

## Post Graduate Programme Structure

Post graduate programme comprising two years, will be divided into 4(four) semesters each of six month duration.

year	semesters	
First year	Semester I	Semester II
Second year	Semester III	Semester IV

The detailed of title of papers, credit hours, division of marks etc. of all the papers of all semester is given below.

### Part-1: Semester-I

Papers		Marks		Total Marks	Duration (Hrs)	Credit Hours
Paper No	Title	Mid Term	End Term			
101	Geographical Thought	20	80	100	3	4
102	Advanced Geomorphology	20	80	100	3	4
103	Geography of India	20	80	100	3	4
104	Climatology	20	80	100	3	4
105	Map making and map projection(Practical)			100	3	4
Total				500		20

### Part-I: Semester-II

Papers		Marks		Total Marks	Duration (Hrs)	Credit Hours
Paper No	Title	Mid Term	End Term			
201	Oceanography	20	80	100	3	4
202	Economic Geography	20	80	100	3	4
203	Population Geography	20	80	100	3	4
204	Biogeography	20	80	100	3	4
205	Field survey & models (Practical)			100	3	4
DSE Papers*						
206 A	Geography of Tourism	20	80	100	3	4
206 B	Geography of Odisha	20	80	100	3	4
206 C	Remote Sensing Basic	20	80	100	3	4
Total				600		24

\*Discipline Specific Elective Paper. Any one paper can be opted by students of this Department. Minimum student strength to run the course in each elective paper should be 8.

**Part-II: Semester-III**

Papers		Marks		Total Marks	Duration (Hrs)	Credit Hours
Paper No	Title	Mid Term	End Term			
301	Resource Geography	20	80	100	3	4
302	Settlement Geography	20	80	100	3	4
303	Cartography & Statistical Methods	20	80	100	3	4
304	Political Geography	20	80	100	3	4
305	Statistical methods use in geography (Practical)			100	3	4
IDSE Papers*						
306 A	Introduction to Geography	20	80	100	3	4
306 B	Human Geography	20	80	100	3	4
306 C	Economic Geography	20	80	100	3	4
Total				600		24

\*\*inter discipline specific elective paper. Any one paper can be opted by students of other departments.

**Part-II: Semester-IV**

Papers		Marks		Total Marks	Duration (Hrs)	Credit Hours
Paper No	Title	Mid Term	End Term			
401	Social and Cultural Geography	20	80	100	3	4
402	Environmental Geography	20	80	100	3	4
403	Regional Development And Planning	20	80	100	3	4
404	Urban Geography	20	80	100	3	4
405	Project work report and VIVA VOCE (practical papers)		50+50	100	3	4
Total				500		20
<b>22 papers</b>	<b>Grand Total</b>			<b>2200</b>		<b>88</b>

**SEMESTER - I**  
**GEOGRAPHY GEO – 101**  
**Geographical Thought**  
**Credit = 4**

**F.M. = 100(Mid Term:20+Term End:80)**

**Unit 1:**

Meaning, Philosophy & Purpose of Geography; Place of Geography in classification of science; Changing paradigm – Environmental determinism, Possibilism, Aerial differentiation, Spatial Organisation ; Dualism- Systematic vs Regional, Physical vs Human

**Unit 2:**

Human-Environment Interaction; Geographic knowledge in ancient & medieval period; Contribution of German, French, British and American School.

**Unit 3:**

Contemporary Trends: Quantitative & Qualitative Assessment; Behaviouralism; Radicalism; Humanism; Structuralism & Post Structuralism; Modernism & Postmodernism.

**Unit 4:**

Future of Geography: Changing nature, concepts, approaches & methodologies of geography in globalizing world. Progress & Contribution of Indian Geographies.

**Reading List**

1. Arentsen M., Stam R. and Thuijjs R., 2000: *Post-modern Approaches to Space*, ebook.
2. Bhat, L.S. (2009) *Geography in India (Selected Themes)*. Pearson
3. Bonnett A., 2008: *What is Geography?* Sage.
4. Clifford, N.J (2002) – The Future of Geography, *GEOFORUM*, Vol.33, pp 431-436
5. Dikshit R. D., 1997: *Geographical Thought: A Contextual History of Ideas*, Prentice– Hall India.
6. Hartshorn R., 1959: *Perspectives of Nature of Geography*, Rand MacNally and Co.
7. Holt-Jensen A., 2011: *Geography: History and Its Concepts: A Students Guide*, SAGE.
8. Johnston R. J., (Ed.): *Dictionary of Human Geography*, Routledge.
9. Johnston R. J., 1997: *Geography and Geographers, Anglo-American Human Geography since 1945*, Arnold, London.
10. Kapur A., 2001: *Indian Geography Voice of Concern*, Concept Publications.
11. Martin Geoffrey J., 2005: *All Possible Worlds: A History of Geographical Ideas*, Oxford.
12. Soja, Edward 1989. *Post-modern Geographies*, Verso, London. Reprinted 1997: Rawat Publ., Jaipur and New Delhi.

**GEOGRAPHY GEO – 102**  
**Advance Geomorphology**  
**Credit = 4**  
**F.M. = 100(Mid Term:20+Term End:80)**

**Unit 1:**

Fundamental Concepts; Exogenetic & Endogenetic forces; Geographical cycle of erosion of Davis, Penck's model of cycle of erosion; Interruption in cycle of erosion; Rejuvenation.

**Unit 2:**

Continental Drift Theory of A.Wegner; Plate tectonic; Meaning and types of Geosyncline; Geosyncline orogeny theory of Kober; Slope forms.

**Unit 3:**

Major drainage Systems – Sequent Drainage, Insequent Drainage; Morphometric Laws of drainage basin- Stream order, Stream length, Drainage density; Drainage Pattern.

**Unit 4:**

Landforms associated with fluvial, glacial, arid and karst cycle; Pseudovolcanic features; Applied Geomorphology.

