K A N N U R U N I V E R S I T Y

(Abstract)

M.Sc Programme in Geography under Choice based Credit Semester System– Scheme & Syllabus effective from 2010 Admission- Implemented– Orders issued.

ACADEMIC BRANCH

U.O.No.Acad/C2/2555/2011. Dated, K.U.Campus.P.O, 12-04-2011.

Read: 1. Minutes of the meeting of the Curriculum Committee held on 05-06-2010 & 16-08-2010.
2. U.O No. Acad/C3/2049/2009 dated 05-04-2011.
3. Letter from the Head, Dept. of Geography, SAT Campus, Payyannur.

ORDER

1. As per the recommendation of the Curriculum Committee vide paper read (1) above, the regulations for Credit Semester System were revised and Choice based Credit Semester System was implemented in this University with effect from 2010 admission vide paper read (2) above.

2. The Curriculum Committee in the meeting held on 16-08-2010 has approved the draft Scheme & Syllabus for M.Sc Geography(Geoinformatics) under Choice based Credit Semester System, for implementation with effect from 2010 admission.

3. As per paper read (3), the Head of the Department of Geography has forwarded the finalised scheme and syllabus for M.Sc Programme in Geography (Geoinformatics) in line with the regulations for Choice based Credit Semester System, for implementation with effect from 2010 admission.

4. The Vice Chancellor, after considering the matter in detail, and in exercise of the powers of the Academic Council, conferred under section 11(1) of Kannur University Act 1996 and all other enabling provisions read together with, has accorded sanction to implement the scheme and syllabus of M.Sc Programme in Geography (Geoinformatics) under Choice based Credit Semester System with effect from 2010 admission.

5. The following orders are therefore issued:

(i) The Scheme and Syllabus of M.Sc Programme in Geography (Geoinformatics) under Choice based Credit Semester System is implemented in this University with effect from 2010 admission, subject to report to the Academic Council.

(ii) ***The Regulation for Choice based Credit Semester System implemented for PG Programmes in this University vide paper read (2) above will be applicable for M.Sc Geography(Geoinformatics) Programme also.***

6. The revised Scheme and Syllabus of M.Sc Programme in Geography (Geoinformatics) effective from 2010 admission is appended.

Sd/-
REGISTRAR

To
1. The HOD, Dept.of Geography, SAT Campus, Payyannur.
2. The Examination Branch (through PA to CE).

Copy to:
1. PS to VC/PA to PVC/PA to Registrar.
2. DR/AR-I (Academic).
3. SF/DF/FC.

Forwarded/By Order

SECTION OFFICER

Appendix to U.O No Acad/C2/2555/2011 dated 12-04-2011.

K A N N U R U N I V E R S I T Y

Regulations, Scheme and Syllabus

for

PG PROGRAMME

IN

G E O G R A P H Y

(Geoinformatics)

Choice based Credit Semester System
w.e.f. 2010 Admission

Dept. of Geography
Swami Anandatheertha Campus
Payyannur,Kannur 670 327

1. OBJECTIVE FOR THE COURSE

The Post Graduate Department of Geography of the Kannur University was established in 2003 with an intake of 12 students at Swami Ananthatheertha Campus with all infrastructure facilities for M.Sc & Research course in Geography. The aim of the M.Sc course is to provide upto date instruction to our students to meet the requirement of trained manpower in Geography for teaching, research, technological and other vocations mainly to benefit the aspirating students of the northern part of Kerala.

2. DURATION OF THE PROGRAMME

The minimum duration for completion of the two-year M.Sc Geography (Geoinformatics) course is four semesters. The maximum period for completion is eight semesters.

3. ELIGIBILITY FOR ADMISSION

Candidates who have passed B.Sc/B.A Geography with a minimum of 50% marks in part III (Main and subsidiaries together) of this University or an equivalent examination of any other University, are eligible for admission to M.Sc Geography (Geoinformatics) of the Kannur University. Double main or triple main with Geography as one of the main subjects will be considered only in the absence of qualified candidates with single main.

4 ADMISSION PROCEDURE

Regulations regarding the admission and reservation of seats shall be as per the rules framed by the Government/University from time to time. However, blind/deaf candidates are not eligible for admission to the course.

5. INDEXING OF MARKS

Admission to the Programme shall be based on the marks obtained in the qualifying examination and that of an entrance test conducted by the Department of Geography at ratio of 50: 50.

6. COURSE DETAILS

(i) A student must register for the required number of courses at the beginning of each semester. No student shall register for more than 24 credits and less than 12 credits per semester. The duration of the course shall extend to more than two years for the students securing less than 12 credits in a semester. The total credits registered for electives in any of the semester shall not exceed 12.

(ii) There shall be a one-hour lecture excluding tutorials/seminars and 2 ½ hours of practical work per week for one credit

(iii) A total of 80 credits shall be the minimum for the successful completion of the course in which a minimum of 56 credits for core course and 12 credits for electives are mandatory. Those who secure only minimum credit for core/elective subjects has to supplement the deficiency for obtaining the minimum total credits required for successful completion of the programme from the other divisions.

(iv) The maximum credits obtainable for Core courses and Electives shall be 64 and 20 respectively.

7. EVALUATION

(i) The faculty member who teaches the course shall do evaluation of the students for each course on the basis of continuous assessment and an end semester examination. For theory papers, the

proportion of the distribution of marks among the continuous assessment and end semester examination shall be 40:60.

