

Science, Technology and Society

The role of science and technology has become essential in every aspect of human life. Further, the new development in the global order has broadened the scope of science and technology in society. It is crucial to understand how science and technology shape the society and vice-versa.

Course Outcome:

By the time the students have completed this course, they will be able to understand the relationship between science and society, and the conceptual and theoretical issues in the study of sociology of science.

Unit-I: Building the Concepts of Science, Technology and Society

- 1.1 Scientific Revolution and the Era of Enlightenment
- 1.2 Science- the basic tenets, difference between Science and Common Sense
- 1.3 Technology-The Basic Features, history of technological development.
- 1.4 Relationship between Society, Science and Technology, E-governance, Surveillance Society

Learning Outcome: Students will be able to explain the relationship between science, technology and society.

Unit-II: India's Progress in Science through Ages

- 2.1 Science in different periods in India: Ancient, Medieval and Modern
- 2.2 Globalization and the new Scientific Revolution
- 2.3 The rise of Information and Knowledge Society
- 2.4 Science, Technology and Social Deliverables, Technology & emerging political process, Global and India

Learning outcome: Students will be able to analyse the development of science at global and national level from a historical perspective.

Unit-III: Science and Technology Education and Research

- 3.1 Popularising Science and Technology education in India
- 3.2 The building of iconic scientific and technological institutions
- 3.3 Privatization of Scientific and Technological Education
- 3.4 STEM Education: Students enrolment and challenges

Learning Outcome: Students will be able to demonstrate an understanding of recent changes in science and technology education and the shift of research domain.

Unit-IV: India's Policies for Science and Technology

- 4.1 Scientific Policies and Programmes under five-year plans
- 4.2 Incentivising science and technology education in educational institutions.
- 4.3 Department of Science and Technology (DST)
- 4.4 Policies and programmes for expanding science and technology education, State policies, Digital Divide & Inclusion.

Learning Outcome: Students can explain the scientific policies and programmes launched time to time, disciplinary specialisation of science, inclusivity and digital divide.

Lesson Plan:

Unit	Thrust Areas	Method	Total No. of Classes	References
I	Building the Concepts of Science, Technology and Society Scientific Revolution and the Era of Enlightenment Science- the basic tenets, difference between Science and Common Sense Technology-The Basic Features, history of technological development. Relationship between Society,	Theory class and Tutorial class	15	(1) Gobo, G., & Marcheselli, V. (2023). <i>Science, Technology and Society: An Introduction</i> . Springer Nature. (2) Bridgstock, M. (1998). <i>Science, technology and society: an introduction</i> . Cambridge University Press. (3) Science Technology and Society Studies by Sangeeta Dey. UGC e-Adhyayan. Link: https://ebooks.inflibnet.ac.in/antp10/chapter/science-technology-and-society-studies/ Video Lecture: Science, Technology and Society By

	Science and Technology, E-governance, Surveillance Society			Prof. Sambit Mallick, IIT Guwahati Link: https://youtube.com/@sciencetechnologyandsociet6773?si=H_9KAALzU7y4BGfw
II.	India's Progress in Science through Ages Science in different periods in India: Ancient, Medieval and Modern Globalization and the new Scientific Revolution The rise of Information and Knowledge Society Science, Technology and Social Deliverables, Technology & emerging political process, Global and India	Theory class and Tutorial class	15	Science Technology and Society Studies by Sangeeta Dey. UGC e-Adhyayan. Link: https://ebooks.inflibnet.ac.in/antp10/chapter/science-technology-and-society-studies/ Video Lecture: Science, Technology and Society By Prof. Sambit Mallick, IIT Guwahati Link: https://youtube.com/@sciencetechnologyandsociet6773?si=H_9KAALzU7y4BGfw
III	Science and Technology Education and Research Popularising Science and Technology education in India The building of iconic scientific and technological institutions Privatization of Scientific and Technological	Theory class and Tutorial class	15	Science Technology and Society Studies by Sangeeta Dey. UGC e-Adhyayan. Link: https://ebooks.inflibnet.ac.in/antp10/chapter/science-technology-and-society-studies/ Video Lecture: Science, Technology and Society By Prof. Sambit Mallick, IIT Guwahati Link: https://youtube.com/@sciencetechnologyandsociet6773?si=H_9KAALzU7y4BGfw

	Education STEM Education: Students enrolment and challenges.			
IV	India's Policies for Science and Technology Scientific Policies and Programmes under five-year plans Incentivising science and technology education in educational institutions. Department of Science and Technology (DST) Policies and programmes for expanding science and technology education, State policies, Digital Divide & Inclusion.	Theory class and Tutorial class	15	Science Technology and Society Studies by Sangeeta Dey. UGC e- Adhyayan. Link: https://ebooks.inflibnet.ac.in/antp10/chapter/science-technology-and-society-studies/ Video Lecture: Science, Technology and Society By Prof. Sambit Mallick, IIT Guwahati Link: https://youtube.com/@sciencetechnologyandsociety6773?si=H_9KAALzU7y4BGfw

Text book:

- ✓ Gobo, G., & Marcheselli, V. (2023). *Science, Technology and Society: An Introduction*. Springer Nature.
- ✓ Bridgstock, M. (1998). *Science, technology and society: an introduction*. Cambridge University Press.

References:

- ✓ Aggarwal, V. (2018). *Leading science and technology: India next?* New Delhi: Sage
 - Publisher.
- ✓ Arnold, David. 2004. *The New Cambridge History of India: III Science, Technology and medicine in Colonial India*. Cambridge: Cambridge University Press

- ✓ Baber, Zaheer. 1996. *The Science of Empire: Scientific Knowledge, Civilization, and Colonial Rule in India*. New York: State University of New York Press.
- ✓ Bauchspies, Wenda K., Jennifer Croissant, and Sal Restivo. 2006. *Science, Technology and Society: A Sociological Approach*. USA: Blackwell Publishing.
- ✓ Merton, R. K. (1938). *Science, technology and society in seventeenth century England*. *Osiris*, 4, 360-632.
- ✓ Merton, R. K. (1963). *The ambivalence of scientists*. *Bulletin of the Johns Hopkins Hospital*, 112, 77-97.
- ✓ Pattnaik, Binay Kumar. (2013). *Readings in Indian Sociology: Volume IV Sociology of Science and Technology in India*, New Delhi: Sage Publications

E-resources:

1. Science Technology and Society Studies by Sangeeta Dey. UGC e-Adhyayan.
<https://ebooks.inflibnet.ac.in/antp10/chapter/science-technology-and-society-studies/>
2. Science, Technology and Society By Prof. Sambit Mallick, IIT Guwahati
Link: https://youtube.com/@sciencetechnologyandsociet6773?si=H_9KAALzU7y4BGfw

Sample Questions

Part-I

Fill in the Blanks (1x12)

- (b) Sociologist _____ discussed about the Science, technology and society in seventeenth century England.

Part-II

Answer any 8 questions within two or three sentences. (2x8)

- (b) What is science?

Part -III

Answer any 8 questions within 75 words each. (3x8)

- (b) What is STEM education?

Part-IV

Answer all the within 500 words each. (7x4)

(b) Discuss India's Progress in Science through Ages citing suitable examples.