**Reading List**

1. Bloom A. L., 2003: *Geomorphology: A Systematic Analysis of Late Cenozoic Landforms*, Prentice-Hall of India, New Delhi.
2. Bridges E. M., 1990: *World Geomorphology*, Cambridge University Press, Cambridge.
3. Christopherson, Robert W., (2011), *Geosystems: An Introduction to Physical Geography*, 8 Ed., Macmillan Publishing Company
4. Kale V. S. and Gupta A., 2001: *Introduction to Geomorphology*, Orient Longman, Hyderabad.
5. Knighton A. D., 1984: *Fluvial Forms and Processes*, Edward Arnold Publishers, London.
6. Richards K. S., 1982: *Rivers: Form and Processes in Alluvial Channels*, Methuen, London.
7. Selby, M.J., (2005), *Earth's Changing Surface*, Indian Edition, OUP
8. Skinner, Brian J. and Stephen C. Porter (2000), *The Dynamic Earth: An Introduction to physical Geology*, 4th Edition, John Wiley and Sons
9. Thornbury W. D., 1968: *Principles of Geomorphology*, Wiley.
10. Gautam, A (2010): *Bhautik Bhugol*, Rastogi Publications, Meerut
11. Tikkaa, R N (1989): *Bhautik Bhugol ka Swaroop*, Kedarnath Ram Nath, Meerut
12. Singh, S (2009): *Bhautik Bhugol ka Swaroop*, Prayag Pustak, Allahabad
13. Singh, S (2009): *Physical Geography*, Prayag Pustak, Allahabad
14. Starhler & Strahler:  
Advanced Physical Geography. John.Wiley, N.York
15. Wooldridge &  
Morgan(1968) – Principle of Geomorphology.

**GEOGRAPHY GEO – 103**  
**Geography of India**  
**Credit = 4**  
**F.M. = 100(Mid Term:20+Term End:80)**

**Unit 1:**

Physiographic division; Soil distribution; Vegetation types and region; Climate in India.

**Unit 2:**

Population; Distribution and Growth; Religion; Language; Tribe; Caste System in India, Rural Settlement Pattern.

**Unit 3:**

Distribution and Utilisation of Coal, Iron ore, Bauxite, Petroleum, Natural Gas, Water Resources.

**Unit 4:**

Production and Distribution of Rice, Wheat, Cotton; Agroclimatic region; Major Industries – Iron and Steel, Aluminium Industry, Automobile, Cotton Textile Industry.

**Reading List**

1. Deshpande C. D., 1992: *India: A Regional Interpretation*, ICSSR, New Delhi.
2. Johnson, B. L. C., ed. 2001. *Geographical Dictionary of India*. Vision Books, New Delhi.
3. Mandal R. B. (ed.), 1990: *Patterns of Regional Geography – An International Perspective. Vol. 3 – Indian Perspective*.
4. Sdyasuk Galina and P Sengupta (1967): *Economic Regionalisation of India*, Census of India
5. Sharma, T. C. 2003: *India - Economic and Commercial Geography*. Vikas Publ., New Delhi.
6. Singh R. L., 1971: *India: A Regional Geography*, National Geographical Society of India.
7. Singh, Jagdish 2003: *India - A Comprehensive & Systematic Geography*, Gyanodaya Prakashan, Gorakhpur.
8. Spate O. H. K. and Learmonth A. T. A., 1967: *India and Pakistan: A General and Regional Geography*, Methuen.
9. Tirtha, Ranjit 2002: *Geography of India*, Rawat Publs., Jaipur & New Delhi.
10. Pathak, C. R. 2003: *Spatial Structure and Processes of Development in India*. Regional Science Assoc., Kolkata.
11. Tiwari, R.C. (2007) *Geography of India*. Prayag Pustak Bhawan, Allahabad
12. Sharma, T.C. (2013) *Economic Geography of India*. Rawat Publication, Jaipur

**GEOGRAPHY GEO – 104**  
**Climatology**  
**Credit = 4**  
**F.M. = 100(Mid Term:20+Term End:80)**

**Unit 1:**

Composition & Structure of Atmosphere; Chemical Composition of Atmosphere- Homosphere & Heterosphere; Factors affecting distribution of insolation; Heat Budget of Earth.

**Unit 2:**

Factors controlling distribution of temperature; Horizontal & Vertical Distribution of temperature; Temperature Inversion; Horizontal distribution of pressure & pressure belt; Effect of Coriolis force on wind; Planetary Wind, Jet stream, Monsoon.

**Unit 3:**

Water Vapour and Evaporation; Condensation; Absolute Humidity, relative Humidity, Specific Humidity; Classification of Cloud; Types of Rainfall.

**Unit 4:**

Meaning properties and source of Airmass; Fronts and Classification; Tropical and Extra Tropical Cyclone; Koeppen's and Thornthwaite's Classification of Climate.

**Reading List**

1. Barry R. G. and Carleton A. M., 2001: *Synoptic and Dynamic Climatology*, Routledge, UK.
2. Barry R. G. and Corley R. J., 1998: *Atmosphere, Weather and Climate*, Routledge, New York.
3. Critchfield H. J., 1987: *General Climatology*, Prentice-Hall of India, New Delhi
4. Lutgens F. K., Tarbuck E. J. and Tasa D., 2009: *The Atmosphere: An Introduction to Meteorology*, Prentice-Hall, Englewood Cliffs, New Jersey.
5. Oliver J. E. and Hidore J. J., 2002: *Climatology: An Atmospheric Science*, Pearson Education, New Delhi.
6. Trewartha G. T. and Horne L. H., 1980: *An Introduction to Climate*, McGraw-Hill.
7. Gupta L S(2000): *Jalvayu Vigyan*, Hindi Madhyam Karyanvay Nidishalya, Delhi Vishwa Vidhyalaya, Delhi
8. Lal, D S (2006): *Jalvayu Vigyan*, Prayag Pustak Bhavan, Allahabad
9. Vatal, M (1986): *Bhautik Bhugol*, Central Book Depot, Allahabad
10. Singh, S (2009): *Jalvayu Vigyan*, Prayag Pustak Bhawan, Allahabad

**GEOGRAPHY GEO – 105**  
**Map Making and Map Projection (Practical)**  
**Credit = 4**  
**F.M. = 100**

**Unit 1:**

Visual variables & Symbols – Use of point, line area symbols in map, Map design.

**Unit 2:**

Isopleth, Choropleth maps – Distribution map of population using single dot, multiple dots, Traffic flow cartogram, Isotherm map.

**Unit 3:**

Drawing of Lorenz curve; Climograph, Hydrograph, Ergograph.

**Unit 4:**

Classification and properties of Map Projection; Construction of Conical projection with one standard & two standard parallel, Gromonic projection, Stereographic projection, Universal Transverse Mercator's projection (UTM).

