. Hence the prescribed syllabus of CP-I is in compliance with NEP-2020, NCF-2023 and UGC guidelines -2023.

CHAPTER 7: ANALYSIS OF THE SYLLABUS OF SEMESTER IV

7.1. INTRODUCTION

The prescribed syllabus for semester fourth contains eight papers in total. The major course is divided into four papers while the minor course contains only one paper.

Sl. No.	Subject code	Paper code	Credits	Max. marks	Internal marks	Practical marks	Theory/ External marks
1.	DC (Major)	DC-VIII	4	100	15	25	60
		DC-IX	4	100	15	25	60
		SEC-III	2	50	10	-	40
		SEC-IV	2	50	10	-	40
2.	DCM (Minor)	DCM-III	4	100	15	25	60
Total			16	400	65	75	260

Table-10: CREDITS AND MARKS DISTRIBUTION OF MAJOR AND MINOR COURSE PAPERS OF SEMESTER –IV

The other three papers are of the Education part namely: FE-III, CP-II and CP-III.

Sl. No.	Subject name	Paper code	Credits	Max. Marks	Internal marks	Theory/ External marks
1.	Philosophical and Sociological Perspectives of Education-I	FE-III	4	100	40	60
2,	Content-cum-pedagogy: Physical Science-I	CP-II	2	50	20	30
3.	Content-cum-pedagogy: Mathematics-I / Biological Science-I	CP-III	2	50	20	30
Total			8	200	80	120

Table-11: CREDITS AND MARKS DISTRIBUTION OF FE-III, CP-II AND CP-III OF SEMESTER –IV

7.2.FE-III- PHILOSOPHICAL AND SOCIOLOGICAL PERSPECTIVES OF EDUCATION-I

This paper aims at letting students explore the sociological and philosophical perspectives education, their interconnection and implications in the field of education. Through the modules and lessons, the paper emphasizes on attaining the goals of developing insights of the students for appreciating the relevance of ancient philosophical thinkings to modern day educational practices. Along with the philosophical perspectives, the course paper also intends to introduce the students to the sociological aspects of education and reflect upon their own socio-cultural experiences in Indian educational context.

The course paper is divided into six modules and a practicum. It also contains suggestive mode of transaction, assessment and reading materials.

The first unit is all about the nature, objectives and branches of philosophy (Epistemology, Metaphysics and axiology) and their connection with education.The second unit delves deeper into the philosophical perspectives in education through *Pramana-Shastra, Bramhacharya* and *Vidyarambha*. It also focuses upon the Vedic and *Vedantic, Buddhist, Jain,Sikh* and *Islamic* perspectives on education and *Guru,Shishya Parampara* in Education.The third unit outlines the western schools of philosophy while the fourth unit outlines a number of *Bharatiya* (Indian) educational thinkers and their deliberations on aims, processes and educational institutions.The fifth unit entails the sociological bases of education and their implications while, the last unit focuses maily on critical understanding of the role of school in socialization.The suggestive practicum includes institutional visits and individual/group tasks as well.

7.3. CP II and III: CONTENT-CUM-PEDAGOGY COURSES (SECONDARY): PHYSICAL SCIENCE, MATHEMATICS AND BIOLOGICAL SCIENCES

Under the same unit headings and bullet points, each of these three pedagogical papers on school subjects contains three units and a practicum in total. The content knowledge for each of these papers is obviously different as the subjects are different. The first unit outlines the historical perspectives contributions of Indian scientists and recommendations of various committies, commissions and policies with reference to teaching in Physical Sciences, Mathematics, and Biological Sciences respectively.The second unit outlines the aims, objectives, values and interconnectedness of the school subjects.The third unit emphasizes on the application of various pedagogical methods and approaches of these subjects.

7.4. ANALYSIS OF THE WHOLE 4th SEMESTER SYLLABUS FROM IKS PERSPECTIVE:

Our country is a home to deep and extensive practices in a variety of disciplines and and fields including sociology and philosophy.(NCF-2023)

The primary branches of philosophy includes metaphysics(*Tatva Mimansha*), Epistemology(*Jnana Mimansha*) and Axiology (*Mulya Mimansha*).Indian philosophy often incorporates and connects these branches , with discussions on metaphysics often influencing epistemological views and ethical considerations which in turn helps students improve their metacognitive abilities.

BRANCH OF PHILOSOPHY	FIELD OF STUDY
1) Metaphysics	Study of reality and nature of existence
2) Epistemology	Study of Knowledge and truth.
3) Axiology	Study of values

Table-12: Branches of philosophy

According to NCF 2023, " The theory of knowledge, or *pramana-sashtra*, is one of the richest areas classical Indian philosophy, spanning several centuries and with the liveliest of debates.Indeed, claims about 'how we come to know' is often the principal criterions that distinguishes different schools of Indian philosophy." The different kinds of sources of knowledge in *pramana shashtra* are:

TYPES OF PRAMANAS	SOURCES OF KNOWLEDGE
1)*Pratyaksha* (Perception)	Connection between sense organs and objects
2)*Anumana* (Inference)	Inferring based on existing knowledge and observation
3)*Upamana* (Comparison)	Knowing through comparison and analysis
4)*Arthapatti* (Postulation)	Drawing conclusions from circumstances
5)*Anupalabdhi*(Non-apprehension)	Perception from non-existence
6)*Shabda* (Verbal Testimony)	Relying on scriptures and expert's testimony

Table-13: SIX TYPES OF PRAMANAS

Students should clearly understand the meanings of the terms '*darshanas*', '*moksha*', '*Nirvana*', and '*dharma*' through different schools of philosophy of ancient India in order to apply them in their lives and gain peace and liberation in life.

