

GOVERNMENT COLLEGE FOR WOMEN (A)

KUMBAKONAM – 612 001

M.Sc. Applied Geography

Curriculum Structure & Syllabus (under CBCS)

(Applicable to the candidates admitted from the academic year
2015-16 onwards)

GOVERNMENT COLLEGE FOR WOMEN (AUTONOUS) KUMBAKONAM
(For the women candidate to be admitted from the year 2015-2016 onwards)
DEPARTMENT OF GEOGRAPHY
M.SC – APPLIED GEOGRAPHY

Semester	Course Title	Ins. Hrs/ Week	Credit	Exam Hrs	Marks		Total
					In t.	Ex t.	
I	CC-1 Geomorphology and Hydrology	6	5	3	25	75	100
	CC-II Climatology and Oceanography	6	5	3	25	75	100
	CC-III Environmental Geography	6	5	3	25	75	100
	CC-IV Practical – I Terrain and Climatic Data Analysis	6	4	3	40	60	100
	EC- I Cartography and Quantitative Techniques	6	4	3	25	75	100
	Total	30	23				
II	CC-V Agricultural Geography	6	5	3	25	75	100
	CC-VI Urban Geography	6	5	3	25	75	100
	CC-VII Geography of Economic Activities	6	5	3	25	75	100
	CC-VIII- Practical –II Socio Economic Data Analysis	6	5	3	40	60	100
	EC- II Geography of India	6	4	3	25	75	100
	Total	30	24				
III	CC-IX Geographical Thought	6	5	3	25	75	100
	CC-X Research Methodology in Geography	6	5	3	25	75	100
	CC-XI Population and Settlement Geography	6	5	3	25	75	100
	CC-XII Practical –III Interpretation of Topographical Maps, Aerial Photos and Satellite Images	6	4	3	40	60	100
	EC- III Regional Planning	6	4	3	25	75	100
	Total	30	23				
IV	CC-XIII Social and Cultural Geography	6	5	3	25	75	100
	CC-XIV Practical –VI Spatial Analysis	6	5	3	40	60	100
	CC-XV Project work	12	6	-	-	-	100
	EC- IV Remote Sensing, GIS and GNSS	6	4	3	25	75	100
	Total	30	20				
		120	90				1900

CC- Core Course Paper : 14
 EC- Elective Course Paper: 4
 Project work Paper : 1

CC – I GEOMORPHOLOGY AND HYDROLOGY

UNIT I

Nature – Scope and Content of Geomorphology – Fundamental Concepts - Geomorphic process – Endogenic – Diastrophism - folds and faults – Continental Drift theory – Plate tectonics – Mountain Building theories - Earthquake and Volcanoes – Exogenic process – Weathering – Mass Movement – Soil formation.

UNIT II

Gradational Process – River, Aeolian, Glacier, Karst, Coast – Classification of coasts.

UNIT III

Normal Cycle of Erosion – Davis – Modification of the cycle -Concepts of Penck and King - Development of slopes – Ideas of Wood, Davis, Penck and King.

UNIT IV

Climatic geomorphology - Morphogenetic regions - Applied Geomorphology – Mineral exploration, Engineering, and Hydrology.

UNIT V

Hydrological cycle – sub cycles – elements – precipitation, evaporation, infiltration, runoff – Water Balance and its applications - Drainage basin – characteristics, human impact on hydrological systems.

Reference Books

1. Thorn Bury D. Principles of Geomorphology, Wiley Eastern Ltd. New Delhi – 1984.
2. Dayal P. A Text book of Geomorphology, Shukla book Deprt, Patna – 1995.
3. Worcester P.G., A Text book of Geomorphology, Van Nostrand Rein holds Company, New york, 1948.
4. Strahler, A.H and Strahler, A.N., Modern Physical Geography, New York, John Wiley & sons.INC.