Practical Record & Viva voce (20% of Total Marks)

**Reading List**

1. Anson R. and Ormeling F. J., 1994: *International Cartographic Association: Basic Cartographic Vol.* Pergamon Press.
2. Cuff J. D. and Mattson M. T., 1982: *Thematic Maps: Their Design and Production*, Methuen Young Books
3. Dent B. D., Torguson J. S., and Holder T. W., 2008: *Cartography: Thematic Map Design* (6th Edition), McGraw-Hill Higher Education
4. Gupta K. K. and Tyagi V. C., 1992: *Working with Maps*, Survey of India, DST, New Delhi.
5. Kraak M.-J. and Ormeling F., 2003: *Cartography: Visualization of Geo-Spatial Data*, Prentice-Hall.
6. Mishra R. P. and Ramesh A., 1989: *Fundamentals of Cartography*, Concept, New Delhi.
7. Monkhouse F. J. and Wilkinson H. R., 1973: *Maps and Diagrams*, Methuen, London.
8. Sharma J. P., 2010: *Prayogic Bhugol*, Rastogi Publishers, Meerut.
9. Rhind D. W. and Taylor D. R. F., (eds.), 1989: *Cartography: Past, Present and Future*, Elsevier, International Cartographic Association.
10. Robinson A. H., 2009: *Elements of Cartography*, John Wiley and Sons, New York.
11. Singh R. L. and Singh R. P. B., 1999: *Elements of Practical Geography*, Kalyani Publishers.
12. Slocum T. A., McMaster R. B. and Kessler F. C., 2008: *Thematic Cartography and Geovisualization* (3rd Edition), Prentice Hall.
13. Tyner J. A., 2010: *Principles of Map Design*, The Guilford Press.
14. Sarkar, A. (2015) *Practical geography: A systematic approach*. Orient Black Swan Private Ltd., New Delhi
15. Sharma J. P., 2010: *Prayogic Bhugol*, Rastogi Publishers, Meerut.
16. Singh, L R & Singh R (1977): *Manchitra or Prayogamek Bhugol*, Central Book, Depot, Allahabad
17. Singh R. L. and Singh R. P. B., 1999: *Elements of Practical Geography*, Kalyani Publishers.
18. Bhopal Singh R L and Dutta P K (2012) *Prayogamek Bhugol*, Central Book Depot, Allahabad

**SEMESTER - II**  
**GEOGRAPHY GEO – 201**  
**Oceanography**  
**Credit = 4**

**F.M. = 100(Mid Term:20+Term End:80)**

**Unit 1:**

Relief of Ocean Basin- Shelf, Slope, Deep Sea Plain, Submarine Canyons; Bottom Relief of Atlantic, Pacific, Indian Ocean.

**Unit 2:**

Factors affecting horizontal distribution of temperature water; Controlling factors of density of sea water; Factors Controlling Variation of Salinity; Horizontal & Vertical distribution of Salinity.

**Unit 3:**

Types of tide; progressive Wave Theory & Equilibrium theory on tide; Factors related to ocean current; Currents of Atlantic, Pacific and Indian Ocean.

**Unit 4:**

Types of Coral reef & condition for growth of reef; Subsidence theory of Darwin, Standstill theory of Murray; Coral Bleaching; Marine resource and its types

**Reading List:**

- |    |  |        |     |      |
|----|--|--------|-----|------|
| 1. | Oceanography for Geographer, Chaintanya Publ. House. | Sharma | &   | Val: |
| 2. | Oceanography, Chaintany Publ. House.                 | Las,   | D.S | -    |



**GEOGRAPHY GEO – 202**  
**Economic Geography**  
**Credit = 4**  
**F.M. = 100(Mid Term:20+Term End:80)**

**Unit 1:**

Nature & Scope of Economic Geography; Sectors of economy – primary, Secondary, Tertiary and Quaternary; Natural Resource – Renewable, Non-Renewable resources; Factors Affecting location of Economic activities.

**Unit 2:**

Geographical factors influencing agriculture; World agricultural types; Delimitation of Agricultural regions; Crop combinations and diversification; Von-Thunen Model.

**Unit 3:**

Factors affecting location of industries; Classification of Industries, Weber's and Losch's approach Smith; Resource base of Industries and foot loose industries.

**Unit 4:**

Models of transportation; Accessibility and connectivity- Inter regional & Intra regional; Factors affecting international trade; Govt. Policies & trading restrictions; Rail transport- America, Europe, In former USSR; Inland waterways- Suez, Panama Canal, Great Lakes.

**Reading List**

1. Alexander J. W., 1963: *Economic Geography*, Prentice-Hall Inc., Englewood Cliffs, New Jersey.
2. Coe N. M., Kelly P. F. and Yeung H. W., 2007: *Economic Geography: A Contemporary Introduction*, Wiley-Blackwell.
3. Hodder B. W. and Lee Roger, 1974: *Economic Geography*, Taylor and Francis.
4. Combes P., Mayer T. and Thisse J. F., 2008: *Economic Geography: The Integration of Regions and Nations*, Princeton University Press.
5. Wheeler J. O., 1998: *Economic Geography*, Wiley..
6. Durand L., 1961: *Economic Geography*, Crowell.
7. Bagchi-Sen S. and Smith H. L., 2006: *Economic Geography: Past, Present and Future*, Taylor and Francis.
8. Willington D. E., 2008: *Economic Geography*, Husband Press.
9. Clark, Gordon L.; Feldman, M.P. and Gertler, M.S., eds. 2000: *The Oxford*

## **GEOGRAPHY GEO – 203**

### **Population Geography**

**Credit = 4**

**F.M. = 100(Mid Term:20+Term End:80)**

#### **Unit 1:**

Nature and scope of population geography; Sources of population data in India- Census, NPR (National Population Register), National Sample Survey; UID; Limitation of census; Population data from UN publication.

#### **Unit 2:**

Factors affecting population distribution, world distribution of population; World population growth and density; Demographic transition theory; Concept of optimum population.

#### **Unit 3:**

Population dynamism: Determinants and measures of fertility, mortality and migration.

#### **Unit 4:**

Population composition (age, sex & occupation); Population problems of third world countries; Aging population problems; Population policies of more developed countries and less developed countries.

#### **Reading List**

1. Barrett H. R., 1995: *Population Geography*, Oliver and Boyd.
2. Bhende A. and Kanitkar T., 2000: *Principles of Population Studies*, Himalaya Publishing House.
3. Chandna R. C. and Sidhu M. S., 1980: *An Introduction to Population Geography*, Kalyani Publishers.
4. Clarke J. I., 1965: *Population Geography*, Pergamon Press, Oxford.
5. Jones, H. R., 2000: *Population Geography*, 3<sup>rd</sup> ed. Paul Chapman, London.
6. Lutz W., Warren C. S. and Scherbov S., 2004: *The End of the World Population Growth in the 21st Century*, Earthscan
7. Newbold K. B., 2009: *Population Geography: Tools and Issues*, Rowman and Littlefield Publishers.
8. Pacione M., 1986: *Population Geography: Progress and Prospect*, Taylor and Francis.
9. Wilson M. G. A., 1968: *Population Geography*, Nelson.
10. Panda B P (1988): *Janasankya Bhugol*, M P Hindi Granth Academy, Bhopal
11. Maurya S D (2009) *Jansankya Bhugol*, Sharda Putak Bhawan, Allahabad
12. Chandna, R C (2006), *Jansankhya Bhugol*, Kalyani Publishers, Delhi

**GEOGRAPHY GEO – 204**  
**Bio Geography**  
**Credit = 4**  
**F.M. = 100(Mid Term:20+Term End:80)**

**Unit 1:**

Meaning and Concept of Bio-geography; Components of Biosphere; Meaning & concept of ecosystem; Types of ecosystem; Functioning of ecosystem.

