

# **Aryabhata College, University of Delhi**

## **COURSE TITLE: INDIAN ASTRONOMY**

**Focus Area/Subject Area:** Astronomy

**Credits:** 4

**Eligibility:** UG students

**Prerequisite:**

**Details of the Instructor:**

1. Dr. Priti Jagwani, Associate Professor, Department of Computer Sciences, Aryabhata College, University of Delhi

**Course Objective:**

1. To equip the introductory knowledge of Indian astronomy from the time of the Rig-Veda all the way till the pre-modern period.
2. Participants will also be able to understand how our ancient scientists forecast eclipses and position of planets.

**Learning Outcome:**

The study of astronomy in our culture has deep roots and provides scientific explanations for various phenomena. As it broadens their view and comprehension of the world, it is crucial to teach the younger generation about the cosmos and how it functions. Students via this course will develop a broader understanding of various viewpoints about how different cultures have observed the universe and the tools discovered for its understanding. Indian Astronomy course will also bring students closer to our culture and foster critical thinking by combining scientific and metaphysical approaches, fostering creativity and connecting subjects like mathematics, physics, and chemistry in practical ways. This course will help student to discern the facts and bust the misconceptions about the beginnings of the life and universe. The course will provide ample scope to students for their own discoveries and novel scientific improvements.

### **SYLLABUS**

1. Preliminaries of Indian Astronomy
2. Developments from the Vedic period up to the Siddhāntic period
3. Indian Calendar
4. Solar and Lunar Eclipses
5. Tripraśna Topics (Diurnal problems)
6. Planetary longitudes and latitudes and Nīlakaṇṭha Somayājī's revised planetary model
7. Rates of motion of planets
8. Tripraśna
9. Rising times of Rāśis and finding Lagna
10. Eclipse calculations

## 11. The Vākya system

### References:

1. S. N. Sen and K. S. Shukla, History of Astronomy in India, 2nd Ed., INSA, Delhi, 2001.
2. S. Balachandra Rao, Indian Astronomy An Introduction, Universities Press, Hyderabad, 2000
3. History of Astronomy: A Handbook, Edited by K. Ramasubramanian, Aniket Sule and Mayank Vahia, SandHI, IIT Bombay, and T.I.F.R. Mumbai, 2016.
4. B.V. Subbarayappa and K.V. Sarma, Indian Astronomy: A Source Book, Nehru Centre, Bombay, 1985.
5. Tantrasaṅgraha of Nīlakaṇṭha Somayājī, Translation and Notes, K. Ramasubramanian and M. S. Sriram, Hindustan Book Agency, New Delhi, 2011
6. Karaṇapaddhati of Putumana Somayājī, Venketeswara Pai et al., HBA New Delhi and Springer 2018