CC – II CLIMATOLOGY AND OCEANOGRAPHY

UNIT I

Atmosphere – Composition and Structure - Solar radiation - Air temperature – heat balance - Atmospheric Pressure - General circulation of the atmosphere – Monsoon - Jet streams – Stability and instability of the atmosphere - Air masses – Fronts - Precipitation.

UNIT II

Atmospheric disturbances – temperate and tropical cyclones - Thunderstorms – Classification of world climates - Empirical and generic climatic classification – Koppen’s and Thornthwaite’s schemes – World Climatic regions

UNIT III

Climatic changes – evidences and theories – Applied climatology – micro climate – agro climate - urban climate – global warming – heat island – health hazards.

UNIT IV

Origin of Ocean basins - Bottom relief of Atlantic, Indian and Pacific Oceans - Ocean deposits – Origin, Types and Distribution - Coral reef - Conditions for growth - types and distribution.

UNIT V

Temperature, Salinity and Density of the Oceans – vertical and horizontal distribution – Currents – Waves, Tides and Tsunami – Sea level changes.

Reference Books

1. Lal. D.S., Climatology, Chatanya Publishing House, Allahabad, 1990
2. Howard J. Chritchfield, General Climatology, Prentice – Hall of India Pvt Ltd, 1987
3. Trewartha G.T. and Lyes H. Horn, An introduction to Climate, McGraw Hill Company, 1980.
4. Berry R.G & Chorely R.J., - Atmosphere, Weather and climate , Mathew & co, London 1978
5. Lal D.S., Oceanography, Chatanya Publishing House, Allahabad.
6. Grant Gross – Oceanography, Prentice – Hall International Editions , 1987
7. Sharma.R.C., and M.Vital – Oceanography for Geographers , Chatanya publishing house , Allahabad , 1987
8. Paul R. Pinet – Oceanography, West Publishing Company, 1992

CC – III ENVIRONMENTAL GEOGRAPHY

UNIT I

Environment – Elements and Types - Man and environment relationships – determinism – possibilism, changing nature of concept – lithosphere – hydrosphere – biosphere – multi disciplinary approach

UNIT II

Concept of Ecosystem – Forms and functions of Ecosystem — classification: forest, grassland, marine and mountain ecosystem – Biomes – food web – food pyramid – nutrient cycle – biodiversity – types.

UNIT III

Natural disruptions of the ecosystem – Natural hazards – landslide, earthquake, volcano, floods and droughts – Pollution - Human interference on ecosystem – Population growth and its impact – Man's modifications of the biosphere – agriculture – Green Revolution – HYV and pesticides – ozone depletion.

UNIT IV

Environmental planning and management; objectives and strategies; natural resource management and conservation (land, water and forest) – sustainable development concept - need, problems and strategies – EIA principles and procedures.

UNIT V

Climate change - causes and consequences - Stockholm conference, Earth summits and Round tables and Kyoto Protocol - world climate data monitoring programme - Environment related policies and programmes in India - Environment Governances.

Reference Books

- 1 Trivedi, R.N - A Text Book of Environmental Sciences, Anmol Publications Pvt.Ltd New Delhi, 1997
- 2 Sexna, H.M – Environmental Geography, Rawat Publications Jaipur, 1999
- 3 Savindhra Singh – Environmental Geography Prayag Pushtak Bhawan University Road, Alagabad 1991
- 4 Gillbert White – Environment as a Hazard, Toronto, 1978
- 5 Bruce Mitchell – Resources and Management Orient Long Man London, 1991

CC – IV PRACTICAL - I

TERRAIN AND CLIMATIC DATA ANALYSIS

UNIT I

Profiles – Serial and Super imposed – Projected and Composite – River Profile – Thalweg.

UNIT II

Slope analysis – Smith, Wentworth and Robinson Methods

UNIT III

Drainage basin analysis – Stream ordering – Strahler's method – Bifurcation ratio, Drainage density – Shape of the drainage basin- Miller's circulatory ratio.

UNIT IV

Climatic diagram – Climograph - Climatograph – Thermo isopleths – Rainfall distribution – Dispersion – Rainfall variability.

