M Ed Two Year Programme

S.Sc. 1 (e) : Introduction to Science Studies

Maximum Marks: 100

This course aims to develop an understanding of the processes of science and technology and their relationship with society and the environment. It exposes students to a selection of writings (and films/videos) by historians, sociologists and scientists, to see how ideas have developed, through contestations or collaborations, shaped by social, historical, political and cultural influences. It also looks at the emergence of modern science in India, influenced by colonialism and the national struggle for independence; the role of citizen science and people’s science movements for social transformation. The course addresses issues of equity and diversity, through feminist and multicultural perspectives that allow a relook at the discipline as well as its reflection in the school curriculum.

This course can be of interest to any M.Ed. I year student (having a basic background in school science) wishing to understand the field from a historical, sociological, cross-cultural, and inter-disciplinary perspective; it will, however, be essential for all those who wish to specialise in Science Education in the second year.

Unit 1 The Process of Science

- What is the process of science? Is there a ‘scientific method’? Reflecting on one’s own initiation into science; auto/biographical writings of scientists doing science;
- Some histories of science that shaped ideas about humans – the mesmerizing journey of the ‘unconscious’ (Miller); the ‘mismeasure’ of intelligence, and ‘imageries of evolution’(Gould); neurons and empathy, and the riddle of autism (Ramachandran);
- How have social, historical, political and cultural influences shaped scientists’ work? What is technology? How did technicians and crafts persons shape modern science?
- Major debates and paradigm shifts in science – Galileo and heliocentric theory; Darwin and evolution; Wegener and continental drift; the nature of science and ‘scientific revolutions’;

Readings and Resources


Unit 2 Development of Modern Science

- The institutionalisation of natural philosophy; the professionalisation of science after the industrial revolution, distancing ‘pure, academic science’ from technology; science and warfare; concerns about social responsibility; dealing with socio-scientific issues
- The emergence of modern science in India; colonialism and nationalist science; review of the Green Revolution; everyday technology in the making of modern India;
- the role of ‘scientific temper’ and citizen science; people’s science movements in India
- academic science and ‘post-academic science’- new modes of knowledge production; organization and collectivization; funding; intellectual property vs knowledge commons;
Readings and Resources


Unit 3 Democratising Science and its Education

- Multicultural science as socially and culturally constructed;
- Feminist perspectives on democratising science; humanist science; respect and responsibility, role of traditional ecological knowledge (TEK) about relationships between living beings and the environment;
- Critical review of educational dichotomies and hierarchies – knowledge and skill, academic and vocational, ‘pure’ and applied; historical dominance of the ‘academic’ school curriculum over ‘science of the common things’;
- What science for all? Critical reading of international debates on the aims of school science; place-based science education, implications for equity and justice;

*Readings and Resources*