

BANKURA UNIVERSITY



CBCS SYLLABUS

for

M.A./M.Sc in Geography

(Two Year Semester System)

w.e.f.

July, 2017

BANKURA UNIVERSITY

BANKURA

WEST BENGAL

PIN 722155

COURSE STRUCTURE

TOTAL MARKS = 1000

SEMESTER - 4

CREDITS =80

COURSES	SEM - I	SEM - II	SEM - III	SEM - IV
CORE COURSES	-	-	-	-
INTERNAL ASSIGNMENT	50	50	-	50
ELECTIVE COURSES (Major)	-	-	-	-
ELECTIVE COURSES (Minor)**	-	-	50	-
COMPULSORY FOUNDATION*	-	-	-	-
ELECTIVE FOUNDATION*	50*	50*	-	-
PRACTICUM	-	-	-	-
DISSERTATION WORK	-	-	-	-
TOTAL	250	250	250	250

* represents the foundation course. The foundation courses are to be conducted by the University/Institution. The course shall have internal assessment only and so, credit earned for these courses, shall not be considered while preparing the final result. However, the candidates are required to obtain **Satisfactory or Not Satisfactory** to become eligible for the final semester examination/award of the P.G. Degree.

** **Elective Courses –Minor: Courses are mandatory choice based and students (other than department) of any Department of PG level can opt for the course)**

Semester wise distribution of credits for non-professional courses

Semester	Courses	Credits	Marks		
			I.A	ESE	Total
1st Sem.	4 Courses of 4 Credits Each 1 Internal Assignment 1 Compulsory Foundation*	$4 \times 4 = 16$ $1 \times 4 = 4$ $1 \times 1 = 1^*$	40 (4×10) 50 50*	160 - -	200 50 50*
2nd Sem.	4 Courses of 4 Credits Each 1 Internal Assignment 1 Compulsory Foundation*	$4 \times 4 = 16$ $1 \times 4 = 4$ $1 \times 1 = 1^*$	40 (4×10) 50 50*	160 - -	200 50 50*
3rd Sem.	4 Courses of 4 Credits Each 1 Elective (CBCS/ Open)	$4 \times 4 = 16$ $1 \times 4 = 4$	40 (4×10) 10 (1×10)	160 40	200 50
4th Sem.	4 Courses of 4 Credits Each 1 Internal Assignment	$4 \times 4 = 16$ $1 \times 4 = 4$	40 (4×10) 50	160	200 50
Total		$(16 \times 4) + (4 \times 4) = 80$	320	680	1000
Grand Total Marks		80	1000		

I.A. =Internal Assignment/Assessment, ESE= End-Semester Examination

* represents the foundation course. The foundation courses are to be conducted by the University. The course shall have internal assessment only and so, credit earned for these courses, shall not be considered while preparing the final result. However, the candidates are required to obtain **Satisfactory or Not Satisfactory** to become eligible for the final semester examination/award of the P.G. Degree.

MODEL STRUCTURE SEMESTER - I

Course Code	Course Title	Credit	Marks			No. of Hours		
			I.A.	ESE	Total	L.	T.	P.
Core Courses								
S.C 101C	Geotectonics, Geomorphology and Oceanography	4	10	40	50	60		
S.C 102C	Geographical Thought	4	10	40	50	60		
S.C 103C	Climatology, Hydrology and Biogeography	4	10	40	50	60		
S.C 104C	Cartographic and Quantitative Techniques in Geography	4	10	40	50	60		
Internal Assignment								
S.C 105IA	Assignment (15 Marks), Seminar (30 Marks), Tutorial (5 Marks), and Library Work	4 (Seminar-2, Assign.-1, Tutorial-1)	50 (Evaluated by the D.C)	-	50	-	15	105 (seminar-60, Assignment-30, Library work-15)
Compulsory Foundation Course (Tuesday from 1 p.m. to 2 p.m.)								
106 CF	Communicative English and Personality Development,	1	50			15		
<p>Note: The foundation courses are to be conducted by the University. The course shall have internal assessment only and so, credit earned for these courses, shall not be considered while preparing the final result. However, the candidates are required to obtain Satisfactory or Not Satisfactory to become eligible for the final semester examination/award of the P.G. Degree.</p>								
Total in Semester - I		20	90	160	250	255	15	105
Semester II								
Course Code	Course Title	Credit	Marks			No. of Hours		
			I.A.	ESE	Total	L	T	P

Core Courses								
S.C 201C	Geography of Population, Social Issues and Cultural Advancement	4	10	40	50	60		
S.C 202C	Geography of Space and Human Occupance	4	10	40	50	60		
S.C 203C	Economic Issues in Geography	4	10	40	50	60		
S.C 204C	Surveying, Topographical Map Interpretation and Field Study	4	10	40	50	60		
Internal Assignment								
S.C 205IA	Assignment (15 Marks), Seminar (30 Marks), Tutorial (5 Marks), and Library Work	4 (Seminar -2, Assign.- 1, Tutorial- 1)	50 (Evaluated by the D.C.)	-	50	-	15	105 (semin ar- 60, Assign ment -30, Librar y work- 15)
Elective Foundation Course								
[A student will select any one of the following course as elective foundation Course from following groups (Tuesday from 1 p.m. to 2 p.m.)]								
S.C 206 EF	1. Yoga and Life Skills Education, 2. Value Education and Human Rights	1	50		50	15		
Note: The foundation courses are to be conducted by the University. The course shall have internal assessment only and so, credit earned for these courses, shall not be considered while preparing the final result. However, the candidates are required to obtain Satisfactory or Not Satisfactory to become eligible for the final semester examination/award of the P.G. Degree.								
Total in Semester - II		20	90	160	250	255	15	105
Semester III								
Course Code	Course Title	Credit	Marks			No. of Hours		
			I.A.	ESE	Total	L	T	P
Core Courses								
S.C 301C	Political Geography Geography of India Disaster Management	4	10	40	50	60		
S.C 302C	Remote Sensing and GIS	4	10	40	50	60		