Bramhacharya and *vidyarambha* concepts should be taught to the students to give them an insight into ancient education system about how entry into monastic-education took place and how the pupils gained mastery. Focus should be given on *Vedic, Vedantic, Buddhist, Jain, Sikh, and Islamic* perspectives on holistic and integrated aim of education to apply in contemporary education system.

Many *Bharatiya* thinkers drew their thoughts from different philosophical school of thoughts and their philosophy shows the path to attain goals of education till today. For eg,

"By education, I mean an all-round drawing of the best in child and man-body, mind and spirit."

(M.Gandhi)

"The highest education is that which does not merely give us information but that makes our life in harmony with all existence**."** **(R.N. Tagore)**

Incorporating all these aspects in FE-III paper is a very appropriate step from IKS perspective.

To comprehend, evaluate and understand a present situation in a better way, one needs to understand the history of the situation first. So, is the case with a subject of study. In order to comprehend and evaluate a subject in a better way, we need to understand its history. The significance of historical development of any subject is underrated.

The history of physics began approximately 2500 years ago by *Rishi Kanad*, the originator of *Vaishesika* School of philosophy, who gave the atomic theory. He is also known as the father of *Atomicism*. He has also contributed to the laws of motion, types of motion, etc in 600 BCE his *Vaishesika Sutra* much before Sir Newton.

Six Predicables or Padarthas in Vaishesika sutra	**Classification**
SUBSTANCE	Earth, Water, Fire, Air, Ether, time, space or direction,etc.
QUALITY	Colour, taste, smell, touch, number, magnitude, fluidity, viscocity, sound,etc.
ACTION	Upward, downward, contraction, expansion, motion
GENERALITY	Superior inferior
UNIQUENESS	-
INHERENCE	-

Table-14: Six Predicables or Padarthas in Vaishesika sutra (Basis of Physics)

The concept of Electricity has been described in *Rig Veda*. The *Great Sage Agasthya* mentioned the process of making battery in his composition Agastya Smhita (around 8000 BCE).Upanishads states about mater and its states. Other ancient Indian scientists like Bhaskaracharya(1114 AD), C.V Raman (1888), Satyendra Bose (1894) have also contributed to the history of physical science.

The history of chemical science began around 1000 BC from *Indus Valley Civilization*, through pottery, moulding, mixing, medicine making from plant extraction, alchemy, perfume making, beeer making,etc. Evidences can be found in *Harrapan* and *Mohenjodaro* civilization archeological sites and ancient texts of *Nagarjuna(10 century)* like *Rasaratnakara* in which he described about extraction of gold, copper and silver metals..

The ancient history of Mathematics can be found in the works of *Narayan Bandita's Ganita Kaumudi* on algebra, *Baudhayan's Sulva Sutra* on Pythagoras theorem and value of pi, *Aryabhatta's Aryabhattiya* on Algebra, number theory, trigonometry and geometry, *Brahmagupta's Brahm Sputa Siddantika* on methods of multiplications, negative numbers and operations on zero (7^{th} Century),etc would still serve as interesting facts for the students to know and enhance their inclination towards mathematics.

Before 19^{th} and 20^{th} century biology was all aboult health education and medicines in higher education. However scientific knowledge in biology in ancient India was in a highly advanced stage. For eg. *Ayurveda*. It served as the oldest medical system of our planet for the healthy as

well as sick. Other than this, ancient works of notabe scientists like *Susruta* in his work '*Susruta Samhita*' on surgery, preservation of dead bodies, Rhinoplasty and Opthalmic surgery; *Charak* in his work on '*Charak Samhita*'on medicines,diseases, treatments, digestion ,immunity and metabolism,etc.and *Patanjali* in his work '*yoga sutras'* on Yoga , meditation, physical and mental health,

All these ancient knowledge system play a huge role in evolving into modern day science. Hence students should be aware of all these things.

Thus, the syllabus for FE III and CP thus contains some aspects that stands in compliance with some of the prescribed model curiculla of UGC norms 2023 and NEP 2020.

CHAPTER 8: ANALYSIS OF THE SYLLABUS OF SEMESTER V

8.1. INTODUCTION

This course paper contains three major disciplinary courses named as DC-X, DC-XI and DSE-I and the rest of the four papers belong to the educational part- CP IV, CP V, AE &VAC VII, and SE-I.

Sl. No.	Subject code	Paper code	Credits	Max. Marks	Internal Marks	Practical marks	Theory/ External Marks
1.	DC(Major)	DC-X	4	100	15	25	60
		DC-XI	4	100	15	25	60
		DSE-I	4	100	15	25	60
Total			12	300	45	75	180

Table-15: CREDIT AND MARKS DISTRIBUTION OF MAJOR DISCIPLINARY COURSE PAPERS OF SEMESTER –V

Sl. No.	Subject Name	Paper code	Credits	Max. Marks	Internal Marks	Theory/ External Marks
1.	Content-cum-pedagogy: Physical Science -II	CP-IV	2	50	20	30
2.	Content-cum-pedagogy: Mathematics-II/ Biological Science- II	CP- V	2	50	20	30
3.	ICT in Education	AE & VAC-VII	2	50	20	30
4.	Pre-Internship Practice	SE- I	2	50	50	-
Total			8	200	110	90

Table-16: CREDITS AND MARKS DISTRIBUTION OF CP-IV, CP-V, AE AND VAC-VII AND SE-I OF SEMESTER –V

Though some of the papers do not contain any aspects of IKS in them, however the papers of the education part can somewhat be compared to the ancient systems of Indian education and technology.

