UNIVERSITY OF KERALA

FIRST DEGREE PROGRAMME IN GEOGRAPHY

(UNDER CHOICE BASED CREDIT AND SEMESTER SYSTEM)

OUTCOME BASED SCHEME AND SYLLABUS

(2022 ADMISSION ONWARDS)

UNIVERSITY OF KERALA
FIRST DEGREE PROGRAMME IN GEOGRAPHY
UNDER CHOICE BASED CREDIT AND SEMESTER SYSTEM (CBCSS)
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Objectives and Outcomes of the Programme

The aim of the programme is to provide a solid foundation in all aspects of Geography and to show a broad spectrum of modern trends in Geography and to develop experimental, synthetic and application skills of students. The syllabi are framed in such a way that it bridges the gap between the Higher Secondary and Post Graduate levels of Geography by providing a more complete and logical framework in almost all areas of the subject.

Programme Objectives:

(i) To provide education in Geography to the highest quality at the undergraduate level and produce graduates of the caliber sought by industries and public service as well as academic teachers and researchers of the future

(ii) To attract outstanding students from all backgrounds to Geography

(iii) To provide an intellectually stimulating environment in which the students have the opportunity to develop their skills and enthusiasm to the best of their potential

(iv) To impart the skills required to gather information from various resources and to use them for futuristic aspects

Programme Outcomes:

By the end of the Programme, the students :

(i) Attain a common level of understanding in basic principles of Geography and have a strong foundation in earth related sciences for their future courses

(ii) Equip themselves in gathering spatial information, analyse, synthesize and to suggest solutions to geographical problems

(iii) Attain highest academic standards in undergraduate level

(iv) Develop their analytical skills through a wide range of expertise in handling applications of Geography by their training acquired through field work and laboratory work.

UNIVERSITY OF KERALA

OUTCOME BASED SYLLABUS AND STRUCTURE OF FIRST DEGREE PROGRAMME IN GEOGRAPHY UNDER CHOICE BASED CREDIT AND SEMESTER SYSTEM

Course structure, Scheme of Instruction and Evaluation

Course Code	Course Title	Instructional Hours/Week		Credit	Exam Hours	Marks		Total Credit
		L	P			CE	ESE	
SEMESTER – I								
EN 1111	English	5		4	3	**20**	**80**	**17**
1111	Additional Language	4		3	3			
EN 1121	Foundation Course	4		2	3			
GG 1141	**Fundamentals of Geomorphology**	2		4	3			
GG 1142	**Practical Paper : Physical Geography**		2	--	3			
GL 1131	Complementary Course – I (Geology)	2	2	2	3			
ST 1131.3	Complementary Course – II (Statistics)	2	2	2	3			
		25		**17**				
SEMESTER – II								
EN 1211	English – I	4		3	3	**20**	**80**	**17**
EN 1212	English - II	5		4	3			
1211	Addl. Languages	4		3	3			
GG 1241	**Climatology & Oceanography**	2		3	3			
GG 1142	**Practical Paper : Physical Geography**		2	--	3			
GL 1231	Complementary Course – I (Geology)	2	2	2	3			
ST 1231.3	Complementary Course – II (Statistics)	2	2	2	3			
		25		**17**				
SEMESTER – III								
EN 1311	English	5		4	3			

1311	Addl. Languages	5	4	3			
GG 1341	**Cartography**	3	3	3			
GG 1342	**Practical Paper : Cartographic Techniques**	2	--	3	**20**	**80**	**17**
GL 1331	Complementary Course – I (Geology)	3 2	3	3			
ST 1331.3	Complementary Course – II (Statistics)	3 2	3	3			
		25	**17**				
SEMESTER – IV							
EN 1411	English	5	4	3			
1411	Addl. Language	5	4	3			
GG 1441	**Human Geography**	3	3	3			
GG 1442	**Practical - I: Physical Geography & Cartographic Techniques**	2	3	3	**20**	**80**	**28**
GL 1431	Complementary Course – I (Geology)	3	3	3			
GL 1432	Complementary Course – I: Practical (Geology)	2	4	3			
ST 1431.3	Complementary Course – II (Statistics)	3	3	3			
ST 1432.3	Complementary Course – II: Practical (Statistics)	2	4	3			
		25	**28**				
SEMESTER – V							
GG 1541	Physical Geography of India	4	4	3			
GG 1542	Economic and Social Geography	4	4	3			

	of India						
GG 1543	**INDUSTRY BASED COURSE** Fundamentals of GIS and Remote Sensing	3	4	3	**20**	**80**	**14**
GG 1551.1 GG 1551.2 GG 1551.3 GG 1551.4	**OPEN COURSE** Geography of Tourism Physical Geography General Geography Bio Geography	3	2	3			
GG 1544	Practical - II	4	--	3			
GG 1545	Practical - III	5	--	3			
	Project	2	--	3			
		25	**14**				
SEMESTER – VI							
GG 1641	Geography of Kerala	3	3	3	**20**	**80**	**27**
GG 1661.1 GG 1661.2	**ELECTIVE** Environment and Disaster Management Fundamentals of Photogrammetry	4	2	3			
GG 1642	World Regional and Economic Geography	4	4	3			
GG 1544	Practical - II	--	4	3			
GG 1545	Practical - III	--	4	3			
GG 1643	Practical - IV	6	3	3			
GG 1644	Practical - V	5	3	3			
GG 1645	**Project**	3	4				
		25	**27**				**120**

L– Lecture Hours, P – Practical Hours,CE - Continuous Evaluation, ESE - End Semester Evaluation

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OUTCOME BASED FIRST DEGREE PROGRAMME IN GEOGRAPHY (CBCSS)

Scheme of Instruction of Core Courses, Foundation Course, Industry based Course, Open Course and Elective Course

SEMESTER – I

Sl. No.	Course Code	Course Title	Instructional Hours		Total Credits
			L	P	
1	GG 1141	Fundamentals of Geomorphology	2	--	4
2	GG 1142	Practical Paper : Physical Geography	--	2	--
			Total		**4**

Note:

1. Practical sessions are to be conducted in First Semester. Practical examinations will ***only*** be conducted in Fourth Semester

SEMESTER – II

Sl. No.	Course Code	Course Title	Instructional Hours		Total Credits
			L	**P**	
1	GG 1221	Climatology & Oceanography	2	--	3
2	GG 1142	Practical Paper : Physical Geography	--	2	--
			Total		**3**

Note:

1. Practical sessions are to be conducted in Second Semester. Practical examinations will ***only*** be conducted in Fourth Semester
2. ***One day*** field work shall be conducted to places of geographical importance in the local area.

SEMESTER – III

Sl. No.	Course Code	Course Title	Instructional Hours		Total Credits
			L	P	
1	GG 1341	Cartography	3	--	3
2	GG 1342	Practical - Cartography	--	2	--
			Total		**3**

Note:

1. Practical sessions are to be conducted in Third Semester. Practical examinations will ***only*** be conducted in Fourth Semester

SEMESTER – IV

Sl. No.	Course Code	Course Title	Instructional Hours		Total Credits
			L	P	
1	GG 1441	Human Geography	3	--	3
2	GG 1442	Practical – I (***GG 1142***, ***GG 1342***)	--	2	3
			Total		**6**

Note:

1. Practical sessions are to be continued in the Fourth semester.Practical examination will be conducted by combining the portions of **GG 1142** & **GG 1342** in Fourth Semester ***only***
2. ***Two days*** of field work shall be conducted to places of geographical importance in the local area.