Elective Courses –Major (Any one of the following)									
S.C 303	303 EA	Urban Planning	4	10	40	50	60		
	303 EB	Advance Remote Sensing	4	10	40	50	60		
	303 EC	Agricultural Practice & Development	4	10	40	50	60		
	303 ED	Rural Development& Planning	4	10	40	50	60		
	303 EE	Population Studies	4	10	40	50	60		
	303 EF	Ethnicity and Tribal Culture in India	4	10	40	50	60		
Elective Courses –Minor (Any one of the following) (Courses are mandatory choice based and students (other than department) of any Department of PG level can opt for the course) (Monday, Wednesday, Thursday, Friday from 1 p.m. -2 p.m.)									
S.C 304	304 EIDA	Rural Development	4	10	40	50	60		
	304 EIDB	Basics of Earth System	4	10	40	50	60		
	304 EIDC	Digital Image Processing	4	10	40	50	60		
S.C 305 PA	Analysis of Contemporary Urban Issues (Evaluated by H.o.D, Internal, and External) + Dissertation (be evaluated in the 4 th semester)		4	50 (Note Book-10 Examamination-30 Viva-Voce – 10)		50	-	15	120 (Prac.-60, Dissertation-60)
S.C 305 PB	Execution and Image Processing (Evaluated by H.o.D, Internal, and External) + Dissertation (be evaluated in the 4 th semester)		4	50 (Note Book-10 Examamination-30 Viva-Voce – 10)		50	-	15	120 (Prac.-60, Dissertation-60)
Total in Semester - III			20	40	160	250	240	15	120
Semester IV									
Course Code	Course Title	Credit	Marks			No. of Hours			
			I.A.	ESE	Total	L	T	P	
Core Courses									
S.C 401C	Environment and Society and Contemporary Issues in Geography	4	10	40	50	60			
S.C 402C	Development and Environment	4	10	40	50	60			
Elective Courses –Major (Any one of the following)									

S.C 403	403 EA	Fluvial Geomorphology	4	10	40	50	60		
	403 EB	Environment Problems	4	10	40	50	60		
	403 EC	Regional Development and Planning	4	10	40	50	60		
	403 ED	International Politics	4	10	40	50	60		
	403 EE	Coastal Geomorphology	4	10	40	50	60		
	403 EF	Development and Management of Forest Resources	4	10	40	50	60		
Internal Assignment									
S.C 404IA	Educational Excursion, Tutorial Library Work –(Participation-10 Marks, Report-30 Marks, Viva-10 Marks) Evaluated by Supervisor/s-10 Marks, All faculties -40 Marks)		4	50	-	50	15	45	15
S.C 405 DN	Dissertation Work (Start From 3 rd Semester and will be continued up to 4 th Semester) (To be assessed by H.O.D, Supervisor, and One External Expert)		4	50 (40 Dissertation + 10 Viva-Voce)					120
Total in Semester – IV			20	80	120	250	195	45	135
Grand Total of Semesters I, II, III, and IV			80	1000			945	90	465

SEMESTER-I

Geotectonics, Geomorphology and Oceanography

Course Code: GEO S.C 101C

Credit: 4

Unit-1 Geotectonics

- 1.1 Tectonic and neo-tectonic processes, Palaeomagnetism and Polar wandering
- 1.2 Isostasy: Views of Airy and Pratt
- 1.3 Continental Drift Theory of Wegener and its relevance
- 1.4 Plate Tectonic theories and their relation to earthquake and volcanism
- 1.5 Mountain Building Theories

Unit-2 Geomorphology

- 2.1 Approaches to Geomorphology: Static, Dynamic, Environmental and Applied
- 2.2 Concept of Spatial and Temporal Scales and Threshold Value
- 2.3 Weathering, Mass Wasting and resultant landforms
- 2.4 Fluvial, Glacial, Peri-glacial, Aeolian processes and resultant landforms
- 2.5 Landform Development and Slope evolution: Davis, Penk, L.C King and Wood

Unit-3 Oceanography

- 1.1 Origin and characteristics of the ocean floor
- 1.2 Temperature, Density and Salinity of Ocean Water
- 1.3 Origin of Tides and Currents; Sea Level change and its global impact
- 1.4 Ocean resources: Types and Importance; Concept and characteristics of EEZ & CRZ

Reference books

1. Bloom, A.L., Geomorphology-A systematic Analysis of late Cenozoic landforms.
2. Cotton, Geomorphology.
3. Condie, K.C. (2003): Plate Tectonics and Crustal Evolution, Butterworth-Heinemann, Oxford, Burlington
4. Chorley, R.J. and Kennedy, B.A. (1971): Physical Geography: A Systems Approach, Prentice Hall, Upper Saddle River, New Jersey
5. Dowie., Isostasy.
6. Huggett, R.J. (2011): Fundamentals of Geomorphology, Routledge, New York
7. Goudie, A.S. (1990): Geomorphological Techniques, Unwin Hyman, London
9. Jolly., Surface History of the Earth.
10. Ollier, C.D., Weathering.
11. Selby, M.J., (2005), Earth's Changing Surface, Indian Edition, OUP
12. Small, R.J. (1978): The Study of Landforms: A Textbook of Geomorphology, Cambridge University Press, Cambridge
13. Steers, J.A., Unstable Earth.
14. Strahler, A.H. & Strahler, A.H., Elements of Physical Geography.
15. Thornbury, W.D., Principles of Geomorphology.

Geographical Thought

Course Code- S.C GEO102C

Credit 4

Unit-1 Historical Development of Geography

- 1.1 Evolution of Geographical Thought; Contribution of Greek, Roman and Arabian Thinkers.
- 1.2 Contribution of Indian scholars in the development of Geography.
- 1.3 Development of modern Geographical knowledge: Contribution of Humbolt, Ritter and Ratzel
- 1.4 Post-Modern approach in Geography

Unit-2 Development of Philosophy in Geography

- 2.1 Fundamental approaches in Geography; Geographic methodology and explanation
- 2.2 Concept of Determinism, Possibilism and Neo-Determinism
- 2.3 Concept of 'Region' in Geography
- 2.4 Concept and dimension of Space

Unit-3 Dualism and Dichotomy in Geography

- 3.1 Idiographic Vs Nomothetic Approaches
- 3.2 Physical Vs Human Geography
- 3.3 Positivism Vs Quantative revolutions
- 3.4 Modernism Vs Post Modernism

