VIDYASAGAR UNIVERSITY

Curriculum for 3-Year BSc (General)
in

Geography

Under Choice Based Credit System (CBCS)
[w.e.f 2018-2019]

VIDYASAGAR UNIVERSITY

B Sc (General) in Geography

[Choice Based Credit System]

Year	Semester	Course Type	Course Code	Course Title	Credit	L-T-P	Marks		
1	I	SEMESTER-I					CA	ESE	Total
		Core-1 (DSC-1A)		Physical Geography	6	5-1-0	15	60	75
		Core-2 (DSC-2A)		Other Discipline/TBD	6	4-0-4/ 5-1-0	15	60	75
		Core-3 (DSC-3A)		Other Discipline/TBD	6	4-0-4/ 5-1-0	15	60	75
		AECC-1 (Elective)		English/MIL	2	1-1-0	10	40	50
		Semester - I : Total			**20**				**275**
	II	SEMESTER-II							
		Core-4 (DSC-1B)		Human Geography	6	5-1-0	15	60	75
		Core-5 (DSC-2B)		Other Discipline/TBD	6	4-0-4/ 5-1-0	15	60	75
		Core-6 (DSC-3B)		Other Discipline/TBD	6	4-0-4/ 5-1-0	15	60	75
		AECC-2 (Elective)		Environmental Studies	4		20	80	100
		Semester - 2 : Total			**22**				**325**

Year	Semester	Course Type	Course Code	Course Title	Credit	L-T-P	Marks		
2	III	SEMESTER-III					CA	ESE	Total
		Core-7 (DSC-1C)		Maps and Diagrams - **Lab**	6	4-0-4	15	60	75
		Core-8 (DSC-2C)		Other Discipline/TBD	6	4-0-4/ 5-1-0	15	60	75
		Core-9 (DSC-3C)		Other Discipline/TBD	6	4-0-4/ 5-1-0	15	60	75
		SEC-1		TBD	2	1-1-0/ 0-0-4/ 1-0-2	10	40	50
		Semester - 3 : Total			**20**				**275**
	IV	SEMESTER-IV							
		Core-10 (DSC-1D)		Environmental Geography	6	5-1-0	15	60	75
		Core-11 (DSC-2D)		Other Discipline/TBD	6	4-0-4/ 5-1-0	15	60	75
		Core-12 (DSC-3D)		Other Discipline/TBD	6	4-0-4/ 5-1-0	15	60	75
		SEC-2		TBD	2	1-1-0/ 0-0-4/ 1-0-2	10	40	50
		Semester - 4 : Total			**20**				**275**

Year	Semester	Course Type	Course Code	Course Title	Credit	L-T-P	Marks		
3	V	SEMESTER-V					CA	ESE	Total
		DSE-1A		Discipline-1(Geography)	6	4-0-4/ 5-1-0	15	60	75
		DSE-2A		Other Discipline/TBD	6	4-0-4/ 5-1-0	15	60	75
		DSE-3A		Other Discipline/TBD	6	4-0-4/ 5-1-0	15	60	75
		SEC-3		TBD	2	1-1-0/ 0-0-4/ 1-0-2	10	40	50
		Semester - 5 : Total			**20**				**275**
	VI	SEMESTER-VI							
		DSE-1B		Discipline-1(Geography)	6	4-0-4/ 5-1-0	15	60	75
		DSE-2B		Other Discipline/TBD	6	4-0-4/ 5-1-0	15	60	75
		DSE-3B		Other Discipline/TBD	6	4-0-4/ 5-1-0	15	60	75
		SEC-4		TBD	2	1-1-0/ 0-0-4/ 1-0-2	10	40	50
		Semester - 6 : Total			**20**				**275**
	Total in all semester:				**122**				**1700**

CC = Core Course , **AECC** = Ability Enhancement Compulsory Course , **GE** = Generic Elective , **SEC** = Skill Enhancement Course , **DSE** = Discipline Specific Elective , **CA** = Continuous Assessment , **ESE** = End Semester Examination , **TBD** = To be decided , **CT** = Core Theory, **CP**= Core Practical , **L** = Lecture, **T** = Tutorial ,**P** = Practical , **MIL** = Modern Indian Language , **ENVS** = Environmental Studies ,

