Outcome Based Education Curriculum (2021-22)

Sr. No.	Types of Paper	Code	Total Papers	Credits	Total Credit	For Whom
1	Core Theory	CT	6	4	24	Compulsory to all
2	Elective Theory	ET	4	4	16	Select Any two from them
3	Specialized Theory	ST	8	4	32	For G & P Group
4	Core Practical's	CP	2	4	8	Compulsory to all
5	Specialized Practical	SP	2	4	8	
6	Geoinformatics Theory	GT	1	4	4	Compulsory to all
7	Research Project (Dissertation, Village Survey	RP	1	8	8	Compulsory to all
8	Multidisciplinary Theory (Constitution of India, Disasterm Management etc.	MT	2	4	8	Compulsory to all
Total			26	36	108	

Note-

G- Geomorphology, P- Population Geography

For G (Geomorphology) and P (Population Geography)

Sr. No.	Type of Paper	Semester - I			Semester - II			Semester - III			Semester - IV		
		Paper	Paper Title	Credit	Paper	Paper Title	Credit	Paper	Paper Title	Credit	Paper	Paper Title	Credit
1	Core Theory	GCT-1	Geomorphology	4	GCT-3	Climatology	4	GCT-5	Oceanography	4	GCT-6	Geographical Thoughts	4
		GCT-2	Population geography	4	GCT-4	Geography of Marathwada	4	-	-	-	-	-	-
2	Elective Theory	-	-	-	GET-1	Agriculture Geography	4	-	-	-	-	-	-
		-	-	-	GET-2	Geography of Tourism	4	-	-	-	-	-	-
		-	-	-	GET-3	Regional Planning & Development	4	-	-	-	-	-	-
		-	-	-	GET-4	Political Geography	4	-	-	-	-	-	-
3	Specialized Theory	-	-	-	-	-	-	GSTG-1	Fluvial Geomorphology	4	GSTG-3	Arid & Karst Geomorphology	4
		-	-	-	-	-	-	GSTG-2	Coastal Geomorphology	4	GSTG-4	Glacial Geomorphology	4
		-	-	-	-	-	-	GSTP-1	Demography	4	GSTP-3	Urban Geography	4
		-	-	-	-	-	-	GSTP-2	Social and Cultural Geography	4	GSTP-4	Rural Geography	4
4	Core Practical's	GCP-1	Practical	4	GCP-2	Practical	4	-	-	-	-	-	-
5	Specialized Practical	-	-	-	-	-	-	GCPG-1	Practical in Geomorphology	4	-	-	-
		-	-	-	-	-	-	GCPP-1	Practical in Population	4	-	-	-

6	Geoinformatics Theory	GGT-1	Fundamentals of RS, GIS & GPS	4	-	-	-	-	-	-	-	-	-	-
7	Research Project (Dissertation, Village Survey)	-	-	-	-	-	-	-	-	-	GRMP-1	Dissertation, Village Survey	4	
8	Multidisciplinary Theory (Constitution of India, Disasterm Management etc.	GMT-1	Constitution of India	2	-	-	-	GSCT-1	Disaster Management	4	-	-	-	

For G (Geomorphology) and P (Population Geography)				
Sr. No.	**Type of Paper**	**Semester - I**		
		Paper	**Paper Title**	**Credit**
1	Core Theory	GCT-1	Geomorphology	4
		GCT-2	Population geography	4
2	Elective Theory	-	-	-
		-	-	-
		-	-	-
		-	-	-
3	Specialized Theory	-	-	-
		-	-	-
		-	-	-
		-	-	-
4	Core Practical's	GCP-1	Practical	4
5	Specialized Practical	-	-	-
6	Geoinformatics Theory	GGT-1	Fundamentals of RS, GIS & GPS	4
7	Research Project (Dissertation, Village Survey)	-	-	-
8	Multidisciplinary Theory (Constitution of India, Disasterm Management etc.	GMT-1	Constitution of India	2

