

M.Sc. Geography

SEMESTER - I

Sl. No	Components of Study	Title of the course	Title of the Paper	Contact hours	No. of Credits	IA Marks	End SEM Marks	Total
1.	Core Theory (Mandatory)	GEG - 101	Geomorphology	6	4	20	80	100
2.		GEG - 102	Cartography	6	4	20	80	100
3.	Compulsory foundation (opt - 1)	GEG – 103(A)	Economic Geography	6	4	20	80	100
		GEG – 103(B)	Human Geography					
		GEG – 103(C)	Environmental Geography					
4.	Elective foundation (Opt - 1)	GEG – 104(A)	Oceanography	6	4	20	80	100
		GEG – 104(B)	Computer Basics for Geography					
		GEG – 104(C)	Regional Geography of Andhra Pradesh					
5.	Practical - 1	GEG – 105	Map Projections	8	4	---	100	100
6.	Practical - 2	GEG – 106	Techniques of Mapping and map analysis	8	4	---	100	100
	TOAL			40	24	80	520	600
7.	AUDIT COURSE		Human Values and Professional Ethics- I	0	0	100	0	0

SEMESTER - II

Sl. No	Components of Study	Title of the course	Title of the Paper	Contact hours	No. of Credits	IA Marks	End SEM Marks	Total
1.	Core (Mandatory)	GEG - 201	Climatology	6	4	20	80	100
2.		GEG - 202	Geographical Thought	6	4	20	80	100
3.	Compulsory Foundation (Opt - 1)	GEG – 203(A)	Principles of Remote Sensing	6	4	20	80	100
		GEG – 203(B)	Geography of Tourism					
		GEG – 203(C)	Industrial Geography					
4.	Elective foundation (Opt - !)	GEG – 204(A)	Physical Geography of India	6	4	20	80	100
		GEG – 204(B)	Regional Geography of India					
		GEG – 204(C)	Social and Cultural Geography					
5.	Practical - 1	GEG – 205	Interpretation of Topographical (S.O.I., U.S and O.S) and Weather Maps	8	4	---	100	100
6.	Practical - 2	GEG – 206	Research Techniques		4	---	100	100
	TOAL			40	24	80	520	600
7.	AUDIT COURSE		Human Values and Professional Ethics- II	0	0	100	0	0

SEMESTER - III

Sl. No	Components of Study	Title of the course	Title of the Paper	Contact hours	No. of Credits	IA Marks	End SEM Marks	Total
1.	Core (Mandatory)	GEG – 301	Urban Geography	6	4	20	80	100
2.		GEG – 302	Geographical Information System (GIS)	6	4	20	80	100
3.	Generic Electives (Opt - 1)	GEG – 303(A)	Agricultural Geography	6	4	20	80	100
		GEG – 303(B)	Transport geography					
		GEG – 303(C)	Disaster Management Studies					
4.	Practical	GEG – 304	Geographical Information System (GIS)	8	4	---	100	100
5.	Skill Oriented Course (Mandatory Theory & practical)	GEG – 305	GPS Survey and Report	Theory (2)+ Practical's (4)	4	10	90 (40+50)	100
6.	Open Elective (Opt - 1)	GEG – 306 (A)	Regional Geography of Andhra Pradesh	6	4	20	80	100
		GEG – 306 (B)	Geographical Information System (GIS) & Global Positioning System (GPS) and Applications					
	TOAL			24	24	90	510	600

SEMESTER - IV

Sl. No	Components of Study	Title of the course	Title of the Paper	Contact hours	No. of Credits	IA/Viva Marks	End SEM Marks	Total
1.	Core (Mandatory)	GEG – 401	Regional Planning	6	4	20	80	100
2.		GEG – 402	Advanced Remote Sensing	6	4	20	80	100
3.	Generic Electives (Opt - 1)	GEG – 403(A)	Water and Soil Resources Management	6	4	20	80	100
		GEG – 403(B)	Political Geography					
		GEG – 403(C)	Research in Geographical Studies					
4.	Practical	GEG = 404	Remote Sensing Applications	8	4	---	100	100
5.	Multi Disciplinary course/Project Work	GEG – 405	Project Work and Viva Voce	0	4	20	80	100
6.	Open Elective (Opt - 1)	GEG – 406 (A)	Regional Geography of India	6	4	20	80	100
		GEG – 406 (B)	Principles of Remote Sensing					
	Total			32	24	100	500	600

SEMESTER – I
CORE THEORY – 1

GEOMORPHOLOGY

Learning Objectives

- To show the landforms, landscape evolution, various land forming processes with respect to time, climate and tectonic regimes, the course shall further convey an understanding on land forming processes with different Geomorphic agents and processes on different temporal and spatial magnitude.
- To understand the concept of place and how it is connected to people's sense of belonging to the physical environment, landscape and culture.
- To understand the fundamental concepts of spatial interaction and diffusion, which explain how human activities are influenced by the concept of distance.
- To exposed to the nature of physical systems such as geomorphologic processes and natural hazards.
- To read and interpret information on different types of physical features maps.
- To learn how human, physical and environmental components of the world interact.
- To Examine Earth's plate tectonic framework. Explain the relationship between earthquakes and volcanoes

Learning Outcomes

After the completion of the course, Students will be able to

- Explain principal terms, definitions and theories in geomorphology.
- Explain the interior structure of the earth and geological time scale.
- Assess the cause and effect of disturbances in/on the earth.
- Explain different theories and models for landscape evolution with time.
- Describes the landform and landform processes in different climatic zones and tectonic regimes.
- Compare and discusses the formation of large scale landforms involving both exogenous and endogenous processes.
- Know how human, physical and environmental components of the world interact.

P.T.O

SYLLABUS

- 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, Apostasy 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.

CORE - THEORY-2

GEG 102: CARTOGRAPHY

Learning Objective

- To apprise the students to various aspects of cartography.
- To introduce the basic concepts and key theoretical approaches in Advanced Cartography.
- To describes the art and science of map making and map analysis.
- To teach the representation and conversions of scales.
- To provide the knowledge on map design, layout, lettering, toponomy, drawing surface and equipment.
- To give the clear picture on the changing process of map making from analogue to digital.

Learning Outcomes

After the completion of the course, Students will be able to

- Explain the importance of advanced cartography in map making and presenting.
- Acquire good knowledge about different procedure of map making and various projection system of map making by developing broad knowledge about latitude, longitude, meridians, parallels etc.
- Developing their quantitative application in geographical study which gives more accuracy in any geographical enquiry which can further helps students in conducting research activities.
- Perform map layout and map interpretation for any geographical area.
- Acquire knowledge of different method of surveying and map making by using proper tools and technique and can apply this knowledge in future research works.

SYLLABUS

- 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. Khan, Z.A. : Text book of practical geography, concept, New Delhi, 1998.
2. Monkhouse, F.J. & Wilkinson, H.R. : Maps and Diagrams, Methuen, London, 1994
3. Steers, J.A. : Map Projections, University of London Press, London 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 Systems, Pergaman Press, Oxford, 1991.
5. Star J and J. Estes : Geographic information systems. An introduction, Prentice Hall, Englewood Cliff, New Jersey, 1994.
6. Misra, R.P. and Rames, A.: Fundamentals of Cartography, Mcmillan Co., New Delhi, 1986.
7. Robinson, A.H. et al.: Elements of Cartography, John Wiley & Sons, U.S.A., 1995.
8. Sarkar, A.K., Practical Geography : A systematic approach; Oriental Longman, Calcutta, 1997.
9. Singh, R.L. and Dutt, P.K. Elements of Practical Geography, Kalyani publishers, New Delhi, 1979.

COMPULSORY FOUNDATION (OPT - 1)

GEG 103(A): ECONOMIC GEOGRAPHY

Learning Objectives

- To acquire knowledge about the concepts of resources, classification, models of natural resource processes, their use and misuse, conservation and management of resources for sustainable development
- To Provide a comprehensive introduction to basic concepts and key theoretical approaches in economic geography
- To Introduce economic geography as a dynamic, diverse and contested body of knowledge
- To enable you to apply this knowledge to key social and economic issues in the context of economic globalization
- To encourage to think about policy options for overcoming inequality and uneven development in the globalizing world.

Learning outcomes

After the completion of the course, Students will be able to

- Explain the importance of economic geography in analyzing the societies and economies work.
- Explain and apply key concepts and theoretical approaches in economic geography.
- Discuss and critically evaluate these concepts and theoretical approaches.
- Students will become sensitized to concept of resources.
- Students will become sensitized the classification of resources.
- Learn about use and misuse of resources.
- Will learn conservation methods and techniques.
- Showing an awareness and responsibility for the environment.
- Apply these concepts and theoretical approaches to key social and economic issues in the context of global economy.
- Discuss policy options for overcoming inequality and uneven development in the globalizing world.

SYLLABUS

- 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. Industrial policy of state and central government.

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. Hartshome, T.N. and Alexander, J.W. : Economic Geography, Prentice Hall, New Delhi, 1988.
6. Jones, C.F. and Darkenwald, G.G. : Economic Geography, McMilan 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.