UNIT V

Water balance – Aridity Index – NDVI Index

Reference Books

- 1 R.L. Singh - Elements of Practical Geography, Kalyani Publishres, New Delhi
- 2 F.J. Monkhouse and H.R Wilkinson, Maps and Diagrams, B.I. Publications, Madras
- 3 Gopal Singh – Map work and Practical Geography, Vikas publishing house Ltd
- 4 V.P. Subrahmanyam and Subramaniam,A.R. Application of water balance concept for a climatic study of droughts in south India, 1964

EC –I CARTOGRAPHY AND QUANTITATIVE TECHNIQUES

UNIT I

Meaning, Scope and Development of Cartography - Fundamentals of Map Projections- Types - Uses and choice of map Projection - Compilation and Generalization of Maps-Compilation of Base Maps.

UNIT II

Simple and Complex - Thematic maps – Qualitative and Quantitative- Point, line, Area and Volume Symbols - Map Design and Layout - Lettering and Toponymy - Tools and Techniques for map drawing – Map construction and production – Photographic and non - photographic processes - Printing processes.

UNIT III

Measures of central tendency – mean, median and mode – standard deviation - coefficient of variation.

UNIT IV

Correlation – Pearson's product moment correlation –Spearman's rank correlation- Regression analysis – Residual mapping – Factor analysis – ANOVA.

UNIT V

Hypothesis Testing – Need and Types – Significance and Confidence Level – Parametric – Non Parametric Produce – Chi-Square testing and T-test.

Reference Books

1. Monkhouse F.J. and Wilkinson H.R.-Maps and Diagrams-Dirton Co.,Newyork.
2. R.P.Mishra and A.Ramesh - Fundamentals of Cartography-Concept publishing Company,New Delhi.
3. Robinson A.H. and R.D.Sale - Elements of Cartography-Hjohn Wiley and Sons, New York.
4. Singh R.L. and P.K.Dutt - Elements of Practical Geography.
5. Aslam Mahmood, and Moonis Raza, (1986). Statistical Methods in Geographical Studies, Rajesh Publications, New Delhi.
6. Davis - Statistics and Data Analysis in Geology, John Willy & Sons Inc., New York.
7. FitzGerald B. F. - Development in Geographical Method, Science in Geography – 1, Oxford University Press, Oxford.

CC – V AGRICULTURAL GEOGRAPHY

UNIT I

Nature, Scope and significance of agricultural geography – Approaches - Agricultural types and their Characteristics - Elements of Agriculture – Land, Labour , Capital and Market.

UNIT II

Determinants of Agriculture – Physical, Economic, Social Institutional and technological factors – Green Revolution – First and Second - Implications.

UNIT III

Agricultural productivity – Determinants - Measurements - Cropping Pattern – Crop combination – Weaver, Doi, Rafiullah, Crop diversification – Bhatia.

UNIT IV

Von Thunen's model - Modification and Application of Von Thunen's theory – Land use - Types – Land use survey - Land capability classification – Remote sensing in land use analysis.

UNIT V

Agricultural systems of the World, India and Tamil Nadu – Whittlessey's agricultural classification.

Reference Books

1. Hussain, M. – Agricultural Geography, India Publications, New Delhi
2. Morgan, W.B & Muntan, R.J.C. – Agricultural Geography
3. Singh Jasbir, and Dhillon - Agricultural Atlas of India - A Geographical Analysis, Vista Publishers, Krukshetra.
4. Symons, I – Agricultural Geography, G. Bells & Sons, London
5. Savindra Singh and Dhillon - Agricultural Geography

CC - VI URBAN GEOGRAPHY

UNIT I

Nature and scope of urban geography – development of urban geography - recent trends - origin and growth of urban settlements – urbanization - classification of urban settlements.

UNIT II

Urban growth and theories - Primate City – Rank-size rule – Settlement hierarchy - Central Place Theory of Christaller - August Losch theory of market centres - Urban economic base: Basic and non-basic functions.