**Unit 2:**

Trophic level; Food chain; Food web; Energy flow; Geo-biochemical cycle; Hydrological cycle; Carbon cycle; Nitrogen cycle.

**Unit 3:**

Physical factors influencing world distribution of plant; Distribution of terrestrial plants; Distribution of land animals; Forest Biomes: Tropical Evergreen, Monsoon, Savanna Biome, Marine Biome.

**Unit 4:**

Types of Environmental Hazards and disaster; Depletion of Bio-diversity through natural and man induced causes; Types of environmental degradation; Biosphere reserve programme of UNESCO.

**Reading List:**

1. Physical Geography; Prayag Pustak; N.Delhi. Singh, S (2009) –
2. Environmental Geography; Prayag Pustak, N.Delhi. Singh, S (1997) –
3. Fundamental of Ecology; Lineage l2earning Indian. Odum, E.P (2005) -

**GEOGRAPHY GEO – 205**  
**Field Survey and Models (Practical)**  
**Credit = 4**  
**F.M. = 100**

**Unit 1:**

Survey :- Plane Table Survey; Radiation and Intersection; Prismatic Compass Survey; Use of Theodolite.

**Unit 2:**

Morphometric analysis: Stream Order, Stream Length, Drainage Density.

**Unit 3:**

Drawing of Choropleth & Isoleth map, Population Interaction model; Transport network analysis; Alpha, Beta and Gamma indices.

**Unit 4:**

Seminar (20 marks)

Record and viva carry 20% of total marks.

**Reading List**

1. Anson R. and Ormeling F. J., 1994: *International Cartographic Association: Basic Cartographic Vol.* Pregmen Press.
2. Cuff J. D. and Mattson M. T., 1982: *Thematic Maps: Their Design and Production*, Methuen Young Books
3. Dent B. D., Torguson J. S., and Holder T. W., 2008: *Cartography: Thematic Map Design* (6th Edition), McGraw-Hill Higher Education
4. Gupta K. K. and Tyagi V. C., 1992: *Working with Maps*, Survey of India, DST, New Delhi.
5. Kraak M.-J. and Ormeling F., 2003: *Cartography: Visualization of Geo-Spatial Data*, Prentice-Hall.
6. Mishra R. P. and Ramesh A., 1989: *Fundamentals of Cartography*, Concept, New Delhi.
7. Monkhouse F. J. and Wilkinson H. R., 1973: *Maps and Diagrams*, Methuen, London.
8. Sharma J. P., 2010: *Prayogic Bhugol*, Rastogi Publishers, Meerut.
9. Rhind D. W. and Taylor D. R. F., (eds.), 1989: *Cartography: Past, Present and Future*, Elsevier, International Cartographic Association.
10. Robinson A. H., 2009: *Elements of Cartography*, John Wiley and Sons, New York.
11. Singh R. L. and Singh R. P. B., 1999: *Elements of Practical Geography*, Kalyani Publishers.
12. Slocum T. A., McMaster R. B. and Kessler F. C., 2008: *Thematic Cartography and Geovisualization* (3rd Edition), Prentice Hall.
13. Tyner J. A., 2010: *Principles of Map Design*, The Guilford Press.
14. Sarkar, A. (2015) *Practical geography: A systematic approach*. Orient Black Swan Private Ltd., New Delhi
15. Sharma J. P., 2010: *Prayogic Bhugol*, Rastogi Publishers, Meerut.
16. Singh, L R & Singh R (1977): *Manchitra or Paryaogatamek Bhugol* , Central Book, Depot, Allahabad
17. Singh R. L. and Singh R. P. B., 1999: *Elements of Practical Geography*, Kalyani Publishers.
18. Bhopal Singh R L and Dutta P K (2012) *Prayogatama Bhugol*, Central Book Depot, Allahabad

**DISCIPLINE SPECIFIC ELECTIVE PAPERS**  
**GEOGRAPHY DSE-GEO – 206 A**  
**Geography of Tourism**  
**Credit = 4**  
**F.M. = 100(Mid Term:20+Term End:80)**

**Unit 1:**

Meaning and nature of tourism; Basic element & component of tourism, Growth of travel in ancient period: Accounts of favourite travelers, Pleasure travel, Religion as motivator; Industrial revolution and development of travel; Causes of rapid growth of tourism in post world war period; Factors influencing growth of tourism.

**Unit 2:**

Types of tourism- Cultural, Adventure, National and international; The National Tourist Organization and its function; Infrastructure and support system; Tourist accommodation; role of Travel Agencies.

**Unit 3:**

Tourism marketing concept, Special features of tourist marketing; Information technology in tourism, Computer reservation system in ticket booking in railways, airways, hotels; Recent trend of tourism.

**Unit 4:**

Impact of tourism in economy, environment, society; Tourism industry; Tourist destination in India and Odisha: Major religious places, Hillstation in India, Coastal beach, Places of ecotourism in India; Role of ITDC & World Tourism Organization.

**Reading List**

1. Dhar, P.N. (2006) International Tourism: Emerging Challenges and Future Prospects. Kanishka, New Delhi.
2. Hall, M. and Stephen, P. (2006) Geography of Tourism and Recreation – Environment, Place and Space, Routledge, London.
3. Kamra, K. K. and Chand, M. (2007) Basics of Tourism: Theory, Operation and Practise, Kanishka Publishers, Pune.
4. Page, S. J. (2011) Tourism Management: An Introduction, Butterworth-Heinemann-USA. Chapter 2.
5. Raj, R. and Nigel, D. (2007) Morpeth Religious Tourism and Pilgrimage Festivals Management: An International perspective by, CABI, Cambridge, USA, [www.cabi.org](http://www.cabi.org).
6. Tourism Recreation and Research Journal, Center for Tourism Research and Development, Lucknow
7. Singh Jagbir (2014) “Eco-Tourism” Published by - I.K. International Pvt. Ltd. S-25, Green Park Extension, Uphaar Cinema Market, New Delhi, India ([www.ikbooks.com](http://www.ikbooks.com)).

