

SRI VENKATESWARA UNIVERSITY :: TIRUPATI

S.V.U.College of Sciences: Tirupati

Department of Geography

M.Sc. GEOGRAPHY

(CHOICE BASED CREDIT SYSTEM)

(for regular students who study in S.V.U. Colleges (Campus), Tirupati)

(revised Scheme of Instruction and Examination and Syllabus etc., with effect from the batch of students to be admitted into I-Semester during the academic year 2015-16)

M.Sc. (GEOGRAPHY) DEGREE COURSE

Sem	Course Code	Title of the Course	Core/ Electric	No. of Credits	Exam. Duration	IA	SEE	Total Marks
I	GEG 101	Geomorphology	Core	4	3	30	70	100
	GEG 102	Economic Resource Studies	Core	4	3	30	70	100
	GEG 103	Geographic Thought	Core	4	3	30	70	100
	GEG 104	Advanced Cartography	Core	4	3	30	70	100
	GEG 105	Practicals Record Mar.-20	Core	4	3	-	100	100
	GEG 106	Practicals Record Mar.-20	Core	4	3	-	100	100
II	GEG 201	Climatology and Oceanography	Core	4	3	30	70	100
	GEG 202	Human Resource Studies	Core	4	3	30	70	100
	GEG 203	Principles of Remote Sensing	Core	4	3	30	70	100
	GEG 204	Environmental Studies	Core	4	3	30	70	100
	GEG 205	Practicals Record Mar.-20	Core	4	3	-	100	100
	GEG 206	Practicals Record Mar.-20	Core	4	3	-	100	100
	GEG 207	Human Values and Professional Ethics-I	Core	4	3	30	70	100
III	GEG 301	Geographical Information System	Core	4	3	30	70	100
	GEG 302	Urban Studies	Core	4	3	30	70	100
	GEG 303 and 304(a)	Geography of Tourism and Recreation	Internal Elective	4	3	30	70	100
	GEG 303 and 304(b)	Disaster Management Studies	Internal Elective	4	3	30	70	100
	GEG 303 and 304(c)	Environmental and Disaster Management	Internal Elective	4	3	30	70	100
	GEG 303 and 304(d)	Agricultural Studies	Internal Elective	4	3	30	70	100
	GEG 303 and 304(e)	Industrial Geography	Internal Elective	4	3	30	70	100
	GEG 305	Practicals Record Mar.-20	Core	4	3	-	100	100
GEG 306	Practicals Record Mar.-20	Core	4	3	-	100	100	

IV	GEG 401	Regional Geography of India and A.P	Core	4	3	30	70	100
	GEG 402	Advanced Remote Sensing	Core	4	3	30	70	100
	GEG 403	Regional Planning	Core	4	3	30	70	100
	GEG 404(a)	Political and Administrative studies	Internal Elective	4	3	30	70	100
	GEG 404(b)	Water and Soil Resources Management	Internal Elective	4	3	30	70	100
	GEG 404(c)	Geography for Research, Extension (society) and Industry	Internal Elective	4	3	30	70	100
	GEG 404(d)	Spatial Information System	External Elective	4	3	30	70	100
	GEG 404(e)	Transport Geography	Internal Elective	4	3	30	70	100
	GEG 405	Practicals Record Mar.-20	Core	4	3	-	100	100
	GEG 406	Practicals Record Mar.-20	Core	4	3	-	100	100
	GEG 407	Human Values and Professional Ethics-II	Core	4	3	30	70	100

**FIRST SEMESTER
(w.e.f. 2015-16)**

GEG 101: GEOMORPHOLOGY

- Unit I Nature, Definition, Scope and recent trends in Geomorphology: Rocks – Origin, Classification and distribution, Interior of the Earth. Geological time-scale.
- Unit II Earth movements: Epierogenic and Orogenic earth movements. Theories of continental drift, Isostasy and plate tectonics. Earthquakes, volcanoes and their distribution.
- Unit III Geomorphic agents and Processes: Weathering, Erosion, Mass wasting. Concept of cycle of erosion, Davis and Penck concepts in the evolution of Landforms.
- Unit IV Geomorphic Processes: Erosional and depositional landforms made by a) rivers, b) Glaciers, c) wind, d) underground water, e) waves & currents.

Suggested Readings

1. Dayal, P. : A Text book of Geomorphology. Shukla Book depot, Patna, 1996.
2. Monkhouse, F.J. : Principles of Physical Geography, Hodder and Stoughton, London, 1960.
3. Sparks, B.W. : Geomorphology, Longmans, London, 1960.
4. Strahler, A.N. and Strahler, A.H. : Modern Physical Geography : John Wiley & Sons, Revised edition 1992.
5. Thornbury, W.D. : Principles of Geomorphology, Wiley Eastern, 1969.
6. Wooldridge, S.W. and Morgan, R.S. : The Physical Basis Geography – An outline of Geomorphology, Longman Green & Co, London, 1959.

GEG 102 : ECONOMIC RESOURCE STUDIES

- Unit I Scope, content and recent trends in economic geography, relation of economic geography with economics and other branches of social sciences, classification of economies; sectors of economy (Primary, secondary and tertiary).
- Unit II Natural resources: Nature and classification – renewable and non-renewable, biotic and abiotic, conservation of resources, changing nature of economic activities; mining, forestry, agriculture, industry, trade and transport.
- Unit III Agricultural Resources: Spatial distribution of major food and cash crops of the world (rice, wheat, coffee, tea). Minerals resources: Classification of minerals (ferrous and non-ferrous). Major industries: Iron and Steel, Textiles, ship-building and their distribution.
- Unit IV Industrial location theory – Alfred Weber: Geographical factors in the development of major industries.

Suggested Readings

1. Boesch, H. : A Geography of World Economy, D. Van Nostrand Co., New York, 1964.
2. Chapman, J.D. : Geography and Energy, Longman, London, 1989.
3. Gregor, H.F. : Geography of Agriculture, Prentice Hall, New Jersey, USA, 1970.
4. Griggs, D.B. : The Agricultural Systems of the World, Cambridge University Press, New York, 1974.
5. Hartshone, T.N. and Alexander, J.W. : Economic Geography, Prentice Hall, New Delhi, 1988.
6. Jones, C.F. and Darkenwald, G.G. : Economic Geography, McMillan Co., New York, 1975.
7. Millar E.: Geography of Manufacturing, Prentice Hall, New York, 1962.
8. Raza, M. and Agrawal, Y. : Transport Geography of India, Concept, New Delhi, 1986.
9. Smith, D.M. : Industrial Location – An Economic Geographical Analysis, John Willey, New York, 1971.
10. Thomas, R.S. : The Geography of Economic Activities, McGraw Hill, New York, 1962.

GEG 103: GEOGRAPHIC THOUGHT

- Unit I Ancient Geography – Contributions of Greeks and Romans, Medieval Geography – contributions of Arab Geographers, Modern Geography – Contribution of Immanuel Kant, Alexander Von Humboldt and Carl Ritter.
- Unit II Contributions of German Geographers : Friedrich Ratzel, Ferdinand Von Ritschthofen, Albrecht Penck and Alfred Hettner and French geographers: Vidal de la blasche, Elisee Reclus, Jean Brunhes and Emmanuel de Martonne.

