


KANNUR UNIVERSITY

(Abstract)

M.Sc. Geography Programme under Choice Based Credit Semester System in the University Department- Revised Scheme, Syllabus & Model Question Papers Implemented with effect from 2015 admission- Orders issued.

ACADEMIC 'C' SECTION

U.O. No.Acad/C4/ 5216/2015

Civil Station P.O, Dated, 30-10-2015

- Read:
1. U.O No.Acad/C3/2049/2009 dated 11.10.2010.
 2. U.O No.Acad/C3/2049/2009 dated 05.04.2011.
 3. Meeting of the Syndicate Sub-Committee held on 16.01.2015.
 4. Meeting of the Department Council held on 07.04.2015.
 5. Meeting of the Curriculum Committee held on 10.04.2015.
 6. U.O No. Acad/C4/14536/2014 dated 29.05.2015.
 7. Letter from the HOD, Dept. of Geography, Payyannur Campus
 8. Meeting of the Curriculum Committee held on 03.09.2015.

ORDER

- 1.The Regulations for Post Graduate Programmes under Choice Based Credit Semester System were implemented in the Schools/Departments of the University with effect from 2010 admission as per the paper read (1) above and certain modifications were effected to the same vide paper read (2).
2. The meeting of the Syndicate Sub-Committee recommended to revise the Scheme and Syllabus of all the Post Graduate Programmes in the University Schools/Departments under Choice Based Credit Semester System (CCSS) with effect from 2015 admission vide paper read (3) above.
- 3.. The Department Council vide paper read (4) above has approved the Scheme, Syllabus & Model Question Papers for M.Sc. Geography Programme under Choice Based Credit Semester System(CCSS) for implementation with effect from 2015 admission.
- 4.. As per the paper read (5) above, the meeting of the Curriculum Committee recommended certain modifications/ additions to the Regulations for Post Graduate Programmes under Choice Based Credit Semester System and the Regulations were modified in the University w.e.f. 2015 admission vide paper read (6).
5. The HOD, Dept. of Geography vide paper read (7) above, has forwarded the Scheme, Syllabus & Model Question Papers for M.Sc. Geography Programme in line with the revised Regulations for Choice Based Credit Semester System for implementation with effect from 2015 admission.

P.T.O.

6. The meeting of the Curriculum Committee held on 03.09.2015 approved the Scheme; Syllabus & Model Question Papers for M.Sc. Geography Programme under Choice Based Credit Semester System in the Department vide paper read (8)

7. 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 KU Act 1996, and all other enabling provisions read together with, has accorded sanction to implement the Scheme, Syllabus & Model Question Papers for M.Sc. Geography Programme under Choice Based Credit Semester System, offered in the University Department, w.e.f 2015 admission, subject to report to the Academic Council.

8. Orders are, therefore, issued accordingly.

9. The revised Scheme, Syllabus and Model Question Papers of M.Sc. Geography Programme effective from 2015 admission are appended.

**JOINT REGISTRAR (ACADEMIC)
FOR REGISTRAR**

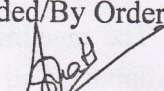
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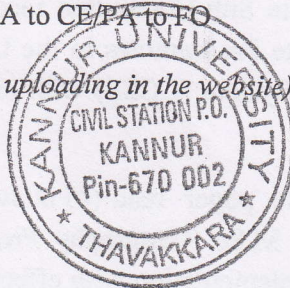
The HOD, Department of Geography
Payyannur Campus, Payyannur

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SECTION OFFICER



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KANNUR UNIVERSITY

M. Sc. GEOGRAPHY

REGULATIONS SCHEME AND SYLLABUS

Choice based credit and semester system

(Effective from 2015 Admission)



**DEPARTMENT OF GEOGRAPHY
KANNUR UNIVERSITY
Swami Ananthatheertha Campus
Payyannur, Kannur 670 327
KANNUR UNIVERSITY**

**REGULATIONS, SCHEME AND SYLLABUS FOR
M.Sc. GEOGRAPHY
(Effective from 2015 Admission)**

1. OBJECTIVE FOR THE COURSE

The Post Graduate Department of Geography of the Kannur University was established in 2003 with an intake of 18 students (1 seat reserved for Lakshadweep student) 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 up to 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 aspiring students of the northern part of Kerala.

2. DURATION OF THE PROGRAMMES

The minimum duration for completion of the two-year M.Sc Geography 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 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 course shall be based on the marks obtained in the entrance test alone conducted by the Department of Geography.