**GEOGRAPHY DSE-GEO – 206 B**  
**Geography of Odisha**  
**Credit = 4**  
**F.M. = 100(Mid Term:20+Term End:80)**

**Unit 1:**

Location; Physiography of Odisha, Drainage.

**Unit 2:**

Climate, Soil, Natural Vegetation

**Unit 3:**

Production and distribution of rice, pulses, oilseed; Agricultural problems in Odisha.

**Unit 4:**

Population distribution, growth; Development of Roadways; Major Religious cultural and natural tourist spots in Odisha: Puri, Konark, Similipal, Huma

**Reading List**

1. Roy, G.C.- Geography of Orissa, Kalyani Publication
2. Sinha, B. N.- Geography of Orissa, NBT Publication

# **GEOGRAPHY DSE-GEO – 206 C**

## **Remote Sensing Basic**

**Credit = 4**

**F.M. = 100(Mid Term:20+Term End:80)**

### **Unit 1:**

Defining remote sensing; Advantages, limitation and principles of remote sensing; wave model in Electromagnetic Radiation; Remote sensing and Electromagnetic Spectrum.

### **Unit 2:**

Remote sensing sensors: satellites and sensors on ground, in air, in space; remote sensing system- and scanning system.

### **Unit 3:**

Aerial photography: meaning, elements of air photo-(A) basic-1st order: location, resolution  
(B) 2nd order; geometric (spatial) arrangement  
(C) 3rd order: Locational or positional elements

### **Unit 4:**

Remote sensing application: multiple sources of information; application-land cover and land use; Agriculture; Crop monitoring and damage assessment; Forestry; Hydrological phenomena; Ocean and Coastal monitoring.

### **Reading List**

1. Campbell, J.B (1987)-Introduction to Remote Sensing, the Guilford Press, New York.
2. Fazal.S (2012)-Remote Sensing Basic, Kalyani Publisher, New Delhi.
3. Hord, R.M (1986)-Remote Sensing: Methods and Application, Wiley New York.
4. Lillesand, T.M & R.Keifa (1994)-Remote Sensing and Image Interpretation, Jhon Wiley and Sons, Inc Toronto.

**SEMESTER - III**  
**GEOGRAPHY GEO – 301**

**Resource Geography**

**Credit = 4**

**F.M. = 100(Mid Term:20+Term End:80)**

**Unit 1:**

Meaning & Concept of resource; Classification of resource; Resource aspect- Natural, Human and Cultural dynamism of Resource base; Role of technology in resource development, Resource appraisal.

**Unit 2:**

Soil Resource: Factors affecting soil formation, soil profile, soil classification; Water resource: surface water resource- inland and oceanwater resource and utilization; Forest Resource: Factors of vegetation growth; Types of natural vegetation- Forest, grassland, desert vegetation- Forestry and lumbering; Energy Resource: Distribution of coal, petroleum & natural gas in world; Mineral Resource: Distribution of Iron ore, Bauxite in world.

**Unit 3:**

Concept of resource conservation; Soil erosion and conservation, conservation of forest, conservation of water resource, conservation of mineral resources, concept of sustainable development, resource scarcity hypothesis

**Unit 4:**

Resource region of the world, Natural hazards and impact of resource, concept and approach to natural resource management.

**Reading List**

1. Cutter S. N., Renwick H. L. and Renwick W., 1991: *Exploitation, Conservation, Preservation: A Geographical Perspective on Natural Resources Use*, John Wiley and Sons, New York.
2. Gadgil M. and Guha R., 2005: *The Use and Abuse of Nature: Incorporating This Fissured Land: An Ecological History of India and Ecology and Equity*, Oxford University Press. USA.
3. Holechek J. L. C., Richard A., Fisher J. T. and Valdez R., 2003: *Natural Resources: Ecology, Economics and Policy*, Prentice Hall, New Jersey.
4. Jones G. and Hollier G., 1997: *Resources, Society and Environmental Management*, Paul Chapman, London.
5. Klee G., 1991: *Conservation of Natural Resources*, Prentice Hall, Englewood.
6. Mather A. S. and Chapman K., 1995: *Environmental Resources*, John Wiley and Sons, New York.
7. Mitchell B., 1997: *Resource and Environmental Management*, Longman Harlow, England.
8. Owen S. and Owen P. L., 1991: *Environment, Resources and Conservation*, Cambridge University Press, New York.
9. Rees J., 1990: *Natural Resources: Allocation, Economics and Policy*, Routledge. London



**GEOGRAPHY GEO – 302**  
**Settlement Geography**  
**Credit = 4**  
**F.M. = 100(Mid Term:20+Term End:80)**

**Unit 1:**

Definition, scope & approach in settlement geography; Settlement size, site & situation; Evolution of settlement; Human settlement system; Settlement studies in India; Significance of settlement studies.

**Unit 2:**

Rural settlement: Origin, site, situation and size of rural settlement; Types & pattern: Factors responsible for dispersion of settlement.

**Unit 3:**

Urban settlement: Origin and growth of urbanization; Classification of town by Houston; Sjoberg & Mumford; Urban Functions, Functional classification of town; Metropolis, Megalopolis, Conurbation, Concept of Smart City & just cities, Urban Administration.

**Unit 4:**

Models of city structure- Concentric zone, sector model & Multinuclei Theory; Christaller central place theory; Rank-size rule Rur-Urban fringe; Primate city, Urnland.

**Reading List**

1. Fyfe N. R. and Kenny J. T., 2005: *The Urban Geography Reader*, Routledge.
2. Graham S. and Marvin S., 2001: *Splintering Urbanism: Networked Infrastructures, Technological Mobilities and the Urban Condition*, Routledge.
3. Hall T., 2006: *Urban Geography*, Taylor and Francis.
4. Kaplan D. H., Wheeler J. O. and Holloway S. R., 2008: *Urban Geography*, John Wiley.
5. Knox P. L. and McCarthy L., 2005: *Urbanization: An Introduction to Urban Geography*, Pearson Prentice Hall New York.
6. Knox P. L. and Pinch S., 2006: *Urban Social Geography: An Introduction*, Prentice-Hall.
7. Pacione M., 2009: *Urban Geography: A Global Perspective*, Taylor and Francis.
8. Sassen S., 2001: *The Global City: New York, London and Tokyo*, Princeton University Press.
9. Ramachandran R (1989): *Urbanisation and Urban Systems of India*, Oxford University Press, New Delhi
10. Ramachandran, R., 1992: *The Study of Urbanisation*, Oxford University Press, Delhi
11. Singh, R.B. (Eds.) (2001) *Urban Sustainability in the Context of Global Change*, Science Pub., Inc., Enfield (NH), USA and Oxford & IBH Pub., New Delhi.
12. Singh, R.B. (Ed.) (2015) *Urban development, challenges, risks and resilience in Asian megacities*. *Advances in Geographical and Environmental Studies*, Springer

**GEOGRAPHY GEO – 303**  
**Cartography and Statistical Methods**  
**Credit = 4**  
**F.M. = 100(Mid Term: 20+Term End: 80)**

**Unit 1:**

Map as a tool in geographical study; Map classification; Techniques to study spatial pattern of distribution: Single purpose & composite purpose maps.