Reference books

1. Bunge, W., Theoretical Geography.
2. Claval, P., Epistemology and History of Geographical Thought, in progress in Human Geography, Vol.4.
3. Dickinson, R.E., The Makers of Modern Geog., London, 1969
4. Dickinson, R.E., The Making of Modern Geography
5. Dikshit, R.D. (2004): Geographical Thought: A Critical History of Ideas, Prentice Hall of India, New Delhi
6. Hartshorne, R., Perspectives on Nature of Geography, Rand MacNally, 1959
7. Harvey, D. (1969): Explanation in Geography, Arnold, London
8. Harvey, D. (1973): Social Justice and the City, Arnold, London
9. James, P.E. (1972): All Possible Worlds: A History of Geographical Ideas, The Odyssey Press , Indianapolis
10. Johnston, R.J., The Future of Geography, Methuen, London, 1988
11. Johnston, R.J. and Sidaway, J.D. (2004): Geography and Geographers, Edward Arnold, London
12. Peet, R. (1998): Modern Geographical Thought, Blackwell Publishers Inc., Massachusetts
13. Soja, E. (1989): Post-modern Geographies, Verso Press, London
14. Tuan, Y. (1977): Space and Place: The Perspective of Experience, Edward Arnold, London

Climatology, Hydrology and Biogeography

Course Code- S.C GEO103C

Credit 4

Unit -1 Climatology

- 1.1 Structure and composition of atmosphere; insolation and heat budget
- 1.2 Atmospheric Disturbances: cyclone, anti-cyclone, global warming
- 1.3 Global wind system: Planetary wind, Monsoon and Local wind
- 1.4 Climatic classification as per Koppen and Thornthwaites: Appraisal of the world and India
- 1.5 Global Climate Change: Climatic records; evidences of past climatic changes; Natural and anthropogenic causes

Unit-2 Hydrology

- 2.1 Global Hydrological Cycle: Mechanism, Functioning and Importance
- 2.2 Causes and importance of global water scarcity and remedial measure
- 2.3 Runoff cycle, Concept of Unit Hydrograph and its importance
- 2.4 Rainwater harvesting with special reference to micro-watershed management

Unit-3 Biogeography

- 3.1 Nature, scope and development of Biogeography
- 3.2 Plant Ecology: environmental factors, adaptation, climax and domestication
- 3.3 Relation between soil and biosphere and resultant land use and land cover; Methods of soil conservation
- 3.4 Concept of biodiversity, biodiversity loss and conservation

Reference books

1. Brigg, G.R. 1996 : The Ocean and Climate, Cambridge University Press, Cambridge: 266p
2. Chow, V.T, Maidment, D.R and Mays, L.W. (1988): Applied Hydrology, McGraw Hill
3. Cox, C.B. and More, P.D., Biogeography: An Ecological and Evolutionary Approach, London, 2000.
4. Davis, R.J.A. 1986, Oceanography – An Introduction of the Marine Environment, Win C. Brown, Iowa
5. Garrison, T. 1993. Oceanography: An Invitation to Marine Science, Wadsworth Pub. Co., Belmont: 540 p. [Topics 4.1, 4.2, 4.3]
6. Huggett, R.J., Fundamentals of Biogeography, Routledge, U.S.A, 1998
7. King, C.A., Oceanography for Geographers, Edward Arnold Pub
8. Lal, D.S., 2005, Oceanography, Sarala Pustak Bhavan, Allahabad.s
9. Odum, Eugene P., Fundamentals of Ecology, Philadelphia
10. Raghunath, H.M. (2006): Hydrology: Principles, Analysis and Design, New Age International (P) Limited Publishers, New Delhi
11. Simmon, I.G., Biogeography: Natural and Cultural, Longman, London 1974
12. Siddhartha, K. 1999, Oceanography, A Brief Introduction, Kisalaya Pub. Pvt. Ltd., New Delhi..
13. Sharma, R.C. and M. Vatal, 1962, Oceanography for Geographers, ChaitanyaPblishing House
14. Sharma, P.D. 1996: Ecology and Environment, 71h edition, Rastogi Publications, Mirat
15. Subramanya, K (2013): Engineering Hydrology, Tata McGraw Hill, New Delhi
16. Thurnman, H.V., 1978, Introduction to oceanography, Charles E. Merrill Pub. Co., London.
17. Watts, David, Principles of Biogeography, London

Cartographic and Quantitative Techniques in Geography

Course Code- S.C GEO104C

Credit 4

Unit-1 Concept and Application of Cartography

- 1.1 Concept and development of cartography
- 1.2 Representation of climatic data using cartographic technique - Hythergraph, Climograph
- 1.3 Thematic mapping using Pie diagram, Choropleth and Choroschematic; Preparation of Block Diagram, Detour Index and Nearest Neighbour Analysis (NNA)
- 1.4 Map Projection: Concept and Development; UTM Projection, Bonne's Projection, Mercator's Projection and Modified Polyconic Projection.

Unit- 2 Application of Statistical Techniques in Geography

- 2.1 Measures of Central Tendency and Dispersion
- 2.2 Variance and Covariance; Chi Square Test
- 2.3 Probability Distribution - Binomial and Normal Distribution; Properties of Normal Curve
- 2.4 Factor Analysis: Concept and Techniques

Unit- 3 Quantitative Techniques in Geography

- 3.1 Correlation – Pearson and Spearman's methods
- 3.2 Regression – Linear and Curvilinear
- 3.3 Mean Centre of Population; Location Quotient
- 3.4 Measurement of Inequality - Gini Coefficient and Lorentz Curve

Laboratory note book and viva voce

Reference books

1. Anson, R. W. and Ormerling, F. J. 1993: Basin Cartography, Elsevier Applied Science Publishers. London
2. Alvi, Z. 1995 : Statistical Geography: Methods and Applications, Rawat Pub. New Delhi
3. Elhance, D.N. Fundamentals of Statistics, Allahabad, 1972
4. Geogory, S., Statistical Methods and the Geographers, Longmans, London
5. Griffith, D.A. and Amrhein, C.G. (1997): Multivariate Statistical Analysis for Geographers, Prentice Hall, Upper Saddle River, New Jersey
6. Harvey, F. (2008): A Primer of GIS: Fundamental Geographic and Cartographic Concepts, The Guilford Press, New York
7. Khan, N. (1998): Quantitative Methods in Geographical Research, Concept Publishing Company, New Delhi
8. Mahmood. A, Statistical Methods in Geographical Studied, Rajesh Publication, Delhi, 1977
9. Monkhouse F.J. and Wilkinson, H.R. 1971: Maps and Diagrams: Their Compilation and Construction, B.I. Publications Private Limited, New Delhi
10. Pal, S.K. 1999 : Statistics for Geoscientists, Concept publishing Company, New Delhi:
11. Robinson, A. H., Morrison, J. L., Muehrcke, P. C., Kimerling, A. J., Guptill, S. C. 2002: Elements of Cartography, John Wiley and Sons (ASIA). Singapore.
12. Roy, P. 1988 : An Analytical Study of Map Projections, Volume 1, Kolkata
13. Sarkar, A. 1997 : Practical Geography: A Systematic Approach, Orient Longman Ltd., Hyderabad
14. Steers, J.A. 1965 : An Introduction to Map Projections, 14th ion, University of London Press, London. Venkatramaiah, C. 1996: A Textbook of Surveying, Universities Press / Orient Longman Ltd., Hyderabad.