List of Core Courses and Electives

Core Course (CC)

DSC-1A: Physical Geography
DSC-1B: Human Geography
DSC-1C: Maps and Diagrams
DSC-1D: Environmental Geography

Discipline Specific Electives (DSE)

DSE- 1: Geography of India
Or
DSE- 1: Disaster Management
Or
DSE- 1: Soil and Biogeography

DSE-2: Economic Geography
Or
DSE-2: Urban Geography
Or
DSE-2: Population Geography

Skill Enhancement Course (SEC)

SEC-1: Remote Sensing
Or
SEC-1: Geographic Information System

SEC-2: Regional Planning and Development
Or
SEC-2: Computer Basics

SEC-3: Remote Sensing and GPS based Project Report

SEC-4: Field Techniques and Survey based Project Report

Core Courses (CC)

DSC-1A (CC-1) : Physical Geography **Credits 06**

DSC1AT: Physical Geography

Course Contents:

1. Physical Geography – Definition and Scope, Components of Earth System.
2. Atmosphere – Heat Balance, Global Circulation Pattern, Tropical Cyclones, Monsoon, Climatic Classification (Koppen).
3. Lithosphere – Internal Structure of Earth based on Seismic Evidence, Plate Tectonics and its Associated Features.
4. Fluvial Cycle of Erosion – Davis and Penck.
5. Hydrosphere – Hydrological Cycle, Ocean Bottom Relief Features, Tides and Currents.

Suggested Readings:

- Conserva H. T., 2004: Illustrated Dictionary of Physical Geography, Author House, USA.
- Gabler R. E., Petersen J. F. and Trapasso, L. M., 2007: Essentials of Physical Geography (8th Edition), Thompson, Brooks/Cole, USA.
- Garrett N., 2000: Advanced Geography, Oxford University Press.
- Goudie, A., 1984: The Nature of the Environment: An Advanced Physical Geography, Basil Blackwell Publishers, Oxford.
- Hamblin, W. K., 1995: Earth's Dynamic System, Prentice Hall, N.J.
- Husain M., 2002: Fundamentals of Physical Geography, Rawat Publications, Jaipur.
- Monkhouse, F. J. 2009: Principles of Physical Geography, Platinum Publishers, Kolkata.
- Strahler A. N. and Strahler A. H., 2008: Modern Physical Geography, John Wiley & Sons, New York.

DSC-1B (CC-2): Human Geography **Credits 06**

DSC1BT: Human Geography

Course Contents:

1. Definition, Nature, Major Subfields, Contemporary Relevance.
2. Space and Society: Cultural Regions; Race; Religion and Language
3. Population: Population Growth and Demographic Transition Theory.
4. World Population Distribution and Composition (Age, Gender and Literacy).
5. Settlements: Types and Patterns of Rural Settlements; Classification of Urban Settlements; Trends and Patterns of World Urbanization

Suggested Readings:

- Chandna, R.C. (2010) Population Geography, Kalyani Publisher.
- Daniel, P.A. and Hopkinson, M.F. (1989) The Geography of Settlement, Oliver & Boyd, London.

- Johnston R; Gregory D, Pratt G. et al. (2008) The Dictionary of Human Geography, Blackwell Publication.
- Jordan-Bychkov et al. (2006) The Human Mosaic: A Thematic Introduction to Cultural Geography. W. H. Freeman and Company, New York.
- Kaushik, S.D. (2010) Manav Bhugol, Rastogi Publication, Meerut.
- Maurya, S.D. (2012) Manav Bhugol, Sharda Pustak Bhawan. Allahabad.
- Ghosh, S. (2015) Introduction to settlement geography. Orient Black Swan Private Ltd., Kolkata
- Hussain, Majid (2012) Manav Bhugol. Rawat Publications, Jaipur

DSC-1C (CC- 3): Maps and Diagrams **Credits 06**

DSC1CT: Maps and Diagrams **Credits 04**

Course Contents:

Unit-1: Scale and Cartograms

1. Maps – Types, Elements and Uses
2. Map Scale – Types and Application, Reading Distances on a Map.
3. Construction of Linear and Comparative (Unit)
4. Cartograms: Circle, Square and Pie graph
5. Age-Sex Pyramid, Dependency Ratio
6. Population Maps and Diagrams: Population Density by Choropleth, Distribution by Dot and Sphere.
7. Representation of Data – Symbols, Dots, Choropleth, Isopleth and Flow Diagrams, Interpretation of Thematic Maps.

