

Undergraduate Courses, School of HSS, NISER

CORE COURSES

Course title	: Technical Communication I
Course Code	: HS 109
Credits	: 4
Course Category	: Core
Course pre requisite	: None
Contact hours	: 28

Outcome of the course :

- 1) Connecting Language and cultural contexts.
- 2) Understand the process behind writing.
- 3) Learn to critically engage with texts.

Course Contents:

Ideations of Science: Categorization and social perspective. {5 hrs}

Inscription and thematerial arts: Scientific representation and the figural social. {5 hrs}

Mechanics of Writing::Structure and compositional logic. {6 hrs}

The Rhetorical Process: Building the argument. {6 hrs}

Cultural Context and the Sciences: Literature and the aesthetic of science. {6 hrs}

References :

1. Barrass, Robert (2002). *Scientists Must Write: A Guide to Better Writing for Scientists, Engineers and Students*. London: Routledge.
2. Booth, Vernon (1993). *Communicating in Science: Writing a Scientific Paper and Speaking at Scientific Meetings*. Cambridge: Cambridge UP.
3. Cottrell, Stella (2011). *Critical Thinking Skills: Developing Effective Analysis and Argument*. London: Palgrave Macmillan.
4. Lynn, Steven (2010). *Rhetoric and Composition: An Introduction*. Cambridge: Cambridge UP.
5. Ranciere, Jacques (1991). *The Ignorant Schoolmaster*. Redwood: Stanford UP.
6. Ehrlich, Eugene (2011). *Schaum's Outline of English Grammar*, Third Edition. NY: Schaum's.

Course Title	: Technical Communication II
Course Code	: HS 110
Credits	: 04
Course Prerequisite	: None
Contact Hours	: 28 (Including tutorials)

Outcome of the Course : At the time of completing this course, a student is expected to –

- a) be familiar with the essentials of effective communication,
- b) know the different tools of effective technical communication,
- c) understand the importance of staging the argument
- d) know various institutional / disciplinary norms

Course Contents:

1. **The logic of Critique:** Notions of evidence, proof and fact
2. **Humanities and empiricism:** Empirical fallacy and social intervention
3. **Mechanics of Writing II:** The forms of knowledge production. Understanding readership.
4. **The Rhetorical Process II:** Staging the argument. Perspective and Institutional / Disciplinary norms.
5. **Narrativizing the Sciences:** Scientific correspondence and reflections. Popular science and Science fiction.

References :

1. Baudrillard, Jean (2012). *The Ecstasy of Communication*. Cambridge: MIT Press.
2. Fogelin, Robert (2014). *Cengage Advantage Books: Understanding Arguments*. London: Wadsworth.
3. Heidegger, Martin (2008). "The question concerning technology," *Basic Writings*. New York: Harper Collins.
4. Poovey, Mary (1998). *A History of the Modern Fact*. Chicago: University of Chicago press.
5. Strunk Jr, William (1767). *The Elements of Style: The Original Edition* (2014). London: Dover.

Course Title : Introduction to Economics
Course Code : H 101
Credits : 4
Course Category : Core
Course Prerequisite : None
Contact Hours (28/42/56) : 28 (including tutorials)

Outcome of the Course:

Students will be familiar with the basic concepts of economics used in daily life of an ordinary person. This can be used as background knowledge for other courses in economics

Course Contents:

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|----------------------------------------------------------------------------------|------------|
| 1. Definition and Scope of Economics | 3 lectures |
| 2. Law of Demand | 2 lectures |
| 3. Law of Supply | 2 lectures |
| 4. Price Determination | 1 lectures |
| 5. Inflation, types of inflation, impacts, measures to control inflation | 4 lectures |
| 6. Monetary Policy, Fiscal Policy | 4 lectures |
| 7. Role of Government in modern society | 2 lectures |
| 8. Sources of Revenue and expenditures for the Union, State and Local government | 5 lectures |
| 9. Balance of payment, exchange rate determination, types of exchange rate | 3 lectures |
| 10. Basic ideas on the BSE and NSE | 2 lecture |

Text Books (if any):

Case, Karl E. and Fair Ray C.(2007) Principles of Economics, Pearson Education Inc. Eighth Edition

Suggested References:

India Budget and State Budgets
Indian Public Finance Statistics
RBI Handbook of Statistics on Indian Economy

Course Title : Introduction to Sociology
Course Code : H 133
Credits : 4
Course Category : Core
Course Prerequisite : None
Contact Hours : 28 (including tutorials)

Course Outcome:

- Sociological insights that are meaningful and of practical importance to students
- Students should be able to meaningfully relate themselves to their immediate social environment.
- Students should be able to view human interaction and inter-personal relationship from sociological perspectives and be able to assess them in the context of their own unique setting.
- To equip the students to develop an objective view of social reality
- To understand the structure and functioning of the society and its consequent processes of social change.