8.2. CP-IV AND CP-V: CONTENT CUM PEDAGOGY COURSES: PHYSICAL SCIENCE- II, MATHEMATICS-II, BIOLOGICAL SCIENCE-II

In pedagogy the success of teaching a subject effectively depends upon various components like, teaching learning resources, skills, proper planning and execution through various ICT tools. All the three papers have same units' yet different instructional content for each of the different papers.

The first unit contains aspects of teaching and learning resources- their types, uses and importance. The second unit contains content analysis and planning for teaching Physical Sciences, Mathematics and Biological Sciences, respectively through annual plans, lesson plans and unit plans. The third unit lays focus strongly upon ICT, its uses and integration in physical science, biological sciences and Mathematics. There is a suggestive practicum for each subject as well.

8.3 AE & VAC- VII: INFORMATION AND COMMUNICATION TECNOLOGY (ICT) IN EDUCATION

The course focuses on helping students and teachers interpret and adapt ICTs in alignment with its educational implications. It is divided into three instructional units namely, Educational technology, Instructional design and communication and introduction to ICT in Education respectively. All these three units highlight the concept, meaning, nature, interrelationship, historical development, instructional designs, and modes of communication, instructional analysis and role of ICT in education, of educational technology.

8.4. SE-I: PRE- INTERNSHIP PRACTICE

Pre- internship is a pre-requisite for the the main Internship program of the students in various schools. This course paper aims at helping learners practice and experience classroom teaching in an simulated and guided environment to learn pedagogic and classroom management skills. Though it does not contain any units. It includes various activities regarding pedagogy skills , ability enhancement and value added courses, foundational courses, content knowledge, lesson planning, use of ICT tools, schooling systems in India, development of teaching learning materials, classroom management skills and assessment techniques.

8.5. ANALYSIS OF THE WHOLE 5th SEMESTER SYLLABUS FROM IKS PERSPECTIVE:

Resources in education are of much importance in education since ages. Evidences can be found at various archeological sites of ancient universities like, the *Nalanda University* (5th Century AD) which is said to have had a large library known as *Dharmaganja* consisting of three multi-storied large buildings: *Ratnasagara, Ratnaranjak, and Ratnodadhi* containing about nine million hand written and palm leaf manuscripts.Other resources used for writing and activities purposes in ancient educational system includes woods, birch barks, mud, stones, rocks,metals, clothes, leather, parchment and eventually evolved into paper. Paper as a learning resource was first introduced in India in the 13th century by the Arabs.

The concept of technology is also as old as various ancient civilization in India. One cannot delve much deeper into the earlier aspects of Epics of *Mahabharat or Ramayana*, otherwise the concepts of *Sudarshan Chakra, Dwarka, Pushpak Viman* and many other things would also come under the category of ancient technologies.

Without technology, life seems to be impossible today.Technology applies numerous scientific principles and concepts to disseminate information. The process of communicating information by the use of technology is known as Information and Communication Technology (ICT). Today it has become an industrial and digital art but, its evolution can be traced back to centuries ago.

Historical development of the use of technology in India is important to mention ancient Univerities like *Takshashila(*700 BC) , *Nalanda*(5th century AD) and others for contributing to the world of knowledge and resource development in the form of *Vedas*, manuscripts, infrastructure,etc that helped in the evolution of technology. Early evidences of communication can be found in early writing scriptures like *Brahm*i and *Kharosthi*. Chants and verses on copper plates, barks, leaves and eventually on paper served as a mode of written communication using early technology. Other means of communication included cave paintings,sculptures, architectures, dance forms, deities poses, etc.

ICT is also about contributions of ancient scientists like *Aryabhatta* and others to the field of basis of computational knowledge.

Aryabhatta's invention of zero (*Shunya*) and number system were also invented in India. *Bhaskaracharya*(in the 5th century) calculated the time taken by the Earth to orbit the sun. *Baudhayana* in the 6th century calculate the value of pi and pythagoras theorem. These ancient knowledge served as the backbone of computational knowledge and programming languages. These were the precursors of algorithms used in creating devices and operational programmes.

Apart from these the '*Yantra systems*'were also invented in the ancient period. These are mechanical devices used for calculations and measurements.*Yantra* came from the word '*yam'* which means to control.

WATER PULLEY	*Ghati Yantra*
OIL PRESSER	*Taila Yantra*
LABORATORY EQUIPMENTS	*Rasayanas*
SURGICAL INSTRUMENTS	*Pakayantras*
CAN PRESSER	*Ikshu Yantras*

Table-18: YANTRA SYSTEMS IN ANCIENT INDIA

All these things and knowledge directly did not develop the computers and devices, rather, they inspired and shaped the digital world today and laid the foundations as conceptual blocks.

Thus, the first unit of AE & VAC-VII seems to be relevant from IKS perspective and stands in compliance with NEP 2020.

CHAPTER 9: ANALYSIS OF THE SYLLABUS OF SEMESTER VI

9.1. INTRODUCTION

The syllabus for semester VI contains nine papers in total. The disciplinary major course contains two papers in total (DC-XII and DSE II) and the disciplinary minor course contains one paper (DCM-IV). Each of the papers are assigned four credits and hundred marks in total.

