

UNIVERSITY OF LUCKNOW, LUCKNOW

Master of Geography Programme

Regulations 2020

1. **Applicability**

These regulations shall apply to the Master of Arts in Geography programme from the session 2020-21.

2. **Minimum Eligibility for admission**

A three/four-year Bachelor's degree or equivalent awarded by a University or Institute established as per law and recognised as equivalent by this University with minimum **45%** if the candidate has studied the concerned subject in all **the three years** of graduation, **55%** if the candidate has studied the concerned subject **in first two years** of graduation, **60%** if the candidate has **not studied** the concerned subject in graduation. As per university norms percentage marks or equivalent grade, shall constitute the minimum requirement for admission to the Master in Geography programme. (*any other additional requirement may also be specified*)

3. **Programme Objectives**

The 'Master of Arts in Geography' programme offered by the department, "aims at empowering students with knowledge and skills for spatial thinking and analysis, to navigate real world problems, and contribute to society in a meaningful way".

4. **Programme Outcomes**

There is a lot of career opportunity in Geography. Public as well as private sector both sectors provide career opportunity and future building for Geography student. In public sector or government services a student can make his career in census office, Survey of India. Space research Centre, Rural and Urban Development Department, Social and Environment Research organization and teaching ship in Schools, colleges and Universities by Study of Geography.

On the other hand in private sector a Geography graduate or post Graduate can build his career in Urban Development, Infrastructure building companies, Real Estate, G.I.S. and Regional Planning, Transportation and Logistics Companies etc.

5. **Specific Programme Outcomes**

At the end of the two-year (four-semester) course, students will have comprehensive knowledge about contemporary issues in geography, both physical and human.

6. Course Structure

The course structure of the Master in Geography programme shall be as under:

COURSE NO.	NAME OF THE COUSE	CREDIT	REMARK
SEMESTER I			
GGCC-101	Geographical Thought	04	Core Course
GGCC-102	Geomorphology	04	Core Course
GGCC-103	Rural Geography	04	Core Course
GGCC-104	Urban Geography	04	Core Course
GGCC -105	Fundamental of Cartography	04	Core Course
GGVC -101	Tourism Geography	04	Value added course (Credited)
SEMESTER TOTAL		24	
SEMESTER II			
GGCC -201	Climatology	04	Core Course
GGCC -202	Political Geography	04	Core Course
GGCC -203	Geography of Resources	04	Core Course
GGCC -204	Agriculture Geography	04	Core Course
GGCC -205	Cultural Geography	04	Core Course
GGCC -206	Techniques of Mapping & Mapping Analysis	04	Core Course
GGVNC -201	Geography of Global Capitalism	00	Value added course (Non Credited)
SEMESTER TOTAL		24	
SEMESTER III			
GGCC -301	Geography of India	04	Core Course
GGCC -302	Research Methodology / MOOC	04	Core Course/ MOOC
GGEL-301A/B/C	A. Remote Sensing & G.I.S.	04	Elective
	B. Settlement Geography		
	C. Natural Resource Management		
GGEL-302A/B/C	A. Regional Development in India	04	Elective
	B. Marketing Geography		
	C. Research Methods and Techniques in Geography		
GGIN -301	Internship	04	Summer Internship
GGIER -301	Geography of Uttar Pradesh	04	Interdepartmental Course
SEMESTER TOTAL		24	
SEMESTER IV			
GGCC -401	Regional Development and Multilevel Planning	04	Core Course
GGEL-401A/B/C	A. Oceanography	04	Elective
	B. Environment & Bio Geography		
	C. Demographic Techniques		
GGEL-402A/B/C	A. Population Geography	04	Elective
	B. Land Ocean & Atmosphere		
	C. Physical Land Scape and Hydrology		
GGMT -401	Master Thesis	08	Master Thesis
GGIRA -401	Disaster Management	04	Intrdepartmental Course
SEMESTER TOTAL		24	
GRAND TOTAL		96	

GG-Subject ; GGCC – Core Course ; GGVC – Value added course (Credited) ;

GGVNC-Value added course (Non-Credited); GGEL –Elective;

GGIER–Interdepartmental Course; GGIRA – Intrdepartmental Course

7. Course Outlines

(kindly provide Course outcomes, Course outlines split into five units and References separately for each course)

MASTER OF ARTS IN GEOGRAPHY SEMESTER-I, CORE COURSE

GGCC-101 :GEOGRAPHICAL THOUGHT

Credits	: 4	Total Marks	: 100
		Mid Semester Examination	: 15
Duration (Hours per week)	: 4	Assignment	: 10
		Attendance	: 05
		End-Semester Examination	: 70

COURSE OBJECTIVES:

1. This course aims to provide knowledge of disciplinary developments ancient to till now.
2. It aims to enable students to contextualize the conceptual traditions within geography along with the major philosophical influences.
3. It promotes an understanding of the fluidity, expansion and inclusivity of Modern Geographical Thought as against imperial underpinnings and latent Eurocentricity.

COURSE LEARNING OUTCOMES:

1. A thorough knowledge of the growth, development, philosophical influences and relevance of geography from ancient to the present time.
2. Knowledge of emerging areas and new theorisations within the discipline.
3. An appreciation of the discipline's dynamic and inclusive nature.

COURSE CONTENTS:

- UNIT-I** : The Field of Geography; Geography as a Discipline; Fundamental Concepts; place of geography in the Classification of Sciences & other Disciplines; Geography as a Natural as well as Social Science.
- UNIT-II** : Historical Development During Ancient and Medieval Period; Contribution of Greeks, Roman, Indian, Arabs & Renaissance; Contribution of varenius& Immanuel Kant; Concept of Space in Geography: Material Space & Social Space.
- UNIT-III** : Modern Geographical Thoughts; Contribution of German, French, British, American school of Thought; Founder of Geography: Humboldt, Ritter &Ratzel; Dualisms and Dichotomies; Systematic /Regional & Determinism /possibilism.
- UNIT-IV** : Conceptual & Methodological Development During 20 Century; Quantitative Revolution & GIS; Location Analysis, Paradigms, Laws, Theories & Models.
- UNIT-V** : Recent Trends & Modern Themes in Geographical thought: Positivism, Radicalism, Behaviouralism and Humanism.

SUGGESTED READINGS:

1. Benko, Georges, Strohmayer, Ulf, 1997. *Space and Social Theory*,BlackwellPublishers.
2. Bonnett, Alastair, 2008. *What is geography?* Sage Publications.
3. Castree, R, A. Rogers and D. Sherman, 2005. *Questioning Geography: Fundamental Debates*, Blackwell.
4. Crang, Mike and Nigel Thrift, 2000. *Thinking Space*, Routledge.
5. Cresswell, Tim, 2013. *Geographic Thought: A Critical Introduction*, Wiley Blackwell.
6. *Dictionary of Human Geography*, Wiley-Blackwell.
7. *Geography*, Harlow: Prentice Hall.
8. Gregory, Derek; Johnston, Ron; Pratt, Geraldine; Watts, Michael; Whatmore, Sarah, 2009. *The*
9. Holt Jensen Arid, 1999. *Geography: History and Concepts*, Sage Publications.
10. Hubbard, Phil., Kitchin, Rob, and Gill Valentine, 2008. *Key Texts in Human Geography*, Sage
11. Hubbard, Phil., Kitchin, Rob., Bartley Brendan and Duncan Fuller, (eds) 2002.*Thinking Geographically: Space, Theory and Contemporary Human Geography*, Continuum
12. Nayak, Anoop & Jeffrey Alex, 2011. *Geographical Thought: An Introduction to Ideas in Human*
13. Peet, Richard, 1998. *Geographical Thought*, Blackwell.
14. Publications.

MASTER OF ARTS IN GEOGRAPHY SEMESTER – I, CORE COURSE

GGCC-102 :GEOMORPHOLOGY

Credits	: 4	Total Marks	: 100
		Mid Semester Examination	: 15
Duration (Hours per week)	: 4	Assignment	: 10
		Attendance	: 05
		End-Semester Examination	: 70

COURSE OBJECTIVES:

1. An understanding of the linkages between landscape form and processes.
2. Familiarity and experience applying fundamental concepts in physical systems.
3. Practice in using models, data and logical reasoning to critically evaluate and connect information about geomorphic processes.

COURSE LEARNING OUTCOME:

1. Explain basic principles for development of landforms through time.
2. Make an initial geomorphological fieldwork.
3. To provide the fundamental and advanced level knowledge of the subject.

COURSE CONTENTS:

- UNIT-I** : Methods and approaches to the study of landforms; Basic concepts in geomorphology: Structures, Processes and Scales (Stage/Time); Theories of landscape development.
- UNIT-II** : Isostasy – Doctrine of Isostasy; Views of Airy and Pratt, Concept of Plate tectonics; Mass movement of rock waste and resultant landforms; Concept, Evolution and Classification slopes; Theories of slope development.
- UNIT-III** : Fluvial (Process) Geomorphology – Morphometry of drainage basins; Profile of equilibrium; Channel morphology; Climatic Geomorphology and Morphogenetic regions.
- UNIT-IV** : Structural Geomorphology– Fold, Fault and Domal Structures and Landforms; Palaeo and Neo–Geomorphology – Denudation Chronology of peninsular India and Himalayas, Continental Drift Theory – concept of Wegener, Mountain Building Theories – concepts of Kober, Daly and Holmes
- UNIT-V** : Geomorphic hazards and mitigation measures; Geomorphology and economic deposits; Geomorphology in groundwater studies; Soils and geomorphology. Terrain classification and its applications.

SUGGESTED READINGS:

1. Allison, Robert (ed.) 2002. *Applied Geomorphology: Theory and Practice*, John Wiley & Sons Ltd., Chichester, U.K.
2. Anderson, R.S. and Anderson, S.P. 2010. *Geomorphology: The Mechanics and Chemistry of Landscapes*, Cambridge University Press, Cambridge.
3. Bierman, P.R. and Montgomery, D.R. 2014. *Key Concepts in Geomorphology*, Macmillan Education, New York.
4. Bloom, A.L. 2003. *Geomorphology: A Systematic Analysis of Late Cenozoic Landforms*, Prentice-Hall of India, New Delhi.
5. Bridges, E.M. 1990. *World Geomorphology*, Cambridge University Press, Cambridge, U.K.
6. Huggett, R.J. 2011. *Fundamentals of Geomorphology*, Routledge, New York.
7. Kale, V.S. and Gupta, A. 2001. *Introduction to Geomorphology*, Orient Longman, Hyderabad, India.
8. Leopold, L.B., Wolman, M.G., and Miller, J.P. 1964. *Fluvial Processes in Geomorphology*, W.H. Freeman Company, San Francisco.
9. Schumm, S.A. 1977. *The Fluvial System*, John Wiley & Sons, Inc., New York.
10. Singh Savindra. 2014, भू-आकृतिविज्ञान का स्वरूप, Prayag Pustak Bhawan, Allahabad.
11. Summerfield, M.A. 1991. *Global Geomorphology*, Pearson Prentice Hall, U.K.
12. Thornbury, W.D. 1969. *Principles of Geomorphology*, John Wiley and Sons, New York.

MASTER OF ARTS IN GEOGRAPHY SEMESTER – I, CORE COURSE

GGCC-103 :RURAL GEOGRAPHY

Credits	: 4	Total Marks	: 100
		Mid Semester Examination	: 15
Duration (Hours per week)	: 4	Assignment	: 10
		Attendance	: 05
		End-Semester Examination	: 70

COURSE OBJECTIVES:

1. To make the students aware of Rural settlements and Government Policies.
2. Understand the mechanism of rural area and its relations to nearby.

