NOIDA INTERNATIONAL UNIVERSITY

M.A. GEOGRAPHY
(Semester Based Course)
Rules, Regulations and Course Contents

M.A. Geography syllabus as per revised course structure to be effective from
Academic year 2019-2020 onwards

DEPARTMENT OF GEOGRAPHY

SCHOOL OF LIBERAL ARTS

SYLLABUS OF POST-GRADUATE PROGRAMME M.A GEOGRAPHY

Scheme, Syllabus and Courses of Reading:-
Courses for study in Geography have been redesigned with a view to develop skills among students to understand different types of Geographical areas by acquiring knowledge of theories, concepts and methods of research. It will be familiarized with economic processes such as globalization, trade and transportation and their impacts on economic, cultural and social activities. It will be introduced to demographic, social and cultural attributes such as migration, social relations and cultural identity.

The main objective is to underline that human activities are subject to adaptation and change learn about the variety of political systems and nation states which administratively subdivide the regions of the world. How human activities are regulated and under the jurisdiction of a variety of geographical units and how these relations shape the economic and social space are of particular relevance. It will gain a level of understanding about environmental systems such as climate and biogeography. It will be exposed to the nature of physical systems such as geomorphologic processes and natural hazards. It will be able to read and interpret information on different types of maps. The students will be encouraged to discuss possibilities of applying their knowledge to a variety of situations and undertaking exercises of their own. Each course contains illustrative studies and recent articles for intensive study. Through these studies it is hoped that abilities for "doing Geography" will be developed among the students.

The duration of the course leading to the degree of Master of Arts (M.A.) in Geography will be of four semesters. In *first year* there will be two semesters consisting of four papers each semester. In the *second and final year* there will be two semester consisting of theory papers and one Dissertation/viva-voice for all students in final/fourth semester. External and internal examiners will evaluate dissertation/viva-voice jointly.

General Scheme of the Syllabus: - There will be four papers in each semester, one dissertation during the last semester and a comprehensive viva-voce. The papers in the all four semesters will constitute the core element, common to all students who undergo the same course.

The **M.A Geography** is divided into two parts as under. Each part will consist of two semesters.

Part-I	**First Year**	**Semester I**	**Semester II**
Part-II	**Second Year**	**Semester III**	**Semester IV**

1st Semester

S. No	Paper Code	Paper Name	L-T-P			Credits	Scheme of Marks		
							Internal Marks	External Marks	Total
1	GMA-101	Analytical Physical Geography	3	1	0	4	40	60	100
2	GMA-102	Geographical Thoughts	3	1	0	4	40	60	100
3	GMA-103	Environment and Ecology	3	1	0	4	40	60	100
4	GMA-104	Regional Geography of India	3	1	0	4	40	60	100

2nd Semester

S. No	Paper Code	Paper Name	L-T-P			Credits	Scheme of Marks		
							Internal Marks	External Marks	Total
1	GMA-201	Natural Resources Management	3	1	0	4	40	60	100
2	GMA-202	Geography of Rural Development	3	1	0	4	40	60	100
3	GMA-203	Remote Sensing and its Applications	3	1	0	4	40	60	100
4	GMA-204	Socio-Economic Survey (Practical)	3	1	0	4	40	60	100

3rd Semester

S. No	Paper Code	Paper Name	L-T-P			Credits	Scheme of Marks		
							Internal Marks	External Marks	Total
1	GMA-301	Demography and Population Geography	3	1	0	4	40	60	100
2	GMA - 302	Environmental Impact Assessment	3	1	0	4	40	60	100
3	GMA - 303	GIS analysis and Application	3	1	0	4	40	60	100
4	GMA - 304	Research Methods and Techniques	3	1	0	4	40	60	100

4th Semester

In this semester, there are options of Dissertation (Internship Program) or Project Work with 2 (Two) papers.

1	GMA-401	Dissertation & Viva-Voice	Credit	Marks
	a	Literature Review	2	50
	b	Progress Report	2	50
	c	Field Study	4	80
	d	Dissertation Submission (Proper Format)	4	120
	e	Viva voce	4	100
		Total	16	400

OR

S. No	Paper Code	Paper Name	L-T-P			Credits	Scheme of Marks		
							Internal Marks	External Marks	Total
1	GMA -402	Urban Planning and Development	3	1	0	4	40	60	100
2	GMA -403	Hydrology and Water Management	3	1	0	4	40	60	100
3	GMA -404	Project Work/Report				8	80	120	200
	a	Progress Report				1			20
	b	Field Study				2			40
	c	Report Submission (Proper Format)				3			80
	d	Viva voce				2			60
						16			200

- Progress Report, Attendance and other activities related to dissertation like field study, Ground Truthing etc.
- Progress of dissertation and literature review of the status of dissertation etc.

L: Lecture hours; T: Tutorial hours; P: Laboratory/ Practical hours;
Internal Marks include class tests, Assignments, Presentations and Attendance

M.A 1st SEMESTER
GMA-101: ANALYTICAL PHYSICAL GEOGRAPHY

Objectives:-With the extension of study of physical geography, it is very necessary to understand its dynamic with the help of some analytical methods, which further put emphasis on geomorphological, water reservoirs, and its process and impact on development in the domain of geography. The core objective of this paper is involvement of learner in the scientific approach.

Unit -1:Rocks and Minerals

- Classification Rocks and Minerals
- Characteristics Rocks and Minerals

Unit -2: Drainage Basin

- Drainage Types and Patterns, Stream Orders, Watershed.
- Bifurcation Ratio, Stream Frequency, Relief Ratio, Drainage Texture, Drainage Density, Overland Flow, and Runoff.

