JANANAYAK CHANDRASHEKHAR UNIVERSITY, BALLIA

COURSE STRUCTURE FOR M.A./M.Sc.

Department of Geography

UNDER SEMESTER SYSTEM

ACADEMIC SESSION -2018-19
### Jananayak Chandrashekhar University, Ballia

**भूगोल विभाग**

**DEPARTMENT OF GEOGRAPHY**

**Faculty of Social Science**

**Semester Based Syllabus**

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<th>Semester</th>
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<tr>
<td><strong>1st</strong></td>
<td>i-GR101: Geomorphology</td>
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<td>ii-GR102: Advanced Geography of India</td>
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<td>i-GR201: Physical Landscape</td>
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<td>ii-GR202: Hydrology and Oceanography</td>
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<td>iv-GR204: Basics of Remote Sensing</td>
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<td>ii-GR302: Geoinformatics and Geographic Information system (GIS) Applications</td>
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<td>iii-GR303: Disaster Management</td>
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<td>iv-GR304: Geography of Rural Settlements</td>
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<td>i-GR401: Geographical Thoughts</td>
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<td>ii-GR402: Research Methods &amp; Techniques</td>
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<td>iii-GR403: Regional Planning &amp; Development</td>
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<td>iv-GR404: Population &amp; Development</td>
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भूगोल

DEPARTMENT OF GEOGRAPHY

JAN NAYAK CHANDRASHEKAR UNIVERSITY, BALLIA

M.A./M.Sc. Previous

First Semester

Paper I

GR 101: Geomorphology

Unit-I:

  Meaning and scope of geomorphology, Fundamental’ Concepts, Modern geomorphologists - Hutton, Strahler, King.

Unit-II:

  Endogenetic process- Plate tectonic, Mountain. Building, Volcancity, Seismicity, Earthquakes, tsunami, Isostasy

Unit-III-:

  Geomorphometric Analysis- Drainage density, Drainage Frequency, Bifurcation ratio, Drainage Frequency, Bifurcation ratio, Slope types and analysis.

Unit-IV:

  Development of Geomorphology in India, Recent trends in Geomorphology Applied Geomorphology, Regional geomorphology of Indo- Gangetic plain Rajmahal hills and Malwa Plateau.
Books Recommended


Paper II

GR102: Advanced Geography of India

Unit-I:

Making of India through geological times, Structure and relief regions, Drainage, Physiographic division soil types.

Unit-II:

Climatic characteristics, Mechanism of Indian Monsoon, Climatic Regions, Natural Vegetation\& wild life, vegetation regions.

Unit-III:

Agricultural Characteristics and Trends] Crop Combination regions, Green, White, Blue, and Yellow revolutions.

Unit-IV-

Industrial region

Transport- rail, road, air.

Population growth trends and pattern, distribution density\& national population policy.

Books Recommended.


**Paper III**

**GR 103: Economic Geography**

**Unit-I:**

Meaning, scope, evolution and recent trends of economic geography, Fundamental concepts. Relation of Economic geography with economics and other branches of social sciences.
Unit-II:

Classification of industries: Iron & Steel, textile, sugar & Petro-Chemical; Elements and Theories of Industrial location- Weber, Losch, Isard & Hoover.

Unit-III:

Case studies of selected industries- Iron & steel, textile, sugar & Petro-chemicals.
Industrial regions- delimitation and structural factors; Industrial regions of world.

Unit-IV:

Theories of transport development, Economic regions and their salient features. Impact of WTO, globalization, Liberalization, Economy of developing world.

Books Recommended:

2- Robinson A.H., Jones, C.F and Darkenwarld G.G., Principles of Economic Geography.
3- Bones Hans, A Geography of World Economy, Von Nostrand, New York.
4- Bengston and Royen, Fundamentals of Economic Geography.
5- Zimmerman, E.W., Introduction to World Resources.
7- Singh K.N.& Singh J., Arthik Bhoogol ke Mool Tatva (Hindi), Gyanodaya Pralashan, Gorakhpur.
8- Jain, P.Arthil Bhoogol ki Samilsha (Hindi).
Paper IV

GR104: Environmental Geography

Unit-I:

Meaning Scope crept approaches of environmental geography, Types of environment, environmental perception Environment & society, environment and development.