COURSE LEARNING OUTCOME:

1. The students will be able to have a clear understanding of the place under study with respect to location, side and situation.
2. The students will be able to understand Settlement patterns and their importance
3. Learning different types of Government Programs and Sustainable human Development

COURSE CONTENTS:

- UNIT-I** : Concept and scope of rural geography; different approaches to study rural Geography; concept and significance of rural development: Indicators of rural development.
- UNIT-II** : Rural Settlements: Definition and characteristics; Types and patterns of rural settlements and their distribution with special reference to spacing, rural house type, based on building materials, size and shape.
- UNIT-III** : Rural infrastructure facilities and amenities, New Agricultural technology: Rural transportation, rural education, rural industries and rural marketing.
- UNIT-IV** : Critical review of rural development strategies in India; Integrated Rural Development Programme (I.R.D.P.), Community Development Programmes.
- UNIT-V** : Mahatma Gandhi National Rural Employment Guarantee Act (MNREGA), National Rural Health Mission (NRHM), Soil Health Card, National Fertilizer Policy

BOOKS RECOMMENDED:

1. Singh Kartar., Rural Development: Principles, Policies and Management.
1. Maheshwari, R.S., Rural Development in India.
2. Clout, S.D., Rural Geography.
3. Husain, Majid., Agricultural Geography, New Delhi.
4. Bell, G.(Ed.), Strategies for Human Settlements: Habitat and Environment.
5. Chisholm, M., Rural Settlement and Land Use.
6. Singh, R.L. et.al: Readings in Rural Settlement Geography.
7. Singh, K.N.(Ed.) Rural Development in India: Problems, Strategies and Approaches.
8. Wanmali, Sudhir., Service Centres in Rural India.
9. Mishra, H.N.(Ed.) Rural Geography.
10. Prasad, R. & Sarkar S., Rural India –Socio-political development, Vol. I &II, Global Vision Pub. House, New Delhi.
11. Khullar D.R. India-A Comprehensive Geography, Kalyani Pub. New Delhi.

MASTER OF ARTS IN GEOGRAPHY SEMESTER - I, CORE COURSE

GGCC-104 :URBAN GEOGRAPHY

Credits	: 4	Total Marks	: 100
		Mid Semester Examination	: 15
Duration (Hours per week)	: 4	Assignment	: 10
		Attendance	: 05
		End-Semester Examination	: 70

COURSE OBJECTIVES:

1. To critically understand the complexities of urban cities and the experience of living in these cities.
2. To critically understand a broad range of issues that cities face today.
3. To provide a basic social, cultural, political and economic understanding of cities.

COURSE LEARNING OUTCOMES:

1. To understand the linkages between urban cities and the societal forces that shapes it.
2. Critically analyse contemporary urban issues from a geographical perspective.
3. Understand urban issues in order to engage with possible and effective planning and policy interventions.

COURSE CONTENTS:

- UNIT-I** : Introduction: Defining the city, understanding the different approaches in examining the city and its transformations.
- UNIT-II** : Urban Transformations in Historical Contexts: Early cities to industrial cities, cities in the world system and global cities, colonial and post-colonial cities.
- UNIT-III** : Urban society: Social organisation of the city, emergence of urban cultures and sub cultures, nature of urban economy, the production of urban elite and poor.
- UNIT-IV** : Governing the City: Role of state in urban planning and development, local politics, citizenship and governance.
- UNIT-V** : Contemporary Urban Issues; Urban Poverty; Housing; Slum; Study & Preparation of Master Plan of Selected Cities

SUGGESTED READINGS:

1. LeGates T.R. and Stout F. (ed.) 2016. *The City Reader* (6th edition), Routledge: London and New York.
2. Andrew, E.G.J, McCann, E and Thomas, M 2015. *Urban Geography: A Critical Introduction*, Wiley, Blackwell, UK.
3. Bhattacharya, B. 2006. *Urban Development in India since Pre-Historic Times*, Concept Publishing Company, New Delhi.
4. Bridge, G Watson, S. (eds.) 2010. *The Blackwell City Reader* (2nd Edition), Wiley-Blackwell, UK.
5. Gilbert, A and Gugler, J (eds.) 1992. *Cities, Poverty, and Development: Urbanization the Third World*, Oxford University Press, Oxford.
6. Fainstein, S. S and Campbell, S (eds) 2011. *Readings in Urban Theory* (3rd Edition), Wiley-Blackwell, UK.
7. Hall, T. 2002. *Urban Geography* (2nd Edition), Routledge: London and New York.
8. Fyfe, N.R and Kenny, J.T. 2005. *The Urban Geography Reader*, Routledge: London and New York.
9. Latham, A., McCormick, D., McNamara, K., and McNeil, D. 2009. *Key Concepts in Urban Geography*, Sage: London, California, New Delhi, Singapore.
10. Knox, P and Pinch, S. 2010. *Urban Social Geography* (6th edition), Pearson: England
11. Brunn, S.D., Hays-Mitchell, M., Ziegler, D.J. 2012. *Cities of the World: World Regional Urban Development* (5th edition), Rowman and Littlefield Publishers: England
12. Davidson, M. Martin, D. 2013. *Urban Politics. Critical Approaches*, Sage: London, California, New Delhi, Singapore.

MASTER OF ARTS IN GEOGRAPHY SEMESTER – I, CORE COURSE

GGCC-105 : FUNDAMENTALS OF CARTOGRAPHY (PRACTICAL)

Credits	: 4	Total Marks	: 100
		Viva-voce	: 10
Duration (Hours per week)	: 8	Record File	: 15
		Attendance	: 05
		Practical Examination	: 70

COURSE OBJECTIVES:

1. To make the students aware of basic tools and techniques in the field of map-making
2. To enhance the overall Knowledge of Cartography and its implementations.

COURSE LEARNING OUTCOME:

1. The students will be able to have a clear understanding of the place under study with respect to location, side and situation.
2. The students will be equipped with techniques of projection and map designing, Learning different types of maps and their compilation.

COURSE CONTENTS:

- UNIT-I** : Concept, Scope And Significance of Cartography. Growth and Development of Cartography: Impact of Technology on Cartography. Map as Tool in Geographical Studies, Choropleth, Isopleths and Chorochromatic Maps.
- UNIT-II** : Cartography as a Science of Human Communication. Map-Making Process: Elements of Generalization. Thematic & Composite Mapping. Measurement of Geographical Variables: Nominal, Ordinal, Interval and Ratio. Map Symbolization.
- UNIT-III** : Shape of the Earth: Spheroid, Ellipsoid and Geoid. Geographic Coordinates: Latitude and Longitude. Datum, Map Projections: Properties, Distance, Direction and Angle, Selection of Appropriate Map Projection and Types.
- UNIT-IV** : Scope and Objectives of Map Design, Controls of Map Design and Constrains in Map Design. Map Scale: Statement, Representative Fraction and Geographical Scales, Determining and Scale. Ground Survey and Positioning: Measuring Distance and Direction, Traditional Survey Methods, Automated Survey System.
- UNIT-V** : Types of Maps- Perception and Designing, Color and Pattern Creation, Typography and Lettering the Map, Map Compilation and Map Layout, Future Cartography. Mapping Organization and Services in India: S.O.I., N.A.T.M.O. and N.R.S.C.

SUGGESTED READINGS:

1. Dent B. D., 1999: Cartography: Thematic Map Design, (Vol. 1), McGraw Hill.
2. Gupta K. K and Tyagi V. C., 1992: Working with Maps, Survey of India, DST, New Delhi.
3. Mishra R. P. and Ramesh A., 1989: Fundamentals of Cartography, Concept Publishing.
4. Robinson A., 1953: Elements of Cartography, John Wiley.
5. Sharma J. P., 2010: PrayogicBhugol, Rastogi Publishers.
6. Singh R. L. and Singh R. P. B., 1999: Elements of Practical Geography, Kalyani Publishers.
7. Singh R. L., 1998: PrayogicBhoogolRooprekha, Kalyani Publications.
8. Steers J. A., 1965: An Introduction to the Study of Map Projections, University of London.

MASTER OF ARTS IN GEOGRAPHY SEMESTER-I,VALUE ADDED COURSE

GGVC-101 :TOURISM GEOGRAPHY

Credits	: 4	Total Marks	: 100
		Mid Semester Examination	: 15
Duration (Hours per week)	: 4	Assignment	: 10
		Attendance	: 05
		End-Semester Examination	: 70

COURSE OBJECTIVES:

1. To introduce various types of tourism to the students popular in the world and India in particular.
2. Give a applicable knowledge of use of Tourism in wealth making of a country.

COURSE LEARNING OUTCOME:

1. The student will understand different types of tourism and the geography associated with them.
2. The student will learn different aspects of tourism-market, demand & dimensions of tourism.
3. Student will learn tourism in India, its evolution and development in different tourist places.

COURSE CONTENTS:

- UNIT-I** : Basics of Tourism: meaning, definition, concept; Approach of Tourism: Tourism products Definition of Tourism; Factors influencing tourism, historical, natural, socio – cultural and economic; motivating factors for pilgrimages; leisure, recreation; Elements of tourism, Tourism as an industry.
- UNIT-II** : Geography of tourism: - its spatial affinity; Areal and locational dimensions comprising, physical, cultural, historical and economic; Tourism types: natural, cultural, adventure, medical, National and international.
- UNIT-III** : Infrastructure and Support System: - Accommodation, Transport; other facilities and amenities; Impact of tourism: physical, economic and social and perceptual positive and negative impacts.
- UNIT-IV** : Tourism Packaging- Definition, Components, Types of Package Tour & Tour Package- Designing & Developing Process, Destination & Market & Demand & Dimensions of Tourism. Tourism and G.P.S.
- UNIT-V** : Indian Tourism: - Regional dimensions of tourist attraction, Evolution of tourism, promotion of tourism. Tourist development in Garhwal Himalayas, Dal Lake and Manipur and its impact on the countryside.

Reading List

1. Dhar, P.N. (2006) International Tourism: Emerging Challenges and Future Prospects. Kanishka, New Delhi.
2. Hall, M. and Stephen, P. (2006) Geography of Tourism and Recreation–Environment, Place and Space, Routledge, London.
3. Kamra, K. K. and Chand, M. (2007) Basics of Tourism: Theory, Operation and Practise, Kanishka Publishers, Pune.
4. Page, S. J. (2011) Tourism Management: An Introduction, ButterworthHeinemann- USA. Chapter 2.
5. Raj, R. and Nigel, D. (2007) Morpeth Religious Tourism and Pilgrimage Festivals Management: An International perspective by, CABI, Cambridge, USA, www.cabi.org.
6. Tourism Recreation and Research Journal, Center for Tourism Research and Development, Lucknow
7. Singh Jagbir (2014) “Eco-Tourism” Published by - I.K. International Pvt. Ltd. S-25, Green Park Extension, Uphaar Cinema Market, New Delhi, India (www.ikbooks.com).

MASTER OF ARTS IN GEOGRAPHY SEMESTER-II, CORE COURSE

GGCC-201 :CLIMATOLOGY

Credits	: 4	Total Marks	: 100
		Mid Semester Examination	: 15
Duration (Hours per week)	: 4	Assignment	: 10
		Attendance	: 05
		End-Semester Examination	: 70

COURSE OBJECTIVES:

1. This course aims to provide knowledge of Earth's atmosphere
2. It aims to enable students to contextualize the conceptual traditions and recent techniques in climatologically understanding
3. It promotes an understanding of the fluidity, expansion and inclusivity of Modern Research in Earth Science

Course Learning Outcomes:

1. A thorough knowledge of the growth, development, philosophical influences and relevance of climatology in geography from ancient to the present time.
2. Knowledge of emerging areas and new theorisations within the discipline.
3. An appreciation of the discipline's dynamic and inclusive nature.

COURSE CONTENTS:

- UNIT-I** : Nature and scope of climatology and its relationship with meteorology. The atmosphere: Structure and composition, insolation, heat-balance of the earth. Distribution of temperature: Temporal, vertical and horizontal.
- UNIT-II** : Atmospheric Equilibrium: Stability and instability, potential temperature and evapo-transpiration. Distribution of atmospheric pressure and winds: Jet streams - their origin, types and distribution, monsoon winds.
- UNIT-III** : Climatic Phenomena: Air masses and fronts, origin, growth, classification. Frontogenesis, types and weather associated with fronts. Cyclones, and anticyclones, Global warming.
- UNIT-IV** : Climatic Classifications: Koppen's Thornthwaites - A critical appraisal of each classification, Climates of the World: Tropical, Temperate, Desert. Interpretation and generation of climatic information, soils, agricultural activities.
- UNIT-V** : Global Climatic Change: Evidences; Role of "Earth Summit" Conferences; Air Pollution; Acid Rain; Ozone Depletion; Greenhouse Effect and Global Warming; Weather Forecasting.

