

MODULE 1

Introduction to Indian Knowledge Systems (IKS): Overview, Vedic Corpus, Philosophy, Character scope and importance, traditional knowledge vis-a-vis indigenous knowledge, traditional knowledge vs. western knowledge.

Overview of Indian Knowledge System.

1. India has a very old civilization, known for its deep-rooted traditions & knowledge. Indian's civilisations are one of the oldest in the world, with rich history that spans thousands of years. India has accumulated a vast amount of knowledge in various fields like Science, Mathematics, Medicine and Technology. Example – Aryabhata Father of Indian Mathematics born in 476CE, in his book Aryabhatiya a Sanskrit book that combines Astronomy and Mathematics.
2. Throughout its history, India has made significant contributions to global knowledge, particularly in areas like Mathematics, where concepts like Zero, decimal systems were pioneered and in Medicine, with practices such as Ayurveda.
3. IKS was traditionally passed down orally through generations in India.
Example – Gurukulas.
4. Today much of this ancient knowledge is not widely recognized or used in the modern education system.
5. Today education system is focusing more on western curricula and Methodologies.

Importance Of Ancient Knowledge.

1. Ancient Knowledge is the accrued knowledge over several generations and preserved in Formal and Informal means.
2. a. Formal Means – includes documented knowledge.
b. Informal Means – include shared values and practices through oral traditions.
3. Ancient Knowledge Provides a head start to a society to march on the highway of innovations and new knowledge creations.
4. Ancient Knowledge serves multiple roles for society, as shown in below diagram.



The section contains a list of four prime factors which add to the importance of IKS which are:

1. **Identity:** Knowing about IKS helps young Indians feel connected to their heritage. This, in turn, helps strengthen our sense of identity.
2. **Culture:** From a social perspective, culture is important as it is a set of ideas and customs. The prevailing knowledge and literary traditions play a significant role in shaping our culture. If the underlying knowledge systems are abruptly withdrawn from society, the cultural practices will be rudely jolted.
3. **Received Wisdom:** Ancient knowledge plays a valuable role in 'received wisdom'. This is the continuity of thoughts and ideas passed down by previous generations. It also consists of ideas formed as a result of studying our history, heritage, and the culture of the past. This knowledge encourages the creation of new ideas and innovation. This is since modern cultures build upon the knowledge that is passed down to them.
4. **Economic value:** The current global economy puts greater emphasis on knowledge. The economic value of knowledge is evident from the global intellectual property rights regulations and patent laws. Therefore, the ancient knowledge system will be beneficial to a country like India where we have a wealth of ancient scientific knowledge. Example – Pigeon Pea.

Understanding the Meaning of IKS.

1. Indian Knowledge Systems (IKS) is a generic phrase covers practically everything about India.
2. 5000 years of recorded history, abundant cultural and archaeological artifacts, literature, and social and community practices, Literature, cultural and social practices, historical evidence, geographical regions will all technically fall under the ambit of IKS.
time dimension.
3. Knowledge is continuously synthesized by any society. from the pre-historic times to the current day will all qualify to be part of the IKS.
4. IKS is the systematic transmission of the knowledge from one generation to next generations.
5. It is a structured system and a process of knowledge transfer rather than a tradition.
6. IKS is based on Vedic literature, Upanishads, Vedas, Upvedas.
7. The NEP – 2020 [National Education Policy] recognized this rich heritage of ancient and external Indian Knowledge and thought as a guiding principle.
8. The IKS comprise of Jnana, Vignan and Jeevan Darshan that have evolved out of experience, observations, experimentations.
9. These traditions of validating and putting into practice has impacted our education, arts, administrations, law, justice, health, manufacturing and commerce.
10. This has influenced classical and other languages of Bharat that were transmitted through textual, oral and artistic traditions.
11. It includes knowledge from ancient India, its successes, challenges and the sense of India's future aspirations specific to education, health, environment and indeed all aspects of life.

Definitions of Indian Knowledge System.

The term IKS has three words in it. To better understand what we mean by IKS

Indian

- a. Indigenous sources of knowledge generated by the Indian society.
- b. current political formation called 'India' is of recent origin and it alone does not qualify to be called 'Indian'. The term 'Indian' points to the undivided Indian subcontinent (Akhand Bharata).
- b. the geographical area spanning from Burma on the east to modern-day Afghanistan in the west and Himalayas in the North to the Indian Ocean in the south.
- c. Chanakya educated in Takṣaśilā in the western part of the sub-continent and be
- d. instrumental in establishing a powerful Mauryan empire with in Eastern part. Similarly,
- e. Panini, a Sanskrit Grammarian from Gandhara in the North-Western (now in Pakistan) could influence the thinking of people in the entire country on the Sanskrit language.
- f. second aspect to this is only such knowledge synthesized, codified, and made available by the 'Indians' is considered Indian knowledge.
- g. Important because several foreign travellers who visited its universities, wrote about the country, the knowledge, and cultural practices. significantly contributed to the export of this knowledge to the west and other parts of the world.
For example, taking mathematical thinking to the west via the Arab world. These are considered as 'about IKS' rather than IKS itself.