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 16 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 60 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 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	-	-	08	25%	10

Test Paper: For each paper 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 student shall be required to do 2 assignments for each paper. 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 paper based on the presentation of the seminar paper and participation in discussion.

Attendance: The minimum attendance required for each semester 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 consist 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, 4 to be answered out of 8, carrying 5 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.

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 External examiners will be faculty members appointed from other Colleges/ Departments of this University or from other Universities. The duration of end semester examination shall be specified in the curriculum. The head of the Department will have to submit to the Controller of Examinations, the details of core and Electives of each semester along with the syllabus, Model QP and panel of experts for setting the questions, immediately after starting of each Semester. The Controller of Examinations in turn shall set, print and supply one set of question paper in sealed cover to the Head of the Dept. / Course Director within a maximum of 60 days.

This approved syllabus is applicable from 2015 admission onwards

All the rules and regulations of the CCSS of the PG courses framed by the University from time to time shall be applicable to M.Sc. Geography also.

KANNUR UNIVERSITY
Department of Geography, M.Sc Geography
SCHEME

I Semester

Paper No.	Title of Paper	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	PRINCIPLES OF GEOGRAPHIC INFORMATION SYSTEM	4	1	-	60	40	100	4
GGY P 105	PRACTICAL – I PHYSICAL GEOGRAPHY AND SURVEY	-	-	10	60	40	100	4
TOTAL				30	300	200	500	20

II Semester

Paper No.	Title of Paper	Contact Hrs/week			Marks			Credits
		L	T/S	P	ESE	CE	Total	
GGY C 201	REGIONAL PLANNING AND DEVELOPMENT	4	1	-	60	40	100	4
GGY C 202	PRINCIPLES OF REMOTE SENSING	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 P 205	PRACTICAL II – REMOTE SENSING AND GEOGRAPHIC INFORMATION SYSTEM	-	-	10	60	40	100	4
TOTAL				30	300	200	500	20

III Semester

Paper No.	Title of Paper	Contact Hrs/week			Marks			Credits
		L	T/S	P	ESE	CE	Total	
GGY C 301	GEOGRAPHY OF INDIA	4	1	-	60	40	100	4
GGY C 302	RESEARCH METHODS IN GEOGRAPHY	4	1	-	60	40	100	4
GGY E 303	ELECTIVE - 1	4	1	-	60	40	100	4
GGY E 304	ELECTIVE - 2	4	1	-	60	40	100	4
GGY P 305	PRACTICAL – III COMPUTER APPLICATIONS AND	-	-	10	60	40	100	4

	QUANTITATIVE TECHNIQUES							
	TOTAL			30	300	200	500	20

IV Semester

Paper No.	Title of Paper	Contact Hrs/week			Marks			Credits
		L	T/S	P	ESE	CE	Total	
GGY C 401	ADVANCED CARTOGRAPHY	4	1	-	60	40	100	4
GGY E 402	ELECTIVE - 3	4	1	-	60	40	100	4
GGY P 403	PRACTICAL – IV CARTOGRAPHY	-	-	10	60	40	100	4
GGY C 404	DISSERTATION	-	-	10	200	--	200	7
GGY C 405	COMPREHENSIVE VIVA VOCE	-	-	-	100	--	100	1
GGY C 406	STUDY TOUR/ SOCIO- ECONOMIC SURVEY					100	100	2
	TOTAL			30	480	220	700	22
	GRAND TOTAL				1380	820	2200	82

Elective Papers (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

Paper 1	GGY C 101	CONCEPTS AND TRENDS IN GEOGRAPHY
Unit – I	The field of Geography- Meaning and scope- Fundamental concepts- Anomalous status of Geography as a Discipline- Essential characteristics of Geographical work- Nature of Geography- Geography and the rise of scientific revolution; Places of Geography in the classification of sciences, its relationship with natural and social sciences; Branches of Geography, Approaches to study Geography.	
Unit – II	Historical development of Geographical thought – Classical period-Greeks, Romans, Indians and Chinese– Medieval period-Arabs-Impact of Explorations and Discoveries	
Unit – III	Modern Schools of Geographical Thought – German, French, British, Americans and Soviet – Development of professional Geography in France, Great Britain – foundation of scientific Geography – Founders of Modern Geographical thought - Humboldt, Ritter, impact of Darwinism, Ratzel, Hettner, Penck, Richthofen, Vidal de la Blache, Jean Brunhes, Mackinder, W.M Davis, E.C Semple, Huntington.	
Unit – IV	Four Traditions in Geography: Dualism and dichotomies in Geography Philosophy of Determinism, Possibilism and Neo-determinism – Conceptual nature in Geography - Positivism, Pragmatism, Functionalism, Existentialism, Idealism, Marxism, Radicalism, Behaviouralism and Humanism - Paradigms in Geography.	
Unit – V	Recent trends in Geography – Quantitative Revolution, Laws, Theories and models in Geography, Spatial analysis, Locational analysis, Systems approach and analysis; Inductive, Deductive approaches, reasoning, Multi disciplinary approach, Welfare Geography, Human Ecology, , Geography of Gender, Time and space Geography, Postmodernism and Geography.	