   E.g. Visit to Meteorological Department/Visiting a coastal area and identifying coastal features and Image Documentation of the same etc.
3. Out of 80 marks (ESE) of the **GG 1442: Practical - I**, **5 marks** shall be awarded for submission of a ***Field Work Report*** and **10 marks** shall be awarded for submission of ***Practical Record***

SEMESTER - V

Sl. No.	Course Code	Course Title	Instructional Hours		Total Credits
			L	P	
1	GG 1541	Physical Geography of India	4	--	4
2	GG 1542	Economic and Social Geography of India	4	--	4
3	GG 1543	**INDUSTRY BASED COURSE**: Fundamentals of GIS and Remote Sensing	3	--	4
4	GG 1551.1 GG 1551.2 GG 1551.3 GG 1551.4	**OPEN COURSE** Geography of Tourism Physical Geography General Geography Bio Geography	3	--	2
5	GG 1544	Practical - II: Techniques of Data Collection	--	4	--
6	GG 1545	Practical - III: Map Reading and Spatial Information Techniques	--	5	--
7	GG 1646	**Project**	2	--	--
			Total		**14**

Note:

1. Practical sessions are to be conducted in Fifth Semester. Practical examinations ***will only*** be conducted in Sixth Semester
2. The number of students assigned to do the project work under the guidance of a teacher is fixed as **6 (Six)**; since the project work in Geography involves field work

SEMESTER – VI

Sl. No.	Course Code	Course Title	Instructional Hours		Total Credits
			L	P	
1	GG 1641	Geography of Kerala	3	--	3
2	GG 1661	Environment and Disaster Management	4	--	2
3	GG 1642	World Regional and Economic Geography	4		4
4	GG 1544	Practical - II: Techniques of Data Collection	--	--	4
5	GG 1545	Practical - III: Map Reading & Spatial Information Techniques	--	--	4
6	GG 1643	Practical - IV: Representation & Interpretation of Geographic Data	--	6	3
7	GG 1644	Practical - V: Foundation to Surveying and levelling	--	5	3
8	GG 1645	**Project**	3	--	4
			Total		**27**

Note:

1. Practical sessions shall be continued in Sixth Semester; Examination of practical papers : **II, III, IV & V** will be conducted at the end of Sixth Semester
2. Out of total 80 marks in each Practical Paper: **II, III, IV & V**, 10 marks shall be earmarked for external evaluation of Practical Records
3. ***Field Work/Study Tour*** shall be conducted to places of geographical importance (Kerala and Neighbouring states only), with a duration ***not*** exceeding 5 (Five) days
4. Out of total 80 marks (ESE) of GG **1644: Practical – V**, 10 marks are earmarked for Field Work/Study Tour Report

GG 1141 : FUNDAMENTALS OF GEOMORPHOLOGY

Course Objectives	➢ To examine fundamental concepts and theories of origin and evolution of the Earth ➢ To develop an in-depth understanding of the structure and composition of earth ➢ To understand relationships between landforms and geomorphic processes ➢ To analyze and appreciate the working of various endogenetic and exogenetic processes
Course Outcomes	**CO1**: Understand origin and evolution of Universe/Solar System **CO2**: Critically analyse Continental Drift and Plate Tectonics **CO3**: Identify major earthquake and volcanic zones of the Earth **CO4:** Appreciate and evaluate various endogenic processes **CO5**: Critical understanding of exogenic processes and soil formation

UNIT – I

Origin and evolution of the Universe/Solar system: Big Bang Theory, Steady State Theory, Nebular hypothesis, Tidal hypothesis – Shape and Size of Earth – Distribution of Land and Water: Tetrahedral hypothesis

UNIT – II

Continental Drift Theory: Explanation and Evidence, Criticism – Plate Tectonic Theory: Driving mechanisms – Seafloor Spreading – Isostasy

UNIT – III

Structure and Composition of the Earth – Geomorphic processes and Earth movements – Endogenic and Exogenic forces – Volcanism: Volcanoes based on frequency of eruption – Earthquakes: Seismic waves – Measurement Scales: Richter and Mercalli – Pacific Rim: Tectonic significance

UNIT – IV

Endogenic Processes: Diastrophism, Epeirogeny, Orogeny – Forces of Compression: Folding and types of fold – Forces of Tension: Faulting and Types of faults – Rocks: Classification

UNIT – V

Exogenic Processes: Mass Movement and its types, Weathering and its types – Soil: Soil horizon, Soil Profile, Soil types: Zonal, Azonal and Intrazonal – Soil Classification: USDA

References:

1. Arthur N Strahler and Alan H Strahler (1998) Modern Physical Geography, John Wiley and Sons, Inc.
2. Bloom, A.L. (1991): Geomorphology, 2nd Ed Englewood Cliffs, M.J. Prentice Hall
3. Briggs, K. (1985): Physical Geography Process and System, Hodder and Stoughton, London
4. Chorley, R.J. Schumm, S A & Sugden, D E (1985): Geomorphology, Methuen & Co. Ltd., London, New York.
5. Cook, R.U. & Doornkamp, J C (1974): Geomorphology in Environmental Management, an Introduction. Clarendon Press. Oxford
6. John P Miller and Luna Berger Leopold, Fluvial Processes in Geomorphology
7. Morgan, R.S. & Wooldridge S.W (1959): Outline of Geomorphology the Physical basis of Geography, Longmans Green, London
8. Richard John Haggett (2003) Fundamentals of Geomorphology, Routledge, London.
9. Strahler, A.N (1992): Physical Geography. John Wiley & Sons Inc., New York.
10. William D Thornbury. (2010):Principles of Geomorphology

GG 1142 : PRACTICAL PAPER
PHYSICAL GEOGRAPHY

Course Objectives	➢ To identify different geomorphological features and their representation and interpretation from geographical perspectives ➢ To familiarize students with weather signs and symbols ➢ To acquire knowledge about bottom relief of oceans and ocean currents
Course Outcomes	**CO1**: Understand Latitudes and Longitudes **CO2**: Identifies the various erosional and depositional landform features **CO3**: Analyses and interprets weather station models **CO4**: Illustrates the relief of the ocean floor and ocean currents **CO5**: Explore the uses advantages of online maps daily life

UNIT – I

Latitude and Longitude – Calculation of Time – International Dateline – Travel and Time correction

UNIT – II

Block diagrams: Erosional and Depositional landform features produced by Running water, Glacier, Wind, Underground water and Waves – Illustration of Folds and Faults

UNIT – III

Study of Meteorological Signs and Symbols – Simple Wind Rose Diagram – Weather Station model – Illustration of Fronts and Cyclones

UNIT – IV

Illustration of Bottom Relief of Ocean Floor – Currents of Pacific, Atlantic and Indian Ocean

UNIT – V

Exploring Interactive Online Maps: Location – Navigation and Routes – Distance – Terrain – Timeline and Custom Maps

Field Visit (One Day) to places of geographical importance in the local area.

Note : Practical examination of this paper will be conducted only in the Fourth semester

References:

1. Dr L R Singh, Fundamentals of Practical Geography, Sharda Pustak Bhawan, 1 January 2010, New Delhi.
2. Ashish Sarkar, A Practical Geography, January 2015, Orient Black swan Private Limited - New Delhi
3. Practical Work In Geography Part - 1 January 2014, NCERT
4. Practical Work In Geography Part - 2 January 2014, NCERT
5. Rana P B Singh R I Singh, Elements Of Practical Geography
6. Text Book of Practical Geography Hardcover – Import, 1 January 1998, Concept Publishing Co
7. Dr. G.M. Rather, A Textbook of Practical Geography, 1 January 2011, Dilpreet Publishing House.
8. Singh R L: Elements of Practical Geography, Kalyani Publishers.
9. Gopal Singh: Map work and Practical Geography, Vikas Publishing House Pvt.. Ltd
10. MZA Khan: Text Book of Practical Geography, Concept Publishing House.