103 (B): HUMAN GEOGRAPHY

Learning Objective

- To apprise the students to various aspects of human resources and their importance.
- Provide a comprehensive introduction to basic concepts and key theoretical approaches in Population.
- To describe Describes migration and its impact on the regional human resources.

Learning Outcomes

After the completion of the course, Students will be able to

- Apprise the students to various aspects of human resources and their importance.
- Illustrate basic concepts and key theoretical approaches in population.
- Describes migration and its impact on the regional human resources.

SYLLABUS

- UNIT I** Definition, nature, origin and scope of 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. Population Density.
- UNIT III** Trends of population growth of the world and India in the 20th century. Theories of population: Malthusian theory and Demographic Transition Theory.
- UNITIV:** Migration: Definition, types of migration internal and external, causes and Consequences of Migration, theories of migration – Lees theory. Problems and prospects of population growth; population policy and planning in India.

Suggested Redings :

1. Garnier, B.J: Geography of population, Long man group Ltd., London, 1966
2. Bogue Donald.: Principles of Demography, John Wiley and Sons, Newyark 1969.
3. Chandana R.C,: A Geography of population – Concepts , concepts, determinants, Kalyani publishers, New Delhi, 1986.
4. Clark, John,I(E.d): Geography and population :Approaches and applications, Pergman press Ltd. Oxford 1984.
5. Mamoria, C.B.India's population problem, Kithab mahal, New Delhi,1981.
6. Srinivasan, K.Basic demographic techniques and applications, Sage publications , New Delhi ,1998.
7. Zelinsky Wilbur, A prologue of population of population Geography, prentice Hall , 1966.

GEG 103 (C): ENVIRONMENTAL GEOGRAPHY

Learning objectives:

- To create the environmental aptitude among students.
- To familiarize the students with concepts, issues, approaches about physical and social environment.
- To acquainted with contemporary environmental problems and challenges.
- To provide knowledge on Ecosystem, Biomes, food chain and hydrological cycle.

Learning Outcomes

After the completion of the course, Students will be able to

- Gain the knowledge on environmental aptitude
- Familiarize with concepts, issues, approaches about physical and social environment.
- Acquainted with contemporary environmental problems and challenges.
- Familiarized the knowledge on Ecosystem, Biomes, food chain and hydrological cycle.

SYLLABUS

- 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. The Role of GIS and Remote Sensing in Environmental Management.

Suggested Readings

1. Turk. : Introduction to Environment 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 approach, Harper & Row, London, 1992.

GEG 104(A): OCEANOGRAPHY

Learning objectives:

- To develop the understanding about concepts associated with hydrosphere with context to oceanic relief, surfaces and their distribution on earth.
- To provide the knowledge about physical principles, characteristics, oceanic deposits.
- To develop knowledge on the ocean currents and their movemental impact. .

Learning Outcomes

After the completion of the course, Students will be able to

- Examine and compare the different ocean and water bodies with their distinct oceanic bottom relief, circulation system and marine deposits
- Improve the knowledge on Coral reefs and their formation theories..

SYLLABUS

- UNIT 1** Oceanography – nature, scope and development, distribution of land and Water. Relief of Ocean Basins – Hypsometry. The Continental Shelf, The Continental Slope, the Deep Sea Plains, Submarine Canyons – Characteristics, Origin and Distribution. General features of Bathymetry bottom relief of Pacific, Atlantic and Indian Ocean.
- UNIT II** Ocean water: Distribution of temperature, composition of salinity, density of sea level.
- UNIT III** Ocean currents: origin, causes and characterises; Atlantic, Indian, Pacific Ocean. Tides and waves.
- UNIT IV** Ocean deposits: sources, types and distribution of ocean deposits. Coral reefs: formation types, factors of growth.

Suggested Readings:

1. Davis, R.J.A. 1986, Oceanography – An Introduction of the Marine Environment, Win C. Brown, Iowa.
2. King, C.A., Oceanography for Geographers, Edward Arnold Pub.
3. Murray, S.J., 1913, Ocean, A General account of the Science of the sea, Thorton Butter Worth, London.
4. Siddhartha, K. 1999, Oceanography, A Brief Introduction, Kisalaya Pub. Pvt. Ltd., New Delhi..
5. Singh, S. 2002, Physical Geography, Prayag Pub., Allahab6.Sharma & Vatal :
6. Oceanography for Geographers Chaitanya Publishing House, Allahabad.
7. Lal.D.S. Oceanography, chaitanya Publishing House, Allahabad,1994

GEG 104 (B): COMPUTER APPLICATIONS IN GEOGRAPHY

Learning objectives:

- To develop the understanding about concepts associated computer applications and geographical relevance.
- To provide the knowledge about principles, characteristics of various computer programmes.
- To develop knowledge on how to use computers for geographical representations.

Learning Outcomes

After the completion of the course, Students will be able to

- Understand computer concepts and principles.
- Examine and compare the different computer programmes and usage of computers to geographical studies
- Improve the knowledge on computer net workings

SYLLABUS

- UNIT I** Introduction to computers , Definition, origin and Evolution, Characteristics, Limitations and Elements of Computers, Hard ware and Software.
- Unit II** M.S Office: M.S word and word processing – parts of word processecing, Moving and copying Window Toolbars, Creating, saving and closing Document- opening and editing of document text and Paragraph forming, Appling bullets and numbering, Creation of Table.
- Unit III** M.S.Excel: Features of M.S Excel-Spread sheet/work sheet, parts of M.S.Excel window Insertion and deletion of worksheet. Entering and editing date in work sheet. Different type of Function available in M.S.Excel -Templates, Charts, Graphs. Understanding Website and LAN
- Unit IV** Representation of Geographical Data Base: Rain fall, Temperature, Population, Crop Yielding, Land use and Land Cover. Tables, Graphs, Diagrams, Maps and PPT presentation.

Suggested Readings:

1. Fundamentals of Computer(First Edition- 2009) Publisher: McGraw-Hill by Balaguruswamy
2. Computer Fundamentals(Fourth Edition- 2007) Publisher: BPB Publications by Pradeep Sinha and Priti Sinha.
3. Computer Fundamentals(First Edition-2010) Publisher: Pearson by Anita Goel
4. Introduction to Computers (First Edition 2008) Publisher : Cengage Learning By Gary B.Shelly, Thomas J. Cashman and Misty E. Vermaat
5. Fundamentals of Computers and Programming with C by A. K. Sharma DhanpatRai publications
6. Computer Networks (4th Edition) by Andrew S. Tanenbaum
7. Operating System Concepts, (6th Edition) by Abraham Silberschatz, Peter Baer Galvin, Greg Gagne

GEG 104(C): REGIONAL GEOGRAPHY OF ANDHRA PRADESH

Learning objectives:

- To acquaint the students with re- organization of Andhra Pradesh and its new physical, climate and drainage aspects. .
- To obtain the knowledge of demographic, irrigation and major crops.
- To understand Andhra Pradesh mineral and industrial aspects with transportation.
- To improve knowledge on the transportation and communication aspects of Andhra Pradesh

Learning Outcomes

After the completion of the course, Students will be able to

- Understand re- organization of Andhra Pradesh and its new physical, climate and drainage aspects. .
- Obtain the knowledge of demographic, irrigation and major crops.
- Understand Andhra Pradesh mineral and industrial aspects with transportation.
- Improved knowledge on the transportation and communication aspects of Andhra Pradesh

SYLLABUS

- UNIT I:** Re-organization of Andhra Pradesh Act -2014 Location and physical setting
Major Physiographic Divisions– Soils, Vegetation, and Drainage – Climate
Regions and their Characteristics.
- UNIT II** Population Distribution; Density, growth and problems. Agriculture Types.
Irrigation and power; Multipurpose Projects, Major food grain crops.(Paddy, Jowar
and Ragi), major Commercial Crops (Cotton, Groundnut and Mango).
- UNIT III** Mineral Resources: Iron ore, Limestone and Petroleum, Industries: Iron and
Steel, Cotton and IT. Industrial Regions and Special Economic Zones (SEZ)
Andhra Pradesh.
- UNIT IV** Transportation and Communication – Road, Rail, Water (special reference to
coastal Transport) and Air Transport. Communication net work in Andhra
Pradesh.

Suggested Readings:

1. Take from 401, 4, 5 from old syllabus.
2. Structure, growth and prospects of Industries in Andhra Pradesh. Lotus publications, Varanasi-1989.
3. Regional Geography of Andhra Pradesh– Telugu Academy.
4. Andhra Pradesh year book -2010-2015.

Practical – 1

GEG 105: MAP PROJECTIONS

Learning Objective

- To apprise the students about the art and science of map making and representation.
- To explain the usage of different types of projections
- To focus on the importance of scale and projection in the process of representing the earth surface

Learning Outcomes:

After the completion of the course, Students will be able to

- Explain the concept of map, scale and projection
- Student can explain the purpose of projection
- The main outcome of this course is students can able to select different projection for different geographical areas.