UNIT III

Urban morphology and landuse structure - CBD - umland and periphery - urban expansion – Theoretical models: Concentric zone model, Sector model and Multiple Nuclei model – Social area analysis – Applications.

UNIT IV

Contemporary urban issues - urban poverty, urban renewal, urban sprawl, slums and transportation - urban infrastructure - environmental pollution: air, water, noise and solid waste - urban crime - issues of environmental health.

UNIT V

Urban policy and planning - city planning - urban policy - contemporary issues in urban planning - globalization and urban planning in the Third World - urban landuse planning.

Reference Books

1. Carter - The Study of Urban Geography, Edward Arnold Publishers, London, 1972.
2. Chorley, R.J.O., Haggett P. (ed.) - Models in Geography, Methuen, London, 1966.
3. Hall P. - Urban and Regional Planning, Routledge, London, 1992.
4. Dickinson, R.E. - City and Region, Routledge, London, 1964.

CC – VII GEOGRAPHY OF ECONOMIC ACTIVITIES

UNIT I

Economic activities – Factors affecting spatial organization of economies – Classification of economies - Primary, secondary, tertiary and quaternary.

UNIT II

Natural resources – renewable and non-renewable - Classification – World distribution and associated problems – Resource management – World energy crises in developed countries.

UNIT III

Classification of industries – Bases and Characteristics – Factors of industrial localization – Concepts and theories – Weber, Hoover, August Losch, Pres and Smith - World industrial regions.

UNIT IV

Models of transportation and transport cost - Accessibility and Connectivity - Measures and indices – Comparative cost advantages - Spatial flow models – Gravity and Allocation models - Ideas of Edward Ullman and Hurst.

UNIT V

Information and communication technology – World distribution and growth - World Trade Organizations - Globalization and liberation - World trade patterns –Problems and prospects.

Reference Books

1. Sharma T.C. and Countinho. O – Economic and Commercial Geography of India, Vikas Publishing house, Delhi, 1998.
2. Memoria, C.B, Economic and Commercial Geography of India, Sivalal agrawal and company, Agra 1995.
3. Dubey and Negi – Economic and Commercial geography 1999.
4. Sadhukhan, S.K – Economic Geography an Appraisal of Resource – chand and co -1982.
5. Naresh Kumar – Geography of Transportation, Concept Publications, 1991.

CC – VIII PRACTICAL – II

SOCIO-ECONOMIC DATA ANALYSIS

UNIT I

Diagrams: Line graph – Multiple Line graph – Simple bar diagrams – Compound – Multiple, Comparative percentage bar diagram.

UNIT II

Mapping of population data: Located bar diagram – Located sphere diagram – Located pie diagram – Dot Map – Choropleth Maps – Isopleths Maps – Age and sex pyramids.

UNIT III

Mapping of settlement analysis – Functions – Triangular method – occupational data – core periphery Models – Urban systems – Nearest Neighbor analysis.

UNIT IV

Mapping of Agricultural data- Index of Concentration –Index Diversification – crop combination analysis - Weaver's, Doi and Rafiuallah's methods

Reference Books

1. F.J.Monkhouse & H.R.Wilkinson – Maps and Diagrams, Dirton Co- New York 1971.
2. R.L Singh – Elements of Practical Geography – Kalyani Publishers New Delhi, 1979.
3. Kansy, Y. – The Structure of Transportation Network.
4. Tafée, E.J.& H.L Gauthier – Geography of Transportation, Prentice Hall, New York.

EC – II GEOGRAPHY OF INDIA

UNIT I

Location – Physiographic divisions - Climate – Rainfall distribution – Climatic regions.

UNIT II

Soils - Natural vegetation – Coastal and marine resources – water resources – Irrigation - Types and multipurpose projects - Agriculture – Agro-climatic regions – Distribution of food and commercial crops – Rice, Wheat, Cotton, Sugarcane, Tea, Coffee and Jute.