Course Outline

Origin and Growth of Sociology

- Origin and development of sociology as a separate discipline,
- Nature and Scope of Sociology,
- Sociology as a Scientific Discipline.

Sociological Perspectives

- Conflict, Functionalism and Interactionism

Basic Sociological Concepts

- Society, Community, Association, Institution, Status and Role,
- Types of Society: From early hunting gathering to industrial development and globalization,
- Culture: Components of culture; Norms, values, folkways, mores, Cultural unity and diversity.
- Socialization: Agents of Socialization, Early development of infant, stages of socialization

Social Groups

- Meaning of Social Groups and Types: Primary Group, Secondary Group, In-Groups, Out- Group, Quasi- Group, Reference Group

Structure and Stratification

- Structure, System and Function, caste and class and Racial and Ethnic group inequalities
- Social Stratification: Meaning and Types, Functionalist and Conflict Perspectives of Stratification, Social mobility: Meaning, horizontal and vertical mobility, class vs poverty

Social Institutions

- Family, marriage and kinship, religion, economy & work, power & polity and education. Functionalist and Conflict Perspectives of institutions. Organization and bureaucracy

Social processes and Change

- Social Processes: Co-operation, accommodation, integration, competition and conflict;
- Social Change: Meaning and Definition, Factors of change.
- Social control : Meaning and Types

Essential Readings:

- Harlambous, M. (1980) Sociology, Oxford University Press, New Delhi.
- Inkeles, A. (1982). What is Sociology, Eastern Economic Edition, New Delhi
- Johnson, H.M. (1991). Sociology – A Systematic Introduction, Allied Publishers, New Delhi
- MacIver, R.M. and Page, C.H.(1993). Society : An Introductory Analysis, Macmillan India, New Delhi
- Bottomore, T.B. (2000). Sociology: A Guide to Problems and Literature, S Chand Publisher, Dehradun
- Gisbert, P. (2004, 3rd edition). Fundamentals of Sociology, Orient Longman
- Rao, C.N.(2001) Sociology, Rawat Publication, Jaipur
- Giddens, A. (2001). Sociology, Polity Press, UK.

Supplementary Readings:

- Srinivas, M.N. (1985). Social Change in Modern India, Orient Longman, New Delhi.
- Fulcher, J and J. Scott, (2003), Sociology, Oxford University Press, Oxford.
- Giddens, A. (1971) Capitalism and Modern Social Theory, Cambridge University Press
- Scott J and Marshall, G. (2009) Oxford Dictionary of Sociology
- Bauman, Z. (1990). Thinking Sociologically: An Introduction for Everyone, Basil Blackwell, Cambridge.
- Coser, L. (1996). Masters of Sociological Thought, Rawat Publication, Jaipur
- Abraham F and Morgan J H (1985). Sociological Thought, Macmillan, New Delhi.

ELECTIVE COURSES

Course Title	: The City in Modern Fiction
Course Code	: HS 210
Credits	: 04
Course Category	: Elective
Course Prerequisite	: None
Contact Hours	: 28

Outcome of the Course:

- a) To learn to read critically.
- b) To learn to contextualize concepts and themes using the framework of the 'modern.'
- c) To learn structural elements, such as plot, setting, characters, techniques of exposition, that underpins fiction.

Course Content:

[The following list is indicative. Selections will vary each time the course is offered. The content to be discussed in class would include mostly short fiction and selected excerpts. Rather than getting through the entirety of the given syllabus, priority will be given to a better understanding of selections based on participant feedback, as such allotted hours for each text could also vary. The course will have a two hour introductory module.]