SYLLABUS

Unit I	Introduction to Map projections; Zenithal Projections: Equi -distant; Equal area, Stereo graphics, Gnomonic.
Unit II	Cylindrical Projections: Equi -distant, Equal area, Mercator, UTM, Gall's Projection
Unit III	Conical Projections: One standard parallel, Two standard parallel; Bonne's, Polyconic.
Unit IV:	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

Practical – 2

GEG 106: TECHNIQUES OF MAPPING AND MAP ANALYSIS

Learning Objective

- To apprise the students about the Terrain mapping techniques
- To project the representation of the landforms by using contour lines
- To explain the methods of slope analysis
- To develop the knowledge on the thematic maps
- To Understand the data representation through the diagrammatic form and log graphs

Learning Outcomes

After the completion of the course, Students will be able to

- Students can able to Represent the landforms with contour lines
- Student can perform profiles which are drawn from landforms through contours
- Student can represent the slope analysis models
- Students can able to understand how to represent the data through different diagrams and graphs

SYLLABUS

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|-----------------|--|
| . UNIT I | Interpolation of contours. Landforms represented by contours. Profiles: Serial, Superimposed, Projected, Composite. |
| UNIT II | Slope Analysis: Smith's and Wentworth's Methods. |
| UNIT III | Thematic mapping: Dot method, Isopleths and Iso-Chromatic method; Choropleth and Choro-Chromatic methods; Flow method. |
| UNIT IV | Bar Diagrams: Simple, Compound, Superimposed, Graphs: Trilinear, Semi log; Log-log., Diagrams -Pyramid, Pie. Hyther-graph, Climo-graph, Ergo-graph, Band-graph. Frequency polygon. |

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.
4. John Bygott: An introduction to map work and practical geography, university Tutorial press Ltd., London .

Audit Course

HUMAN VALUES AND PROFESSIONAL ETHICS – I

Unit 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.
Unit 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.
Unit III	Individual and society: Ahimsa (Non-Violence), Satya (Truth), Brahmacharya (Celibacy), Asteya (Non Possession) and Aparigraha (Nonstealing).Purusharthas (Cardinal virtues)- Dharma (Righteousness), Artha (Wealth), Kama (Fulfillment Bodily Desires), Moksha (Liberation).
Unit 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.
Unit V	Crime and Theories of punishment – (a) Reformatory, Retributive and Deterrent. (b) Views on manu and Yajnavalkya.

Suggested Readings:

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. Houghton.
10. Susruta Samhita: Tr. Kaviraj Kunjanlal, Kunjanlal Brishagratha, Chowkamba Sanskrit Series. Vol. I,II,III, Varanasi VOL. I OO, 16-20, 21-32, and 74-77 only.
11. Caraka Samita: Tr. Dr. Ram Karan Sharma 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, Wads Worth/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. Julundha

SEMESTER – II
CORE THEORY-1
GEG 201: CLIMATOLOGY

Learning Objective

- To introduce to the students the fundamentals of atmospheric phenomena, global climate systems and climate change.
- The atmosphere and climate are a critical part of the earth system, and climatic variability and change are central to the issue of current and future global environmental change.
- To grasp the techniques for modeling the climate, covering both theoretical and technical aspects.
- To understand the dynamics of the atmosphere and the overall climatologically system.
- To be able to analyse and interpret climatic data and classification of climate

Learning Outcomes

After the completion of the course, Students will be able to

- Obtain the knowledge on fundamentals of atmospheric phenomena, global climate systems and climate change.
- Understand the atmosphere and climate are a critical part of the earth system, and climatic variability and change are central to the issue of current and future global environmental change.
- Grasp the techniques for modeling the climate, covering both theoretical and technical aspects.
- Understand the dynamics of the atmosphere, the ocean and the overall climatologically system.
- Able to analyze and interpret climatic data and classification of climate

P.T.O

SYLLABUS

- UNIT I** Nature and scope of climatology. Composition and structure of the Atmosphere – Insulation – 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 vapor- Humidity – Relative, absolute and specific humidity – condensation and types, cloud types, types of Rainfall – Koppen’s and Thornthwaite’s scheme of climatic classification.
- UNIT IV** Theories of Climatic changes – Astronomical or Orbital Theory, Continent Displacement Theory. Micro Climates – agro climate, urban climate, global warming, heat Island, health hazards. Weather Forecasting - Problems and Prospects of weather Forecasting in India.

Suggested Readings

1. Crittch 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 Groue, USA, 2001.

CORE THEORY-2

GEG 202: GEOGRAPHICAL THOUGHT

Learning Objective

- To acquaint the students with the Geographical philosophy. and the Methodology and historical development of geography as a professional field.
- The idea is to address the spirit and purpose of the changing geographies and to what we as geographers contribute towards knowledge production.
- To developing critical thinking and analytical approaches and Students will acquire an understanding of and appreciation for the contributions of the eminent geographers to the subject.
- To provide the knowledge on the quantitative revolution in the geographical studies.

Learning Outcomes

After the completion of the course, Students will be able to

- Understand the evolution of geography over the decades.
- Students will demonstrate an advanced understanding of the historical development of geographical studies.
- They can understand the major current philosophical and theoretical debates in geography.
- Students will demonstrate an understanding of current research within the breadth of geography, as well as more in depth knowledge of research in their specialty areas.
- Students will develop a solid understanding of the concepts of “space,” “place” and “region” and their importance in explaining world affairs.
- Improve knowledge on the quantitative revolution in the geographical studies.

P.T.O

SYLLABUS

- 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 blache, Elisee Reclus, Jean Brunhes and Emmanuel de Martonne. Asian geographers with special reference to Indian geographers
- 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. Behavioral 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. Hartshome, 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.

COMPULSORY FOUNDATION (OPT - 1)
GEG 203(A): PRINCIPLES OF REMOTE SENSING

Learning Objective

- To focus on history and evolution of Remote sensing.
- To explain the principle involved in remote sensing i.e. the Electromagnetic spectrum, reflection, refraction, diffusion, absorption and interaction with earth's atmosphere.
- To give the technical knowledge of satellite system.
- To provide knowledge on the platforms and instruments used for remote sensing.
- To give light on Aerial Remote sensing and satellite Remote sensing.
- To explain about the specifications of sensors.

Learning Outcomes

After the completion of the course, Students will be able to

- Understand the principles of remote sensing and its techniques.
- Student will be able to know the application of remote sensing in various fields.
- Student can apply the knowledge in getting authentic data by performing pre and post analysis in aerial remote sensing.
- Student will analyze the changes on earth surface with the image interpretation and visual interpretation techniques.
- With the sound knowledge on the process, principles, effecting factors, techniques of Remote sensing student can understand interpretation of the data in much more accurate.

SYLLABUS

- UNIT I** Introduction to Remote Sensing: History, Development and Principles. Stages in Remote sensing Process. Energy Sources and Radiation Principles-Energy Interaction in the Atmosphere. Atmospheric Windows. Energy Interaction with Earth Surface features. Electromagnetic Spectrum. Spectral reflectance patterns of Earth surface features in different wavelengths.
- UNITII** Thermal Remote Sensing: Thermal sensors and characteristics, Interpretation of thermal images, Emissivity conservation, Thermal inertia considerations, Factors effecting analysis of thermal images. Estimation of land surface temperature.
- UNITII** Microwave Remote Sensing: Microwave Remote Sensing and its advantages. Active and passive systems. Platforms and sensors. Active Microwave systems: Basic principles of radar, radar equation, Resolution, Range, Phase and Angular measurements, Microwave scattering and its measurement, Relationships between scene and sensor parameters. Imaging systems, Imagery – their characteristics and interpretation.
- UNIT-IV.** Satellite Remote Sensing: Types of Satellites, Orbits: Types of Orbits, and Orbital Characteristics. Platforms: types of Platforms in Remote sensing. Sensors- Definition, Types of Sensors in Remote sensing. Scanning mechanism. Resolutions: Definition, Spectral, Spatial, Temporal and Radiometric resolutions of Satellites. Characteristics of Indian Remote Sensing Satellites(I.R.S)

Suggested Readings

1. American Society of Photogrammetry : Manual of Remote Sensing, ASP, Falls Church, V.A. 1983.
2. Barrett, E.C. and L.F. Curtis : Fundamentals of Remote Sensing and Air Photo Interpretation, Mcmillan, New York, 1992.
3. Compbell, J. : Introduction of Remote Sensing, Guilford, New York, 1989.
4. Curran, Paul, J. : Principles of Remote Sensing, Longman, London, 1985.
5. Leuder D. : Aerial Photographic Interpretation: Principles and Application, McGraw Hill, New York, 1959.
6. Rao D.P. (eds.) : Remote Sensing for Earth Resources, Association of Exploration Geophysicist, Hyderabad, 1998.
7. Thomas M. Lillesand and Ralph W. Kefer, Remote Sensing and Image Interpretation. John Wiley & Sons, New York, 1994.

GEG 203(B): GEOGRAPHY OF TOURISM

Learning objectives:

- To provide introduction on Scope and subject matter of Tourism, Types of tourism. Tourism environment and Heritage.
- To give Knowledge on tourism and economic importance.
- To provide Understanding on Tourism and its Impact on Human Resources development.
- To provide knowledge on infrastructural and facilities development for tourism.