Reference

Adhikarai S 1992, Geographical thought, Chaithanya Publishing House, Allahabad.

Majid Hussain 2007, Evolution of Geographical thought, Rawat Publication. Jaipur.

Majid Hussain 2009, Models in Geography, Rawat Publications, Jaipur.

R D Dikshit 1999, The Art and Science of Geography Integrated Readings, Prentice Hall of India, New Delhi.

R D Dikshit 2007, Geographical Thought – A contextual History of Ideas, Prentice Hall of India, New Delhi.

Richard Hartshorne 2002, The Nature of Geography, Rawat Publications, Jaipur.
 Richard Peet 2004, Modern Geographical thought, Blackwell Publishers, Oxford.

Paper 2	GGY C 102	GEOMORPHOLOGY
Unit – I	Nature and scope of Geomorphology – trends and problems – basic concepts – Geological time scale – Ice ages – sea level changes	
Unit – II	Endogenic Forces- Plate tectonics , isostasy and Volcanism Exogenic Forces- A survey of weathering process and products – Gradation processes – soils processes and mass wasting - Dynamics of Fluvial, Glacial, Aeolian, Karst and Coastal processes and their associated landforms	
Unit – III	The concepts of fluvial geomorphic cycle – Davis, Penk and L C King - Morphometric elements and parameters-Valley development and classification-drainage basin-composition, density and basic characteristics-Evolution of slopes-basic characteristics-views of Alan Wood – Role of water, vegetation and climate on slopes-stability and safety factors	
Unit – IV	Erosion surfaces and their interpretation-climatic / Geomorphology and morphogenetic regions	
Unit – V	Applied Geomorphology with reference to mineral exploitation, engineering, Disaster management and hydrology– Anthropogenic geomorphology	

Reference

- Arthur L. Bloom 2003, Geomorphology – A systematic Analysis of Late Cenozoic Landforms, Pearson Education, Singapore.
- Arthur N Strahler and Alan H Strahler 1998, Modern Physical Geography, John Wiley and Sons, Inc.
- Darrel Hess 2012, MCKNIGHT'S Physical Geography -A Landscape Appreciation, PHI Learning Private Limited, New Delhi.
- Majid Husain 2003, Fundamentals of Physical Geography, Rawat Publication.
- Richard John Huggett 2003, Fundamentals of Geomorphology, Routledge, London.
- Savindra Singh 2007, Geomorphology, Prayag Pustak Bhavan, Allahabad.
- S. W. Wooldrige and R. S. Morgan 2004, An Outline of Geomorphology –The Physical Basis of Geography, Orient Longman Private Limited.
- William D Thornburry 2004, Principles of Geomorphology, CBS Publishers and Distributors Private Limited.

Paper 3	GGY C 103	CLIMATOLOGY
Unit – I	The composition and structure of the atmosphere – Insolation, Greenhouse effect – heat budget of the earth, temperature inversion, Atmospheric motion, Local winds, jet streams. General circulation of the atmosphere, Humidity, Evaporation, Condensation, precipitation – cloud formation and classification	
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, 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 to 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

John E Oliver and John J Hidore 2003, Climatology – An Atmospheric Science, Pearson Education Private Limited, Delhi.

Lal D S 2003, Climatology, Sharda Pustak Bhavan, Allahabad.

Robert V Rohli and Anthony J Vega 2008, Climatology, John and Bartlett Publishers, Massachusetts.

Savindra Singh 2005, Climatology, Prayag Pusthak Bhavan, Allahabad.

Siddhartha K 2002, Atmosphere, Weather and Climate, Kisalaya Publications Private Limited, Delhi.