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|-----------------------|--------------------------------------|
| 1. R K Narayan | <i>Malgudi Days</i> (2 hours) |
| 2. Charles Dickens | <i>Hard Times</i> (4 hours) |
| 3. James Joyce | <i>Dubliners</i> (3 hours) |
| 4. Italo Calvino | <i>Invisible Cities</i> (3 hours) |
| 5. Sadat Hassan Manto | <i>Bombay Stories</i> (3 hours) |
| 6. Amitav Ghosh | <i>Calcutta Chromosome</i> (4 hours) |
| 7. Manoj Das | <i>Crocodile's Lady</i> (2 hours) |
| 8. Amruta Patil | <i>Kaari</i> (2 hours) |
| 9. Colson Whitehead | <i>The Intuitionist</i> (3 hours) |

References:

Alter, Robert. *Imagined Cities: Urban Experience and the Language of the Novel*. Yale UP, 2008.

Bachelard, Gaston. *Poetics of Space*. Beacon Press, 1994.

Caws, Mary A. (Ed). *City Images: Perspectives From Literature, Philosophy, and Film*. Routledge, 1991.

Correa, Charles. *A Place in the Shade*. New Delhi, Penguin, 2010.

De Certeau, Michel. *The Practice of Everyday Life*. Translated by Steven Rendall, 3rd ed., U of California Press, 2011.

Donald, James. *Imagining the Modern City*. U of Minnesota Press, 1999.

Dubey, Madhu. *Signs and Cities*. U of Chicago Press, 2003.

Edwards, Sarah and Jonathan Charley, editors. *Writing the Modern City*. London, Routledge, 2011.

Kalia, Ravi. *Bhubaneswar : From a Temple Town to Capital City*. Southern Illinois UP, 1995.

Pike, Burton. *The Image of the City in Modern Literature*. Princeton UP, 2018.

Soja, Edward W. *Seeking Spatial Justice*. U of Minnesota Press, 2010.

Tuan, Yi-Fu. *Space and Place: The Perspective of Experience*. U of Minnesota Press, 1979.

Williams, Raymond. *The Country and the City*. Oxford, OUP, 1975.

Course Title	: Environmental Economics and Environmental Impact Assessment
Course Code	: H 205
Credits	: 4
Course Category	: Elective
Course Prerequisite	: Introduction to Economics
Contact Hours (28/42/56)	: 28 (including tutorials)

Outcome of the Course:

The course will familiarize the students with the economic implications of growing environmental problems and how to use economic tools for controlling environmental degradations. This will also train the students how to do Environmental cost and benefit analysis and the steps followed in India for doing Environmental Impact Assessment

Course Contents:

1. Key environmental Problems of faced by the society 2 lectures
2. Scope of Environmental Economics, Ecological Economics and Natural Resource Economics 2 lectures

3. Market Failure, causes, and remedies	6 lectures
4. Economics tools for controlling pollution	4 lectures
5. Tragedy of Commons	1 lectures
6. Limits to Growth	2 lecture
7. Sustainable Development and its measurement	5 lectures
8. Optimal use of renewable resources	2 lectures
9. Optimal use of non-renewable resources	2 lecture
10. Environmental Impact Assessment	2 lectures

Text Books:

Anderson, David A. (2014) Environmental Economics and Natural Resource Management, Routledge, Fourth Edition

Bhattacharya, Rabindra N. (2010) Environmental Economics: An Indian Perspective, Oxford University Press

Suggested References:

“Our Common Future” Report of the World Commission on Environment and Development

Course Title	:	Speculative Fiction
Course Code	:	HS 209
Credits	:	04
Course Prerequisite	:	None
Contact Hours	:	28 (Including tutorials)

Outcome of the Course : At the time of completing this course, a student is expected to have enough knowledge of

- a) the literary, social, political and genre importance of Speculative Fiction in the contemporary times as well as historically,
- b) a detailed overview of the way Speculative Fiction has developed historically,
- c) some important works in Speculative Fiction , and the rich diversity in the field,
- d) not just the Western tradition of Speculative Fiction, but also the Indian tradition of Speculative Fiction, from ancient times to the present,
- e) some of the oft-occurring themes such as utopias, dystopias, and issues of gender, class, environment, multiculturalism, technology, myth-making, alternate history, etc.