Learning Outcomes

After the completion of the course, Students will be able to

- Understand the evolution of tourism geography over the decades.
- Students will demonstrate understanding of the tourism and economic importance.
- They can understand the tourism impact on the HRD.
- Students will develop a concrete understanding of tourism and infrastructural need.

SYLLABUS

UNIT-I Tourism: Definition, nature and Scope Tourism. Types of tourism. Tourism environment and Heritage

UNIT-II Economic important of Tourism. status of national and the state of Andhra Pradesh in Tourism Development.

UNIT-III Human resource Development due to tourism -Apprenticeship, Training in Institutions of 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 in India and Andhra Pradesh

Suggested Readings:

1. Kaul, C.N; Dynamics of Tourism . A trilogy in three volumes sterling publishers 1985.
2. Alister Mathison and Geoffrey Hall – Tourism: Economic, Physical and social impact- Longman, 1982.
3. Chib, Som, N.-perspectives on Tourism in India.
4. Bukart, A.J. and 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 in India: all tourist Guide and Reference book 1977.
9. Negi J.M.S. Tourism and hoteling : A world wide industry 1982, New Delhi :Gitanjali. Publication
10. Bhatia, A.K, - Tourism development :Principles and practices.

GEG203(C): INDUSTRIAL GEOGRAPHY

Learning objectives:

- To develop the understanding about industrial Geography.
- To familiarize the students with industrial location theories, in industrial geography.
- To provide knowledge on industrial classification.
- To enhance knowledge on industrial regions and imbalances in India.

Learning Outcomes

After the completion of the course, Students will be able to

- Understanding about industrial Geography.
- Can familiarize the students with industrial location theories, in industrial geography.
- Improve the knowledge on industrial classification.
- Enhance knowledge on industrial regions and imbalances in India.

SYLLABUS

UNIT I	Definition, Nature and scope of industrial Geography, significance of Industrial Geography, Industries; Introduction and definition.
UNITII	Major geographical factors for industrial locations. Theories of Industrial location: August Losch and Isard.
UNITIII	Classification of Industries: Resource based, agro based, Information Technology (IT). Multitasked: Small scale and large scale industries.
UNIT IV	Industrial Regions: Industrial development in India, Industrialization in Andhra Pradesh. Regional imbalances.

Suggested Readings:

1. Israd,W.: Introduction to regional sciences.Prentice Hall .
2. Smith,D.M. : Industrial location, willay international edition -1971
3. Alexander J.N.:Economic Geograpy. Prentice Hall.
- 4.Estall,R.C.& industrial activity and Economic Geography, R.O.Buchanan Hatchinson university libraray, London
5. SINHA,B.N. industrial geography of India
6. Thoman ,Concling and yeats:The Geography of Economic activity, M.c grow Hill company.

GEG204(A): PHYSICAL GEOGRAPHY OF INDIA

Learning objectives:

- To develop the understanding about physical features of Indian Geography.
- To familiarize the students with physiography, Drainage, Climate, soil and natural vegetation of India.

Learning Outcomes

After the completion of the course, Students will be able to

- Conceptualize the elements of physical features of Indian geography.
- Visualize and recognize the major topographical, geological, soil and natural vegetation regions of India.
- examine the various issues, problems and challenges associated with these physical regions.

SYLLABUS

- UNIT I** Physiography: Major Physiographic Divisions of India; Extra- Peninsula: Its Structure Relief and the Evidences Regarding its Present Day Evolution; Evolution, Structure and Relief; of Peninsula, Indo Gangetic Plain, Western Coast, Eastern Coast and Islands.
- UNIT II** Drainage System: Himalayan and peninsular drainage - The Indus, Brahmaputra, Ganga the Godavari and Krishna River Systems; differences between the Himalayan and Peninsular Drainage.
- UNIT III** Climate: Origin and Mechanisms of Indian Monsoon - Classical and Modern Views of origin; Effects of El-Nino and La-Nina on Indian Monsoon. Koppen's and Thornthwaite classification of Indian Climate.
- UNIT IV** Soils and Forest: classification, erosion and conservation; Saline and Alkaline Soils - measures of reclamation; Problems and developmental programs of Indian Forestry.

Suggested Readings:

1. Spate, O.H.K., & Learmmonth, A.T.A., India & Pakistan, London.
2. Puri, G.S., Indian forest Ecology, New Delhi.
3. Ray Chaudhary, S.P. Land and soil, New Delhi
4. The Gazetteer of India Vo 1,.1
5. Krishnan, M.B. : Geology of India, Higginbothams, Madras.
6. Das, P.K., The Monsoon, New Delhi
7. Wadia, D.N., Geology of India, London.
8. Memoria, C.B. : Economic and Commercial Geography of India, Shirlal Agarwaland Co., Agra, 1991.
9. Alam, S.M. : Planning atlas of Andhra Pradesh.
10. Khullar: India, A comprehensive Geography. Kalyani Publishers , New Delhi.1989.

GEG204(B): REGIONAL GEOGRAPHY OF INDIA

Learning objectives:

- To conceptualize the regional approaches and to examine regional differentiation in the study of Indian Geography.
- To expose to historical, economic, cultural, social and physical characteristics of India.
- To provide an introduction to the regions of the India in terms of both their uniqueness and similarities. .

Learning Outcomes

After the completion of the course, Students will be able to

- Developed the art of regionalization technique while focusing about diversity of Indian region.
- visualized and recognized about regional identities and socio-cultural dimension of regionalization to address the issues and concern needed for regional planning.

SYLLABUS

- UNIT I** Location and Regional Geographical Setting; Region; Development and Types- formal region, nodal region, functional region. Regionalization – Causes, methods and techniques used for regionalization.
- Unit: II** Mineral Resources – Coal, Iron ore and petroleum. Industries: Iron and Steel, Oil refinery and Paper industries; Industrial Regions of India.
- Unit III** Agriculture – Agriculture Types, Systems and Productivity. Regionalization of Agriculture - methods and techniques used in the analysis of crop combination regions. Agricultural policies in India
- Unit IV** Population; Distribution, Density growth and problems, population policies in India; Irrigation; Multipurpose projects. Power – Hydral, Thermal, Solar and Wind

Suggested Readings

1. Spate, O.H.K., & Learmonth, A.T.A., India & Pakistan, London.
2. Puri, G.S., Indian forest Ecology, New Delhi.
3. Ray Chaudhary, S.P. Land and soil, New Delhi
4. The Gazetteer of India Vo 1,.1
5. Krishnan, M.B. : Geology of India, Higginbothams, Madras.
6. Das, P.K., The Monsoon, New Delhi
7. Wadia, D.N., Geology of India, London.
8. Memoria, C.B. : Economic and Commercial Geography of India, Shirlal Agarwal and Co., Agra, 1991.
9. Alam, S.M. : Planning atlas of Andhra Pradesh.
10. Khullar: India, A comprehensive Geography. Kalyani Publishers , New Delhi.1989.

GEG204(C): SOCIAL AND CULTURAL GEOGRAPHY

Learning objectives:

- To understand the theoretical emergence of social geography, social well being, gender issues, social differentiation and regional dimensions of sociological changes.
- To demographic, social and cultural attributes of Earth such as migration, social relations and cultural identity

Learning Outcomes

After the completion of the course, Students will be able to

- Assess the casual role of Geography in production of different social groups and shaping of their unique features.
- Evaluate the emerging social spaces, stratification, social well being, and issues of social justice through spatial perspective.

SYLLABUS

UNIT I	Social Geography – Nature and Scope – Social Structure and processes – concept of space and place – social well being – quality of life – social exclusion and inclusion.
UNIT II	Ethnicity, tribe, dialect, language, caste and religion - Spatial distribution- World and India.
UNIT III	Cultural Geography- Nature and scope; culture complex and regions; cultural heritage, interactions, diffusion, ecology and imperialism.
UNIT IV	India's Cultural Setting: Historical perspective of Indian culture; Racial, linguistic, ethnic diversities and religious minorities; Inter-regional, intra-regional and international migration and associated problems; Health indicators.

Suggested Readings:

1. Robestein J.H. & Robert S. Barren (1990) the cultural Landscape An Introduction to Human Geography, Prentice Hall of India Pvt. Ltd. New Delhi – 1.
2. Singh R.Y. (2003) Geography of Settlements. Rawat Publications, Jaipur.
3. Hussain M. (1999) Human Geography, 2nd Edition, Rawat Publication, Jaipur .
4. TirthaRanjit (2002) Geography of India 2nd Edition, Rawat Publication, Jaipur.
5. www.fortunecity.com/victorian/updike/188.culture.
6. www.utexas.edu/depts/grg/sanders/GRG305/industrialgeography.

Practical - 1

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

Learning objectives

- To provide understanding and interpretation Skills of different Topographical maps.
- To improve the knowledge on Indian weather maps and Interpretation skills.