**Unit 2:**

Types of Maps: Choropleth, Isopleth, Chorochromatic maps; Bar & Pie diagram in maps- Accessibility and Flow maps; Remote sensing- Brief concept, GIS: Brief Concept; Thematic mapping in GIS.

**Unit 3:**

Statistical Methods: Measures of central tendency; Measures of dispersion, Simple Correlation, Regression: Lorenz Curve; Selection of class interval for mapping.

**Unit 4:**

Sampling techniques for geographical analysis; Scaling techniques-rank score; Weighted score; Nearest-neighbour analysis.

**Reading List**

1. Cuff J. D. and Mattson M. T., 1982: *Thematic Maps: Their Design and Production*, Methuen Young Books
2. Dent B. D., Torguson J. S., and Holder T. W., 2008: *Cartography: Thematic Map Design* (6th Edition), Mcgraw-Hill Higher Education
3. Gupta K. K. and Tyagi V. C., 1992: *Working with Maps*, Survey of India, DST, New Delhi.
4. Kraak M.-J. and Ormeling F., 2003: *Cartography: Visualization of Geo-Spatial Data*, Prentice-Hall.
5. Mishra R. P. and Ramesh A., 1989: *Fundamentals of Cartography*, Concept, New Delhi.
6. Sharma J. P., 2010: *Prayogic Bhugol*, Rastogi Publishers, Meerut.
7. Singh R. L. and Singh R. P. B., 1999: *Elements of Practical Geography*, Kalyani Publishers.
8. Slocum T. A., McMaster R. B. and Kessler F. C., 2008: *Thematic Cartography and Geovisualization* (3rd Edition), Prentice Hall.
9. Tyner J. A., 2010: *Principles of Map Design*, The Guilford Press.
10. Sarkar, A. (2015) *Practical geography: A systematic approach*. Orient Black Swan Private Ltd., New Delhi
11. Singh, L R & Singh R (1977): *Manchitra or Paryaogatamek Bhugol* , Central Book, Depot, Allahabad
12. Bhopal Singh R L and Duttta P K (2012) *Prayogatama Bhugol*, Central Book Depot, Allahabad

**GEOGRAPHY GEO – 304**  
**Political Geography**  
**Credit = 4**  
**F.M. = 100(Mid Term: 20+Term End: 80)**

**Unit 1**

Nature & Scope; Scientific determinism and social darwinism of post-Riterran geography; Ratzel's contribution to scientific political geography and laws of spatial growth of state; German Geopolitik.

**Unit 2:**

Concept of nation and nation building; concept of state as political and territorial phenomena' Boundaries classification; Distinction between frontiers and boundaries.

**Unit 3:**

Geostrategic ideas of Mohan; Hartland theory of Mckinder; Rimland of Spykeman; Contemporary relevance of Heartland.

**Unit 4:**

Geography of federalism, Geographers and federalism; Nature of administrative area; Geography of public policy and finance; Politics of world resource. Boundary disputes at International & National level.

**Reading List**

1. Agnew J., 2002: *Making Political Geography*, Arnold.
2. Agnew J., Mitchell K. and Toal G., 2003: *A Companion to Political Geography*, Blackwell.
3. Cox K. R., Low M. and Robinson J., 2008: *The Sage Handbook of Political Geography*, Sage Publications.
4. Cox K., 2002: *Political Geography: Territory, State and Society*, Wiley-Blackwell
5. Gallaher C., et al, 2009: *Key Concepts in Political Geography*, Sage Publications.
6. Glassner M., 1993: *Political Geography*, Wiley.
7. Jones M., 2004: *An Introduction to Political Geography: Space, Place and Politics*, Routledg .
8. Mathur H M and M M Cernea (eds.) Development, Displacement and Resettlement – Focus on Asian Experience, Vikas, Delhi
9. Painter J. and Jeffrey A., 2009: *Political Geography*, Sage Publications.
10. Taylor P. and Flint C., 2000: *Political Geography*, Pearson Education.
11. Verma M K (2004): Development, Displacement and Resettlement, Rawat Publications, Delhi
12. Hodder Dick, Sarah J Llyod and Keith S McLachlan (1998), *Land Locked States of Africa and Asia* (vo.2), Frank Cass

**GEOGRAPHY GEO – 305**  
**Statistical Method Use in Geography (Practical)**  
**Credit = 4**  
**F.M. = 100**

**Unit 1:**

Drawing of histogram, Frequency curve, Frequency polygon, Bar diagram, Ogive.

**Unit 2:**

Measurement of Mean, Median and mode, Quartile.

**Unit 3:**

Standard Deviation, Mean Deviation, Coefficient of Variation

**Unit 4:**

Rank correlation, Product moment correlation.

Practical record and viva carry 20% of marks.

**Reading List**

1. Berry B. J. L. and Marble D. F. (eds.): *Spatial Analysis – A Reader in Geography*.
2. Ebdon D., 1977: *Statistics in Geography: A Practical Approach*.
3. Hammond P. and McCullagh P. S., 1978: *Quantitative Techniques in Geography: An Introduction*, Oxford University Press.
4. King L. S., 1969: *Statistical Analysis in Geography*, Prentice-Hall.
5. Mahmood A., 1977: *Statistical Methods in Geographical Studies*, Concept.
6. Pal S. K., 1998: *Statistics for Geoscientists*, Tata McGraw Hill, New Delhi.
7. Sarkar, A. (2013) *Quantitative geography: techniques and presentations*. Orient Black Swan Private Ltd., New Delhi
8. Silk J., 1979: *Statistical Concepts in Geography*, Allen and Unwin, London.
9. Spiegel M. R.: *Statistics, Schaum's Outline Series*.
10. Yeates M., 1974: *An Introduction to Quantitative Analysis in Human Geography*, McGraw Hill, New York.
11. Shinha, Indira (2007) *Sankhyiki bhugol*. Discovery Publishing House, New Delhi

**INTER DISCIPLINE SPECIFIC ELECTIVE PAPERS**  
**GEOGRAPHY IDSE-GEO – 306 A**  
**Introduction to Geography**  
**Credit = 4**  
**F.M. = 100(Mid Term:20+Term End:80)**

**Unit 1:**

Internal structure of Earth- Crust, Mantle, Core; Rotation & Revolution of Earth; Origin of planets of solar system: Big Bang Theory, Tidal Theory.