Course Contents:

Introduction to Speculative Fiction (7 hours)

Introducing Speculative Fiction, History and Ontology of Speculative Fiction, Western and Indian tradition of Speculative Fiction, Gothic Writing as a Precursor to Science Fiction, Blurring the boundaries between Horror and Science Fiction (Bram Stoker's *Dracula* and Mary Shelley's *Frankenstein*), Fantasy and Fairy Tales, Speculative Fiction in popular culture (proliferation of pulp magazines in the early and mid-20th Century, Films, TV Series), A brief overview of the literary oeuvre of major Speculative Fiction writers from the West as well as from India

Utopian and Dystopian Speculative Fiction (7 hours)

Exploring the issues of class, society, technological advancement, ecology, gender, political ideology, culture, history, capitalism, communism, etc. in select Utopian and Dystopian Speculative Fiction:

Relevant Texts to be discussed:

Thomas More's *Utopia* (1516)

H. G. Wells' *The Time Machine* (1895)

Walter M. Miller, Jr.'s "I Made You" (1954)

Frederic Brown's "Answer" (1964)

Ursula K. Le Guin's *The Left Hand of Darkness* (1969)

Indian Speculative Fiction (7 hours)

What exactly is Indian Speculative Fiction?, Tradition of Speculative Fiction Writing from ancient times to the present, a discussion on some of the major Indian practitioners of Speculative Fiction, close reading of select Indian Speculative Fiction Texts

Relevant Texts to be discussed:

Kylas Chunder Dutt's "A Journal of Forty-eight Hours of the Year 1945" (1835)

Shoshee Chunder Dutt's *Republic of Orissa: Annals from the Pages of the Twentieth Century* (1845)

Jagadish Chandra Bose's "Runaway Cyclone" (1921)

Anil Menon's *The Beast with Nine Billion Feet* (2009)

Vandana Singh's "The Woman who thought she was a Planet" (2009)

Samit Basu's *Turbulence* (2010)

Myth-making and Rewritings of Mythologies (7 hours)

“...science fiction, especially in its most popular, epic literary and cinematic space opera format, is basically mythology and myth-making...for the present day.”

- Malan Kazlev

An attempt will be made, through a discussion of select speculative fiction, how new myths are created, old myths are re-imagined and also how the genre of speculative fiction is a fertile ground for mythologies to be re-written in new and interesting ways.

Relevant Texts to be discussed:

Margaret Atwood's *The Penelopiad* (2005)

Indrapramit Das's "Sita's Descent" (2012)

Manjula Padmanabhan's "The Other Woman" (2012)

Swapna Kishore's "Regressions" (2012)

Tabis Khair's "Weak Heart" (2012)

Pervin Saket's *Urmila* (2016)

Suggested Primary Readings:

Atwood, Margaret. *The Penelopiad*. Penguin India, New Delhi, 2005.

Basu, Samit. *Turbulence*. Hachette India, Gurgaon, 2010.

Bose, Jagadish Chandra. "Runaway Cyclone" (1921), in Strangehorizons.com, 2013.

Brown, Fredric. "Answer" (1964) in *A Science Fiction Omnibus*, Ed. Brian Aldiss. Penguin Classics, London, 2007.

Das, Indrapratim. "Sita's Descent" in *Breaking the Bow*, Eds. Anil Menon and Vandana Singh, Zubaan, New Delhi, 2012.

Dutt, Kylas Chunder. "A Journal of Forty-Eight Hours of the Year 1945", 1835, Ed. Somdutta Mandal, Sambhabi – The Third Eye Imprint, Kolkata, 2014.

Dutt, Shoshee Chunder. *Republic of Orissa: Annals from the Pages of the Twentieth Century*, 1845 in *Selections from Bengaliana*, Ed. Alex Tickell, Trent Editions, Nottingham, 2005.

Khair, Tabish. "Weak Heart" in *Breaking the Bow*, Eds. Anil Menon and Vandana Singh, Zubaan, New Delhi, 2012.

Kishore, Swapna. "Regressions" in *Breaking the Bow*, Eds. Anil Menon and Vandana Singh, Zubaan, New Delhi, 2012.

Le Guin, Ursula K. *The Left Hand of Darkness* (1969). Penguin USA, 1987.

Menon, Anil. *The Beast With Nine Billion Feet*. Zubaan, New Delhi, 2009.

Miller, Walter M., Jr. "I Made You" (1954) in *A Science Fiction Omnibus*, Ed. Brian Aldiss. Penguin Classics, London, 2007.

More, Thomas. *Utopia* (1516). Translated by Gilbert Brunet. Penguin, London, 2009.

Padmanabhan, Manjula. "The Other Woman" in *Breaking the Bow*, Eds. Anil Menon and Vandana Singh, Zubaan, New Delhi, 2012.

Saket, Pervin. *Urmila*. Jaico Publishing House, Mumbai, 2016.