Paper 4	GGY C 104	PRINCIPLES OF GEOGRAPHIC INFORMATION SYSTEM
Unit – I	Fundamentals of GIS, Definition and concept of GIS, Components of GIS – Spatial and attribute data, Thematic characteristics and Sources of spatial data. Coordinate system and 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 oriented model.	
Unit – III	Methods of data input and 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, 3D Modeling and methods, DTM: TIN and DEM. Modeling in physical & environmental process: Human process and decision making process.	
Unit – V	Map outputs in GIS, Errors in GIS, Areas of GIS applications– Future of GIS, Web GIS, GIS Software, Open GIS	

Reference

- Anji Reddy M 2001, Remote Sensing and Geographical Information System, B S Publications, Hydrabad.
- Ian Heywood et.al 2002, An Introduction to Geographical Information System, Pearson Education Private Limited, Delhi.
- Lo C P and Albert K W Y 2004, Concepts and Techniques of Geographic Information Systems, Prentice Hall of India, New Delhi.
- Michael N DeMers 2005, Fundamentals of Geographic Information System, John Wiley and Sons, New Delhi.
- Paul A Longley et.al 2001, Geographic Information System and Science, John Wiley and Sons, Chichester.

Paper 5	GGY P 105	PRACTICAL – 1 PHYSICAL GEOGRAPHY AND SURVEY
Unit – I	Gradient and slopes – profiles- Calculation of average slopes- Smith, Robinson and Went Worth. Trend surface analysis- Hypsometric and clinographic curve.	
Unit – II	Morphometric analysis – Identification of watersheds – Calculation of area, stream ordering and its significance – Stream length ratio, Bifurcation ratio, Stream density, Elongation ratio, Circularity 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 map interpretation – 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 Thornthwait method – Index of Aridity – Determination of climatic types by using Thornthwait's method. Cyclonic track analysis.	
Unit – V	Preparation of maps using total station and GPS, Drawing profiles using the Dumpy level	

Reference

Arthur N Strahler and Alan H Strahler 1998, Modern Physical Geography, John Wiley and Sons, Inc.

Ashis Sarkar 2009, Practical Geography – A systematic approach, Orient Black Swan, Kolkatta.

Gopal Singh 2006, Map work and Practical Geography, Vikas Publishing House, New Delhi.

Savindra Singh 2007, Geomorphology, Prayag Pustak Bhavan, Allahabad.

SEMESTER II

Paper 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 , approaches to the study of regional planning	
Unit – II	Theories of regional growth: Economic base 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 R P 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 imbalances in India	
Unit – V	Issues in regional planning; social environmental issues. District, Block and panchayath level planning in India. Backward and tribal area development programmes, People participation in planning process, watershed planning.	

Reference

Mahesh Chand and Puri V K 2011, Regional Planning in India, Allied Publishers Private Limited, New Delhi.

Misra R P and Achutha R N 1998, Micro Level Rural Planning, Concept Publishing Company, New Delhi.

Misra R P 2002, Regional Planning –Concepts, Techniques, Policies and Case Studies, Concept Publishing Company, New Delhi.

Sundharam K V 1997, Decentralized Multi Level Planning –Principles and Practice, Concept Publishing Company, New Delhi.

Paper 7	GGY C 202	PRINCIPLES OF REMOTE SENSING
Unit – I	Meaning and scope of remote sensing, data generation and acquisition; role of atmosphere in remote sensing. EMR and remote sensing; Spectral regions, interaction of EMR with atmosphere and earth surface features. Types of Remote sensing, platforms, orbit, Ideal & real remote sensing.	
Unit – II	Aerial remote sensing – History, Principles, photographic bands– Cameras, Filters and Films and vantage points,. Photogrammetry- flight lines, scale, Elements of visual image interpretation, parallax, orthophotos, stereoscopy, pseudoscopy and stereo models.	
Unit – III	Satellite remote sensing – types of satellites and images, 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, Satellite photographic systems; Thermal infrared remote sensing, microwave remote sensing, Hyper spectral remote sensing.– advantages and limitations of satellite remote sensing,	
Unit – IV	Digital image processing – Data format, Image rectification and restoration, Image enhancement, image manipulation, image classification, Ground truth verification & accuracy assessment. Indices-Vegetation Index, NDVI. Interpretation and plotting equipment.	
Unit – V	Remote sensing application; Geology, Agriculture, Land use, Hydrology, Urban and Regional planning, Wildlife ecology, Archeology, Environmental assessment. Remote sensing in India- Developments, remote sensing Centers. New Satellite programmes.	

