SRI VENKATESWARA UNIVERSITY:: TIRUPATI

SVU COLLEGE OF SCIENCES

DEPARTMENT OF GEOGRAPHY

Syllabus for M.Sc. GEOGRAPHY

Choice Based Credit System (CBCS)

(w.e.f. the Academic Year 2018-2019)

S.V. UNIVERSITY, TIRUPATI
DEPARTMENT OF GEOGRAPHY
M.SC., GEOGRAPHY

VISION

1. The Department of Geography will promote academic. Research, Employment, community development.

2. We will provide a rigorous educational experience through innovative teaching, Research Programmes and employment opportunities in IT Industry.

3. We will increase our visibility as a research department through faculty scholarship, research grant activities, international collaborations and fellowships for research scholars

4. To update curriculum for competitive Examinations, Research linkage with Industries.

MISSION

1. To provide educators with effective and relevant professional development, support, and materials focusing on geographic concepts, content, and pedagogy.

2. To educate legislators and education decision-makers at the local, state and national levels about the relevance of geography in the 21st century and to motivate and inspire action within the context of curriculum design, professional development, connections between elementary, secondary, and university systems, and professional associations.

3. To cultivate awareness among parents of students and the public at large of the importance of geo-literacy and to actively engage citizens in the development of geo-literacy and the institutional structures that will support this mission.

CBCS PATTERN (with effect from 2016-17)

THE COURSE OF STUDY AND SCHEME OF EXAMINATIONS

Semester – I

SI. No	Course Code	Components of Study	Title of the Paper	Contact hours	No. of Credits	IA Marks	End SEM Exam Marks	Total
1	GEG -101	Core-Theory	Geomorphology	6	4	20	80	100
2	GEG -102	Core-Theory	Economic Resource Studies	6	4	20	80	100
3	GEG -103	Core-Practical	Maps, Scales and Map Projections	6	4	-	-	100
4	GEG -104	Core-Practical	Terrain Mapping Techniques	6	4	-	-	100
5	GEG -105	Compulsory Foundation (Related to Subject)	Advanced Cartography	6	4	20	80	100
6	GEG -106	Elective Foundation	Human Values and Professional Ethics- I	6	4	20	80	100
		Total		36	24			600

Semester – II

SI. No	Course Code	Components of Study	Title of the Paper	Contact hours	No. of Credits	IA Marks	End SEM Exam Marks	Total
1	GEG -201	Core-Theory	Climatology and Oceanography	6	4	20	80	100
2	GEG -202	Core-Theory	Principles of Remote Sensing	6	4	20	80	100
3	GEG -203	Core-Practical	Interpretation of Topographical (S.O.I., U.S and O.S) and Weather Maps	6	4	-	-	100
4	GEG -204	Core-Practical	Techniques of Mapping and Map Analysis	6	4	-	-	100
5	GEG -205	Compulsory Foundation (Related to Subject)	Geographical Thought	6	4	20	80	100
6	GEG -206	Elective Foundation	Human Values and Professional Ethics- II	6	4	20	80	100
		Total		36	24			600

NOTE: Practicals: **Practical Exam : 80 Marks**
Record : 20 Marks

Semester – III

SI. No	Course Code	Components of Study	Title of the Paper	Contact hours	No. of Credits	IA Marks	End SEM Exam Marks	Total
1	GEG -301	Core-Theory	Urban Studies	6	4	20	80	100
2	GEG -302	Core-Theory	Geographical Information System (GIS)	6	4	20	80	100
3	GEG -303	Core-Practical	Geographical Information System (GIS)	6	4	-	-	100
4	GEG -304	Core-Practical	Statistical Techniques	6	4	-	-	100
5	GEG -305	Generic Elective * (Related to Subject)	(a) Agricultural Studies (b) Regional Geography of India with special Reference to Andhra Pradesh (c) Disaster Management Studies	6	4 4	20 20	80 80	100 100
6	GEG -306	Open Elective * (For other departments)	(a) Regional Geography of Andhra Pradesh (b) Geographical Information System (GIS) & Global Positioning System (GPS) and Applications	6	4	20	80	100
		Total		36	24			600

*** Among the Generic Electives a student shall choose two**

Semester – IV

SI. No	Course Code	Components of Study	Title of the Paper	Contact hours	No. of Credits	IA Marks	End SEM Exam Marks	Total
1	GEG -401	Core-Theory	Regional Planning	6	4	20	80	100
2	GEG -402	Core-Theory	Advanced Remote Sensing	6	4	20	80	100
3	GEG -403	Core-Practical	Research Techniques	6	4	-	-	100
4	GEG -404	Core-Practical	Remote Sensing Applications	6	4	-	-	100
5	GEG -405	Generic Elective * (Related to Subject)	(a) Water and Soil Resources Management (b) Environmental Studies (c) Geography for Research Extension (Society) and Industry	6	4 4	20 20	80 80	100 100
6	GEG -406	Open Elective * (For other departments)	(a) Regional Geography of India (b) Remote Sensing Principles and Applications	6	4	20	80	100
		Total		36	24			600

*** Among the Generic Electives a student shall choose two**

NOTE: Practicals: Practical Exam : 80 Marks
Record : 20 Marks

M.Sc. GEOGRAPHY

SEMESTER – I

CORE - THEORY

GEG 101: 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 andendogenous processes.
- Know how human, physical and environmental components of the world interact.

Unit I Nature, Definition, Scope and recent trends in Geomorphology: Rocks – Origin, Classification and distribution, Interior of the Earth. Geological time -scale.

Unit II Earth movements: Epierogenic and Orogenic earth movements. Theories of continental drift , Isostasy and plate tectonics. Earthquakes, volcanoes and their distribution.

Unit III Geomorphic agents and Processes: Weathering, Erosion, Mass wasting. Concept of cycl e of erosion, Davi s 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. : Principle s 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.