SUGGESTED READINGS:

1. Menon, P.A. (1989), Our Weather, N.B.T., New Delhi.
2. Das, P.K. (1987), Monsoons, National Book Trust, New Delhi.
3. Fein, J.S. and Stephens, P.N. (1987), Monsoons, Wiley, London.
4. Peterson, S. (1969), Introduction to Meteorology, McGraw Hill Book, London.
5. Thompson, R.D. and Perry, A. (ed.) (1997), Applied Climatology: Principles and Practice, Routledge, London.
6. Barry, R.G. and Chouly, R.J., (2004), Atmosphere, Weather and Climate, Methuen, London.
7. Bhutani S., (2000), Our Atmosphere, Kalyani Publishers, New Delhi.
8. Critchfield, H.J. (1987), Climatology, Prentice Hall, New Delhi.
9. Griffith, J.F. and Driscoll, D.M. (1982), Survey of Climatology, Charles Merrill, New York.
10. Lal, D.S. (1993), Climatology, Chaitanya Publishing House, Allahabad.
11. Riehl, H. (1968), Introduction to Atmosphere, McGraw Hill, New York.
12. Robinson, P.J. and Sellers, H. (1986), Contemporary Climatology, Longman, London.
13. Trewartha, G.T. (Latest edition) Introduction to Climate, McGraw Hill, New York.

MASTER OF ARTS IN GEOGRAPHY SEMESTER-II, CORE COURSE

GGCC-202 :POLITICAL GEOGRAPHY

Credits	: 4	Total Marks	: 100
		Mid Semester Examination	: 15
Duration (Hours per week)	: 4	Assignment	: 10
		Attendance	: 05
		End-Semester Examination	: 70

Course Objectives:

1. This course aims to provide knowledge of Political Geography
2. It aims to enable students to contextualize the conceptual traditions and recent techniques in understanding neighbours and boundary
3. It promotes an understanding of the fluidity, expansion and inclusivity of Geo-politics

Course Learning Outcomes:

1. A thorough knowledge of the growth, development, philosophical influences and relevance of political theories in geography from ancient to the present time.
2. Knowledge of emerging areas and new theorisations within the discipline.
3. This course provides students with an overview and fundamental understanding of the ways in which political issues are dealt with through geographical and spatial perspectives.

COURSE CONTENTS:

- UNIT-I** : Definition and Historical Development of Political Geography, Recent Trends and Development in Political Geography, Distinction between Geo-Politics and Political Geography.
- UNIT-II** : Definition and Components of State, Definition of Nation and Nation State, Nationalism/ Nation Building, Geographical factors of state : Physical, spatial and human & Economic, Definition of Boundary and Frontier and their Classification.
- UNIT-III** : Meckinder's Geographical Pivot and Heartland Model, Spykman's Rim Land Model, Geostrategic idea of A.T.Mahan, Critical Assessment of Heartland and Rim Land Model and their Relevance to World' Geo politics.
- UNIT-IV** : India as a Federal country, India as a Unitary or Union of States, Concept and Definition of geography of Election or Electoral Geography, Approaches to Study of Election / Electoral Geography, Geography of Voter Participation.
- UNIT-V** : Geopolitical significance of the Indian Ocean; Role of third world countries; Political geography and regional co-operation; Geopolitical study of South-East Asia and South Asia, Politics of World Resources.

SUGGESTED READINGS:

1. Agnew, J.A. (1987), Place and Politics, Boston : Allen and Unwin
2. Blacksell, Mark (2003), Political Geography, London Routledge.
3. Cox, Kevin R. (2008) The Sage Handbook of Political Geography, New Delhi sage.
4. Dicken, Peter (2003), Global Shift, New Delhi : Sage
5. Dikshit, R.D. (2000) Political Geography: The Spatiality of Politics, New Delhi : Tata Mc Graw Hill
6. Jones, Martin Rhys Jones and Michael Woods (2003), An Introduction to Political Geography, London : Routledge
7. Khor, Martin (2001) Rethinking in Globalization, London : Zed Books.
8. Painter J. (1995) Politics, Geography and Political Geography, London : Arnold.
9. Taylor, P.J. and Colin Flint (2001), Political Geography, New Delhi : Pearson.
10. Taylor, P.J. and R.J. Johnston (1979), Geography of Elections Hammondsworth : Penguin
11. Adhikari, Sudepto (2008), Political Geography of India, Allahabad: Sharda PustakBhandar

MASTER OF ARTS IN GEOGRAPHY SEMESTER-II, CORE COURSE

GGCC-203 :GEOGRAPHY OF RESOURCES

Credits	: 4	Total Marks	: 100
		Mid Semester Examination	: 15
Duration (Hours per week)	: 4	Assignment	: 10
		Attendance	: 05
		End-Semester Examination	: 70

COURSE OBJECTIVES:

1. This course give a holistic view of the water environments i.e., hydrology seen as a water carrier in nature with human influence.
2. To know diverse methods of collecting the hydrological,biological information, which is essential to understand surface and groundwater hydrology?
3. To develop an understanding of how this knowledge may be applied in practice in an economic and environmentally sustainable manner.

COURSE LEARNING OUTCOME:

1. Understanding Resource distribution and world organisation
2. Describe how renewable and non renewable resources are influenced by human activities.
3. Analyse resource data in order to evaluate water resource management in an area

COURSE CONTENTS:

- UNIT-I** : Concept and scope of Resource Geography; Resource: concept and types; World resources: distribution and pattern; Land and water; Distinction Between Diversity & Disparity; Resource Appraisal. Human Resources.
- UNIT-II** : Soil Formation and Characteristics, Classification of Soil and Soil Conservation. Forest Resources: Types and Distribution, Forest Decay and Conservation. Livestock and Marine Resources.
- UNIT-III** : Mineral Resources: Classification of Major Minerals, their Distribution and Production, Mineral Conservation, Energy resources-Conventional energy resources - coal, petroleum, Non-conventional sources of energy
- UNIT-IV** : The limits to growth; Resource scarcity hypothesis; World energy crisis; Resource conservation and management; Watershed management; Sustainable development; Resources, development and international Issues.
- UNIT-V** : Resource regionalisation; World economic development; Concept of developed and developing nations; Concepts of North-South and First, Second, Third and Fourth Worlds.

SUGGESTED READINGS:

1. Cutter S. N., Renwich H. L. and Renwick W., 1991: Exploitation, Conservation, Preservation: A Geographical Perspective on Natural Resources Use, John Wiley and Sons.
2. Gadgil M. and Guha R., 2005: The Use and Abuse of Nature: Incorporating This Fissured Land: An Ecological History of India and Ecology and Equity, Oxford University Press. USA.
3. Holechek J. L. C., Richard A., Fisher J. T. and Valdez R., 2003: Natural Resources: Ecology, Economics and Policy, Prentice Hall, New Jersey.
4. Jones G. and Hollier G., 1997: Resources, Society and Environmental Management, Paul Chapman, London.
5. Klee G., 1991: Conservation of Natural Resources, Prentice Hall, Englewood.
6. Mather A. S. and Chapman K., 1995: Environmental Resources, John Wiley and Sons, New York.
7. Mitchell B., 1997: Resource and Environmental Management, Longman Harlow, England.
8. Owen S. and Owen P. L., 1991: Environment, Resources and Conservation, Cambridge University Press, New York.
9. University Press, New York.
- 10.

MASTER OF ARTS IN GEOGRAPHY SEMESTER-II, CORE COURSE

GGCC-204 : AGRICULTURAL GEOGRAPHY

Credits	: 4	Total Marks	: 100
Duration (Hours per week)	: 4	Mid Semester Examination	: 15
		Assignment	: 10
		Attendance	: 05
		End-Semester Examination	: 70

COURSE OBJECTIVES:

1. This course attempts to introduce the students to the nature and origin of agriculture and its regions.
2. The course examines the questions related to agricultural development and productivity in India.
3. It also critically evaluates the environmental consequences and emerging perspective and policies and interventions aimed at sustainable agriculture

COURSE LEARNING OUTCOMES:

1. The students will be able to understand and analyse the historical perspective of agriculture.
2. The students will be able to analyse the agriculture development and productivity and its impacts on various sectors
3. The students will be able to get updated knowledge of contemporary issues and strategies.

COURSE CONTENTS:

- UNIT-I** : Aims, objectives and scope of Agricultural Geography; Basic concepts, Historical Perspective and recent trends. Approaches to the study of agricultural geography - Regional and Systematic approach, Ecological and Commodity approach.
- UNIT-II** : Influence of major factors on the performance of agriculture. Whittlessey's classification of agricultural systems of the world - problems and prospects of agriculture and its economic impact in regions of the world.
- UNIT-III** : Concept of Land use, Agricultural land use- land capability classification and land use planning for agricultural development. Agricultural Regionalization. Land Use Location Theory - Von Thunen and its applicability.
- UNIT-IV** : Modern Theories of Agricultural Location: Optimum Physical and Economic Conditions and Limits, Crop Combination Crop Diversification and Agricultural Productivity, shifting cropping pattern, Agriculture and environmental degradation.
- UNIT-V** : Green Revolution in India, impact of green revolution in India, Green Revolution and regional imbalances. Problems of Indian Agriculture, Measures for Agricultural Development. Concept of second green revolution in India.

SUGGESTED READINGS:

1. Bryant, C.R., Johnston, T.R. 1992. Agriculture in the City Countryside, Belhaven Press, London.
2. Burch, D., Gross, J. and Lawrence, G. (eds.), 1999. Restructuring Global and Regional Agriculture, Ashgate Publishing Company, Burlington.
3. Cakmak, I. and Welch, R. M. (eds), 2009. Impacts of agriculture on Human Health and Nutrition, EOLSS Publications, UK.
4. Ferroni, Marco, 2013. Transforming Indian agriculture- India 2040: Productivity, Markets and Institutions, Sage Publications, New Delhi.
5. Grigg, D.B. 1984. Introduction to Agricultural Geography, Hutchinson, London.
6. Mohammad, N. 1992. New Dimension in Agriculture Geography, Vol. I to VIII, Concept Publishing Company, New Delhi.
7. Mohammad, N. and Rai, S.C. 2014. Agricultural Diversification and Food Security in the Mountain Ecosystem, Concept Publishing Company, New Delhi.
8. Rosing, N.G., and Wageruters, M.A.E. (eds.) 1998. Facilitating Sustainable Agriculture,

12. Cambridge University Press, Cambridge.

MASTER OF ARTS IN GEOGRAPHY SEMESTER-II, CORE COURSE

GGCC-205 :CULTURAL GEOGRAPHY

Credits	: 4	Total Marks	: 100
Duration (Hours per week)	: 4	Mid Semester Examination	: 15
		Assignment	: 10
		Attendance	: 05
		End-Semester Examination	: 70

COURSE OBJECTIVES:

1. To understand the complexities of Human Races and its Environment.
2. To critically understand a broad range of issues that Humans face today.
3. To provide a basic social, cultural, political and economic understanding of Human Settlement.

COURSE LEARNING OUTCOMES:

1. To understand the linkages between various cultural groups .
2. Critically analyse contemporary Cultural issues from a geographical perspective.
3. Understand Cultural issues in order to engage with possible and effective planning and policy interventions.