Reference

- Anji Reddy M 2001, Remote Sensing and Geographical Information System, B S Publications, Hydrabad.
- James B Campbell and Randolph H W 2011, Introduction to Remote Sensing, Gulford Press, New York.
- Jenson J R 2004, Remote sensing of the environment, Pearson Education Pvt. Ltd, Delhi.
- Lillesand T M, Kiefer R W and J W Chipman 2008, Remote sensing and Image Interpretation, John Wiley, New Delhi.
- Panda B C 2005, Remote sensing -Principles and Applications, Viva Books, New Delhi.

Paper 8	GGY C 203	POPULATION GEOGRAPHY
Unit – I	Nature, Scope and contents; sources of population data – primary and secondary; reliability of population data;– Attributes of population- Demographic, Social and Economic. Distribution, density and growth and Population Projection.	
Unit – II	Dynamic of population growth; Fertility – its measures, determinant and world trend. Mortality its measures determinants and world trend. Migration: Types – seasonal, permanent Internal and International – 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	Demographic and socio-economic attributes of India's population with special reference to Kerala and its salient features- problems of over population – distribution, density and growth – rural and urban population	
Unit – V	Population policies and Planning of India- Five Year plans, Human Development Index and its components, Population and environment.	

Reference

Kayastha S L 2007, Geography of Population, Rawat Publication, Jaipur.

Lalith P Pathak 1998, Population Studies, Rawat Publication, Jaipur.

Majumdar P K 2010, Fundamentals of Demography, Rawat Publication, Jaipur.

Paul Demeny and Geoffrey McNicoll 1998, Population and Development, Earthscan, London.

Siya Ram Sharma 2008, Population Geography, Murali Lal and Sons, New Delhi.

Paper 9	GGY C 204	URBAN GEOGRAPHY
Unit – I	Nature, scope and significance of Urban Geography; approaches– recent trends – definition of urban centres – origin and growth of urban centres – process of urbanization – factors of urban growth.	
Unit – II	Classification of urban centres on the basis of a) size b) function, , Harris and Nelson's scheme of classification – classification of Indian cities by Asok Mitra, Rank size rule.	
Unit – III	Urban centres –spatial and functional relationships, Christaller's theory of Central Places, Urban Ecology and Social area Analysis of urban places. Economic bases of urban settlement – basic and non-basic concepts	
Unit – IV	Urban morphology; land use models – theories of Burgess, Harris & Ullman and Hoyt's. Central Business district and its characteristics; morphology of Indian cities, Urban housing – urban housing policies and programmes, Urban slums, Urban fringe – its characteristics and development	
Unit – V	Salient features of the process of urbanization in India – problems and prospects- Urbanization in Kerala, Census classification of urban places with special reference to Kerala	

Reference

Harold Carter 1995, The Study of Urban Geography, Arnold, London

Majid Husain 2003, Urban Geography, Anmol Publications, New Delhi.

Mandal R B 2000, Urban Geography, Concepts Publishing Company, New Delhi.

Ramachandran R 1992, Urbanization and Urban Systems in India, Oxford University Press, Delhi.

Singh R Y 2002, Geography of Settlement, Rawat Publication, Jaipur.

Sivaramakrishnan 1996, Urbanization in India, Concepts Publishing Company, New Delhi.

Vaysali Singh 2011, Urban Geography, Alfa Publication, New Delhi.

Paper 10	GGY P 205	PRACTICAL – II 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, vegetation, drainage pattern, cultural features, 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 based on nine fold land use classification.	
Unit – IV	Geographic Information system: Spatial Data base. Vector/Raster structure and spatial analysis.	
Unit – V	Scanning, Integration of attribute data, Geographic analysis, Digital Terrain Models – Application.	

Reference

- Anji Reddy M 2001, Remote Sensing and Geographical Information System, B S Publications, Hydrabad.
- James B Campbell and Randolph H W 2011, Introduction to Remote Sensing, Gulford Press, New York.
- Jenson J R 2004, Remote sensing of the environment, Pearson Education Pvt. Ltd, Delhi.
- Lo C P and Albert K W Y 2004, Concepts and Techniques of Geographic Information Systems, Prentice Hall of India, New Delhi.
- Michael N DeMers 2005, Fundamentals of Geographic Information System, John Wiley and Sons, New Delhi.
- Paul A Longley et.al 2001, Geographic Information System and Science, John Wiley and Sons, Chichester.