Knowledge

- a. Always tacit.
- b. primarily arises in the form of the wisdom of the knowledge seekers.
- c. Personal experiences with life situations, facing problems, and coming up with means of solving them.
- d. Observation of events, experimentation, conjecturing, and analysis.
- e. India has a rich tradition of folklore practices even to date
- f. While both these forms of knowledge are equally important and valuable it is impossible to formally study knowledge transmitted through oral traditions.
- h. Therefore, by 'knowledge', a formal repository of knowledge available in literary sources.
- i. Knowledge pervades all three domains: spiritual, religious, and others addressing social and day-today issues.
- j. Summarizes the term 'knowledge' as that emanating from the wisdom and insights arising out of deep experiences, observation, experimentation, and analysis and validated, improved, and augmented further.

System

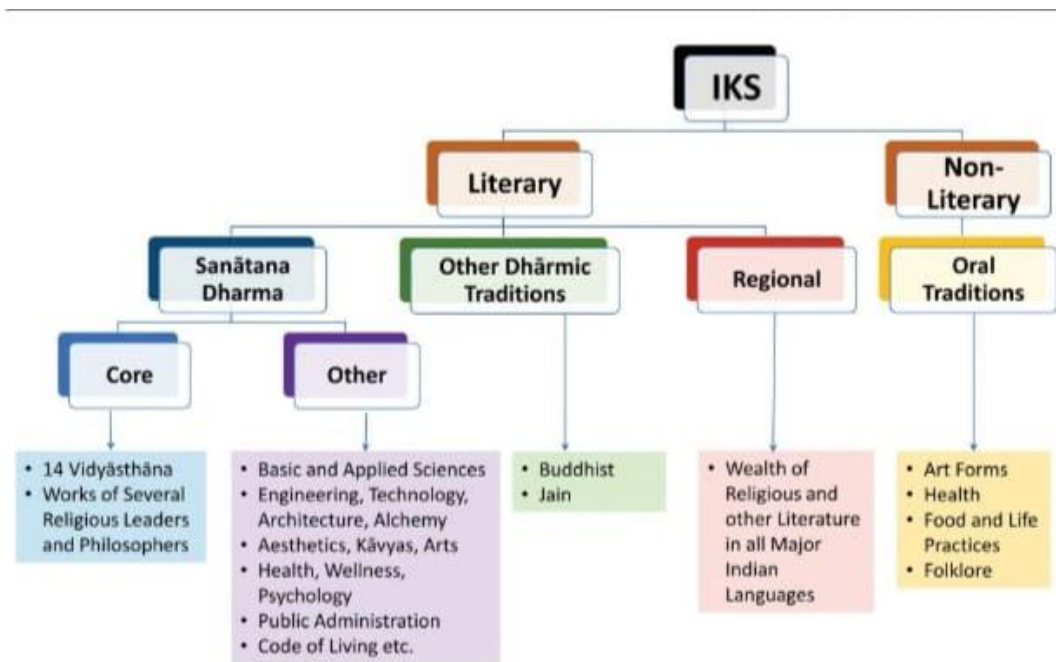
- a. Structured methodology and a classification scheme to access the available corpus of knowledge.
- b. Depending on the interest, purpose, and capacity of the seeker.
- c. The available knowledge needs to be collected, grouped, and arranged logically.
- d. Codification and classification of the available knowledge using a definite framework would constitute one dimension of the word 'System' in IKS. Interconnection between the part of the knowledge in the classification.
- e. This helps easy understanding of the overall contribution of the knowledge and how the different components of the knowledge complement each other.

Indian Knowledge System Corpus – A Classification of IKS.