COURSE CONTENTS:

- UNIT-I** : The Nature, Scope, approaches in Cultural Geography. The Historical development of cultural Geography. Themes in cultural Geography - The Cultural Region. Functional, Formal. Perceptual, Determinism and Possibilism
- UNIT-II** : Environment and Culture : Culture Areas & Cultural Realms of the world and its relationship with environment, Elements of cultural expressions
- UNIT-III** : Spatial structure. Focuses on similarities and differences of various cultures with respect to racial, ethnic, religious, linguistic, demographic, and organizational characteristics in Indian context
- UNIT-IV** : Human races, Habitat economy and Society of tribal groups. Racial Elements in India's Population; Tribes of India (Bhil, Gond, Toda, Naga); Tribes of World (Eskimo, Pigmy, Bushman);
- UNIT-V** : Folk Culture its Revival. Cultural Adaptation and Environmental perception; Patterns of popular Culture and Cultural fusion

RECOMMENDED READINGS:

1. Ahmad, A. (1999): Social Geography, Rawat Publication, New Delhi.
2. Dreze J. and Sen, A. (1996): Economic Development and Social Opportunity, Oxford University press, New Delhi.
3. Dubey, S.C., (1991): Indian Society, National Book Trust, New Delhi.
4. Erin H. Fouberg, Alexander B. Murphy, Harm J. de Blij, (2012): Human Geography: People, Place, and Culture. John Wiley, New York.
5. Gregory, D. and Larry, U.J. (ed.), (1985): Social relations and Spatial Structures, McMillan, London.
6. Haq, M. (2004): Reflection on Human Development. Oxford University Press, New Delhi.
7. Maloney, C. (1974): People of South Asia, Winston, New York. Planning Commission (1981): Report on Development of Tribal areas. Government of India, New Delhi.
8. Rao, M.S.A. (1970): Urban Sociology in India. Orient Longman, Delhi.
9. Rao, S. (1958): Personality of India: Pre and Proto Historic Foundation of India and Pakistan, M.S. University, Baroda, Vadodara.
10. Schwartzberg J. (1978): An Historical Atlas of South Asia. University of Chicago Press, Chicago.
11. Sen, A. and Dreze J. (1996): Indian Development: Selected Regional

MASTER OF ARTS IN GEOGRAPHY SEMESTER-II, CORE COURSE

GGCC - 206 :TECHNIQUES OF MAPPING AND MAPPING ANALYSIS (PRACTICAL)

Credits	: 4	Total Marks	: 100
		Viva-voce	: 10
Duration (Hours per week)	: 8	Record File	: 15
		Attendance	: 05
		Practical Examination	: 70

COURSE OBJECTIVES:

1. This course studies the concept of statistics and its geographical applications.
2. It lays the foundation of quantitative techniques to the students for spatial analysis.
3. It will enhance the ability to interpret data statistically.

COURSE LEARNING OUTCOMES:

1. The students will learn various statistical skills.
2. The students will know how the statistical theories and functions will be applied in geography.
3. The students will learn about the significance test to strengthen their argument with facts and represent data.

COURSE CONTENTS:

- UNIT-I** : Cartographic Appreciation, Representation of Data- Proportional symbols, Mono Dot Method, Multiple, Dot Method, Circle Method, Sphere Method, Cube Method
- UNIT-II** : Choro-schematic Maps, Block Pile Diagrams, Pie Diagrams, Flow Diagrams, Method of Interpretation, Indian Topomaps – SOI, Conventional Signs and Symbols, Interpretation of SOI Topomaps: Marginal Information.
- UNIT-III** : Cultural Features - Transportation and Settlements, Special Features Interpretation in Topographical Maps, Components of Indian Daily Weather Maps,
- UNIT-IV** : Sources of Weather Data IMD, Atmospheric Pressure Gradient, Isobar Trends, Wind Direction, Wind Rose, Other Weather Phenomena
- UNIT-V** : Hythergraph Climograph, Choropleth Method, Isoleth Method, Choro-chromatic Method.

SUGGESTED READINGS:

1. Bart James E. and Gerld M. Barber, 1996. Elementary Statistics for Geographers, The Guieford Press, London.
2. Briggs, W. 2016. Uncertainty: The soul of modeling, probability & statistics. Springer International Publishing. doi:10.1007/978-3-319-39756-6.
3. Eldon, D. 1983. Statistics in Geography: A Practical Approach, Blackwell, London.
4. Cressie, N.A.C. 1991. Statistics for Spatial Analysis, Wiley, New York.
5. Gregory, S. 1978. Statistical Methods and the Geographer (4th Edition), Longman, London.
6. Davis, John C. (2002). Statistics and Data Analysis in Geology (third edition), John Wiley & Sons.
7. Mathews, J.A. 1987. Quantitative and Statistical Approaches to Geography: A Practical Manual, Pergamon, Oxford. 8. McGrew, Jr. J.C. and Monroe, C.B. (2000). An Introduction to Statistical Problem Solving in

MASTER OF ARTS IN GEOGRAPHY SEMESTER-II, VALUE ADDED COURSE (NON CREDITED)

GGVNC - 201 :GEOGRAPHY OF GLOBAL CAPITALISM

Credits : 0

Duration (Hours per week) : 4

Course Objectives:

1. Taking perspectives from Geography, Economics, History and Political science, the course tends to address key issues and developments that have gone into making of the present World Economic Landscape
2. To introduce the student to basic concepts of global economy

Course Learning Outcomes:

1. Basic concepts of the Global economy
2. The political economic forces that have shaped the world

COURSE CONTENTS:

- UNIT-I** : Economic systems: capitalist, socialist and mixed economies, the geography of world economy.
- UNIT-II** : Geospatial paradigms: Historical materialism, Productive forces, relations of production, types of economic systems.
- UNIT-III** : Socio-economic spatial relations: Territorial division of Labour, location of productive forces, economic-geographic links and flows.
- UNIT-IV** : Changing geographies of capitalism: Colonial expansion, Development, Post-colonial states.
- UNIT V** : Neo liberalism, Globalization and Regionalism, Resistance movements and alternative imaginations.

SUGGESTED READINGS:

1. Beaud, M. 2004. *A history of capitalism, 1500-2000*, Aakar Books
2. Bery, B.J.L., Conkling, E.C. and Ray, D.M. 1993. *The Global Economy: Resource Use, Locational Choice and International Trade*, Englewood Cliffs, N.J.: Prentice Hall.
3. Cox, K. R. (eds.) 1997. *Spaces of Globalisation- reasserting the Power of the Local*, Guilford Press, New York and London.
4. D'Costa, A. P. 2004. The Indian software industry in the global division of labour. In *India in the global software industry* (pp. 1-26), Palgrave Macmillan, London.
5. Friedman, T. L. 2006. *The world is flat: The globalized world in the twenty-first century* (p. 593), London: Penguin.
6. Gilpin, R. 2011. *Global political economy: Understanding the international economic order*, Princeton University Press.
7. Gwynne, R., Shaw, D. and Klak, T. 2014. *Alternative capitalisms: Geographies of emerging regions*, Routledge.

MASTER OF ARTS IN GEOGRAPHY SEMESTER – III, CORE COURSE

GGCC - 301 :GEOGRAPHY OF INDIA

Credits	: 4	Total Marks	: 100
		Mid Semester Examination	: 15
Duration (Hours per week)	: 4	Assignment	: 10
		Attendance	: 05
		End-Semester Examination	: 70

COURSE OBJECTIVES:

1. This course on the Geography of India assumes' that the students are familiar with the basic landforms, climate, soil, vegetation and population characteristics of India.
2. It is a course designed to enable students to broaden and deepen their understanding of India.

COURSE LEARNING OUTCOMES:

1. Students would gain understanding of 'new' geography of their country.
2. The spatial variations of dimensions of vitality and vulnerability would help them see the strength and weakness of the country.
3. The course would help students to contextualize much of their further learning's, teaching and research on India within the contents of this course.

COURSE CONTENTS:

- UNIT-I** : Making of India through geological times, structure and relief; Drainage systems and watersheds; Physiographic divisions; Climate characteristics: mechanism of the Indian Monsoon. Soil & Forests: types, distribution and utilization.
- UNIT-II** : Population growth: trends and pattern; Population: distribution and density; Ageing of population; Sex and literacy differentials; Trends of urbanization; National population policy - 2000.
- UNIT-III** : Agricultural characteristics and trends; Land holdings, land tenure, land consolidation and land reforms; Infrastructure: irrigation, power, fertilizer, HYV seeds and farm technology; Green, white, blue and yellow revolutions.
- UNIT-IV** : Industrial development in pre and post independence India: Iron- Steel & Cotton-textile. Regional distribution and development potentials of mineral and power resources; New industrial policy: Globalization and liberalization; Industrial complexes and industrial regions.
- UNIT-V** : Multinational Liberalization; Network of Roads, Railways, Waterways, Airways and Pipelines; Development of Communication Technology; Growing Importance of Ports in National and Foreign Trade; Indian Trade & Trade Balance.

SUGGESTED READINGS:

1. Deshpande, C. B. 1992. *India a Regional Interpretation*. New Delhi: Northern Book Center
2. Dreze, Jean and Amartya Sen. 1996. *India: Development and Participation*. Oxford University Press
3. Jayaram, N. 2004. *The Indian Diaspora: Dynamics of Migration*. Sage
4. Kapur, Anu. 2010. *Vulnerable India: A Geographical Study of Disasters*. Sage
5. Kapur, Anu. 2015. *Made Only in India: Goods with Geographical Indications*. Routledge.
6. Khullar, D.R. 2008. *India: A Comparative Geography*, Kalyani Publishers, New Delhi.
7. Krishan, Gopal. 2017. *The Vitality of India: A Regional Perspective*, Rawat Publications.
8. McKinsey & Company Inc. 2013. *Reimagining India: Unlocking the Potential of Asia's Next Superpower*. Simon & Schuster.
9. Ramachandran, R. 2018. *A History of Hinduism: The Past, Present and Future*. Sage.
10. Singh, Jagdish, 2003. *India: A Comprehensive Geography*, Radha Publications, Gorakhpur.
11. Shukla, Sandhya. 2003. *India Abroad*. Hyderabad: Orient Longman.
12. Tharoor, Shashi. 2016. *An Era of Darkness: The British Empire in India*. Aleph Book Company.

MASTER OF ARTS IN GEOGRAPHY SEMESTER-III, CORE COURSE / MOOC

GGCC - 302 :RESEARCH METHODOLOGY

Credits	: 4	Total Marks	: 100
		Mid Semester Examination	: 15
Duration (Hours per week)	: 4	Assignment	: 10
		Attendance	: 05
		End-Semester Examination	: 70

COURSE OBJECTIVES:

1. This course attempts to introduce the students to the basic knowledge related to geographical field research design.
2. The course examines the questions related to data collection, methods and its analysis.
3. It also critically evaluates the dissertation based on field survey

COURSE LEARNING OUTCOMES:

1. The students will be able to understand basic concepts of field research methods and research design in geography.
2. The students will be able to do field work through practical experience and get skills of data collection methods and processing and analysis of obtained data.
3. The students will be able to write dissertation based on field work on given topic

COURSE CONTENT

- UNIT-I** : Introduction to Geographical Research: Concept, Significance, Types and Approaches to Research in Geography; Literature survey; Research Ethics; Limitations.
- UNIT-II** : Research Design: Steps, Identification and formulation of Research Problem; Research questions; Aims and Objectives
- UNIT-III** : Data Sources and Methods of Data Collection: Nature of Data: qualitative and quantitative, Primary Data: Field survey, Selection of sample, Questionnaire, Interview, Observation, PRA; Secondary Data
- UNIT-IV** : Data Analysis: Processing of Data; tabulation, graphic presentation and analysis of Data; Referencing; Structure of dissertation
- UNIT-V** : Interpretation of Data and Paper Writing – Layout of a Research Paper, Journals in Computer Science, Impact factor of Journals, When and where to publish ? Ethical issues related to publishing, Plagiarism and Self-Plagiarism.

SUGGESTED READINGS:

1. Black, James A. and Champion, D.J. 1976. Methods and Issues in Social Research, John Wiley and Sons, New York.
2. Bonnett, Alastair, R. 2008. What Is Geography? Sage, London.
3. Creswell, J. W. 2009. Research Design: Qualitative, Quantitative and Mixed Methods Approaches, Sage, California, USA
4. Gopal, Krishan and Singh, Nina, 2016. Researching Geography: The Indian Context. Routledge, Delhi.
5. Harris, C. 2001. Archival Fieldwork, Geographical Review, 91 (1-2), 328-334
6. Hart, C. 1999. Doing Literature Review: Releasing the Social Science Research Imagination, Sage, London.

MASTER OF ARTS IN GEOGRAPHY SEMESTER-III,ELECTIVE COURSE

GGEL-301A :REMOTE SENSING AND G.I.S.