SEMESTER III

Paper 11	GGY C 301	GEOGRAPHY OF INDIA
Unit – I	Location, Land: physiography and statigraphy. Drainage, Climate- Indian monsoon, regionalization of climate. soil and Vegetation	
Unit – II	Economy: changing nature of Indian economy. Characteristics, problems and spatial patterns of Indian agriculture; Development in Agriculture: land use, cropping pattern, irrigation, technological development in agriculture, Green revolution. Regionalization of agriculture in India.	
Unit – III	Mineral and power resources- regions, production, problems and conservation. Industrial development and Indian economy, locational pattern and production of major industries - Iron and steel, engineering goods, textiles, chemicals, cement, sugar, paper; industrial regions of India.	
Unit – IV	Transportation – Land, water and air. Internal and international trade- India's role in Asia and World. India as an emerging economic power.	
Unit – V	Geography of Kerala : Physical setting, Agriculture, Minerals, Industries, Transportation, Population	

Reference

Bhat L S 2009, Geography in India -Selected Themes, Pearson, Delhi.

Gopal Singh 2005, A Geography of India, Atma Ram and Sons, Delhi.

Majid Husain 2008, Geography of India, Tata McGraw-Hill Publishing Company Limited, New Delhi.

Negi B S and Singh U B 2000, Geography of India, Khedar Nath Ram Nath, Meerut.

Singh R L 2004, India –A regional Geography, National Geographical Society of India, Varanasi.

Paper 12	GGY C 302	RESEARCH METHODS IN GEOGRAPHY
Unit – I	Research: Meaning and definition – need for Scientific research- Types of research, fundamental research in Geography – Traditional and scientific – Theories and laws in geography – data Explosion – Quantitative Revolution	
Unit – II	Models and empirical techniques in the analysis of Geographic problems. Research designs – Identification of problem. Aims, Objectives, Hypothesis.	
Unit – III	Data acquisition and analysis – Source of data- Primary, Secondary. Data collection –Questionnaire, Interview and Schedules. Data transformation – Ground truth verification.	
Unit – IV	Sampling types and techniques. Spatial sampling – Area, line and point Sampling, significance of sampling in Geographical research..	
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. Literature review and the role of internet, preparation of bibliography	

Reference

- Britha Mikkelsen 2005, Methods for Development Work and Research, Sage Publication, New Delhi.
- Chris Hart 2005, Doing Your Masters Dissertation, Vistar Publications, New Delhi.
- Gerald Guthrie 2010, Basic Research Methods, Sage Publication, New Delhi.
- John C Almack 2006, Research and Thesis Writing, Cosmo Pulications, New Delhi.
- Misra H N and V P Singh 1998, Research Methodology in Geography, Social, Spatial and Policy Dimensions, Rawat Publications, New Delhi.
- Ranjit Kumar 1996, Research Methodology, Sage Publication, London.
- Varma C A 2013, Research in Applied Geography, Swastik Publication, New Delhi.

Paper 13	GGY E 303	AGRICULTURAL GEOGRAPHY
Unit – I	Meaning, Definition, Nature, Scope, Basic concepts and Significance. Development of Agricultural Geography, Origin of Agriculture; Importance of Agriculture; Approaches to the study of agricultural geography.	
Unit – II	Elements and factors affecting agriculture– physical, economic, social, institutional and technological.	
Unit – III	Models in Agricultural Geography; Von Thunen's, Olo Jonasson and Webber. Agricultural systems of the world- A review of Whittlessey's agricultural classification.	
Unit – IV	Sources of Agricultural data: Agricultural statistics and sampling; Land use surveys – land capability classification – Agricultural regionalization- concepts, techniques and methods-measurement of agricultural productivity, crop combination regions – Weaver, Doi, Raifullah. Crop diversification regions – Bhatia's method.	
Unit – V	Indian agriculture- Characteristics- Agro- climatic regions of India– Green revolution, problems and prospects of Indian agriculture, Indian agriculture during different five year plans; Agriculture of Kerala- agro climatic regions of Kerala.	

Reference

Jasbir Singh and Dhillon S S 2004, Agricultural Geography, Tata Mcgraw Hill, New Delhi.

Majid Hussain 2003, Agricultural Geography, Anmol Publication, New Delhi.

Majid Hussain 2007, Systematic Agricultural Geography, Rawat Publication, New Delhi.

Mamoria C B 2008, Agricultural problems of India, Kitab Mahal, Patna.