Sl.No.	Subject code	Paper code	Credits	Max.Marks	Internal Marks	Practical Marks	Theory/ External marks
1.	DC (Major)	DC-XII	4	100	15	25	60
		DSE-II	4	100	15	25	60
2.	DCM(Minor)	DCM-IV	4	100	15	25	60
Total			12	300	45	75	180

Table-19: Marks and credit distribution for Major and Minor disciplinary course subjects

The education part contains six papers- FE-IV, FE-V, CP-VI, CP-VII, AE & VAC VIII and SE-II carrying two credits and fifty marks each.

Sl. No.	Subject name	Paper code	Credits	Max. Marks	Internal marks	Theory/ External marks
1.	Assessment and Evaluation	FE-IV	2	50	20	30
2.	Inclusive Education	FE-V	2	50	20	30
3.	Content-cum-pedagogy-Physical Science III	CP-VI	2	50	20	30
4.	Content-Cum-Pedagogy-Mathematics-III/ Biological Science-III	CP-VII	2	50	20	30
5.	Mathematical and Quantitative Reasoning	AE&VAC-VIII	2	50	20	30
6.	School Observation	SE-II	2	50	50	-
Total			12	300	150	150

Table-20: Marks and credit distribution for FE-IV, FE-V, CP-VI, CP-VII, AE & VAC VIII and SE-II

9.2. FE-IV: ASSESSMENT AND EVALUATION

The course intends to familiarize the prospective teachers with the concept, processes, analysis and interpretation of assessment and evaluation of students' performance and scores in examinations. It aims at developing skills of the student teachers in creating and implementing competency based assessment methods in schools.

The course paper is divided into three basic units such as: 'Assessment in education' which includes meaning, significance, purposes, forms and historical overview of NCFs of assessment; 'Process of assessment and evaluation' which outlines the various tools and techniques used for the processes of assessment and evaluation; and, 'Analysis, interpretation and reporting' which includes overall analysis, representation, and reporting cumulative records of students' performance and scores.

9.3. FE-V: INCLUSIVE EDUCATION

This course seeks to help student teachers in understanding and applying the concept of inclusive education in the classrooms by bridging all kinds of discriminations or gaps at all levels of school education, such as gender inequality, social injustices, marginalization, etc. The first unit outlines the conceptual evolution of inclusive education in Indian context. It also includes various terms, phrases,policies,schemes and Acts on inclusive education. The second unit entails about Children with Disabilities and Marginalized groups. The third unit contains about the issues and concerns regarding meeting the specific needs of Children with Disabilities in an inclusive set up in schools, and about the strategies of evaluation and assessment in an inclusive setting.

9.4. CP-VI and VII: CONTENT-CUM-PEDAGOGY: PHYSICAL SCIENCES-III, MATHEMATICS III, AND BIOLOGICAL SCIENCES III

The course majorly focuses on development of 21st century skills among the prospective teachers in various school subjects like physical science, mathematics and biology, to help them cater to the needs of 21st century learners and set global standards. It contains three units describing 21st century skills for learning, assessment and evaluation and research and innovative practices in teaching-learning physical sciences, mathematics and biological sciences.

9.5. AE AND VAC- VIII: MATHEMATICAL AND QUANTITATVE REASONING

This course introduces the students to the usage of basic mathematical and quantitative reasoning for the requirement of analysis and interpretation of data. It will help the students to think critically and solve real-life problems through quantitative reasoning. It contains three units described as Introduction to Mathematical and quantitative reasoning, introduction to data in equation and data analysis and interpretation. It also contains a suggestive practicum for the students.

9.6. SE-II: SCHOOL OBSERVATION

School is the heart of any teacher education programme. It helps students gain practical experience of teaching in a real classroom environment of a school. It aims at giving

opportunities to the students to get acquainted with processes and practices of the schooling system and conduct various activities in the school. It doesn't contain any unit as such but serves as a field based activity rather. It contains a series of activities for the students to carry out at three different types of the schools for at least three weeks.

9.7. ANALYSIS OF THE WHOLE 6th SEMESTER SYLLABUS FROM IKS PERSPECTIVE:

The word assessment is used for checking the progress made by the students during the process of transaction in teaching and learning process.Evaluation is the term-end or year-end process of assigning grades or giving final judgement about the effectiveness of the teaching and learning process. The process of assessment and evaluation is an age old practice.

In ancient times, education was mainly imparted through oral (*Maukhik*) or activites. The teachers (*Gurus or Monks*) used to assess the students through observation of their behaviours, ethical and moral conducts, recitation of the vedic texts,monastic discipline, spiritual development,etc.. There were various convocation ceremonies held like *Samavartana* in post *vedic* period, *Upasamapada* in *Buddhist* period to mark the completion of of their education. Hence, the paper FE-IV is relevant.

Ancient India has always been branded as rigid, caste-based and non-woman centric when it comes to education and inclusion in the in the society. During *Vedic* period, *Brahmin*s were always considered as teachers.