Credits	: 4	Total Marks	: 100
		Mid Semester Examination	: 15
Duration (Hours per week)	: 4	Assignment	: 10
		Attendance	: 05
		End-Semester Examination	: 70

COURSE OBJECTIVES:

1. To develop an understanding of remote sensing, GIS and GPS technologies and their potential applications.
2. To develop basic skills to interpret remote sensing images for various applications in geography.
3. To develop basic skills to use GIS for various applications in geography

COURSE LEARNING OUTCOMES:

1. Overall understanding of potential of Remote Sensing, GIS and GPS
2. Understanding of image interpretation
3. Understanding of GIS analysis workflow and integrated applications in various domains of Geography

COURSE CONTENT

- UNIT-I** : Remote Sensing: Meaning, Definition, significance and utility of remote sensing in Geography; History and Development of Remote Sensing; Advantages and Limitations of Remote Sensing; Stages of remote sensing; Ideal and Real remote sensing. Types of Remote sensing: Active and Passive Remote sensing. Types and characteristic of Remote Sensing Platforms; Geo-stationary and Polar orbiting satellites
- UNIT-II** : Principles of Remote Sensing; EMR: its properties, Electromagnetic spectrum and characteristics of different wavelength regions. EMR: interaction mechanisms. Atmospheric interaction and their types; Surface interaction and their types; Spectral signature; Spatial, Spectral, Radiometric and Temporal Resolutions
- UNIT-III** : Aerial Photography, its geometry, Relief Displacement and Image Formations; Classification of Aerial Photographs and their Utility; Elements of Image Recognition and Aerial Photo interpretation, The multi-concept; Digital Image Processing: Pre-Processing-Radiometric, Geometric and atmospheric Corrections; Enhancements; Image Classification-Supervised and Unsupervised.
- UNIT-IV** : Generation of spectral library of LU/LC features from L3 and TM data; Image classification; Change detection from multidated maps and images; Geographical Information System ; Raster to vector conversion; Spatial analysis through vector overlay; Preparation of annotated thematic maps; Preparation of DEM from spot heights, contours and SRTM data; Global Navigation Satellite System ;Principles of GNSS positioning with special reference to GPS; Collection and retrieval of GNSS positions; Preparation of maps from GNSS data; Length and area measurements from GNSS data.
- UNIT-V** : Fundamentals of GIS Introduction to GIS: Definition, Information technology in geography, history and development in GIS, components of GIS, advantages of GIS over traditional techniques. Application of GIS in geographical studies.-Geographic data – human cognition of the spatial world, maps and other representation of the world; Types of information in a digital map: scale, projection and Georeferencing; Spatial Data - Geographic data and information, spatial – non-spatial data. GIS data formats, raster and vector data, their merits and demerits.

SUGGESTED READINGS:

1. Sabins, Floyd F, 1986, Remote Sensing: Principles & Interpretation, Freeman, New York.
2. Lillesand, T.M. &Klefer, R.W. 1987, Remote Sensing and Image Interpretation, John Wiley & Sons, New York.
3. Curran, Paul J; 1985, Principles of Remote Sensing, Longman, London.
4. Estes, J.E. and LW Senger, 1974, Remote sensing Techniques for environmental Analysis, Hamilton, Santa Barbara, California.
5. Slater, PN, 1980, Remote Sensing: Optics and Optical System, Addison-Wesley, Reading.
6. James, B. Camp bell, Introduction to Remote Sensing-2nd Edi. Taylor & Francis, London.
7. Fazal, S. (2009), Remote Sensing Basics, Kalyani Publishers, New Delhi.
8. Reddy, A. (2001), Textbook of Remote Sensing and Geographical Information Systems, B.S. Publication Hyderabad.

MASTER OF ARTS IN GEOGRAPHY SEMESTER-III, ELECTIVE COURSE

GGEL – 301B :SETTLEMENT GEOGRAPHY

Credits	: 4	Total Marks	: 100
		Mid Semester Examination	: 15
Duration (Hours per week)	: 4	Assignment	: 10
		Attendance	: 05
		End-Semester Examination	: 70

COURSE OBJECTIVES:

1. This course attempts to acquaint the students with urban issues and components.
2. The course examines the questions related to urban poverty and slums in India.
3. It also critically evaluates the infrastructure development and programmes & policies aimed at sustainable urban development and management strategies.

COURSE LEARNING OUTCOMES:

1. The students will be able to understand the concepts and components of urban development and management.
2. The students will be able to analyse the urban poverty and slums at different scales.
3. The students will be able to get updated knowledge of urban infrastructure development management and urban governance.

COURSE CONTENT

- UNIT-I** : Settlement Geography: Meaning, Definition & Scope; Approaches to Study; Theories of Evolution of Human Settlement; Size & Distributions with Theoretical Models; Settlement Hierarchy :Christaller&Losch; Hierarchy of Settlement in India.
- UNIT-II** : Site & Situation of Rural Settlement; The Evolution of Street Pattern in Rural Settlements; Morphological Characteristics of Rural Settlement; The Evolution of Field Boundaries & the Field Patterns; Fold Housing; Folk Architecture & Traditional Building Material.
- UNIT-III** : Urban Settlements; Their Site & Situation; Size & Spacing of Urban Settlement; Christallers System of Urban Hierarchy & Spacing of Cities; Morphological Characteristics of Urban Settlement; Models of Urban Settlements; Problems of Urban Housing & Emergence of Slums.
- UNIT-IV** : Urbanization & Urban Functions; Concept of Urbanization; Factors of Urbanization; Trends of Urbanization in the World; Functional Classification of Towns & Cities; Rural-Urban Fringe; Urban Planning; Urban Planning & Management.
- UNIT-V** : Development of Population and Settlement Geography in less developed countries and more developed countries

SUGGESTED READINGS:-

1. Dickinson, R.E. 1968 :City and Region: A Geographical Interpretation, Routledge and Kegan Paul Ltd. London.
2. Ghosh, S. 1998:Introduction to Settlement Geography, Orient Longman Ltd., Calcutta: 158p.
3. Hardoy, J .E., Mittin, D. & Satterthwaite, D. 1992 : Environmental Problems in the World Cities,Earthscan Pub. Ltd. London.
4. Hudson, F.S. 1970: Geography of Settlements, Macdonald and Evans Ltd., Plymouth: 3-12,61-70, 79-101.
5. Hussain, M. 1994: Human Geography, Rawat Pub. Co., New Delhi: 485p.
6. Mandal, R.B. 1988 : Systems of Rural Settlements in Developing Counties, Concept Pub. Co.,New Delhi.
7. Misra. H.N. (ed) 1987 :Contributions to Indian Geography, Volume 9: Rural Geography,Heritage Pub., New Delhi.
8. Racine, J. (ed) :Calcutta 1981, Concept Pub. Co., New Delhi.
9. Ramachandran R. 1989 :Urbanisation arid Urban Systems in India, Oxford University Press, New Delhi.

MASTER OF ARTS IN GEOGRAPHY SEMESTER-III, ELECTIVE COURSE

GGEL – 301C :NATURAL RESOURCE MANAGEMENT

Credits	: 4	Total Marks	: 100
		Mid Semester Examination	: 15
Duration (Hours per week)	: 4	Assignment	: 10
		Attendance	: 05
		End-Semester Examination	: 70

COURSE OBJECTIVES:

1. Awareness about resource availability, accessibility, utilization, its use and misuse.
2. Spatial distribution of natural resources.
3. Resource management and governance.

COURSE LEARNING OUTCOMES:

1. At the end the course student should learn importance of natural resources.
2. Conservation methods and awareness about community participation.
3. Assessment of role of national and international efforts to mitigate resource problems.

COURSE CONTENT

- UNIT-I** : Introduction: Concept, approaches and appraisal to natural resource management.
- UNIT-II** : Natural Resources: Land, Water, Forest.
- UNIT-III** : Problems in Resource Management: Issues and constraints in resource management, Environmental, Political and Socio-Economic challenges.
- UNIT-IV** : Integrated Resource Management: Case Studies (any one) from Himalayan, coastal and desert regions, use of techniques of RS and GIS.
- UNIT-V** : Governance: Policy, Planning and Institutional advancement in natural resource management.

SUGGESTED READINGS:

1. Berkes, F. (ed.), 1989. Common Property Resources: Ecology and Community Based Sustainable Development, Belhaven Press London.
2. Mather, A.S. and Chapman, K. 1995. Environmental Resources, Longman, Harlow, England.
3. McClay, K.R. 1995. Resource Management Information System: Process & Practice, Taylor Francis, London.
4. Mitchell B. 1988. Geography and Resources Analysis, 2nd edition, Longman, London.
5. Mitchell, B. 1997. Resource and Environmental Management, Longman, Harlow, England.
6. Newson, M.D. 1991. Land, Water and Development: River Basin Systems and Management, Routledge, London.
7. Owen, S. and Owens, P.L. 1991. Environment, Resources and Conservation, Cambridge University Press, New York.
8. Pandey, B. W. (ed.) 2000. Natural Resource Management, Mittal Publication, New Delhi.
9. Rees, J. 1990. Natural Resources: Allocation, Economics and Policy, Routledge, London.
10. Singh, Jagdish, 2006. SansadhanBhoogol, Radha Publications, New Delhi (Hindi).

MASTER OF ARTS IN GEOGRAPHY SEMESTER – III, ELECTIVE COURSE

GGEL – 302A : REGIONAL DEVELOPMENT IN INDIA

Credits	: 4	Total Marks	: 100
		Mid Semester Examination	: 15
Duration (Hours per week)	: 4	Assignment	: 10
		Attendance	: 05
		End-Semester Examination	: 70

COURSE OBJECTIVES:

1. Our main focus is to teach the changing paradigm of regional development and why at present there is a need for a sustainable regional development strategy.
2. Apart from these of specific interest is to cover the role of NITI Aayog and Planning Commission and its various regional development strategies shaping present and future regional development patterns in India.

COURSE LEARNING OUTCOMES:

1. The course will help in understanding the concept and need for sustainable regional development along with the changing paradigm of regional development in India.
2. It will improve understanding about the role of various development ideas shaping regional development strategies.
3. Understanding spatial and temporal patterns of area development, poverty and HDI indicators.

COURSE CONTENT

- UNIT-I** : Concept of Regional Development: changing paradigm, need for sustainable regional development
- UNIT-II** : Indian Development Thought: development ideas of Gandhi, Census of India, Planning Commission, and NITI Aayog.
- UNIT-III** : Identification of Regional Disparities: spatial patterns and temporal trends, Human Development Index
- UNIT-IV** : Regionalization for Sustainable Development: area development programmes, agroclimatic regions, metropolitan regions.
- UNIT-V** : Regional development strategies: Growth Center, Special Economic Zones, watershed approach, micro level planning.

SUGGESTED READINGS:

1. Bardhan, P. 1984. The Political Economy of Development in India, Oxford, Blackwell.
2. Bhalla, A.S. 1992. Uneven Development in the Third World: A Study of India and China, London, Macmillan.
3. Dreze, J. and Sen, A. 1996. Indian Development: Select Regional Perspectives, Oxford University Press.
4. Ganguli B.N. 1997. Indian Economic Thought: A 19th Century, Perspective, Tata McGraw Hill, New Delhi
5. Misra, R.P. (ed.) 1992. Regional Planning Concepts, Techniques, Policies and Case Studies, Concept Publishing Pvt. Ltd, Delhi.
6. Mitra, Ashok. 1961. Levels of Regional Development in India, Census of India 1, no. 04 Part 1,
7. Nath, V. 2009. Regional Development and Planning in India, Concept Publishing Company.
8. Sharma, H.S and Chattopadhyaya, S. 1998. Sustainable Development: Issues and Case Studies, Concept Publishing, Delhi.

MASTER OF ARTS IN GEOGRAPHY SEMESTER-III, ELECTIVE COURSE

GGEL – 302B :MARKETING GEOGRAPHY

Credits	: 4	Total Marks	: 100
		Mid Semester Examination	: 15
Duration (Hours per week)	: 4	Assignment	: 10
		Attendance	: 05
		End-Semester Examination	: 70

COURSE OBJECTIVES:

1. The students will appreciate the significance of social, cultural and political factors as central to the functioning of economies; and that the economic processes needs to be analysed in social, cultural and political contexts.
2. The students will be exposed to contemporary themes in economic geography, which emerged in post 1970s; and be conscious of the numerous economic issues confronting the world economic system.
3. The students will realise the relevance of economic geography for analysing contemporary societies and economies.

COURSE LEARNING OUTCOMES:

1. The students will be able to appreciate that geography and space matter in economy.
2. The students will be able to identify some key issues that economic geography engages with.