UNIT III

Power resources – Hydel, Thermal, Atomic - Mineral resources – Iron ore, Manganese, Mica, Bauxite and Copper. Major industries – Cotton, Iron and Steel, Sugar, Cement, Textile, Sugar, Paper and Shipbuilding - Small scale and cottage industries – Industrial regions.

UNIT IV

Population – Distribution and density – growth – Trends – Problems – Regional disparities in social and economic development.

UNIT V

Transport and communication – Land, Water and Air – Ports and Harbours – Economic significance – Trade – volume – direction.

Reference Books

- 1) Gopal Singh – Geography of India, Atma Ram & Sons, New Delhi, 1995.
- 2) Sharma T.C. and Countinho. O – Economic and Commercial Geography of India, Vikas Pub. House, New Delhi, 1998.
- 3) Memoria, C.B, Economic and Commercial Geography of India, Sivalal agrawal and company, Agra 1995.
- 4) Tirtha, Geography of India, 1996.

CC – IX GEOGRAPHICAL THOUGHT

UNIT I

Geographic knowledge during the ancient and medieval period - Foundations of modern geography – Contributions of Greek, Roman, Arab, Chinese and Indian scholars to geography.

UNIT II

German, French, British and American schools of geographical thought - Major geographic traditions – earth science, man – Environment relationship – area studies and spatial analysis.

UNIT III

Dualism in Geography - physical Vs human, regional Vs systematic, determinism Vs possibilism, qualitative Vs quantitative and ideographic Vs nomothetic

UNIT IV

Forms of explanations in geography – Models, Theories and laws in geography – Quantitative revolution.

UNIT V

Perspectives in geography – positivism, humanism, radicalism, behaviouralism, Marxism, structuralism, and feminism.

Reference Books

1. Negi B.S. Geographical thought – Karinath Ramnath meerat 1994.
2. Freeman. R. Hundred Years of geography – Hutchinson London 1970.
3. Harvey D. explanation to geography Edward Arnold publication, London.

CC – X RESEARCH METHODOLOGY IN GEOGRAPHY

UNIT I

Meaning – Need for scientific Research – Types of research Approaches – identification of fields – Area of interest – Themes.

UNIT II

Logic in research – Hypothesis – Concept & Facts-Principles in Geographical research.

UNIT III

Research design – Literature survey – Selection of the topic – Statement of problem – Formulation of hypothesis – Testing of Hypothesis – Time schedule – bibliography – Role of internet.

UNIT IV

Data acquisition – Analysis – Collection of data – Source of data – Primary data- Secondary data – Sampling data – Structure of data base – Data transformation.

UNIT V

Organization of theses – Preliminaries – Text and reference materials – drafting of theses – First – Second and final Evolution – Language & Presentation – Form – Style –Writing Abstracts – Research papers – seminar - Journals Publications.

REFERENCE BOOKS:

1. Kothari C. R, Research Methodology, methods & Techniques, 2004 New Age international (p) Limited, Chennai.
2. Mishra R.P Research Methodology in geography, Gopal lal J.2003 Research Methodology, Tools and Techniques, Mangal deep publishers, New Delhi

CC – XI POPULATION AND SETTLEMENT GEOGRAPHY

UNIT I

Nature, scope and significance of population geography – Sources of populations data – Reliability of population data - World population - Factors - Distribution and Density.

UNIT II

Dynamics of population – Fertility and Mortality – Measures and Determinants - world trend – World population growth– Theories of populations growth - Malthus, Ricardo and Marx – Migration: Types – Determinants – Consequences of migrations – Laws and policies of migrations.

UNIT III

Populations composition characteristics – age, sex, rural, urban, occupation and education – population resource relationship – population resources region, population policies.

UNIT IV

Nature, scope and development of settlement geography – site, situation, types, size, spacing and internal morphology of rural settlements – Functional classification of rural settlements.

UNIT V

Urbanization - Urban expansion – vertical and horizontal – urban sprawl – rural-urban fringe – urban renewal – suburbs - growth and characteristics – city regions concept – urban migration and land use changes – problems.