SEMESTER-II

Geography of Population, Social Issues and Cultural Advancement

Course Code- S.C GEO201C

Credit 4

Unit-1 Geography of Population

- 1.1 Population Geography: Concept and Approaches
- 1.2 Theories of population growth: Malthus, Neo-Malthasian and Biological; Demographic Transition Model
- 1.3 Sources of population data
- 1.4 Population Policy: International and National

Unit-2 Social Issues in Geography

- 2.1 Concept of Space: Geographical, material and social
- 2.2 Social structure: Forms and functions; Social process, Caste, class, ethnicity and gender
- 2.3 World Religion- classification and distribution
- 2.4 Linguistic division of the world population with special reference to India

Unit-3 Geography of Cultural Advancement

- 3.1 Cultural Geography: Concept and trend of development
- 3.2 Cultural Processes: Diffusion, acculturation and assimilation; concept of cultural region, realm and landscape
- 3.3 Tribal culture and its transformation with special reference to Rarh Bengal
- 3.4 Cities as a modern cultural landscape, crisis of ethnic culture and transformation

Reference books

1. Ambrose, P., 1969, Analytical Human Geography, London
2. Chandna, R.C. (2010): A Geography of Population, Kalyani Publisher, New Delhi
3. Clarke, J.I. (1992): Population Geography, Pergamon Press, Oxford
4. De Blij, H.J., 1977, Human Geography, New York
5. Dicken, S.N., Introduction to Human Geography
6. Griswold, W., Cultures and Societies in a Changing World, Pine Forge Press, New Delhi
7. Khan, J.H. Socio-Economic & Structural Analysis of Internal Migration, New D. 2010
8. Jones, E., Human Geography
9. Johnston .R.J (2000): The Dictionary of Human Geography, Blackwell. UK
10. Hassan, M. Izhar, 2005, Population Geography, Rawat Publications
11. Hoggart, K., Lees, L. and Davies, A. (2002): Researching Human Geography, Arnold, London
12. Husain, M., 2000, Human Geography, New Delhi
13. Smith, D.M., 1977, Human Geography: A Welfare Approach, London
14. Taylor. G., Geography in Twentieth Century
15. Valentine, G., 2001, Social Geography – Space & society, Prentice Hall
16. Vidyarathi, L., & Rai, B. K. (1985). The Tribal Culture of India. New Delhi: Concept Publishing Company.

Geography of Space and Human Occupance

Course Code- S.C GEO202C

Credit 4

Unit-1 Settlement Geography

- 1.1 Concept, meaning and development of Settlement Geography
- 1.2 Theory and models in settlement geography: Central Place theory, Rank Size Rule and concept of Primacy
- 1.3 Types and patterns of rural and urban settlements; Functional classification of urban places
- 1.4 Internal structure of the cities; CBD and Core-Periphery relations

Unit-2 Geography of Region

- 2.1 Concept of pays and region, Types and Hierarchy of region
- 2.2 Planning Approach in regionalization; Types and levels of planning
- 2.3 Theories of regional development: Stage model of Rostow, Growth Pole and Growth Centre approach
- 2.4 Concept of regional disparities; regional disparity in India and methods of reduction

Unit-3 Urban Geography

- 3.1 Scope and Content of Urban Geography
- 3.2 Urbanization in the Third World: Nature and Characteristics
- 3.3 Urbanization and Urban Development in India
- 3.4 Problems of Urbanization: Demographic, Economic and Environmental Issues

Reference books

1. Carter, H. (1972): The study of Urban Geography, Edward Arnold, London
2. Chand, M. and Puri, V.K. (1983): Regional Planning in India, Allied Publishers, New Delhi
3. Clonlay, R.J. & Haggat, P., Models in Geography
4. Enayat, A., Social and Geographical Aspects of Human Settlements
5. Glasson, J. (1975): An Introduction to Regional Planning. Hutchinson and Co., London
6. Ghosh, S. 1998: Introduction to Settlement Geography. Orient Longman Ltd., Calcutta
7. Hudson, F.S. 1970: Geography of Settlements, Macdonald and Evans Ltd. Plymouth Herbert, David and
8. Johnson, J.H. (1976): Urban Geography: An Introductory Analysis, Pergamon Press
9. Kurdue, A. & Raza, Moonis, Indian Economy the Regional Dimension
10. Mandal, R.B. (2000): Urban Geography: A Textbook. Concept Pub. Co., New Delhi.
11. Mishra, R.P., Sundram, K.U. and Prakash Rao, V.V.S. (1974): Regional Development Planning in India, Vikas Publishing, Delhi
12. Pacione, M. (2009) : Urban Geography : A Global Perspective, Routledge
13. Ramacharandran, R., Urbanization and Urban Systems in India, Oxford University Press, New Delhi, 1992.
14. Raychaudhuri, J. (2001): An Introduction to Development and Regional Planning: With Special Reference to India, Orient Blakswan, New Delhi
15. Thomas, Colin, 1982: Urban Geography A First Approach, Jhon Wiley & Sons. New Delhi
16. Verma, L.N. (2006): Urban Geography, Rawat Publications, Jaipur

Economic Issues in Geography

Course Code- S.C GEO203C

Credit 4

Unit-1 Economic Geography: Concept and Models

- 1.1 Scope, content and development of Economic Geography
- 1.2 Classification of agricultural region; Measurement of agricultural productivity and efficiency; Agro-Climatic Regions of India
- 1.3 Concept of SEZ, EEZ, EPZ, Industrial development and problems of location; Industrial Complex
- 1.4 Models in Economic Geography: Agricultural Land Use of Von Thunen, Crop Combination Model of Weaver, Industrial Location by Weber, Losch etc.