	PO_1	**PO_2**	**PO_3**	**PO_4**	**PO_5**	**PO_6**	**PO_7**	**PO_8**	**PO_9**	**PO_{10}**	**PO_{11}**	**PO_{12}**
CO_1	3	3	3	3	3	3	3	-	2	2	3	3
CO_2	3	3	3	3	3	3	3	-	2	2	3	3
CO_3	3	3	3	3	3	3	3	-	2	2	3	3
CO_4	3	3	3	3	3	3	3	-	2	2	3	3

CORE - THEORY

GEG 102: ECONOMIC RESOURCE STUDIES

Learning Objectives

- To acquire knowledge about the concepts of resources, classification, models of natural resourceprocesses, their use and misuse, conservation and management of resources for sustainable development
- To Provide a comprehensive introduction to basic concepts and key theoretical approaches ineconomic 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 economicglobalization
- 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.

Unit I — Scope, content and recent trends in economic geography, relation of economic geography with economics and other branches of social sciences, classification of economies; sectors of economy (Primary, secondary and tertiary).

Unit II — Natural resources: Nature and classification – renewable and non - renewable, biotic and abiotic, conservation of resources, changing nature of economic activities; mining, forestry, agriculture, industry, trade and transport.

Unit III Agricultural Resources: Spatial distribution of major food and cash crops of the world (rice, wheat, coffee, tea). Minerals resources: Classification of minerals (ferrous and non -ferrous). Major industries: Iron and Steel, Textiles, ship -building and their distribution.

Unit IV Industrial location theory – Alfred Weber : Geographical factors in the development of major industries.

Suggested Readings

1. Boesch, H. : A Geography of World Economy, D. Van Nostrand Co., New York, 1964.
2. Chapman, J.D. : Geography and Energy, Longman, London, 1989.
3. Gregor, H.F. : Geography of Agri culture, 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 Darke nwald, 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.

	PO_1	PO_2	PO_3	PO_4	PO_5	PO_6	PO_7	PO_8	PO_9	PO_{10}	PO_{11}	PO_{12}
CO_1	3	1	2	2	1	3	2	1	2	2	2	3
CO_2	3	1	2	2	1	3	2	1	2	2	2	3
CO_3	3	1	2	2	1	3	3	1	2	3	3	3
CO_4	3	1	2	2	1	3	3	1	2	3	3	3

GEG-103-P-MAPS SCALES AND MAP PROJECTIONS

Learning Objectives

To apprise the students about the art and science of map making and representation.

- To explains the usage of different types of projections
- To focus on the importance of scale and projection in the process of representing the earthsurface

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 fordifferent geographical areas.

Unit I: Maps, Scales, Projections: Meaning, Definitions' and uses; Methods of Scale Representation and Conversions.

Unit II: Zenithal Projections: Equi -distant; Equal area, Stereographics, Gnomonic.

Unit III: Cylindrical Projections: Equi -distant, Equal area, Mercator.

Unit IV: Conical Project ions: One standard parallel, two standard parallel; Bonne's, polyconic .

Unit V: International map projection: Sinusodial, 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 projec tions, University of London Press, London.

CORE - PRACTICALS

GEG 104: TERRAIN MAPPING TECHNIQUES

- To apprise the students about the Terrain mapping techniques
- To project the representation of the landforms by using contour lines
- To explains 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
- 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

Unit I Interpolation of contours.

Unit II Landforms represented by contours.

Unit III Profiles: Serial, Superimposed, Projected, Composite.

Unit IV Slope Analysis : Smith's and Wentworth's Methods.

Suggested Readings

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

	PO_1	PO_2	PO_3	PO_4	PO_5	PO_6	PO_7	PO_8	PO_9	PO_{10}	PO_{11}	PO_{12}
CO_1	3	1	2	2	1	3	2	1	2	2	2	3
CO_2	3	1	2	2	1	3	2	1	2	2	2	3
CO_3	3	1	2	2	1	3	3	1	2	3	3	3
CO_4	3	1	2	2	1	3	3	1	2	3	3	3

Compulsory Foundation Course (Related to Subject)

GEG 105: ADVANCED 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 ofmap making by developing broad knowledge about latitude, longitude, meridians, parallels etc.
- Developing their quantitative application in geographical study which gives more accuracy in anygeographical 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 andtechnique and can apply this knowledge in future research works.

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 Toponomy. Mechanics of map construction: Drawing surfaces – Drawing Equipment.
Unit IV	Mapping the qualitative and quantitative data. Thematic mapping;

concept of map base, m ap 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.
4. Burrough, P.A. : Principles of geographic information systems for land resource assessment, Oxford University Press, New York, 1986.
5. Fraser Taylor D.R. : Geographic Information Systems, Pergaman Press, Oxford, 1991.
6. Star J and J. Estes : Geographic information systems. An introduction, Prentice Hall, Englewood Cliff, New Jersy, 1994.
7. Misra, R.P. and Rames, A.: Fundamentals of Cartography, Mcmillan Co., New Delhi, 1986.
8. Robinson, A.H. et al.: Elements of Cartography, John Wiley & Sons, U.S.A., 1995.
9. Sarkar, A.K., Practical Geography : A systematic approach; Oriental Longman, Calcutta, 1997.
10. Singh, R.L. and Dutt, P.K. Elements of Practical Geography, Kalyani publishers, New Delhi, 1979.

	PO_1	PO_2	PO_3	PO_4	PO_5	PO_6	PO_7	PO_8	PO_9	PO_{10}	PO_{11}	PO_{12}
CO_1	3	3	3	3	3	3	3	1	3	3	3	3
CO_2	3	3	3	3	3	3	3	1	3	3	3	3
CO_3	3	3	3	3	3	3	3	1	3	3	3	3
CO_4	3	3	3	3	3	3	3	1	3	3	3	3

Elective Foundation Course

Geo 106: HUMAN VALUES AND PROF ESSIONAL ETHICS – I

. The student will be enriched with several aspects pertaining to Human values and performing of Professional Ethics in day today life.
ii. Introduction of several Nature of values to be performed by Humans to lead a good and Peaceful life by extending and imparting good behavior, character and conduct towards people of the society.
iii. Introducing different concepts of Bhagavad Gita and its applications in uplifting of Religious values in the present society

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 (Non - stealing). Purusharthas (Cardinal virtues) - Dharma (Righte ousness), 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 Reli gions, Relirious Tolerance, Gandhian Ethics.