- Unit III Dualism in Geography - Systematic and regional Geography. Determinism and possibilism; Geography as a natural science and social science.
- Unit IV Quantitative revolution – causes and consequences. Behavioural geography. Laws, Theories and Models in Geography.

Suggested Readings:

1. Dikshit, R.D. (ed.) : The Art & Science of Geography – Integrated Readings, Prentice Hall of India, New Delhi, 1994.
2. Hartshorn, R. : Perspective on nature of Geography, Rand McNally & Co., 1959.
3. Husain, M. : Evolution of Geographic thought, Rawat Pub., Jaipur, 1984.
4. Minshull, R. : The Changing nature of Geography, Hutchinson University Library, London, 1970.

GEG 104: ADVANCED CARTOGRAPHY

- Unit I Cartography – definition. Cartography is a science of human communication; Scales – Methods of representation & conversions; Map projections – classification and choice of projections. Merits and demerits of cylindrical, conical, zenithal and conventional projections.
- Unit II Semiology – Kinds of symbols – Mapping qualitative and quantitative point, Line and Area symbols. Types of maps and their uses. Topographical maps: Elements of topographical maps, scales and numbering of toposheets.
- Unit III Map design and layout: Theory of visual perception – constraints and Restrictions in map design. Lettering and Toponymy. Mechanics of map construction: Drawing surfaces – Drawing Equipment.
- Unit IV Mapping the qualitative and quantitative data. Thematic mapping; concept of map base, map compilations & generalizations. Concepts of Geographical Information System (GIS).

Suggested Readings

1. Kraak, Cartography 2/e, Person Education Publication, 2007.
2. Khan, Z.A. : Text book of practical geography, concept, New Delhi, 1998.
3. Monkhouse, F.J. & Wilkinson, H.R.: Maps and Diagrams, Methuen, London, 1994.
4. Steers, J.A. : Map Projections, University of London Press, London.
5. Burrough, P.A. : Principles of geographic information systems for land resource assessment, Oxford University Press, New York, 1986.
6. Fraser Taylor D.R. : Geographic Information Systems, Pergaman Press, Oxford, 1991.
7. Star J and J. Estes : Geographic information systems. An introduction, Prentice Hall, Englewood Cliff, New Jersey, 1994.
8. Misra, R.P. and Ramesh, A.: Fundamentals of Cartography, McMillan Co., New Delhi, 1986.
9. Robinson, A.H. et al.: Elements of Cartography, John Wiley & Sons, U.S.A., 2007.
10. Sarkar, A.K., Practical Geography: A systematic approach; Oriental Longman, Calcutta, 1997.
11. Singh, R.L. and Dutt, P.K. Elements of Practical Geography, Kalyani publishers, New Delhi, 1979.

SECOND SEMESTER

(w.e.f. 2015-16)

GEG 201: CLIMATOLOGY AND OCEANOGRAPHY

- Unit I Nature and scope of climatology. Composition and structure of the Atmosphere – Insolation – heat balance, green house effect – vertical and horizontal distribution of Temperature.
- Unit II Atmospheric Pressure – Pressure gradient – Pressure belts – vertical and Horizontal distribution of pressure – winds – monsoons and cyclones.
- Unit III Water vapour- Humidity – Relative, absolute and specific humidity – condensation and types – cloud types – types of Rainfall – Koppen’s and Thornthwaites scheme of climatic classification.
- Unit IV Nature and scope of Oceanography –Distribution of Land and water. General features of Bathymetry. Ocean currents: Atlantic, Pacific and Indian Ocean: Salinity; Ocean deposits and coral reefs.

Suggested Readings

1. Critch Field, J.H. : General Climatology, Prentice Hall, India, New Delhi, 1993.
2. Lal, D.S. : Climatology, Chaitanya Publishing House, Allahabad, 1986.
3. Garrison, T. : Oceanography – An introduction to Marine Science. Books / Cole, Pacific Group, USA, 2001.
4. Sharma & Vatal : Oceanography for Geographers Chaitanya Publishing House, Allahabad.
5. Lal.D.S. Oceanography, chaitanya Publishing House, Allahabad, 1994

GEG 202 : HUMAN RESOURCE STUDIES

- Unit I Definition, nature and scope of Human Resource studies. Sources of data and methodology of studying human geography. Origin and evolution of human settlements.
- Unit II The patterns of population distribution of the world and India. Factors affecting the patterns of population distribution.
- Unit III Trends of population growth of the world and India in the 20th century. Theories of population : Malthus and Ricardo. Demographic transition.
- Unit IV Types of migrations : Internal and International, causes and consequences of migrations; problems and prospects of population growth; population policy and planning in India.

Suggested Readings

1. Asha A. Behende, Tara Kanitkar, Principles of Population Studies, Himalaya Publishing house, 2004.
2. Garnier, B.J. : Geography of Population, Longman group Ltd., London, 1966.
3. Bogue Donald, J. : Principles of Demography, John Wiley & Sons, New York, 1969.
4. Chandna, R.C. : A Geography of Population – Concepts, determinants, Kalyani Publishers, New Delhi, 2006.
5. Clarke, John, I. (Ed) : Geography and Population : Approaches and Applications, Pergman Press Ltd. Oxford 1984.
6. Mamoria, C.B. India’s Population Problem, Kitab Mahal, New Delhi, 1981.
7. Mazid Hussain, Human Geography, Rawat Publications, New Delhi, 2007.
8. Srinivasan, K. Basic Demographic Techniques and Applications, Sage Publications, New Delhi, 1998.
9. Thomson & Lewis, Population problems, Tata McGraw- Hill Publishing Company Ltd., New Delhi, 2003.
10. Zelinsky Wilbur, A Prologue of Population Geography, Prentice Hall, 1966.

GEG 203: PRINCIPLES OF REMOTE SENSING

- Unit I Introduction to Remote Sensing: History and concepts; Energy sources and Radiation principles– Energy Interactions in the Atmosphere; Electromagnetic spectrum, Atmospheric windows. Energy interactions with Earth surface features; spectral reflectance patterns of earth surface features in different wavelengths.
- Unit II Aerial Remote Sensing: History and types of photographs, scales of aerial photographs; scale distortions, photographic resolution. Aerial photo interpretation techniques – Photo recognition Elements, photo interpretation equipment.
- Unit III Satellite Remote Sensing: Different Satellites; Remote sensing platforms. Resolutions: spectral, Spatial, Temporal and Radiometric resolutions of Satellites. Sensors: Scanning mechanism and orbiting mechanism. Characteristics of IRS.
- Unit IV Principles of Image Interpretation: Elements of Image Interpretation, Visual Interpretation Techniques. Marginal information and decoding. Advantages of Remote Sensing over conventional Surveys. Development of Remote Sensing in India. Thrust areas of Remote Sensing.

Suggested Readings

1. American Society of Photogrammetry : Manual of Remote Sensing, ASP, Falls Church, V.A. 1983.
2. Anji Reddy.M,: Text book of Remote Sensing and Geographical Information Systems, B.S Publications, Hyderabad, 2008.
3. Barrett, E.C. and L.F. Curtis : Fundamentals of Remote Sensing and Air Photo Interpretation, Mcmillan, New York, 1992.
4. Bhatta .B: Introduction to Remote Sensing and GIS, Oxford University press.
5. Compbell, J.: Introduction of Remote Sensing, Guilford, New York, 1989.
6. Curran, Paul, J. : Principles of Remote Sensing, Longman, London, 1985.
7. John R. Jensen: Remote Sensing of the Environment – An Earth Resource perspective, Pearson Education Pvt Ltd., Delhi 2003.
8. Kumaraswamy. K (Ed): Remote Sensing for Environmental Studies, Union Offset Printers, Tiruchi, 2005.