GG 1221 : CLIMATOLOGY & OCEANOGRAPHY

Course Objectives	➢ To appreciate basic atmospheric and oceanic concepts ➢ To provide a critical understanding of weather elements and their significance ➢ To evaluate the working of the oceanic environment
Course Outcomes	**CO1 :** Understand the global atmospheric circulation **CO2 :** Critically examine the distribution of pressure systems and winds **CO3 :** Identify different forms of condensation, precipitation and tropical weather systems **CO4 :** Appreciate the bottom topography of oceans **CO5 :** Critically analyse the environmental issues associated with Oceans

UNIT – I

Climatology: Definition – Climate and weather – Structure and Composition of the Atmosphere – Horizontal and Vertical distribution of Temperature – Normal Lapse Rate – Inversion of temperature – Heat budget

UNIT – II

Atmospheric pressure and winds: Major Pressure Belts, Vertical distribution of pressure – Winds: Planetary wind, Seasonal wind, Local winds: Chinook, Sirocco, Foehn, Harmattan,Loo, Bora, Mistral – Periodic Winds: Sea & Land Breeze, Mountain & Valley breeze – Upper atmospheric circulation: Jet streams

UNIT – III

Moisture in the atmosphere : Humidity: Types – Condensation: Forms of Condensation, Fog, Mist, Haze and Dew – Clouds: Classification based on height – Precipitation forms – Types of precipitation: Convectional, Orographic, Cyclonic – Air masses: types & characteristics – Fronts – Cyclones – Tropical Cyclones: Characteristics, types, cyclonic tracks – Anticyclone: Characteristics

UNIT – IV

Oceanography: Definition – General appraisal of World oceans – Ocean bottom relief: Continental and Abyssal features – Temperature and Salinity: Horizontal and Vertical distribution

UNIT – V

Ocean deposits – Classification based on Origin – Waves: Characteristics – Tides: Classification of tides – Currents: Types of currents, Currents in Indian, Pacific and Atlantic Oceans – Coral Reefs: Formation and Types – Threats to Marine ecosystem: Sea level rise, Coral bleaching

References:

1. An Introduction to Climate – Glenn T Trewartha, Tata Mc Graw Hill, New Delhi
2. General Climatology – Howard J Critchfield, Phi Learning Pvt Ltd, 1983
3. Atmosphere, Weather and Climate – Barry and Chorley, Routledge, London, 2003
4. Physical basis of Geography – Wooldridge and Morgan, Longman Green
5. Modern Physical Geography – Arthur N. Strahler and All H. Strahler, Wiley
6. Physical Geography – Majid Husain, Rawat Publications, Jaipur, 2003
7. Physical Geography – D. S. Lal Sharda Pustak Bhavan, Allahabad.
8. Oceanography – D. S. Lal, Sharda Pustak Bhavan, Allahabad, 2009
9. Climate and Weather Explained – Edward Linacre & Bart Geerts, Routledge, London.
10. Physical Geography – Gabler R E, Trapasso L M and Sack D, Brooks/Cole, USA, 2009
11. www.imd.gov.in

GG 1341 : CARTOGRAPHY

Course Objectives	➢ To get an insight into the process of map making ➢ To acquire skills in the preparation of maps ➢ To know the historical evolution of maps ➢ To understand how maps are useful to the public
Course Outcomes	**CO1**: Appreciates the historical evolution of maps **CO2**: Acquires skills in enlargement and reduction of maps **CO3**: Understanding the principles of Map Design **CO4**: Evaluates the maps prepared for various users/purposes **CO5**: Familiarizes the latest technologies used in Cartography

UNIT – I

Nature and Scope of Cartography - Artistic and Scientific bases of Cartography – Cartography as a Science of Human Communication – Branches of Cartography - History of Cartography: Ancient Period, late Medieval Period,Early Modern Period, Recent Period

UNIT – II

Map: Meaning - Classification of maps – Uses of Maps – Map Compilation, Procedure: Enlargement and Reduction of Maps, Generalisation – Thematic and Complex Mapping – Types and problems

UNIT – III

Map design – Principles, Types, Constraints – Symbolization: Qualitative and Quantitative – Visualisation: Visual variables, Colour and Pattern – Cartographic methods and techniques: Graphs and diagrams, Dot maps, Choropleth, Isopleth – Special Purpose Maps: Planning and Designing Maps for: a) Blind b) Children c) Neo-literates d) Business and Commercial Organizations – Layout of a Map

UNIT – IV

Lettering and Toponomy: Lettering: Style, Form, Size – Mechanics of Lettering – Mechanics of map construction – Drawing materials – Drawing equipments – Drawing an original map

UNIT – V

Computers in Cartography – Cartography and GIS – Cartographic design in GIS – Linking of GIS and Remote Sensing – Application of computer cartography in Environmental Science, Disaster Management, Urban and Regional planning – Modern techniques of map production – Dynamic and Interactive mapping, animation, simulation and web maps

References:

1. Misra R P and Ramesh A, (1989) Fundamentals of Cartography. Concept Publishing Company, New Delhi.
2. Robinson A H et.al, (1995) Elements of Cartography, Wiley.
3. Jan Kraak, Menno and Ormeling Ferjan (2003) Cartography: Visualization of Geospatial Data, Prentice Hall.
4. Deetz, Charles Henry (2005) Cartography, University Press of Pacific.

GG 1342 : PRACTICAL PAPER
CARTOGRAPHIC TECHNIQUES

Course Objectives	➢ To familiarize with fundamental map elements ➢ To acquire skills in map making
Course Outcomes	**CO1 :** Understanding the concept of scales **CO2 :** Acquiring skills in using magnetic compass **CO3** : Differentiate between Projected and Geographic coordinate Systems **CO4 :** Acquire skills in geometrical construction of map projections

UNIT – I

Scales – Types, Construction of Plain Scale, Comparative Scale, Diagonal Scale and Time Scale

UNIT – II

Directions – True, Magnetic and Grid North's – Map Enlargement and Reduction methods

UNIT – III

Coordinate Reference System: Projected and Geographic – WGS 1984 Reference System

UNIT – IV

Map projections: Principles, Classification, Graphical Construction, Properties, Uses and Limitations of the following Projections;

Zenithal: Gnomonic, Stereographic, Orthomorphic, Equi-distant and Equal area (Polar case)

Conical: Simple Conical Projection with One standard parallel, Conical projection with two standard parallels, Bonne's projection, Polyconic projection

Cylindrical: Simple cylindrical projection, Cylindrical equal area projection.

UNIT – V

Conventional: Molleweide's projection, Sinusoidal projection

Field Visit (Two Days) to places of geographical importance in the local area

Note: Practical examination & Field Visit Report submission has to be done in Fourth Semester

References:

1. Monkhouse and Wilkinson: Maps and Diagrams, Methun and company.
2. RP Mishra and A Ramesh, Fundamentals of cartography, concept publishing house, New Delhi.
3. RL Singh, Elements of Practical geography, Kalyani publishers.
4. Gopal Singh, Map work and practical Geography, Vikas publishing house.

GG 1441 : HUMAN GEOGRAPHY

Course Objectives	➢ To provide a comprehensive and critical understanding of Human Geography and how human kind transforms and get transformed by geographic space ➢ To enhance the understanding of Human Geography by providing fine nuances of the human environment relationship and valuable insights into the dynamics of human landscape
Course Outcomes	**CO1** : Critical understanding of the nature and scope of Human Geography through a thorough appreciation of the various approaches, and contributions made by renowned geographers **CO2:** Familiarize with basic concepts and models of spatial interaction and thereby analyze the factors controlling spatial interaction and how it modifies the earth's surface **CO3:** Evaluate how culture and its components diffuse, modify and restructure the earth's surface **CO4:** Holistic understanding of the major languages and religions **CO5:** Enhance the understanding of human settlements through a critical appraisal of its types, patterns, functions and problems

UNIT – I

Nature and Scope of Human Geography – A brief study of the contributions of Alexander Von Humboldt, Carl Ritter, Friedrich Ratzel, Vidal de la Blache, Carl Sauer, Richard Hartshorne, Yi Fu Tuan, Torsten Hagerstrand – A brief overview of the following approaches in the study of Human Geography: Spatial, Environmental, Humanistic, Behavioural

UNIT – II

Basic Concepts: Space, Place, Scale, Location, Direction and Distance (Absolute, Relative and Relational) – Spatial Interaction: Basis of Interaction – Models for Measuring

Interaction: Edward Ullman Model, Distance Decay Model, Gravity Model, Potential Model – Human spatial behavior: Mobility, Territoriality, Activity space, Spatial interaction and the accumulation of information, Information flows – Interaction and perception, Perception of environment

UNIT – III

Culture: Components of Culture - Culture Traits; Culture Complex - Culture Region: Culture Realm - Cultural Ecology - The Structure of Culture: Ideological, Technological and Sociological Subsystems

UNIT – IV

Classification of Languages: Language Families - World Pattern of Languages: Language Spread; Language Change; Dialects - Religion and Culture: Classification of Religion; Universalizing Religions, Ethnic Religions, Traditional Religions - World Pattern of Religions; Major Religions of the World; Judaism, Christianity, Islam, Hinduism, Buddhism, Secularism

UNIT – V

Human Settlements: Rural – Types, Patterns and Functions – Urban: Urbanization – Pattern and Functions, Urban problems – Population: World Distribution and Factors controlling distribution – Population Theories: Malthusian Theory, Demographic Transition Theory, Optimum Population Theory – Migration: Types of Migration, Factors controlling Migration, Push and Pull factors

References:

1.Fellmann J, Getis A & Getis J (2007) Chapter 3 of Human Geography: Landscapes of Human Activities. New York, USA: McGraw-Hill.