(ii) Continuous assessment includes assignments, seminars, periodic written examination and end semester viva-voce for each course. Weightage to the components of the components of the continuous assessment shall be given for all theory papers of the course as follows:

Components of CE	Minimum number	Weightage	Marks	PRACTICALS	
Test paper	2	40%	16	75%	30
Assignments	2	20%	08	--	--
Student Seminar	1	40%	16	--	--
Record	--	--	--	25%	10

Test Paper: For each course there shall be at least two class tests during a semester. The probable dates of the test shall be announced at the beginning of each semester. Marks for tests shall be the average of marks of all the tests. Valued answer scripts shall be made available to the students for perusal within 10 working days from the date of the test.

Assignments: Each students shall be required to do 2 assignments for each course. Assignments after valuation must be returned to the students.

Student Seminar: Students shall be required to present a seminar on a selected topic in each paper. The evaluation of the seminar will be done by the concerned teacher/(s) handling the course based on the presentation of the seminar paper and participation in discussion.

Attendance: The minimum attendance required for each paper shall be 75% of the total number of classes conducted for that semester. Those who secure the minimum attendance in a semester alone will be allowed to register for the End Semester Examination.

Condonation of attendance to a maximum of 10 days in a semester subject to a maximum of two times during the whole period of the PG programme may be granted by the University. Benefit of attendance condonation may be granted to students on health ground for participating in University Union activities, meetings of the University bodies and participation of extra-curricular activities.

All the records of the continuous assessment must be kept in the Department and must be made available for verification by the University.

END SEMESTER EXAMINATION

For the end semester examinations each question paper shall consists of three sections: Sections A, B and C.

Section A consists of questions for short answers, 5 to be answered out of 10, each carrying 2 marks.

Section B shall be paragraph questions, 5 to be answered our of 10, carrying 4 marks each

Section C is devoted to essay type questions, in which 3 to be answered out of 5 questions, carrying 10 marks each.

For the end semester examination, the duration of the a four credit course shall be 3 hours and for two credits course 1 ½ hours.

The End Semester examinations are conducted by a panel of examiners as stipulated by the University in its regulations framed for Credit and Semester Systems.

PRACTICAL EXAMINATION

For practical courses, marks shall be awarded internally by continuous assessment and by external examiners for the end semester examination. The departmental council shall decide the distribution of these marks for each semester.

The answer papers of periodic written examination, after the valuation, shall be made available to the students for their perusal and then kept in the department for later inspection, if need arises.

The Elective papers shall be chosen from the list of "Electives" and in this list, additional subjects can be added time to time based on requirements, with the approval of the University.

CONDUCT OF EXAMINATION

The Vice-Chancellor will approve the panel of examiners submitted by the Head of the Department. All teachers of the department will be the members of the board of examiners with Head of the Department as the Chairperson. There shall be a minimum of two external examiners also to ensure transparency in the conduct of examinations. The panel thus approved by the Vice-Chancellor will be entrusted with the setting of question papers, conduct and evaluation of examination. The external examiners will be faculty members appointed from other colleges / departments of this University of from other Universities.

In the case of any inconsistency between the implemented regulations of Choice based Credit Semester System and its application to PG Programme in Geography (Geoinformatics) offered in the University Department, the former shall prevail.

SCHEME

SEMESTER I

Course Code	Title of the Course	Contact Hrs/week			Marks			Credits
		L	T/S	P	ESE	CE	Total	
GGY C 101	Concepts and Trends in Geography	4	1	-	60	40	100	4
GGY C 102	Geomorphology	4	1	-	60	40	100	4
GGY C 103	Climatology	4	1	-	60	40	100	4
GGY C 104	Geography of India	4	1	-	60	40	100	4
GGY C 105	Practical–I Physical Geography and Survey	-	-	10	60	40	100	4
	TOTAL			**30**	**300**	**200**	**500**	**20**

SEMESTER II

Course Code	Title of the Course	Contact Hrs/week			Marks			Credits
		L	T/S	P	ESE	CE	Total	
GGY C201	Regional Planning and Development	4	1	-	60	40	100	4
GGY C 202	Advanced Cartography	4	1	-	60	40	100	4
GGY C 203	Population Geography	4	1	-	60	40	100	4
GGY C 204	Urban Geography	4	1	-	60	40	100	4
GGY C 205	Practical – II Computer Applications and Quantitative Techniques	-	-	10	60	40	100	4
	TOTAL			30	**300**	**200**	**500**	**20**

SEMESTER III

Course Code	Title of the Course	Contact Hrs/week			Marks			Credits
		L	T/S	P	ESE	CE	Total	
GGY C 301	Principles of Remote Sensing	4	1	-	60	40	100	4
GGY C 302	Principles of Geographic Information System	4	1	-	60	40	100	4
GGY E 303	Agricultural Geography	4	1	-	60	40	100	4
GGY E 304	Environmental Geography	4	1	-	60	40	100	4
GGY C 305	Practical – III Cartography	-	-	10	60	40	100	4
	TOTAL			**30**	**300**	**200**	**500**	**20**

SEMESTER IV

Course Code	Title of the Course	Contact Hrs/week			Marks			Credits
		L	T/S	P	ESE	CE	Total	
GGY C 401	Research Methods in Geography	4	1	-	60	40	100	4
GGY E 402	Geography of Tourism	4	1	-	60	40	100	4
GGY C 403	Practical IV – Remote Sensing and Geographic Information System	-	-	10	60	40	100	4
GGY C 404	Dissertation	-	-	10	100	--	100	4
GGY C 405	Comprehensive Viva Voce	-	-	-	80	--	80	3
GGY C 406	# Study Tour	-	-	-	--	20	20	1
	TOTAL			**30**	**360**	**140**	**500**	**20**
	GRAND TOTAL				**1260**	**740**	**2000**	**80**