Unit-II:

Concept of ecology and ecosystem, Biosphere as an ecosystem, Abiotic and biotic components of biosphere and ecosystem, Ecological production and energy flow-tropic level, food chain and food web. Ecological pyramids, Bio-geochemical cycles-nitrogen, Hydrological cycle, carbon cycle.

Unit-III:


Unit-IV:

Environmental pollution, pollutants, Sources and types of pollution-water sail, air and noise pollution, Solid waste disposal, environmental pollution and health Environmental education Environmental monitoring. Environmental impact analysis Environmental policies and legislation, Environmental management.

Books Recommended

Practical Examination

Part A: Cartographic Work - 40
Part B: Field Cum-Lab Work - 40

Part A: Cartographic Work

Unit-I:
Measures of central tendency-Mean, median and mode, Mean deviation, Quartile deviation- 10

Unit-II:

Measures of dispersion, Standard Deviation, Co-efficient of variation, Co-efficient of Correlation rank Correkationl, Chi square tese.- 15

Unit-III:

Geological maps and cross section Horizontal,Inclined, Unconformable, Folded and Folded strata.- 15

Part B: Field cum Lab Work

Unit-I:

Collection of data: Methods, Sources and Types, Classification and Tabulation Data processing (With special reference to village/Ward/town area).- 10

Unit-II:

Local excursion and report (maximum 2 days) - 10

Unit-III-

Practical record (Part A&B)- 10

Viva-Voce examination- 10

Books Recommended:

1- Monkhouse, F.J. Maps&Diagrams.
2- Robinson, A.H.Elements of Cartography.
3- Singh, R.L., Elements of Practical Geography.
4- Singh, L.R.& Singh, R.N.Map Work and Practical Geography (Eng/Hindi)
5- Sharma, J-P.Prayogatmak Bhoogol ki Rooprekha (Hindi)
6- Hira Lal, Prayogatmak Bhoogol ke Adhar (Hindi)
7- Lal, Hira, Matratmak Bhoogol(Hindi)
8- Tiwari, R.C. and Tiwari, Sudha, Abhinav Prayogic Bhoogol.
Second Semester

Paper I

GR 201: Physical Landscape

Unit-I:

Concept and types of physical Landscape, Significance of geomorphic process in land forms development, Geological structure, climatic and biotic Factors in Formation of landforms Theories of Landform development.

Unit-II:

Concept of cycle of erosion: Davis and Penck, interruption in the cycle and polycyclic relief.

Unit-III:

Exogenic process: Concept of gradation, Agents and processes of gradation, Causes, Types and classification of weathering, Erosion & Depositional processes and Landform- Humid, Arid, karst, Glacial, Periglacial and Coastal.

Unit-IV:

Morphometric analysis of relief features, Evolution of slopes and erosional surfaces, study of micro landforms of Vindhyan regions, Chhota Nagpur Plateau and Chambal basin.

Books Recommended


**Paper II**

**GR202: Hydrology and Oceanography**

**Part A: Hydrology**

**Unit-I:**

Meaning, Scope and development of hydrology, Hydrological cycle, Elements of hydrological cycle, Man’s influence on the hydrological cycle Evapo- transpiration, Factors affecting evaporation From Free water surface and soils.
Unit-II:

Soil moisture and its Zone, infiltration, Ground water: Occurrence, storage, Recharge and discharge, Run-off: its sources and components, factors affecting run-off, Principles and determination of water balance and its application in crop production.

Part B: Oceanography

Unit III:

Relevance of Oceanography in earth and atmospheric Science, Definition of oceanography, Surface configuration of Ocean Floor, Distribution of temperature and salinity of oceans and seas.