**Unit 2:**

Composition and structure of atmosphere, Factors influencing temperature of Earth, Isotherm, Pressure Belt of earth, Planetary Wind, Local Wind.

**Unit 3:**

India: Location, Physical Division, Soil Natural Vegetation, Monsoon; Rice and wheat producing area.

**Unit 4:**

Odisha: Location; Physical Division, Soil, Natural Vegetation, Rice Cultivation & Production.

**Books For Reference:**

- |    |  |                 |
|----|--|-----------------|
| 1. | (1992) India: A Regional Interpretation, ICSSR, N.Delhi. | Deshpande, C.D  |
| 2. | (2009) – Physical Geography, Prayag Pustak, N.Delhi.     | Singh, Savinder |
| 3. | Geography of Orissa; NBT Pub.                            | Sinha, B.N –    |

**GEOGRAPHY IDSE-GEO – 306 B**  
**Human Geography**  
**Credit = 4**  
**F.M. = 100(Mid Term:20+Term End:80)**

**Unit 1:**

Nature & Scope of Human Geography, Meaning of Culture, Cultural Element, Cultural Region.

**Unit 2:**

Race , Religion, Language of World.

**Unit 3:**

Religion, Language of India, Types and pattern of rural settlement.

**Unit 4:**

Population Dynamism: Measures of fertility, mortality and migration.

**Reading List**

1. Chandna, R.C. (2010) Population Geography, Kalyani Publisher.
2. Hassan, M.I. (2005) Population Geography, Rawat Publications, Jaipur
3. Daniel, P.A. and Hopkinson, M.F. (1989) The Geography of Settlement, Oliver & Boyd, London.
4. Johnston R; Gregory D, Pratt G. et al. (2008) The Dictionary of Human Geography, Blackwell Publication.
5. Jordan-Bychkov et al. (2006) The Human Mosaic: A Thematic Introduction to Cultural Geography. W. H. Freeman and Company, New York.
6. Kaushik, S.D. (2010) Manav Bhugol, Rastogi Publication, Meerut.
7. Maurya, S.D. (2012) Manav Bhugol, Sharda Pustak Bhawan. Allahabad.
8. Hussain, Majid (2012) Manav Bhugol. Rawat Publications, Jaipur

**GEOGRAPHY IDSE-GEO – 306 C**  
**Economic Geography**  
**Credit = 4**  
**F.M. = 100(Mid Term:20+Term End:80)**

**Unit 1:**

Meaning and scope; Classification of economic activities.

**Unit 2:**

Primary activities: Types of Agriculture, Types of Forest of World, Commercial fishing in the bank and open sea fisheries of world.

**Unit 3:**

Importance and factors for location of iron and steel industries, cotton industries; Distribution of Automobile industry in USA and Europe.

**Unit 4:**

Classification of resource; Composition of soil, soil classification, utilization of inland water resource by man.

**Reading List**

1. Alexander J. W., 1963: *Economic Geography*, Prentice-Hall Inc., Englewood Cliffs, New Jersey.
2. Coe N. M., Kelly P. F. and Yeung H. W., 2007: *Economic Geography: A Contemporary Introduction*, Wiley-Blackwell.
3. Hodder B. W. and Lee Roger, 1974: *Economic Geography*, Taylor and Francis.
4. Combes P., Mayer T. and Thisse J. F., 2008: *Economic Geography: The Integration of Regions and Nations*, Princeton University Press.
5. Wheeler J. O., 1998: *Economic Geography*, Wiley..
6. Durand L., 1961: *Economic Geography*, Crowell.
7. Bagchi-Sen S. and Smith H. L., 2006: *Economic Geography: Past, Present and Future*, Taylor and Francis.
8. Willington D. E., 2008: *Economic Geography*, Husband Press.
9. Clark, Gordon L.; Feldman, M.P. and Gertler, M.S., eds. 2000: *The Oxford*

**SEMESTER - IV**  
**GEOGRAPHY GEO – 401**  
**Social and Cultural Geography**  
**Credit = 4**  
**F.M. = 100(Mid Term:20+Term End:80)**

**Unit 1:**

Nature & scope of Social Geography; Social structure; Social processes Social Geography in the realm of Social sciences; Nature of Social Geography- The Anglo American School

**Unit 2:**

Races of Mankind; Tribes and caste in India, Race in India, Language and religion in World and in India.

**Unit 3:**

Meaning and characteristics of society: Tribal society, Agrarian society, Industrial society; Community and its characteristics; Concept of Social wellbeing; Social problem of India- Poverty, Dowry system, Child labour.

**Unit 4:**

Nature & scope of cultural geography; Culture defined; Component and function of culture; Culture and Civilization; Factors contributing cultural diffusion; Major cultural regions of World.

**Reading List**

1. Ahmed A., 1999: *Social Geography*, Rawat Publications.
2. Casino V. J. D., Jr., 2009) *Social Geography: A Critical Introduction*, Wiley Blackwell.
3. Cater J. and Jones T., 2000: *Social Geography: An Introduction to Contemporary Issues*, Hodder Arnold.
4. Holt L., 2011: *Geographies of Children, Youth and Families: An International Perspective*, Taylor & Francis.
5. Panelli R., 2004: *Social Geographies: From Difference to Action*, Sage.
6. Rachel P., Burke M., Fuller D., Gough J., Macfarlane R. and Mowl G., 2001: *Introducing Social Geographies*, Oxford University Press.
7. Smith D. M., 1977: *Human geography: A Welfare Approach*, Edward Arnold, London.
8. Smith D. M., 1994: *Geography and Social Justice*, Blackwell, Oxford.
9. Smith S. J., Pain R., Marston S. A., Jones J. P., 2009: *The SAGE Handbook of Social Geographies*, Sage Publications.
10. Sopher, David (1980): *An Exploration of India*, Cornell University Press, Ithasa
11. Valentine G., 2001: *Social Geographies: Space and Society*, Prentice Hall.



**GEOGRAPHY GEO – 402**  
**Environmental Geography**  
**Credit = 4**  
**F.M. = 100(Mid Term:20+Term End:80)**

**Unit 1:**

Fundamentals of environment; components of environment, Environmental Geography- Concept, Significance, objective and scope; Man-environment relationship on historic perspective; Environmental deterministic approach; Possibilistic approach.

**Unit 2:**

Environment pollution; Sources of Water Pollution. Water Conservation Strategies; Air pollution and impact on health; Sources of Noise Pollution; Measure to control air pollution, solid waste pollution.