COURSE CONTENT

- UNIT-I** : Marketing Geography: Definition, scope and significance. Growth and development, Approaches of study: Commodity, Spatial, Social, Economic, Behavioural. Application of Planning: Market, Urban, Agriculture
- UNIT-II** : Markets : Classification, structure and hierarchy, Markets participants, Market Channel and Trade Area, Theoretical Framework for Study of Market Centres: Christaller and Losch Model of Market Locations; B.J. Berry's Model and Reilly's Models of interaction and trade area delimitation.
- UNIT-III** : Trade : Classification and structure: Local, Regional, National, and International. Historical Development of Trade, Factors of Development of Trades. International Trade, World Trade Organization, World Trading Zone: SAFTA (South Asian Free Trade Association), NAFTA (North Atlantic Free Trade Association).
- UNIT-IV** : Indian Agricultural Marketing: Definition, Types and Structure, Formal Marketing: Regulated, Government Purchase Centres, Informal Marketing.
- UNIT-V** : Local, Regional, Private Traders, Processing Units. Marketing Channels, Food grains and Vegetables, WTO and Agricultural Marketing: Its impact on agriculture, environment, Food Security and Society

SUGGESTED READINGS

1. Acharya, S.S & Agarwal, N.L (1987) Agricultural Marketing in India, Oxford & IHB Publishing Co, New Delhi.
2. Berry, B.J.L. (1967) Geography of Market centers and Retail Distribution. Prentice Hall, Englewood cliffs, N.J
3. Davis, R.L. (1976) Marketing Geography, Methuen, London,
4. Dixit, R.S. (1984) Marketing Centers and their spatial development in the Umland of Kanpur, Allahabad
5. Garnier, B, J and Delobez. A (1977) Geography of Marketing, Longman, London.
6. Khan.N (1991) Agriculture development and Marketing, H.K. Publisher, New Delhi
7. Losch, A (1954) Economics of Location. Yale University press, New Heaven.
8. N.C.A.E.R (1983) Market towns and Spatial Development in India, NCAER, N.D.
9. Saxena, H.M (1984) Geography of Marketing. Concepts and Methods, New Delhi.
10. Saxena, P. Marketing and Sustainable Development. Rawat Publication, New Delhi.
11. Singh, G.N. (1987) Agricultural Marketing in India. Hugh Publication, Allahabad.
12. Rajgopal (2001) Rural Marketing. Rawat Publication, New Delhi

MASTER OF ARTS IN GEOGRAPHY SEMESTER – III, ELECTIVE COURSE

GGEL – 302C :RESEARCH METHODS AND TECHNIQUES IN GEOGRAPHY

Credits	: 4	Total Marks	: 100
		Mid Semester Examination	: 15
Duration (Hours per week)	: 4	Assignment	: 10
		Attendance	: 05
		End-Semester Examination	: 70

COURSE OBJECTIVES:

1. This course attempts to introduce the students to the basic knowledge related to geographical field research design.
2. The course examines the questions related to data collection, methods and its analysis.
3. It also critically evaluates the dissertation based on field survey.

COURSE LEARNING OUTCOMES:

1. The students will be able to understand basic concepts of field research methods and research design in geography.
2. The students will be able to do field work through practical experience and get skills of data collection methods and processing and analysis of obtained data.
3. The students will be able to write dissertation based on field work on given topic.

COURSE CONTENT

- UNIT-I** : Introduction to Geographical Research: Concept, Significance, Types and Approaches to Research in Geography; Literature survey; Research Ethics; Limitations.
- UNIT-II** : Research Design: Steps, Identification and formulation of Research Problem; Research questions; Aims and Objectives.
- UNIT-III** : Data Sources and Methods of Data Collection: Nature of Data: qualitative and quantitative, Primary Data: Field survey, Selection of sample, Questionnaire, Interview, Observation, PRA; Secondary Data.
- UNIT-IV** : Data Analysis: Processing of Data; tabulation, graphic presentation and analysis of Data; Referencing; Structure of dissertation.
- UNIT-V** : Nature and types of geographical data, standardization of data; Rank and Z-scores, Sampling techniques; purposive, random, systematic, stratified and multistage. Hypothesis testing; test of significance chi-square test, t-test. F-test; probability statement. Determination and location of mean centre of population over time; calculation of standard distance from mean centre of population

BOOKS RECOMMENDED :-

1. Black, James A. and Champion, D.J. 1976. Methods and Issues in Social Research, John Wiley and Sons, New York.
2. Bonnett, Alastair, R. 2008. What Is Geography? Sage, London.
3. Creswell, J. W. 2009. Research Design: Qualitative, Quantitative and Mixed Methods Approaches, Sage, California, USA
4. Gopal, Krishan and Singh, Nina, 2016. Researching Geography: The Indian Context. Routledge, Delhi.
5. Harris, C. 2001. Archival Fieldwork, Geographical Review, 91 (1-2), 328-334
6. Hart, C. 1999. Doing Literature Review: Releasing the Social Science Research Imagination, Sage, London.
7. Hay, I. 2010. Qualitative Research Methods in Human Geography, 3rd ed. Oxford University Press, South Melbourne, Australia,
8. Lunsbury J.F. and Aldrich, F.T. 1979. Introduction to Geographic Field Methods and Techniques, Charles E. Merrill Publishing Company, Columbus.
9. Misra, R. P. 2015. Research Methodology: A Handbook, Concept Publishing Company, New Delhi.
10. Montello, Daniel R. and Sutton, P.C. 2006. An Introduction to Scientific Research in Geography, Sage Publications, London.
11. Oliver, Paul, 2004. Writing Your Thesis, Vistaar Publications, New Delhi
12. Preece, R. 1994. Starting Research: An Introduction to Academic Research and Dissertation Writing, Continuum, London.
13. Sharma, P.R., R. S. Yadava and Sharma, V.N. 2011. Research Methodology: Concepts and Studies, R. K. Books, New Delhi.
14. Stoddard, Robert H. 1982. Field Techniques and Research Methods in Geography, Kendall/Hunt for National Council for Geographic Education

MASTER OF ARTS IN GEOGRAPHY SEMESTER-III, SUMMER

GGIN - 301 :INTERNSHIP

Credits : 4

MASTER OF ARTS IN GEOGRAPHY SEMESTER-III, INTERDEPARTMENTAL COURSE

GGIER - 301 :GEOGRAPHY OF UTTAR PRADESH

Credits	: 4	Total Marks	: 100
		Mid Semester Examination	: 15
Duration (Hours per week)	: 4	Assignment	: 10
		Attendance	: 05
		End-Semester Examination	: 70

COURSE OBJECTIVES:

1. This course on the Geography of UP assumes' that the students are familiar with the basic landforms, climate, soil, vegetation and population characteristics of UP
2. It is a course designed to enable students to broaden and deepen their understanding of UP.

COURSE LEARNING OUTCOMES:

1. Students would gain understanding of 'new' geography of their country.
2. The spatial variations of dimensions of vitality and vulnerability would help them see the strength and weakness of the country.
3. The course would help students to contextualize much of their further learnings, teaching and research on India within the contents of this course.

COURSE CONTENT

- UNIT-I** : Locational Set-up of Uttar Pradesh in India and its changing map. Relief and Physical Divisions, Structure, Drainage, Ground Water Resource, Soils and their types, Climate and Climatic regions and vegetative cover.
- UNIT-II** : Problems Related to Over Utilisation of Natural Resources in Uttar Pradesh: Ussar and Sodic soils formation and soil erosion, Underground water scarcity, Depletion of forest cover and wild life, Surface Water Resource Utilities, Drinking Water and Power Shortage, Flood and drought affected parts
- UNIT-III** : Spatio Temporal Trends of Agricultural production, Development of Irrigational facilities including canals and dams, Agricultural Productivity and Crop-Combination regions, Power Generation and its distribution in different sectors of economy, Agro-Processing industry and their problems with special reference to sugar industry.
- UNIT-IV** : Human Resource Development in Uttar Pradesh: Demographic and Religious composition (Density, Rural-Urban distribution of Population, Sex-ratio, S/C/ S/T population, Literacy and trend of urbanisation), occupational Structure and Poverty Eradication programmes initiated. Accessibility and Transport infrastructural gaps.
- UNIT-V** : Planning for Balanced Development: Planning for sustainable development including health, education, drinking water, Emerging Political Issues and Voting Behaviour in General elections and Policy of the State Government for Balanced regional development.

SUGGESTED READINGS:

1. Despande C.D. (1992): India-A Regional Inter-Pretation ICSSR, Northern Book Centre, New Delhi.
2. Singh R.L.(ed.) (1971): India-A Regional Geography, National Geographical Society, India, Varanasi.
3. Tiwari, A.R. : Geography of Uttar Pradesh, N & T.
4. Tirtha, R. & Gopal Krishna (1966): Emerging India, Rawat Publications, Jaipur.
5. Kundu A., Raza Moonis (1982): Indian Economy: The Regional Dimension, Spectrum Publishers, New Delhi.
6. Mamoria, C.B. : Advanced Geography of India.
7. Bansal, S.C. : Advanced Geography of India (Hindi), Meenakshi Prakashan, Meerut.

MASTER OF ARTS IN GEOGRAPHY SEMESTER-IV, CORE COURSE

GGCC – 401 :REGIONAL DEVELOPMENT AND MULTILEVEL PLANNING

Credits	: 4	Total Marks	: 100
		Mid Semester Examination	: 15
Duration (Hours per week)	: 4	Assignment	: 10
		Attendance	: 05
		End-Semester Examination	: 70

COURSE OBJECTIVES:

1. The students will be exposed to 'regional' approach in studying geography.
2. The students will be conscious of the various facets of regional geography – foundations and dimensions, regional consciousness and identity, and forms and evolution.
3. The students will be aware of the hierarchy of regional divisions of India.

COURSE LEARNING OUTCOMES:

1. The students will be able to understand and analyse the principal issues confronting the regions today.
2. The students will get an insight into 'how regions work', through case-study from India.
3. The students will be able to understand and analyse the principal issues confronting the different regions of India.

UNIT-I : Concept of Region (Hartshorne), its critics and further development; typology and delineation Critical appreciation of Losch and Christaller's theory; Economic Base theory, Regional development theories of Growth Centre and Growth Pole; Theories of City Structure; Core-periphery relations.

UNIT-II : Theories of Regional Development; (Albert O. Hirschman, Gunnar Myrdal, John Friedman, W.W. Rostow, Dependency Theory of Underdevelopment) Concepts: Growth and Development, spatial integration, factors affecting regional development; Classical and Neoclassical Growth models: Smith, Keynes, Rostow, Marx; Models of industrialization urbanization: Perroux, North, Myrdal, Hirschman, Friedmann; Alternative models: Agropolitan, Basic Needs, Export-led, Import Substitution

UNIT-III : Concept of planning region, economic planning; Planning Regions of India; purpose and methods of delineation of Planning Region; State as a Planning unit; Criteria for dividing a State into Economic Region; Uttar Pradesh as a case study; Micro Level Planning at District Level: Uttar Pradesh and Chandigarh

UNIT-IV : Tribal Area Development; Rural Development Strategies, case studies from India; Backward Region: Identification and Development; Rural Development in India: Programmes and Policies. Economic Base, Resource Potentials; Role of Agriculture in Regional Development

UNIT-V : Metropolitan concept, Metropolis, Metropolitan area, Metropolitan region, Mega-city & Primate city; Need, Importance and Concept of Urban Planning; Urban Planning in India: Lucknow, Mumbai and Delhi; City region: Problem of planning; Planned Town: concept; New Towns of India; National Policies on Urbanization; Urban Renewal vs. Urban Redevelopment; 74th Constitutional Amendment; Role of Industries in Regional Development; Transport, Trade and Commerce and Regional development

SUGGESTED READINGS:

1. Bhat, L.S., 1973, Regional planning in India, Statistical Publishing Society, Calcutta.
2. Chandana, R.C., 2000, Regional Planning, Kalyani Publishers Ludhiana.
3. Chand, M., Puri, & V.K., 1983, Regional Planning in India, allied Publishers, New Delhi.
4. Friedman, J., & Alonso, W., 1967 Regional Development and Planning-A Reader, MIT Press, Cambridge Hars.
5. Glasson, 1980, Regional Planning, Hutchinson, London.
6. Glikson, A., 1955, Regional and Development, Netherlands, Universities Foundation of International Corp, London.
7. Mishra, R.P, 1969, Regional Planning Concepts, Techniques and Policies, University of Mysore, Mysore.
8. Mishra R.P, et.al., 1974, Regional Development and Planning in India, Institute of Development Studies, Mysore.
9. Rao, V.L.B., 1960, Regional Planning, Asia Publishing House, New Delhi.
10. Kant Surya et.al (eds): Reinventing Regional Development, Rawat Publication, Jaipur and N.Delhi.

