

# University of Kalyani



Directorate of Open and Distance Learning (DODL)  
Department of Geography

## **SYLLABUS**

**M.A. / M.Sc. COURSE IN GEOGRAPHY**

**2 Year PG Course (Semester System with Credit and Course)**

**(With Effect From: 2021-2022)**

**University of Kalyani**

**Kalyani, Nadia-741235, West Bengal**

**M.A. / M.Sc. COURSE IN GEOGRAPHY**

**SEMESTER II**

<b>Paper Code</b>	<b>Paper</b>	<b>Theory/ Practical</b>	<b>Internal Assessment/ Evaluation</b>	<b>Examination/ Report/ Viva- Voice</b>	<b>Credit</b>	<b>Marks</b>
GEO/CC/T-207	Population and Settlement Geography	Theory	10	40	4	50
GEO/CC/T-208	Research Methodology	Theory	10	40	4	50
GEO/CC/T-209	Cartography and Geoinformatics	Theory	10	40	4	50
GEO/CC/P-210	Remote Sensing and GIS	Practical	15	60	6	75
GEO/CC/P-211	Project using Remote Sensing and GIS	Practical	5	20	2	25
GEO/GEC/T-212	Elements of Geography (Open Course)	Theory	10	40	4	50
	<b>Total</b>		<b>60</b>	<b>240</b>	<b>24</b>	<b>300</b>

GEO: Geography, CC: Core Courses, T: Theory, P: Practical, GEC: Generic Elective Courses

## SEMESTER-II

Paper Code	Paper	Theory/ Practical	Internal Assessment/ Evaluation	Examination/ Report/ Viva- Voce	Credit	Marks
GEO/CC/T-207	Population and Settlement Geography	Theory	10	40 (Semester-end Examination)	4	50

**Unit-1:** Changing scope and approaches to Population Geography; Population Geography as distinct from Demography

**Unit-2:** Sources of population data

**Unit-3:** Theories of population growth: Malthusian, Marxian, Neo-Malthusian

**Unit-4:** Factors controlling fertility, mortality and migration

**Unit-5:** Demographic Transition Model; Stable Population Growth and Equilibrium Population

**Unit-6:** Population policies – Pro and Anti Natal, Comparative study of population policies between India and China

**Unit-7:** Concept of Ekistics; Study on settlement hierarchies

**Unit-8:** Theories and models of settlement study: Central Place Theory, Rank-size Rule and concept of Primacy

**Unit-9:** Census categories of settlements in India; Rural-urban dichotomy and interaction

**Unit-10:** Types, pattern and segregation of rural settlements in India

**Unit-11:** Urbanization in India as multi-dimensional process; Urban Renewal in Indian context

**Unit-12:** Megalopolis and Ecumenopolis; Urban Green Space

**Mode of Internal Evaluation:** Class test

## SEMESTER-II

Paper Code	Paper	Theory/ Practical	Internal Assessment/ Evaluation	Examination/ Report/ Viva- Voce	Credit	Marks
GEO/CC/T-208	Research Methodology	Theory	10	40 (Semester-end Examination)	4	50

**Unit-1:** Spectrum of Geographical Research and its approaches: Inductive and Deductive

**Unit-2:** Perspectives of Geographical Research: Objective and Subjective

**Unit-3:** Methodological orientation: Quantitative and Qualitative

**Unit-4:** Literature Review and identification of Research Gap

**Unit-5:** Identification of Research Problem

**Unit-6:** Preparation of Survey Questionnaire and Schedule

**Unit-7:** Formulation of Research Questions and Hypothesis Building

**Unit-8:** Methods of Sampling; Sample Size and Sample Design

**Unit-9:** Methods of data collection, acquisition and treatment of data

**Unit-10:** Research Ethics with special reference to Plagiarism

**Unit-11:** Abstract, Summary and Synopsis: their differences

**Unit-12:** Referencing style and preparation of Bibliography

**Mode of Internal Evaluation:** Preparation of Reference and Bibliography on any field of Geographical research

## SEMESTER-II

Paper Code	Paper	Theory/ Practical	Internal Assessment/ Evaluation	Examination/ Report/ Viva- Voce	Credit	Marks
GEO/CC/T-209	Cartography and Geoinformatics	Theory	10	40 (Semester-end Examination)	4	50