Reference Books

1. Chandna R.S – Geography of Population Concepts, Determinants and Patterns, Kalyani Publishers, New Delhi 1980.
2. Clark John.I. - Population Geography Pergamon Press Ltd. Oxford 1981.
3. Gosh, B.N – Population Geography, Streling Publications. 1987.
4. Beauju- Garneir.J – Geography of Population, Longman group Ltd, 1978.
5. H. Carter - The Study of Urban Geography, Edward Arnold, London.
6. J.H.Johnson- Urban Geography of Towns, Hutchinson University Library, London.
7. Mayer & Kohn – Readings in Urban Geography, Central Book Depot, Alahabad.
8. Northam – Urban Geography. John Wiley & Sons Inc; 2nd edition 1979.

CC – XII - PRACTICAL – III

INTERPRETATION OF TOPOGRAPHICAL MAPS, AERIAL PHOTOS AND SATELLITE IMAGES

UNIT I

Appreciation and interpretation of SOI Map and O.S Sheets: physical and cultural features.

UNIT II

Interpretation of U.S Map and National atlas of India, Census atlas.

UNIT III

Aerial Remote Sensing: Elements of Visual Interpretation – Marginal Information of Aerial photographs – Interpretation of aerial Photographs.

UNIT IV

Satellite Remote Sensing: Marginal Information of satellite imageries– Interpretation of Satellite imageries (Physical & Cultural Features).

Reference Books

1. Robinson A.H. and R.D.Sale - Elements of Cartography - John Wiley and Sons, New York.
2. Lillisand T.M., and Kiefer P.W. - Remote Sensing and Image Interpretation, John Wiley & Sons, New York.
3. Wolf P. R - Elements of Photogrammetry, McGraw Hill books Co., London.
4. Rampal K.K - Hand Book of Aerial Photography and Interpretation, Concept Publishing Company, New Delhi.

EC – III REGIONAL PLANNING

UNIT I

Geography and Regional planning: Basic concepts – Geographic space and regions – growth pole and growth centre - regional units – types of regions – goals and objectives of regional planning process – interdisciplinary nature of regional planning - nationalization and sectionalism.

UNIT II

Approaches to regional planning analysis: systems concept; Geographic matrix – spatial temporal dimensions – grouping of dimensions in regional analysis – regional science – methods to study Indian regional problems.

UNIT III

Planning in India: historical development – appraisal of five year planning and annual plans – dimension- regional imbalances - development programme: command area, drought prone, metropolitan, river valley, tribal and hill area

UNIT-IV

Regional planning in Tamil Nadu: evaluation of regional planning - planning regions – backward area development – metropolitan, rural planning – local planning authorities – 73rd and 74th amendment of constitution of India.

UNIT-V

Town planning: basic concepts of town planning - need of town planning – Powers and functions of Nagar Panchayat, municipal council and Municipal Corporation - functions of town planning activities in Tamil Nadu.

Reference Books

1. Misra R.P. (1971) Regional Planning: Concept Techniques. Politics and case studies. University Mysore, Mysore.
2. Misra R.P., Sundaram K.V. and V.L.S Prakasa Rao (1974); regional development in India, Vikas publishing house, New Delhi.
3. Prakasa Rao V.L.S. (1963); Regional Planning, Asia publishing house, Kolkatta.

CC - XIII SOCIAL CULTURAL GEOGRAPHY

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

Concept of culture, culture complex, culture areas and cultural regions, cultural heritage, cultural interactions, cultural diffusion and cultural ecology – cultural imperialism.

UNIT – IV

Health – factors affecting human health – nutritional status, diseases – etiological condition, classification and distribution patterns - Health care planning and policies in India.

UNIT – V

Human development - measurement of human development - social, economic and environmental indicators - Contemporary issues - regional disparity, poverty, population explosion and globalization - Impact of development on Environment - social and ethnic tension - gender discrimination - empowerment of women.