1. Knowledge Corpus such as Vedas, Yoga, Vaastu, silpa, Sastras, Ayurveda, Buddhism and Jainism to define IKS.
2. Another approach is to select phases such as Indian Psychology, Indian Arts, dance and architecture, put together related to works into it to construct IKS.
3. Classification of framework depends on 3 factors.
 - a. Completeness – It ensures that all important components of the IKS are included in the proposal framework. If significant omission is found in the classification, it makes the IKS non exhaustive & non representative.
 - b. Compactness – Indicates the efficacy of the grouping of various topics in IKS in a congruent and logical fashion. This makes the representation simple, concise and easy to understand and remember.
 - c. Inter connectedness – It brings logical relationship among the various sub classifications. The classification framework will identify how the different components are logically connected.

Indian Knowledge System Frameworks are 2 types.

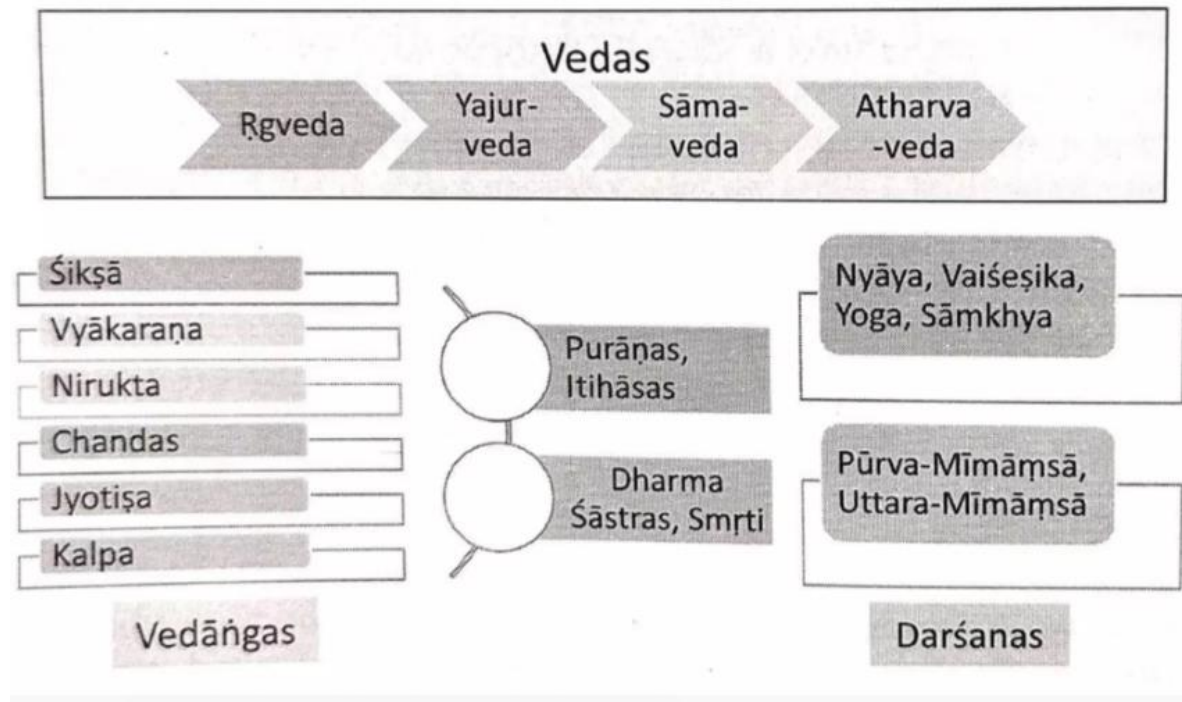
1. Literary
2. Non – literary.



Chaturdas Vidya Sthanas.

1. Chaturdas Vidyas, the fourteen branches of learning in Hinduism, include the four Vedas, the six accessory texts (Vedangas), Dharmashastra, Puranas, Mimamsa and Nyaya.
2. The four Vedas – Rig Veda, Yajur Veda, Sama Veda, and Atharva Veda – are well known as the foundation of Hindu culture, generally referred to as Sanatana Dharma.
3. The 6 Vedangas - six accessory texts or studies of Vedas are Siksha (phonetics), kalpa (ordinances), vyakarana (grammar), nirkuta (etymology), chandas (metrical science), and jyotisha (astrology and astronomy).
4. Puranas, eighteen in number, explain Sanatana Dharma embedded in the Vedas.
5. Mimamsa, as a study of philosophical exegesis, lays down the method of interpreting Vedas and the performance of various sacrificial rites.
6. Nyaya gave rise to a method of logical analysis of truth and reasoning.

