

Science, Technology and Society - Web course

COURSE OUTLINE

The target group of this course consists of students and members of faculty drawn from institutions engaged in engineering programmes at undergraduate level.

The objectives of this course are to:

1. Enable students to understand science as a socio-cultural product in specific historical context;
2. Expose students to philosophical, historical and sociological perspectives on science and technology to look at science as practice deeply embedded in culture and society;
3. Emphasise the dynamic nature of the relations between wider cultural practices, on the one hand, and, scientific practices, on the other in a comparative analytical framework;
4. Introduce students to the perspectives on the relations between science and technology, on the one hand, and, science, technology and society, on the other;
5. Equip students with a theoretical understanding indispensable for an in-depth study of science - society dynamics.
 - a. Social Context of Production of Scientific Knowledge;
 - b. Organisation and Professionalisation of Science;
 - c. Social Legitimation, Meanings, Interests and Values;
 - d. Science – Technology Relationship;
 - e. Science in India;
 - f. Information and Communication Society and Biotechnology and their Implications;
 - g. Science and Ethics;
 - h. Scientific Knowledge in India: From Public Resource to Intellectual Property

COURSE DETAIL

Module	Topics and Contents	No. of Lectures
1.	Science as Culture 1. Methods of Science: Issues and Perspectives.	7



NP-TEL

NPTEL

<http://nptel.iitm.ac.in>

Humanities and Social Sciences

Additional Reading:

1. K.D. Knorr-Cetina (1981) *The Manufacture of Knowledge: An Essay on the Constructivist and Contextual Nature of Science*. Oxford: Pergamon Press.
2. Mulkay, M. and V. Millic (1980) 'Sociology of Science in East and West', *Current Sociology*, 28 (3): 1-184.
3. Ben-David, J. (1984) *Scientist's Role in Society: A Comparative Study*. Chicago: University of Chicago Press.
4. Barnes, B. (1974) *Scientific Knowledge and Sociological Theory*. Boston: Routledge and Kegan Paul.
5. Prakash, G. (2000) *Another Reason: Science and the Imagination of Modern India*. New Delhi: Oxford University Press.
6. Kloppenburg Jr., J.R. (1988) *First the Seed: The Political Economy of Plant Biotechnology*. London: Macmillan Press.
7. Hackett, E.J., O. Amsterdamska, M. Lynch and J.Wajcman (2008) *The Handbook of Science and Technology Studies*. Cambridge and London: The MIT Press.

Hyperlinks:

1. <http://news.stanford.edu/news/2001/august22/sts-822.html>
2. <http://opencopy.org/library/lectures/sciencetechnology-and-society/>

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	<ol style="list-style-type: none"> 2. Social Context of Production of Scientific Knowledge. 3. Demarcation, Autonomy and Cognitive Authority of Science. 4. Challenges: Cognitive, Legal, Ethical, Feminist and Ideological. 5. Discussion and Forum. 	
2.	<p>Organisation of Production of Scientific Knowledge and Professionalisation of Science:</p> <ol style="list-style-type: none"> 1. Science as Social Institution and Ethos of Science. 2. Inequalities in Science. 3. Critique of the Mertonian Paradigm. 4. Knowledge Production: Social and Cultural Contexts. 5. Discussion and Forum. 	5
3.	<p>Society and Culture: Resources and Legitimation of Knowledge:</p> <ol style="list-style-type: none"> 1. Social Legitimation. 2. Meanings, Interests, Values and the Modern State. 3. Discussion and Forum. 	5
4.	<p>Perspectives on Science - Technology Relationship:</p> <ol style="list-style-type: none"> 1. Hierarchical, Symbiotic and Coalescing. 2. Science and Technology, and their Human Roots: Philosophy of Science and Technology. 3. Technology as Knowledge. 4. Technological Shaping of Society and Social Shaping of Technology. 5. Discussion and Forum. 	6
5.	<p>Science in Colonial and Post-colonial India:</p> <ol style="list-style-type: none"> 1. Science in Colonial India. 2. Reception of Modern Science in India. 	5

	3. Science after Independence. 4. Discussion and Forum.	
6.	Emerging Technologies: 1. Information and Communication Society - Implications for Work, Social Relations, Governance and Control. 2. Biotechnology - Implications for the Meanings of Life and Life. 3. Processes, Application in Agriculture, Healthcare and Environment Discussion and Forum.	6
7.	New Ethical Codes for New Technologies: 1. Responses of the Civil Society. 2. Discussion and Forum.	4
8.	Science: From Public Resource to Intellectual Property: 1. Changing Context of the Production of Knowledge. 2. The Intellectual Property Rights Regime. 3. Science: From Curiosity-driven Research to Contract Obligations. 4. Discussion and Forum.	4
	Total	42

References:

1. A.F. Chalmers (1976) What is this thing called Science? Milton Keynes: The Open University Press.
2. T.S. Kuhn (1970) The Structure of Scientific Revolutions. Chicago: Chicago University Press (first published in 1962).
3. D. Oldroyd (1986) The Arch of Knowledge: An Introductory Study of the Philosophy and Methodology of Science. New York and London: Methuen.
4. D. Bloor (1991) Knowledge and Social Imagery. Chicago: The University of Chicago Press (first published in 1976).
5. M. Biagioli ed., (1999) The Science Studies Reader.

New York: Routledge.

6. H.M. Collins and T. Pinch (1993) *The Golem: What Everyone should Know about Science*. Cambridge: Cambridge University Press.
7. L. Daston (1995) 'The Moral Economy of Science', *Osiris*, 10: 3-24.
8. R.K. Merton (1973) *The Sociology of Science: Theoretical and Empirical Investigations*. Chicago: Chicago University Press.