Unit IV:

Circulation of Oceanic waves, tides and currents, currents of the Atlantic, Pacific and Indian Oceans. Marine Deposits and coral reefs, Ocean as storehouse of resources for the future.

Books Recommended


Paper III

GR203: Geography of Resources

Unit-I:

Concept and scope of resource geography and geography of resources, Resource concept and types world resources distribution and pattern, Land, Water, mineral and power resources.
Unit-II:

Human resources, Resource base and its dynamism as related to stages of cultural technological and economic development, population growth and resource scarcity hypothesis, Sustainable development.

Unit-III:

Factors of Location of Economic Activities- Physical, Social, Economic and Cultural, von-Thuenen model of agricultural Location, Agriculture regions of the world.

Unit-IV:

Resource regionalization, world economic development, concept of developed and developing countries, Resource conservation and management, Resource development and international policies.

Books Recommended


Paper IV

GR204: Basis of Remote Sensing

Unit-I:

Remote Sensing- definition and Scope, electro-magnetic radiation, characteristics: interaction with matter, type of remote sensing and remote sensing platform

Unit-II:

Aerial photos: Types, Scale, resolution, geometric Properties of aerial photos, Stereoscopic parallax, Relief displacement.

Unit-III:

General orbital characteristics of remote sensing satellites, general characteristics of remote sensing sensors, characteristics of raw remote sensing data.

Unit-IV:

Elements of image interpretation, image processing techniques, visual and digital, Remote sensing in resource mapping and environmental monitoring. Land use and land cover mapping: a cover study.

Books Recommended


M.A./M.Sc. Previous II\textsuperscript{nd} Semester

GRP205: Practical \hspace{1cm} 80

Part A: Cartographic Work- \hspace{1cm} 40
Unit-I: 15

Map Projection: Classification, properties, choice, merits and demerits of map projection.

Drawing of the following map projections by using mathematical methods, Bonne’s, Polyconic, Gall’s Equatorial cases of Gnomonic, Stereographic and Orthographic projections, Mollweide’s and Interrupted Mollweide’s, Sinusoidal and Interrupted Sinusoidal and International Projections.

Unit-II: 15

**Cartographic Representation of Statistical Data:**

Water Surplus Graph, Rainfall Dispersion diagram, Hypsographic Circle, water Balance graph, Locational Quotient, coefficient of Localization and Localization curve.

Unit-III: 10

**Block diagrams.**

Part B: Field-cum-Lab Work:- 40

Unit-I: 10

Aerial Photo Interpretation-

Unit-II: 10


Unit-III:

Practical Record 10

Viva-voce 10
Third Semester

Paper I

GR 301: Climatology

Unit-I:

Definition, scope, significance and evolution of climatology; Elements of weather and climate; Relation with meteorology.

Composition and structure of Atmosphere; Insolation, process of heating and cooling; heat balance of the earth and atmosphere, Greenhouse effect.

Unit-II:

Air pressure and pressure belts; Atmospheric motion, Force controlling motion of air, vertical motion and vorticity, jet stream, Permanent, Seasonal and local wind, cyclone and anticyclone.

Concept, classification, characteristics of air mass and front, Ocean atmospheric interaction-El Nino, Southern oscillation (ENSO) and La-Nina.

Unit-III:

Climatic Classification of Koppen, Thornthwait, and G.T. Trewartha and World climatic region, climatic changes, evidences and possible causes, Global Warming.

Unit-IV:

Applied climatology and weather Forecasting, Impact of Human civilization on health, Food, clothing, agriculture, Mining, industry, trade and development; Man-climate interrelationship.
Suggested Readings:


Pedagogy:

1. Weather and climatic maps and charts are to be made available to the students. Audio- Visual aids to be used for effective teaching.
2. Students to be taken on a Field visit to near by reservoir. Data pertaining to water table un the local wells in different seasons has to be collected.

PaperII

GR 302: Geoinformatics and Geographic Information System (GIS) Applications

Unit-I

Geoinformatics: Concept, meaning, scope, evolution and development.