Unit-2: Map Projections

1. Map Projections: Nature and Classification
2. Principles, Theories, Criteria for Choice of Projections; Construction and Properties of select Map Projections: Conical projection with two standard parallel, Cylindrical Equal Area, Polar Zenithal Stereographic, Zenithal Gnomonic Polar Case, Mercator's Projection, Bonne's Projection

Unit-3: Surveying

1. Concepts and Principles: Angles, Bearing and Azimuths, Traversing, Radiation, Intersection
2. Prismatic Compass: Preparation of landuse maps by open and closed traverse; computations of compass traverse- Included Angle, Area of traverse
3. Levelling by Dumpy Level: Profile

Suggested Readings:

- Anson R. and Ormelling F. J., 1994: International Cartographic Association: Basic Cartographic Vol. Pregmen Press.
- Gupta K.K. and Tyagi, V. C., 1992: Working with Map, Survey of India, DST, New Delhi.
- Mishra R.P. and Ramesh, A., 1989: Fundamentals of Cartography, Concept, NewDelhi.

- Monkhouse F. J. and Wilkinson H. R., 1973: Maps and Diagrams, Methuen, London.
- Rhind D. W. and Taylor D. R. F., (eds.), 1989: Cartography: Past, Present and Future, Elsevier, International Cartographic Association.
- Robinson A. H., 2009: Elements of Cartography, John Wiley and Sons, New York.
- Singh R. L. and Singh R. P. B., 1999: Elements of Practical Geography, Kalyani Publishers.
- Sarkar, A. (2015) Practical geography: A systematic approach. Orient Black Swan Private Ltd., New Delhi

DSC1DP: Cartographic Techniques (Lab) **Credits 02**

List of Practical

A Project File, comprising one exercise each is to be submitted

1. Graphical construction of scales: Plain, comparative
2. Construction of projections: Polar Zenithal Stereographic, Simple conic with one standard parallel and Cylindrical Equal Area
3. Preparation of land use maps by open and closed traverse; computations of compass traverse- Included Angle, Area of traverse
4. Leveling by Dumpy Level: Profile

B. Field Report

Report should be written with the following Tentative Chapter Schemes:
Preface & Acknowledgement
Introduction: Objective, Extent and Space Relations, Data sources and Methodology
Physical Environment: Lithology, Drainage, Slope, Climate, Soil, Vegetation etc.
Socio Economic Environment: Population Characteristics, Occupational Structure, Ethnic and Religions Composition, Per- Capita income, any other aspects.
Problems and Prospects, Bibliography if any
Appendix: Survey Questionnaire(s), Additional Tables, if any
Word Limit: 3000 (Excluding Tables and Appendix).
A copy of the bound report, duly signed by the concerned teacher, should be Submitted.

Suggested Readings:

- Dent B. D., 1999: *Cartography: Thematic Map Design*, (Vol. 1), McGraw Hill.
- Gupta K. K and Tyagi V. C., 1992: *Working with Maps*, Survey of India, DST, New Delhi.
- Mishra R. P. and Ramesh A., 1989: *Fundamentals of Cartography*, Concept Publishing.
- Robinson A., 1953: *Elements of Cartography*, John Wiley.
- Sharma J. P., 2010: *Prayogic Bhugol*, Rastogi Publishers.
- Singh R. L. and Singh R. P. B., 1999: *Elements of Practical Geography*, Kalyani Publishers
- Singh R. L., 1998: *Prayogic Bhoogol Rooprekha*, Kalyani Publications.
- Steers J. A., 1965: An Introduction to the Study of Map Projections, University of London.

DSC-1D (CC-4): Environmental Geography **Credits 06**

DSC1DT: Environmental Geography

Course Contents:

1. Environmental Geography: Concepts and Approaches; Ecosystem – Concept and Structure; Ecosystem Functions.
2. Human-Environment Relationship in Equatorial, Desert, Mountain and Coastal Regions.
3. Environmental Problems and Management: Air Pollution; Biodiversity Loss; Solid and Liquid Waste.
4. Environmental Programmes and Policies: Developed Countries; Developing Countries.
5. New Environmental Policy of India; Government Initiatives.