**Unit 3:**

Environmental Challenges: Climatic Change; Global Warming; Natural hazards- Flood, Earthquake, Tsunami.

**Unit 4:**

Environment and Legislation: Earth Summit 1992; Wild life protection act of India 1972, The environment protection act of 1986, national Environmental tribunal act of India 1995, Environment Impact Assessment ( EIA ).

**Reading List**

1. Chandna R. C., 2002: *Environmental Geography*, Kalyani, Ludhiana.
2. Cunningham W. P. and Cunningham M. A., 2004: *Principals of Environmental Science: Inquiry and Applications*, Tata Macgraw Hill, New Delhi.
3. Goudie A., 2001: *The Nature of the Environment*, Blackwell, Oxford.
4. Mal, Suraj., and Singh, R.B. (Eds.) (2009) *Biogeography and Biodiversity*. Rawat Publication, Jaipur
5. Miller G. T., 2004: *Environmental Science: Working with the Earth*, Thomson BrooksCole, Singapore.
6. MoEF, 2006: *National Environmental Policy-2006*, Ministry of Environment and Forests, Government of India.
7. Singh, R.B. and Hietala, R. (Eds.) (2014) *Livelihood security in Northwestern Himalaya: Case studies from changing socio-economic environments in Himachal Pradesh, India*. *Advances in Geographical and Environmental Studies*, Springer
8. Odum, E. P. et al, 2005: *Fundamentals of Ecology*, Ceneage Learning India.
9. Singh S., 1997: *Environmental Geography*, Prayag Pustak Bhawan. Allahabad.
10. UNEP, 2007: *Global Environment Outlook: GEO4: Environment For Development*, United Nations Environment Programme.
11. Singh, M., Singh, R.B. and Hassan, M.I. (Eds.) (2014) *Climate change and biodiversity: Proceedings of IGU Rohtak Conference, Volume 1*. *Advances in Geographical and Environmental Studies*, Springer

12. Singh, R.B. (1998) *Ecological Techniques and Approaches to Vulnerable Environment*, New Delhi, Oxford & IBH Pub..
13. Singh, Savindra 2001. *Paryavaran Bhugol*, Prayag Pustak Bhawan, Allahabad. (in Hindi)

**GEOGRAPHY GEO – 403**  
**Regional Development and Planning**  
**Credit = 4**  
**F.M. = 100(Mid Term:20+Term End:80)**

**Unit 1:**

Region Concept in Geography; Types region and method delineation of region; Concept of development; Indicators of development; Types of regional planning; Regional planning and its rationale, Principle & Objectives; Approaches on regional planning.

**Unit 2:**

Regional growth theories: Economic base theory; Input and Output model; Friedman's core-periphery theory; Polarisation and Trickle-down theory of Hirschman; Spread and Backwash theory of Myrdal, Growth pole theory of Perrany.

**Unit 3:**

Concept of development and underdevelopment; Need of Planning region; Characteristics of planning region; Hill region, tribal region; Multi level planning; City region concept.

**Unit 4:**

Regional planning in India: Regional imbalances/disparities; National capital region; planning policies for regional development.

**Reading List**

1. Blij H. J. De, 1971: *Geography: Regions and Concepts*, John Wiley and Sons.
2. Claval P.I, 1998: *An Introduction to Regional Geography*, Blackwell Publishers, Oxford and Massachusetts.
3. Friedmann J. and Alonso W. (1975): *Regional Policy - Readings in Theory and Applications*, MIT Press, Massachusetts.
4. Gore C. G., 1984: *Regions in Question: Space, Development Theory and Regional Policy*, Methuen, London.
5. Gore C. G., Köhler G., Reich U-P. and Ziesemer T., 1996: *Questioning Development; Essays on the Theory, Policies and Practice of Development Intervention*, Metropolis-Verlag, Marburg.
6. Haynes J., 2008: *Development Studies*, Polity Short Introduction Series.
7. Johnson E. A. J., 1970: *The Organization of Space in Developing Countries*, MIT Press, Massachusetts.
8. Peet R., 1999: *Theories of Development*, The Guilford Press, New York.
9. UNDP 2001-04: *Human Development Report*, Oxford University Press.
10. World Bank 2001-05: *World Development Report*, Oxford University Press, New

**GEOGRAPHY GEO – 404**  
**Urban Geography**  
**Credit = 4**  
**F.M. = 100(Mid Term:20+Term End:80)**

**Unit 1:**

Meaning, concept, scope; History of Urbanisation, Origin and evolution of towns (factors & stages of evolution) in India and World.

**Unit 2:**

Trends and pattern of urbanization in developed and developing countries, Urban economy, Types of urban morphology, Theories of urban morphological growth- Garrison Model, Colin Clark Model, Concentric Zone Theory, Sector Theory, Multiple Nuclei Theory.

**Unit 3:**

Functional classification of cities: Quantitative and Qualitative methods; Land use with reference to Delhi, Mumbai, Chandigarh.

**Unit 4:**

Urban poverty, social & physical infrastructure, Urban environment, Problems of housing, slum, civic amenities, pollution.

**Reading List**

1. Fyfe N. R. and Kenny J. T., 2005: *The Urban Geography Reader*, Routledge.
2. Graham S. and Marvin S., 2001: *Splintering Urbanism: Networked Infrastructures, Technological Mobilities and the Urban Condition*, Routledge.
3. Hall T., 2006: *Urban Geography*, Taylor and Francis.
4. Kaplan D. H., Wheeler J. O. and Holloway S. R., 2008: *Urban Geography*, John Wiley.
5. Knox P. L. and McCarthy L., 2005: *Urbanization: An Introduction to Urban Geography*, Pearson Prentice Hall New York.
6. Knox P. L. and Pinch S., 2006: *Urban Social Geography: An Introduction*, Prentice-Hall.
7. Pacione M., 2009: *Urban Geography: A Global Perspective*, Taylor and Francis.
8. Sassen S., 2001: *The Global City: New York, London and Tokyo*, Princeton University Press.
9. Ramachandran R (1989): *Urbanisation and Urban Systems of India*, Oxford University Press, New Delhi
10. Ramachandran, R., 1992: *The Study of Urbanisation*, Oxford University Press, Delhi
11. Singh, R.B. (Eds.) (2001) *Urban Sustainability in the Context of Global Change*, Science Pub., Inc., Enfield (NH), USA and Oxford & IBH Pub., New Delhi.
12. Singh, R.B. (Ed.) (2015) *Urban development, challenges, risks and resilience in Asian megacities*. *Advances in Geographical and Environmental Studies*, Springer

**Project Work Report and Viva-voce (Practical papers)**  
**Credit = 4**  
**F.M. = 50+50**