**Unit-1:** Cartography and Geoinformatics: nature and scope

**Unit-2:** Concept of Geoid

**Unit-3:** Spheroids with special reference to Everest and WGS-84

**Unit-4:** Principles and properties of UTM Projection

**Unit-5:** Nature of EMR, EMS, and interaction with atmosphere and surface materials

**Unit-6:** Resolution of satellite data: types and significance

**Unit-7:** Remote Sensing Platforms and Sensors: Landsat, IRS and Sentinel series

**Unit-8:** Digital Image Processing – Radiometric correction, Georeferencing and mosaicking

**Unit-9:** FCC preparation and Image Classification

**Unit-10:** Digital Elevation Model: types and sources

**Unit-11:** Analytical Modelling in GIS, GNSS-GIS integration

**Unit-12:** Concept of bigdata, machine learning and deep learning

**Mode of Internal Evaluation:** Class test

## SEMESTER-II

Paper Code	Paper	Theory/ Practical	Internal Assessment/ Evaluation	Examination/ Report/ Viva- Voce	Credit	Marks
GEO/CC/P-210	Remote Sensing and GIS	Practical	15	60 (Semester-end Examination = 50; Laboratory Note Book + Viva Voce = 5+5=10)	6	75

**Unit-1:** Basics of principles of visual interpretation of satellite images

**Unit-2:** Visual image interpretation: identification and delineation of physical features and cultural features from satellite images

**Unit-3:** Radiometric correction of satellite data

**Unit-4:** Georeferencing of maps and images

**Unit-5:** Preparation of Standard and Non-Standard FCC

**Unit-6:** Identification of landuse and landcover using digital numbers

**Unit 7:** Image classification (un-supervised and supervised)

**Unit-8:** Features digitization from maps and images

**Unit-9:** Analysis of relief characteristics using digital elevation model – relief; slope; aspect; contour

**Unit-10:** Extraction of drainage from DEM

**Unit-11:** Calculation of indices: NDVI and NDWI

**Unit 12:** Integration of spatial and non-spatial data and preparation of thematic maps using software

**Mode of Internal Evaluation:** Continuous assessment based on class/laboratory performance

## SEMESTER-II

Paper Code	Paper	Theory/ Practical	Internal Assessment/ Evaluation	Examination/ Report/ Viva- Voce	Credit	Marks
GEO/CC/P-211	Project using Remote Sensing and GIS	Practical	5	20 (Project Report Writing = 15+ Viva Voce = 5)	2	25

- Each student will prepare an individual Project using Remote Sensing and GIS techniques following broad areas:

i) Physical Environment

ii) Socio-cultural Environment

Individual Project Report should not exceed 5000 words.

**Mode of Internal Evaluation:** Continuous assessment based on class/laboratory performance

## SEMESTER-II

Paper Code	Paper	Theory/ Practical	Internal Assessment/ Evaluation	Examination/ Report/ Viva- Voce	Credit	Marks
GEO/GEC/T-212	Elements of Geography (Open Course)	Theory	10	40 (Semester-end Examination)	4	50

**Unit-1:** Layering of the earth with special reference to crust

**Unit-2:** Fluvial processes and landforms

**Unit-3:** Indian Monsoon

**Unit-4:** Soil Profile development; physical and chemical properties of soil

**Unit-5:** Factors of population growth; Types of migration

**Unit-6:** Rural and urban settlements and its classification

**Unit-7:** Major economic activities- primary, secondary and tertiary

**Unit-8:** Types of agriculture

**Unit-9:** Indian industries: Iron and Steel and Tourism

**Unit-10:** Crisis, conservation and management of resource; Sustainable development

**Unit-11:** Concept and types of scale and map; Land survey instruments and their uses

**Unit-12:** Concept and classification of hazards; Natural hazards in West Bengal: Flood and Landslide

**Mode of Internal Evaluation:** Class test