Unit-2 Geography of Trade

- 2.1 Trade and international relations and their importance in national economy
- 2.2 Concept of Import and Export, E-commerce, Freight equalization
- 2.3 Role of GATT and WTO in international trade
- 2.4 Recent issues in Indian trade: FDI and GST

Unit-3 Geography of Transport

- 3.1 Concept of distance, accessibility and connectivity; transportation and space; space-time relation
- 3.2 Development of Transport: Inter-regional and Intra-regional issues
- 3.3 Transportation Policy: National and Regional; Golden Quadrilateral, North-South and East-West Corridor
- 3.4 Transportation Models: Gravity Model and Allocation Model

Reference

1. Brian, J.L., Berry et al., The Geography of Economic Systems.
2. Black, W. R. (2003): Transportation: A Geographical Analysis, Guilford Press, New York
3. Davis, R.L. (1976) Marketing Geography, Methuen, London,
4. Hartshorne, T.A. and J.W. Alexander (1988) –Economic Geography, Prentice Hall
5. Janaki. V.A. (1985) –Economic Geography, Concept Publishing Co.
6. Hartshon, T.A., Economic Geography
7. Hanink, D. M. (1997). Principles and Applications of Economic Geography, Economy, Policy, Environment, John Wiley and Sons, New York.
8. Hoyle, B.S., and Knowles, R.D. (eds.) (1992): Modern Transport Geography, Belhaven Press, London
9. Lloyd, P. and P. Dicken (1972) –Location in space: A theoretical approach to Economic Geography, Harper and Row, New York.
10. Michael E. and E. Hulse: Transportation Geography
11. McCarty, H.H. and J.B. Lindberg (1966) – A Preface to Economic Geography, Englewood Cliffs, N.J. Prentice.
12. Rodrigue, J.P., Comtois, C. and Slack, B. (2006): The Geography of Transport Systems, Routledge, London, New York
13. Saxena, P. Marketing and Sustainable Development. Rawat Publication, New Delhi
14. Thomas, Conkling and Yeates (1974) – Geography of Economic Activity, McGraw Hill, New York.
15. Thoman, R.S. & E.C. Conkling., The Geography of Economic Activity

Surveying, Topographical Map Interpretation and Field Study

Course Code- S.C GEO204C

Credit 4

Unit-1 Surveying

- 1.1 Levelling of surface by Dumpy Level
- 1.2 Triangulation and traversing by Prismatic Compass
- 1.3 Height determination using Theodolite: Accessible and inaccessible bases
- 1.4 Survey of terrain using GPS and DGPS

Unit-2 Interpretation of Topographical Map

- 2.1 Layout of topographical map: Old and new
- 2.2 Morphometric analysis of landform: Absolute Relief, Hypsometric Curve, Altimetric Curve, Slope analysis
- 2.3 Drainage Basin analysis: Drainage Frequency, Drainage Density, Dissection Index and Ruggedness Index
- 2.4 Correlation between physical and cultural features

Unit-3 Field Study

- 3.1 Selection of Study Area: Objectives and Criteria
- 3.2 Preparation of base map and Field questionnaires
- 3.3 Survey and analysis of field-based information
- 3.4 Preparation of field report

Reference

1. Arora, K.R. (2010): Surveying (Volumes I & II), Standard Book House, New Delhi
2. D. Clark, Plane and Geodetic Surveying, Vol. II, Constable Co. Ltd, London
3. Elfic, M.H., Fryer, J.G. Brinkner, R.C. and Wolf, P.R. 1994: Elementary Surveying, 8th edition, Harper Collins Publishers, London.
4. Gilbert, N. (ed.) (2005): Researching Social Life, Sage, London
5. Glodard, R.H., Field Techniques and Research Methods in Geography, Dubuque, 1982.
6. Guthrie, G. (2010): Basic Research Methods: An Entry To Social Science Research, Sage, New Delhi
7. Kanetkar, T.P. and Kulkarni, S. V. 1988: Surveying and Levelling, Part I, Pune VidyarthiGrihaPrakashan, Pune.
8. Kulkarni, S.V. and Kanetkar, T.R. (1965): Surveying and Levelling (Volumes I & II), A.V.G. Prakashan, New Delhi
9. Hussain, S.K. and Nagaraj, M.S. 1992: Text Book of Surveying, S. Chand & Co. Ltd., New Delhi.
10. Hoggart, K., Lees, L. and Davies, A. (2002): Researching Human Geography, Arnold, London
11. Maslov A.V. Gordeev A.V., Batrakov Yu.G. Geodetic surveying, 1984, Mir Publishers, Moscow
12. Neuman, W. L. (2007): Social Research Methods: Qualitative and Quantitative Approaches, Dorling Kindersley India Pvt. Ltd., New Delhi
13. Punmia, B. C., Jain, A. K. 1990: Surveying, Laxmi Publications. New Delhi
14. Rangwala S.C. 2011. Surveying and Leveling, Charotar Publishing House Pvt. Ltd. Anand, (GJ)
15. Sarkar, A. (2008): Practical Geography: A Systematic Approach, Orient BlackSwan, Kolkata
16. Singh, N. Surveying, Tata McGraw-Hill Publishing Company Ltd., New Delhi

SEMESTER III

Political Geography, Geography of India and Disaster Management

Course Code- S.C GEO301C

Credit 4

Unit-1 Political Geography

- 1.1. Nature, Scope and Content of political Geography. Concept of Geopolitics
- 1.2. Geopolitical perspective of state, nation and nation state
- 1.3. Concept of Frontier and Boundaries; Buffer state and Enclaves, National and International Boundary disputes
- 1.4. Role of different organisations in modern International Policies (UNO, SAARC, NATO), concept North-South divides, Heartland and Rimland theory

Unit-2 Geography of India

- 2.1 Physiographic divisions of India with special reference their human habitability
- 2.2 Drainage network of India and present issue of drainage system in India Interstate river conflict
- 2.3 Mechanism of Monsoon and its impact on Indian economy
- 2.4 Development of major industry in India in relation to different industrial policy, Impact of globalization and liberalization in Indian industrial sector

Unit-3 Disaster Management

- 3.1 Significance of disaster studies and present day applicability
- 3.2 Types of natural hazard in India (Earthquake, Landslide, Tsunami, Flood, Cyclone)
- 3.3 Hazard monitoring, tracking and modeling, warning systems and warning protocols
- 3.4 Concept of anthropogenic hazards and implication on Poverty, Delinquency, Crime and Terrorism