2.Knox P L & Marston S A (2007) Places and Regions in Global Context: Human Geography. Upper Saddle River, New Jersey: Prentice Hall.

3. Hussain Majid (2011), Human Geography, Jaipur, Rawat Publications.

4. Erin H Fouberg, Alexander B Murphy, Harm J de Blij. (2011)Human Geography: People, Place and Culture, 10th Edition, Wiley.

5. Mandal R B, (2001) Introduction to Rural Settlements, Concept Publishing Company,

New Delhi, Second Edition

6. Haggett Peter, (1979) Geography A Modern Synthesis, Harper International, London.
7. Rob Kitchin (2005) Introducing theory in thinking geographically, Bloomsbury academic.
8. Derek Gregory (2009) “Geography” in Gregory et al eds, Dictionary of Human Geography.

GG 1541 : PHYSICAL GEOGRAPHY OF INDIA

Course Objectives	➢ To understand the physical profile of the country ➢ To explain various physical dimensions of Indian geographical scenario ➢ To create awareness on environmental issues in India
Course Outcomes	**CO1:** Understanding the physical characteristics of India **CO2**: Acquiring knowledge regarding the drainage systems of India **CO3:** Examines the concept of Monsoon and its causes **CO4**: Understanding the importance and status of natural resources in India **CO5:** Acquiring comprehensive knowledge about the environmental issues

UNIT – I

Physiography of India – Location – Geopolitical Significance – Physiographic Divisions: Northern Mountains, North Indian Plains, Peninsular Plateau, Coastal Plains, Island Groups

UNIT – II

Drainage System – Drainage Patterns – Himalayan Rivers: Indus River system, Ganga River System, Brahmaputra River system – River Systems of Peninsular India: East and West flowing

UNIT – III

Climate - Factors influencing the climate of India – Mechanism of the Monsoon: Thermal Concept, Dynamic concept – Southern Oscillation – EL NINO, LA NINA and their impact – Rhythm of Seasons: Cold weather season, Hot weather season, Southwest Monsoon season, Retreating Monsoon season – Climatic regions of India: Koeppen's climatic classification

UNIT – IV

Soils in India: Classification of Soils by Indian Council of Agricultural Research (ICAR) - Soil Conservation programs of India - Natural Vegetation: Classification of Forests in India - Biosphere Reserves – National Parks – Wildlife Sanctuaries - Red listed species - Forest Conservation schemes

UNIT – V

Environmental Issues in India – Flood – Drought – Deforestation – Pollution: Air, Water, and Solid Waste disposal – Urban Problems

References:

1. Majid Husain-Geography of India - 9th Edition-Mc Graw Hill,2020
2. Surender Singh & Jitender Saroha -Geography of India 2ed 2019- G K Publication
3. Khullar D R – India - A Comprehensive Geography, Kalyani Publishers, New Delhi, 2000
4. Dr. Ranganath-Geography of India-2019 ed-Mysore Book House
5. Shafi M : Geography of South Asia, McMillan & Co, Calcutta, 2000.
6. D R Khullar-India A Comprehensive Geography – Kalyani Publications,2018
7. Singh R L (ed): India – A Regional Geography, National Geographical Society, India,Varanasi, 1971.
8. Majid Hussain-Indian and World Geography - Mc Graw Hill ,2016
9. Surender Singh & Jitender Saroha Geography of India for Civil Services Examination – Access Publishing-2014.
10. Wadia D N: Geology of India, McMillan & Co. London 1967
11. Singh Savindra, Environment Geography – Pravalika Publications,Allahabad, 2020

Web References:

1. https://testbook.com/learn/geography/
2. https://www.clearias.com/geography/
3. https://www.flexiprep.com/NIOS-Notes/Senior-Secondary/Geography/NIOS-Ch- 16-India-Physical-Features-Part-1.html
4. https://objectiveias.in/physical-geography-of-india.com

GG 1542 : ECONOMIC AND SOCIAL GEOGRAPHY OF INDIA

Course Objectives	➢ To make awareness about the economic development policies and programme of our country ➢ To make a concrete understanding of the potentialities of various economic sectors ➢ To understand demographic and social character of the population of India
Course Outcomes	**CO1:** Understanding the history of economic development in India **CO2:** Developing a cognitive understanding of the distribution of resource potentials in the country **CO3:** Developing skills in mapping the spatial distribution of various resources **CO4:** Critically analyses the demographic profile of India

UNIT – I

Concept and Classification of Economic activities – Factors influencing economic activities with special reference to agriculture and industry - History of economic development in India through five year plans

UNIT – II

Agriculture - Cropping patterns – Spatial distribution and production of major crops: Rice,Wheat, Cotton, Jute, Sugarcane, Tea and Coffee – Locational significance of major Agro-based industries: Cotton textile, Sugar, Tea, Jute and Rubber – Problems and prospects of agricultural sector in India – Qualitative changes in Indian agriculture: Green revolution, Irrigation development and Land Reforms

UNIT – III

Industries – Distribution and Production of Economic minerals: Iron ore, Manganese, Bauxite, Copper, Limestone, Coal, Petroleum and Rare Earths – Mineral based industries: Locational factors of Iron and steel, Aluminum, Copper, Petro-Chemical, Footloose industries and IT industries – Major Industrial regions of India – Special Economic Zones (SEZ's)

Transport: Road, Railway, Airways and Inland water transport – India's International trade – Recent trends – Regional development disparities in India – Special programmes – Command Area Development Programme (CADP), Rain-fed Area Development Programme (RADP), Area development programmes, Swarnajayathi Gram Swarozgar Yogana (SGSY), MGNREGA Project

UNIT – IV

Population: Distribution, density, growth and demographic transition in India - Changing patterns of sex ratio, literacy, Rural – Urban composition over various census periods – Trends in Domestic and International Migration - National and State level HDI and HPI in India – National Population policy: 2000

UNIT – V

Culture – Language and Linguistic regions of India, Religion and Religious minorities – Racial classification of India (BS Guha) – Tribes: *Bhils, Santhals, Gonds and Nagas* – Spatial distribution of Scheduled Castes and Scheduled Tribes

References:

1. Geography of India, Majid Husain, 2013, Tata Mc GRAW-HILL's, New Delhi
2. A Geography of India, Gopal Singh, 1998, Atma Ram & Sons, New Delhi
3. Human Geography, Majid Husain, 2012, Rawat publications, Jaipur
4. Fundamentals of Human Geography, L R Singh, 2003, Sharada Pustak Bhavan, Allahabad
5. India – A Comprehensive Geography, Khullar D R, 2000, Kalyani publishers, New Delhi
6. Economic and Commercial Geography, Khanna K K & Gupta V K, 2003, Sulthan Chand & Sonspublishers, New Delhi

GG 1543 : FUNDAMENTALS OF REMOTE SENSING AND GIS

Course Objectives	➢ To introduce Concepts, Principles and Applications of Remote sensing GIS and GPS for planning, monitoring and development of earth's resources ➢ To develop skill to use software and data products of various Geo-spatial Technologies ➢ To enhance learning capacity to interpret images and extract information from the Earth surface
Course Outcomes	**CO1** : Understand the principles of Remote Sensing system **CO2** : Apply GIS and remote sensing data in various areas of Geographical and Environmental Studies **CO3** : Interpret satellite images and aerial photos with the help of elements of visual image interpretation **CO4** : Conduct Field surveys using GPS system **CO5** : Integrate data from various sources for GIS analysis