Interrelation between Geoinformatics and Geodesy: surveying mapping, positioning, navigation, cartography, remote sensing, photogrammetry, GIS and GPS.
• Georeferencing, datum and applications.
• GPS-segment, types, surveying techniques, instruments, applications and benefits.
• Mobile Mapping- concept and use.

UnitII
• Geospatial technology, meaning, concept and scope.
• Data sources- Field information and discrete information.
• Data types- Spatial and non- spatial, raster and vector.
• Data acquisition, storage, modeling, analysis, management and NSDI
• Data Base Management System (DBMS)
• New Map Policy

Unit III
• GIS: evolution, meaning, scope purpose and application.
• Basic principle of GIS.
• GIS Software and hardware.
• GIS data standards- concept and components
• Digital Elevation Model (DEM)- process, derivatives and application.

UnitIV
• Remote sensing and GIS integration.
• GIS project design and planning
• GIS packages and products
• GIS and industry, business system, human welfare
• Application trend of GIS product.
• Legal and managerial issues in handling geographic data

Books Recommended

Paper III

GR303: Disaster Management

Note: Candidates will have to attempt five questions, including Question 1 (short answer) and four other question, selecting one question From each unit.

Unit-I:

Definition, meaning and concept of disaster and hazard.
Types of Hazards- Natural and man-made.
Concept of Disaster Management
Concept of Disaster Relief, Resume, Trigger mechanism, Response, Mitigation Risk and Vulnerability,
Unit-II:

Natural Disaster- Geological, Water and climate, Environmental Man-Made disaster- Chemical, Industrial, Nuclear, Accident

Unit-III:

Biological disaster- Epidemics, Pest- Attack,, Cattle epidemic, Food poisoning.

Social Response to Lazard- reduction
Identification of multiple disaster prone areas.

Unit-IV:

Natural Disaster reduction Management, Decision making policy.
Determination of acceptable level of Risk
Measures to control and mitigate disaster.
Role of NDMA and SDMAs.

Books Recommended:

Pedagogy:

Students may be encouraged to collect clippings from newspapers on various topics included in the syllabus. They may be involved in discussions on the emerging political issues and attempt to provide geographical interpretation.

Paper IV

GR304: Geography of Rural Settlements

Note: Candidates will have to attempt five questions, including Question 1 (short answer) and Four other questions. Selecting one question from each unit.

Unit-I:


Unit II:

Types, Forms and Patterns of rural settlements: cause and effect, Functional classification of rural settlements of rural settlements, morphogenesis of rural settlements, morphology of rural settlements, Central places and rural service centres: their nature, hierarchy and Functions. Service centres as growth points, Rural-urban Fringe-structure, characteristics and Functions.

Unit-III:

Cultural landscape elements in rural settlements in different geographic environments with special reference to India, house types and their spatial patterns. Origin, evolution, size, socio-spatial structure of Indian villages.

Unit-IV:

Social issues in rural settlements- poverty, housing. Deprivation and inequality, Environmental issues in rural settlements water supply,
sanitation, drainage and health hazards. Planning of rural settlements with special reference to India.

Practical’s

1. Size classification of rural settlements by scatter diagram.
2. Analysis of rural settlement type, Patterns and distribution in India with special reference to Christaller’s theory.
5. Typological classification of rural settlements from maps.
6. Practical record and Viva-voce.

Suggested Readings:


Pedagagy:

The teacher should motivate students with illustrations of diverse pattern of settlements in different natural settings of this country and abroad. Models, maps, Illustrations and audio-visual devices should Eorm teaching aids to impress the students. The students are advised to consult Census of India Table H- Series.
M.A./M.Sc.III<sup>rd</sup> Semester

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<tr>
<th>Paper V  GRP 305: Practical Examination</th>
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<td>Prismatic Compass</td>
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<td><strong>(B) Practical Record</strong></td>
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<td>Viva-Voce</td>
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M.A./M.Sc. Semester-IV

Paper I

GR401: Geographical Thought

Unit-I:

**Basis Frame and Concept:** Man-environment interaction: New environmentalism, Concepts: space, place, environment, time and spatial organization, Region and regional typology; culture and cultural landscape.