" But a Brahmin is authoritatively remembered as a teacher.." -prescribed in the *Smriti*

Yet, many evidences show that Indian traditional education systems like *Buddhism, Jainism and Islam* were outright supporters of inclusion in education. Infact, *Buddhism* and other systems also supported education and involvement of women and disabled people in educational activities and viewed them as equal to any other being. There are many indicators in *Yajurveda* that people belonging to other castes ocassionally taught the *Veda*s. There are several parts in the *Upanishads* where Kshatriyas appeared as teachers of *Brahmins* but taught only rituals and philosophy and not the Vedic texts. King *Ajatashatru* teaches the Brahmin Gargya in *Brihadaranyaka Upanishad II* and *Katha Upanishad IV* about the self. Ancient Indian women philosophers like *Gargi Vachaknavi* and *Maitreyi* have also contributed the Vedic literature and *puranas.* Hence, inclusion in education has been an age old practice in some aspects of the Ancient Indian Knowledge system though.

Thus, the paper FE-V and its first unit are relevant in compliance with NEP 2020 and UGC norms.

The integration of IKS and development of 21st century skills are essential for sustaining and enhancing teacher education in India under NEP 2020. **(Parker et al.; 2017)**

This holistic approach, amalgamation of IKS and 21st century skills as proposed by NEP 2020 has the potential to develop a dynamic and strong educational system. By doing this, India can raise a generation of students who are not just academically excellent, but culturally anchored and globally capable. **(Sekh Nur Hossain and Dr. Subhankar Ghosh)**

Equipping teachers with methods to blend traditional knowledge with modern pedagogies, fostering a more holistic teaching approach is necessary.

Ancient Indian Education fostered many skills that are relevant to contemporary world. Whether it is about fostering critical thinking through the analysis of Vedic texts, applying *Sulva Sutras,* understanding astronomy, enhancing communication through speeches and debates, encouraging collaboration through *guru-shishya parampara,* developing creativity through music, writing scriptures, or developing art and craft skills, traditional Indian Education System is relevant in 21st Century in many ways. Thus, the course papers of CP- VI and CP-VII are in compliance with the objectives of NEP 2020.

Mathematics in ancient India was intertwined with religious, practical and cultural aspects of daily life. **(Prof Avinash Challelwar)**

The application of *Sulva sutra* texts (800 BCE- 500 BCE) related to architechtural and ritualistic practices to solve various real life problems reflected the holistic world view and intellectual pursuits of ancient Indian society.The mathematical and quantitative reasoning concepts in *"Bramhasputasiddhanta*" by *Bramhagupta* and "*Lilavati"* by *Bhaskaracharya* continues to inspire inquiry, exploration and appreciation in the modern world. Vedic Maths continues to be relevant and influential in impacting practical applications and various aspects of education. Thus, the paper AE & VAC VIII is relevant.

School observation offers an opportunity to learn the processes and practices in a school setup.In ancient Indian Education system, real life learning took place in the similar way through visit to different Gurukuls, Viharas, monasteries and tours and travelling to different Univerities like Nalanda, Takshashila,etc.The scholars used to travel to distant places for education. The *Brhadaranyaka Upanishad* gives evidence of band of scholars went through the country to gain proper knowledge.The Buddhist education system also encouraged their students to take long trips to gain practical knowledge or education. *Jivaka* after seven years of his education in *Takshshila* , went to far off places to receive practical knowledge of his subjects. Hence, the SE-II paper also seems to be quite relevant to present day context and in accordance with UGC norms-2023.

CHAPTER 10: ANALYSIS OF THE SYLLABUS OF SEMESTER VII

10.1. INTRODUCTION

The syllabus for semester VII doesn't contain any major or minor disciplinary courses. Rather, it only includes the educational subjects like FE-VI , FE- VII, AE & VAC- IX , AE & VAC- X, SE- III and SE-IV described as- Perspectives of school leadership and management, Curriculum planning and development, Art Education and creative expressions, Sports, nutrition and fitness, School based research projects an Internship in teaching respectively. The credit and mark distribution of the syllabus is as follows:

Sl. No.	Subject Code	Subject Name	Paper Code	Credits	Max. Marks	Internal Marks	Theory (Ext.)
1	FE	Perspectives on School Leadership and Management	FE-VI	2	50	20	30
2	FE	Curriculum Planning & Development Textbooks, Material Development, etc. (Secondary)	FE-VII	2	50	20	30
3	AE&VAC	Art Education (Performing and Visual) and Creative Expressions	AE & VAC-IX	2	50	20	30
4	AE&VAC	Sports, Nutrition and Fitness	AE & VAC-X	2	50	20	30
5	SE	School-based Research project	SE-III	2	50	50	--
6	SE	Internship in Teaching (as per CP)	SE-IV	10	250	250	--
Total				**20**	**500**	**380**	**120**

Table-21: Marks and credit distribution for FE-VI, FE-VII, AE & VAC –IX, AE & VAC-X , SE-III and SE-IV

10.2. FE-VI: PERSPECTIVES ON SCHOOL LEADERSHIP AND MANAGEMENT

The paper is all about understanding the diverse school systems in India, their structure , socio-cultural context, political context, mechanisms, support systems and leadership systems. It puts more emphasis on school leadership and its role in supporting school as a learning organization. It contains three units in total with no practicum yet a varied range of suggestive modes of transaction.

10.3. FE- VII: CURRICULUM PLANNING AND DEVELOPMENT

According to the syllabus, the course paper aims to introduce to the student teachers to the process of designing and organizing the curriculum through a set of arrangements like subject selection, pedagogical approaches and practices to be pursued, learning-teaching materials to be used , examinations and assessment , school culture and processes, etc. to fulfil the goals of NEP 2020. It contains three units and a suggestive practicum, the first unit emphasizes on curriculum, its types and curriculum visualized at different levels (National, state, school and class level). The second unit focuses on development of a curriculum and its related concerns while, the last unit consists of approaches, planning and implementation of curriculum development process.