Reference

1. Agnew, J., (2002): *Making Political Geography*, Arnold, London
2. Agnew, J., Mitchell, K. and Toal, G. (eds.) (2003): *A Companion to Political Geography*, Blackwell, Oxford
3. Cohen, S. (1964): *Geography and Politics in a World Divided*, Random House, New York
4. Cox, K.R., Low, M. and Robinson, J. (2008): *The SAGE Handbook of Political Geography*, SAGE Publications Ltd., London
5. Dikshit, R.D. (1987): *Political Geography and Geopolitics*, Tata McGraw Hill, New Delhi
6. Dikshit, R.D. (2000): *Political Geography: A Contemporary Perspective*, Prentice-Hall, New Delhi
7. Glassner, M., (1993): *Political Geography*, John Wiley & Sons, New York
8. Mathur, H.M. and Cernea, M.M. (eds.) (1995): *Development, Displacement and Resettlement - Focus on Asian Experience*, Vikas Publishing House Ltd., New Delhi
9. Prescott, J.R.V. (1972): *The Political Geography*, Methuen, London
10. Taylor, P. and Flint, C. (2000): *Political Geography*, Pearson Education, Harlow, Essex
11. Alexander, D. (1993): *Natural Disasters*, ULC Press Ltd, London
12. Edwards, B. (2005): *Natural Hazards*, Cambridge University Press, UK
13. Sharma, R.K. & Sharma, G. (eds.) (2005): *Natural Disaster*, APH Publishing Corporation, New Delhi
14. Smith, K. (2011): *Natural Hazards*, Routledge, London

Remote Sensing and GIS

Course Code- S.C GEO302C

Credit 4

Unit-1 Basic concept of Remote Sensing

- 1.1. Concept of remote sensing, Remote sensing process, advantage and disadvantage of remote sensing
- 1.2. Concept of EMR, Resolution, Sensor, FCC and Band
- 1.3. Remote sensing Platform, Sensor characteristics; Active and Passive Remote sensing (PAN, MSS, Hyper spectral, Thermal, Microwave and RADAR)
- 1.4. Aerial photograph; Basic concept, Types, Acquisition process, Satellite programmes in India

Unit-2 Advance remote sensing

- 2.1 Principle of photography (Scale, resolution, projection, flight plan, overlap)
- 2.2 Image processing (Pre-processing), Image correction (radiometric, geometric correction and image enhancement)
- 2.3 Image classification; Supervised and Unsupervised.
- 2.4 Image enhancement; Contrast enhancement, Band rationing, Spatial filtering, PCA, Vegetation indices.

Unit-3 GIS

- 3.1 Introduction to GIS: Concepts of Projection, datum and spheroid, mean sea level, orthometric height, geoid models; Formats of storing GIS Data
- 3.2 Components of GIS, Variables-point, lines, polygon, Functionality of GIS
- 3.3. GIS data acquiring, manipulation and representation.
- 3.4. Concept of GNSS and DGPS; how a GNSS system works; Sources of error in a GNSS system

Reference

1. Lilesand and Keifer (2000), Introduction to Remote sensing and Image Interpretation; John Willy & sons Ltd., New York
2. James B. Campbell (1996), Introduction to Remote Sensing; Taylor & Francis, London
3. Joseph George (2004), Fundamentals of Remote Sensing; Universities Press (India) Pvt.
4. Hayesm L. (1991), Introduction to Remote Sensing; Taylor and Fransis, London
5. Paul. J. Gibson (2000), Introductory to Remote Sensing; Taylor & Francis, London
6. BhattaBasudeb (2011), Remote Sensing and GIS, Springer
7. Kang-tsung Chang (2002), Introduction to Geographic Information Systems' Tata McGraw Hill, New Delhi.
8. C.P.Lo and Albert K.W.Yeung (2005), Concepts and Techniques of Geographic Information Systems" Prentice Hall of India,New Delhi.
9. Burrough, Peter A. and Rachael McDonnell (1998), ' Principles of Geographical Information Systems, Oxford University Press, New York.
Magwire, D. J., Goodchild, M.F. and Rhind, D. M. Ed. (1991), Geographical Information Systems: Principles and Applications', Longman Group, U.K

Urban Planning

Course Code- S.C GEO303 EA

Credit 4

Unit-1 History of Human Settlement & Planning Principles

- 1.1 Evolution of urban settlements.
- 1.2 Origin and evolution of planning process; Impact of Industrial revolution on town and country planning
- 1.3 Contributions of Ebenezer Howard, Patrick Geddes, Lewis Mumford, Le-Corbusier, Doxidius etc.
- 1.4 Urban plan and its components; urban morphology and land uses, stage of the planning process; Structure Plan, Master Plan and country & metropolitan planning

Unit-2 Urban System

- 2.1 Rank Size Rule, primacy log normality
- 2.2 Hierarchy of urban settlement, sphere of urban influence
- 2.3 Concept of City region, urban sprawl, umland, urban conurbation, satellite and dormitory town
- 2.4 Problems of the peri-urban area, rural-urban fringe

Unit-3 Urban planning and Governance in India

- 3.1 History of urban planning in India.
- 3.2 Concept of planned town, new town and urban village in India
- 3.3 Perspective planning in India; MDGs, Participatory management of Municipality and urban services, smart city concept
- 3.4 Urban Governance; 74th constitutional amendment act

Reference books

1. Carter, H. (1995): *The Study of Urban Geography*, Edward Arnold, London
2. Das, A. Kumar (2007), *Urban Planning in India*, Rawat Publication
3. Gallion et al (1986), *The Urban Pattern: City Planning and Design*, CBS Publication
4. Hall, P.G. (1997): *Cities of Tomorrow: An Intellectual History of Urban Planning and Design in the Twentieth Century*, Wiley Blackwell, New Jersey
5. Mumford, L. (1972): *The City in History: Its Origins, Its Transformations, and Its Prospects*, Harcourt Books, New York
6. Ramchandran, R. (1997): *Urbanization and Urban Systems in India*, Oxford University Press, Oxford
7. Siddhartha K and Mukherjee S (1997), *Cities Urbanisation and Urban System*, Kisalaya Publication pvt.