Unit V — Crime and Theories of punishment – (a) Reformative, Retributive and Deterrent. (b) Views on manu and Yajnavalkya.

Books for Study:

1. John S Mackenjie: A Manual of ethics.
2. “The Ethics of Management”: by La rue 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 Sinha: a Manual of Ethics.

8Manu: Manu Dharma Sastra or the institute of Manu: Comprising the Indian system of Duties: Religious and Civil(ed) G.C. Haughton.

9Susruta Samhita: Tr. Kaviraj Kunjanal, Kunjanal Brishagratha, Chowkamba Sanskrit Series.

Vol. I,II,III, Varanasi VOL. I OO, 16 -20, 21 -32, and 74 -77 only.

10Caraka Samita: Tr. Dr. Ram Karan Sharma and Vaidya Bhagavan Dash, Chowkamba Sanskrit Series Office, Varanasi. I,II,III VOL. I, PP 183 -191.

11Ethics, Theory and Contemporary issues, Barbara Mackinnon, Wads Worth/ Thomson Learning 2001.

12Analyzing Moral issues, Judith A. Boss, Mayfield Publishing Company ,1999.

13An Introduction to Applied Ethics (Ed.) John H. piet and Ayodhya Prasad, Cosmo Publicat ions.

14Text book for Intermediate logic, Ethics and Human Values, Board of Intermediate Education & Telugu Academic Hyderabad.

I 15 .C Sharma Ethical Philosophy of India. Nagin& Co. Ju

	PO_1	PO_2	PO_3	PO_4	PO_5	PO_6	PO_7	PO_8	PO_9	PO_{10}	PO_{11}	PO_{12}
CO_1	2	2	2	1	1	2	2	3	2	2	2	2
CO_2	2	2	2	1	1	2	2	3	2	2	2	2
CO_3	2	2	2	1	1	2	2	3	2	2	2	2
CO_4	2	2	2	1	1	2	2	3	2	2	2	2
CO_5	2	2	2	1	1	2	2	3	2	2	2	2

SEMESTER -II

CORE - THEORY

GEG 201: CLIMATOLOGY AND 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. .
- 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

- 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..
- 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

Unit I Nature and scope of climatology. Composition and structure of the Atmosphere – Insolation – heat balance, green house effect – vertical and horizontal distribution of Temperature.

Unit II Atmospheric Pressure – Pressure gradient – Pressure belts – vertical and Horizontal distribution of pressure – winds – monsoons and cyclones.

Unit III Water vapour - Humidity – Relative, absolute and specific humidity – condensation and types – cloud types – types of Rainfall – Koppen's and Thornthwaites scheme of climatic classification.

Unit IV Nature and scope of Oceanography –Distribution of Land and water. General features of Bathymetry. Ocean currents: Atlantic, Pacific and Indian Ocean: Salinity; Ocean deposits and coral reefs.

Suggested Readings

1. Crittch Field, J.H. : General Chimatology, 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.
4. Sharm a & Vatal : Oceanography for Geographers Chaitanya Publishing House, Allahabad.
5. Lal.D.S. Oceanography, chaitanya Publishing House, Allahabad,1994

	PO_1	PO_2	PO_3	PO_4	PO_5	PO_6	PO_7	PO_8	PO_9	PO_{10}	PO_{11}	PO_{12}

CO_1	2	2	2	1	1	2	2	3	2	2	2	2
CO_2	2	2	2	1	1	2	2	3	2	2	2	2
CO_3	2	2	2	1	1	2	2	3	2	2	2	2
CO_4	2	2	2	1	1	2	2	3	2	2	2	2
CO_5	2	2	2	1	1	2	2	3	2	2	2	2

CORE - THEORY

GEG 202: PRINCIPLES OF REMOTE SENSING

Learning Objective

- To focus on history and evolution of Remote sensing.
- To explains 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 Areal Remote sensing and satellite Remote sensing.
- To explains 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 apply the technique of remote sensing in varies fields.
- Student can apply the knowledge in getting authentic data by performing pre and postanalysis in aerial remote sensing.
- Student will analysis 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.

Unit I Introduction to Remote Sensing: History and concepts; Energy sources and Radiation principles – Energy Interactions in the Atmosphere; Electromagnetic spectrum, Atmospheric windows. Energy interactions with Earth surface features; spectral reflectance patterns of earth surface features in different wav elengths.

Unit II Aerial Remote Sensing: History and types of photographs, scales of aerial photographs; scale distortions, photographic resolution. Aerial photo interpretation techniques – Photo recognition Elements, photo interpretation equipment.

Unit III Satellite Remote Sensing: Different Satellites; Remote sensing platforms. Resolutions: spectral, Spatial, Temporal and Radiometric resolutions of Satellites. Sensors: Scanning mechanism and orbiting mechanism. Characteristics of IRS.

Unit IV Principles of Image Interpretation: Elements of Image Interpretation, Visual Interpretation Techniques. Marginal information and decoding. Advantages of Remote Sensing over conventional Surveys. Development of Remote Sensing in India. Thrust areas of Rem ote Sensing.

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.

	PO_1	PO_2	PO_3	PO_4	PO_5	PO_6	PO_7	PO_8	PO_9	PO_{10}	PO_{11}	PO_{12}
CO_1	3	3	2	2	2	3	1	1	2	1	1	2
CO_2	3	3	2	2	2	3	1	1	2	1	1	2
CO_3	3	3	2	2	2	3	1	1	2	1	1	2
CO_4	3	3	2	2	2	3	1	1	2	1	1	2

CORE - PRACTICALS

GEG 203: INTERPRETATION O F 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

Unit I	Elements of Indian Topographical Maps – Scales – Layout and Numbering of Toposheets.
Unit II	Interpretation of physical features of different terrains (SOI Maps).
Unit III	Interpretation of cultural features (SOI Maps).
Unit IV	Interpretation of U.S. and O.S. Toposheets.
Unit V	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.