Unit-II:

**Modern Approaches:** Quantitative revolution and challenges, Philosophy and geography: Contributions of Vidal de la Blache, and Carl Sauer; Humanististic and phenomenological geography: contributions of Yi-Fu Tuan; Literary geography: landscape as text.

UnitIII:

**Contemporary Trends:** Qualitative paradigm, Behavioural revolution: perception and cognition, mental maps; Marxism, Postmodernism; Postructuralism and Postcolonialism.

Unit-IV:

**Indian Geography-Base and Trends:** Postcolonialism and Indian geography: Gandhu’s contribution and Indian Geography, Gaia Theory and links to Indian Literature, Ancient Indian Geography and scientific outlook (e.g. cultural astronomy); Future of Indian geography: problems, perspectives and prospects.

Books Recommended:


**Paper II**

**GR402: Research Methods and Techniques.**

**Unit-I:**

**Framework of Research:**
Concept and significance of research in geography, Philosophy and methods: empiricism, positivism, behaviorism.

Unit-II:

**Planning Research and Data Generation:** Primary and secondary data: Data Collection and arrangement: Research design; Participatory research; Framing pilot and research project; Making survey-questionnaire.

Unit-III:

**Theories and Techniques:** Model making, Application of system theory; Application and relevance of statistical and cartographic techniques; Application of computer and GIS.

Unit-IV:

**Analysis, writing and Dissemination:** Production and arrangement of data; Analysis of data and maps; Quantitative and Qualitative interpretations; writing manuals (arranging themes, maintaining coherence, cross-comparison, concluding, referencing, noting); Proof marks and marked Proof; writing a research paper/report.

**Books Recommended:**


Paper III

GR403: Regional Planning and Development

Note: Candidates will have to attempt five question, including Question 1 (short answer) and Four other question. Selecting one question From each unit.

Unit-I:

Philosophy and purpose of Planning. The development of planning thought, theories of regional development, economic base theory, unternational trade
multipliers, aggregate growth model. The concept of growth centres, growth centre strategy of regional planning, rural economy, core-Periphery relationship.

Unit-II:

Concept and types of regions-Functional and formal, Uniform and nodal, single purpose and composite regions in the context of planning Regional hierarchy. Approaches For the definition of different types of regions and their utility in planning-resource base approach, growth centre approach, basic needs approach and habitat transformation approach.

Unit-III:

Delineation of planning regions. Planning regions of India. Planning process sectoral, temporal and spatial dimensions. Planning for a regions development and multiregional planning in a national context. Indicators of development and measuring levels of regional developments with special reference to India.

Unit-IV:

Regional planning for rural development with special reference to U.P. role of innovation diffusion, infra-structural elements (Irrigation, Power, transpiration and communication and marketing) and Industrial in regional planning. Population-resource equilibrium and spatial organization in regional planning. Metropolitan regions in regional planning. Regional planning as development strategy since independence, regional development strategies concentration Vs dispersal. Regional plans of India Concepts of multilevel planning decentralized planning. People’s participation with the planning process.

Suggested Readings:


Paper IV

GR404: Population& Development

Note: Candidates will have to attempt Five question, including Question 1 (short answer) and Four other questions. Selecting one question From each unit.

Unit-I:

Conceptual Frame: Population as resource; Population and development; Population and ecosystem; Demographic transition.

Unit-II:

Historical Background and Characteristics: History of human population; Relationship between population, Food and energy; Population characteristics: developed and developing countries (case study of India).

Unit-III:

Problems and Policies:

Optimum Population; Over Population & Under Population, Family welfare and planning; Population policies in India.
Unit IV


Books Recommended:


**M.A./M.Sc. IVth Semester**

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<tr>
<th>Paper V GRP 405: Project Work &amp; Study Tour</th>
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<tr>
<td>(2) Study Tour &amp; Tour Report (Minimum 07 Days)</td>
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