Centre for Studies in Science Policy  
School of Social Sciences

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Science and Technology in Social Context</th>
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<tr>
<td>Course No</td>
<td>SP 602 (M.Phil./Ph.D.) Compulsory</td>
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<tr>
<td>Credits</td>
<td>4</td>
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<td>Faculty in charge</td>
<td>V.V. Krishna, Madhav Govind &amp; Rohan D’Souza</td>
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<tr>
<td>Mode of Evaluation</td>
<td>Term Paper (40%)</td>
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<td></td>
<td>Class Seminars Presentation(30%)</td>
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<td>Book Review (30%)</td>
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<td>Instruction Method</td>
<td>Lecture-cum-Seminar</td>
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This course is designed to impart an inter-disciplinary perspective on relationships between science, technology and society. The course explores both theoretical aspects and empirical details for science and technology studies. The major themes are outlined in three parts.

The first focuses on the main perspectives in Sociology of Science, covering leading contributions in the field from the 1940s to the contemporary phase of globalisation. The course will relate these perspectives to understand and engage with developments in contemporary society.

The second part covers the theme on Technology and Society. Here the focus is laid on three main perspectives, namely, social shaping of technology, large technological systems and networks.

The third part deals with Social History of Science and Technology in the Indian context. Main themes, which will be covered in this part, are colonial and post-colonial social history of science & technology, emergence of Indian science community and post-independence developments covering the role of scientific and political elite.

a) Perspectives in Sociology of Science

Introduction to sociology of science and technology including some basic concepts and perspectives; institutional/interactionist, structural and social history perspectives in the analyses of science.

- Development of science as social institution; changing relationship between science and society; institutionalization and professionalisation of science; social and cognitive concerns; scientific community at different
levels; types of science, scientific communication; social control in science; and science and autonomy questions.

- **Robert K. Merton**: Mertonian sociology of science covering functionalist perspective in sociology of science; ethos and norms of science; reward system and stratification in science; other insights from the Mertonian perspective of science as a social system and the production of systematic knowledge drawing on from other influential authors such as Norman Storer, Bernard Barber, Derrick Solla Price among others.

- **Thomas Kuhn**: Kuhnian and post-Kuhnian sociology of science covering scientific revolutions and ‘paradigms’ in the development of science; influence of Kuhn on cognitive sociological writings and empirical studies related to science controversies, consensus, negotiation; and closure debates.

- **Bruno Latour and Karin D. Knorr-Cetina and others**: Social constructivist approach with a focus on laboratory studies; social processes of laboratory research; critically exploring relativism in science; and scientists in laboratories with empirical studies in the Indian context.

- **J.D. Bernal and Social Relations of Science perspective**

- **Changing structure of science as a social institution in the contemporary period; Impact of globalisation; Michael Gibbons et.al, John Ziman and others on ‘new modes’ of knowledge production.**

**Essential Reading List**


Supplementary Reading List:


Gaillard, J, V.V.Krishna and R.Waast (1997), *Scientific Communities in the Developing World*, New Delhi: Sage Publications. (Chapters on Introduction and on India)


b) **Technology and Society**

- Basic issues, conceptions and definitions of technology; changing relation between science - technology; functional and dysfunctional aspects of technological society.

- Technological determinism vs. social shaping of technology
- Technology and gender: Feminist technology studies
- Large technological systems and society: Managing large technological systems such as transportation, energy, chemical industries, ICT and telecommunications; debating risk and hazards.
- Technological systems as networks: Techno-economic networks and social networks in technology clusters and understanding innovation from the perspective of networks.

**Essential reading list**


**Supplementary Reading:**


Gender & Technology – special issue of *Technology & Culture* vol. 38 (January) 1997: Vol 43 (October) 2002


c) Social History of Science and Technology

- The expansion of ‘modern’ science in non-European cultures and context;
- debating ‘internal’ vs ‘external’ perspectives in science;
- Concept of ‘colonial science’ and colonial science enterprises and institutions; science and its organization in the colonial context; centre-periphery relations and the development of science in the 19th and 20th Centuries.

- National science and emergence of the Indian scientific community; understanding the contributions of P.C.Ray, M.N.Saha, M.Sircar, J.C.Bose,
C.V.Raman, M. Visvesvaraya and others; formation of Indian Science Congress Association and science societies, journals and professionalisation of science between 1870s –1940s.

- Industrial Research and Challenges of Technological Development: CSIR
- Post-war and post-colonial developments in science organization and institutional building of science in India; role of scientific and political elite; Nehru vs Gandhian perspectives on science and development.

**Essential Reading List:**


Raina, Dhruv (2001)‘Visvesvaraya as Engineer-Sociologist and the Evolution of His techno-Economic Vision,’ NIAS Lecture-L1, National Institute of Advanced Studies, Bangalore

**Supplementary Readings List:**