9. Leuder D.: Aerial Photographic Interpretation: Principles and Application, McGraw Hill, New York, 1959.
10. Rao D.P. (eds.) : Remote Sensing for Earth Resources, Association of Exploration Geophysicist, Hyderabad, 1998.
11. Thomas M. Lillesand and Ralph W. Kefer, Remote Sensing and Image Interpretation. John Wiley & Sons, New York, 1994.

GEG 204: ENVIRONMENTAL STUDIES

- | | |
|----------|---|
| Unit I | Nature, Scope and Significance of Environmental Studies; Concepts of Ecology, Ecological balance and the need for Ecological Approach. |
| Unit II | Concepts of Ecosystem : Structure, Classification and functioning of the ecosystem, Biomes, food web, food pyramid, Nutrient cycle, hydrological cycle. |
| Unit III | Impact of population growth on ecosystem. Agriculture, green revolution, HYV and pesticides. Man's impact on land, mining, coastal areas and transport. |
| Unit IV | Environmental impact assessment, Environmental reconstruction, management and planning, the need for interdisciplinary approach. |

Suggested Readings:

1. Turk. : Introduction to Environmental Studies, Sanndora, 1980.
2. Detwyler : Man's Impact on Environment, 1971.
3. Strahler & Strahler, Geography of Man's Environment, Wiley, 1977.
4. Bennet : Man and Earth's Ecosystem, Wiley, 1975.
5. Leopold and Lune (Ed) : A procedure for evaluating environmental impact.
6. Savindra Singh : Environmental geography – Prayagpustak Bhavan, Allahabad, 2000.
7. Dikshit, R.D. : Geography and Teaching of the environment, geography department, Poona University, 1984.
8. Agarwal, D.P. Man and Environment in India through ages, Book & Books, 1992.
9. Gaur, R. : Environment and Ecology of Early Man in Northern India, R.B. Publication Corporation, 1987.
10. Hoyt, J.B. Man and the Earth, Prentice Hall, U.S.A.; 1992.
11. Singh, S. : Environmental Geography, Prayag Publications, Allahabad, 1991.
12. Smith, R.L., Man and his Environment : An Ecosystem's approach, Harper & Row, London, 1992.
13. Kumaraswamy K, Remote Sensing for Environmental Studies, Union Offset Printers, Trichi, 2005.
14. Kumaraswamy K, et.al., Environmental Studies, Publication division Bharatidasan University, Trichi, 2008.

GEO 207- HUMAN VALUES AND PROFESSIONAL ETHICS – I

Syllabus

(With effect from 2014-15)

(effective from the batch of students admitted from the academic year 2014-15)

- I. Definition and Nature of Ethics- Its relation to Religion, Politics, Business, Law, Medicine and Environment. Need and Importance of Professional Ethics- Goals – Ethical Values in various Professions.
- II. Nature of Values- Good and Bad, Ends and Means, Actual and potential Values, Objective and Subjective Values, Analysis of basic moral concepts- right, ought, duty, obligation, justice, responsibility and freedom, Good behavior and respect for elders, Character and Conduct.
- III. Individual and society:
Ahimsa (Non-Violence), Satya (Truth), Brahmacharya (Celibacy), Asteya (Non possession) and Aparigraha (Non-stealing). Purusharthas (Cardinal virtues)- Dharma (Righteousness), Artha (Wealth), Kama (Fulfillment Bodily Desires), Moksha (Liberation).
- IV. Bhagavad Gita – (a) Niskama karma. (b) Buddhism – The Four Noble Truths – Arya astanga marga, (c) Jainism – mahavratas and anuvratas. Values Embedded in Various Religions, Religious Tolerance, Gandhian Ethics.
- V. Crime and Theories of punishment – (a) Reformative, Retributive and Deterrent. (b) Views on manu and Yajnavalkya.

Books for study:

1. John S Mackenzie: A manual of ethics.
2. "The Ethics of Management" by Larue Tone Hosmer, Richard D. Irwin Inc.
3. "Management Ethics – integrity at work" by Joseph A. Petrick and John F. Quinn, Response Books: New Delhi.
4. "Ethics in Management" by S.A. Sherlekar, Himalaya Publishing House.
5. Harold H. Titus: Ethics for Today
6. Maitra, S.K: Hindu Ethics
7. William Lilly: Introduction to Ethics
8. Sinha: A Manual of Ethics
9. Manu: Manu Dharma Sastra or the Institute of Manu: Comprising the Indian System of Duties: Religious and Civil(ed.) G.C. Haughton.
10. Susruta Samhita: Tr. Kaviraj Kunjanlal, Kunjalal Brishagratha, Chowkamba Sanskrit series, Vol. I, II and III, Varnasi, Vol I OO, 16-20, 21-32 and 74-77 only.
11. Caraka Samhita: Tr. Dr. Ram Karan Sarma and Vaidya Bhagavan Dash, Chowkamba Sanskrit Series office, Varanasi I,II,III Vol I PP 183-191.
12. Ethics, Theory and Contemporary Issues, Barbara Mackinnon, Wadsworth/Thomson Learning, 2001.
13. Analyzing Moral Issues, Judith A. Boss, Mayfield Publishing Company, 1999.
14. An Introduction to Applied Ethics (Ed.) John H. Piet and Ayodhya Prasad, Cosmo Publications.
15. Text book for Intermediate logic, Ethics and Human Values, board of Intermediate Education & Telugu Academic Hyderabad.
16. I.C. Sharma Ethical Philosophy of India. Nagin & co Julundhar.

**THIRD SEMESTER
(W.E.F. 2015-16)****GEG 301: GEOGRAPHICAL INFORMATION SYSTEM (GIS)**

- Unit I GIS: Definitions and Development – Computer Components of GIS (Hardware and Software) – General Data Base concepts of Spatial and Non-spatial data – Elements of Spatial data – Sources of Spatial data – Data quality for GIS – Errors and Error variations in GIS.
- Unit II GIS Data Management: Data Base Management Systems (DBMS) Data Base Models. Data input methods – Spatial Data structures : Raster data and Vector data structures- GIS Data Analysis: Spatial measurement methods
Reclassification – Buffering – Overlay Analysis.
- Unit III Modelling Surfaces: Generation of DEM, DTM and TIN models – Spatial Interpolation – GIS output generation – Integration of Remote sensing and GIS Principles of Global Positioning System (GPS).
- Unit IV GIS applications : GIS as a Decision Support System – GIS as a Land Information System – GIS as a Disaster Management and Emergency Response System – Resource Management applications – Facility Management application – Urban Management applications.

Suggested Readings

1. Anji Reddy.M,: Text book of Remote Sensing and Geographical Information Systems, B.S Publications, Hyderabad, 2008.
2. Aronoff S. Geographic Information System : A Management Perspective, DDL Publication, Ottawa. 1989.
3. Burrough P.A. Principles of Geographic Information Systems for Land Resource Assessment. Oxford University Press, New York, 1986.
4. Fraser Taylor D.R. Geographic Information System. Pergamon Press, Oxford, 1991.
5. Ian Heywood, Sarah crnelius, Steve Carver: An introduction to Geographical Information Systems, Replika Press Pvt. Ltd., Delhi, 2000.