 # Those who could not participate in the study tour will loose marks, but the result will not be withheld.

OPEN COURSE

Course Code	Title of the Course	Contact Hrs/week			Marks			Credits
		L	T/S	P	ESE	CE	Total	
GGY O 407	Remote Sensing, GIS and GPS	3	1	-	60	40	100	3

Elective Courses (E)

1. Political Geography
2. Economic Geography
3. Agricultural Geography
4. Medical Geography
5. Social and Cultural Geography
6. Geography of Kerala
7. Transportation Geography
8. Biogeography
9. Environmental Geography
10. Geography of Tourism
11. Geography of Water Resources
12. Resources Conservation and Management
13. Natural Disaster Mitigation and Management

Semester I		
Course 1	**GGY C 101**	**CONCEPTS AND TRENDS IN GEOGRAPHY**
Unit – I	Historical development of Geographical ideas – Greeks, Romans, Arabs and Indians – Impact of Explorations and Discoveries	
Unit – II	Modern Geographical Thought – German, French, British, Americans and Soviet contributions – Humboldt, Ritter, Ratzel, Hettner, Penck, Richthofen, Vidal de la Blache, Jean Brunhes, Mackinder, WM Davis, EC Semple, Huntington.	
Unit – III	Four Traditions in Geography: Area studies, Spatial, Man-land, Evolution of landscape – Dualism and dichotomies in geography – Determinism vs Possibilism, General vs Regional, Physical vs Human, Regional vs systematic	
Unit – IV	Modern themes in Geography - Positivism, Pragmatism, Functionalism, Existentialism, Idealism, Marxism, Radicalism, Behaviouralism and Humanism – Quantitative Revolution – Paradigms in Geography – Systems approach – Regional Approach	
Unit – V	Recent trends in Geography – Scientific explanations / Analysis – Use of models, laws and theories, Induction, Deduction, reasoning – Multi disciplinary approach – Data explosion – Role of remote sensing – Computer aided Cartography – GIS, GPS, Internet resources	

Reference

Author	Name of Book
Abler, Ronald; John S Gould, Peter	Spatial Organisation : The Geographer's view of the world, Prentice Hall, NY, 1971
Ali S M	The Geography of the Puranas, Peoples Publishing House, Delhi 1966
Amedeo, Duglas	An Introduction to Scientific Reasoning in Geography, John Wiley, USA 1971
Chorley R J and Hagget P	Frontiers in Geographical Teaching
Dikshit R D	The Art and Science of Geography Integrated Readings, Prentice Hall of India, New Delhi, 1994
Freeman T W	Hundred years of Geography
Hartshorne R	Perspective on the Nature of Geography, R and McNally & Co. 1959
Harvey D	Explanation in Geography
Harvey M E and Holly	Themes in Geographic thoughts
Holt Jenson	Geography: Its history and concepts
Jensen A H	Geography, its history and concepts
Johnson R J	The Future of Geography, Methuen, London, 1988
Majid Hussain	Evolution of Geographical thought, Rawat Pub. Jaipur, 1984
Minshull R	The changing nature of Geography, Hutchinson University Lirbary, London 1970
Richard Peet	Modern Geographical thought

Course 2	GGY C 102	GEOMORPHOLOGY
Unit – I	Scope of Geomorphology – trends and problems – basic concepts – Geological time scale – Ice ages – sea level changes.	
Unit – II	A survey of weathering process and products – Gradation processes – soils processes and mass wasting - Erosional and Depositional landforms-Fluvial, Glacial, Aeolian, Karst and Coastal landforms.	
Unit – III	The concepts of fluvial geomorphic cycle – Davis and Penk- Morphometric elements and parameters-Valley development and classification-drainage basin-composition, density and basic characteristics-Evolution of slopes-basic characteristics-views and Alan Wood – Role of water, vegetation and climate on slopes-stability and safely factors.	
Unit – IV	Erosion surfaces and their interpretation-climatic / Geomorphology and morphogenetic regions.	
Unit – V	Applied Geomorphology with reference to mineral exploitation, engineering and hydrological studies – Anthropogenic geomorphology.	

Reference

Author	Name of the book
Ahmed E	Coastal Geomorphology of India, Orient Longman, New Delhi
Arthur Holmes	Physical Geography
Bloom A.L	Geomorphology
Chorely, R.J and Kennedy B.A	Physical geography – A systems Approach-Prentic Hall International, London, 1971
Cox, A	Plate Tectonic and Geomagnetic reversal, Freeman, 1973
Davies J.L	Geographical variation in coastal development (2nd Ed) Longman, London, 1980
Easterbrooks	Principles of Geomorphology
Emleton C and Schumm S.A	The Physical Geography (Geomorphology) of William Morris Davis, Geo Books, Norwich, 1980
Jog. S.R	Indian Geomorphology
Steers, J.A	The unstable earth
Strahler A.N and Strahler A.H	Modern Physical Geography
Thornburry, W.D	Principles of Geomorphology – Orient Longman, New Delhi
Trewartha G T and other	Physical Elements of Geogaphy, Mc.GrawHill, New York
Woolridge S W and S R Morgan	An outline of Geomorphology, Orient Longman, New Delhi
Young A	Slopes

Course 3	GGY C 103	CLIMATOLOGY
Unit – I	The composition and structure of the atmosphere – Insolation, heat balance of the earth – Greenhouse effect – heat budget of the earth, temperature inversion, Atmospheric motion, causes of air motion, vertical motion, local winds, jet streams. General circulation of the atmosphere, atmospheric moisture, Humidity, Evaporation, Condensation – cloud formation and classification – precipitation.	
Unit – II	Tropical and temperate weather systems – Air masses and fronts, temperate cyclones, thunderstorms, monsoons, tropical cyclones, ocean atmospheric interaction – El Nino and Southern oscillation and La Nina.	
Unit – III	Climatic classification: Approaches, climatic classification of Koeppen, Trewartha and Thornthwaite. Major climates of the world – Tropical rainforest, Mediterranean, Tropical arid and semi arid climates.	
Unit – IV	Climatic changes : Evidences, past and present, possible causes, ozone depletion, global warming, environmental impacts.	
Unit – V	Applied climatology: Climate and agriculture, weather relation of crops – rice, wheat, coffee, tea and coconut, Agro-climatic regions of India, droughts: definition, classification, impact of drought on agriculture. Weather and health, climates and diseases. Urban climates: micro climate in urban areas, urban heat island.	