Unit- 3: Slope, Aspect and Climate

- Slope Types and Aspect Analysis – Hypsometric Curve and River Profiles.
- Climatic Data – Weather Chart Analysis, Climatic Classification (Koppen).

Unit-4: Soil

- Soil Preparation, Characteristics classification
- Universal Soil Loss Equation.

References:

- Chorley R. J. (ed.), 1972: *Spatial Analysis in Geomorphology*, Harper and Row
- Gerrarda A. J., 1988: *Rocks and Landforms*, Unwin-Hyman, UK.
- Mayer L., 1990: *Introduction to Quantitative Geomorphology*, Prentice-Hall, New Jersey.
- Monkhouse F. J., 1970: *Principles of Physical Geography*, American Elsevier.
- Morisawa M., 1983: *Geomorphological Laboratory Manual*, John Wiley & Sons, NewYork.
- Nkapp B. J., 1979: *Elements of Geographical Hydrology*, Unwin- Hyman, UK.
- Pal S. K., 1998: *Statistics for Geoscientists: Techniques and Application*, Concept, New Delhi.
- Strahler A. H., 2008: *Modern Physical Geography* (4th Edition), Wiley-India.
- Upton W. B., 1970: *Landforms and Topographic Maps*, John Wiley &
- Zavoianu I., 1978: *Morphometry of Drainage Basins*, Elsevier, USA

GMA- 102: GEOGRAPHICAL THOUGHT

Objectives:- This course covers a wide canvas of the story of geographical thoughts, ideas and knowledge right from the early Greek period to modern contemporary geography. The course covers the evolution of geography through classical, medieval, modern and post-modern era. Presenting an introduction to the philosophy, history and methodology of geography. Different theories of knowledge have shaped the practice of geography, framing how we make certain claims about the world, and how we decide that certain of these claims are more valid than others. These theories both emerge from trends in society as a whole and in different strands of academia, as well as reflect the intellectual and personal development of geographical thinking in particular milieu.

Unit –1: Introduction

- Meaning, nature and scope of Geography, Geography and related disciplines. Place of geography in the world of knowledge.
- Geographical knowledge during ancient, medieval and modern period.

Unit 2: Conceptual Development

- Contribution of Humboldt, Ritter, Vidal de la Bache, Ratzel, E.C. Semple.
- Dualism and Dichotomy in Geography-Determinism vs. Possibilism.
- Systematic vs. regional, physical vs. human.

Unit 3: Approaches

- Recent trends in Geography-Scientific method Quantitative revolution and computer application.
- Positivism, Humanism, Radicalism, Behaviouralism, Feminism, Ecofeminism in Geography.
- Systems Approach, Dualism in Geography: Human and Physical

Unit 4: Towards Post Modernism

- Development of Geography during modern and Post Modern period.
- Historical explanation in Geography.
- Changing Concept of Space in Geography

References:

- Arild Holt-Jensen (1999): Geography: History and Concepts, Sage Publ. London.
- HussainMajid (1984): Evolution of Geographical Thought, Rawat Publications, Jaipur
- Tozer, H. P. (1951): History of Ancient Geography, Cambridge
- Dikshit, R. D. (1997): Geographical Thought: Contextual History of Ideas, Prentice Halls, New Delhi
- Taylor G. (1951): Geography in the 20th century, Matheun& Co. London
- Chorley, R. J. (Ed) : Directions in Geography, Matheun& Co. London
- Richard, P. (1998): Modern Geographical Thought, Blackwell.

GMA-103: ENVIRONMENT AND ECOLOGY

Objectives:- This paper covers a larger objective of ecology is to understand the nature of environmental influences on individual organisms, their populations, and communities, on ecoscapes and ultimately at the level of the biosphere. If ecologists can achieve an understanding of these relationships, they will be well placed to contribute to the development of systems by which humans could sustainably use ecological resources, such as forests, agricultural soil, and hunted animals such as deer and fish. This is an extremely important goal because humans are, after all, completely reliant on ecologically goods and services as their only source of sustenance.

Unit-1: Environment and Ecology

- Ecology: definition, development and scope. Ecology as an experimental science.
- Ecosystems: concept, components and functioning Population, Resources, Environment and Development; Concepts and Approaches
- Sustainability and sustainable development; Global Environmental Problems

Unit - 2: Urban Ecosystem and Forest Ecosystem

- Environmental Problems and their Management-Air, Water, Noise and Solid Waste
- Processes and Patterns of forest ecosystem; Problems and Management; Biodiversity

Unit-3: Desert Ecosystem and Mountain Ecosystem

- Desertification - Process and Patterns; Management Strategies
- Theory of Mountain Environment Degradation; Highland-Lowland Interactive Systems; Sustainable Mountain Development

Unit-4: Coastal Ecosystem

- Issues and Problems- Mangroves, Coastal pollution, Cyclone, Tsunami
- National Environmental Policies and Programmes

References:

- Begon, M., J.L. Harper, and C.R. Townsend. Ecology: Individuals, Populations and Communities. 3rd ed. London: Blackwell Sci. Pub., 1996.
- Dodson, S.I., T.F.H. Allen, S.R. Carpenter, A.R. Ives, R.L. Jeanne, J.F. Kitchell, N.E. Langston, and M.G. Turner. Ecology. New York: Oxford University Press, 1998.
- Freedman, B. Environmental Ecology. 2nd ed. San Diego: Academic Press, 1995.
- Keller, E.A. Introduction to Environmental Geology. 2nd ed. Upper Saddle River: Prentice Hall, 2002.
- Ricklefs, R.E. Ecology. New York: W.H. Freeman, 1990.
- Environment And Ecology – A Complete Guide – by R. Rajagopalan (Lexis Nexis).
- Environmental Ecology: The Ecological Effects of Pollution, Disturbance, and other stresses, By Bill Freedman, 1995, published by United Kingdom Edition Published by Academic Press.
- Global Environmental Issues edited by Frances Harris, 2004, JhonsWiely& Sons Limited.