6. Maquire D. J.M.F. Goodchild and D.W. Rhind (eds.) Geographic Information Systems : Principles and Applications. Taylor & Francis, Washington, 1991.
7. Mark S. Monmonier. Computer assisted Cartography. Prentice – Hall, Englewood Cliff, New Jersey, 1982.
8. Menno – Jan Kraak & Ferjan Ormeling: Cartography visualization of Geospatial data, Pearson Education Pte. Ltd., Delhi, 2004.
9. Peuquet D.J. and D.F. Marble, Introductory Reading in Geographic Information Systems. Taylor & Francis, Washington, 1990.
10. Star J. and J. Estes. Geographic Information Systems : An Introduction. Prentice Hall, Englewood, Cliff, New Jersey, 1994.

GEG 302 : URBAN STUDIES

- Unit I Nature and scope of urban studies; Definitions of urban settlements; Census definition of urban population; Metropolis ; Megalopolis and Conurbation.
- Unit II Origin and evolution of cities : The origin of early cities; Impact of the Industrial revolution, current factors behind urban growth, location, spacing and size of urban settlements.
- Unit III Urban Hierarchy, Rank – size relationship, Nearest Neighbour analysis – classification of towns with special reference to functional classification. Theories of urban structure and growth.
- Unit IV Rural – urban relationships, the concept of city – region; pattern of world urbanization with special reference to India, urban decay, urban renewal.

Suggested Readings

1. Johnson, J.H., Urban Geography, An Introductory Analysis, Pergaman Press, Oxford, 1967.
2. Murphy, R. : The American City : an Urban Geography McGraw Hill, 1966.
3. Dickinson, R.E.:City and Region, Routledge and Kegen, Paul Ltd., London, 1964.
4. Mayer and Cohen : Readings in Urban Geography, Central Book Depot., Allahabad.

GEG 303 and 304(a) GEOGRAPHY OF TOURISM AND RECREATION

- Unit I:Scope and subject matter of Geography of tourism and recreation. Different types of tourism and recreation. Tourism Environment and Heritage.
- Unit II:Economic importance of tourism and recreation. Role of the Nation and the State of Andhra Pradesh in tourism development.
- Unit III:Human Resource Development due to tourism and recreation- Apprenticeship, training in institutions, computer technology. Tourism as service based, smokeless and non-export industry in India.
- Unit IV:Infrastructural development of tourism and recreation – Accommodation, food facilities, travel and transport (palace on wheels), drinking water, sanitation, security, banking, marketing and foreign exchange. Planning and policies of tourism and recreation in India and in Andhra Pradesh.

Suggested Readings

1. Kaul, C.N. : Dynamics of Tourism. A Trilogy in three volumes Sterling publishers, 1985.
2. Alister Mathuson and Geefry Hall – Tourism : Economic, Physical and Social impacts – Longman, 1982.
3. Chib, Som, N. – Perspectives on Tourism in India.
4. Bukart, A.J. & Medlik, S. – Tourism : Past, present and future.
5. Norval, A.J. – The Tourist Industry.
6. Pillai, R.N. – Tour and Pilgrimage in India.
7. Ram Acharya – Tourism and cultural heritage of India.
8. Kaul, S.N. – Tourism India : All India Tourist guide and reference book.
9. Kaul, S.N. – Tourist India, 1977.
10. Negi, J.M.S. Tourism and Heteliering : A worldwide Industry, 1982.
11. Bhatia, A.K. – Tourism Development : Principles and Practices.

GEG 303 and 304(b): DISASTER MANAGEMENT STUDIES

Unit I :Disaster : Meaning and Concept, types of Disasters. Natural Disasters: Earthquakes – Hazardous effects, Volcanic eruptions – Hazardous effects. Certain case studies.

Unit II:Cyclones and floods : cyclone related parameters and effects on land and sea-damage assessment. Causes of flood and food prone area analysis – damage assessment. Certain case studies.

Unit III:(a) Droughts and desertification : Types of droughts – factors influencing droughts – landuse and groundwater level changes – delimiting drought prone areas.

(b) Main induced disasters: Deforestation and environmental degradation, urbanization, industrial development and environmental pollution. Types of pollution : air pollution, water pollution, land / soil pollution and sound / noise pollution.

Unit IV: Disaster management : Pre and post disaster operations of Earthquakes, cyclones, floods, droughts, forest fires. The role of GIS in disaster management studies.

Suggested Readings

1. Savindra Singh, Environmental Geography, Prayag Pintak Bhavan, Allahabad, 2006.
2. Singh, L.R., Singh, Savindra, Tiwari, R.C. and Srivastava, R.P.: Environmental Management (edited), Allahabad University, 1983.
3. Singh, Savindra : Flood hazards and environmental degradation; A case study of the Gomathi River, in environmental management, Allahabad University, 1983.
4. John, A. Mattlews : Natural hazards and environmental change. Bill Mcguire, Ian Mason, 2002.
5. Nimpuno, K : Disasters and Social Response, ITC, 1989.
6. Hooja, R. and Joshi, R. : Desert, Drought and Development Studies in Resource Management and Substainability: Rawat Publications, Jaipur, 1994.
7. Aronaff, S : Geographic Information Systems; A Management Perspective, DDL Publications, Ottawa, 1989.
8. Barrett, E.C. and Curtis, L.F.: Fundamentals of Remote Sensing and Air photo interpretation, Mcmillan, New York, 1992.
9. Bring, N., Dhal and Ms. Sunita Dhal : Can GIS and Disaster Management System help, GIS India? Vol.9, No.1, January-February, 2000.

GEG 303 and 304(c): Environmental and Disaster Management Studies

Unit I: Nature Scope and Significance of Environmental Studies. Concepts of Ecology and Ecological balance. Concepts of Ecosystem : Structure, Classification and Functioning of the Ecosystem.

Unit II: Impact of population growth on Ecosystem: Agriculture, green revolution, Hyv and pesticides. Man's Impact on land, mining, Coastal areas and transport.

Unit III: Disasters: Meaning and concepts. (a) Natural disasters: Earthquakes, volcanoes, cyclones, floods, droughts – their effect on land and sea – damage assessment – case studies.
(b) Man induced disasters: deforestation, urban growth, industrial development and environmental degradation, types of environmental pollution: air, water, land / soil, sound / noise pollution.

Unit IV: Disaster management : pre and post disaster operations of earthquakes, volcanoes, cyclones, floods and droughts. Application of Remote sensing technique to disaster management. The role of GIS in disaster assessment and management.