Reference

Author	Name of the book
Barry and Chorley	Atmopshere, Weather and Climate
Critchfield	General Climatology
Enrilich P R and A H Enrich	Heating the Planet: Strategies for resolving the environmental crisis
Gopalaswamy N	Agricultural Meterology
Gribbin J	Climate change
Gribbin J	Hot house earth the greenhouse effect and gain
H.S Mavi	Introduction to Agroclimatology
Hobbs J E	Applied Climatology
Lal D S	Climatology
Lockwood	World Climatology
Mannion A M	Global Environmental change
Pickard G L & Sverdrup	Oceanogaphy for Meterologists
Perry A H & Walker JM	The Ocean Atmosphere system
Trewartha	Introduction to climate

Course 4	GGY C 104	GEOGRAPHY OF INDIA
Unit – I	Location and space relation, unit and diversity. Land:Major terrain and stratigraphical units of India and other characteristics. Drainage system and their functional significance of the country, the Indian monsoon, recent views – regional and seasonal variations, regionalization of climate in India- soil regions and their characteristics, Vegetative zones – characteristics and their conservation.	
Unit – II	Economy : changing nature of Indian economy – an overview. Main and characteristics and problems of Indian agriculture, spatial patterns, land use, cropping pattern, irrigation, technological development in agriculture, Green revolution and its spatial dimensions; regionalization of agriculture in India, food production and population growth.	
Unit – III	Mineral and power resources, production and problems of conservation, Resource regions of India; Industry – industrial development and Indian economy an overview, locational patterns of industrial activity, localizations factors and spatial pattern of major industries in India, Iron and steel, engineering goods, textiles, chemicals, cement, sugar, paper etc, industrial regions of India.	
Unit – IV	Transport and trade, development of transport network different modes and their functional significance, internal and international trade – composition and change (both spatial and temporal terms).	
Unit – V	Geography of Kerala: Physical setting, Agriculture, Minerals, Industries, Transportation, Population.	

Reference

Author	Name of the book
Chauhan S DS	Indian Industries
Countinho O	Economic and Comercial Geography of India
D R Khullar	India, Kalyani Publishers, Ludhiana
Govt. of India	The Gazetter of India
Jagdish Singh	Indian – A comprehensive and Systematic Geography
NATMO	National Atlas of India
Sharma T C & Countinho O	Economic and Commercial Geography of India
Singh R L	India – A regional geography
Spate OHR	Indian, Pakistan and Land People and Economy

Course 5	GGY C 105	PRACTICAL – 1 PHYSICAL GEOGRAPHY AND SURVEY
Unit – I	Significance of slopes – profiles- Calculation of average slopes, methods of preparation of slope maps, Trend surface analysis- Hypsometric curve, area – height curve, clinographic curve & altimetric frequency curve.	
Unit – II	Drainage basin analysis – Identification of watersheds – Calculation of area stream ordering and its significance – Characteristics of drainage basin – Bifurcation ratio- Density, Structure, Basin Intensity – Drainage pattern, Bifurcation ratio.	
Unit – III	Block diagrams – One point perspective & Two point perspective – Preparation of block diagrams from contour maps – Multi section method. Block diagrams representing erosional and depositional features produced by river, glacier, wind, underground water and waves.	
Unit – IV	Preparation of station models – Weather charts – maps based on the reports recorded in the Meteorological Observations – Preparation of climatic maps and diagrams – representation of climatic data by Isopleths, Columnar, Linear and Circular graphs – Frequency graphs – Trend graphs - Wind Rose diagrams – Climographs, Hythergraphs, Climatograph. Concept of water balance – Calculation of water balance using Thorthwait method – Index of Aridity – Determination of climatic types by using Thornthwait's method – Study of Indian daily weather map.	
Unit – V	Preparation of maps using plane table and drawing profiles using the Dumpy level.	

Reference

Author	Name of the book
Ashis Sarkar	Practical Geography – A systematic appraoch
Erwin Raiz	Principles of Cartography
Gopal Singh	Map work and Practical Geography
Khullar	Essentials of Practical Geography
Monkhouse FI	Maps and diagrams
Singh L R	Fundamentals of Practical Geography

Semester II		
Course 6	**GGY C 201**	**REGIONAL PLANNING AND DEVELOPMENT**
Unit – I	Geographical perspectives in regional planning and development. Concept of region and regional planning, Types of regions, Planning regions and its characteristics, Hierarchy of regions, Delineation of regions and methods of delineation. Types of planning, Objectives and principles of regional planning , approach to regional planning.	
Unit – II	Theories of regional growth: Economic base theory, convergence and divergence growth theory, Multiplier effects, Intra and Inter regional planning, Input output analysis.	
Unit – III	Growth pole hypothesis and regional planning Polarization effects- inadequacies of growth pole hypothesis. Modified growth foci concept of RP Misra.	
Unit – IV	Regional imbalance and the levels of development- causes and consequences Need for balanced regional development, Indicators of measuring regional imbalance and extent of regional imbalance in India. Policies and programmes to remove regional imbalance in India.	
Unit – V	Issues in regional planning and approach to planning; social environmental issues, top down and bottom up approaches. District, Block and panchayath level planning in India. Backward and tribal area development programmes, People participation in planning process, watershed planning.	