CORE - PRACTICALS

GEG 204 : 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 explains 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 andgraphs

Unit I Bar Diagrams : Simple, Compound, Superimposed.

Unit II Graphs : Trilinear, Semi -log; Log-log.

Unit III Diagrams : Pyramid, Pie.

Unit IV Hyther -graph, Climograph, Ergo -graph, Band -graph.

Unit V Thematic mapping : Dot method, isopleths and iso -chromatic methods; choropleth and choro -chromatic methods; flow method.

Suggested Readings

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

	PO_1	PO_2	PO_3	PO_4	PO_5	PO_6	PO_7	PO_8	PO_9	PO_{10}	PO_{11}	PO_{12}
CO_1	3	3	3	3	3	3	3	1	3	2	3	3
CO_2	3	3	3	3	3	3	3	1	3	2	3	3
CO_3	3	3	3	3	3	3	3	1	3	2	3	3
CO_4	3	3	3	3	3	3	3	1	3	2	3	3

Compulsory Foundation Course (Related to Subject)

GEG 205: 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.

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 Ritchthofen, Albrecht Penck and Alfred Hettner and French geographers: Vidal de la blasche, Elisee Reclus, Jean Brunhe and Emmanual de Martonne.

.

Unit III Dualism in Ge ography - Systematic and regional Geography. Determinism and possibilism; Geography as a natural science and social science.

Unit IV Quantitative revolution – causes and consequences. Behavioural geography. Laws, Theories and Models in Geography.

Suggested Readings

1. Dikshit, R.D. (ed.) : The Art & Science of Geography – Integrated Readings, Prentice Hall of India, New Delhi, 1994.
2. Hartshome, R. : Perspective on nature of Geography, Rand MeNally & 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.

	PO_1	PO_2	PO_3	PO_4	PO_5	PO_6	PO_7	PO_8	PO_9	PO_{10}	PO_{11}	PO_{12}
CO_1	3	3	3	3	3	3	2	1	3	2	3	3
CO_2	3	3	3	3	3	3	2	1	3	2	3	3
CO_3	3	3	3	3	3	3	2	1	3	2	3	3
CO_4	3	3	3	3	3	3	2	1	3	2	3	3

Elective Foundation Course

Geo 206: HUMAN VALUES AND PROF ESSIONAL ETHICS – II

Student will know the values of ethics in various fields including medical, social and business ethics.
ii. The student will be enriched with several aspects pertaining to Human values and performing of Professional Ethics in day today life.
iii. Introduction of several Natural values to be performed by Humans to lead a good and Peaceful life

Unit I — Value Educati on –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 Hippocratus on moral responsibility of medical practitioners. Code of ethics for medical and healt hcare 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 issu es raised by new biological technology or knowledge.

Unit III — Business ethics - Ethical standards of business -Immoral and illegal practices and their solutions, Characteries 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 — Socialethics - Organ trade, Human trafficking, Human rights violation and social disparities Feminist ethic, surrogacy/ pregnancy. Ethics of media - Impact of Newspapers, Television Movies and Internet.

Books for Study:

1. John S Mackenjie: A Manual of ethics.

	PO_1	PO_2	PO_3	PO_4	PO_5	PO_6	PO_7	PO_8	PO_9	PO_{10}	PO_{11}	PO_{12}
CO_1	3	3	3	2	2			1	2	2	2	3
CO_2	3	3	3	2	2	3	2	1	2	2	2	3
CO_3	3	3		2	2	3	2			2	2	3
CO_4	3	3	3		2	3	2			2	2	3

2. “The Ethics of Man agement”: 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 fo r 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. Kav iraj Kunjanal, Kunjanal 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, C osmo 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.

	PO_1	PO_2	PO_3	PO_4	PO_5	PO_6	PO_7	PO_8	PO_9	PO_{10}	PO_{11}	PO_{12}
CO_1	3	3	3	2	2	3	2	1	2	2	2	3
CO_2	3	3	3	2	2	3	2	1	2	2	2	3
CO_3	3	3	3	2	2	3	2	1	2	2	2	3
CO_4	3	3	3	2	2	3	2	1	2	2	2	3

SEMESTER -III

CORE - THEORY

GEG 301: URBAN STUDIES

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.

Unit I — Nature and scope of urban studies; Definitions of urban settlements; census; definition of urban population; Metropolis; Megalopolis and Conurbation, The concept of Smart Cities.

Unit II — Origin and evolution of cities : The origin of early cities; Impact of the Industrial revolution, current factors behind urban growth, location, spacing and size of urban settlements.

Unit III — Urban Hierarchy, Rank – size relationship, Nearest Neighbour analysis – classification of town s with special reference to functional classification.

Theories of urban structure and growth.

Unit IV Rural – urban relationships, the concept of city – region; pattern of world urbanization with special reference to India, urban decay, urban renewal.

Suggested Readings

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

	PO_1	PO_2	PO_3	PO_4	PO_5	PO_6	PO_7	PO_8	PO_9	PO_{10}	PO_{11}	PO_{12}
CO_1	3	3	3	3	2	3	2	1	3	2	2	3
CO_2	3	3	3	3	2	3	2	1	2	2	2	3
CO_3	3	3	3	3	2	3	2	1	3	2	2	3
CO_4	3	3	3	3	2	3	2	1	2	2	2	3

CORE - THEORY

GEG 302: GEOGRAPHICAL INFORMATION SYSTEM (GIS)

Learning objectives:

- To understand the evolution of GIS.
- To focus on collection, analyzing, interpretation andresenting the data related toEarth.
- To explains the types of data collection with respective to time and terrain and Data basemanagement and retrieving the data from different sources.
- To provides the theoretical knowledge on the Modeling surfaces and integration ofRemote 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 andresenting the data related to Earth.
- Differentiate the types of data collection with respective to time and terrain and Data basemanagement 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.

