

MULTI-DISCIPLINARY

SCIENCE AND SOCIETY

(3 CREDITS / 45 HOURS)

Unit – I

Manhattan project and definition of Modern and Ancient science in words of Prof. J. R. Oppenheimer. The first science Texts. The first theory of evolution and the 1st use of mathematics to measure the universe, nature, culture, and science.

Unit – II

The birth of scientific methods refutation of ancient authorities through observation and experimentation. Instruments and new concepts, Rules of reasoning

Unit – III

The laws of new science, two different theories of earth's present form, Unanswered questions- calculating the age of the earth, Continental drift

Unit – IV

The first systematic attempt to describe the history of life, the origin of species, the laws of heredity, cell-level discoveries, mysteries of inheritance, Darwinist reductionism, relativity, quantum jumps, the big-bang, butterfly effect

Unit – V

Distinction between heat and temperature – Evolution of temperature measurements – Kelvin's absolute temperature – Concept of triple point of water – Three laws of thermodynamics.

Textbooks

- [1] Story of Science From writings of Aristotle to the Big Bang Theory by Susan Wise Bauer,
W.W. Norton and Company, 2015.

Supplementary Readings

- [1] Tantra Sangrah of Nilakantha Somayaji by K Ramaswamy and
M S Sriram, Hindustan Book Agency, 2011.
[2] Hindu Astronomy by W. Brennand, (Caxton Publication India, 1998).
[3] Indian Astronomy: Concepts and Procedure by Dr. S. Balachandra Rao.
[4] Origin of Life by Freeman Dyson, (Cambridge University Press