Reference

Author	Name of the book
Alber R etal	Spatial Organization : The Geographers view of the world
Bhat L S	Regional Planning in India
Chandana R C	Regional Planning
Chorley R J and Hagget P	Models in Geography
Friedman J & Alanso W	Regional Development Policy
Hilhorst JGM	Regional Planning
Misra R P	Regional Planning
Rao VLSP	Regional Planning

Course 7	GGY C 202	ADVANCED CARTOGRAPHY
Unit – I	Nature, history and scope of cartography – its evolution, scientific approach, Types of maps. Directions and their functions – True magnetic and Grid north – determination of true and magnetic north using azimuth and with reference to stars; referencing co-ordinates, Cartesian geographic parallels and meridians.	
Unit – II	Phases of cartographic processes – documentation, conception, base map compilation, selection of details – generalization and finalization – problems (enlargement and reduction) and procedures.	
Unit – III	Map symbols – Point, Line and area – data representation and symbolization.	
Unit – IV	May design – constraints in map design, cartographic restrictions, technical restrictions and resource restrictions; Layout, Lettering and Toponomy – Lettering style, size types , position freehand lettering, mechanical, stick up methods.	
Unit – V	Simple and complex thematic maps. Map reproduction: techniques; advantage and disadvantage. Special purpose maps – planning and designing maps for a) Blind b) Children c) Neo-literates d) Business and commercial organization. Role of Remote sensing in the development of Cartography, Automation in Cartography.	

Reference

Author	Name of the book
David Greenhold	Mapping
Fisher & Miller O M	World maps and globes
Lawrence GRO	Cartographic methods
Meena Jan Kraack Ferjan Ormeling	Cartography
Monkhouse FI	Maps and diagrams
Misra RP and Ramesh A	Fundamentals of Cartography
Raisz E	Principles of Cartography
Robinsons A	Elements of Cartography
United Nations	World Cartography

Course 8	GGY C 203	POPULATION GEOGRAPHY
Unit – I	Scope and contents of population geography; sources of population data – secondary, primary; reliability of population data; problems of mapping population data – Attributes of population, Demographic, Social and Economic distribution and growth of population. Dynamic of population growth;Fertility – its measures, determinant and world trend. Mortality its measures determinants and world trend.	
Unit – II	Migration : Types – seasonal, permanent – Migration stream – causes and consequences. Laws of migration – migration in the modern period.	
Unit – III	Human resources development – concepts of optimum & over population. Demographic transition theory – Growth of urban population and its impact. Population resources regions of the world. Theories of population (Malthus, Ricardo and Marx).	
Unit – IV	Spatial pattern – distribution and growth – rural and urban population – Demographic and socio-economic attributes of India's population with special reference to Kerala and its salient features, problems of over population.	
Unit – V	Internal and International migration – A geographical interpretation; population policies and Planning of India.	

Reference

Author	Name of the book
Asha A Bhande & Tara Kanitkar	Principles of Population Studies
Benajeu Garnier	Geography of Population
Bogue Donald J	Principles of Demography
Bose A	Patterns of population change in India
Chandana R C	A geography of population
Clarke J J	Population Geography
Clarke John L	Geography and Population, approaches and applications
Patterson	Population Geography
Trewartha G T	A Geography of population: world patterns

Course 9	GGY C 204	URBAN GEOGRAPHY
Unit – I	Nature, scope and significance of Urban Geography; different approaches to the study of urban geography – recent trends – definition or urban centres – origin and growth of urban centres – process of urbanization – factors associated with the growth of cities.	
Unit – II	Classification of urban centres on the basis of a) size b) function, rank size rule, Harris and Nelson's scheme of classification – classification of Indian cities by Asok Misra.	
Unit – III	Urban centres – their spatial and functional relationships, Central Place theory, theories of Perroux and Bourdeville. Economic bases of urban settlement – basic and non basic concepts.	
Unit – IV	Urban morphology; land use models – theories of Burgess, Harris and Hoyt's Central Business district and its characteristics; morphology of Indian cities, Urban housing – Urban slums – urban housing policies and programmes – Urban fringe – its characteristics and development.	
Unit – V	Salient features of the process of urbanization in India – problems and prospects.bh	

Reference

Author	Name of the book
Carter Harold	The study of Urban Geography
Forrester Jay W	Urban dynamics
Hagget P	Geography : A modern synthesis
Johnson J H	Urban Geography
Mayer & Kohn	Readings in Urban Geography
Rao VLSP	Urbanization

Course 10	GGY C 205	PRACTICAL – II COMPUTER APPLICATIONS AND QUANTITATIVE TECHNIQUES
Unit – I	Introduction to computer hardware and software – advantage and applications of computers in geographical studies. Introduction to Operating Systems	
Unit – II	Database concept, data models. DBMS. Working with Microsoft word, Microsoft excel & Microsoft power point and Statistical Software.	
Unit – III	**Quantitative techniques in geography** – Meaning and Significance - Measures of Variation - Mathematical methods and graphical methods - Lorenz curve, Triangular graph, Centrographic analysis - Normal curve - Measures of Skewness and Kurtosis, Correlation analysis – Simple and multiple correlation, Regression analysis – Residual mapping.	
Unit – IV	Testing measures – testing hypothesis – tests of significance – students t test, 'F' test, Chi-square test	
Unit – V	Crop combinations and concentration techniques – Weaver's, Doi, Coppock's – Crop diversification – Index of Agricultural productivity	