GMA- 104: REGIONAL GEOGRAPHY OF INDIA

Objectives:- It have an understanding the discipline and most important sub-disciplines of geography, be familiar with its basic principles and concepts, and understand some simple geographic models and theories. have formulated an understanding of how the study of geography in general, and India Regional Geography in particular, fits into an education in the liberal arts and sciences. Appreciate the value of looking at and understanding the world from a spatial perspective.

Unit-1: Physiographic Division

- Physiographic Divisions, Climate and Climatic Regions, Soil - Classification, distribution, problems and conservation.
- Natural Vegetation – Classification, distribution, problems and Conservation, Drainage and River systems.

Unit-2: Resources

- Mineral resources- Iron ore and Manganese (Metallic Energy), Limestone and Atomic Mineral (Non- Metallic Energy)
- Energy Resources- Coal, Petroleum and Hydel Power.

Unit-3: Population

- Population- Growth, Distribution, Problems. Urbanisation- Trend of urbanization,
- Urban-rural population, Problems of population, population explosion and migration.

Unit-4: Transport & Communication

- Transport & Communication- Roads, Railways, Airways and water transport.
- Tourism-Potential, problems and planning. Economic development-Problems and Planning

References:

- Ahmad, K.s.: Geography of Pakistan, Oxtord University Press, Karachi, 1964.
- Ahmad, N.: An Economic Geogrphy of bangladesh. Vikas New Delhi, 1975.
- Chiao-min Hsieb: Atlas of China. McGraw Hill, New York, 1973.
- Chiao-min Hsieb: China: Ageless Land and Countless People. Van Nostrand, New York, 1967.
- Dobby, E.H.G.: Southeast Asia. University of London Press, London, 1960.
- Farmer, B.H.: An Introduction to South Asia. Methuen & Co., Ltd., London, 1983.
- Farmer, B.H.: Ceylon, Oxford University Press, London, 1963.
- Fisher, W.B.: Middle East: A Physical, Social and Regional Geogrphy. Dutton, New York,1963.
- Johnson, B.L.C.: South Asia, heinemann Education Book Ltd., London. 1982.
- Karan, P.P.: The Himalayan Kingdom. Van Nostrand, New York, 1962.
- Kolb, A.: East Asia, Methuen and Co. Ltd., London, 1981.
- Nolte, Richard H. (ed.): The Modern Middle East, Atherton Press, new York, 1963.
- Ooi, Jin-Bee: Land, people and Economy in Malaya. Longmans, London, 1963.
- Spate, O.H.K., and Learmonth, A.T.A.: India and Pakistan and Ceylon Methuen & Co. London, 1967.
- Spencer, Joseph & Thomas, William L.: Asia East by South A Cultural Geography, John Wiley & Sons, New York, 1971.
- Trewartha, G.T.: Japan: A Physical and Cultural Geography. University of Wisconsin press,Madison, 1965.
- Wolmington, M.W.: Middle East: Centre of Supply. University Press, London, 1971.

DEPARTM

M.A 2nd SEMESTER
GMA-201: NATURAL RESOURCE MANAGEMENT

Objectives:-The focus is practice-driven to include hands-on experiences, field trips, and similar types of experiential learning to supplement an understanding of basic guiding principles inherent in ecological systems as a sustainable natural resource.Students will study an interdisciplinary approach to the use, management, and protection of land and water resources and will explore topics in environmental education, while preparing for careers in land use policy and laws.

Unit-1: Introduction

- Concept, models and approaches to natural resource management
- Utilisation, Conservation and Management of Resources

Unit-2: Problems of Resource Utilization

- Sustainable Resource Development: Concept, method and dimensions
- Creating sustainable systems

Unit-3: Integrated Resource Development

- Ecological, economic and social aspects
- Problems of river basin development

Unit-4: Institutions and Policy Making

- Institutional arrangements; policy models; policy making and resource management
- Utilization, management problems and policies of natural resources in India

References:

- Policy Instruments for Environmental and Natural Resource Management, By Thomas Sterner, Swedish International Cooperation Agency, 2003
- Natural Resource Management, edited by B.W. Pandey (ed. By), Mittal Publication, New Delhi, 2005.
- Natural Resource Conservation and Environment Management, By Asish Ghosh, APH Publishing Cooperation. New Delhi, 2003.
- Adams, W.M., 1990: Green Development: Environment and Sustainability in the Third World, Routledge and Chapman Hall, New York.
- Berkes, F.,(ed.),1989 : Common Property Resources: Ecology and Community Based Sustainable Development, Belhaven Press London.
- Mather, A.S. and Chapman, K., 1995: Environmental Resources, Longman, Harlow, England.
- McClay, K.R., 1995 : Resource Management Information System : Process & Practice, Taylor Francis, London.
- Mitchell B., 1988 : Geography and Resources Analysis, 2nd edition, Longman, London.
- Mitchell,B., 1997 : Resource and Environmental Management, Longman, Harlow, England.
- Newson, M.D., 1991 : Land, Water and Development: River Basin Systems and Management,Routledge,London.
- Owen, S. and Owens, P.L.,1991: Environment ,Resources and Conservation, Cambridge University Press, NewYork.
- Redclift, M., 1987 : Sustainable Development: Exploring the Contradictions, Methuen, London.
- Rees, J.,1990 : Natural Resources: Allocation, Economics and Policy, Routledge, London.
- Saha, S.K., and Barrow, C.J., (ed.), 1981 : River Basin Planning : Theory and Practice, John Wiley and Sons,New York.