Singh, Vandana. "The Woman who thought she was a planet" in *The Woman who thought she was a planet and Other Stories*. Zubaan, New Delhi, 2013.

Wells, H. G. *The Time Machine* (1895). Fingerprint Publishing, New Delhi, 2015.

Suggested Secondary Readings:

Armitt, Lucie. *Fantasy Fiction: An Introduction*. Continuum, New York, 2005.

Armstrong, Karen. *A Short Story of Myth*. Penguin India, New Delhi, 2006.

Atwood, Margaret. *In Other Worlds: SF and the Human Imagination*. Virago Press, Toronto, 2011.

Brian Aldis. "Introduction" in *A Science Fiction Omnibus*, Ed. Brian Aldiss. Penguin Classics, London, 2007. pp. vii – xii.

George Mann. "Science Fiction on the Page" in *The Mammoth Encyclopedia of Science Fiction*. St. Martin's Press, USA, 1999. pp. 27-326.

Shelley, Mary. *Frankenstein: or the Modern Prometheus* (1818). Harper Press, USA, 2010.

Stoker, Bram. *Dracula* (1897). Createspace Independent Pub, 2014.

Valmiki. *The Ramayana*. Translated by Arshia Sattar, Penguin Random House India, New Delhi, 2016.

Vyasa, Veda. *The Mahabharata*. Translated by John D. Smith, Penguin, New Delhi, 2003.

The Epic of Gilgamesh (English Translation), Penguin Classics, 2003.

Course Title : **Sociology of Science and Technology**
Course Code : **H 235**
Credits : **4**
Course Category : **Elective**
Course Prerequisite : **None**
Contact Hours : **28 (including tutorials)**

Course Outcome:

- To familiarize the sociological perspective in study of science and technology and social dimension of production of scientific knowledge.
- To provide a basic understanding and an in-depth discussion of issues that fall under broader spectrum of inter-relationship between science & technology and society

Course Outline and Session Plan

History of Science: Evolution of Scientific Knowledge 2

Introduction to Sociology of Science: Development of modern science; The Industrial and French Revolutions and their technological and scientific implications 2

Social Context of production of Scientific Knowledge 2

Organisation of Production of Scientific Knowledge 2

Social significance of science and technology: Contextual nature of science; Scientist as Indexical and Analogical reasoner. 4

Robert Merton's approach to science: Ethos of science; Matthew Effect in science; Thomas Theorem and Matthew Effect 4

Perspectives on scientific knowledge: Karl Marx, Emile Durkheim, Karl Manheim's sociology of knowledge, Thomas Kuhn's structures of scientific revolutions and Karl Popper's theory of falsification 6

Recent trends in Sociology of Science: Science and technology in developing and developed countries, Indian context, information technology and globalisation, Manuel Castell's network society, internet and social inequality 6

Recommended Reading:

Barnes , H E (1920), The Historian and the History of Science, *The Scientific Monthly*, Vol 11, No. 2, pp. 112-126.

History Today (1985) , What is the History of Science, pp. 32-53. April 1985. (This article is an interview of six scientists/practitioners of science)

Thomas Kuhn (1970), The Structure of Scientific Revolutions, Chicago: Chicago University Press

Merton, Robert(1975), *On Social Structure and Science*, Chicago: Chicago University Press

Knorr Cetina, K D (1981). “The Scientist as a Practical Reasoner: Introduction to a Constructivist and Contextual Theory of knowledge”, *The Manufacture of Knowledge: An Essay on the Constructivist and Contextual Nature of Science*. Oxford: Pergamon Press, 1981. (Chapter I) **A must read, highly recommended.**

-----“The Scientist as an Indexical Reasoner: The Contextuality and the Opportunism of Research”, *The Manufacture of Knowledge: An Essay on the Constructivist and Contextual Nature of Science*. Oxford: Pergamon Press, 1981. (Chapter II) **A must read, highly recommended.**

John Ziman, J (1996). Is Science Losing its Objectivity?, *Nature*, Vol.382, pp. 751-756

Haribabu, E (1999). Scientific Knowledge in India: from Public Resource to Intellectual Property, *Sociological Bulletin*, Vol. 48, No1-2, pp. 217-233.

Reference Books

Bucchi, Massimiano (2004), *Science in Society: An Introduction to Social Studies of Science*, Routledge.

Knorr-Cetina, Karin D. (1981), *The Manufacture of Knowledge: An Essay on the Constructivist and Contextual Nature of Science*, Pergamon Press.