Learning Outcomes

After the completion of the course, Students will be able to

- Explain the elements, scale and numbering of Topographical maps
- Analyse and interpret the physical and cultural features from Indian, U.S and O.S Toposheets.
- Explain the elements of weather maps and analyse and interpret the weather maps

SYLLABUS

UNIT I	Indian Topographical Maps – Introduction, Numbering, importance, and usage
UNIT II	Interpretation of physical features and cultural features Survey of India (SOI).
UNIT III	Interpretation of physical features, cultural features U.S. and O.S. Toposheets.
UNIT IV	Interpretation of Weather maps (India): 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, Al lahabad, 1972.

Practical - 2

GEG 206: RESEARCH TECHNIQUES

Learning objectives

- To provide an understanding for the student on statistical concepts to include measurements of location and dispersion, and correlation analysis.
- To calculate and apply measures of location and measures of dispersion -- grouped and ungrouped data cases.
- To sensitize the different Research and agricultural techniques.

Learning outcomes:

After the completion of the course, Students will be able to

- Keeping in view the nature of data and purpose of study and to make a rational choice amongst listed various statistical methods.
- Students shall know how to organize, manage, and present data.
- Understand and use different research techniques in their researches and day to day needs.
- Use different agricultural methods in their research and needed situations.

SYLLABUS

UNIT I	Frequency Distribution, Measures of Central Tendency; Arithmetic Mean, Median, Mode
UNIT II	Measures of dispersion: Mean deviation, Quartile deviation, Standard deviation, Correlation- Rank Correlation
UNIT III	Network analysis: Alfa, Beta, Gama, Eta, Theta indices, Centrality,Connectivity and shortest path matrix analysis.
UNIT IV	Nearest neighbor distance analysis, Crop combination and Drainage basin Morphometry

Suggested Readings

1. Aslam Mahmood—Statistical Methods in Geographical Studies, Publication, New Delhi, 1977.
2. Cole, J.P. & King, DAM – Quantitative Methods in Geography, John Wiley andSons, New York, 1968.
3. Gregory, K.J. and Walling, D.E. Drainage basin form and process: AGeomorphologic approach; Arnold; London 1973.
4. Peter Davis: Science in geography, Science Series– 3, Data description and presentation, Oxford University Press, London, 1975.
5. Peter Toyne and Peter Newby, T.: Techniques in Human geography, MacMillan, London, 1972.
6. Singh Jasbir and Dhillon, S.S. : A gricultural geography, TATA Mc Graw Hill,New Delhi, 1984.
7. Singh, R.L. Mapwork and practical geography, central book depot, Allahabad,1972.
8. Singh, R.L. Elements of Practical Geography, Kalyani Publishers, 1992.
9. Toyni, P. and Newby, Techniques of Map, Longman, London, 1965

Audit Course

HUMAN VALUES AND PROFESSIONAL ETHICS – II

- Unit I** Value Education –Definition – relevance to present day – Concept of Human Values – Self introduction – 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.
- Unit 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.
- Unit 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.
- Unit IV** Environmental ethics- Ethical theory, man and nature – Ecological crisis, Pest control, Pollution and waste, Climate change, Energy and population, Justice and environmental health.
- Unit V** Social ethics- Organ trade, Human trafficking, Human rights violation and social disparities Feminist ethic, surrogacy/pregnancy. Ethics of media- Impact of Newspapers, Television Movies and Internet.

Suggested Readings:

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, Kunjanlal Brishagratha, Chowkamba Sanskrit Series. Vol. I,II,III, Varanasi VOL. I OO, 16-20, 21-32, and 74-77 only.
11. Caraka Samita: Tr. Dr. Ram Karan Sharma 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, Wads Worth/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 – III
CORE THEORY-1
GEG 301: URBAN GEOGRAPHY

Learning objectives:

- To deal with the concept of urban settlements and evolution of urban population and to provide concept of Urban studies.
- To explain the cause and effects of growth in urban population.
- To explain the theories involved in classifications of towns and relationship between towns and cities and their population.
- To understand patterns of World urbanization with reference to India

Learning out comes:

After the completion of the course, Students will be able to

- Learn the concept of urban settlements and evolution of urban population and to provide concept of Urban studies.
- Understand the cause and effects of growth in urban population
- Explains the theories involved in classifications of towns and relationship between towns and cities and their population.
- Distinguish patterns of World urbanization with reference to India.

SYLLABUS

- UNIT I** Urban Geography : Definition, Nature and scope. Urban growth, structure and slums. Urban settlements - Impact of the Industrial revolution on location, spacing and size of urban settlements
- UNIT II** Origin and evolution of cities: Ancient, Medieval and Modern cities. Primate city, Metropolis; Megalopolis and Conurbation, The concept of Smart Cities and Satellite towns, Patterns of towns and city's.
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- UNIT III** Urban Hierarchy, Rank– size relationship, Nearest Neighbor analysis– classification of towns with special reference to functional classification. Urban Morphology - Theory's: Concentric Zone, Multiple-nuclei, Central Place and Sector Theory.
- UNIT IV** Rural – urban relationships, rural - urban fringe, urban decay, urban sprawl urban renewal. The concept of city – region: Urban Um-land and hinter land; Pattern of world urbanization with special reference to India and Andhra Pradesh.

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 Kegan, Paul Ltd., London, 1964
4. Mayer and Cohen : Readings in Urban Geography, Central Book Depot., Allahabad.

CORE THEORY-2

GEG 302: GEOGRAPHICAL INFORMATION SYSTEM (GIS)

Learning objectives:

- To understand the evolution of GIS.
- To focus on collection, analyzing, interpretation and presenting the data related to Earth.
- To explain the types of data collection with respect to time and terrain and Data base management and retrieving the data from different sources.
- To provide the theoretical knowledge on the Modeling surfaces and integration of Remote sensing with GIS.
- To provide knowledge on GIS applications in different sectors.

Learning Outcomes:

After the completion of the course, Students will be able to

- Understand the evolution of GIS.
- focus on collection, analyzing, interpretation and presenting the data related to Earth.
- Differentiate the types of data collection with respect to time and terrain and Data base management and retrieving the data from different sources.
- Improve knowledge on the Modeling surfaces and integration of Remote sensing with GIS.
- Develops knowledge on GIS applications in different sectors.

SYLLABUS

- 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** Modeling Surfaces: Co-ordinates, Generation of DEM, DTM and TIN models – Spatial Interpolation – GIS output generation – Integration of Remote Sensing and GIS. Network Analysis.
- 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 application.

Suggested Readings

1. Aronoff S. Geographic Information System : A Management Perspective, DDL Publication, Ottawa. 1989.
2. Burrough P.A. Principles of Geographic Information Systems for Land Resource Assessment. Oxford University Press, New York, 1986.
3. Fraser Taylor D.R. Geographic Information System. Pergamon Press, Oxford, 1991.
4. Maquire D. J.M.F. Goodchild and D.W. Rhind (eds.) Geographic Information Systems : Principles and Application. Taylor & Francis, Washington, 1991.
5. Mark S. Monmonier. Computer – assisted Cartography. Prentice – Hall, EnglewoodCliff, New Jersey, 1982.
6. Peuquet D.J. and D.F. Marble, Introductory Reading in Geographic Information Systems. Taylor & Francis, Washington, 1990.
7. Star J. and J. Estes. Geographic Information Systems : An Introduction. PrenticeHall, Englewood, Cliff, New Jersey, 1994.

GENERIC ELECTIVE (Opt-1)

GEG-303(A): AGRICULTURAL GEOGRAPHY

Learning objectives:

- To focus on evolution of Agriculture through at the different ages and approaches.
- To understand the concepts and importance of determinants in different cropping patterns.
- To understand agricultural location theories also the problem and prospects of Indian Agriculture .

Learning Outcomes:

After the completion of the course, Students will be able to

- Know evolution of Agriculture through at the different ages and approaches.
- Understand the concepts and importance of determinants in different cropping patterns.
- Differentiate the Determinants of Agriculture
- Understand agricultural location theories also the problem and prospects of Indian Agriculture .

SYLLABUS

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 regionalization. Whittlesey's agricultural systems of the world. Agricultural regions of India. Green revolution, HYV; 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(B) TRANSPORT GEOGRAPHY

Learning objectives:

- To focus on evolution and development of transport through at the different ages and approaches.
- To understand the concepts and importance of determinants of transport patterns.
- To understand transport theories also the problem and prospects of Indian transport .

Learning Outcomes:

After the completion of the course, Students will be able to

- Know evolution and development of Transport through at the different ages and approaches.
- Understand the concepts and importance of determinants in different transport patterns.
- Differentiate the Determinants of transport and trade.
- Understand transport theories also the problem and prospects of Indian transport. .

SYLLABUS

- UNIT I** Nature, scope, significance and development of transport geography. Factors for development of transport system; economic, social, cultural and institutional. Different types of Transportation-their merits and demerits Factors controlling the cost of transport.
- UNIT II** Transport: Structure, accessibility and flow models; network structure, graph theoretic measures, measurement of accessibility, models of network change, linear programming and gravity models.
- UNIT III** Theories related to freight route structure. Bases of spatial interaction, Complementarily, intervening opportunities and transferability. Patterns of movement
- UNIT IV** Transport policy and planning in India. Urban transport: growth and problem of urban transportation. Environmental degradation: vehicular pollution and congestion alternatives to the transport system in mega cities.