10.4. AE & VAC IX: ARTS (PERFORMING AND VISUAL) AND CREATIVE EXPRESSIONS

The course paper aims at developing the psychomotor and pedagogic skills of learners through art integration taking the exemplar of 'Theatre'. It consists of two units described as 'Importance of Aesthetics and Art Education' and 'Introduction to Theatre, and Beginning with the body' respectively.

10.5. AE & VAC –X: SPORTS, NUTRITION AND FITNESS

This course aims at enabling student teachers to recognize the importance of good health, fitness and the right nutrition to live a healthy life according to the syllabus. It also provides students with the experience of organizing and participating in sports and games through a variety of suggestive practicum. According to its heading, it is divided into three units namely sports, nutrition and physical fitness respectively.

10.6. SE III: SCHOOL BASED RESEARCH PROJECTS

The paper focuses on helping the student teachers foster critical thinking, problem solving, collaboration and ethical decision making skills through various action researches and case study practices.

10.7. SE IV: INTERNSHIP IN TEACHING

Internship plays a vital role in connecting student teachers with school, teachers, students, and other stake holders in various ways. It enables them to get intensive experience all aspects of teaching. Hence, the structure of the course paper suggests fourteen weeks of internship programme in two different types of school with a varied range of activities to be performed by the student teachers at the schools like teaching practices, peer observations, achievement test, diagnostic test and others.

10.8. ANALYSIS OF THE WHOLE 7th SEMESTER SYLLABUS FROM IKS PERSPECTIVE

In ancient India, both formal and informal ways of education system existed. Indigenous education was imparted at home, in temples, *pathshalas, tols, chaupadis* and *gurukuls*. There were people in homes, villages, and temples who guided young children in imbibing pious ways of life. Temples were also the centres of learning and took interest in promotion of knowledge of our ancient system. Students went to *Viharas* and Universities for higher knowledge. During the medieval period, Maktabas and Madrassas became part of the education system**. (NCERT)**

Thus, the diverse school systems in India evolved from these schooling systems in ancient India. The concept of leadership in education also emerged from our ancient education system.

Gurus and *Rishi munis* were the academic leaders. During Vedic Period, cognitive skills and behavioural merit served the basis for selecting academic leaders. Other than these, skills, knowledge, character, moral values, mindset , level of patience , intimacy with students , willingness to train to perfection, perseverance of results and loving and caring attitudes to other students were also qualities that a leader or guru must possess. They used to take full responsibility for the students/ followers future with an open heart ss they considered imparting knowledge as their primary *dharma*.

Teachers were considered primary source of the supreme knowledge system, hence needed to have benevolene, and virtues like compassion, beneficience, patience, appreciativeness and kindness. **(BHU, 1994)**

Manusmriti explains guru as the one who gives knowledge of the Veda that ensures eternal rewards both in his life and after death.

Disciples remains serviceable and careful not to offend their gurus as they always portray them as a father figure. **(BHU 1904)**Their respect showed that the academic leaders earned the highest regard and were responsible towards their followers.

Curriculum plays an essential role in any education system. So was the case in our ancient India where the curriculum was dynamic and had a fundamental goal of developing stuents physically and mentally.

The curriculum consisted of four *Vedas*, six *Vedangas, Upanishads, Darshanas, Puranas, Tarka shastra*,etc. The six vedangas were *Shiksha, Chhandas, Vyakarana, Nirukta,Jyotisha*, and *Kalpa*, while the darshanas were *Nyaya, Vaisheshika, Yoga, Vedanta, Sankhya, and Mimansha*. Algebra, geometry and grammar were also given more importance at that time.The curriculum of Buddhist system included *Pitakas, Abhidhammas*, and *sutras. Panini's* grammar was famous at that time. The education was totally through oral methods and debates. The education system of ancient period also focused on subjects like medicine, warfare, military, politics and religion**.(Mangesh M. Ghonge, Rohit Bag and Ankit Singh;2020).**

Indian theatre evolved from its roots in ancient forms in India from Sanskrit theatre and traditional folk theatre, to modern theatre. Bharata Muni's Natyashastra being a key text providing a comprehensive framework for theatre including acting techniques,stage design and various aspects of dramatic performance, *Kalidasa's* Sanskrit drama like *Abhijnanasakuntalam*, and others contributed significantly to the rich theatrical tradition and continues to be a vital means of preserving culture and learning tradition. The influence remains on modern Indian theatre with inspirations being drawn from them.

In ancient Indian Education system, focus on physical fitness , sports and yoga were also integral as they included archery, wrestling , horse riding, swordsmanship, elephant riding, chariot racing , hunting , Ayurveda,yoga,etc. *Dhanurveda* was one of the subject of education which taught the science of warfare. *Chatushasti Kalaa* was the study of hobbies, including physical training and had sixty-four arts including weaponry, archery, running etc.

The concept of internship or apprenticeship is not new to India. It has been the age old way of transfer of skills from *Gurukul* system to modern age. In gurukul system, the disciples would stay with their guru and learnt various skills of survival, warfare, art,etc. they would also do the household chores for their Guru.

Hence, all the papers of semester VII are quite relevant in today's education system from IKS perspective.