GMA-202: GEOGRAPHY OF RURAL DEVELOPMENT

Objectives:- Rural geography is the branch of geography where we mainly deals with the rural aspect and development of this area, which led to growth of economic, social and its existence. The primary activities i.e. agriculture and its allied services must be preserve for the next level of economic growth. So this paper is especially covers the need of rural planning, governance and its facilities and services.

Unit-1: Concept and Approaches

- Rural Development: elements, objectives, scope and significance.
- Approaches to rural development: community development approach, sectoral like approach, target approach, integrated approach, and participatory development approach**.**

Unit-2: Rural Economics and Rural Development

- Rural Economics: concept and scope; Determinants of rural development.
- Stages in rural economic development Rural Industrialization: Village and small scale industries.

Unit-3: Rural Facilities & Services in India

- Types of community facilities and services: water, sanitation, electricity; Rural education and health.
- Role of governmental, non-governmental organizations.

Unit-4: Rural Development Planning & Programmes

- Regional Planning: District block level and area Planning.
- Development Programme and role of Pnchayati Raj Institution; Sectoral: land, water and forests.

References:

- Sahu, B.K.2003. Rural Development in India; Anmol Publishers, Delhi.
- Jha, UM.1995 Rural Development in India: Problems and prospects.
- Mathew, T.1981. Rural development in India: papers presented at National Conference.
- Madan, G.R.2010. Indian rural Problems, Radha publication, New Delhi.
- Garg, A.1992. Working and Impact of Integrated rural development; Deep and Deep publishers, New Delhi.
- Das, K.D.2007. Dynamics of Rural Development; Deep & Deep Publishers, New Delhi.
- Sinha,S.P.& Singh, S.2007. Strategies for Sustainable Rural Development; Deep & Deep Publishers, New Delhi.
- Armendera, !998. Poverty Rural Development and public Policy; Deep & Deep Publishers, New Delhi.
- Sinha, R.N.P; Geography and Rural development; Manohar Publishers and distributors, New Delhi.
- Satendra and Sharma, V.K.2004. Sustainable Rural Development for disaster Mitigation,Concept, New Delhi.
- Nath, V.2010. Rural Develpoment and Planning in India,Concept,New Delhi.
- Nikkiran, S. and Ramesh, G. 2010. Research Methods in Rural Development, Deep and Deep Publications, New Delhi.

GMA-203: REMOTE SENSING AND ITS APPLICATION (Theory & Practical)

Objectives: -In the technological advancement and its wide applicability in social welfare and natural resource management exhibits to a learner to continue handful knowledge of this technology to understand the role of technology in geography and allied subjects. Remote Sensing helps to extract information through satellite data using Digital Image Processing. The main theme of the paper is to endow scientific, industrial skills to the learner to associate with research as well as their career growth.

Unit- 1: Introduction of Remote Sensing (RS)

- Introduction, Definition, Platforms, Types of Remote Sensing
- Components of Remote Sensing, History of RS, Importance of RS

Unit- 2: Principal of Remote Sensing

- Satellite Remote Sensing: Principles; Types of RS Satellites (case study on Landsat and IRS) and Sensors
- EMR Interaction with Atmosphere and Earth Surface: Atmospheric Window, Resolution Spectral Signatures

Unit- 3: RS Data and basics of Aerial Photographs

- RS Data its types, Aerial Photos, Planning for Aerial photographs
- Interpretation Techniques, Visual Interpretation of Aerial Images and Satellite Imagery,

Unit- 4: Digital Image Processing

- Introduction to Digital Image Processing; Image Pre-processing(Radiometric and Geometric Correction), Image Enhancement(Filtering)
- Image Classification, Accuracy Assessment, Application of RS technology:Natural Resource Management, Disaster Management, Land use and Land cover etc.

Practical:-

- A project file consisting of **8 exercises** on using any method on following themes:-

1. Satellite Image Annotation
2. Visual Interpretation of Aerial Images
3. Visual Interpretation of Satellite Imagery
4. Interpretation of Land use and Land cover Map
5. Determination of Photo Scale
6. Preparation of Base Map
7. Orientation of Stereo Model Under Mirror Stereoscope
8. Demo on ILWIS or GRASS/QGIS Software
9. Image Data Fusion
10. Change Detection Analysis

References:

- Campbell J. B., 2007: *Introduction to Remote Sensing*, Guildford Press.
- Jensen J. R., 2004: *Introductory Digital Image Processing: A Remote SensingPerspective*, Prentice Hall.
- Joseph, G. 2005: *Fundamentals of Remote Sensing*, United Press India.
- Lillesand T. M., Kiefer R. W. and Chipman J. W., 2004: *Remote Sensing and Image Interpretation*, Wiley. (Wiley Student Edition).
- Wolf P. R. and Dewitt B. A., 2000: *Elements of Photogrammetry: With Applications in GIS*, McGraw-Hill.