Advance Remote Sensing

Course Code- S.C GEO303 EB

Credit 4

Unit-1 Basic of Photogrammetry

- 1.1 Types of photogrammetry, image acquisition (from aerial & satellite platform)
- 1.2 Image acquisition from satellite platform, geometric distortion in imagery
- 1.3 Principle and disciplines of photogrammetry, Geometry and scale of aerial photograph
- 1.4 Principles of stereoscopic vision, stereoscopic 3D viewing, lens stereoscope, mirror stereoscope

Unit-2 Pre-processing and Enhancement

- 2.1 Satellite data acquisition, storage and retrieval, generation of digital data formats
- 2.2 Image processing (Pre-processing), Image correction (radiometric, geometric correction)
- 2.3 Image Enhancement
- 2.4 Concept of parallax

Unit-3 Image transformation and processing

- 3.1 Image transformation (PCT, FT, CST, fusion, Indices)
- 3.2 Image classification (Supervised & Unsupervised)
- 3.3 Accuracy assessment (Kappa test, Contingency Matrix)
- 3.4 Post classification processing (Filtering and vectorization)

Reference books

1. Lillesand and Keifer (2000), Introduction to Remote sensing and Image Interpretation; John Willy & sons Ltd., New York
2. James B. Campbell (1996), Introduction to Remote Sensing; Taylor & Francis, London
3. Joseph George (2004), Fundamentals of Remote Sensing; Universities Press (India) Pvt.
4. Hayesm L. (1991), Introduction to Remote Sensing; Taylor and Fransis, London
5. Paul. J. Gibson (2000), Introductory to Remote Sensing; Taylor & Francis, London

Analysis of Contemporary Urban Issue

Course Code- S.C GEO305 PA

Credit 4

Unit 1 Urban organization analysis

- 1.1 Ranks-Size Rule, Primate City
- 1.2 Difference of urban concentration (Location Quotient, Lorenz Curve, Gini's Coefficient)
- 1.3 Index of diversification, Mather's model of mean spacing
- 1.4 Environmental Impact Assessment using GIS tools, Shortest Path Analysis (Transportation Problem)

Unit 2 Functional importance analysis of towns

- 2.1 Reilly's Breaking Point Method, Linear Programming (VAM & North-West Method)
- 2.2 Threshold Population by Reed-Munench, Centrality of Towns, Hierarchy estimation
- 2.3 Spatio-functional Gap identification and estimation of required number of facilities to fill the gap
- 2.4 Thematic mapping for the urban area using GIS tools

Unit 3 Planning for the city

- 3.1 Preparation of Master Plan of a selected town

Reference books

Connor, L.R and Morreu, Ajh (1964), Statics in Theory and Practice, Pitman, London

Willams, Ken ed. (1975), Statistics and Urban Planning, Charlrs Knight & Co. Ltd, London

Execution and Image Processing

Course Code- S.C GEO305 PB

Credit 4

Unit 1 Basic use of remote sensing tools

- 1.2 Geo-referencing of image, datum and projection assignment on image
- 1.2 Image processing (Pre-processing), Image correction (radiometric, geometric correction and image enhancement)
- 1.3 Image rectification and spatial filtering
- 1.4 Image Enhancement

Unit 2 Advance use of remote sensing

- 2.1 Image classification (Supervised and unsupervised)
- 2.2 Land use & land cover extraction from satellite image
- 2.3 Image transformation (PCT, FT, CST, fusion, Indices)
- 2.4 Accuracy assessment (Kappa test, Contingency Matrix)

Unit 3 Remote sensing in planning practice

- 3.1 Preparation of Master Plan of a selected town

Reference

- American Society of Photogrammetry (1983), Manual of Remote Sensing, Falls church
- Barrett E.C. and L.F. Curtis (1992), Fundamentals of Remote Sensing and Air Photo Interpretation, McMillan, New York
- Campbell J (1989), Introduction of Remote Sensing, Taylor & Francis, London
- Curran P.J. (1985), Principles of Remote Sensing, Longman, London

SEMESTER IV

Environment and Society and Contemporary Issues in Geography

Course Code- S.C GEO401C

Credit 4

Unit-1 Environmental Issues in Geography

- 1.1 Man - Land relationships; Ecosystem & Ecology; Ecological balance and restoration of damaged ecosystems
- 1.2 Perception of Environmental Degradation, Pollution, Hazards and Disaster
- 1.3 Global warming and Climate change, ozone depletion, Green House Effect and Acid rain.
- 1.4 Pollution of air, water and soil: Sources, health impact, control and management.

Unit-2 Environment and Society

- 2.1 Man Induced Changes in Environment: Environmental Pollution, i.e. Pollution of Air, Water, Noise, Solid Waste etc.
- 2.2 Man Made Ecosystem - Urban concentration, Ecotourism, National Parks Sanctuaries etc.
- 2.3 Social Hazards: Tropical Diseases, Poverty, Famine Crime and Social Exclusion
- 2.4 Environmental Change and Human Adaptation

Unit-3 Contemporary Issues in Geography

- 3.1 Sustainable Development against poverty and population growth
- 3.2 Human impact on River Valley Planning and Big dams.
- 3.3 Degradation of Forest and Bio-sphere, crisis in Biodiversity.
- 3.4 International policies on Environmental Protection and management

Reference books

1. Botkin, D.B., and Keller, E.A. (2013): Environmental Science, Wiley, New Delhi
2. Wright, R.T. and Boorse, D.F. (2011): Environmental Science: Toward A Sustainable Future, PHI Learning Private Limited, New Delhi
3. Bell, M.M. (2012): An Invitation To Environmental Sociology, Sage, New Delhi
4. Elliott, L. (2004): The Global Politics of the Environment, Palgrave Macmillan, New York
5. Strahler A.N. (1968) The Earth Sciences, Harper International Education, New York
6. Strahler A.N. and Strahler A.H. (1973) Environmental Geo Science, Hamilton, California, USA.
7. Savindra Singh (2004) Environmental Geography, Prayog Pustak Bhawan, Allahabad, India
8. Turk, Jonathan (1985): Introduction to Environmental Studies, Sounders College Publishing, Tokyo
9. Chattopadhyay, A. (2013): Poverty and Social Exclusion in India: Issues and Challenges, Rawat Publications, Jaipur
10. Sen, A. (2000): Social Exclusion: Concept, Application and Scrutiny, Social Development Papers No. 1, Office of Environment and Social
11. Development, Asian Development Bank, Manila

Development and Environment

Course Code- S.C GEO402C

Credit 4

Unit-1 Development and Related Environmental Issues

- 1.1 Perception of Environment under Rural and Urban constructs
- 1.2 Changing face of environmental constituent of Ecology
- 1.3 Productive Technology and Environmental change
- 1.4 Concept of Holistic Environment