UNIT – I

Remote Sensing: Definition, Components – Sources of Electromagnetic Energy: EM Spectrum and its Characteristics, Energy interactions in the Atmosphere – Spectral Reflectance profile: Water, Soil and Vegetation - Remote Sensing Types: Passive & Active – Types of Scanning: Multispectral, Hyper spectral, Thermal – Types of Scanners: Across track & Along track – Platforms – Advantages and Disadvantages of Remote Sensing

UNIT – II

Data Products: Aerial photos and Satellite images, Types of Aerial Photos – Types of Satellites – Satellite imageries and types – Elements of Visual image interpretation- Resolutions: Spatial, Spectral, Radiometric, Temporal – Concept of Overlap and Stereoscopy – Orthophotos

UNIT – III

Global Positioning System: Definition, Components, Advantages and Applications – Major Global Regional Navigation Satellite Systems (GNSS) – Indian Remote Sensing (IRS) Satellites in Resource Analysis: Oceansat, Resourcesat, and Cartosat

UNIT – IV

GIS: Definition, Components, Advantages – Data: Spatial & Attribute – Spatial Data Sources- Attribute Data Sources – Data Formats: Raster and Vector: Advantages and Disadvantages

UNIT – V

Data Input in GIS: Keyboard entry, Digitization (Manual & Automatic), Scanning, Electronic Data Transfer – Georeferencing – Digitizing Spatial Entities – Data errors in Spatial and Attribute data entry – Rectification methods

References:

1. Thomas Lillesand and Ralph W Kiefer, (any edition), Remote Sensing and Image Interpretation, John Wiley and Sons, New York
2. Joseph George, (2005), Fundamentals of Remote Sensing, Second edition, university press
3. Kali Charan Sahu (2008), Textbook of Remote Sensing and Geographical Information System, Atlantic Publishers & Distributers Limited
4. Paul A.Longley, Michael F Goodchild, David J Maguire & David W Rhind,(2011)
5. Haywood, Ian, Cornelius, Sarah & Carver, Steve (any edition), 'An Introduction to Geographical Information Systems', Prentice Hall, Pearson Education, U.K
6. David Martin (2002), Geographical Information Systems, Second Edition, Routedge Publication, London & New York
7. Michael N Demers (2014), Fundamentals of Geographic Information system, Fourth edition, Willey Publications

GG 1544 : PRACTICAL II

TECHNIQUES OF DATA COLLECTION

Course Objectives	➢ To develop a critical understanding of the various data types and methods of data collection ➢ To enhance the skill of students to prepare an effective questionnaire ➢ To familiarise the students with basic techniques of data organisation and representation ➢ To provide hands on experience in finding distance and direction on the field ➢ To introduce the students to the measurement of graticules using GPS
Course Outcomes	**CO1 :** Shall become aware of various primary data collection techniques **CO2** : Will have acquired the skill of collecting data and organising them using various methods **CO3** : Will be able to prepare an effective questionnaire **CO4** : Will enhance the skill to find directions and make rough estimate of distances during field survey **CO5** : Will develop the skill to use GPS for finding location and altitude of places.

UNIT - I

Data Types and their examples : Primary and Secondary; qualitative and quantitative; Categorical, Non categorical- Based on Scales of measurement -Nominal, Ordinal, Interval and Ratio

Structure of a Questionnaire/ Schedule – Key components and layout; Types of questions: Closed, Open ended with examples

UNIT - II

Framing question for nominal data collection (Eg: name, gender, mode of transport, work place name, native place, preferred food, nature of job etc)

Framing questions for ordinal data collection (Eg: economic status, Education level, income level, age category ,etc.)

Framing questions/ statements for measuring qualitative data on ordinal scale - Measure satisfaction using Likert's scale and preference using ranking questions (Eg: Satisfaction of environment quality, quality of life, various available facilities, opinion about the likeability of a facility like school, hospital, tourist spot, sewer canal, industry, etc.)

Techniques for representing and organising data - Frequency distribution, Simple Bar graph and Pie diagram - Finding the Mode, χ^2 Test of independence of variables (Multi way contingency table only)

UNIT - III

Preparation of a questionnaire for assessing the socio-economic status of a locality

Preparation of separate questionnaires for evaluating

1. The problems and prospects in a locality due to location of industries or pollution
2. Problems and prospects of a tourism spot

Note: The number of questions in each questionnaire shall not exceed 30.

UNIT - IV

Finding directions using the compass

Measuring horizontal distance between given locations using pacing

UNIT - V

Collecting latitude, longitude and altitude data of specific locations using GPS, Locating the specific locations on a given map using grid method.

Collecting data from Online data sources

References :

1. Singh R & Singh L R, Elements of Practical Geography
2. Singh R L, Elements of Practical Geography
3. Ashis Sarkar, Practical Geography – A systematic Approach
4. Misra R P & Ramesh A, Fundamentals of Cartography
5. Monkhouse F J, Maps and diagrams
6. Bygott J, Mapwork and Practical Geography

GG 1545 : PRACTICAL – III

MAP READING AND SPATIAL INFORMATION TECHNIQUES

Course Objectives	➢ To understand various methods to represent relief features ➢ To develop better understanding of various aspects of topographical maps ➢ To acquire skills in interpreting topographic maps ➢ To acquire skills on computerized mapping techniques
Course Outcomes	**CO1**: Will acquire skills in representing relief using contours **CO2**: Identify Grid references,conventional signs and symbols used in topographical maps **CO3 :** Interpret physical and cultural features represented in topographical maps **CO4** : Comprehend techniques of estimating slope from maps **CO5**: Will acquire knowledge on Georeferencing and Digitizing

UNIT – I

Representation of relief features by Contours: Uniform/Conical hill, Uniform depression, Concave slope, Convex slope, Uniform slope, Terraced slope, V-shaped valley, Gorge, U-shaped valley, Hanging valley, Knoll, Ridge and Saddle, Escarpment, Spur, Re-entrant, Sea cliff, Waterfall, Cirque, Plateau, Dissected plateau

UNIT – II

Study of Indian Topographical maps: Layout and Numbering – Conventional Signs and Symbols – Grid reference – Measurement of Distance – Measurement of area: Grid Square Method

UNIT – III

Concept of Slope and Gradient: Expression of Slope: by Degrees and Percentage – Intervisibility

UNIT – IV

Interpretation of Topographical maps (1:50,000 and 1:25,000): Marginal Information,

Physical features: Relief, Drainage, Natural Vegetation, Cultural features: Settlements, Occupation, Agriculture and Irrigation, Industry, Transport and communication

UNIT – V

Online Spatial Data: GIS Datasets – Satellite Images – Spectral Bands – False Color Composites – Georeferencing using FOSS – Digitization – Map Composer

References:

1. Monkhouse and Wilkinson: Maps and Diagrams, Metheun and Company
2. Singh R L: Elements of Practical Geography, Kalyani Publishers
3. Gopal Singh: Map work and Practical Geography, Vikas Publishing house Pvt. Ltd
4. Rampal K K: Mapping and Compilation – Methods and Techniques, Concept and Publishing House
5. Rollin D. Salisbury: Interpretation of Topographic Maps, Nabu Press, 2012
6. Ian F Mahaney: Topographic Maps, Power Kids Press
7. Nelson Petrie: Analysis and Interpretation of Topographic Maps, Orient Blackswan

Web references:

1. https://nptel.ac.in/content/storage2/courses/105107122/modules/module1/html page/21
2. https://www.qgistutorials.com/en/
3. https://docs.qgis.org/2.14/en/docs/training_manual/
4. https://www.qgis.org/en/site/forusers/trainingmaterial/index.html

OPEN COURSE

GG 1551.1 : GEOGRAPHY OF TOURISM

Course Objectives	➢ To understand elements of map reading and types of tourism ➢ To analyze the cultural, economic, social impacts of tourism industry ➢ To examine the elements of tourism ➢ To identify the major tourist attractions in Kerala
Course Outcomes	**CO1:** Analyses various types of tourism and their geo-backup **CO2:** Examine the elements of tourism and its significance in the growth and development of tourism **CO3:** Evaluate the significance of tourism in the cultural,social and economic milieu of geographic spaces **CO4:** Recognize the role of various travel agencies in tourism **CO5:** Understand the spatial dimensions of tourism attractions at state and local level

UNIT – I

Tourism: Definition – Types of Tourism – Maps – Elements of Map Reading: Title, Scales, Directions, Symbols, Legends – Tourism Map - Itinerary - Geography and Tourism

UNIT – II

Elements of tourism: Attraction, Classification, Accessibility – Role of Transport in Tourism – Accommodation: Types of Accommodation – Travel Motivations

UNIT – III

Tourism Restrictions: Passport, Visa, Credit Card and Foreign exchange – Socio economic and Cultural impacts of tourism

UNIT – IV

Role of Travel agencies in tourism - Concept of package tour – Publicity – Tourism Organizations: WTO, ITDC & KTDC: Functions

UNIT – V

Tourism in Kerala: Major Natural and Cultural attractions – Biosphere Reserves, National Parks, Wildlife Sanctuaries, Waterfalls, Eco-Tourism sites etc.