Suggested Readings:

- Casper J.K. (2010) Changing Ecosystems: Effects of Global Warming. Infobase Pub. New York.
- Hudson, T. (2011) Living with Earth: An Introduction to Environmental Geology, PHI Learning Private Limited, New Delhi.
- Miller, G.T. (2007) Living in the Environment: Principles, Connections, and Solutions, Brooks/ Cole Cengage Learning, Belmont.
- Singh, R.B. (1993) Environmental Geography, Heritage Publishers, New Delhi.
- UNEP (2007) Global Environment Outlook: GEO4: Environment For Development, United Nations Environment Programme. University Press, Cambridge.
- Wright R. T. and Boorse, D. F. (2010) Toward a Sustainable Future, PHI Learning Pvt Ltd, New Delhi.
- 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

Discipline Specific Elective (DSE)

DSE- 1: Geography of India **Credits 06**

DSE1T: Geography of India

Course Contents:

1. Physical Setting – Location, Structure and Relief, Drainage, Climate.
2. Population – Size and Growth since 1901, Population Distribution, Literacy, Sex Ratio.
3. Settlement System - Rural Settlement Types and Patterns, Urban Pattern.
4. Resource Base – Livestock (cattle and fisheries), Power (coal, and hydroelectricity), Minerals (iron ore and bauxite).
5. Economy – Agriculture (Rice, Wheat, Sugarcane, Groundnut, Cotton); Industries (Cotton Textile, Iron-Steel, Automobile), Transportation Modes (Road and Rail).

Suggested Readings:

- Hussain M., 1992: G*eography of India*, Tata McGraw Hill Education.
- Mamoria C. B., 1980: *Economic and Commercial* G*eography of India*, Shiva Lal Agarwala.
- Miller F. P., Vandome A. F. and McBrewster J., 2009: Geography of India: Indo-Gangetic Plain, Thar Desert, Major Rivers of India, Climate of India, Geology of India, Alphascript Publishing.
- Nag P. and Sengupta S., 1992: G*eography of India*, Concept Publishing.
- Pichamuthu C. S., 1967: *Physical Geography of India*, National Book Trust.
- Sharma T. C. and Coutinho O., 1997: *Economic and Commercial* G*eography of India*, Vikas Publishing.
- Singh Gopal, 1976: *A* G*eography of India*, Atma Ram.
- Spate O. H. K. and Learmonth A. T. A., 1967: *India and Pakistan: A General and Regional Geography*, Methuen.
- Rana, Tejbir Singh, 2015, Diversity of India , R.K. Books, Delhi.

Or

DSE- 1: Disaster Management **Credits 06**

DSE1T: Disaster Management

Course Contents:

1. Hazards, Risk, Vulnerability and Disasters: Definition and Concepts.
2. Disasters in India: (a) Causes, Impact, Distribution and Mapping: Flood, Landslide, Drought.
3. Disasters in India: (b) Causes, Impact, Distribution and Mapping: Earthquake, Tsunami and Cyclone.
4. Human induced disasters: Causes, Impact, Distribution and Mapping.
5. Response and Mitigation to Disasters: Mitigation and Preparedness, NDMA and NIDM; Indigenous Knowledge and Community-Based Disaster Management; Do's and Don'ts During Disasters

Suggested Readings:

- Government of India. (1997) Vulnerability Atlas of India. New Delhi, Building Materials & Technology Promotion Council, Ministry of Urban Development, Government of India.
- Kapur, A. (2010) Vulnerable India: A Geographical Study of Disasters, Sage Publication, New Delhi.
- Modh, S. (2010) Managing Natural Disaster: Hydrological, Marine and Geological Disasters, Macmillan, Delhi.
- Singh, R.B. (2005) Risk Assessment and Vulnerability Analysis, IGNOU, New Delhi. Chapter 1, 2 and 3
- Singh, R. B. (ed.), (2006) Natural Hazards and Disaster Management: Vulnerability and Mitigation, Rawat Publications, New Delhi.
- Sinha, A. (2001). Disaster Management: Lessons Drawn and Strategies for Future, New United Press, New Delhi.
- Stoltman, J.P. et al. (2004) International Perspectives on Natural Disasters, Kluwer Academic Publications. Dordrecht.