Chaturdaśa-Vidyāsthāna



1. Vedas

- Vedas is also known as Shruti.
- It is a Primordial source of Knowledge.
- It Provide framework of living.
- It helps in resolve the conflicting problems.
- It is a primary purpose to expand the ideas of Vedas.
- Vedas are 4 types – Rig Veda, Sama Veda, Yajur Veda, Atharva Veda.
- Rig Veda – Oldest Veda, containing hymns [a religious song or poem of praise to God] composed by several families of priests that invoke the goals.
- Sama Veda – Consists of Hymns that are set to Music's.
- Yajur Veda – A ritual Veda that serves as a guidebook for the adhvaryu priest or Yajurveda priest.
- Atharva Veda – Contains spells against enemies, sources and diseases.

2. Vedangas.

- Vedangas are six auxiliary disciplines of Hinduism that support the study, preservation, and protection of the Vedas and Vedic traditions. The word Vedanga is a Sanskrit word that literally means "limb of the Veda". The six Vedangas are:
- Siksha: Includes rules of phonetics and pronunciation.
- Chanda: The science of prosody.
- Vyakarana: Discusses the formation of words, including their roots and suffixes.

- e. Nirkuta: Gives the meaning of words in usage.
- f. Jyotisha: One of the eyes of the Veda Purusha.
- g. Kalpa: The arms of the Veda Purusha, and is used for the proper application of Vedic texts.

3. Itihasas and Puranas.

- a. Itihasas - The Sanskrit epics of the Mahabharata and the Ramayana. Itihasas means "history" in Sanskrit.
- b. Puranas - A large genre of Hindu literature about myths, legends, cosmogony, and purported history. The Puranas are considered to be interpretations of the Vedas.

4. Dharma-shastras and Smritis.

- a. Dharma- shastras - Dharma shastras are a collection of Sanskrit texts that provide guidance on Hindu religious and legal duties, moral conduct, and social laws.
- b. Smritis – A rule of book with specific operating guidelines of how to put dharmic principles into action and what are consequences of not doing this.

5. Mimamsa.

- a. Mimamsa is a Sanskrit word that means "reflection" or "critical investigation". It is also the name of an orthodox Hindu philosophy that focuses on the interpretation of Vedic texts and literature.
- b. 2 Parts of Mimamsa – Purva Mimamsa – Deals with earlier writings on right practices.
- c. Uttara Mimamsa – Deals with later writings on right thought.

6. Darshanas.

- a. Darshanas are both schools of Hindu philosophy and the auspicious sight of a deity or holy person in Indian religions:
- b. Schools of Hindu philosophy - The six traditional schools of Hindu philosophy are known as the six Darshanas: Nyaya, Vaiśeṣika, Samkhya, Yoga, Mimamsa, Vedanta.
- c. Nyāya: Logic
- d. Vaiśeṣika: Atomism
- e. Samkhya: Enumeration
- f. Yoga: Meditation
- g. Mimamsa: Vedic Exegesis
- h. Vedanta: Upanishad Exegesis
- i. Literature: The Darshanas are associated with literature on spirituality and soteriology.

Sanatana Dharma – Other Literature.

1. Other Literature of works that addressed to key issues of day-to-day life such as, health, wellness, science, engineering, technology that aided societal progress and development and aesthetics and forms.
2. The core assumptions laid out in the Vedas as the ultimate sources for valid knowledge and ideas applied to their work. For example – the work on astronomy of Aryabhata recognizes

the ideas of what constitutes a year and the nation of 4 Yugas [Satya (or Krita) Yuga, Treta Yuga, Dvapara Yuga, Kali Yuga] from the Vedic corpus while proceeding with specific discussions on the mathematical aspects.