Reference Books

- 1 Majid Husain - Human Geography-Rawat Publications 1994.
- 2 Gillian C.Morgan – Human and Economic Geography, Oxford University Publications 1999.
- 3 Aime Vincent Perpillou - Human Geography, Longman Group limited London 1977.
- 4 C.Daryll Forde - Habitat, Economy and Society, Methuen Publishers 1977.
- 5 Chandna - Population Geography, Kalyani Publishers.
- 6 Ray-M. Northam - Urban Geography, John Wiley and Sons Publications – 1979.
- 7 Dikshit R. - Political Geography, 3rd Edition, Tata Mc Graw- Hill.

CC- XIV PRACTICAL – IV

SPATIAL ANALYSIS

UNIT I

Frequency distribution – Graphical representation: Histogram , Frequency polygon, Frequency Curve – Cumulative Frequency or Ogive Curve

UNIT II

Measures of central tendency: Mean, Median and Mode - Measures of dispersion:–Range, Quartile deviation, Mean deviation standard deviation and Lorenz Curve.

UNIT III

Correlation: Rank Correlation and Co-efficient Correlation - Regression – Scatter Diagram.

UNIT IV

Hypothesis Testing – Parametric and Non-parametric test – Chi-Square testing, F-test and T-test.

Reference Books

1. Monkhouse F.J. and Wilkinson H.R.-Maps and Diagrams-Dirton Co.,Newyork.
2. Singh R.L. and P.K.Dutt - Elements of Practical Geography.
3. Aslam Mahmood, and Moonis Raza, (1986). Statistical Methods in Geographical Studies, Rajesh Publications, New Delhi.
4. David Unwin - Introductory Spatial Analysis, Methuen, London, 1981.
5. Gregory S. - Statistical Methods and the Geographer, Longman, London, 1978.
6. Hammond R and P.S. McCullagh - Quantitative Techniques in Geography: An Introduction, Clarendan Press, Oxford, 1974.
7. John P. Cole and Cuchlaine A. M. King, Quantitative Geography, John Wiley, London, 1968.
8. Johnston R. J., Multivariate Statistical Analysis in Geography, Longman, London. 1973.

EC – IV REMOTE SENSING, GIS AND GNSS

UNIT I

Remote Sensing – definition - Types – Ideal Remote Sensing System – Aerial Photography - Types of Photographs – elements - Photo Interpretation - Photogrammetry.

UNIT II

Space borne Remote Sensing – EMR – Platforms – Sensors – Resolution – Spectral signatures – visual image interpretation - Fundamentals – equipments – digital image processing - Development of Remote Sensing programs in the world – USA, USSR, FRANCE, U.K and India – Development of remote sensing in India

UNIT III

GIS – Definition – Components – DBMS – Vector and Raster models – Spatial Data Input and Editing - GIS analysis – Queries, Buffering, Overlay and Neighbourhood functions -

UNIT IV

GNSS/GPS – Historical development – Segments – Space Segment: GPS Satellite Systems – new Programmes - Control Segment - User segment: land and marine navigation - Sources of errors - differential GPS.

UNIT V

Applications of RS, GIS and GNSS/GPS - Resource mapping – land and water resources, urban studies, disaster management and land use planning.

Reference Books

1. C.S.Agarwal & P.K.Grag – Text Book of Remote Sensing – Wheeler Publishing 2000.
2. Barrette & Burough – Principles of GIS for Land Resource Assessment – Clarendon Press – Oxford.
3. Campbell. James B.I - Introduction to Remote Sensing – The Guild Press, New York.
4. Ian Heywod, Sarah Cornelines, An Introduction to Geographical Information System I Addison – Wesley, Longman Ltd, 2000.
5. Robinson A.H. and R.D.Sale - Elements of Cartography - John Wiley and Sons, New York.
6. Lillisand T.M., and Kiefer P.W. - Remote Sensing and Image Interpretation, John Wiley & Sons, New York.
7. Wolf P. R - Elements of Photogrammetry, McGraw Hill books Co., London.