Krishna, V.V. (1997), *A Portrait of the Scientific Community in India: Historical Growth and Contemporary Problems*, Gaillard et al. (eds). *Scientific Communities in the Developing World*, Sage.

Merton, Robert K. (1981), *Social Theory and Social Structure*, Amerind. 1981

Wenda K. Bauchspies, Jennifer Croissantn and Sal Restivo, (2005). *Science, Technology, and Society: A Sociological Approach*, Willey-Blackwell.

Course Title	: Perspectives on Indian Society
Course Code	: H 236
Credits	: 4
Course Category	: Elective
Course Prerequisite	: None
Contact Hours	: 28 (including tutorials)

Course Outcome:

- Understanding of the basic features of Indian Society: both past and contemporary.
- To acquaint the Students about some of the major social Institutions from Sociological Perspectives
- Understanding of various processes of Social Change and Problems of Indian Society.

Course Outline:

Structure of Indian Society **4 hrs**

Diversity and Unity; Religious, Linguistic, Cultural and Regional diversities of Indian society – Basic tenets of Islam, Christianity, Sikhism, Buddhism, Jainism, and Zoroastrianism, Hindu Social Organization: Purusharthas, Varnashrama dharma

Types of Indian Society **4hrs**

Tribal, Rural, Urban, Industrial :- Meaning, Basic Characteristics, Socio-economic life of the people, Changes and Problems

Social Institutions **6 hrs**

Kinship : Meaning, Types, Roles Family : Interpretation of Family from Structural Functional and Marxian Perspective, Issues and Problems related to Modern Family(Family Disharmony, Broken Home, Dowry ,Problems of Aged, Divorce)

Marriage : Meaning, Types, Aims and Objectives (Hindu, Islamic and Christian Marriage and Rituals)

Social Stratification in India **6hrs**

Caste as a form of social Stratification in India, Caste Politics in India and its consequences, Caste and Class; Class in India: Agrarian and Non Agrarian classes, Emergence of middle class- Dominant Caste, Changing Dimensions of Caste in the present day society.

Problems and Issues in Indian Society **4 hrs**

Unemployment, Poverty, Corruption, Crime and Delinquency Land alienation and displacement, Indebtedness and farmers' suicide, Urban Problems: pollution, housing and civic services

Processes of Social Change in India **4hrs**

Sanskritization, Westernization, Modernization, Urbanization, Industrialization

Essential Reading :

Mandelbam, D. : Society in India (Part I & II), Popular Prakashan, Bombay, 1970

Srinivas, M.N. : Caste in Modern India and Other Essays, Asia Publishing House, Bombay,1964

Kapadia, K.M. : Marriage and Family in India, Oxford University Press, Calcutta,1981

Srinivas, M.N. : Social Change in Modern India, Orient Longman, New Delhi, 1995

Rao, M.S.A. (ed): Urban Sociology in India, Orient Longman, New Delhi, 1974

Ahuja, Ram : Social Problems in India, Rawat Publications, Jaipur, 1992

Kosambi, D.D. : The Culture & Civilization of Ancient India in Historical Perspective, New Delhi, 1982

Uberoi Patricia (ed), Family, Kinship And Marriages in India, Oxford University Press, New Delhi.

Omen, T.K. and Mukharjee, P.N. (ed): Indian Sociology : Reflection and Introspection, Popular Prakashan, Bombay, 1986

Course Title : **Introduction to Innovation System**
Course Code : **H 239**
Credits : **04**
Course category : **Elective**
Course Prerequisite : **H 238**
Contact Hours : **28**

Outcome of the course:

- Understand the issues around defining technology and innovation.
- Know the characteristics of innovation processes and the factors that shape and drive innovation.
- Recognize the diversity of types of innovation, innovators and innovation settings.
- Understand the nature and extent of scientific & technological change and innovation.

Course Contents:

Nature of innovation	(5 hrs)
The innovative firm	(3 hrs)
Innovation processes	(4 hrs)
Regional innovation system	(4 hrs)
Innovation and IPR	(4 hrs)
Education, universities and national innovation system	(3 hrs)
Multinational enterprises and innovation processes	(3 hrs)
Science and innovation policy	(2 hrs)

Suggested References:

- [1]. B. Lundvall, *National Systems of Innovation: Towards a Theory of Innovation and Interactive Learning*, Pinter, London: 1992.
- [2]. C. Christensen, *The Innovators Dilemma*, Harvard University Press, Boston: 1997.

