

**IKS Centre in Jaina Mathematics
School of Data Science and Forecasting
Devi Ahilya University, Indore**

COURSE TITLE: INDIAN KNOWLEDGE SYSTEM

Focus Area/Subject Area: Indian Knowledge System in Science

Credits: 3

Eligibility: Intermediate with Mathematics

Details of the Instructor:

1. Prof. Anupam Jain, Prof. of Mathematics,
School of Data Science and Forecasting,
Devi Ahilya University, Indore
2. Prof. K. Venkataraman
Department of Electronics and Comp. Applications
PMB Gujarati Science College, Indore

Course Objectives:

This course focuses on introduction to science and technology of Indian Knowledge System and Indian perspective of modern scientific view.

Learning Outcome:

1. It aimed to instill in students a sense of rootedness and pride in India, along with an appreciation for its rich, diverse, ancient, and modern culture, knowledge systems, and traditions.
2. This course helps students understand the rich scientific and technological heritage of the country.
3. This course emphasizes and promotes the Indian concept of multidisciplinary learning systems, integrating them with modern science.
4. The course will underscore the importance of intellectual property rights in safeguarding Indian knowledge.

SYLLABUS

Unit-1 Ancient philosophy of Knowledge: Vedas, Vedangas, sutras – Gurukul parampara

Unit-2 Astronomy in India: The Beginnings of Indian Astronomy - The Early Historical Period-The Siddhāntic Era - The Kerala School - Aryabhata - Varahamihira- Bhaskara I – Brahamagupta- Bhaskara II – Brief notes on Astronomical instruments

Unit-3 Chemistry in India: Early Chemical Techniques, Atomism in Vaiśeṣika - Rishi Kanad- Nagarjuna- Al-Bīrūnī', Vāgbhāṭa- Sushruta- Carak Metallurgy in India - Definition, Metallurgy in Harappan Civilization, Metallurgy of Gold- Copper-Zinc- Bronze - Iron and steel.

Unit-4 Developments in Mathematics: Number systems- Geometry- works of Pingala- Baudhayana- Jaina Mahavira-Sridharacharya – Madhava Siddanthas and Calender systems

References:

1. A Concise History of Science in India – Bose, Sen & Subbarayappa- INSA Publications
2. Encyclopedia of Classical Indian Sciences- Roddam Narasimha, Universities Press
3. NCERT Modules of KPTI