- Singh Jagbir (2007) “Disaster Management Future Challenges and Oppurtunities”, 2007. Publisher- I.K. International Pvt. Ltd. S-25, Green Park Extension, Uphaar Cinema Market, New Delhi, India (www.ikbooks.com).

Or

DSE-1: Soil and Biogeography **Credits 06**

DSE1T: Soil and Biogeography

Course Contents:

Concepts in Theory

1. Factors or soil formation. Man as an active agent of soil transformation.
2. Soil profile. Origin and profile characteristics of Laterite andPodzol soils
3. Definition and significance of soil properties: Texture and structure
4. Definition and significance of soil properties: pH and organic matter
5. Soil erosion and degradation: Factors, processes and mitigation measures
6. Concepts of biosphere, ecosystem, biome, Eco tone, community and ecology
7. Concepts of trophic structure, food chain and food web. Energy flow in ecosystems
8. Geographical extent and characteristic features of: Tropical rain forest, Taiga and Grassland biomes
9. Bio-geochemical cycles with special reference to carbon dioxide and nitrogen
10. Deforestation: Causes, consequences and management

Suggested Readings:

- Biswas, T.D. and Mukherjee, S.K. 1997: Textbook of Soil Science, TataMcGraw Hill,
- Brady, N.C. and Weil, R.R. 1996. The Nature and Properties of Soil, 11th edition, Longman, London :
- Floth, H.D. 1990. Fundamentals of Soil science, 8th edition, John Wiley and Sons, New York.
- Morgan, R.P.C. 1995 Soil Erosion and Conservation, 2nd edition, Longman, London
- Schwab, G.O., Fangmer, D.D. and Elliot, W.J. 1996. Soil and Water Management
- Systems, 4th edition, John Eiley and sons Inc., New York
- Young, A. 2000. Land Resource: Now and Future, Cambridge University Press, Cambridge: 332p.
- Chapman J.L. and Rens, M.J. 1993. Ecology: Principle and Applications, Cambridge University Press, Cambridge:
- Chairas, D.D. Reganold, J.P. and Owen, O.S. 2002. National ResourceConservation and management for a Sustainable Future, 8th edition, Prentice Hall, Englewood Cliffs
- Dash, M.C., 2001. Fundamental of Ecology, 2nd edition, Tata McGrawHill, New Delhi
- Huggett, R. 1998. Fundamentals of Biogeography, Routledge, London.
- Kormondy, E.J. 1996. Concept of Ecology, 4th edition, Prentice- Hall, India, New Delhi

- Myers, A. A. and Giller, P.S. (editors) 1988. Analytical Biogeography: an Integrated Approach to the Study of Animal and Plant Distribution. Chapman and Hall, London

DSE-2: Economic Geography **Credits 06**

DSE2T: Economic Geography

Course Contents:

1. Definition, Approaches and Fundamental Concepts of Economic Geography; Patterns of Development.
2. Locational Theories – Agriculture (Von Thunen) and Industrial (Weber).
3. Primary Activities – Intensive Subsistence Farming, Commercial Grain Farming, Plantation, Commercial Dairy Farming, Commercial Fishing, and Mining (iron ore, coal and petroleum).
4. Secondary Activities – Cotton Textile Industry, Petro-Chemical Industry, Major Manufacturing Regions.
5. Tertiary and Quaternary Activities – Modes of Transportation, Patterns of International Trade, and Information and Communication Technology Industry.

Suggested Readings:

- Alexander J. W., 1963: *Economic Geography*, Prentice-Hall Inc., Englewood Cliffs, New Jersey.
- Bagchi-Sen S. and Smith H. L., 2006: *Economic Geography: Past, Present and Future*, Taylor and Francis.
- Coe N. M., Kelly P. F. and Yeung H. W., 2007: *Economic Geography: A Contemporary Introduction*, Wiley-Blackwell.
- Combes P., Mayer T. and Thisse J. F., 2008: *Economic Geography: The Integration of Regions and Nations*, Princeton University Press.
- Durand L., 1961: *Economic Geography*, Crowell.
- Hodder B. W. and Lee R., 1974: *Economic Geography*, Taylor and Francis.
- Wheeler J. O., 1998: *Economic Geography*, Wiley.
- Willington D. E., 2008: *Economic Geography*, Husband Press.