MASTER OF ARTS IN GEOGRAPHY SEMESTER-IV, ELECTIVE COURSE

GGEL – 401A : OCEANOGRAPHY

Credits	: 4	Total Marks	: 100
		Mid Semester Examination	: 15
Duration (Hours per week)	: 4	Assignment	: 10
		Attendance	: 05
		End-Semester Examination	: 70

COURSE OBJECTIVES:

1. This course will lay the foundation of the understanding of coupled dynamics between land and ocean, ocean and atmosphere, land and atmosphere.
2. It will enhance the understanding of relationship and linkages between land, ocean and atmosphere

COURSE LEARNING OUTCOMES:

1. The students will understand the earth system sciences and impacts of climate variability.
2. The student shall be able to use different models for climate forecasting and understanding.

COURSE CONTENT

- UNIT-I** : Oceanography – nature, scope and development, distribution of land and water, Ocean bottom topography, bottom relief of Pacific, Atlantic and Indian Ocean.
- UNIT-II** : Characteristics of Ocean water: temperature – distribution, salinity – composition, source and distribution, density of sea level.
- UNIT-III** : Movement of ocean water: currents - causes and character, currents of Atlantic, Indian and Pacific Ocean, Waves, tides and theories of origin.
- UNIT-IV** : Ocean deposits and coral reefs: sources, types and distribution of ocean deposits, coral reefs –formation, condition of growth, type and theories of origin.
- UNIT-V** : Sea Level Change: Causes and consequences, Importance of EEZ and CRZ; Marine Pollution and Its Effects, Geopolitics of Oceanic Resources with special reference to Asia-Pacific Region

BOOKS RECOMMENDED:

1. Davis, R.J.A. 1986, Oceanography – An Introduction of the Marine Environment, Win C. Brown, Iowa.
2. King, C.A., Oceanography for Geographers, Edward Arnold Pub.
3. Murray, S.J., 1913, Ocean, A General account of the Science of the sea, Thorton Butter Worth, London.
4. Siddhartha, K. 1999, Oceanography, A Brief Introduction, Kisalaya Pub. Pvt. Ltd., New Delhi..
5. Singh, S. 2002, Physical Geography, Prayag Pub., Allahabad.
6. Stahler, A. N. Stahler A.M., 1997, Geography and man's Environment, John Wiley and Sons, New York.
7. Thurnman, H.V., 1978, Introduction to oceanography, Charles E. Merrill Pub. Co., London.
8. Weyl, P.K. 1970, Oceanography an Introduction of the Marine Environment, John Wiley and Sons Ltd., London.

MASTER OF ARTS IN GEOGRAPHY SEMESTER-IV, ELECTIVE COURSE

GGEL – 401B : ENVIRONMENT AND BIO-GEOGRAPHY

Credits	: 4	Total Marks	: 100
		Mid Semester Examination	: 15
Duration (Hours per week)	: 4	Assignment	: 10
		Attendance	: 05
		End-Semester Examination	: 70

COURSE OBJECTIVES:

1. Various dimensions of the ecosystems, their spatial distribution.
2. Anthropogenic interventions and resultant impacts on various ecosystems.
3. Understanding of environmental governance.

COURSE LEARNING OUTCOMES:

1. Detailed exposure to the concept of ecosystem, processes, theories and concepts.
2. In-depth knowledge of anthropogenic interventions and impacts, conservation strategies and planning.
3. Evaluation and achievement of different environmental programs, policies and legislations.

COURSE CONTENT

- UNIT-I** : Environment and Ecosystem: Concepts and approaches, global environmental problems and sustainable development.
- UNIT-II** : Urban Environmental Problems and their Management: Air, water and solid waste.
- UNIT-III** : Desert and Coastal Ecosystems: Desertification-process and patterns, management strategies, issues and problems in coastal ecosystem, mangroves, integrated coastal zone management.
- UNIT-IV** : Mountain Ecosystems: Mountain ecology, risks and vulnerabilities, highland-lowland interactive systems, biodiversity and conservation.
- UNIT-V** : Environmental Governance: Environmental policies and programs, environmental education and legislation

BOOKS RECOMMENDED:

1. Alexander, Mike. 2008. Management planning for nature conservation: A theoretical basis & practical guide, Springer.
2. Balakrishnan, M., 1998. Environmental Problems and Prospects in India, in Das, R.C., et. al. Oxford & IBH Pub., New Delhi.
3. Consensus Study Report, 2005. Valuing Ecosystem Services: Toward Better Environmental Decision-Making, National Research Council, Division on Earth and Life Studies, Water Science and Technology Board, Committee on Assessing and Valuing the Services of Aquatic and Related Terrestrial Ecosystems. National Academies Press, Washington.
4. Das, R. C., 1998. The Environmental Divide: The Dilemma of Developing Countries, A.P.H. Pub., New Delhi
5. Freedman, Bill. 1995. Environmental Ecology: The Ecological Effects of Pollution, Disturbance, and Other Stresses, Academic Press. London.
6. Gole, P., 2001. Nature Conservation and Sustainable Development in India, Rawat Pub., Jaipur. Hooja, R., et. al., (ed.) 1999. Desert, Drought and Development: Studies in Resource Management and Sustainability, Rawat Pub, Jaipur.
7. Hussain, M., (ed.) 1996. Environmental Management in India, Rawat Pub., Jaipur
8. Munn, T., (ed.) 2001. Encyclopaedia of Global Environmental Change, John Wiley & Sons, West Sussex 7.
9. Ramakrishnan, P. S. 1997. Conservation and Management of Biological Resources in Himalaya, Oxford & IBH Pub., New Delhi.
10. Singh Savindra, 2015. ParyavaranBhoogol. PrayagPushtak Bhawan, Allahabad (Hindi).
11. Singh, R.B., (ed.) 1990. Environmental Geography, Heritage Pub., New Delhi.

MASTER OF ARTS IN GEOGRAPHY SEMESTER – IV, ELECTIVE COURSE

GGEL -401C :DEMOGRAPHIC TECHNIQUES

Credits	: 4	Total Marks	: 100
		Mid Semester Examination	: 15
Duration (Hours per week)	: 4	Assignment	: 10
		Attendance	: 05
		End-Semester Examination	: 70

COURSE OBJECTIVES:

1. This course shall equip the students with a basic understanding of demographic concepts and issues.
2. It shall enable them to understand different sources of demographic data and related data limitations.
3. The students will learn about estimates of different measures related to fertility, nuptiality, mortality, and population projections.

COURSE LEARNING OUTCOMES:

1. This course must train the student about the concepts and issues of demography.
2. Students should have good knowledge of various sources of demographic data and related limitations.
3. They must be conversant with different estimations methods related to fertility, nuptiality, mortality, migration, urbanization, and population projections.

COURSE CONTENT

- UNIT-I** : Introduction to Basic Concepts and Measures: rate, ratios, proportions, person-years of life.
- UNIT-II** : Sources of Demographic Data: census, vital statistics, surveys, UN/ other government publications.
- UNIT-III** : Population Age-structures: quality of data and adjustments
- UNIT-IV** : Basic Measures of Mortality and Life Table; Fertility and Nuptiality; Migration and Urbanization
- UNIT-V** : Population Projections

BOOKS RECOMMENDED

1. Carmichael, G.A. 2016. Fundamentals of Demographic Analysis: Concepts, Measures, and Methods, Springer, London.
2. Hinde, A. 2009. Demographic Methods, Routledge, London.
3. Moultrie, T.A., Dorrington, R.E., Hill, A.G., Hill, K., Timaeus, I., and Zaba, B. (eds.) 2013. Tools of Demographic Estimation, Paris: International Union for the Scientific Study of Population.
4. Office of the Registrar General of India, and United Nations Population Fund, 2014. Training Manual on Demographic Techniques. New Delhi: ORGI, UNFPA-India. <http://india.unfpa.org/en/publications/training-manual-demographic-techniques>
5. Preston, S., Heuveline, P., and Guillot, M. 2000. Demography: Measuring and Modelling Population Processes, Wiley-Blackwell, Oxford.
6. Seigal, J.S., and Swanson, D.A. (eds.) 2004. The Methods and Materials of Demography. 2nd edition, San Diego, CA: Elsevier Academic Press.
7. Watcher, K.W. 2014. Essential Demographic Methods, Cambridge, MA: Harvard University Press.
8. Yusuf, F., Martins, J.M., Swanson, D.A. 2014. Methods of Demographic Analysis, Springer, London.

MASTER OF ARTS IN GEOGRAPHY SEMESTER – IV, ELECTIVE COURSE

GGEL – 402A : POPULATION GEOGRAPHY

Credits	: 4	Total Marks	: 100
		Mid Semester Examination	: 15
Duration (Hours per week)	: 4	Assignment	: 10
		Attendance	: 05
		End-Semester Examination	: 70

COURSE OBJECTIVES:

1. This course intends to orient the students towards interdisciplinary perspectives on population issues at different geographical scales.
2. It will acquaint the candidate to appreciate the role of spatial perspectives towards showcasing population changes and its impact on the economy, society, environment and politics at diverse geographical spheres.

COURSE LEARNING OUTCOMES:

1. After taking this course, a candidate should be able to appreciate the active role of population geography as a distinct field of human geography.
2. She should be conversant with different sources of demographic data, and well versed with debates on population-development linkages.
3. Students should be able to examine the different components of population change, its drivers, and their consequences upon contemporary socio-economic, environmental, and political changes

COURSE CONTENT

- UNIT-I** : Nature, scope, significance, approaches to study Population Geography, recent trends, Sources of population data; The Census, Vital Registration and Other Sources, Problems relating to comparability of data, Population distribution and density in the World.
- UNIT-II** : Population Dynamics: Growth, fertility and mortality measurement, Theories of Growth: Malthusian theory, Social Capillary and demographic transition theory. Migration: types, determinant and consequences, patterns of international migration, Theories of Migration: Ravenstein and Lee's Laws.
- UNIT-III** : Population Composition/ Characteristics: Sex Composition-measures, determinants and distribution. Declining Sex Ratio, Age composition: various systems of age groupings, determinants and distribution; ageing of population, Occupational structure, determinants of work force, types of workers.
- UNIT-IV** : Population and resources: Over population, Under population, Optimum population, Ackerman's scheme of Population-Resource regions, population problems with special reference to India: food, housing, unemployment and poverty, population policies, National Population Policy (NPP), 2000.
- UNIT-V** : Migration: theories, typologies, patterns and flows; causes and consequences.

BOOKS RECOMMENDED:

1. Bhende, A.A. & Kanitkar, (2014), Principles of Population Studies, Himalayan Pub. H., Mumbai.
2. Bogue, D. J., Principles of Demography, New York, 1969.
3. Chandna, R.C., Geography of Population: Concepts Determinants and Pattern, Kalyan Pub. Ludhiana, 2014.
4. Clarke, J.I. Population Geography, Oxford, 1981.
5. Coontz, S.H. Population Theories and the Economic Interpretation.
6. Garnier, B.J., Geography of Population, Longman Group Limited, London, 1966.
7. Jones, H.R., A Population Geography, London, 1981.
8. Jhingan M.L. Bhatt B.K. and Desai, J.N. Demography, Vrid Pub. Delhi, 2006.
9. Khan, J.H. Socio-Economic and Structural Analysis of Internal Migration, New Delhi, 2010.
10. Khullar D.R., India: A comparative Geography, Kalyan Pub. Ludhiana, 2014.
11. Shamshad, Houseless: People on the Road, Academic Publication, 2015.
12. Siddiqui. F.A. Regional Analysis of Population Structure, new Delhi, 1984.
13. Smith, T., Fundamentals of Population Study, New York, 1960.
14. Trewartha, G.T., A Geography of Population: World pattern, New York, 1969.