CHAPTER 11: ANALYSIS OF THE SYLLABUS OF SEMESTER VIII

11.1: INTRODUCTION

The syllabus of semester VIII doesn't contain any major or minor disciplinary subjects as well. The educational papers eight papers in total that includes FE-VIII, FE-IX , FE-X , AE & VAC-XI, AE & VAC-XII, SE- V, SE-VI and CES-I respectively. The names of the papers, their marks and credit distribution are as follows:

Sl. No.	Subject Code	Subject Name	Paper Code	Credits	Max. Marks	Internal Marks	Theory (Ext.)
1	FE	Philosophical & Sociological Perspectives of Education – II	FE-VIII	4	100	40	60
2	FE	Education Policy Analysis	FE-IX	2	50	20	30
3	FE (One Elective)	Adolescence Education/Education For Mental Health/Education for Sustainable Development/Emerging Technologies in Education/Gender Education/Human Rights Education/Peace Education/Sports and Fitness Education/Tribal Education/Economics of Education	FE-X (One Elective)	4	100	40	60
4	AE & VAC	Yoga and Understanding Self	AE & VAC-XI	2	50	20	30
5	AE & VAC	Citizenship Education, Sustainability and Environment Education	AE & VAC-XII	2	50	20	30
6	SE	Post Internship (Review and Analysis)	SE-V	2	50	50	---
7	SE	Creating Teaching Learning material/Work Experience	SE-VI	2	50	50	---
8	CES	Community Engagement and Service	CES-I	2	50	50	---
Total				**20**	**500**	**290**	**210**

Table-22: Marks and credit distribution for FE-VII, FE-IX, FE-X ,AE & VAC –XI, AE & VAC-XII,SE-V ,SE-VI and CES-I

11.2. FE-VIII: PHILOSOPHICAL AND SOCIOLOGICAL PERSPECTIVES OF EDUCATION: II

This course paper aims to let the student teachers identify the evolutionary characters of values in education and understand the social context of education. It contains seven units in total. The first unit emphazizes on the normative and value based orientation of Indian education with special focus on *Vedic , Vedantic , Buddhist , Jain , Islam* and *Sikh* education. The second unit focuses on the constitutional values of education in contemporary India. The third unit focuses on the interrelationship between education and culture. The fourth unit envisages education for a social change while the fifth unit for national development. The sixth unit majorly focuses on critical pedagogy and the last unit on equality and equity in education.

11.3. FE-IX: EDUCATION POLICY ANALYSIS

It emphasizes on orienting students to different policies and national frameworks of education, as well as their planning and implementation.

11.4. FE-X: ELECTIVE PAPERS

It consists of ten foundational elective papers out of which the students have to choose one of their choice. Brief description of some the papers are as follows:

11.4.1. Adolescent Education

The paper is designed to mainly give knowledge about adolescent education, its historical development in India and its pedagogical issues to the learners.

11.4.2. Education for Mental Health

This course aims to give a comprehensive understanding of mental health, its significance and its determinants. It also gives emphasis on stress management, adolescent adjustment theories and issues regarding mental health.

11.4.3. Education for Sustainable Development

This course outlines the meaning, nature, and significance of education and sustainable development in the light of seventeen sustainable development goals envisaged in the United Nations agenda.

11.4.4. Emerging Technologies in Education

This course is designed to help learners understand and use various technologies for creating e-resources in education.

11.4.5. Gender Education

This course seeks to develop understanding about gender roles, its issues and addressing gender issues through education.

11.4.6. Education for peace

This paper is designed to develop theoretical and practical bases of peace education and trace its historical development. It also emphasizes on highlighting the foundations peace and various philosophies of peace of Indian thinkers like M.K. Gandhi, Krishnamurthy, Aurobindo, and Gijubai Badheka.

11.4.7. Sports, Health and Fitness education

This course focuses on health education, yoga (practice of *yogasana* and meditation), evolution of physical education,its historical development,etc.

11.5. AE & VAC XI: YOGA AND UNDERSTANDING SELF

This course includes benefits of yoga and brief history of yoga, its principles(*Ahimsha, Satya,Asteya,Bramhascharya,Aparigraha,Soucha, Santosha, Tapas, swadyaya, and Iswara Paridhana*), streams(*Gnana,Bhakti,Karma*), practices (*Kriyas, Asana, Pranayama, Bandha and mudra, Dharana and Dhyana),* development of yoga(Classical Yoga, Post classical yoga, and Modern period),etc.

11.6. AE & VAC XII: Citizenship Education, Sustainability, and Environmental Education

The course paper seeks to enable student teachers to understand citizenship education, concept of '*Vasudhaiva Kutumbakam'*, sustainability and environmental issues through three major units and a suggestive practicum of report writing on Environmental education.

11.7. SE-V: Post Internship

It is all about the analysis and discussions regarding the experiences of the students in their seventh semester internship programme. This course paper just seeks to let students share their

experience through presentation, discussion and report writing during their post internship in eighth semester.

11.8. SE-VI: CREATING TEACHING LEARNING MATERIAL (TLM)/WORK EXPERIENCE

This course aims at letting the student teachers develop a variety of Teaching Learning Materials in various forms and of good quality with the use of creativity, low cost materials, technology etc. according to the understanding and comprehending level of children at different stages.