Reference

Author	Name of the book
Alvi Zameer	Statistical Geography, methods and applications
Aslam, Mahmood	Statistical Methods in geographical studies
Gupta	Fundamentals of Statistics
Kothari C R	Quantitative techniques
Richard I Levin & David S Rubin	Statistics for management
Saroj K Pal	Quantitative techniques in Geography

Semester III		
Course 11	**GGY C 301**	**PRINCIPLES OF REMOTE SENSING**
Unit – I	Principles of remote sensing, meaning and scope of remote sensing, data generation and acquisition principles; role of atmosphere in remote sensing. EMR and remote sensing; Spectral regions, interaction of EMR with atmosphere and surface features. Types of Remote sensing, platforms their orbital characteristics, Ideal & real remote sensing.	
Unit – II	Principles of Aerial remote sensing – history of aerial photographs, historical development of aerial remote sensing, photographic bands, and principles of aerial photography – vantage points, Cameras, Filters and Films. principles of photogrammetry- flight lines, scale, Elements of visual image interpretation, parallax heights from photographs, orthophotos,pseudoscopy and stereoscopy and stereo models.	
Unit – III	Satellite remote sensing – comparison of conventional survey, aerial and satellite remote sensing – advantages and limitations of satellite remote sensing, types of satellites. Remote sensors; types of sensor system, scanning and orbiting mechanism , Resolution;- spatial, Spectral, radiometric and temporal resolution. Resolution aspects of LANDSAT, SPOT, IRS AND IKONOS satellites, Multispectral data collection,Satellite photographic systems; Thermal infrared remote sensing, microwave remote sensing, Hyper spectral remote sensing.	
Unit – IV	Fundamentals of image interpretation – Elements of image interpretation – visual interpretation techniques, interpretation and plotting equipments . Digital image processing – Data format, Image rectification and restoration, Image enhancement, image manipulation, image classification, Ground truth verification & accuracy assessment. Indices-Vegetation Index, NDVI.	
Unit – V	Remote sensing application; Geology, Agriculture, Landuse, Hydrology, Urban and Regional planning, Wildlife ecology, Archeology, Environmental assessment. Remote sensing in India- Developments, remote sensing Centers. New Satellite programmes.	

Reference

Author	Name of books
Burrough	Principles of GIS for land resource assessment
Cambel James	Introduction to Remote sensing
Curran P	Principles of Remote sensing
Jenson J R	Introductory Digital Image Processing-A remote sensing perspective
John R Jenson	Remote sensing of the environment, Perason Education Pvt. Ltd
Lillesand T M Kiffer R M	Remote sensing and image interpretation
Sebens F	Remote Sensing – Principles and interpretation

Course 12	GGY C 302	PRINCIPLES OF GEOGRAPHIC INFORMATION SYSTEM
Unit – I	Fundamentals of GIS, Definition and concept of GIS, Components of GIS – Spatial data, Maps and Spatial data – Thematic characteristics of spatial data – Sources of spatial data. Coordinate system and reference, Geodetic datum.	
Unit – II	Spatial data modeling:- Layers & Entity definition – spatial data models, structures and translation - Raster & vector. Fundamental of DBMS, data model, GIS data file management, Spatial data base Management, Database models - Hierarchical model, Network model, Relational model and Object orient model.	
Unit – III	Input of map data, required data for GIS Methods of data input, Data editing. Spatial Analysis- Measurement in GIS, Queries, Attribute based operation, Neighborhood analysis, Connectivity Analysis, Proximity analysis, Network analysis. Overlay - Vector & raster.	
Unit – IV	Modeling in GIS: Modeling surface, Spatial interpolation, 3D Modeling and methods, DEM & DTM. Modeling in physical & environmental process: Human process and decision making process.	
Unit – V	Map outputs in GIS. Areas of GIS applications– Web GIS, Future of GIS, Errors in GIS.	

Reference

Author	Name of the book
Burrough P A	Principles of GIS and Land resource Assessment, Oxford University Press, New York 1986
Ghang K	An introduction ot Geographical Informatiion Systems, Tata McGraw Hill, New Delhi
Heywood I, Cornclius S and S Carver	An introduction ot Geographical Information Systems (II edition) Pearson Education (Singapore) Delhi

Course 13	GGY E 303	AGRICULTURAL GEOGRAPHY
Unit – I	Nature, Scope and Significance of Agricultural Geography, approaches to the study of agricultural geography. Major elements of agriculture; Land, Labour, Capital, Market.	
Unit – II	Determinants of agricultural land use – physical, economic, social, institutional and technological.	
Unit – III	Von Thunen's theory of agricultural location and its recent modifications, Applications of Von Thunen's theory to present data location of agricultural activities.	
Unit – IV	Land use surveys – land capability classification – measurement of agricultural productivity methods of delineating crop combination regions – Weaver, Doi, Raifullah; crop diversification regions – Bhatia's method.	
Unit – V	Agricultural regions of the world – A review of Whittlessey's agricultural classification – agricultural regions of India and their characteristics – green revolution, problems and prospects of Indian agriculture, agroclimatic regions of Kerala.	