Unit I GIS: Definitions and Development – Computer Components of GIS (Hardware and Software) – General Data Base concepts of Spatial and Non - spatial dat a - Elements of Spatial data - Sources of Spatial data – Data quality for GIS – Errors and Error variations in GIS.

Unit II GIS Data Management: Data Base Management Systems (DBMS) Data Base Models. Data input methods – Spatial Data structures: Raster data and Vector data – Structures – GIS Data Analysis: Spatial measurement methods Reclassification – Buffering – Overlay Analysis.

Unit III Modelling Surfaces: Generation of DEM, DTM and TIN models – Spatial Interpolation – GIS output generation – Integration of Remote Sensing and GIS Principles of Global Positioning System (GPS).

Unit IV GIS applications: GIS as a Decision Support System – GIS as a Land

Information System – GIS as a Disaster Management and Emergency Response System - Resource management applications - Facility Management application – Urban Management application.

Suggested Readings

1. Aronoff S. Geog raphic 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, Englewood Cliff, 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. Prentice Hall, Englewood, C liff, New Jersey, 1994.

	PO_1	PO_2	PO_3	PO_4	PO_5	PO_6	PO_7	PO_8	PO_9	PO_{10}	PO_{11}	PO_{12}
CO_1	1	1	1	1	1	1	2	3	2	1	1	2
CO_2	1	1	1	1	1	1	2	3	2	1	1	2
CO_3	1	1	1	1	1	1	2	3	2	1	1	2
CO_4	1	1	1	1	1	1	2	3	2	1	1	2
CO_5	1	1	1	1	1	1	2	3	2	1	1	2

CORE - PRACTICALS

GEG 303: 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.

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 GIS-Analysis Methods
(a) Buffering
(b) Map overlay
(c) Interpolation
(d) Contou rs
(e) Slope
(f) DEM

Unit –VI Attribute data base and linkage of data Bas e.

Suggested Readings

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

	PO_1	PO_2	PO_3	PO_4	PO_5	PO_6	PO_7	PO_8	PO_9	PO_{10}	PO_{11}	PO_{12}
CO_1	3	3	3	2	1	3	3	1	2	2	3	3
CO_2	3	3	3	2	1	3	3	1	2	2	3	3
CO_3	3	3	3	2	1	3	3	1	2	2	3	3
CO_4	3	3	3	2	1	3	3	1	2	2	3	3

CORE - PRACTICALS

GEG 304: STATISTICAL TECHNIQUES

Learning objectives.
Student can analyzed and representing the geographical data

Unit I Frequency Distribution.

Unit II Measures of Central Tendency
1. Arithmetic Mean 2. Median 3. Mode
4. Geometric Mean 5. Harmonic Mean

Unit III Graphical Representation
1. Histogram 2. Frequency polygon
3. Frequency curve 4. Ogive curve
5. Less than and more than Ogive curve

Unit IV Measures of dispersion
1. Mean deviation
2. Quartile deviation
3. Standard deviation

Unit V Correlation - Rank Correlation

Unit VI Sampling methods: Meaning, need for sampling, types of sampling.

Suggested Readings

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

	PO_1	PO_2	PO_3	PO_4	PO_5	PO_6	PO_7	PO_8	PO_9	PO_{10}	PO_{11}	PO_{12}
CO_1	3	3	3	3	3	3	1	3	3	3	3	3
CO_2	3	3	3	3	3	3	1	3	3	3	3	3
CO_3	3	3	3	3	3	3	1	3	3	3	3	3
CO_4	3	3	3	3	3	3	1	3	3	3	3	3

Generic Elective (Related to Subject)

GEG 305(a) AGRICULTURAL STUDIES

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 .

Unit I — Nature, Scope, significance and developme nt 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 classificati on.

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 agricultura l region and agricultural regionalisation. Whittlesey's agricultural systems of the world. Agricultural regions of India. Green revolution; Problems and prospects of Indian agriculture.

Suggested Readings

1. Bayliss Smith, T.P. : The Ecology of Agricultu ral 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 Furure 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. Mathuen, 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.

	PO_1	**PO_2**	**PO_3**	**PO_4**	**PO_5**	**PO_6**	**PO_7**	**PO_8**	**PO_9**	**PO_{10}**	**PO_{11}**	**PO_{12}**
CO_1	3	1	2	2	1	3	2	1	2	2	2	3
CO_2	3	1	2	2	1	3	2	1	2	2	2	3
CO_3	3	1	2	2	1	3	3	1	2	3	3	3
CO_4	3	1	2	2	1	3	3	1	2	3	3	3

Generic Elective (Related to Subject)

GEG 305(b) – REGIONAL GEOGRAPHY OF INDIA WITH SPECIAL REFERENCE 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 India and 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 India and Andhra Pradesh.
- Visualise the population, mineral and transportation structures in Andhra Pradesh

Unit I — India: Location and Geographical Setting of India – Major Physiographic Divisions, Soils, Vegetation, drainage. Climatic Regions and their Characteristics in I ndia.

Unit II — India: Mineral Resources – Coal, Iron Ore and petroleum, Industri es Iron and Steel, Oil Refinery and Paper industries; Industrial Regions of India; Transport; Land, Water and Air, Imports and Exports.

Unit III — India: Population Distribu tion; Density growth problems, over population and population policies in India; Agriculture Types; Irrigation and Power; Multipurpose projects. Major food grain crops; Rice and Wheat; Major commercial crops – Coffee and Tea.

Unit IV — Andhra Pradesh: Rel ief, climate, soils and vegetation. Major Regions; Major Crops; Mineral wealth and industrial development; population.

Suggested Readings

1. Spate, O.H.K. and Learmonth, A.T.A. India and Pakistan, Third Edition, Methuen, London, 1967.
2. Memoria, C.B. : Economic and Commercial Geography of India, Shirlal Agarwal and Co., Agra, 1991.