Mohammed Shafi 2006, Agricultural Geography, Pearson Education, New Delhi.

Sharma B L 1991, Applied Agricultural Geography, Rawat Publication, New Delhi.

Paper 14	GGY E 304	ENVIRONMENTAL GEOGRAPHY
Unit – I	Nature and scope of environmental geography. Man and environment relationship – changing nature of the concepts.	
Unit – II	Ecosystem – structure, classification, biomes, functioning of the Ecosystem, Food web, Food pyramid, Nutrient cycle. Natural disruptions of the ecosystem. Biodiversity, Natural hazards – Floods, Drought.	
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

Bhaskar C B 2006, Environmental Geography, GNOSIS Publishers, Delhi.

Mohan Singh 2011, Environmental Geography, A B D Publishers, New Delhi.

Savindra Singh 2008, Environmental Geography, Prayag Pusthak Bhavan, Allahabad.

Saxena H M 2004, Environmental Geography, Rawat Publication, New Delhi.

Viswambhar P S 2012, An Introduction to Environment, Rawat Publication, New Delhi.

Paper 15	GGY P 305	PRACTICAL – III 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 central tendency - Mathematical methods and graphical methods - Lorenz curve, Triangular graph, Centographic 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

- Alvi Zameer 2002, Statistical Geography -Methods and Applications, Rawat Publication, Jaipur.
- Kothari C R 2005, Quantitative techniques, Vikas Publishing House, New Delhi.
- Saroj K Pal 1998, Statistics for Geoscientists _ Techniques and Application, Concepts Publishing Company, New Delhi.
- Saroj K Pal 2008, Computing mathematical Techniques in Geography, B R Publishing Corporation, New Delhi.

SEMESTER IV

Paper 16	GGY C 401	ADVANCED CARTOGRAPHY
Unit – I	Nature and scope. History of Cartography. Map functions and types- simple, complex and thematic maps, Special purpose maps.	
Unit – II	Basic Geodesy. Directions and their functions. Map projections, scale and co-ordinate systems: Cartographical data and processing – sources of image processing – digital database – cartographic database management.	
Unit – III	Phases of cartographic processes – Map compilation- compilation process, compilation worksheet- Cartographic abstraction- Selection and Generalization principles- Graphic and conceptual- process and tools: Symbolization, symbolization problem, feature attributes- portraying of land surface form- Relief- Digital terrain models- terrain visualization- topographic data mapping and charting organizations.	
Unit – IV	Cartographic design- design process- perpetual considerations- controls of map design- design planning- color theory and models- pattern creation- Lettering and Typography- functions- lettering style, size, types- nature of typography, lettering the map topography. Cartographical data analysis, classification, mapping methods	
Unit – V	Map reproduction- methods and techniques- map production-; role of remote sensing in the development of cartography; cartographic tools- digital data products- geospatial analysis and operations- GIS packages- Desktop mapping- maps and World Wide Web- maps as decision making tools .	

Reference

Alan M MacEachren 2008, How Maps Work, Rawat Publication, Jaipur.

Ashis Sarkar 2009, Practical Geography – A systematic approach, Orient Black Swan, Kolkatta.

Donald Fenna 2007, Cartographic Science, CRC Press, London.

Erwin Raisz 2007, Principles of Cartography, Surjeet Publication, Delhi.

Madan P L 2001, Indian Cartography –A Historical Perspective, Manohar Publishers, New Delhi.

Ramapal K K 1993, Mapping and Compilation –Methods and Techniques, Concepts Publishing Company, New Delhi.

Paper 17	GGY E 402	GEOGRAPHY 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 – Tour 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, Switzerland, Singapore & Malaysia, Egypt. 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

Bhatia A K 1991, International Tourism – Fundamental and Practices, Sterling, New Delhi.

Bhatia A K 1996, Tourism Development, Principles and Practices, Sterling Publishers, New Delhi.

Clare A Gunn 2002, Tourism Planning – Basics, concepts, Cases, Routledge, London.

Sandeep Bhardwaj 2012, Handbook of Tourism Geographies, Arise Publishers, New Delhi.

Swarbrook J 2010, Sustainable Tourism Management, Rawat Publications, Jaipur.

Rohit Balyani 2012, Eco-Tourism and Sustainable Development in India, Sarup Publishers, New Delhi.