Web links:-

- http://www.itc.nl/~bakker/rs.
- www.isprs.org
- www.spaceimaging.com
- www.landsat.usgs.gov
- www.nrsc.gov.in
- IRS 1C handbook: http://www.euromap.de/docs/doc_013.html
- IRS P6 Users handbook.http://www.nrsc.gov.in/IRS_Documents/Handbook/Resourcesat-1_handbook_HTML

GMA -204: SOCIO ECONOMIC SURVEY (PRACTICAL)

Objectives:-The module has been shaped to acquaint the learner with processes involved in socio-economic survey of an area to study its various aspects.

Unit- 1: Interpretation

- Study and interpretation of topographical sheets of selected regions on different scale
- Collect the social and economic data of its village/ town from various sources

Unit- 2: Survey

- Conduct a socio-economic survey of the households of the selected village
- Prepare a questionnaire for survey

Unit- 3: Processing and Presentation of Information

- Processing of primary data
- Presentation of data, tabular and cartographic

Unit- 4: Field Survey Report

- Based on socio-economic data of the households
- Prepare a critical field-survey report
- Photographs and sketches, in addition to maps and diagrams, may supplement the report

References:

- Gregory, S, 1980. Statistical methods and the Geographer, Longman, London.
- Mahmood, A. 1986. Statistical Methods in Geographical Studies, Rajesh Pub., New Delhi.
- Ibrahim, R., 1992. Socio-Economic Profile of Mewat, Radha Publishers, New Delhi.
- Robinson, A.H. 1978. Elements of Cartography, John Wiley, New York.
- Raisz, E. 1962. Principles of Cartography, McGraw Hill, New York.
- Burt J.E. Barber. G.E. Rigby D.L. (2009). Elementary Statistics for Geographers, Guilford Press, New York.

M.A 3rd- SEMESTER
GMA-301: DEMOGRAPHY AND POPULATION GEOGRAPHY

Objectives: - It is the study of the ways in which spatial variations in the distribution, composition, migration, and growth of populations are related to the nature of places. Population geography involves demography in a geographical perspective. It focuses on the characteristics of population distributions that change in a spatial context.

Unit-I: Introduction

- Approaches, Definition, Nature and scope of Population geography
- Evolution of Population Geography, Demography and population Geography
- Sources of Population Data: Census, Vital Statistics and National Sample Survey

Unit-II: Population Distribution and Growth

- Population Growth and change: Trends of Population Growth in the World; World Pattern of population distribution
- Factors affecting population distribution; Population Dynamics: Fertility, Mortality and Migration
- Theories of Population growth: Malthusian theory, Theory of Demographic Transition;

Unit-III: Population Composition

- Age and Sex Composition
- Rural and Urban Composition
- Economic Composition Literacy and Education; Religion/Caste/ Race etc.

Unit-IV: Population Problems and Policies-India

- Declining Sex Ratio,
- Gender issues: Ageing, crime against Women, Human Trafficking, Child Abuse; HIV/AIDS
- Population Policy of India.

References:-

- Barret, H. R. (1995): Population Geography, Oliver and Boyd.
- Bhende,A. and Kanitkar T.(2000): Principles of Population Studies, Himalaya Publishing house.
- Bogue,Donald, J. (1969):Principles of Demography, John Wiley and Sons, New York.
- Chandana, R.C. (1986): A Geography of Population: Concepts, Determination and pattern, Kalyani publisher, New Delhi.
- Chandana,R.C.(2008): Geography of Population: Concepts, Determinants and Patterns,7th Edition, Kalyani Publishers, New Delhi.
- Clarke,J.I. (1965): Population Geography, Pergamon press Ltd; Oxford.
- Clarke,J.I.(1972):Population Geography, Second Edition,Pergamon Press Ltd; Oxford.
- Clarke,J.I. (Ed.)(1984):Geography and Population: Approaches, Pergamon Press Ltd; Oxford.
- Demco,G.J; Rose, H.M.Schnell,G.A. (1970):Population Geography, Mc Graw Hill Book Co; New York.
- Jones, H.R.(1990): Population Geography, Sage.
- Jones, H.R. (2000): Population Geography, 3rd Edition, Paul Chapman, London.
- Peters,G.L. and Larkin R.P (1979): population Geography-Problems, Concepts and Prospects, Kendall Hunt Publication Co.
- Swain, A.K.P.C. (2008): A Text Book of Population Studies, Kalyani Publishers, New Delhi.
- Trewartha, G.T. (1969). A Geography of Population: World Patterns, John Wiley and Sons, Newyork. 15. Weeks John R.2005: Population: An Introduction to Concepts and Issues.9th Edition, Belmont, C.A.: Wadsworth Publication.
- Wilson, M.G.A. (1968): Population Geography, Thomas Nelson, London.
- Mahendra K. Premi (2001) Population of India, In the New Millennium: Census, National book trust. New Delhi.
- Mahendra K. Premi, Dipendra Nath Das (2011) Population of India, B.R. Publishing Corporation, Delhi.

GMA-302: ENVIRONMENTAL IMPACT ASSESSMENT

Objective: - It ensuring environmental factors is considered in the decision-making process ensuring that possible adverse environmental impacts are identified and avoided or minimised informing the public about the proposal. Facilitates the design of a monitoring programme allows people to examine the underlying need for a project gives people the opportunity to identify problems helps a developer to design a more publicly acceptable project exploration of alternatives can help identify cost-saving and other beneficial changes.