References:

1. Alan A Lew, Mitchell Hall, Alan A Williams, A Companion to Tourism-edited by, Black well Publishing Ltd , 2004
2. Ratandeep Singh, Dynamics of Modern Tourism-, Kanishka Publications, New Delhi
3. Singh R L, Fundamentals of Practical Geography, Sharda Pustak Bhavan Allahabad,
4. Singh Ratan Deep, Infrastructure of Tourism in India, Kanishka Publications.
5. Bhatia A K, International Tourism – Fundamentals and Practices, Sterling Publishing House
6. Negi J M, Tourism and Travel - Concepts and Principles, Gitanjali Publishing House, New Delhi, 1990.
7. Cook A, Laura Roy A, Yale J Marqua Joseph J, Tourism - The Business of Travel Prentice, Hall – 2007.
8. Singh R L, Elements of Practical Geography, Kalyani Publishers, New Delhi
9. Mustafa Mohammadi, Zainab Khalifah (2010), Local People Perception towards Social, Economic, Environmental Impacts of Tourism, Asian Social Science, Volume No. 6, No.121

Web References:

10. http://www.keralatourism.org/about-us.php
11. http://www.keralatourism.gov.in/
12. http://www.wiienvis.nic.in/Database/BiosphereReserves_8225.asp
13. https://www.ktdc.com/

OPEN COURSE
GG 1551.2 : PHYSICAL GEOGRAPHY

Course Objectives	➢ Understanding the basics of Physical Geography ➢ Evaluating the physical processes responsible for landform development ➢ Critical analysis of atmospheric processes ➢ Acquiring in-depth understanding of environment and ecosystem
Course Outcomes	**CO1**: Will comprehend types of major relief features and geomorphic forces of the earth **CO2**: Evaluate the physical processes responsible for landform development **CO3**: Analyze factors affecting atmospheric processes and marine environment **CO4**: Acquire in-depth understanding of environment and ecosystem

UNIT – I

General Geography: Geographical locations – Latitude, Longitude and Time Zone – Solar System and Planets

UNIT – II

Landforms: Major relief features – External and Internal forces and Agents – Features formed by Running water – Wind – Glaciers

UNIT – III

Climatology: Atmosphere, Insolation – Temperature, Pressure – Wind– Humidity – Forms of Condensation and Precipitation – Types and Distribution of Rainfall – Cyclones

UNIT – IV

Oceanography: Land and Sea distribution – Bottom Topography of Oceans – Temperature –Salinity – Currents – Tides – Coral Reefs

UNIT – V

Environmental Geography: Nature and Scope – T ypes & Concept of Ecosystems – Structure – Classification – Functions

References:

1. Dayal P, (1990) A Text book of Geomorphology, Shukla Book Depot, Patna, India.
2. Lal D S, (1996) Climatology, Allahabad, Chaitanya Publishing House.
3. Strahler A N, and Strahler A N, (2001) Modern Physical Geography (Fourth Edition), NewYork; John Wiley and Sons, Inc.
4. Thornbury W D, (1954) Principles of Geomorphology, John Wiley and sons, Inc., New York.
5. Worcester P G, (1948) A Textbook of Geomorphology, Von Nostrand Reinhold, Company,New York.
6. Robinson H, Biogeography, ELBS & MacDonald and Evans, London.

OPEN COURSE-

GG 1551.3: GENERAL GEOGRAPHY

Course Objectives	➢ To understand the basics of General Geography ➢ To acquire an overview of world's environment ➢ To analyse atmospheric processes and elements of ocean environment ➢ To learn about global population dynamics and patterns of migration ➢ To get acquainted with the resources of the world
Course Outcomes	**CO1:** Understand the basics of Geography for competitive examinations **CO2:** Evaluate the physical processes responsible for landform development **CO3:** Critically analyse physical and human dimensions of Geography **CO4:** Acquire in-depth understanding of environment and resources of the world

UNIT – I

Physical Geography - Universe and Solar System: Latitude and Longitude – Time Zones- Earth Structure: Composition of Crust– Motions of the Earth

UNIT – II

Earth Movements: Endogenic forces, Exogenic forces – Volcano, Earthquake – Continental Drift, Plate Tectonics theories: General Landforms – Mountains, Plateaus and Plains – Types and their distribution: Weathering – Physical, Chemical and Organic

UNIT – III

Atmosphere: Composition, Structure – Distribution of Pressure belts, Types of Wind – Hydrosphere – Major Oceans, Profile of Ocean floor,Islands, Salinity

UNIT – IV

Human Geography – World Population: Distribution, Growth, Factors affecting them – Races – Migration - Settlements: Rural, Urban – Urbanization – Tourism – Globalization – Different levels of development of Nations – Sustainable Development

UNIT – V

Resources of World with special reference to India: Resource types – Agriculture (Rice and Wheat) – Forestry – Fisheries – Minerals – Power resources – Major Industries

References:

1. Dayal P (1990) A Text book of Geomorphology, Shukia Book Depot, Patna, India.
2. Strahler A H and Strahler A N (2001) Modern Physical Geography, John Wiley and Sons,Inc, New York.
3. Khullar D R, India: A Comprehensive Geography, Kalyani Publishers, New Delhi, 2006.
4. Castree Noel, Demeritt David, Liverman Diana, Rhoads Bruce (Ed.) (2009) A Companion toEnvironmental Geography, Blackwell Publishing Ltd, Hong Kong.
5. Linacre Edward and Geerts Bart (2003) Climate and Weather Explained, RoutledgeLondon.
6. Leong G C and Morgan G C (1982). Human and Economic Geography. Singapore: OxfordUniversity Press.
7. Knowles R and Wareing J (2000). Economic and Social Geography Made Simple. NewDelhi: Rupa and Company.

OPEN COURSE

GG 1551.4 : BIO-GEOGRAPHY

Course Objectives	➢ To understand the basics of Bio-Geography ➢ To learn about the plant and animal evolution in earth ➢ To identify the major bio-geographical issues in India ➢ To learn about major terrestrial biomes
Course Outcomes	**CO1**: Acquiring knowledge regarding the basics of Bio-Geography **CO2**: Congregating the awareness of evolution of life on earth **CO3** : Understanding the distribution of plant life on earth **CO4** : Identifying various types of environmental degradation **CO5**: Awareness regarding the biomes of earth

UNIT – I

Definition, Scope and Significance of Bio-geography – Basic Ecological principles: Darwin's Theoryof Evolution – Concepts of Biome, Ecotone and Community

UNIT – II

Origin of Fauna and Flora – Plant and animal evolution through Geological times – Distribution of Plant life on Earth and its relation to Soil types, Climates and Human Practices

UNIT – III

Problems of Extinction of Plant and Animal Life – Habitat Degradation and their Conservation – Process of Desertification: Its Consequences and its Management Principles – Industrial Effluent and its effect on Fresh Water Biology Management Practices (Special Reference to India)

UNIT – IV

Major Terrestrial Biomes: Study of Biomes with reference to Regional Climate – Vegetation – Structure – Ecological Succession – Species Richness – Geographical Affinities – Soils – Faunal Adaptations – Mapping at a Global Level (Applicable for both Unit IV and Unit V)