Or

DSE- 2: Urban Geography **Credits 06**

DSE2T: Urban Geography

Course Contents:

Unit -1: Basic Concepts

1. Urban Geography: nature and scope, different approaches and recent trends in urban geography
2. Origin of urban places in Ancient, Medieval, Modern and Post-Modern periodsfactors, stages, and characteristics.
3. Aspects of urban places: Location, site and situation, Size and Spacing of Cities: The Rank Size Rule,

4. Urban Hierarchies : Central Place Theory;

Unit -2: Urban Processes

1. Ecological processes of urban growth; Urban fringe; City- Region
2. Theories of city structure-concentric zone theory, sector theory, multiple nuclei theory
3. Patterns and trends of urbanization in India
4. Patterns of urbanisation in developed and developing countries

Suggested Readings:

- Fyfe N. R. and Kenny J. T., 2005: The Urban Geography Reader, Routledge.
- Graham S. and Marvin S., 2001: Splintering Urbanism: Networked Infrastructures, Technological Mobility and the Urban Condition, Routledge.
- Hall T., 2006: Urban Geography, Taylor and Francis.
- Kaplan D. H., Wheeler J. O. and Holloway S. R., 2008: Urban Geography, John Wiley.
- Knox P. L. and McCarthy L., 2005: Urbanization: An Introduction to Urban Geography, Pearson Prentice Hall New York.
- Knox P. L. and Pinch S., 2006: Urban Social Geography: An Introduction, Prentice-Hall.
- Pacione M., 2009: Urban Geography: A Global Perspective, Taylor and Francis.
- Sassen S., 2001: The Global City: New York, London and Tokyo, Princeton University Press.
- Ramachandran R (1989): Urbanisation and Urban Systems of India, Oxford University Press, New Delhi
- Ramachandran, R., 1992: The Study of Urbanisation, Oxford University Press, Delhi
- 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.
- Singh, R.B. (Ed.) (2015) Urban development, challenges, risks and resilience in Asian megacities. Advances in Geographical and Environmental Studies, Springer

Or

DSE-2: Population Geography **Credits 06**

DSE2T: Population Geography

Course Contents:

Unit 1: Basic Concepts

1. Population distribution: density and growth.
2. Demographic transition model.
3. World patterns determinants of population distribution and growth. Concept of overpopulation, under population and optimum population.
4. Population distribution, density and growth profile in India.

Unit 2: Composition and Policies

1. Population Composition and Characteristics– Age-Sex Composition; Rural and Urban Composition; Literacy.

2. Measurements of fertility and mortality.
3. Population composition of India. Urbanisation, Occupational structure.
4. Migration: Causes and types

Suggested Readings:

- Barrett H. R., 1995: Population Geography, Oliver and Boyd.
- Bhende A. and Kanitkar T., 2000: Principles of Population Studies, Himalaya Publishing House.
- Chandna R. C. and Sidhu M. S., 1980: An Introduction to Population Geography, Kalyani Publishers.
- Clarke J. I., 1965: Population Geography, Pergamon Press, Oxford.
- Jones, H. R., 2000: Population Geography, 3rd ed. Paul Chapman, London.
- Lutz W., Warren C. S. and Scherbov S., 2004: The End of the World Population Growth in the 21st Century, Earthscan
- Newbold K. B., 2009: Population Geography: Tools and Issues, Rowman and Littlefield Publishers.
- Pacione M., 1986: Population Geography: Progress and Prospect, Taylor andFrancis.
- Wilson M. G. A., 1968: Population Geography, Nelson.

Skill Enhancement Course (SEC)

SEC-1: Remote Sensing **Credits 02**

SEC1T: Remote Sensing

Course Contents:

Unit-1: Remote Sensing: Basic Concepts

1. Basic Concepts: Energy Sources, Interactions with Atmosphere, Sensing Systems, Data Products, Resolutions: Spatial, Spectral, Radiometric and Temporal
2. Principles of preparing Standard False Colour Composites
3. Principles of image interpretation and feature extraction. Preparation of inventories of land use land cover (LULC) features from satellite images.