Unit-1: Introduction

- Concept and Types of Environment, Development of Environmentalism Basic principles of Environment.
- Environment and Resource, Environmental Laws

Unit-2: Environmental Impact Assessment

- Environmental Impact Assessment-EIA concept, process and Evaluation methods, goals and Principles of EIA.
- Effects of EIA on projects: Environmental effects of Tourism development Activities.
- Environmental Impact management of water resource development projects, different Earth summits.

Unit-3: Environmental Pollution

- Environmental Pollution- Types of pollution, sources of pollution.
- Effects and control of pollution (Air, Water, Land, Noise, Nuclear)

Unit-4: Global Ecological Imbalance

- Sustainable Development Concept, Definition and goal, dimensions of sustainable development-social, economic, ecological, spatial and cultural.
- Programme of action for Sustainable development in Agenda 21. Sustainable Use of Natural Resources, Obstacles to sustainable development, Strategy for sustainable living.

References:

- Betty Bowers Marriott (1997): Environmental Impact Assessment, McGraw Hill Professional Bookstore.
- Goel, R.S. (2000) :Environmental Impacts Assessment of water Resources Projects - concerns, Policy Issues Perceptions and Scientific Analysis, Oxford Publishing Co. Pvt. Ltd.
- Goel R.S. and R.N. Srivastava, (1999): Hydropower and River valley Development - Environment Management, Case Studies and Policy Issues .Oxford & IBH Publishing Co. Pvt., New Delhi.
- Goudie, A., (2000): The Human Impact on the Natural Environment, Blackwell, Publishers, Oxford.
- J. Glasson, R. Therivel and A. Chadwick (1994): Introduction to Environmental Impact Assessment: Principles and Procedures, Process, Practice and Prospects, Research Press, Delhi.
- Judith, Petts (eds.) (1999) Handbook of Environmental Impact Assessment, Blackwell Science Publication.
- Prasad, K. and Goel, R. S., (2000): Environmental Management in Hydro Electric Projects, Concept Pub., New Delhi.
- Richard, K. Morgan (1999): Environmental Impact Assessment: A Methodological Perspective, Springer.
- Sinclair, J., (2000): Canadian Environmental Assessment in Transition, University of Waterloo Press, Waterloo.
- Smith, L.G., (1993): Impact Assessment and Sustainable Resource Management, Longman, Harlow.
- Subramanian, V., (2001): Text Book on Environmental Sciences, Narosa Publishing House., N. Delhi.

GMA-303 GIS ANALYSIS AND APPLICATION (THEORY & PRACTICAL)

Objectives: -Today, World is looking for GIS expert for the development and planning. In this paper students will learn the fundamental concept of Geographical Information System **(GIS)** which further enhance the ability of Geographers to understand the role of technology in the field of geography. With support of bundles of dataset-meta data they can provide precise information with problem solving capabilities. The main theme of the paper is to endow scientific, industrial skills to the learner to associate with research as well as their career advancement.

Unit- 1: Spatial Information System

- Spatial Information System: An Overview of Hardware and Software requirements of GIS
- Data Models: Conceptual Model of Spatial Information, Concept of databases and Conceptual Models of Non-Spatial Information.

Unit- 2: GIS Data: Creation and Quality

- GIS Data Creation and Organization Data Quality and Sources of Errors in GIS, Sources of Error – Components of Data Quality
- GIS Data types; Raster, Vector Data – Topology – Topological consistency– Raster vs. Vector comparison.

Unit- 3: Introduction to GNSS

- Introduction to GNSS and classification of positioning system
- Concepts of GPS, Types of GPS
- GPS Satellite, Constellation of GPS Satellites, applications of GNSS, types of instrument in GNSS (total station, DGPS, EDM, etc.)

Unit- 4: GIS Analysis and its Application

- DEM Derivatives, 3D Analyst, Network Analysis, Interpolation Methods, Map Compilation
- Spatial Data Infrastructure (SDI) Recent Trends in GIS, (Case studies:- Natural Resource Management, Disaster Management, Location and Service Application, Land information system (LIS), Urban Planning, Health information system, Crime Mapping, Transportation Planning)

Practical:-

- A project file consisting of **8 exercises** on using any method on following themes:-

1. Introduction to GIS and layers in GIS
2. Creation of Vector Layers in QGIS
3. Geo-referencing and Projection
4. Vector Data Analysis
5. Raster Data Analysis
6. Spatial Data Analysis
7. Generation of Land use/Land cover (LU/LC)
8. Map Composition
9. Multi-Criteria Analysis
10. Geo-Web Services/Application Framework

References:

- Burrough, P. P. & Mc Donnel, R. A. (1998). Principles of GIS. Oxford University Press.
- Chang, K. T. (2006). Introduction to Geographic Information Systems. The McGraw-Hill.
- DeMers, and Michael, N. (2005). Fundamentals of Geographic Information Systems. John Wiley and Sons.
- Parkinson, B. W., Spilker, J. J. (Jr.) (1996).Global Positioning System: Theory & Applications (VolumeI). AIAA,

Web links:-

- http://www.ncgia.ucsb.edu/giscc/units/u055/u055.html.
- http://www.trimble.com/
- http://www.pasda.psu.edu/tutorials/gisbasics.asp
- http://nptel.iitm.ac.in/video.php?subjectId=105107121

GMA- 304: RESEARCH METHODS AND TECHNIQUES

Objectives: - On completion of this course students will be able to understand the general principles and methods involved in doing social research. This course provides philosophical underpinnings of the social research and familiarizes the students with methodological tools and statistical techniques, explaining quantitative and qualitative methods, which will help them to undertake empirical research independently.