Reference

Author	Name of the Book
Alexander J W	Economic Geography
Bhalla GS & Alagh YK	Performance of Indian Agriculture
Gregor, Howard F	Geography of Ag
Grigg D	An introduction to Agricultural Geography
Munton RLC	Agricultural Geography
Seign Jasper & Dhillion SS	Agricultural Geography
Symonds L	Agricultural Geography

Course 14	GGY E 304	ENVIRONMENTAL GEOGRAPHY
Unit – I	Nature and scope of environmental studies – Role of Geography. Man and environmental relationship – changing nature of the concepts.	
Unit – II	Ecosystem – structure. Classification – Biomes – Functioning of the Ecosystem – Food web – Food pyramid-Nutrient cycles-Natural disruptions of the ecosystem. Biodiversity, Natural hazards – Floods, Drought and others.	
Unit – III	Man's modification of the Biosphere – Agriculture – Green revolution HYV and pesticides – Man's impact on land and water – Mining soils – Coastal areas.	
Unit – IV	Human settlements and environment – Industrial environment – Environmental problems – Urban environment and pollution Environmental degradation – Emerging environmental issues. Environment and Health – Environment and development.	
Unit – V	Eco-crisis – Environmental management and planning. Environmental quality. Environmental law and protection – Environmental valuation and impact assessment with emphasis on Indian context – Need for interdisciplinary approach.	

Reference

Author	Name of the book
Botkin, Daniel B Keller	Environmental studies
CSE	The State of India's environment
Dasman R F	Environmental conservation
Detwyler	Man's impact on environment
Duffey E	Conservation of nature
Edington JM & Edington MA	Ecology and Environmental Planning
Park CC	Ecology and Environmental management
Savindra Singh	Environmental Geography

Course 15	GGY C 305	PRACTICAL – III CARTOGRAPHY
Unit – I	Thematic mapping; mapping population and settlements, dot maps, choropleth maps, isopleths, potential population surface, Mapping agricultural data - index of concentration and diversification. Land use maps – choroschematic and chorochromatic maps; Locational sector diagrams.	
Unit – II	Study of Indian toposheets of different scales.	
Unit – III	Transportation network analysis – Measures of Accessibility, Connectivity and Efficiency of Transport Network - Centrality, Spread and Diametre of network, Detour index – Degree of development of network, diameter, Density and route shape of network - Nearest neighbor analysis, Gravity potential models.	
Unit – IV	Map projections. Classifications of map projections, construction of graticule for the following projections (graphical method only) Zenithal projections – Gnomonic, Stereographic and Orthographic (Equatorial case only); Conical projection – International projection, Cylindrical projection – Cassini's projection, Conventional projection – Globular, Gall's Interrupted Mollweide's, Interrupted Sinusoidal.	
Unit – V	FIELD STUDY Land use survey; preparation of geomorphological and land use map of a limited area.	

Reference

Author	Name of the book
Ashis Sarkar	Practical Geography – A systematic appraoch
Erwin Raiz	Principles of Cartography
Gopal Singh	Map work and Practical Geography
Khullar	Essentials of Practical Geography
Misra RP & Ramesh A	Fundamentals of Cartography
Monkhouse FI & Wilkinsons	Maps and diagrams
Singh L R	Fundamentals of Practical Geography

Semester IV		
Course 16	**GGY C 401**	**RESEARCH METHODS IN GEOGRAPHY**
Unit – I	Research : Meaning and definition – need for Scientific research- Types of research and fundamental research in Geography – Traditional and scientific – Theories and lows in geography – data Explosion – Quantitative Revolution – development of quantitative revolution in geography.	
Unit – II	Uses of models and empirical techniques in the analysis of Geographic problems, Research designs – Identification of problem. Hypothesis - Formulation of hypothesis. In Geography.	
Unit – III	Data acquisition and analysis – Source of data- Primary, Secondary and alternative source – Drafting of questionnaire- types-Schedules-Various methods of primary data collection- Interview. Data transformation to mapable form – designing of appropriate maps and charts – Ground truth verification.	
Unit – IV	Sampling – types of sampling – spatial sampling – Area, line and point Sampling, significance of sampling in Geographical research. Literature review and the role of internet, preparation of bibliography.	
Unit – V	Thesis writing : Organization of the thesis, the preliminaries, the text and reference materials – drafting of the thesis – first, second and final report – Writing of Research papers and abstract and preparation of research programmes.	

Reference

Author	*Name of the book*
David Dooley	Social Research Methods, Prentice Hall of India Pvt. Ltd., New Delhi, 1985
Goode, W and P K Hatt	Methods in Social Research, Mc Graw Hill, Tokyo, 1962
Har Prasad	Research Methods and Techniques in geography, Rawat Publications, New Delhi, 1992.
Harvey, David	Explanation in Geography, Edward Arnold, London 1971
Kothari C R	Research Methodology, Methods and Techniques, Viswa Prakashan, 1994
Lowens Bury J P	An Introduction to Scientific Geographic Research, WRC Compnay, Iowa
Misra H N and V P Singh	Research Methodology in Geography, Social, Spatial and Policy Dimensions, Rawat Publications, New Delhi 1998
Sheskin, I.M	Survey Research for Geographers Scientific Publisher, Jodhpur, 1987

Course 17	GGY E 402	EOGRAPHY OF TOURISM
Unit – I	**Tourism –** Concept, nature, scope, definition and importance; Components of tourism – approaches to the study of tourism - Types of Tourism - Socio-economic-political significance of tourism; Role of Geography in tourism.	
Unit – II	Travel motivations - Factors influencing the growth of tourism – – **Tourism infrastructure** -Accommodation – Types of Hotels – Supplementary accommodations – Role of travel agency in tourism – Tout itinerary –International Organizations - Travel formalities – Visa, Passport, Credit cards.	
Unit – III	**Economy, Environment and Planning of Tourism –** Economic significance, socio-cultural and environmental impact, Multiplier effect on the economy - Tourism planning - Tourist Paradigms : Eco-tourism, Green tourism, Heritage tourism, Soft and hard tourism and adventure tourism.	
Unit – IV	**Tourism in the World –** Major natural and cultural attractions of USA, UK, France, Switzerland, Hongkong, Singapore & Malaysia - **Tourism in India –** Growth & development **-** Tourism organization in India – Major natural and cultural attractions – Problems and prospects.	
Unit – V	**Tourism in Kerala –** major natural and cultural tourist centres, Eco-tourism, Rural tourism, Monsoon tourism and medical tourism in Kerala – Tourism as an industry in Kerala – problems and prospects.	