Suggested Readings:

- Campbell J. B., 2007: Introduction to Remote Sensing, Guildford Press.
- Jensen J. R., 2004: Introductory Digital Image Processing: A Remote Sensing Perspective, Prentice Hall.
- Joseph, G. 2005: Fundamentals of Remote Sensing United Press India.
- Lillesand T. M., Kiefer R. W. and Chipman J. W., 2004: Remote Sensing and Image Interpretation, Wiley. (Wiley Student Edition).
- Nag P. and Kudra, M., 1998: Digital Remote Sensing, Concept, New Delhi.
- Rees W. G., 2001: Physical Principles of Remote Sensing, Cambridge University Press.
- Singh R. B. and Murai S., 1998: Space-informatics for Sustainable Development, Oxford and IBH Pub.

- Wolf P. R. and Dewitt B. A., 2000: Elements of Photogrammetry: With Applications in GIS, McGraw- Hill.
- Sarkar, A. (2015) Practical geography: A systematic approach. Orient Black Swan Private Ltd., New Delhi

Or

SEC-1: Geographic Information System **Credits 02**

SEC1T: Geographic Information System

Course Contents:

1. G.I.S: Basic Concepts, Components,
2. GIS Data structure: Raster and vector.
3. Dereferencing, Digitization
4. Map Composition and Layout

Suggested Readings:

- Jatin Pandey and Darshana Pathak, 2013, Geographic Information System, TERI Publishing House.
- Chor Pang Lo, 2009, Concepts and Techniques of Geographic Information System, Prentice Hall.
- Michael N. Demers, 2012, Fundamentals of Geographic Information Systems, Willy.
- Chairsman, N. 1992. Exploring Geographical Information Systems, John Willey and Sons Inc., New York, 198p

SEC-2: Regional Planning and Development **Credits 02**

SEC2T: Regional Planning and Development

Course Contents:

1. Concept, Need and Types of regional Planning.
2. Characteristics and Delineation of Planning Region.
3. Regionalization of India for Planning (Agro Ecological Zones).
4. Models for Regional Planning: Growth Pole Theory; Core Periphery Model and Growth Foci Concept in Indian Context.
5. Backward Regions and Regional Plans- Special Area Development Plans in India; DVC-The Success Story and the Failures; NITI Aayog.

Suggested Readings:

- Blij H. J. De, 1971: *Geography: Regions and Concepts*, John Wiley and Sons.
- Claval P.l, 1998: *An Introduction to Regional Geography*, Blackwell Publishers, Oxford and Massachusetts.
- Friedmann J. and Alonso W. (1975): *Regional Policy - Readings in Theory and Applications*, MIT Press, Massachusetts.
- Gore C. G., 1984: Regions in Question: Space, Development Theory and Regional Policy, Methuen, London.

- 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.
- Haynes J., 2008: *Development Studies*, Polity Short Introduction Series.
- Johnson E. A. J., 1970: *The Organization of Space in Developing Countries*, MIT Press, Massachusetts.
- Peet R., 1999: *Theories of Development*, The Guilford Press, New York.
- UNDP 2001-04: *Human Development Report*, Oxford University Press.
- World Bank 2001-05: *World Development Report*, Oxford University Press, New

Or

SEC-2: Computer Basics **Credits 02**

SEC2T: Computer Basics

Course Contents:

1. Knowing computer: What is Computer, Basic Applications of Computer Computer Memory, Concepts of Hardware and Software; Operating System; Running an Application, Viewing of File, Folders and Directories, Creating and Renaming of files and folders,
2. Understanding Word Processing
3. Using Spread Sheet: Basics of Spreadsheet; Manipulation of cells; Formulas and Functions; Editing of Spread Sheet, printing of Spread Sheet.
4. Concept of Internet; Applications of Internet; World Wide Web; Email;
5. Making Small Presentation: Microsoft Power point

Suggested Readings:

- Bartee, Thomas C. (1977): Digital Computer Fundamental; McGraw Hill.
- Chauhan, S.; Chauhan, A. and Gupta, K. (2006): Fundamental of Computer; Firewall Media.
- Malvino, A.P. and Leach, D.P. (1981): Digital Principles and Appications; Tata McGraw Hill.
- Rajaraman, V. (2003): Fundamentals of Computer, Prentice Hall Publisher
- Sarkar, A. and Gupta, S.K (2002) Elements of computer Science, S Chand and Company, New Delhi
- Blissmer (1996): Working with MS Word; Houghton Mifflin Co.
- Johnson, Steve (2007): Microsoft Power Point 2007; Pearson Paravia Bruno.
- Leon, A .and Leon,M.(1999): Introduction to Computer, USB Publishers' Distributors Ltd.
- Leon, A. and Leon, M.(1999): A beginners Guide to Computers, Vikas