Suggested Readings

1. Savindra Singh: Environmental Geography, Prayagpustak Bhavan, Allahabad, 2006.
2. Singh, L.R., Singh, Savindra, Tiwari, R.C. and Srivastava, R.P.: Environmental Management (edited), Allahabad University, 1983.
3. Singh, Savindra: Flood hazards and environmental degradation; A case study of the Gomathi river in environmental management, Allahabad University, 1983.
4. Nimpuno, K : Disaster and Social Response, ITC, 1989.
5. John, A. Matthews: Natural Hazards and environmental change. Bill McGuire, Ian Mason, 2002.
6. Embleton, C : Natural Hazards and global change, ITC, 1989.
7. Aronoff, S: Geographic Information System, A management Perspective, DDL publications, Ottawa, 1989.
8. Bring, N. Dhal and Ms. Sunita Dhal : Can GIS and Disaster Management System help GIS India? Vol.9, No.1, Jan-Feb. 2000.
9. Thomas, M. Lillesand and Ralph W Kefer: Remote Sensing and Image interpretation, John Wiley and Sons, New York.

GEG 303 and 304(d) : AGRICULTURAL STUDIES

Unit I: Nature, Scope, significance and development of Agricultural Geography. Approaches to the study of agricultural geography; Origin and evolution of agriculture.

Unit II: Determinants of agriculture – Physical, Socio-economic, technological and political; concepts and methods of land use classification.

Unit III: Concepts and methods of Agriculture: Crop combination; Crop concentration; crop diversification; agricultural productivity; agricultural typology.

Unit IV: Agricultural location theory – Von Thunen and its modifications. Concepts of agricultural region and agricultural regionalisation. Whittlesey's agricultural systems of the world. Agricultural regions of India. Green revolution; Problems and prospects of Indian agriculture.

Suggested Readings:

1. Bayliss Smith, T.P. : The Ecology of Agricultural Systems. Cambridge University Press, London, 1987.
2. Berry, B.J.L. et al.: The Geography of Economic Systems. Prentice Hall, New York, 1976.
3. Dyson, T. : Population and Food – Global Trends and Future Prospects. Routledge, London, 1996.
4. Gregor, H.P. : Geography of Agriculture. Prentice Hall, New York, 1970.
5. Grigg, D.B. : The Agricultural Systems of the World. Cambridge University Press, New York, 1974.
6. Hartshorn, T.N. and Alexander, J.W.: Economic Geography. Prentice Hall, New Delhi, 1988.
7. Morgan, W.B. and Norton, R.J.C. : Agricultural Geography. Methuen, London, 1971.
8. Singh, J. and Dhillon, S.S. : Agricultural Geography, Tata McGraw Hill Pub., New Delhi, 1988.
9. Tarrant, J.R : Agricultural Geography. Wiley, New York, 1974.

GEG 303 and 304(e): INDUSTRIAL GEOGRAPHY

Unit I	Nature, scope and significant of Industrial geography.
Unit II	Major inputs for industrial location; Industrial location theories – Weber, Losch and Isard.
Unit III	Classification of Industries: Resource based, agro-based, multibased; small scale and large scale industries.
Unit IV	Planning for Industrial Regions: Regional Imbalances in the distribution and development of industries in India. Industrialisation in Andhra Pradesh.

Suggested Readings

1. Israd, W. : Introduction to Regional Sciences. Prentice Hall.
2. Smith, D.M. : Industrial location, Wiley international edition.
3. Alexander, J.N. : Economic Geography. Prentice Hall.
4. Estall, R.C. & Industrial activity and economic geography, R.O. Buchanan Hutchinson University Library, London.
5. Sinha, B.N. : Industrial Geography of India.
6. Thoman, Conkling and Yeats : The Geography of Economic activity, Mc Graw Hill Company.

**FOURTH SEMESTER
(W.E.F. 2015-16)****GEG 401: REGIONAL GEOGRAPHY OF INDIA AND ANDHRA PRADESH**

Unit I	India: Location and Geographical Setting – Major Physiographic Divisions, Soils, Vegetation, drainage. Climatic Regions and their Characteristics.
Unit II	India: Mineral Resources – Coal, Iron ore and petroleum, study of Iron and steel, oil refinery and paper industries. Industrial Regions Transport-Land, Water and Air. Imports and Exports.
Unit III	India: Population Distribution, Density growth problems, over population and population policies in India. Agriculture Types. Irrigation and Power; Multipurpose projects. Major food grain crops; Rice and Wheat ; Major commercial crops – Coffee and Tea.
Unit IV	Andhra Pradesh : Relief, climate, soils and vegetation. Major Regions; Major Crops; Mineral wealth and industrial development; population.

Suggested Readings

1. Spate, O.H.K. and Learmonth, A.T.A. India and Pakistan, Third Edition, Methuen, London, 1967.
2. Memoria, C.B. : Economic and Commercial Geography of India, Shirlal Agarwal and Co., Agra, 1991.
3. Krishnan, M.B. : Geology of India, Higginbothams, Madras.
4. Alam, S.M. : Planning atlas of Andhra Pradesh.
5. Khullar: India, A comprehensive Geography. Kalyani Publishers , New Delhi.1989.
6. Sharma T.C. and coutinho .O, Economic and Commercial Geography of India, Vikas Publishing House Pvt Ltd., Bangalore.
7. Nirmala Bhattacharya, et.al.: Geography of India, Spectrum Books Pvt. Ltd., New Delhi.
8. Telugu Academy, Bharatadesa Bhugole Sastram, Hyderabad
9. Telugu Academy, Andhra Pradesh Prantheya Bhugole Sastram, Hyderabad.

GEG 402- ADVANCED REMOTE SENSING

- Unit I Photogrammetry : Introduction; Geometric elements of vertical photographs; scales of Aerial photographs; scale distortions; Flight planning; Relief displacement; parallax measurement; Orthophotography and rectification- principles and procedures.
- Unit II Digital Image Processing: Introduction to digital image processing; Image processing system characteristics: Hardware and Software; Image restoration Techniques: Restoring line dropouts, Restoring periodic line striping, Restoring line offsets, Filtering random noise; Radiometric corrections and Geometric corrections in image processing.
- Unit III Image Enhancement Techniques: Contrast enhancement, Density slicing, Edge enhancement, Merging data sets, Synthetic stereo images; Digital mosaics. Information extraction techniques: Principal – component (P.C) transformation analysis, Ratio images, Multispectral classification, Change-detection images.
- Unit IV Remote Sensing Applications to Geographical Studies: Landuse/Landcover mapping; water resources; Gemorphological, waste land studies, urban and Regional Planning.

Suggested Readings

1. American Society of Photogrammetry : Manual of Remote Sensing, ASP, Falls Church, V.A. 1983.
2. Anji Reddy.M,: Text book of Remote Sensing and Geographical Information Systems, B.S Publications, Hyderabad, 2008.
3. Barrett, E.C and L.F. Curtis : Fundamentals of Remote Sensing and Air Photo Interpretation, Mcmillan, New York, 1992.
4. Compbell, J. : Introduction to Remote Sensing, Guilford, New York, 1989.
5. Curran, Paul, J. : Principles of Remote Sensing, Longman, London, 1985.
6. Hord, R.M. : Digital Image Processing of Remotely Sensed Data; Academic New York, 1989.
7. John R. Jensen: Remote Sensing of the Environment – An Earth Resource perspective, Pearson Education pte Ltd., Delhi 2003.

8. Kumaraswamy. K (Ed): Remote Sensing for Environmental Studies, Union Offset Printers, Tiruchi, 2005.
9. Luder D. : Aerial photography Interpretation : Principles and Applications, McGraw Hill, New York, 1959.
10. Pratt, W.K Digital Image Processing, Wiley, New York, 1978.
11. Rao, D.P. (Eds) : Remote Sensing for Earth Resources, Associate of Exploration Geophysicist, Hyderabad, 1998.
12. Thomas, M. Lillesand and Ralph W. Kefer : Remote Sensing and Image Interpretation, John Willey & Sons, New York, 1994.