Suggest Readings:

1. Chorley R.J. & Haggett P.: Models in Geography Methuen & Co. London. 1967.
2. Hurst, M.E.(ed.): Transportation Geography, McGraw-Hill, 1974.
3. Haggett, F and Chorlley, R.J. Network Analysis', Edward Arnold, London, 1968.
4. Hay, A.: Transport Economy, MacMillan, London, 1973.
5. Hoyle, B.S.(ed): Transport and Development, MacMillan, London, 1973.
6. Raza, M. and Agrawal Y.P. :Transport Geography of India, Concept, New Delhi, 1985.
7. Robison H & Bamford C.G.: Geography of Transport Macdonalds & Evans. London 1978.
8. Taffe, E.J. & Gauthier (Jr.) H.L. Geography of Transportation, Prentice-Hall, Englewood Cliffs, N.J., 1973.
9. Ullman E.L.: American Commodity Flow University of Washington Press 1957.
10. White H.P. and Senior, M.L. Transport Geography, Longman, London, 1983.

GEG-303(C) DISASTER MANAGEMENT STUDIES

Learning objectives:

- To develop the skill of understanding about natural calamities and disaster and also realize the consequences as well as preparedness.
- To create awareness on human and natural disasters
- To understand classification of disasters and its impacts

Learning Outcomes:

After the completion of the course, Students will be able to

- Develop the skill of understanding about natural calamities and disaster and also realize the consequences as well as preparedness.
- Improve awareness on human and natural disasters
- Understand classification of disasters and its impacts and management of disasters

SYLLABUS

- 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 flood prone area analysis –damage assessment. Certain case studies.
- UNIT III** (a) Droughts and desertification: Types of droughts – factors influencing droughts – land use 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, soil pollution and noise pollution.
- UNIT IV** Disaster management: Pre and post disaster operations of Earthquakes, cyclones, floods, droughts, forest fires. The role of Remote Sensing and GIS in disaster management studies.

Suggested Readings

1. Savindra Singh, Environmental Geography, Prayag Patak 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 Sustainability: Rawat Publications, Jaipur, 1994.
7. Aronoff, 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 photointerpretation, 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.

PRACTICAL

GEG-304: GEOGRAPHICAL INFORMATION SYSTEM(GIS)

Learning objectives:

- To acquaint knowledge the about especially Geographic Information System (GIS) softwares.
- .To develop the skill of geo-referencing and creation of different data files.
- To improve the practical knowledge on attribute data and linkage.
- To develop the skill on analysis methods of GIS.

Learning Outcomes:

After the completion of the course, Students will be able to

- Acquaint knowledge the about especially Geographic Information System (GIS) softwares.
- . Develop the skill of geo-referencing and creation of different data files.
- Improve the practical knowledge on attribute data and linkage.
- Develop the skill on analysis methods of GIS.

SYLLABUS

UNIT I	GIS Capabilities
UNIT II	Introduction to ARC GIS Software (a) Arc Map, (b)Arc Catalogue.(c) Arc Tool box, (d)Table of Contents,(e)Arc Scan
UNIT III	Geo-Referencing.
UNIT IV	Creation of File Geo data base, Personal Geo -data base, shape file. – Data Base generation – Spatial data generation – Digitization (Polygon, line and point) and Non-spatial data.
UNIT –V	Attribute data base and linkage of data Base.
UNIT VI	GIS-Analysis Methods (a) Buffering, (b) Map overlay,(c) Interpolation, (d) Contours,(e), Slope, (f) DEM

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 GeographicalInformation Systems; Oxford University Press, New York, 1998.
4. Star J and J. Estes; Geographic Information Systems; An Introduction, PrenticeHall, Englewood Cliff, New Jersey, 1994.

SKILL ORIENTED COURSE
(MANDATORY THEORY & PRACTICAL)
GEG-305: GLOBAL POSITIONING SYSTEM (GPS) DIGITAL SURVEY AND REPORT

Learning objectives:

- To develop the skill of understanding GPS and Survey.
- To create awareness on post processing of GPS data and collection of data from GPS survey.
- To develop skill of report writing by using GPS data and software and hardware.

Learning Outcomes:

After the completion of the course, Students will be able to

- Develop the skill of understanding GPS and Survey.
- Generate awareness on post processing of GPS data and collection of data from GPS survey.
- Develop skill of report writing by using GPS data and software and hardware.

SYLLABUS
(THEORY)

- UNIT-I** Global Positioning System (GPS) - Basic concept, system architecture, space segment, user segment; GPS Signals:- Signal structure, selective availability; GPS coordinate frames Time references: Geodetic and Geo centric coordinate systems, world geodetic 1984 (WGS 84), GPS time.
- UNIT-II** GPS Applications - Field Data collection, Navigation, Aviation, Marine, Rail, Roads and highways, Space, Survey mapping, Defense, Agriculture, Environment.

(PRACTICAL)

- UNIT III** Introduction to GPS systems: Hardware, Software. Field procedures of GPS.
- UNIT IV** GPS surveying. Data collection procedures: Point, Line and Area data collection. Post processing of the GPS data. GPS and GIS integrations output preparation. Report.

Suggested Readings:

1. Bailey, T. and Gatrell, A. C. (1995): Interactive Spatial Data Analysis. Longman ,Harlow.
2. Dorling, D. and Fairborn, D. (1997): Mapping. Ways of Representing the World. Longman, Harlow.
3. Fraser Taylor, D.R. (1980): The Computer in Contemporary Cartography. John Wiley and Sons, New York.
4. Fraser Taylor, D.R. (ed.) (1983): Graphic Communication and Design in Contemporary Cartography. John Wiley and Sons, New York.
5. Kanetkar, T.P. and Kulkarni, S.V. (1967): Surveying and Levelling, Part II, A.V.G. Prakashan, Poona.
6. Keates, J.S. (1973): Cartographic Design and Production, Longman Group Ltd.
7. Mailing, D.H. (1973): Co-ordinate Systems and Map Projections. George Philip and Sons Ltd.
8. Rhind, B. and Adams, T. (ed.) (1983): Computers in Cartography. British Cartographic Society, London.

OPEN ELECTIVE (OPT - 1)

GEG 306(A): REGIONAL GEOGRAPHY OF ANDHRA PRADESH

Learning objectives:

- To develop the understanding about physical features of Andhra Pradesh..
- To familiarize the students with physiography, Drainage, Climate, soil and natural vegetation of Andhra Pradesh.
- To visualise the population, mineral and transportation structures in Andhra Pradesh

Learning Outcomes:

After the completion of the course, Students will be able to

- Develop the understanding about physical features of Andhra Pradesh..
- Familiarize the students with physiography, Drainage, Climate, soil and natural vegetation of Andhra Pradesh.
- Visualise the population, mineral and transportation structures in Andhra Pradesh

SYLLABUS

- UNIT I:** Re-organization of Andhra Pradesh Act -2014 Location and physical setting – Major Physiographic Divisions– Soils, Vegetation, and Drainage – Climate Regions and their Characteristics.
- UNIT II** Population Distribution; Density, growth and problems. Agriculture Types. Irrigation and power; Multipurpose Projects, Major food grain crops.(Paddy, Jower and Ragi), major Commercial Crops (Cotton, Groundnut and Mango).
- UNIT III** Mineral Resources: Iron ore, Limestone and Petroleum, Industries: Iron and Steel, Cotton and IT. Industrial Regions and Special Economic Zones (SEZ) Andhra Pradesh.
- UNIT IV** Transportation and Communication – Road, Rail, Water (special reference to coastal Transport) and Air Transport. Communication net work in Andhra Pradesh

Suggested Readings:

1. Take from 401, 4, 5 from old syllabus.
2. Structure, growth and prospects of Industries in Andhra Pradesh. lotuspublications, Varanasi - 1989.
3. Regional Geography of Andhra Pradesh – Telugu Academy.
4. Andhra Pradesh year book -2010-2015

**GEG306 (B): GEOGRAPHICAL INFORMATION SYSTEM
(GIS) & GLOBAL POSITIONING SYSTEM (GPS) AND APPLICATIONS**

Learning objectives:

- To understand the evolution of GIS and GPS.
- To focus on collection, analyzing, interpretation and presenting the data related to Earth.
- To explain the types of data classification in GIS.
- To provide the theoretical knowledge on the Modeling surfaces and integration of Remote sensing with GIS.
- To provide knowledge on GIS and GPS applications in different sectors.

Learning Outcomes:

After the completion of the course, Students will be able to

- Understand the evolution of GIS.
- Focus on collection, analyzing, interpretation and presenting the data related to Earth.
- Differentiate the types of data
- Improve knowledge on the Modeling surfaces and integration of Remote GPS with GIS.
- Develop knowledge on GIS and GPS applications in different sectors.