SEC- 3: Remote Sensing and GPS based Project Report **Credits 02**

SEC3T: Remote Sensing and GPS based Project Report **Credit 01**

Course Contents:

1. Remote Sensing: Definition, Development, Platforms and Types.
2. Aerial Photography: Principles, Types and Geometry.

3. Satellite Remote Sensing: Principles, EMR Interaction with Atmosphere and Earth Surface; Satellites (Landsat and IRS) and Sensors.

SEC3P: Practical **Credit 01**

1. Interpretation and Application of Remote Sensing: Land use/ Land Cover.
2. Global Positioning System (GPS) – Principles and Uses

Note: A project file consisting of five exercises will be done from aerial photos, satellite images (scale, orientation and interpretation) and GPS field survey.

Suggested Readings:

- Campbell J. B., 2007: *Introduction to Remote Sensing*, Guildford Press.
- Jensen J. R., 2004: Introductory Digital Image Processing: A Remote Sensing Perspective, Prentice Hall.
- Joseph, G. 2005: *Fundamentals of Remote Sensing* United Press India.
- Lilles and T. M., Kiefer R. W. and Chapman J. W., 2004: *Remote Sensing and Image Interpretation*, Wiley. (Wiley Student Edition).
- Nag P. and Kudra, M., 1998: *Digital Remote Sensing*, Concept, New Delhi.
- Rees W. G., 2001: *Physical Principles of Remote Sensing*, Cambridge University Press.
- Singh R. B. and Murai S., 1998: *Space-informatics for Sustainable Development*, Oxford and IBH Pub.
- Wolf P. R. and Dewitt B. A., 2000: Elements of Photogrammetry: With Applications in GIS, McGraw-Hill.

SEC- 4: Field Techniques and Survey based Project Report **Credits 02**

SEC4T. Field Techniques and Survey based Project Report **Credit 01**

Course Contents:

1. Field Work in Geographical Studies – Role, Value and Ethics of Field-Work.
2. Defining the Field and Identifying the Case Study – Rural / Urban / Physical / Human / Environmental.
3. Field Techniques – Merits, Demerits and Selection of the Appropriate Technique; Observation (Participant / Non Participant).
4. Questionnaires (Open/ Closed / Structured / Non-Structured); Interview with Special Focus on Focused Group Discussions; Space Survey (Transects and Quadrants, Constructing a sketch).

SEC4P: Practical **Credit 01**

1. Designing the Field Report – Aims and Objectives, Methodology, Analysis, Interpretation and Writing the Report.
2. Each student will prepare an individual report based on primary and secondary data collected during field work.

Suggested Readings:

- Creswell J., 1994: Research Design: Qualitative and Quantitative Approaches Sage Publications.
- Dikshit, R. D. 2003. The Art and Science of Geography: Integrated Readings. Prentice-Hallof India, New Delhi.
- Evans M., 1988: "Participant Observation: The Researcher as Research Tool" in *Qualitative Methods in Human Geography*, eds. J. Eyles and D. Smith, Polity.
- Mukherjee, Neela 1993. Participatory Rural Appraisal: Methodology and Application. Concept Publs. Co., New Delhi.
- Mukherjee, Neela 2002. Participatory Learning and Action: with 100 Field Methods. Concept Publs. Co., New Delhi
- Robinson A., 1998: "Thinking Straight and Writing That Way", in Writing Empirical Research Reports: A Basic Guide for Students of the Social and Behavioural Sciences, eds. by F. Pryczak and R. Bruce Pryczak, Publishing: Los Angeles.
- Special Issue on "Doing Fieldwork" *The Geographical Review* 91:1-2 (2001).
- Stoddard R. H., 1982: Field Techniques and Research Methods in Geography, Kendall/Hunt.
- Wolcott, H. 1995. The Art of Fieldwork. Alta Mira Press, Walnut Creek, CA.