1. Tropical Rain Forests
2. Tropical Grasslands
3. Deserts
4. Temperate Grasslands

UNIT – V

1. Broad-Leaved Evergreen Forest
2. Mountains
3. Taiga
4. Tundra

References:

1. Cox C D and Moore P D, Biogeography: An Ecological and Evolutionary Approach 5th edn., Blackwell, 1993
2. Huggett R J, Fundamentals of Biogeography, Routledge, 2004
3. Llies J, Introduction to Zoogeography, McMillan, London, 1974.
4. Khoshoo T N and Sharma M (ed.), Indian Geo-sphere-Biosphere Har-Anand Publication,Delhi, 1991.
5. Lapedes D N (ed.), Encyclopedia of Environmental Science, McGraw Hill, 1974.
6. Mathur H S, Essentials of Biogeography, Anuj Printers, Jaipur, 1998 Pears N., BasisBiogeography 2nd edition, Longman, London, 1985.
7. Simmon I G, Biogeography, Natural and Cultural, Longman, London, 1974.
8. Tivy J, Biogeography: A study of Plants in Ecosphere, Oliver and Boyd, 1992.
9. Ian N Healey, C. Barry Cox, Peter D. Moore, Biogeography: An Ecological and Evolutionaryapproach, Blackwell, Oxford, 1972.
10. Hussain M, Biogeography, Anmol Publications, New Delhi, 1994.
11. Robinson H, Biogeography, ELBS & MacDonald and Evans, London, 1972.

GG 1641 : GEOGRAPHY OF KERALA

Course Objectives	➢ To provide a comprehensive understanding on evolution and physiographic settings of Kerala ➢ To examine the Agricultural Sector of the state ➢ To identify major power Resources of Kerala ➢ To analyse the Industrial Geography of Kerala ➢ To develop an overview of Population characteristics and Transport sector of the state

Course Outcomes	**CO1**: An in-depth knowledge on evolution and physical settings **CO2**: Appreciate Agricultural development of Kerala **CO3**: Evaluate Mineral and Power Resources of Kerala **CO4**: Analyse Industrial Development of the state **CO5**: Understanding Population composition and transportation networks of Kerala

UNIT – I

Location – Geomorphic Evolution – Geology – Physiography - Climate – Soils – Drainage System – Natural Vegetation – Bio-diversity – Biosphere Reserves - National Parks – Wildlife Sanctuaries – Bird Sanctuaries – Tiger Reserves – Community Reserves – Ramsar Sites in Kerala

UNIT – II

Population: Distribution, Growth, Density, Sex-Ratio and Literacy Rate – Patterns of Migration in Kerala: Immigration and Emigration – Urbanisation: Trends and Problems – Kerala Model of Development

UNIT – III

Agriculture & Irrigation: Characteristics, Major Irrigation Projects in Kerala – Agro-Climatic Zones – Spatial distribution and production: Rice, Coconut, Rubber, Tea, Coffee, Pepper and Cardamom – Problems of Agriculture

UNIT – IV

Mineral Resources: Rare Earths, Bauxite, Clay - Energy Resources: Major Hydroelectric Projects, Wind Energy, Thermal Power Projects in Kerala – Marine Resources – Fisheries: Significance and Production

UNIT – V

Industries and Transportation: Traditional Industries – Coir – Handloom – Bamboo – Cashew – Handicraft – Industrial Estates – Technology Parks in Kerala -*KINFRA* - Tourism Industry: Prospects and Problems – Transportation: Roads, Railways, Waterways , Airways and Ports

References:

1. Geography of Kerala - Dr. Srikumar Chattopadhyay
2. Economy of Kerala - Karunakaran and Sankaranarayanan
3. Geomorphology of Kerala - V. Prasannakumar
4. Geology of Kerala - K. Soman
5. Striving for Sustainability: Environmental Stress and Democratic Initiatives in Kerala **,** Dr. Srikumar Chattopadhyay**,** Richard W Franke
6. Gazetteer of Kerala - Kerala Gazetteer, Govt. of Kerala
7. Water Atlas of Kerala - CWRDM, Kozhikode
8. Resource Atlas of Kerala - Centre for Earth Science Studies
9. District Census Handbooks - Directorate of Census Operations – Kerala

GG 1642 : WORLD REGIONAL AND ECONOMIC GEOGRAPHY

Course Objectives	➢ To provide a comprehensive introduction to basic concepts and key theoretical approaches in regional geography ➢ To compare and analyze the physical, cultural and economic aspects of major natural regions of the world ➢ To understand the major resources of the world
Course Outcomes	**CO1**: Understand the concept of a Region and classify methods of delineation of regions **CO2**: Identify major Natural Regions and differentiate their physical and economic Characteristics **CO3**: Classify Natural Resources and understands the concept of Sustainable Development **CO4**: Analyze the role of MNC's and TNC's in globalizing world trade

UNIT – I

Concept of a Region: Types, Attributes of a region, Formal region – Natural region, Socio-Cultural region, Functional regions, Planning regions - Methods of delineation of Formal and Functional regions

UNIT – II

Major Natural Regions of the World: Tropical and Sub Tropical – Equatorial Rainforest: Distribution, Physical aspects: Climatic conditions, Natural Vegetation – Native animal life – Economic activities: Agriculture, Mining and Manufacturing, Tourism – Native people: Equatorial Rainforest, Savannah, Hot Desert, Mediterranean – Modern developments

UNIT – III

Major Natural Regions of the World: Temperate and Frigid regions – Distribution, Physical aspects: Climatic conditions, Natural Vegetation – Native animal life – Economic activities – Agriculture, Mining and Manufacturing, Tourism – Native people – Modern developments

UNIT – IV

Natural Resources and its classification – Energy resources – Non-Renewable: Coal, Petroleum and Natural gas; Renewable resources: Solar, Hydro power, Geo-thermal energy – Concept of Sustainable Development

UNIT – V

Concept of MNCs and TNCs – Software Technology Parks – SEZs – International Trade: Strategies, Pattern, Flow of trade – Balance of Trade – Export and Import – Role of Ports in International Trade

References:

1. Darshan Singh Manku (2002) – A regional Geography of the World, Kalyani Publishers.
2. David L Clawson (1995) – World Regional Geography, A Developmental Approach, Prentice Hall.
3. Johnson, Haarmann, Clawson (2010) World Regional Geography, Prentice Hall.
4. Mahesh Chand Puri - Regional Planning in India, Allied Publishers, New Delhi pp.1- 11
5. Misra R P – Regional Planning, Concepts, Techniques, Policy and Case Studies, Concept Publishing Co. Ltd, Delhi.
6. Unstead J E – Systematic World Regional Geography.
7. H M Saxena (2013), Economic Geography Rawat Publications.
8. Alka Gautam (2007) – World Geography, Sharda Pustak Bhawan, Allahabad.
9. Christopher L Satter, Jospeh J Hobbs – Essentials of World Regional Geography, Thompson Books.
11. Majid Husain (2008) – World Geography, Rawat Publications, New Delhi.
12. Khanna K K, Gupta VK – Economic and Commercial Geography, Sultan Chand and Sons, Educational Publishers, New Delhi.
13. Robinson H – World Regional Geography.
14. Tikkha, Bali, Sekhon (2007) – World Regional Geography, New Academic Publishing Co., Jalandhar
15. Siddhartha K (2018) - Economic Geography, Kitab Mahal, Allahabad

GG 1643 : PRACTICAL PAPER IV

REPRESENTATION AND INTERPRETATION OF GEOGRAPHIC DATA

Course Objectives	➢ To learn different methods to represent climatic and socio-economic data ➢ To develop skills to read and interpret weather maps ➢ To understand fundamentals of computer and different methods to represent socio-economic data
Course Outcomes	**CO1:** Ability to represent socio-economic data through graphs and diagrams **CO2:** Acquire skills to represent climatic data **CO3 :** Develop skills to analyse and interpret Weather maps **CO4:** Acquire basic awareness on Computers and MS Office applications