SYLLABUS

- UNIT I:** GIS - Definition, History, Development and components. GIS Data Generation :- Spatial and Non Spatial Data; Data structures : Raster and Vector; Geo-coordinate system; Data analysis: Measurement & Connectivity, Interpolation , Classification. TIN, DTM ,DEM Modals.
- UNIT II:** GIS Applications - GIS as a decision support system, management of information system, land information system, Urban planning management, Disaster management and Emergency Response System, Resource management applications, Network applications, facility management applications.
- UNIT-III** Overview of GPS - Basic concept, system architecture, space segment, user segment; GPS Signals:- Signal structure, Anti Spoofing (AS), selective availability; GPS coordinate frames Time references: Geodetic and Geo centric coordinate systems, world geodetic 1984 (WGS 84), GPS time.
- UNIT-IV** GPS Applications - Field Data collection, Navigation, Aviation, Marine, Rail, Roads and highways, Space, Survey mapping, Defense, Agriculture, Environment.

Suggested Readings:

1. Burrough, P.A., 1986, Geographical Information System for land Resources System, OxfordUniv. Press, UK.
2. Fotheringham, S.; Rogerson, P. (ed.), 1994. Spatial analysis and GIS. Taylor and Francis,London, UK.
3. Laurini, Robert and Dierk Thompson, 1992, Fundamentals of Spatial Information Systems, Academics Press, ISBN 0-12-438380-7.
4. Maguire,D.J.; Goodchild, M.F.; Rhind,D.W. 1991.Geographical information System,Longman, London,UK
5. Siddiqui, M.A.; 2006, Introduction to Geographical Information System, Sharda PustakBhavan,
6. Allahabad. Siddiqui, M.A.; 2011, Concepts and Techniques of Geoinformatics, Sharda Pustak Bhavan,Allahabad.
7. G S RAO, Global Navigation Satellite Systems, McGraw-Hill publications, New Delhi, 2010
8. B. Hoffman – Wellenhof, H. Liehtenegger and J. Collins, ‘GPS – Theory and Practice’,Springer – Wien, New York (2001).
9. James Ba – Yen Tsui, ‘Fundamentals of GPS receivers – A software approach’, John Wiley& Sons (2001).
10. Bradford W. Parkinson,James J. Spiker Jr, 1996. Global Positioning System: Theory andApplications, Vol I and II, American Institute of Aeronautics and Astronautics: Washin.

SEMESTER – IV
CORE THEORY-1

GEG 401: REGIONAL PLANNING

Learning objectives:

- To apprise the concept of Region and its planning.
- To explain the types of regions and regional hierarchy.
- To explain the types of regional planning and planning process.
- To the people participation in planning process and role of Panchayat Raj system
- To explain the resource based and physiographic based regional planning.

Learning Outcomes:

After the completion of the course, Students will be able to

- Acquire a solid base of knowledge in the principles and practices Regional planning.
- The skills necessary for the effective practice of planning, including its purpose, meaning elements of plans; adoption, administration, and implementation of plans.
- Develop the values necessary for the effective practice of planning, including problem-solving skills; research skills; written, graphical, and oral skills; computational skills.
- Learn the values and ethical standards affecting the practice of planning.

P.T.O

SYLLABUS

- UNIT I** Regional Planning: Definition, Nature and scope. 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. Government planning policies.
- UNIT III** Decentralized Planning: Peoples participation in the Planning process; Panchayathi Raj system. Theories of development- Spatial and Non spatial.
- UNIT IV** Physical resource and special purpose regions: River valley regions, hilly and tribal regions, drought prone regions, Special Economic Zones 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.

CORE THEORY-2

GEG 402: ADVANCED REMOTE SENSING

Learning objectives:

- To give broad knowledge on photogrammetry, Principle, process, platforms and techniques and Aerial photographs.
- To provide knowledge on software and hardware required for digital image processing, image enhancement and restoration techniques.
- To understand the application of remote Sensing and Photogrammetry in various fields of study.

Learning Outcomes:

After the completion of the course, Students will be able to

- Demonstrate knowledge of the foundations and theories of Photogrammetry, aerial photography and remote sensing.
- Acquire knowledge of physical geography and the methods and techniques for observing, measuring, recording and reporting on geographic phenomena.
- Demonstrate their competence to work individually and as a team to develop and present a client-driven GIS solution.
- Prepared to apply their skills in professional careers.

P.T.O

SYLLABUS

- 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: Land use/Land cover mapping; water resources; Geomorphological, waste land studies, Urban and Regional Planning.

Suggested Readings:

1. American Society of Photogrammetry : Manual of Remote Sensing, ASP, FallsChurch, V.A. 1983.
2. Barrett, E.C and L.F. Curtis : Fundamentals of Remote Sensing and Air PhotoInterpretation, Mcmillan, New York, 1992.
3. Compbell, J. : Introduction to Remote Sensing, Guilford, N ew York, 1989.
4. Curran, Paul, J. : Principles of Remote Sensing, Longman, London, 1985.
5. Hord, R.M. : Digital Image Processing of Remotely Sensed Data; Academic NewYork, 1989.
6. Luder D. : Aerial photography Interpretation : Principles and Applications, Mc Graw Hill, New York, 1959.
7. Pratt, W.K Digital Image Processing, Wiley, New York, 1978.
8. Rao, D.P. (Eds) : Remote Sensing for Earth Resources, Associate of Exploration Geophysicist, Hyderabad, 1998.
9. Thomas, M. Lillesand and Ralph W. Kefer : Remote Sensing and Image Interpretation, John Willey & Sons, New York, 1994.

GENERIC ELECTIVE (Opt-1)

GEG-403(A): WATER AND SOIL RESOURCES MANAGEMENT

Learning objectives:

- To apprise the students to various water resources related aspects and hydrological cycle.
- To focus on ground water and soil specifications.
- To develop skill of water and soil management and to study on some case studies .

Learning Outcomes:

After the completion of the course, Students will be able to

- Apprise the students to various water resources related aspects and hydrological cycle.
- Focus on ground water and soil specifications.
- Develop skill of water and soil management and to study on some case studies.

SYLLABUS

- 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: Formation of new Check dams, tanks, Percolation tanks/Pits and Counter trenches etc.
- 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 Science s, 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, Maryland, 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, Hyrdlogy, Dhanpat Roy & Sons, New Delhi.

GENERIC ELECTIVE (Opt-1)
GEG-403(B): POLITICAL GEOGRAPHY

Learning objectives:

- To explain the historical evolution, of discipline of Political Geography..
- To help to understand about theoretical models related to geopolitics and geo- strategy.
- To provide the knowledge about political attributes that evolved with territorial structure and geographic influence like state, nation, boundary, elections, and frontier of world in general and India in particular.

Learning Outcomes:

After the completion of the course, Students will be able to

- Apprise the Students will be able to critically examine the geographical bases of political studies.
- Able to evaluate and correlate different theories with contemporary geopolitical and geo-strategic issues.

SYLLABUS

- UNIT I** Definition, Nature and scope of 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. Geo-strategic Theories: Mahan, Mackinder and Spykman.
- UNIT-III** Themes in Political geography : State, Nation, Land locked state, and Nation Building :Formation of Frontiers and boundaries, classification of boundaries. colonialism, De colonialism, Neo colonialism, federalism and other forms of Governance.
- UNIT-IV** Geopolitical significance of India and the Indian Ocean, maritime boundaries. The Changing political map of India, unity in diversity, centripetal and centrifugal forces, stability and instability. International disputes.

Suggested readings:

1. Prescott, J.R.V: Political Geography, Methuen, London, 1972.
2. Gohen,S.B:Geogrphy of Political in a devide world , Open university press,U.K.1973.
3. Sukhwal,B.L. : India -A Political Geography, Ahmadabad, 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, Johyn 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 6 7. 8. 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.

GENERIC ELECTIVE (Opt-1)

GEG-403(C): RESEARCH IN GEOGRAPHICAL STUDIES

Learning objectives:

- To explain the historical evolution, of research in Geographical studies.
- To help to understand about ethics, methods and factors in geographical research.
- To provide the knowledge about forms of research and design.
- To illustrate research methods and data collection.
- To acquaint research analysis and report writing.

Learning Outcomes:

After the completion of the course, Students will be able to

- Explain the historical evolution, of research in Geographical studies..
- Understand about ethics, methods and factors in geographical research.
- Improve the knowledge about forms of research and design.
- Illustrate research methods and data collection.
- Acquaint research analysis and report writing.

SYLLABUS

- UNIT I** Research: Meaning, definitions, objectives, characteristics, types, Research ethics approaches, significance, research and scientific methods, criteria of research, Recent trends in Geographical Studies: physical and human geography. Review of literature, review of literature.
- UNIT II** Forms of Research: Research problems: selecting the research Problem, defining the problem. Research paper, Article, Workshop, Seminars, Conference and Symposia. Research design: Meaning, need important concepts and development relating to research design.
- UNIT III** Research methodology: Data collection and methods. Sampling methods: Random Sampling, stratified sampling. Collection of Primary data: Observation method, interview method, Case study method, questionnaire and secondary data.
- UNIT IV** Hypothesis: Basic concepts concerning testing of hypothesis. limitations of the tests of hypothesis. Interpretation procedure. Report writing - significance of report writing, different steps in report writing, layout of the research report, types of reports, conclusion, findings and suggestions. Bibliography, appendices, Plagiarism.