Paper 18	GGY P 403	PRACTICAL – IV	CARTOGRAPHY
Unit – I	Thematic mapping; mapping population data, dot maps, choropleth maps, isopleths, population potential, Mapping agricultural data - index of concentration and diversification Land use maps – choroschematic and chorochromatic Locational sector diagrams.		
Unit – II	Study of Indian toposheets of different scales		
Unit – III	Transportation network analysis – Measures of Accessibility, Connectivity and Efficiency. 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

Alan M MacEachren 2008, How Maps Work, Rawat Publication, Jaipur.

Ashis Sarkar 2009, Practical Geography – A systematic approach, Orient Black Swan, Kolkatta.

Donald Fenna 2007, Cartographic Science, CRC Press, London.

Erwin Raisz 2007, Principles of Cartography, Surjeet Publication, Delhi.

Madan P L 2001, Indian Cartography –A Historical Perspective, Manohar Publishers, New Delhi.

Ramapal K K 1993, Mapping and Compilation –Methods and Techniques, Concepts Publishing Company, New Delhi.

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**COMPREHENSIVE VIVA VOCE**

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

GGY C 406**STUDY TOUR/ SOCIO-ECONOMIC SURVEY**

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

Field trip / Field work / Study tour / Socio economic survey 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.

Sd/-**Dr. P K Vijayan****Head, Department of Geography****Kannur University****SAT Campus, Payyanur**

MODEL QUESTION PAPERS

**THIRD SEMESTER M.Sc. DEGREE EXAMINATION
GEOGRAPHY
GGY C302 RESEARCH METHODS IN GEOGRAPHY**

Time: 3Hours

Max: Marks: 60

SECTION- A

**Answer one each from the following. Each question carries 2marks
(5X2=10)**

1. a) Objectives of research
b) Pilot survey
2. a) Extraneous variables
b) Experimental and control group
3. a) Sampling error
b) Null hypothesis
4. a) Source of Primary data
b) Questionnaire
5. a) Ground truth verification
b) Bibliography

SECTION – B

**Answer one each from the following. Each question carries 4 marks
(5X4=20)**

6. a) Give a brief note on research and its Characteristics
b) Define theory and its criteria
7. a) Explain the limitations of the models.
b) Briefly explain the types of hypothesis.
8. a) Discuss interview as a technique of data collection.
b) Explain the difference between the collection of data through questionnaire and schedule?
9. a) Differentiate probability sampling from non probability sampling?
b) What is the need for reviewing literature for research?
10. a) Distinguish between technical report and popular report?
b) Define experimental research and discuss its features?

SECTION –C

Answer any three questions. Each question carries 10 marks (3X10=30)

11. How scientific methods involve reasoning process? Discuss?
12. Bring out the importance of parametric tests used in the context of testing the hypothesis?
13. Examine the merits and demerits observation method in collecting primary data?
14. Why probability sampling is generally preferred compared to non probability sampling?
15. Explain the format requirements of a research article to be published in a professional journal?

**FOURTH SEMESTER M.Sc DEGREE EXAMINATION
GEOGRAPHY
GGY E 402 GEOGRAPHY OF TOURISM**

Time: 3Hours

Max: Marks: 60

SECTION- A

**Answer one each from the following. Each question carries 2marks
(5X2=10)**

1. a) Business Tour
b) Tourism Geography
2. a) Visa
b) Supplementary accommodation
3. a) Tourism Planning
b) Green Tourism
4. a) Yellowstone National park
b) Valley of Flowers
5. a) Monsoon Tourism in Kerala
b) Silent valley National park

SECTION – B

**Answer one each from the following. Each question carries 4 marks
(5X4=20)**

6. a) What are the components of tourism?
b) Explain the role of Geography in Tourism?
7. a) Discuss the International Organizations with special reference to tourism.
b) Briefly explain the tourism super structure?
8. a) Discuss various types of adventure tourism?
b) Explain the multiplier effect of tourism on economy?
9. a) Switzerland have a prominent position in the tourism atlas of world,
Explain?
b) Give an account of tourist attractions in Utharakhand?
10. a) Explain the ecotourism in Kerala?
b) Give an account of medical tourism in Kerala.

SECTION –C

Answer any three questions. Each question carries 10 marks (3X10=30)

11. Explain the nature, scope and importance of Geography of tourism?
12. Bring out the aims and functions of World tourism Organization?
13. Explain the socio cultural effect of tourism over the locals and tourists?
14. What are the main constrains of tourism development in India?
15. Discuss the major natural tourist attractions in Kerala?