3. Krishnan, M.B. : Geology of India, Higginbothams, Madras.
4. Alam, S.M. : Planning atlas of Andhra Pradesh.
5. Khullar: India, A comprehensive Geography. Kalyani Publishers , New D elhi.1989.

	PO_1	PO_2	PO_3	PO_4	PO_5	PO_6	PO_7	PO_8	PO_9	PO_{10}	PO_{11}	PO_{12}
CO_1	3	3	3	3	3	3	3	1	2	2	2	3
CO_2	3	3	3	3	3	3	3	1	2	2	2	3
CO_3	3	3	3	3	3	3	3	1	2	2	2	3
CO_4	3	3	3	3	3	3	3	1	2	2	2	3

Generic Elective (Related to Subject)

305(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

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

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

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

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

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

Suggested Readings

1. Savindra Singh, Environmental Geography, Prayag Pintak Bhavan, Allahabad, 2006.
2. Singh, L.R., Singh, Savindra, Tiwari, R.C. and Srivastava, R.P.: Environmental Management (edited), Allahabad University, 1983.
3. Singh, Savindra : Flood hazards and environmental degradation; A case study of the Gomathi River, in environmental management, Allahabad University, 1983.
4. John, A. Mattlews : Natural hazards and environmental change. Bill Mcguire, Ian

Mason, 2002.
5. Nimpuno, K : Disasters and Social Response, ITC, 1989.
6. Hooja, R. and Joshi, R. : Desert, Drought and Development Studies in Resource Management and Substainability: Rawat Publications, Jaipur, 1994.
7. Aronaff, S : Geographic Information Systems; A Management Perspective, DDL Publications, Ottawa, 1989.
8. Barrett, E.C. and Curtis, L.F.: Fundamentals of Remote Sensing and Air photo interpretat ion, 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.

	PO_1	PO_2	PO_3	PO_4	PO_5	PO_6	PO_7	PO_8	PO_9	PO_{10}	PO_{11}	PO_{12}
CO_1	3	3	3	3	3	3	1	3	3	3	3	3
CO_2	3	3	3	3	3	3	1	3	3	3	3	3
CO_3	3	3	3	3	3	3	1	3	3	3	3	3
CO_4	3	3	3	3	3	3	1	3	3	3	3	3

Open Elective (For other department s)

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

Unit -I: Re-organization of Andhra Pradesh -2014 - Location and physical setting – Major Phy siographic 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 gr ain crops. (Paddy, Jower and Ragi), major Commercial Crops (Cotton, Groundnut and Mango).

Unit -III: Mineral Resources: Iron o re, Limestone and Petroleum, Industries: Iron and St eel, Cotton and IT. Industrial Regions in Navy A ndhra Pradesh.

Unit -IV: Transportation and Communication – Road, Rail, Water, (special reference to coastal Transport) and Air Transport.

Reference:

1. Take from 401, 4, 5 from old syllabus.
2. Structure, growth an d 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.

	PO_1	PO_2	PO_3	PO_4	PO_5	PO_6	PO_7	PO_8	PO_9	PO_{10}	PO_{11}	PO_{12}
CO_1	3	3	3	3	3	3	3	1	2	2	2	3
CO_2	3	3	3	3	3	3	3	1	2	2	2	3
CO_3	3	3	3	3	3	3	3	1	2	2	2	3
CO_4	3	3	3	3	3	3	3	1	2	2	2	3

Open Elective (For other department s)

GEG 306 (b) – Geographical Information Sy stem (GIS) & Global Position ing System (GPS) and Applications

Learning objectives:

- To understand the evolution of GIS and GPS.
- To focus on collection, analyzing, interpretation andresenting the data related to Earth.
- To explains the types of data classification in GIS.
- To provides the theoretical knowledge on the Modeling surfaces and integration of Remotesensing 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 andresenting 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.

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, Oxford Univ. 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 Pustak Bhavan, Allahabad.
6. 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 and Applications, Vol I and II, American Institute of Aeronautics and Astronautics: Washin

	PO_1	PO_2	PO_3	PO_4	PO_5	PO_6	PO_7	PO_8	PO_9	PO_{10}	PO_{11}	PO_{12}
CO_1	3	3	3	3	3	3	3	1	2	2	2	3
CO_2	3	3	3	3	3	3	3	1	2	2	2	3
CO_3	3	3	3	3	3	3	3	1	2	2	2	3
CO_4	3	3	3	3	3	3	3	1	2	2	2	3

SEMESTER -IV

CORE - THEORY

GEG 401: REGIONAL PLANNING

Learning objectives:

To apprise the concept of Region and its planning.

- To explains the types of regions and regional hierarchy.
- To explains 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-solvingskills; research skills; written, graphical, and oral skills; computational skills.
- Learn the values and ethical standards affecting the practice of planning.

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

Unit IV Physical resource and special purpose regions: River valley regions, hilly and tribal regions, drought prone regions and metropolitan regions.

Suggested Readings

1. Sundaram, K.V. : Urban and Regional Planning, Vikas Publishing house, New Delhi, 1977.
2. Misra, R.P. and Sundaram, K.V. : Rural Area Development, Sterling Publishers, New Delhi, 1979.
3. Misra, R.P., Urs, D.V. and Nataraj, V.K. : Re gional 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 Regionalisa tion 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 : Heritag e 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.

	PO_1	PO_2	PO_3	PO_4	PO_5	PO_6	PO_7	PO_8	PO_9	PO_{10}	PO_{11}	PO_{12}
CO_1	3	1	2	2	1	3	2	1	2	2	2	3
CO_2	3	1	2	2	1	3	2	1	2	2	2	3
CO_3	3	1	2	2	1	3	3	1	2	3	3	3
CO_4	3	1	2	2	1	3	3	1	2	3	3	3

CORE - THEORY

GEG 402 – ADVANCED REMOTE SENSING

Learning objectives:

- To give broad knowledge on photogrammetry, Principle, process, platforms and techniquesand 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 ofstudy.

