

**SYLLABUS
FOR
THE ADD ON COURSE
IN
ASTRONOMY AND ASTROPHYSICS**

1. Introduction to naked eye Astronomy

- * The constellations and their identification
- * Identification of some individual stars
- * A historical perspective and Copernican revolution
- * Earth's rotation and other motions
- * Age calculation from the movement of planets.
- * Eclipses
- * Interesting objects in the night sky
- * Contents of the Universe: A general perspective

2. The celestial sphere and the coordinate systems

- * Geometry of the sphere
- * Celestial sphere, Celestial equator, Ecliptic.
- * The alt-azimuth coordinate system
- * The equatorial coordinate system
- * Other coordinate systems.
- * Sunset and sunrise and Sidereal time
- * The seasons

3. Sun and solar system

- * Basic structure of the Sun
- * The solar constant
- * Solar energy for Earth
- * Origin of the solar system
- * The planets and their origins
- * The Moon
- * The planets Mercury, Venus and Mars
- * The planets Jupiter, Saturn, Uranus, Neptune and Pluto
- * Comets, meteors and asteroids

4. Formation and structure of stars , Galaxies.

- * Stars in formation
- * Interstellar medium
- * Stellar energy generation
- * Stellar structure
- * Dying stars
- * Nebulae and supernovae remnants
- * Pulsars, neutron stars and black holes
- * Components of the Milky Way
- * Spiral structure of the Galaxy
- * other types of Galaxies.
- * Types of galaxies –Hubble's classification.

5. Origin of the Universe.

- * The Big Bang theory
- * The Steady State theory
- * The primordial background radiation

6. Major Observing Facilities.

- * Major observing facilities in the world.
- * Major Facilities in India.