Suggested Readings:

1. Gilbert, N. 2001: Researching Social Life, Sage, London.
2. Flowerdew, R. and D. Martin 2005: Methods in Human Geography: A Guide for students doing a research project, Prentice Hall, New York.
3. Clifford, N.J. and G. Valentine 2003: Key methods in Geography, Sage, London.
4. Leedy, P. D. and J.E. Ormrod 2001: Practical Research: Planning and Design.

Web resources:

<http://www.acm.org> intute.ac.uk/socialsciences/

PRACTICAL

GEG 404: REMOTE SENSING APPLICATIONS

Learning objectives:

- To explain practical knowledge on Remote sensing applications...
- To help to understand Visual and digital interpretation of satellite Images.
- To illustrate interpretation of Aerial photos.
- To acquaint knowledge on allocation of RS in different fields and sectors.

Learning Outcomes:

After the completion of the course, Students will be able to

- Explain practical knowledge on Remote sensing applications...
- Understand Visual and digital interpretation of satellite Images.
- Illustrate interpretation of Aerial photos.
- Acquaint knowledge on allocation of RS in different fields and sectors.

SYLLABUS

UNIT I	Techniques of Visual Interpretation;
UNIT II	Marginal Information of Satellite Imageries
UNIT III	Interpretation of Satellite Imageries: Visual Interpretation; WaterResources, Lineaments, Land use / Land cover – Landforms – WasteLand. Digital Image Interpretation- Subset Supervised classification and Un- Supervised classification change Detection.
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 RemoteSensing Agency, Hyderabad, 1994.
3. Thomas M. Lillesand and Ralph, W. Keffer; Remote Sensing and imagesinterpretation, John Willey & Son s, New York, 1994.

MULTI DISCIPLINARY COURSE/PROJECT WORK

GEG 405: INTERNSHIP PROJECT WORK AND VIVA VOCE

Learning objectives:

- To help to understand geo spatial technologies applications in different geographical areas.
- To assist to select the project and completing project and report writing.

Learning Outcomes:

After the completion of the course, Students will be able to

- Develop geo spatial technologies applications in different geographical areas.
- Understand Selection of the project, complete the project and report writing.

SYLLABUS

1. The students of M.Sc. Geography 4th Semester have to collaborate with various firms/ Companies/ Research organizations /NGOs and complete internship on Geospatial techniques
2. The students of M.Sc. Geography 4th Semester may have to be selected a specific theme/topic for a Project Work based on the internship completed. The students may select some of the following themes for their project.

a. Land Evaluation	h. Health Studies
b. Land-use / Land cover Analysis	i. Infrastructure Studies
c. Water Sources	j. Vegetation Studies
d. Slope Studies	k. Transportation net work
e. Climatic Change	l. Cropping pattern
f. Settlement Studies	m. Urban studies etc
g. Agriculture Studies	
3. GIS, GPS & RS methods have to be used with appropriate primary and secondary data.
4. The students should follow the research guidelines by reading Research Methodology before taking up the Project Work.
5. The Project should be around 50 pages including photos, references and tables.
6. Project work must include quality maps, diagrams and flowcharts.
7. The project report should include followings:

a) Title of the project	f) Data sources
b) Introduction	g) Materials and Method,
c) Review of literature	h) Results & Discussion
d) Study Area	i) Conclusion
e) Objectives	j) Appendices
	k) Bibliography

Above work has to be done with the consultation of the staff-in-charge. Viva-Voice would be conducted at the semester end.

Suggested Readings:

1. Archer J.E. & Dalton T.H. (1968): The field work in Geography, E.t. Batsford Ltd., London.
2. Haring, Lloyd (1975): Scientific Geographic Research W C. Brown Company USA.
3. Johnes, P.A. (2008): Field Work in Geography, Longman.
4. Kothari C.R.(1996): Research Methodology, Vishwas Prakashan, New Delhi
5. Misra R.P. (1991): Research Methodology in Geography, concept pub. New Delhi.

OPEN ELECTIVE (OPT - 1)

GEG 406(A): REGIONAL GEOGRAPHY OF INDIA

Learning objectives:

- To explain practical knowledge on Regional aspects of India...
- To help to understand Indian mineral resources and their distribution..
- To illustrate Indian agriculture and cropping techniques.
- To acquaint knowledge on allocation of RS in different fields and sectors.

Learning Outcomes:

After the completion of the course, Students will be able to

- Explain practical knowledge on Remote sensing applications...
- Understand Visual and digital interpretation of satellite Images.
- Illustrate interpretation of Aerial photos.
- Acquaint knowledge on allocation of RS in different fields and sectors.

SYLLABUS

Unit I	India: Location and Regional Geographical Setting of India; Development of Regional Studies; concept of region; Types of Region - formal region, nodal region, functional region. Regionalization-process, methods and techniques used for regionalization of formal regions and functional regions.
Unit I	India: Mineral Resources – Coal, Iron ore and petroleum, Industries: Iron and Steel, Oil refinery and Paper industries; Industrial Regions of India.
Unit III	Indian Agriculture – Green Revolution in Indian agriculture. Agriculture Types; Irrigation and Power; Multipurpose Projects. Major food grain crops; Rice and Wheat; Major commercial crops – Coffee and Tea. Regionalization of Agriculture - methods and techniques used in the analysis of crop combination regions, agricultural productivity regions.
Unit IV	India: Population Distribution; Density growth problems, over population and population policies in India; Transportation and types and trade in regional context.

Suggested Readings

1. Spate, O.H.K., & Learrmonth, A.T.A., India & Pakistan, London.
2. Puri, G.S., Indian forest Ecology, New Delhi.
3. Ray Chaudhary, S.P. Land and soil, New Delhi
4. The Gazetteer of India Vo 1,.1
5. Krishnan, M.B. : Geology of India, Higginbothams, Madras.
6. Das, P.K., The Monsoon, New Delhi
7. Wadia, D.N., Geology of India, London.
8. Memoria, C.B. : Economic and Commercial Geography of India, Shirlal Agarwal and Co., Agra, 1991.
9. Alam, S.M. : Planning atlas of Andhra Pradesh.
10. Khullar: India, A comprehensive Geography. Kalyani Publishers, New Delhi.1989.

OPEN ELECTIVE (OPT - 1)

GEG 406(B): PRINCIPLES OF REMOTE SENSING

Learning Objective

- To provide knowledge on history and evolution of Remote sensing
- To explain the principle involved in remote sensing i.e. the Electromagnetic spectrum, reflection, refraction, diffusion, absorption and interaction with earth's atmosphere.
- To provide knowledge on the platforms and sensors and instruments used for remote sensing
- To explain about the specifications remote sensing different satellites

Learning Outcomes

After the completion of the course, Students will be able to

- Develop knowledge on history and evolution of Remote sensing
- Explains the principle involved in remote sensing i.e. the Electromagnetic spectrum, reflection, refraction, diffusion, absorption and interaction with earth's atmosphere.
- Understand knowledge on the platforms and sensors and instruments used for remote sensing
- Illustrate about the specifications remote sensing different satellites.

P.T.O

SYLLABUS

- UNIT I** Introduction to Remote Sensing: History, Development and Principles Stages in Remote sensing Process..Stages in Remote Sensing Process. Energy Sources and Radiation Principles-Energy Interaction in the Atmosphere. Atmospheric Windows. Energy Interaction with Earth Surface features. Electromagnetic Spectrum. Spectral reflectance patterns of Earth surface features in different wavelength
- UNIT II** Aerial Remote Sensing - History and Types of Aerial Photographs Scales of Aerial Photographs Geometry of Aerial Photographs, Scale Distortions Photographic Resolution Aerial Photo interpretation Techniques-Photo recognition ,Photo Interpretation Equipment.
- UNIT III** Satellite Remote Sensing: Types of Satellites, Orbits: Types of Orbits, and Orbital characteristics Platforms: types of Platforms in Remote sensing .Sensors-Definition, Types of sensors in Remote sensing. Scanning mechanism. Resolutions: Definition, Spectral ,Spatial, Temporal and Radiometric resolutions of Satellites.
- UNIT IV** Characteristics of Indian Remote Sensing Satellites(I.R.S),LANDSAT ,etc Principles of Image Interpretation: Elements of Image Interpretation, Digital Image Processing. Applications in Land use Land Cover Mapping and Urbanisation

Suggested Readings

1. Lillisand T.M and Keifer R.W, (1994), Remote Sensing and Image Interpretation, Jhon Willey & sons, New York.
2. Rampall, K.K. (1999), hand book of Aerial Photography and Interpretation, Concept Publishing Co., New Delhi.
3. Sabins, F.F. Jr, (1987), Remote Sensing; Principles and Interpretation, W.h. Freeman & Co., New York.
4. Jenson R. Jhon, (2003), Remote Sensing of the Environment-An Earth Resource Perspective, Pearson Education Pvt. Ltd., Indian Branch, Patparganj, Delhi, India.
5. LRA Narayanan, Remote sensing and its Applications, (1999), Universities Press (India) Ltd., Hyderabad.
6. <http://rst.gsfc.nasa.gov/Front/tofc.html>.
7. <http://earthobservatory.nasa.gov/Library/RemoteSensing>