GEG 403 : REGIONAL PLANNING

- Unit I Concept of Region; Changing concept of the region from an inter-disciplinary view – point; concepts of regionalism and regionalization. Types of Regions : Formal and functional, uniform and Nodal, single purpose and composite regions, regional hierarchy and special purpose regions.
- Unit II Types of Planning; Sectoral, temporal; short term, long term and Multilevel planning and planning process.
- Unit III Decentralised Planning: Peoples participation in the Planning process; Panchayathi Raj system.
- Unit IV Physical resource and special purpose regions: River valley regions, hilly and tribal regions, drought prone regions and metropolitan regions.

Suggested Readings

1. Sundaram, K.V. : Urban and Regional Planning, Vikas Publishing house, New Delhi, 1977.
2. Misra, R.P. and Sundaram, K.V. : Rural Area Development, Sterling Publishers, New Delhi, 1979.
3. Misra, R.P., Urs, D.V. and Nataraj, V.K. : Regional Planning and National Development, Vikas Publishers, New Delhi, 1978.
4. Misra, R.P. : Regional Planning Concepts, Techniques and case studies, Prasaranga Press, University of Mysore, Mysore, 1969.
5. Sengupta, P. and Galina Sdasyuk : Economic Regionalisation of India: Problems and Approaches, Census of India, Monogram, New Delhi, 1968.
6. Planning Dept. Government of Andhra Pradesh : Planning and Development of Backward Regions – A Case Study of Rayalaseema.
7. Mishra, R.P. et al. Multi-Level Planning : Heritage Publishers, Delhi, 1980.
8. Bhat, L.S. et al. Micro-Level Planning : A Case Study of Kamal Area, Haryana, K.B Publications, New Delhi, 1976.
9. Friedmann, J. and Alonso, W. : Regional Development and Planning – A Reader, M.I.T. Press, Cambridge Mass, 1967.
10. Kuklinski, A.R. (ed.) : Growth Poles and Growth Centres in Regional Planning, Mouton, The Hague, 1972.

GEG 404(a)- POLITICAL AND ADMINISTRATIVE STUDIES

- Unit I Nature, scope, subject matter and recent developments in political geography. Influence of location, size and shape in political geography.
- Unit II Geographic elements and the state : Influence of Physical, Human and Economic elements. Political thought – contributions of Mahan, Mackinder and Spykman.

- Unit III Themes in political geography : State, Nation, and Nation building; Frontiers and boundaries; colonialism, decolonization, neocolonialism, federalism and other forms of governance.
- Unit IV Geopolitical significance of India and the Indian Ocean. The changing political map of India, unity in diversity, centripetal and centrifugal forces, stability and instability.

Suggested Readings

1. Prescott, J.R.V. : Political Geography, Methuen, London, 1972.
2. Gohen, S.B. : Geography of Political in a divided world, Open University Press, U.K. 1973.
3. Sukhwai, B.L. : India – A Political Geography, Ahmedabad, 1971.
4. Gohen, S.B. : Background to political geography, Museum Press, London, 1967.
5. Maszid Hussain : Political Geography of India, New Delhi.
6. De Blij, H.J. and Glassner, Martin : Systematic Political Geography, John Wiley, New York, 1968.
7. Dikshit, R.D. : Political Geography : A contemporary perspective, Tata McGraw Hill, New Delhi, 1996.
8. Dikshit, R.D.: Political geography : A century of progress, Sage, New Delhi, 1999.
9. Taylor, Peter. Political Geography, Longman, London, 1985.
10. Deshpande, C.D. : India – A Regional Interpretation Northern Book Centre, New Delhi, 1992.

GEG 404(b) : WATER AND SOIL RESOURCES MANAGEMENT

- Unit I Water as a focus of geographical interest, Inventory and distribution of world's water resources (Surface and Subsurface); World Hydrological cycle; precipitation and its Measurement, water balance studies.
- Unit II Groundwater: Origin, Occurrence and Vertical distribution; water quality: Physical, biological and chemical properties for irrigation, domestic and industrial purposes.
- Unit III Water Resources Management: conjunctive use of surface and ground water resources; watershed management. Methods of irrigation. Water harvesting techniques.
- Unit IV Soils: Process of soil formation and soil development. Soil profile development. Properties of soil – Physical, morphology, texture, structure and chemical properties. Soil erosion – degradation and conservation. Management of saline and alkaline soils.

Suggested Readings

1. Dakshinamurthy, C. et al., Water Resources of India and their utilization in Agriculture, Indian Agriculture Research Institute, New Delhi, 1973.
2. Bunting, B.T. : The Geography of Soils; Hutchinson, London, 1973.
3. Foth, H.D and Turk, L.M. : Fundamentals of Soil Sciences, John Wiley, New York, 1972.
4. Jones, J.A. : Global Hydrology : Processes, Resources and Environmental Management, London, 1997.
5. Matter, J.R. Water Resources Distribution, Use and Management, John Wiley, Marylane, 1984.
6. Singh, R.A and Singh, S.R. Water Management. Principles and Practices, Tara Publication, Varanasi, 1979.
7. Tideman, E.M. Watershed Management : Guidelines for Indian Conditions, Omega, New Delhi, 1996.
8. Todd, D.K.: Ground Water Hydrology, John Wiley, New York, 1959.
9. Sarma, Hyrdogy, Dhanpat Roy & Sons, New Delhi.

GEG 404(c) : GEOGRAPHY FOR RESEARCH, EXTENSION (SOCIETY) AND INDUSTRY

- Unit I : Methodology of Research : Meaning and Functioning of Research, Different types of Research, Identification of Research Problem, Tools for Collection of Data, Data Analysis, Interpretation of Results, The design and Execution of Research, Writing of Research Report.
- Unit II: Use of techniques in geographical research : Statistical techniques, Research techniques, Computer techniques, Remote sensing technology and Geographical information system.
- Unit III: Land use planning and extension activities: Land use and land cover planning, conservation of soils and irrigation, Wasteland development, watershed management and ground water exploration methods.
- Unit IV: Computer and GIS techniques and industry interactions: Computer techniques, Remote sensing, technology, Global positioning system, Geographical information system and Photogrametry and their interaction to that of soft ware training centres, software industries and planning institutions.

Suggested Readings

1. Rajammal, P. Devadas, Kulandaivel (edited): A Hand book of Methodology of Research, Sri Ramakrishna Vidyalaya, Coimbatore, 1976.
2. Simpson and Kafka: Basic statistics (Revised edition)W.W. Norton and Company, INC, 1965.
3. Elmer, B. Mode: Elements of Statistics (Third edition), Prentice Hall of India Private Limited, New Delhi, 1971.
4. Gautham, N.C.: Methodology for Landuse planning, a systematic approach, Centre for land use management, Hyderabad, 2002.
5. Hridayaram Yadav: Genesis and Utilization of Waste lands, Concept Publishing Company, New Delhi, 1986.
6. Tideman, E.M. : Watershed Management; Guidelines for Indian conditions, Omega Scientific Publishers, New Delhi, 1996.
7. Aronoff, S : Geographic Information System; A Management Perspective, DDL Publications, Ottawa, 1989.
8. Brig, N. Dhal and Ms. Sunita Dhal : Can GIS and Disaster Management System help GIS India? Vol.9, No.1, Jan.-Feb. 2000.
9. Barrett, E.C. and L.F. Curtis: Fundamentals of Remote Sensing and Air photo Interpretation, McMillan, New York, 1992.
10. Thomas, M. Lillesand and Ralph W. Kefer: Remote Sensing and Image Interpretation, John Wiley & Sons, New York, 1994.