11.9. COMMUNITY ENGAGEMENT AND SERVICE

According to the syllabus, this course paper seeks to expose student teachers to the socio-economic issues in societies and communities, to gain insight into the functions of community, enlist community support and participate in school related activities. It also suggests organizing activities such as *street plays, advocacy activities, door to door campaigns, and prabhat pheris,*etc to mobilize community participation in development initiatives.The student teachers will therefore be provided opportunities of exposure to community life for ten days for working with the community.

11.10. ANALYSIS OF THE WHOLE 8th SEMESTER SYLLABUS FROM IKS PERSPECTIVE

Normative orientation of education refers to the values, beliefs and cultural traditions that guide the goals, curriculum, and methods of education in India. This approach emphasizes the importance of traditional culture and moral values in shaping the character of students and preparing them for their roles as responsible members of society.

Historically, Indian education has had a strong emphasis on spirituality, moral values, and cultivation of virtues like honesty, integrity and compassion. This approach has been influenced by India's religious and philosophical traditions such as Hinduism, Buddhism, Jainism and Sikhism, which have emphasized the importance of ethical and spiritual development alongside intellectual and academic learning. It means students would not just learn academic subjects but also learn moral and spiritual values. For example- teaching about righteousness, moral duty, non-violence, good conduct which are central to the Jain and Buddhist traditions. **(Dr Prabhas Ranjan, Patna Women's college).**

Normative act of education is a directional ideal that consists of conviction, values and norms that play an important role in setting the direction in which professional practice develops. Direction and structure are always linked. Normative act is often achieved through the use of strict rules, regulations, dress codes and mandatory attendance policies. It also emphasizes on the importance of discipline, respect for authority, and self-control.

Indian traditional values emphasize holistic development, respect for teachers and elders, community responsibility, the pursuit of knowledge, and betterment of society, often rooted in ancient practices of *dharma*.

Vedanta is also value centred around realization of ultimate reality *(Brahman),* the pursuit of knowledge *(Jnana)* and the importance of selfless action *(Karma Yoga*), and devotion (*Bhakti Yoga*) to achieve liberation *(Moksha*).

The NEP 2020 provides to include traditional Indian values and constitutional values (Seva, Ahimsha, Swachchta, Satya, Nishkam Karma, Shanti, Sacrifice, tolerance, diversity, pluralism, righteous conduct,gender sensitivity, respect for elders, respect for all people and their inherent capabilities regardless of background,etc).

Hence, FE VIII is quite relevant and is in complete accordance with NEP 2020.

Yoga, given in Gita: Yoga is excellence in action. Excellence is nothing without motivation. It is necessary to promote self-understanding because it encourages self-awareness, mindfulness, emotional regulation, leading to a deeper connection with oneself and a greater understanding of thoughts, feelings and emotions.

The principles of yoga like *Ahimsha, Satya, Asteya, Bramhacharya, Aparigraha, Shoucha, Santhosha,Tapas, Swadhyaya and Ishvara paridhana* are important for all round development of the students and their peace, harmony, health and happiness. The eight limbs of yoga helps in aligning human, mind, body and spitit as one. To attain this oneness, yoga philosophy emphasizes on its 8 limbs-

- *Yama*- Social code of conduct
- *Niyama*- Personal code of conduct
- *Asana*- Physical practices
- *Pranayama*- Breathing practices
- *Pratyahara*- Withdrawal
- *Dharana*- Concentration
- *Dhyana*- Meditation
- *Samadhi*- Unity with God

Hence, yoga, is an exploration of the self, that brings about a metamorphosis in the practioner and aids in self-realization.It elevates *Kundalini,* or the life force situated at the base of the spine. It is needed for a person to seek out his purpose on this earth after birth.

A quote from Bhagavad Gita-

"A person is said to have achieved yoga, a union with self when the perfectly disciplined mind gets freedom from all desires and becomes absorbed in the self alone."

Thus, Yoga and Understanding self is an appropriate course designed for ITEP from IKS perspective and is in compliance with various policies and norms regarding ITEP.

The Vedas emphasize, *Arth Kari Sa Vidya* which means 'Education enables livelihood' which aligns with and advocates for sustainable societal development. Traditional practices of agriculture (organic farming,crop rotation, mixed cropping, organic farming), water management (stepwells, tank irrigation systems, Johads), healthcare (Ayurveda, Unani, Yoga), and education (the gurukul system for example promoting holistic , moral, intellectual, and practical knowledge), architechture (*Vashtu Shastra*) for long term sustainability in environmental education. Practices like recycling of resources (*Punarvasu*) and "zero waste"

were all embedded in ancient Indian lifestyles which is gaining traction in modern India to promote sustainability among responsible citizens of India.

Commuity work was also integral to education in ancient India. For example, *Agrahara*, an institute received material and financial support from community members and society. In gurukul system, the students lived with their gurus in a community system and served all its members. These institutions and temples also provided free education to students, with community support from temple donations, grants from kings, and local patronage. Hence, education in traditional India was deeply centered around religious, social and cultural fabric of the community.

Hence, most of the papers of semester VIII are in accordance with contemporary education systems, policies and guidelines.

CHAPTER 12: RELEVANCE AND FINDINGS

RELEVANCE AND FINDINGS

Education in ancient India is of high esteem and stated as

" Swadesh Pujyate Raja, Vidwan sarvatra pujyate."

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 chagges 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 sys and unitytem),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.

CHAPTER 13: CONCLUSION

CONCLUSION

No matter how easy things seem to be, it might take a lot of effort by the stake-holders in 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.

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