MASTER OF ARTS IN GEOGRAPHY SEMESTER-IV, ELECTIVE COURSE

GGEL – 402B :LAND, OCEAN AND ATMOSPHERE INTERACTION

Credits	: 4	Total Marks	: 100
		Mid Semester Examination	: 15
Duration (Hours per week)	: 4	Assignment	: 10
		Attendance	: 05
		End-Semester Examination	: 70

COURSE OBJECTIVES:

1. This course will lay the foundation of the understanding of coupled dynamics between land and ocean, ocean and atmosphere, land and atmosphere.
2. It will enhance the understanding of relationship and linkages between land, ocean and atmosphere.

COURSE LEARNING OUTCOMES:

1. The students will understand the earth system sciences and impacts of climate variability.
2. The student shall be able to use different models for climate forecasting and understanding.

COURSE CONTENT

- UNIT-I** : Introduction to earth system science: Definition and scope of earth system science, Geographic perspective to earth system science, interaction between five spheres.
- UNIT-II** : Land-Ocean Interaction: shelf-sea-ocean linkages, coupling Phenomenon, land ocean interactions, processes and issues.
- UNIT-III** : Ocean-Atmosphere Interaction: significance of ocean atmosphere interaction, coupling phenomenon, concept of boundary layers, ocean –atmosphere interaction near the tropics.
- UNIT-IV** : Sea surface warming and Climate variability: Inter-annual variability and decadal variability, Tele-connections of India summer monsoon with southern oscillation, Indian Ocean Dipole and ENSO Modoki.
- UNIT-V** : Global impact of ENSO, IOD and ENSO Modoki, New faces of climate variability; Ningaloo Nino, California Nino, Sub tropical dipoles

BOOKS RECOMMENDED

1. Brian, J. S., Barbara, W.M. 2010. The Blue Planet: An Introduction to Earth System Science, 3rd Edition, Wiley.
2. Ernst, W.G. 2000. Earth Systems: Processes and Issues, Cambridge University Press.
3. Garatt, J.R. 1992. The Atmospheric Boundary Layer, Cambridge University Press.
4. André Monaco, Patrick Prouzet (edt) 2014. The land- sea interactions, Willey Press.
5. Eric B Kraus, 2010. Atmosphere Ocean interactions, Oxford University Press
6. Sahu N., Behera SK, Yamashiki Y, Takara K and Yamagata T. 2012. IOD and ENSO impacts on the extreme stream-flows of Citarum river in Indonesia, Climate Dynamics, doi:10.1007/s00382-011-1158-2. Volume 39, Issue 7-8, pp 1673-1680.
7. Sahu N., Behera SK, Ratnam JV, Silva RV, Parhi P, Duan W, Takara K, Singh RB and Yamagata T. 2014. El Nino Modoki connection to extremely-low streamflow of the Paranaiba River in Brazil, Climate Dynamics, March, 42, 1509-1516, DOI 10.1007/s00382-013-2006-3.
8. Swadhin K. Behera and Toshio Yamagata, 2015. Indo-Pacific Climate variability and Predictability, World Scientific Press, Singapore.
9. Swadhin Behera and Toshio Yamagata, 2011. Dynamics of the Indian and Pacific Oceans, Chapter 4, (eds) Moffatt H.K., and Shuckburgh E., Environmental Hazards: The Fluid Dynamics and Geophysics of Extreme Events, vol.21, Lecture note series, IMS, NUS, Singapore.
10. Toshio, Y., Morioka, Y., & Behera, S., 2015. Old and New Faces of Climate Variations. In Indo-Pacific Climate Variability and Predictability (Vol. 7). World Scientific Co., Singapore

MASTER OF ARTS IN GEOGRAPHY SEMESTER-IV, ELECTIVE COURSE

GGEL – 402C :PHYSICAL LANDSCAPE AND HYDROLOGY

Credits	: 4	Total Marks	: 100
		Mid Semester Examination	: 15
Duration (Hours per week)	: 4	Assignment	: 10
		Attendance	: 05
		End-Semester Examination	: 70

COURSE OBJECTIVES:

1. This course give a holistic view of the water environments i.e., hydrology seen as a watercarrier in nature with human influence.
2. To know diverse methods of collecting the hydrological information, which is essential tounderstand surface and groundwater hydrology?
3. To develop an understanding of how this knowledge may be applied in practice in aneconomic and environmentally sustainable manner.

COURSE LEARNING OUTCOMES:

1. Apply the water balance equation to various hydrological problems in time and space.
2. Describe how components of the water cycle are influenced by human activities.
3. Analyse hydrological data in order to evaluate water resource management in an area

COURSE CONTENT

- UNIT-I** : Bases of Physical Landscape. Concept and types of physical landscape; Significance of geomorphic processes including plate tectonics in landforms development; Geological structure and climatic factors in the development of landforms.
- UNIT-II** : Landforms Development. Interruption in the evolution of landforms: tectonic, climatic, and base level changes; Development of landforms in various areas: humid, coastal, karsts, and peri-glacial; River terraces: concept and types; Regional geomorphology: Indo-Gangetic plain, and Rajmahal Hills.
- UNIT-III** : Bases of Hydrology. Meaning, scope and development of Hydrology; Hydrological cycle; Man's influence on the hydrological cycle; Precipitation types, characteristics and measurements; Evaporation: factors affecting evaporation from free water surface and soil; Evapotranspiration: estimation and its control.
- UNIT-IV** : Water and Its Disposition. Soil moisture and its zones; Infiltration; Groundwater: occurrence, storage, recharge and discharge; Runoff: its sources and components, factors affecting runoff; River regimes; Hydrograph: components and separation.
- UNIT-V** : Water Resource Management: social and institutional considerations in water management, water quality management and Pollution control, water management in urban areas, watershed management, conjunctive use of surface and ground water

BOOKS RECOMMENDED :-

1. Bernhard, H. and James, M. A. (1944): Climatology. McGraw Hill Company, New York.
2. Chorley, R. J. (1995): Atmosphere, Weather and Climate. Methuen and Company Ltd. and Company Ltd., London.
3. Chow, V. T. (ed.) (1954): Handbook of Applied Hydrology: A Compendium of Water Resources Technology. McGraw Hill, New York.
4. Critchfield, H. J. (2003): General Climatology. Prentice-Hall of India, New Delhi.
5. Rai, V.K. (1993): Water Resource Planning and Development, Deep and Deep Publication, New Delhi
6. Bilas, R. (1988): Rural Water Resource Utilization and Planning. Concept Publishing 143, Company, New Delhi.
7. Reddy, J. P. (1988): A Textbook of Hydrology. Laxmi Publication., New Delhi. 4th edition.
8. Singh, M. B. (1999): Climatology and Hydrology. Tara Book Agency, Varanasi. (In Hindi).
9. Singh, M. B. (2002): Physical Geography. Tara Book Agency, Varanasi. (In Hindi).
10. Singh, S. (1998): Geomorphology. PrayagPustak Bhavan, Allahabad.
11. Sparks, B.W. (1986): Geomorphology. Longman, London.
12. Thornbury, W.D. (2005): Principles of Geomorphology. John Wiley and Sons, New York.
13. Trewartha, G. T. (1980): An Introduction to Climatology. McGraw Hill Student edition, New York.
14. Ward, R.C. and Robinson, M. (2000): Principles of Hydrology. McGraw Hill, New York.
15. Weisberg, J. S. (1974): Meteorology. Houghton Mifflin Company, Boston.
16. Wooldridge, S.W. and Morgan, R.S. (1959): The Physical Basis of Geography- an Outline of Geomorphology. Longmans Green, London.

MASTER OF ARTS IN GEOGRAPHY SEMESTER– IV, MASTER THESIS

GGMT - 401 :MASTER THESIS

Credits : 8 Total Marks :200

Duration (Hours per week) : 8

COURSE OBJECTIVES:

1. The Students will be taught how to write a project report / dissertation.

COURSE LEARNING OUTCOMES:

1. The Student will learn to write a project report / dissertation, after duly following all the steps in research methodology, which are taught in the course entitled Research Methods and Techniques in Geography.

COURSE CONTENT

1. The students of M.A. Geography 4th Semester may have to be selected a specific theme/topic for a Project work. The students may select some of the following themes for their project.
 - a. Land Evaluation
 - b. Land-use / Land cover Analysis
 - c. Water sources
 - d. Slope Studies
 - e. Climatic Change
 - f. Settlement Studies
 - g. Agriculture Studies
 - h. Health studies
 - i. Infrastructure Studies
 - j. Vegetation Studies
2. GIS, GPS & RS methods have to be used with appropriate primary and secondary data.
3. The students should follow the research guidelines by reading Research Methodology before taking up the Project work.
4. The project should no cross 50 pages including photos, references and tables.
5. Project work must include quality maps, diagrams and flowcharts.
6. The project report should include followings:
 - a. Title of the project
 - b. Introduction
 - c. Review of Literature
 - d. Study Area
 - e. Data sources
 - f. Main Objective
 - g. Materials and methods
 - h. Results & Discussion
 - i. Conclusion
 - j. Photos
 - k. References

BOOKS RECOMMENTED

1. Archer J. E. & Dalton T.H. (1968) : The fields work in Geography, E. T. Batsford Ltd., London.
2. Haring, Lloyed (1975) : Scientific Geographic Research W. C. Brow Company USA.
3. Johnes, P.A. (2008) : Field work in Geography, Longman.
4. Kothari C. R. (1996) : Research Methods, Vishwas Prakashan, New Delhi.
5. Misra R. P. (1991) : Research Methodology in Geography, Concept Publication, New Delhi.

MASTER OF ARTS IN GEOGRAPHY SEMESTER-IV, INTRADEPARTMENTAL COURSE

GGIRA - 401 :DISASTER MANAGEMENT

Credits	: 4	Total Marks	: 100
		Mid Semester Examination	: 15
Duration (Hours per week)	: 4	Assignment	: 10
		Attendance	: 05
		End-Semester Examination	: 70

COURSE OBJECTIVES:

1. To create awareness about various disasters in context of India, their distribution over space and time of occurrence.
2. To equip students with various methods of prevention, mitigation and rehabilitation processes.

COURSE LEARNING OUTCOME:

1. After undertaking this course the student will be aware of the types of disasters-natural and man-made.
2. The student will learn how to map and mitigate disasters.
3. The students will master the disaster studies in India and various government policies of disaster management.

COURSE CONTENTS:

- UNIT-I** : Disasters: Definition and Concepts: Hazards, Disasters; Risk and Vulnerability; Classification
- UNIT-II** : Types of Environmental Hazards and Disasters: Natural Hazards and Disasters, Man Induced hazards and Disasters-Earthquake, Tsunami, Landslides, Cyclones, Floods, Drought, Desertification Distribution and Mapping.
- UNIT-III** : Manmade Disasters: Causes, Impact, Distribution and Mapping, Response and Mitigation to Disasters: Mitigation and Preparedness, NDMA and NIDM; Indigenous Knowledge and Community-Based Disaster Management; Do's and Don'ts During and Post Disasters.
- UNIT-IV** : Harnessing Information and Technology: Application of G.I.S., G.P.S. and Remote Sensing in Disaster Management.
- UNIT-V** : Disaster in Indian Context: A Regional Survey of Land Subsidence, Coastal Disaster, Cyclonic Disaster and Disaster in Hills, Terror Attacks, Communal Clashes, Remedial Measures. National and International Policies of Disaster Management.

SUGGESTED READINGS:

1. Government of India. (1997) Vulnerability Atlas of India. New Delhi, Building Materials & Technology Promotion Council, Ministry of Urban Development, Government of India.
2. Kapur, A. (2010) Vulnerable India: A Geographical Study of Disasters, Sage Pub, New Delhi.
3. Modh, S. (2010) Managing Natural Disaster: Hydrological, Marine and Geological Disasters, Macmillan, Delhi.
4. Singh, R.B. (2005) Risk Assessment and Vulnerability Analysis, IGNOU, New Delhi.
5. Singh, R. B. (ed.), (2006) Natural Hazards and Disaster Management: Vulnerability and Mitigation, Rawat Publications, New Delhi.
6. Sinha, A. (2001). Disaster Management: Lessons Drawn and Strategies for Future, New United Press, New Delhi.
7. Stoltman, J.P. et al. (2004) International Perspectives on Natural Disasters, Kluwer Academic Publications. Dordrecht.
8. Singh Jagbir (2007) "Disaster Management Future Challenges and Opportunities", 2007. Publisher I.K. International Pvt. Ltd. S-25, Green Park Extension, Uphaar Cinema Market, New Delhi, India.