GEG 404(d): SPATIAL INFORMATION SYSTEM

- Unit I: Information system : Introduction; Basics of Computers -Hardware and Software components of Computer System. Types of Information Systems – Spatial and non-Spatial. Maps as Geospatial information – functions of Maps and types of Maps.
- Unit II: Geographical Information System (GIS): Introduction and definitions. Elements of Spatial data, spatial data base creation – Data capturing methods. Spatial data structures – Raster and vector spatial data structures. Raster and vector approach of digital terrain modeling. Map overlay analysis. Linking spatial and attribute data. Principles of Global positioning system (GPS).
- Unit III: Spatial data acquisition : Remote Sensing – Introduction concept. Elements of Remote Sensing System. Aerial Remote Sensing. Types of aerial photographs. Stereoscopic vision and stereoscopes. Applications of remote sensing.
- Unit IV: Satellite Remote Sensing: Types of Satellites – Geostationary and Sun-synchronous. Sensor Characteristics; Resolutions: Spectral, Spatial, radiometric and temporal, satellite data products; Remote sensing as data sources for spatial information system.

Suggested Reading

1. Burrough, P.A.: Principles of Geographic Information Systems for land resource assessment, Oxford University Press, New York, 1986.
2. Misra, R.P. and Ramesh, A: Fundamentals of Cartography, Macmillan Co, New Delhi, 1986.
3. Lo, C.P. Albest, K.W. Yeung: Concepts and techniques of geographic information systems, prentice Hall of India Pvt. Ltd., New Delhi, 2003.
4. John R. Jensen : Remote sensing of the environment; An earth resource perspective, Pearson education, Delhi, 2003.
5. Thomas M. Lillesand and Ralph W. Kefer: Remote sensing and image interpretation, John Wiley & Sons, New York, 1994.
6. Luder, D : Aerial Photography interpretation: Principles and Application, Mc. Graw Hill, New York, 1959.
7. Kumaraswamy, K: Remote Sensing for environmental studies, Dept. of Geography, Bharathidasan University, Tiruchirapalli, 2005.

GEG 404(e) : TRANSPORT GEOGRAPHY

- Unit I Nature scope and significance of Transport Geography. Different types of Transportation – their merits and demerits. Factors controlling the cost of transport, long haul advantage.
- Unit II Transportation net-work : Nodes and Links, Accessibility, Centrality and connectivity, Alpha, Beta, Gama indices. Shape and diameter of the network and network matrix.
- Unit III Models in transportation : Gravity model, Allocation model, transportation model.
- Unit IV Transport and development planning : Urban and Regional Transport Planning. Role of Transport in Socio-economic integration.

Suggested Readings

1. Taffe, E.J. and H.L. Gautheir : Geography of Transportation, Prentice Hall, Foundation of Economic Geography Series.
2. Lloyed, P.E. and P. Kicken : Location in space – A theoretical appreciate economic geography, Harper and Row.
3. Kansky, Y. : The structure of transportation network.
4. Eliot Murst, M.E. : Transportation Geography – Comments and Readings.
5. O'dell, A.C. and P.S. Richards: Railway and Geography, 1971. Tealy, K.F. : The Geography of Air Transport.
6. David St. John Thomas. The Rural Transport Problems. Routledge and Kegan Paul London, 1963.

HUMAN VALUES AND PROFESSIONAL ETHICS – II **COMMON SYLLABUS FOR ALL P.G. COURSES (CBCS & NON-CBCS)**

Syllabus

(With effect from 2015-16)

(effective from the batch of students admitted from the academic year 2014-15)

- I. Value Education- Definition – relevance to present day - Concept of Human Values – Self introspection – Self esteem. Family values - Components, structure and responsibilities of family Neutralization of anger – Adjustability – Threats of family life – Status of women in family and society – Caring for needy and elderly – Time allotment for sharing ideas and concerns.
- II. Medical ethics- Views of Charaka, Sushruta and Hippocrates on moral responsibility of medical practitioners. Code of ethics for medical and healthcare professionals. Euthanasia, Ethical obligation to animals, Ethical issues in relation to health care professionals and patients. Social justice in health care, human cloning, problems of abortion. Ethical issues in genetic engineering and Ethical issues raised by new biological technology or knowledge.
- III. Business ethics- Ethical standards of business-Immoral and illegal practices and their solutions. Characteristics of ethical problems in management, ethical theories, causes of unethical behavior, ethical abuses and work ethics.
- IV. Environmental ethics- Ethical theory, man and nature – Ecological crisis, Pest control, Pollution and waste, Climate change, Energy and population, Justice and environmental health.
- V. Social ethics- Organ trade, Human trafficking, Human rights violation and social disparities Feminist ethics, surrogacy/pregnancy. Ethics of media- Impact of Newspapers, Television Movies and Internet.

Books for study:

1. John S Mackenzie: A manual of ethics.
2. "The Ethics of Management" by Larue Tone Hosmer, Richard D. Irwin Inc.
3. "Management Ethics – integrity at work" by Joseph A. Petrick and John F. Quinn, Response Books: New Delhi.
4. "Ethics in management" by S.A. Sherlekar, Himalaya Publishing House.
5. Harold H. Titus: Ethics for Today
6. Maitra, S.K: Hindu Ethics
7. William Lilly: Introduction to Ethics
8. Sinha: A Manual of Ethics
9. Manu: Manu Dharma Sastra or the Institute of Manu: Comprising the Indian system of Duties: Religious and Civil(ed.) G.C. Haughton.
10. Susruta Samhita: Tr. Kaviraj Kunjanlal, Kunjalal Brishagratha, Chowkamba Sanskrit series, Vol. I, II and III, Varanasi, Vol I OO, 16-20, 21-32 and 74-77 only.
11. Caraka Samhita: Tr. Dr. Ram Kraran Sarma and Vaidya Bhagavan Dash, Chowkambha Sanskrit Series office, Varanasi I,II,III Vol I PP 183-191.
12. Ethics, Theory and Contemporary Issues, Barbara Mackinnon, Wadsworth/Thomson Learning, 2001.
13. Analyzing Moral Issues, Judith A. Boss, Mayfield Publishing Company, 1999.
14. An Introduction to Applied Ethics (Ed.) John H. Piet and Ayodhya Prasad, Cosmo Publications.
15. Text book for Intermediate logic, Ethics and Human Values, board of Intermediate Education & Telugu Academic Hyderabad.
16. I.C. Sharma Ethical Philosophy of India. Nagin & co Julundhar.