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 aclient-driven GIS solution.
- Prepared to apply their skills in professional careers.

Unit I Photogrammetry : Introduction; Geometric elements of vertical photographs; scales of Aerial photogra phs; 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 II I 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, Mult isectral classification, Change - detection images.

Unit IV Remote Sensing Applications to Geographical Studies: Landuse/ Landcover mapping; water resources; Gemor phological, waste land studies, Urban and Regional Planning.

Suggested Readings

1. American Socie ty 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 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 New York, 1989.
6. Luder D. : Aerial photography Interpretation : Principles and Applications, McGra w 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 I mage Interpretation, John Willey & Sons, New York, 1994.

	PO_1	PO_2	PO_3	PO_4	PO_5	PO_6	PO_7	PO_8	PO_9	PO_{10}	PO_{11}	PO_{12}
CO_1	3	3	3	3	3	3	3	-	2	2	3	3
CO_2	3	3	3	3	3	3	3	-	2	2	3	3
CO_3	3	3	3	3	3	3	3	-	2	2	3	3
CO_4	3	3	3	3	3	3	3	-	2	2	3	3

CORE - PRACTICALS

GEG 403: RESEARCH TECHNIQUES

Learning objectives

- To provide an understanding for the student on statistical concepts to include measurements oflocation and dispersion, and correlation analysis.
- To calculate and apply measures of location and measures of dispersion -- grouped andungrouped 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 amongstlisted 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

Unit I: Introduction to Research Techniques.

Unit II: Network analysis: Alfa, Beta, Gama, Eta, Theta indices, Centrality, Connectivity, shortest path matrix analysis and Traffic flow Diagram.

Unit III: Nearest neighbour distance analysis, Rank size relationship.

Unit IV: Detour index, shape index.

Unit V: Drainage basin morphometry – Water Balance.

Unit VI: Crop combination Techniques, Agricul tural Landuse efficiency.

Suggested Readings

1. Gregory, K.J. and Walling, D.E. Drainage basin form and process: A Geomorphological approach; Amold; London 1973.
2. Peter Davis: Science in geography, Science Series – 3, Data description and presentation, Ox ford University Press, London, 1975.
3. Peter Toyne and Peter Newby, T.: Techniques in Human geography, Mac Millan, London, 1972.
4. Peter Toyne and Peter Newby, T. : Techniques in Physical geography; Mac Millan, London, 1972.
5. Singh Jasbir and Dhillon, S.S. : A gricultural geography, TATA Mc Graw Hill, New Delhi, 1984.

6. Singh, R.L. Mapwork and practical geography, central book depot, Allahabad, 1972.

CORE - PRACTICALS

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.

Unit I Techniques of Visual Interpretation ;

Unit II Marginal Information of Satellite Imageries

Unit III Interpretation of Satellite Imageries: Visual Interpretation; Water Resources, Lineaments, Landuse / Land cover – Landforms – Waste Land. 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 Remote Sensing Agency, Hyderabad, 1994.
3. Thomas M. Lillesand and Ralph, W. Keffer; Remote Sensing and images interpretation, John Willey & Son s, New York, 1994.

	PO_1	PO_2	PO_3	PO_4	PO_5	PO_6	PO_7	PO_8	PO_9	PO_{10}	PO_{11}	PO_{12}
CO_1	3	3	3	3	3	3	1	3	3	3	3	3
CO_2	3	3	3	3	3	3	1	3	3	3	3	3
CO_3	3	3	3	3	3	3	1	3	3	3	3	3
CO_4	3	3	3	3	3	3	1	3	3	3	3	3

Generic Elective (Related to Subject)

GEG 405(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.

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 irrigati on. Water harvesting techniques: Neeru –Chettu and Water percolating programmes.

Unit IV — Soils: Process of soil formati on 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. Dakshinamur thy, 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, Marylane, 1984.
6. Singh, R.A and Singh, S.R. Water Man agement. 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, Hydrdogy, Dhanpat Roy & Sons, New Delhi.

	PO_1	**PO_2**	**PO_3**	**PO_4**	**PO_5**	**PO_6**	**PO_7**	**PO_8**	**PO_9**	**PO_{10}**	**PO_{11}**	**PO_{12}**
CO_1	3	3	3	3	3	3	3	-	2	2	3	3
CO_2	3	3	3	3	3	3	3	-	2	2	3	3
CO_3	3	3	3	3	3	3	3	-	2	2	3	3
CO_4	3	3	3	3	3	3	3	-	2	2	3	3

Generic Elective (Related to Subject)

GEG 405 (b): ENVIRONMENTAL STUDIES

Learning objectives:

- To create the environmental aptitude among students.
- To familiarize the students with concepts, issues, approaches about physical andsocialenvironment.
- 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 impa ct 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. Leopoid 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 Geogra phy, Prayag Publications, Allahabad, 1991.
12. Smith, R.L. : Man and his Environment : An Ecosystem approach, Harper & Row, London, 1992.

	PO_1	**PO_2**	**PO_3**	**PO_4**	**PO_5**	**PO_6**	**PO_7**	**PO_8**	**PO_9**	**PO_{10}**	**PO_{11}**	**PO_{12}**
CO_1	3	1	2	2	1	3	2	1	2	2	2	3
CO_2	3	1	2	2	1	3	2	1	2	2	2	3
CO_3	3	1	2	2	1	3	3	1	2	3	3	3
CO_4	3	1	2	2	1	3	3	1	2	3	3	3

Generic Elective (Related to Subject)

GEG 405 (c) GEOGRAPHY FOR RESEARCH, EXTENSION (SOCIETY) AND INDUSTRY

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

Unit I: Methodology of Research : Meaning and Functioning of Research, Different types of Research, Identification of Research Problem, Tools for Collection of Data, Data Analysis, Interpretation of Results, The design and Execusion of Research, Writing of Resear ch Report.

