



Symbiosis College of Arts and Commerce

(An Autonomous College Affiliated to University of Pune)

Interdisciplinary paper for Honour's Programme.

Total Credits = 4

Teaching = 3 Credits

Self-learning = 1 Credit

Title of the Course: Scientists and Inventions (Social Impact of Science and Technology)

Objectives and Learning Outcome

Some of the important objectives of the course are:

1. Tracing the history of important inventions.
2. Understanding role of inventions in 'development'.
3. Understanding human relations in context of scientific inventions.
4. Learning to differentiate among science, non-science, technology.
5. Understanding and appreciating relationship between social conditions and scientific development.

Teaching Methodology:

Group discussion, paper presentation, writing essays, designing and arranging poster exhibition, taking photographs, making films, carefully watching movies and documentaries, interviewing people and visiting places and a few lectures.

Unit	Contents of the syllabus	Number of Lectures
1.	Railways – 'No railway, no India' – Is this just a populist slogan or does it carry some element of factual reality? How it impacted growth of industry, social amalgamation, freedom struggle in India?	
2.	Paper and Print – What kind of dependency does the contemporary world have on Print and Paper? How does it change our notions of language, knowledge, law, governance, etc.?	
3.	Antibiotics – It is believed that if there was no penicillin, the second world-war would have witnessed 6 million additional casualties. How important are antibiotics historically? Can one think of modern medicine without antibiotics? Is the access to modern medicine based on principle of equality and equitable quality?	

4.	Communication Technology – “Hello” is possible the world’s most popular utterance. The first telephone in the nineteenth century has led us (so far) to the 4G phones and internet. What is the fascinating history of some of these ‘facts’? What role do states play in the telecom boom? Do men and women get treated equally by the modern communication tools?	
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Self-learning Component (15 Hours / 1 Credit)

Access to Technology, Distribution of Technology and Equity issues in Technology

Evaluation Methodology:

1. Assignments and class tests
2. Book review
3. Peer review
4. Case study

Suggested Reference Books

Bellis M, *History of Antibiotics*, Stable URL available at http://inventors.about.com/od/pstartinventions/a/Penicillin_2.htm

Bloom J. M. (2001), *The Invention of Paper* in Paper Before Print: The History and Impact of Paper in the Islamic World, Yale University Press, London.

Casson M. (2009) *Railways in the Victorian Economy* in The World’s First Railway System – Enterprise, Competition, and Regulation on the Railway Network in Victorian Britain, Oxford University Press, Oxford.

Gow G. A. and Smith R. K. (2006) *Going Mobile* in Mobile and Wireless Communications, Open University Press, Berkshire.

History of Printing, stable URL available at **Source:** <http://www.historyworld.net/>

Kerr I.J (2007) *Introduction* in Engines of Change: The Railroads That Made India, Preager, London.

Ramaswamy S (2008), *India Stinking*, Navayana, Chennai.

Ransom P.J.G (1996), *Rail* in An Encyclopaedia of The History of Technology, McNeil Ian (ed.), Routledge, London.

Singh B (2010), *Adrishya Bharat* (Hindi), Penguin, New Delhi.

Solymar L. (1999), *The Telephone*, in *Getting the Message – A History of Communications*, Oxford University Press, New York.

Wheale N. (1999), *Status and literacy: the qualities of people* in *WRITING AND SOCIETY – Literacy, print and politics in Britain 1590–1660*, Routledge, New York.

Queijo J. (2010), *From Ancient Molds to Modern Miracles: The Discovery of Antibiotics* in *Breakthrough! How the 10 Greatest Discoveries in Medicine Saved Millions and Changed Our View of the World*, Pearson Education, New Jersey.

References (Documentary Films):

- Indian Railway, British Broadcasting Corporation, London.
- Lahore Station, British Broadcasting Corporation, London.
- Deccan Queen, Film and Television Institute of India, Pune.
- Garbage Trap, Director: Atul Pethe.
- Lesser Human, Director: Stalin K.
- The Machines that Made Us, Director: Stephan Fry.
- Inventions that changed the World, Director: Jeremy Clarkson.
- Rise of Superbugs.