SEMESTER-I

PRACTICALS

GEG 105 : MAPS, SCALES AND MAP PROJECTIONS

- Unit I Types of Maps.
- Unit II Scales : Methods of Representation; Conversions.
- Unit III Map Projections : Construction, Properties and Uses.
- Unit IV 1. Zenithal Projections : Equi-distant; Equal area, Stereographics, Gnomonic.
2. Cylindrical Projections: Equi-distant, Equal area, Mercator.
3. Conical projections : One standard parallel, two standard parallel; Bonne's, polyconic.
4. International map projection: Sinusoidal, interrupted. Sinusoidal - Molweides; Interrupted - molweides projections.

Suggested Readings

1. Khan, Z.A. : Text book of practical geography : concept; New Delhi, 1998.
2. Misra, R.P. and Ramesh, A. : Fundamentals of Cartography, Concept, New Delhi, 1989.
3. Singh, R.L. : Map work and practical geography; central book depot; Allahabad, 1972.
4. Steers, J.A. : Map projections, University of London Press, London.

GEG 106: TERRAIN MAPPING TECHNIQUES

- Unit I Interpolation of contours.
- Unit II Landforms represented by contours.
- Unit III Profiles: Serial, Superimposed, Projected, Composite.
- Unit IV Slope Analysis : Smith's and Wentworth's Methods.

Suggested Readings

1. Misra, R.P. and Ramesh, A. : Fundamentals of Cartography, concept, New Delhi, 1989.
2. Monkhouse, F.J.H.R. and Wilkinson : Maps and diagrams; Methuen and Co., London, 1984.
3. Peter Toyne & Peter Newby, T. : Techniques in human geography; MacMillan, London, 1972.

**SEMESTER II
PRACTICALS**

**GEG 205: INTERPRETATION OF TOPOGRAPHICAL
(S.O.I., U.S and O.S) AND WEATHER MAPS**

- Unit I Elements of Indian Topographical Maps – Marginal Information - Scales – Layout and Numbering of Toposheets.
- Unit II Interpretation of physical features of different terrains (SOI Maps).
- Unit III Interpretation of cultural features (SOI Maps).
- Unit IV Interpretation of U.S. and O.S. Toposheets.
- Unit V Weather maps (Indian and Foreign) : elements and interpretation.

Suggested Readings

1. John Bygott : An introduction to map work and practical geography, University Tutorial Press Ltd., London, 1974.
2. Mishra, R.P. and Ramesh, A. : Fundamentals of Cartography, Concept, New Delhi, 1989.
3. Singh, R.L.: Map work and practical geography, control Book depot, Allahabad, 1972.

GEG 206 : TECHNIQUES OF MAPPING AND MAP ANALYSIS

- Unit I Introduction to Computers.
- Unit II Graphs : Trilinear, Semi-log; Log-log.
- Unit III Bar Diagrams : Simple, Compound, Superimposed.
Diagrams : Pyramid, Pie.
- Unit IV Hyther-graph, Climograph, Ergo-graph, Band-graph.
- Unit V Thematic mapping: Dot method, isopleth and iso-chromatic methods; choropleth and choro-chromatic methods; flow method.

Suggested Readings

1. John Bygott: An introduction to map work and practical geography; University Tutorial Press Ltd. London, 1974.
2. Monk House, F.J.H.R. and Wilkinson : Maps and Diagrams; Methuen and Co., London, 1984.
3. Peter Toyne and Peter Newby, T. : Techniques in Human geography; Macmillan, London, 1972.

**SEMESTER-III
PRACTICALS**

GEG 305: GEOGRAPHICAL INFORMATION SYSTEM (GIS)

Unit I	Computer Hardware and Software.
Unit II	GIS Capabilities.
Unit III	Data Base generation in GIS (a) Spatial data generation – Digitization (Point, Line & Polygon) (b) Non-Spatial data generation.
Unit IV	Attribute database and Linking of databases.
Unit V	Analytical operations of software
Unit VI	Integration of data – map overlay.
Unit VII	Spatial Interpolation and Digital Elevation models.

Suggested Readings

1. Ian Heywood et al. An introduction to Geographical Information systems, Addison Wesley Longman Ltd. 1998.
2. Mishra, H.C.; GIS Handbook, GIS India, Hyderabad, 1996.
3. Peter A. Burrough and Rachael A. McDonnell; Principles of Geographical Information Systems; Oxford University Press, New York, 1998.
4. Star J and J. Estes; Geographic Information Systems; An Introduction, Prentice Hall, Englewood cliff, New Jersey, 1994.

GEG 306: STATISTICAL TECHNIQUES

Unit I	Frequency Distribution.
Unit II	Central Tendency 1. Arithmetic mean, 2. Median, 3. Mode 4. Geometric Mean 5. Harmonic Mean
Unit III	Measures of dispersion 1. Mean deviation, 2. Quartile deviation 3. Standard deviation
Unit IV	Correlation
Unit V	Rank-Correlation
Unit VI	Graphical Representation 1. Histogram, 2. Frequency polygon 3. Frequency curve 4. Ogive Curve 5. Less than and more than Ogive curve

Suggested Readings

1. Aslam Mahmood – Statistical Methods in Geographical Studies, Rajesh Publications, New Delhi, 1977.
2. Cole, J.P. & King, D.M. – Quantitative Methods in Geography, John Wiley and Sons, New York, 1968.
3. Singh, R.L. Elements of Practical Geography, Kalyani Publishers, 1992.
4. Toyni, P. and Newby, Techniques of Map, Longman, London, 1965.

**SEMESTER IV
PRACTICALS**

GEG 405: RESEARCH TECHNIQUES

Unit I	Introduction to Research Techniques.
Unit II	Network analysis: Alfa, Beta, Gama, Eta, Theta indices, Centrality, Connectivity, shortest path matrix analysis.
Unit III	Nearest neighbour distance analysis, Rank size relationship.
Unit IV	Detour index, shape index.
Unit V	Drainage basin morphometry.
Unit VI	Crop combination Techniques, Agricultural Landuse efficiency.

Suggested Readings

1. Gregory, K.J. and Walling, D.E. Drainage basin form and process: A Geomorphological approach; Arnold; London 1973.
2. Peter Davis: Science in geography, Science Series – 3, Data description and presentation, Oxford University Press, London, 1975.
3. Peter Toyne and Peter Newby, T.: Techniques in Human geography, Mac Millan, London, 1972.
4. Peter Toyne and Peter Newby, T. : Techniques in Physical geography; Mac Millan, London, 1972.
5. Singh Jasbir and Dhillon, S.S. : Agricultural geography, TATA Mc Graw Hill, New Delhi, 1984.
6. Singh, R.L. Mapwork and practical geography, central book depot, Allahabad, 1972.

GEG 406: REMOTE SENSING APPLICATIONS

Unit I	Techniques of Visual Interpretation
Unit II	Marginal Information of Satellite Imageries
Unit III	Interpretation of Satellite Imageries : Water Resources, Lineaments, Landuse / Land cover – Landforms – Waste Land.
Unit IV	Aerial photo interpretation 1. Vision test – Stereo Test with Stereoscopes 2. Interpretation of Physical Features 3. Interpretation of Cultural Features

Suggested Readings

1. Curran, Paul, J. : Principles of Remote Sensing: Longman, London, 1985.
2. Gautam N.C. et al. Space Technology and Geography ; National Remote Sensing Agency, Hyderabad, 1994.
3. Thomas M. Lillesand and Ralph, W. Keffer; Remote Sensing and images interpretation, John Willey & Sons, New York, 1994.