Unit-2 Environmental Implications of Development Sectors

- 2.1 Environmental threats from agricultural and allied developments activities
- 2.2 Environmental implications of Industrial and Mining activities
- 2.3 Urban development and consequent environmental adverses
- 2.4 War and anthropogenic actions behind environmental degradation

Unit-3 Global to local wisdom against world environment degradation

- 3.1 UN effort in saving environment; Synergy between Economy and Environment
- 3.2 Debates on environmental sustainability: Developed and developing nations
- 3.3 National, Regional and local efforts towards “save environment call”
- 3.4 Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP)

Reference books

1. Beckerman Wilfred (2002), *A Poverty of Reason: Sustainable Development and Economic Growth*, The Independent Institute
2. Moskowitz Harvey S. (1981), *Illustrated Book of Development Definitions*, CUPR/Transaction
3. KebedeMessay(1994), *Meaning and Development*, Editions Rodopi
4. J.Krishnamurthy (2018), *Society, Environment and Development*, Notion Press
5. Stavros PouloupoulosVassilisInglezakis (2016), *Environment and Development*, 1st Edition, Basic Principles, Human Activities, and Environmental Implications, Elsevier
6. S.B. Verma and S. K. Singh (2005), *Environment Protection and Development*, S.R Publications

Fluvial Geomorphology

Course Code- S.C GEO403EA

Credit 4

Unit-1 Concepts and Models in Geomorphology

- 1.1 Introduction to Geomorphology as a science and its brief history; Developments of geomorphology in Europe and North America in last two centuries
- 1.2 Main branches of Geomorphology; Fundamental concept about Uniformitarianism and Neocatastrophism, Open and closed system, Equilibrium, Complex response and geomorphic thresholds.
- 1.3 Slope Evolution Models - King, Wood and Young
- 1.4 Drainage basin and network: Laws of drainage composition

Unit-2 Geomorphological Regions and Processes

- 2.1 Concept of Morphogenetic region
- 2.2 Morphological divisions of India and West Bengal.
- 2.3 River Channel: Processes and Form, Channel classification after Rosgen (1994)
- 2.4 Open channel hydraulics-Type of flows, regimes, stream energy

Unit-3 Applied Geomorphology

- 3.1 Geomorphic Hazards and their management
- 3.2 Anthropogenic Geomorphology - Humans as Geomorphic Agents
- 3.3 Geomorphologic Knowledge to Regional Planning, Road and Dam construction, Mining, Urbanization and Natural Hazards.
- 3.4 Quantitative Geomorphology: Methods and Applications; Applications of Remote Sensing and GIS techniques in Geomorphology

Reference books

1. Leopold, L. B., Wolman, M. G. and Miller, P. (1954) Fluvial processes in Geomorphology, Freeman and Co. San Francisco.
2. Schumm, S. A. (1977). Fluvial Systems. Wiley, New York.
3. Richards, K. (1982). River: Forms and processes in alluvial channels. Methuen and Co. London
4. Morisawa, M. (1985). Rivers: Forms and Processes, Longman
5. Dr. Kale, V. S. and Gupta, A. (2001). Introduction to Geomorphology, Orient Longman, Kolkata.
7. Selby, M. J. 1991: Earth's Changing Surface, Clarendon Press, London
8. Small, R.J. 1978: The Study of Landforms, Cambridge University Press, Cambridge.
9. Bloom, A.L. 1992: Geomorphology- Systematic Analysis of Late Cenozoic Landforms, Prentice Hall India, New Delhi.
10. Chorley, R.J. 1969: Introduction to Fluvial Processes, Methuen, London.
11. Morisowa, M. 1968: Streams, their Dynamics and Morphology, McGraw Hill, New York.

Regional Development and Planning

Course Code- S.C GEO403EC

Credit 4

Unit-1 Understanding Region and Regional Planning

1. Definition and Types of Regions, Hierarchy and classification of Regions
2. Concepts, Indices and methods of Regionalization, Economic Regionalization of India (P. Sengupta)
3. Planning Regions: Concept and Delimitation, Planning Regions of India (TCPO).
4. Traditional Models of regional growth and development: Growth Pole (Perroux) & Service Centre approach, Restow's Stages of growth, Polarisation & Trickle down (Hirschman), Spread & backwash (Myrdal) etc.

Unit-2 Regional Development Strategies

1. Regional Planning Approaches: sectoral and spatial planning, short – term and long term planning, Multi – level Planning and Decentralized Development Planning.
2. Regional Planning policies and strategies for backward area development: – Hill area, Tribal area Drought prone area and Flood-prone area planning programmes with problems and prospects.
3. Regional planning for agriculturally and industrially progressive regions.
4. Measures of regional development and methods of monitoring regional growth.

Unit-3 Regional Planning in India and West Bengal

1. Regional imbalances and inequalities in India and West Bengal.
2. Social dimensions of regional development in India.
3. Agricultural and Industrial policies for development of backward regions of West Bengal.
4. Institutional Managements and local Governance for regional development planning in West Bengal.
5. HDI and Recent approaches to regional development planning at state & district levels.

Reference Books

1. Bhatt, L.S. (1972): Regional Planning in India, Statistical Publishing Society, Calcutta.
2. Bhatt, L.S. et al. (ed.) (1982): Regional Inequalities in India, Society for the study of Regional Disparities, New Delhi.
3. Blunder. J. et al. (1973): Regional Analysis and Development, Harper & Row, London.
4. Chand, M. and Puri, V.K. (1985): Regional Planning in India, Allied Pub., New Delhi.
5. Chandna, R.C. (2000): Regional Planning: A Comprehensive Text, Kalyani Publishers, New Delhi.
6. Chaudhuri, J.R. (2001): An Introduction to Development and Regional Planning with special reference to India, Orient Longman, Hyderabad.
7. Coates, B.R. and Johnston R.J. (1977): Geography and Inequality, Oxford University Press, Oxford.
8. Cowen, M.P. and Shenton, R.W. (1996): Doctrines of Development, Routledge, London.
9. Doyle, T. and McEachern, D. (1998): Environment and Politics, Routledge, London.
10. Friedmann, J. (1992): Empowerment: The Politics of Alternative Development, Blackwell, Cambridge MA.
11. Friedmann, J. and Alonso, W. (ed.) (1973): Regional Development and Planning, MIT Press, Cambridge Massachese.
12. Mishra R.P Regional Planning, Concept Publishing Company, New Delhi.