3. Several areas are covered in this category, they are
 - a. **Basic and Applied sciences [Mathematics, Astronomy and Plant Science]** – A series of studies carried out continuously from the beginning of CE. Later works improved, expanded and added new components to the existing knowledge repository as evident from the literary sources.
 - b. **Engineering and Technology** [Metalworking technology, shipbuilding, Dams & Watershed Management, Alchemy, Cosmetics, Perfumes, Dyes, Town Planning and Architecture] – The literature presents both evidence of these as well as specific ideas and techniques developed in many of these topics.
 - c. **Health, wellness and Psychology** addressed the crucial issue that we face in contemporary society. Three important works on Ayurveda –
Caraka Samhita [founder name - Charaka, Primarily focused on Foundation of Medicine].
Susruta Samhita [Plam leaf manuscripts – discovered in Nepal. Now it is preserved at the Kaiser Library, located in Kathmandu, Nepal. It provide important Surgical and anatomical information of the understanding of anatomy by Indians. Founder name – Sushruta father of Indian Surgery Anatomy (branch science of Body) and
Astanga Hrdaya[Study related to Heart or essence of all the 8 branched of Ayurveda – **1.Kaya chikista**(Internal Medicine), **2.Shalya Tantra** (Surgery), **3.Shalakya Tantra** (ENT & ophthalmology), **4.Kaumarbhritya/Bala chikista** (Pediatrics& obstetrics), **5.Agad Tantra** (Toxicology – Environmental Studies, Aquatic, veterinary), **6.Bhut Vidya** (Psychiatry), **7.Rasayan** (Rejuvenation therapy & geriatrics or Oil massage therapy), **8.Vajeekarana** (Aphrodisiac Therapy – study of foods & herbs that increase the desire of fertility for both male & female) provide a wealth of information on health and wellness. Other related works dealing with alchemy such as **Rasaranta-Samuccaya provide information on ayurvedic formulations**. The philosophical system such as **Yoga and Samkhya and the Upanishads have discussed the issue of Psychology**.
 - d. **Public administration and Governances deal with –**
 1. Niti Sastras [Raja Niti deals with Public Administrations & Governance] is a collection of literature that informs the society of the good code of living through poetic verses and stories.
 2. Samaya Niti deals with elements of good living and the role of ethics and morality in life.
 3. Famous Panchatantra and the works of Bhartrhari are some examples for several life situations that addressed through stories, Parables and short poetic works.
 4. An extensive collections of short stories ideas scattered in various works is complied into what is known as Subhasitas.
 5. Public Administrations deals with the ideas of governance of State & Public Policy measures required for administrations.
 6. Manu Smrti provides rich information on governance and administrations.
 7. Arthasastra compiled during the 3rd century BCE is a seminal work and it triggered further works in the area.
 8. Notable among them is the Niti sastra of Komandaka.

- e. Aesthetics, Kavya and Performing arts is another area with rich contributions. The Sanskrit language is the vehicle through which the entire knowledge corpus of the Sanatana Dharma [both core & Other] is Provided. Linguistics & Phonetics of the Sanskrit language is a fundamental work that sets the stage for rich literature development. Works of great poets such as Kalidasa, Dandin and Banabhatta, Kamasutra of Vatsyayana and Natyashastra of Bharata are some examples.

Other Dharmic Traditions.

1. Other Dharmic traditions have stayed out of the Vedic framework but have immensely contributed to IKS in the religious, Philosophical & other domains. Two of them, The Buddhist and the Jain Literature, they have contributed right from 500 BCE to IKS.
2. The Buddhist literature has dealt with the religious concepts in its Canonical Text. Several Buddhist works such as Mathematical concepts, Maritime activities and Alchemy are also discussed. The work of Nagarjuna, Rasaratnakara in the 1st century CE is an early contribution to alchemy.
3. The Jain sacred literature consists of Canonical text. They Considered mathematics as an integral part and have dedicated Ganitanuyoga, a portion of their literature to mathematics. Tattvartha sutra, composed by Umasvati during 2nd – 3rd century CE is an important Jain Literature. Some Popular Jain texts dealing with mathematics include Anuyogadvara-sutra, Vyavahara-sutra and Surya-Prajapati. Mahaviracarya's work, Ganita-sara-samgraha [850 CE] is one of the important contributions to the development of Mathematics in India.

Regional Literature.

1. The separations of regional languages in this figure are only convenience. Indian Subcontinent has a rich and diverse mix of cultural & linguistic variations.
2. The 8th schedule of the Indian Constitution has listed 22 languages of the country. In each these languages, there is a huge corpus of religious, philosophical and other literature. For example – Tamil literature has several contributions in the Sangam period [first millennium BCE].
3. The new literature created broadly follows the Sanatana-dharmic literature & utilizes the basic framework laid in the Sanatana-dharmic literature.

Oral Traditions.

1. The diversity of cultural practices and regional preferences have paved the way for oral traditions to preserve & transmit knowledge across generations.
2. These have been primarily in the forms of Folklore artistic endeavors, skillful jobs, food and life practices & health.
3. The 64 Kalas mentioned in the IKS literature are mostly skill based and artistic chores that are orally transmitted.
4. Sanskrit has been the dominant language for transacting knowledge for a long time in India.
5. The Sanatana dharma literature, the Jain & some of the Buddhist literature are presented using Sanskrit as the medium of language.
6. The knowledge shall be quoted, cross referenced and acknowledges by the indigenous people in the domain. This provides internal consistency and validation of the knowledge by the indigenous society.

Note - Philosophy, Character scope and importance & Traditional knowledge, western knowledge are explained in PPT.