Reference

Author	Name of the Book
Bhatia.A.K	Toursim Development: Principles and Practices, Sterling Publishers, New Delhi 1996
Bhatia.A.K	International Tourism – Fundamental and Practices, Sterling, New Delhi 1991
Bhardwaj, D S	Toursim Education, Am Merging Essential, Kanishka Pub. New Delhi 2006
Chandra R.H	Hill Tourism: Planning and Development, Kanishka Publishers, New Delhi, 1998
Frechtling D C	Forecasting Toursim Demand: Methods and Strategies, Butterwork - Hannemann
Hunter C and Green H	Toursim and Environment: A sustainable relationship, Routledge, London 1995
Inskeep E	Tourism Planning: An Integrated and Sustainable Development Approach, Van Nostrand and Reinhold, New York, 1991
Kaul R.K	Dynamics of Tourism & recreation, Inter-India, new Delhi 1985
Khan N	Development of Tourism in India, Anmol Pub. New Delhi
Milton D	Geography of World Tourism, prentice Hall, New York 1993
Pearce D G	Tourism Today: A Geographical Analysis, Longman d, 1987

Course 18	GGY C 403	PRACTICAL – IV REMOTE SENSING AND GEOGRAPHIC INFORMATION SYSTEM
Unit – I	Air Photo Interpretation: Photo annotation – Stereovision – Photo scale, applying elements of Visual image interpretation – using equipments and measurements. Applied Photo Interpretation: Natural environment – Geomorphology and lineaments, forest cover, drainage pattern, man made environment – Urban transportation.	
Unit – II	Satellite imagery: Marginal information – false colour composite image, Visual Image interpretation. Satellite Remote sensing equipments.	
Unit – III	Satellite Imagery - Digital Image Interpretation. Digital Data analysis - General land use, forest, water body, urban analysis.	
Unit – IV	Geographic Information system: Spatial Data base. Vector/Raster structure and spatial analysis.	
Unit – V	Scanning, Integration of attribute data Geographic analysis, Digital Elevation models – Application. GPS survey.	

Reference

Author	Name of the book
Avery T E	Interpretation of aerial photographs
Dirry GM	Map interpretation
Jeffrey & John Ester	Geographic information system
Muller	Digital image processing in remote sensing Star
Reeves, Robat G (Ed)	Manual of remote sensing (2 volumes)
Spurr S H	Photogrammetry and Photo interpretation

GGY C 404	DISSERTATION

Report and Seminar Presentation by Individual student

The project can be taken highlighting any issue relating to geographic knowledge and analysis. All data analysis and survey related projected shall necessarily present in a series of thematic maps. The data analysis mapping and documentation shall be conducted in the Remote sensing and Computer Applications Laboratory of the Department. The dissertation report should be submitted to the Head of the Department, 10 days before the commencement of examination of the Fourth Semester.

GGY C 405	COMREHENSIVE VIVA-VOCE

Comprehensive Viva voce is to be conducted along with the Practical examination of the Fourth Semester.

GGY C 406	FIELD TRIP / FIELD WORK / STUDY TOUR

Field trip/ Field work / Study tour will be discretion of the department. The duration of the programme should not exceed 15 days.

Field trip/ Field work / Study tour may be conducted during the third or fourth semester and a report of it should be submitted within 15 days. The evaluation of Field trip / Field work / Study tour shall be internal.

OPEN COURSE		
	GGY O 407	**REMOTE SENSING, GIS AND GPS**
Unit – I	**Remote Sensing**: Meaning and scope - Ideal remote sensing - Date generation and acquisition principles- Electromagnetic Radiation and Spectral bands- Interaction of EMR with atmosphere and surface features-Atmospheric windows-spectral reflectance curve.	
Unit – II	**Aerial remote sensing** - history ,types of air photos – marginal information – measurement of scale - **Satellite remote sensing**: orbit ,sensors, Multispectral scanning: along track and across track , Resolution : spatial, spectral, radiometric and temporal - LANDSAT,IRS,SPOT,IKONOS	
Unit – III	**Digital image interpretation**: image preprocessing, Image enhancement, Supervised and unsupervised classification - Visual interpretation of images: Elements of visual interpretation- remote sensing applications in agriculture, geology,, urban and regional planning, wildlife ecology, environment assessment and landuse.	
Unit – IV	**Geographic Information System**: Definition - Maps and spatial information - Computer assisted mapping and map analysis - Components of GIS - People and GIS - Maps and spatial data - Thematic characteristics of spatial data - Sources of spatial data: census and survey data, air photos, satellite images, field data.	
Unit – V	**Global Positioning System**: Basics, History, components, Segments: space, control and users - measurements - DGPS- Applications-comparison of traditional survey with GPS methods – Recent developments.	

Reference

Author	Name of the book
Burrough	Principles of Remote sensing
Cambel James	Introduction to remote sensing
Curran P	Principles of Remote sensing
Jenson R	Introductory Digital image processing – A remote sensing perspective
John R Jenson	Remote sensing of environment
Lillesand and Kiffer R M	Remote sensing and image interpretation
Sebens F	Remote sensing principles and interpretation
Ghang K	An introduction of geographical information systems
Heywood I, Cornclius S & S Carver	An introduction to Geographical Information System.
Kumaraswamy k	Remote sensing for Environmental studies, Dept of Geography, Bharathidasan University, Thiruchirappally.

Sd/-
Dr.P.K.Vijayan
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SAT Campus,Payyannur.