- [3]. E. Dundon, *The Seeds of Innovation: Cultivating the Synergy that Fosters New Ideas*, Amacom Books, New York: 2002.
- [4]. H. Braczyk, et.al, *Regional Innovation Systems*, UCL Press, London: 1998.
- [5]. K. Pavitt, *Technology Management and Systems of Innovation*, Cheltenham: 1999.
- [6]. M. Gibbons et.al, *The New Production of Knowledge – the Dynamics of Science and Research in Contemporary Societies*, Sage, London: 1994.
- [7]. P. Drucker, *Innovation and Entrepreneurship*, Harper Collins Publishers, New York: 1993.
- [8]. R. Katz, *The Human Side of Managing Technological Innovation*, Oxford University Press, New York: 2004.
- [9]. S. Borras, *The Innovation Policy of the EU*, Edward Elgar, Cheltenham: 2003.

Course Title : **Science Communication and the Citizen**
Course Code : **H 237**
Credits : **04**
Course category : **Elective**
Course Prerequisite : **H 238**
Contact Hours : **28**

Outcome of the course:

- Explain the importance of citizen character and science communication in present day society.
- Analyze several points of view on a scientific issue and integrate them into a theoretical perspective without bias.
- Able to give informed suggestions to address current issues in science communication. Understand and use various disseminated scientific knowledge with ethical standards.

Course Contents:

Introduction, citizenship and Science	(3 hrs)
Science in public, the public understanding of science	(5 hrs)
Public engagement with science	(3 hrs)
Science, communication and culture	(5 hrs)
Ethical codes and scientific norms	(4 hrs)
Patents and dissemination of scientific knowledge	(3 hrs)
Science communication in age of innovation	(5 hrs)

Suggested References:

- [1]. A. Irwin, *Citizen Science*, Routledge, London: 1995.
- [2]. H. Collins, and T. Pinch, *The Golem: What Everyone should Know about Science*, Cambridge University Press, Cambridge: 1993.
- [3]. H. Nowotny, P. Scott, and M. Gibbons, *Rethinking Science: Knowledge and the Public in an Age of Uncertainty*, Polity, Cambridge: 2001.
- [4]. J. Gregory, and S. Miller, *Science in Public: Communication, Culture and Credibility*, Plenum, New York: 2000.
- [5]. M. Leach, I. Scoones, and B. Wynne, *Science and Citizens: Globalization and the Challenge of Engagement*, Zed, London: 2005.

Course Title : **Life and Community in Urban World**
Course Code : **H 238**
Credits : **04**
Course category : **Elective**
Course Prerequisite : **Basic understanding of sociology**
Contact Hours : **28**

Outcome of the course:

- Analyze urbanization processes and their contribution to human wellbeing.
- Understand how and why different forms of urbanization in countries have developed, and their implications for population and society.
- Understand the socio-political conditions of metropolitan areas and their impacts on individuals, institutions and society.
- Understand the relationship between planning, property development and urban growth.

Course Contents:

Introduction, Urban space and urban thought	(3 class)
Urbanization, Emergence and evolution of cities & Urban life	(5 class + 1 tutorial)
Urban communities, Communities online and offline	(4 class)
The city in context, Migration, Sorting and niches, tutorial)	(4 class + 1 tutorial)
Markets & networks, City infrastructure, Growth & management	(3 class)
Suburbia, Urban ecology	(3 class)
Urban design, Policy and planning tutorial)	(3 class + 1 tutorial)

Suggested References:

B. Wellman, *Networks in the Global Village*, Westview Press, Boulder, CO: 1999.
C.S. Fischer, and R.K. Merton, *The Urban Experience*, Houghton Mifflin Harcourt P, Boston: 1984.
E. Ben-Joseph and T. Szold (eds.), *Regulating Place: Standards and the Shaping of Urban America*, Routledge: New York: 2005.
J. Logan and H. Molotch. *Urban Fortunes: Toward a Political Economy of Place*, University of California Press, California: 2007.
R.W. Park, E.W. Burgess and M. Janowitz (eds.), *The City*, University of Chicago Press, Chicago: 1984.
S. Sassen, *Cities in a World Economy*, Pine Forge Press, California: 2011.
S. Zukin, *The Culture of Cities*, Blackwell, New York: 1995.
W.G. Flanagan, *Urban Sociolog*