UNIT – I

General rules for drawing graphs and diagrams – Representation of socio-economic data: Multiple Line graph and Multiple Bar Graph – Subdivided/Compound, Rectangular, Percentage Bar graph – Band Graph – Located Pie Diagram – Ring Diagram – Comparative Circles – Graduated Sphere diagram – Age-Sex Pyramid – Traffic Flow Diagram

UNIT – II

Representation of Climatic Data: Taylor's Climograph – Hythergraph – Isotherms – Isobar – Isohyets

UNIT – III

Study and Interpretation of Indian Daily Weather Reports of different Seasons

UNIT – IV

Introduction to Computers – Fundamentals of Microsoft Word – Microsoft Excel – Microsoft PowerPoint

UNIT – V

Microsoft Excel – Creation of New worksheet – Formatting cells – Statistical analysis of Data – Creation of Charts and Diagrams

References:

1. Maps and Diagrams- Monkhouse and Wilkinson
2. Elements of Practical Geography – R.L. Singh
3. Map work and Practical Geography – Gopal Singh
4. Advanced Practical Geography – Pijushshkanti and Partha Basu
5. Teaching Geography – Siddiqui.M.H
6. www.imd.gov.in/

GG 1644 : PRACTICAL PAPER V

FOUNDATION TO SURVEYING AND LEVELLING

Course Objectives	➢ To determine the relative position of any field objects and relative distances on the surface of the earth to solve measurement problems in an optical way ➢ To understand the procedures of Chain and Plane table survey ➢ To learn the procedures of Prismatic Compass survey ➢ To learn and apply the procedures and methods of Indian Clinometer and Dumpy level
Course Outcomes	**CO1:** Understand various land surveying techniques **CO2:** Sketch a field plan during ground-based survey **CO3:** Carry out survey based on principles and procedures **CO4:** Estimate the area and relative height of field objects **CO5:** Assess the pros and cons of various surveying techniques **CO6:** Prepare tour report with critical analysis on field experience

UNIT – I

Surveying: Definition & Purpose – Basic Principles – Classification based on: Surface Curvature and Accuracy: Instruments used

UNIT – II

Chain and tape survey – Steps – Advantages and Disadvantages – Open Traverse method – Preparation of plan, Area calculation – Simpson rule, Plane Table Survey – Procedure -Advantages and Disadvantages – Radiation and Intersection method

UNIT – III

Prismatic Compass Survey: Procedure, Advantages and disadvantages – Radiation Method – Intersection Method, Error rectification in Closed Traverse Survey

UNIT – IV

Indian Clinometer: Procedure, Advantages and Disadvantages – Graphical and

angular methodsof measurement: Dumpy level – Profile plotting

UNIT – V

Field Work/Geographical field based Study Tour for first-hand experience of theoretical learning (not exceeding duration of **7 days**) - Preparation of Tour Report

References:

1. Duggal, S.K., 2011, Surveying : Volume 1 ,Third Edition, Tata McGraw Hill, 612 pp
2. Sarkar Ashish, 2017, Practical Geography: A Systematic Approach, Third Edition, Orient BlackSwan, pp 78-109
3. Singh R.L., 2006, Elements of Practical Geography, Sharda Pustak Bhavan, pp.78-109
4. Singh R.L., Rana & R B Singh, 1998, Elements of Practical Geography, Kalyani Publications, pp310-343
5. Purnima B C Jain, Ashok K and Jain Arun K, 2005, Surveying: Volume 1 , 16th edition, LaxmiPublication Ltd, pp 531

GG 1661.1 : ENVIRONMENTAL GEOGRAPHY & DISASTER MANAGEMENT

Course Objectives	➢ To provide the basic knowledge about the environment and related concepts ➢ To convey the geographical understanding of the interactions of humans with their natural environment ➢ To provide a basic conceptual understanding of disasters and its relationships with developmental activities ➢ To understand the impacts of disaster and mitigation measures for the same
Course Outcomes	**CO1**: Gains knowledge about concept, scope of Environmental Geography and components of environment **CO2**: Develop an idea about human- environment relationships **CO3**: Acquiring knowledge on environmental programme and policies **CO4**: Understanding the definition, classification of Hazards and disasters **CO5**: Acquires an idea about Disaster management cycle

UNIT – I

Nature and scope of Environmental Geography – Ecosystem: Classification, Components, Structure, Functions – Concept of food chain – Food web – Food Pyramid – Ecotone – Ecocline – Ecological niche – Nutrient cycles – Biomes

UNIT – II

Environmental issues – Climate change: Global Warming – Ozone depletion – Pollution - Environmental movements: Chipko movement, Narmada Bachao Andolan, Silent Valley movement – Environment Impact Assessment (EIA) – Concept of Sustainable Development

UNIT – III

Disaster Management - Meaning and definitions: Definitions of Disaster, Disaster Risks, Hazard, Exposure, Capacity, Vulnerability, Resilience and their relationship –

Classification of disasters: Human induced and Natural disasters – Disaster Management Cycle – Mitigation, Preparedness, Response, Recovery; Disaster Management Plan – Components – Causes and Impacts of Natural Disaster

UNIT – IV

Disaster and Development – Impact of development projects such as Dams, Industries and changes in Land use – Differential impact of Disasters on People based on Caste, Class, Gender, Age, Location, Disability and Religion

UNIT – V

Standard Operating Procedures (SOP) : Definition – Community Based disaster management – Roles and responsibilities of Community – Disaster Management in India – Institutional arrangements in Disaster Management – Central level – State level institutions

References:

1. Bodkin E: Environmental Studies, Charles E Merril Pub. Co., Columbus, Ohio, 1982
2. Odum E P: Fundamentals of Ecology, W B Saunders, Philadelphia, 1971
3. Chandna R C: Environmental Awareness, Kalyani Publishers, New Delhi, 1998
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GG 166.2 : FUNDAMENTALS OF PHOTOGRAMMETRY

Course Objectives	➢ To learn the basics of Aerial photos ➢ To receive an idea on flight planning and ground control survey ➢ To acquire information on various aspects of Photogrammetry ➢ To understand the application of Digital Photogrammetry
Course Outcomes	**CO1**: Understands and explains the basic concepts and principles aerial photography, types of aerial photographs and their scale; understand and explain the flight planning and procedures of aerial photography; describe the errors and rectifications in aerial photography **CO2**: Understands and describes the geometrical characteristics of aerial photographs, their measurements and the instrumentations. **CO3**: Understand and explain stereo-photogrammetry, the basics of Analytical Photogrammetry and the concept of Rotation Matrix **CO4**: Understands and describes the different aspects of Digital Photogrammetry; the concepts and procedures and the instrumentations; get knowledge of the various outputs

UNIT – I

Basics of aerial Photography – Basic Geometry of Aerial Photograph, Central and Orthographic projection, Difference between map and aerial photograph, Types of Aerial photographs – wide angle, narrow angle, Horizontal, Vertical, Oblique – Scale and Ground coverage of Aerial photographs

UNIT – II

Flight Planning – Crab & Drift – Computation of flight plan – Specification for Aerial photography – Basic horizontal and vertical controls – Pre pointing and Post pointing – Planning for Ground Control survey

UNIT – III

Relief Displacement in aerial photographs and its characteristics – Geometry of vertical photographs – Scale of vertical photograph over Flat and Variable terrain – Isocentre – Nadir point – Principal point – Tilt Displacement – Parallax and Height Measurement – Stereo Model – Photomosaic – Base-height ratio – Stereoscopes, Stereoscopic parallax, Parallax bar, Floating mark

UNIT – IV

Stereo-photogrammetry – Orientation of aerial photographs – Inner, Relative and Absolute orientation – Basics of Analytical Photogrammetry – Collinearity and Co-planarity conditions – Concept of Rotation Matrix

UNIT – V

Digital Photogrammetry – Digital data input – Photogrammetric scanners – Digital Photogrammetric camera, H/W and S/W requirements – Photogrammetric triangulation in Digital Photogrammetric Workstation (DPWS), Stereo view in DPWS, feature extraction on DPWS – Concept of DEM, DSM and DTM,DEM extraction and Ortho-image generation – Concept of Image Matching, Automatic DEM generation, Digital maps and their characteristics

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