Unit II: Use of techniques in geographical research : Statistical techniques, Research techniques, Computer techniques, Remote sensing technology and Geographical information system.

Unit III: Land use planning and extension activities: Land use and land cover planning, conservation of soils and irrigation, Wasteland development, watershed management and ground water exploration methods.

Unit IV: Computer and GIS techniques and industry interactions: Computer techniques, Remote sensing, technolo gy, Global positioning system, Geographical information system and Photogrammetry and their interaction to that of soft ware training centres, software industries and planning institutions.

Suggested Readings

1. Rajammal, P. Devadas, Kulandaivel (edited): A H and book of Methodology of Research, Sri Ramakrishna Vidyalaya, Coimbatore, 1976.
2. Simpson and Kafka: Basic statistics (Revised edition)W.W. Norton and Company, INC, 1965.
3. Elmer, B. Mode: Elements of Statistics (Third edition), Prentice Hall of India Privat e Limited, New Delhi, 1971.
4. Gautham, N.C.: Methodology for Landuse planning, a systematic approach, Centre for land use management, Hyderabad, 2002.
5. Hridayaram Yadav: Genesis and Utilization of Waste lands, Concept Publishing Company, New Delhi, 1986.
6. Tideman, E.M. : Watershed Management; Guidelines for Indian conditions, Omega Scientific Publishers, New Delhi, 1996.
7. Aronoff, S : Geographic Information System; A Management Perspective, DDL Publications, Ottawa, 1989.
8. Brig, N. Dhal and Ms. Sunita Dhal : Can GIS and Disaster Management System

help GIS India? Vol.9, No.1, Jan. -Feb. 2000.
9. Barrett, E.C. and L.F. Curtis: Fundamentals of Remote Sensing and Air photo Interpretation, McMillan, New York, 1992.
10. Thomas, M. Lillesand and Ralph W. Kefer: Remote Sensing an d Image Interpretation, John Wiley & Sons, New York, 1994.

	PO_1	**PO_2**	**PO_3**	**PO_4**	**PO_5**	**PO_6**	**PO_7**	**PO_8**	**PO_9**	**PO_{10}**	**PO_{11}**	**PO_{12}**
CO_1	3	3	3	3	3	3	3	1	2	2	2	3
CO_2	3	3	3	3	3	3	3	1	2	2	2	3
CO_3	3	3	3	3	3	3	3	1	2	2	2	3
CO_4	3	3	3	3	3	3	3	1	2	2	2	3

Open Elective (For other department s)

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

Unit I — India: Location and Geographical Setting of India – Major Physiographic Divisions, Soils, Vegetation, Draina ge. Climatic Regions and their Characteristics in India.

Unit II — India: Mineral Resources – Coal, Iro n ore and petroleum, Industries: Iron and Steel, Oil refinery and Paper industrie s; Industrial Regions of India .

Unit III — India : Population Distribution; Density growth problems, over population and population policies in India; Agriculture Types; Irrigation and Power; Multipurpose projects. Major food grain crops; Rice and Wheat; Major commercial crops – Coffee and Tea.

Unit IV — Transport; Land, Water and Air, Imports and Exports. concept of Swatch Bharath.

Suggested Readings

1. Spate, O.H.K. and Learmonth, A.T.A. India and Pakistan, Third Edition, Methuen, London, 1967.
2. Memoria, C.B. : Economic and Commercial Geography of India, S hirlal Agarwal and Co., Agra, 1991.
3. Krishnan, M.B. : Geology of India, Higginbothams, Madras.
4. Alam, S.M. : Planning atlas of Andhra Pradesh.
5. Khullar: India, A comprehensive Geography. Kalyani Publishers , New Delhi.1989.

	PO_1	PO_2	PO_3	PO_4	PO_5	PO_6	PO_7	PO_8	PO_9	PO_{10}	PO_{11}	PO_{12}
CO_1	3	3	3	3	3	3	1	3	3	3	3	3
CO_2	3	3	3	3	3	3	1	3	3	3	3	3
CO_3	3	3	3	3	3	3	1	3	3	3	3	3
CO_4	3	3	3	3	3	3	1	3	3	3	3	3

GEG 406(B) – Remote sensing principles and applications

Learning Objectives

- To provide knowledge on history and evolution of Remote sensing
- To explains 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.

Unit I **Introduction:** Definitions, concepts and types of Remote Sensing, Historical developments, Stages and advantages. Energy Sources, Energy and Radiation.

Unit II **Satellite Remote Sensing:** Types of platforms; Ground Observation Platforms, Airborne Observation platforms, Space Borne observation platforms. Remote Sensing Satellites orbits; Geosyncronous orbit, Sunsyneronous orbit and Shuttle orbit, Different Satellites: - LANDSAT, SPOT, IRS, IKONOS, QUICK BIRD. CARTOSAT – 2.

Unit III **Digital Image Processing:** Image processing systems, data formats of digital Image, preprocessing, Image enhancement, multi spectral Images Visual Image Interpretation, elements of Visual Image Interpret ation, Interpretation keys, and generating thematic maps.

Unit IV **Applications of Remote Sensing:** Remote Sensing Applications in Landuse

Land cover Mapping, Water Resources, Wasteland studies, Urban and Regional Planning.

Suggested Readings

1. American Soc iety 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, Associat ion of Exploration Geophysicist, Hyderabad, 1998.
7. Thomas M. Lillesand and Ralph W. Kefer, Remote Sensing and Image Interpretation. John Wiley & Sons, New York, 1994.

	PO_1	PO_2	PO_3	PO_4	PO_5	PO_6	PO_7	PO_8	PO_9	PO_{10}	PO_{11}	PO_{12}
CO_1	3	3	3	3	3	3	3	1	2	2	2	3
CO_2	3	3	3	3	3	3	3	1	2	2	2	3
CO_3	3	3	3	3	3	3	3	1	2	2	2	3
CO_4	3	3	3	3	3	3	3	1	2	2	2	3