Unit- 1: Research

- Definition, Types and Importance Geographical Research
- Problems of objectivity
- Relationship Between Theory and Research

Unit- 2: Basic Elements of Geographical Research

- Hypotheses: Meaning, Importance, Types and Formulation
- Sampling: Meaning, Characteristics and Types
- Research Design, Meaning and Types.

Unit -3:Tools of Data Collection

- Meaning and Methods of Data Collection
- Primary Data**:** Observation, Questionnaire and Interview
- Secondary Data

Unit-4: Role of Statisticsin Research

- Measures of Central Tendency: Mean Median and Mode.
- Research Reports – Structure and Components of Research Report
- Characteristics of Good Research Report

References:

- Ahuja, Ram (2001), Research Methods, Delhi: Rawat Publications.
- Bailey, Kenneth D. (1982), Method of Social Research, New York: The Free Press, Second Edition.
- Blalock, Hubert M. (1979), Social Statistics. New York:
- Tata Mc-Graw-Hill. Boss, P.K. (1995), Research Methodology, New Delhi, ICSSR.
- Champion, Dean. J. (1981), Basic Statistics for Social Research New Delhi: Macmillan Publishing New York.
- Goode, W.J. and P.K. Hatt, (1952), Methods in Social Research, New York: McGraw International Students Edition.
- Gupta, S.P. (2002). Statistical Methods, New Delhi:Sultan Chand and Sons Publication.
- Moser, S.C. and G. Kalton (1971), Survey Methods in Social Investigation, London:
- Heinmann.Seltiz, Claire et al (1959). Research Methods in Social Relation, New York:Henry Holt and Co. Srinivas, M.N. and A.M. Shah (1979). Fieldworker and The Field, New Delhi: Oxford University Press.
- Thakur, Devender (2003), Research Methodology in Social Science, New Delhi: Deep and Deep Publications Pvt. Ltd.
- Young, P.V. (1988), Scientific Social Surveys and Research, New Delhi Prentice Hall.

M.A 4th– SEMESTER
GMA-401: URBAN PLANNING AND DEVELOPMENT

Objectives-Urban geography deals with settlement systems, evolution, growth and types of urban area, but urban planning is the study of next level where one can study about indicators, component, techniques and different theories and models of it. It provides a chance of understanding and solving the issues, challenges, and its proper management towards the sustainable development. This paper is especially designed to covers the need of urban planning, management and dynamics of development.

Unit- 1: Introduction

- Urbanisation, Theories of Urban Development
- Urban Planning, Techniques of Urban Planning

Unit -2: Urban Issues and Challenges

- Population, Poverty , Inequality, unemployment, Development and Disparities
- Industrial Pollution, Water and Sanitation, Waste Management, Energy Management

Unit -3: Urban Infrastructure and Management

- Urban Health, Transport, Education, Law and Order, Safety and Security
- Urban management and Management of Urban Services, Urban Assets and Financial Management

Unit- 4: Dynamics of Urban Planning and Development

- Sustainable Development, Natural Resource management and Environment management System
- Urban Development Policies: Global, Policy Perspectives in India, Development Programs in India

References:

- Harvey Vanessa: National urban Policy in the United States, SGS Economic Planning.
- Goldman Sachs: Dreaming with BRICS, The pathway to 2050, Global economic Paper no. 99.
- South Africa housing Department (1997); urban Development Framework
- OP Mathur: India's Urban Sector: An Assessment; National Institute of Public finance and Policy, New Delhi, 2005.
- Urban Statistics Handbook; National Institute of Urban Affairs, New Delhi, 2008.
- AgarwalAN(2004); India Economy, Bishwaprakashan, New Delhi.
- Asthana MD and Sabir Ali (2004); Urban Poverty in India, New Delhi, Council for Social Development and Uppal Publishing House.
- United Nations Development Programme (2006); Human Development Report-2005, New Delhi.
- World Health Report, (1997, 2000); Geneva, WHO.
- D Banerji (1982); Poverty, Class and Health culturein India
- MOUD, Handbook on Service level Benchmark: Government of India.
- IGNOU Study Material of PGDUPDL
- www.jnnurm.nic.in
- www.indiaurbanportal.in
- www.wri.org
- www.ecoeco.org
- www.mohfw.nic.in

GMA - 402: HYDROLOGY & WATER MANAGEMENT

Objectives:-It will deal with surface and groundwater, addressing both water quantity and quality, learning to understand human influences on the hydrological system, and apply tools, such as modelling, for the proper integration of hydrological knowledge and analysis in water resources planning and management.

Unit-1: Introduction

- Definition and Scope of Hydrology
- Hydrological cycle, Structure and properties of water
- Earth's water resources and water as a cyclic resource

Unit-2:Surface Water

- Surface water: sources and factors affecting quality and quantity
- Precipitation: forms and estimation; Runoff: sources, and factors affecting runoff
- Evaporation: factors and measurement
- Transpiration: significance and factors, Evapotranspiration

Unit-3: Ground Water

- Ground water: Characteristics of stream flow
- Porosity and permeability, infiltration
- Ground water: storage, aquifers, movement and discharge

Unit-4: Water Management

- Interface between surface and Ground Water, Environmental influences on water resources
- Urban water supply, water management, water harvesting
- Water pollution and measures to control

References:

- Sing, V.P., (1992), Elementary Hydrology, Prentice Hall Inc., Upper Saddle River, N.J.
- Ward A.D. and Elliot, W.J., (1995), Environmental Hydrology, Lewis Publishers, New York.
- Maidment, D.R. (Ed.), (1993), Handbook of Hydrology, McGraw, New York.
- Reddy, P.J., (1986), A Text Book of Hydrology, Lakshmi Publications, New Delhi.
- Herschy, R.W. and Fiarbridge, R.W., (Eds.), (1998), Encyclopaedia of Hydrology and Water Resource, Kluwer Academic Publishers, Boston, M.A.
- Prescott, J.A., (1940), Evaporation from a Water Surface in Relation to Solar Radiation, Trans, Royal Society of Australia,
- Freeze, R.A, (1972), Role of Subsurface Flow in Generating Surface Runoff, Water Resource, Vol. 8, No. 5.
- Walesh, S.G., (1989) Urban Surface Water Management, Jhon Wiley and Sons, New York.
- Garg, S.K., (2000), Hydrology and Water Resource, Khanna Publishers, New Delhi.
- Bear, J., (1979), Hydraulics of Ground Water, McGraw Hill, New York.
- Bouwer, H., (1978), Ground Water Hydrology, McGraw Hill, New York
- Chow, V.T. (Ed.), Handbook of Applied Hydrology, McGraw Hill, New York
- Waltan, W.C., Ground Water Resource Evaluation, McGraw Hill, Tokyo.
- Dingman, S.L., Physical Hydrology, 2nd ed., Prentice Hall, Upper Saddle River, N.J.
- Rao, K.L., (1982), India's water wealth. Orient Longman, Delhi.
- Todd, D.K., (2004), Groundwater Hydrology, John Wiley & Sons Inc
- 18. Aggarwal, A., (1991), Floods, Floodplains and Environmental Myths. Centre for Science and Environment, New Delhi.
- Wright. R.T and Nebel. B.J., (2002), Environmental Science: toward a sustainable future, Prentice Hall India Ltd, 8th Edition.
- Vijay P. Singh, (1995), Environmental Hydrology. Kluwer Academic Publications, The Netherlands.

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GMA-403: DISSERTATION AND VIVA- VOCE

Objectives: This course provide practical Application of learner's theoretical and methodological understanding and skills into devising researchable ideas and specific research questions and hypotheses, by Conducting a focused review of the relevant literature and creating appropriate conceptual framework, developing a realistic research design with specific research strategies. This enables students to think through and articulate a research in their interested areas. Topics for the dissertation will have to be approved by the Board of Studies in the beginning of the IV semester; allotment of supervisor will also be done by board of studies.

Dissertations normally report on a research project or study, or an extended analysis of a topic. The structure of the thesis or dissertation explains the purpose, the previous research literature which impinges on the topic of the study, the methods used and the findings of the dissertation.
The Dissertation should include the following –

- Title of Dissertation
- Introduction
- Problems of Research
- Objectives of Research
- Tentative Chapter Division
- Suggested readings

Source Material and References:-

Presenting your own ideas in a Dissertation is acceptable and even encouraged. However, the paper must be based on facts and opinions from authoritative sources and these sources must be given proper credit. A minimum of three published sources is required, and ten or more is typical. Direct quotes must be placed inside quotation marks or in indented sections and should be used sparingly. Paraphrasing is better in most cases.

There are two popular ways to cite references. One is to place superscripted numbers in the text with corresponding footnotes at the bottom of the page or endnotes at the end of the paper. More typical of scientific papers is to place the author and year in parentheses (Heaton, 1984). In either case you need a bibliography of all cited sources at the end of the paper with author(s), year, title, publication or publisher, volume, and pages. These should be in alphabetical order by name of the primary author. Preference however should be given to MLA Style Sheet.

Be sure to find source materials that are specific to your topic, either books or journal articles. Textbooks are usually too general and should be avoided. The libraries have published and computerized indexes that can be used to find relevant sources. See the Supervisor or a reference librarian if you are unfamiliar with these resources.

Plagiarism is the presenting of someone else's wording or ideas as one's own and is a violation of university policy. If you use someone else's words or ideas, you must give them proper credit. You must also obtain permission from the Supervisor before using your Project for more than one course.

Length and Format

Length is not important; 75 to 100 pages of 1.5 spaced texts is a good target. The title, author, course, and date should be typed onto a cover sheet. Illustrations are not required but are often useful in explaining graphical concepts and in giving the paper character. The bibliography should be the last section of the paper. The entire report has to be submitted in two spiral bound copies.

Marks/Grading

Students are required to make two submissions: a first draft and a final draft prior to final submission. The first draft is not to be a "rough" draft; it should be a completed, typed paper like you would ordinarily submit. I will read it carefully, offer suggestions for improvement, give it a grade, and return it to you promptly. The final draft, which is worth a larger share of the points, is your chance to respond to the suggestions and submit an improved paper. This, I hope, will make the

writing of a Project more of a learning experience. We strongly suggest using a word processor so that the final draft can be created by editing rather than complete retyping.

Grading is based on both research content and presentation. Your paper should demonstrate that you have a gained a level of expertise in the subject by studying the relevant literature. Your presentation should be clean and convincing with proper use of paragraphs, complete sentences, and correct grammar, spelling, and punctuation. Make your Project look and sound professional.

Evaluation of Dissertation

Evaluated by Criteria:

1. Institution
    - Quality
    - Depth & Breadth of analysis,
    - Coverage,
    - Scope and content
    - Project fulfilment
    - Data collection ability in the field (if any)
    - Scope of Implementation
    - Content of each Chapter
2. Board of Examiners

    Viva-voce Examination

    (Progress Report, Attendance, Ground Truth Points, Field Study. (If Any))

    Total: - 200 Marks