For G (Geomorphology) and P (Population Geography)				
Sr. No.	**Type of Paper**	**Semester - II**		
		Paper	**Paper Title**	**Credit**
1	Core Theory	GCT-3	Climatology	4
		GCT-4	Geography of Marathwada	4
2	Elective Theory	GET-1	Agriculture Geography	4
		GET-2	Geography of Tourism	4
		GET-3	Regional Planning & Development	4
		GET-4	Political Geography	4
3	Specialized Theory	-	-	-
		-	-	-
		-	-	-
		-	-	-
4	Core Practical's	GCP-2	Practical	4
5	Specialized Practical	-	-	-
6	Geoinformatics Theory	-	-	-
7	Research Project (Dissertation, Village Survey)	-	-	-
8	Multidisciplinary Theory (Constitution of India, Disasterm Management etc.	-	-	-

For G (Geomorphology) and P (Population Geography)				
Sr. No.	**Type of Paper**	**Semester - III**		
		Paper	**Paper Title**	**Credit**
1	Core Theory	GCT-5	Oceanography	4
		-	-	-
2	Elective Theory	-	-	-
		-	-	-
		-	-	-
		-	-	-
3	Specialized Theory	GSTG-1	Fluvial Geomorphology	4
		GSTG-2	Coastal Geomorphology	4
		GSTP-1	Demography	4
		GSTP-2	Social and Cultural Geography	4
4	Core Practical's	GCP-3	Practical/ Field Project	4
5	Specialized Practical	GCPG-1	Practical in Geomorphology	4
		GCPP-1	Practical in Population	4
6	Geoinformatics Theory	-	-	-
7	Research Project (Dissertation, Village Survey)	-	-	-
8	Multidisciplinary Theory (Constitution of India, Disasterm Management etc.	GSCT-1	Disaster Management	4

For G (Geomorphology) and P (Population Geography)				
Sr. No.	Type of Paper	Semester - IV		
		Paper	Paper Title	Credit
1	Core Theory	GCT-6	Geographical Thoughts	4
		-	-	-
2	Elective Theory	-	-	-
		-	-	-
		-	-	-
		-	-	-
3	Specialized Theory	GSTG-3	Arid & Karst Geomorphology	4
		GSTG-4	Glacial Geomorphology	4
		GSTP-3	Urban Geography	4
		GSTP-4	Rural Geography	4
4	Core Practical's	-	-	-
5	Specialized Practical	-	-	-
6	Geoinformatics Theory	-	-	-
7	Research Project (Dissertation, Village Survey)	GRMP-1	Dissertation, Village Survey	4
8	Multidisciplinary Theory (Constitution of India, Disasterm Management etc.	-	-	-

Name of the Program : M.A. I Geography		
Semester I **Theory Paper**	**Name of the Course** **GCT1: Geomorphology**	**Credits : 04**

Course Objectives:

1. It being a course at the interface of geography with earth, the students to be sensitized to background of geology and environmental sciences.
2. To familiarize the students with the need for understanding of geomorphology with reference to certain fundamental concept, focusing on the unity of geomorphology in the earth materials and the processes with or without an element of time. Process component of geomorphology is segmented into the internal and external processes of landscape evolution.
3. Finally a few selected applications of geomorphology to societal requirements and quality of environment are dealt with.

Course Outcomes:

1. Classify and describe landforms in a variety of environmental settings.
2. Explain the theories of Uniformitarianism , Catastrophism and appreciation.
3. Describe the significance of spatial and temporal scales in geomorphology.
4. Analyze geomorphological systems in terms of resisting and driving forces.
5. Explain the surface processes important in the creation of landforms.
6. Quantitatively use and evaluate geomorphological data with numerical, statistical and cartographical methods**.**
7. Ability to analyze relationships between physical and human aspects of environments and landscapes.

Course Contents:

Unit	Teaching / Learning Points	Periods	Marks
I	**A) Nature and Scope of Geomorphology:** Definition of Geomorphology, Fundamental Concepts in Geomorphology, **B) Interior of the Earth** **C) Basic Theories in Geomorphology:** Wegener's Continental Drift, Plate Tectonics, Theory of Isostasy, W M Davis's Concept of Geomorphic Cycle	20	20
II	**A) Endogenic geomorphic forces:** Epiorogenic and Orogenic Movements, Compression, Tension, Folds, Faults, earthquake and volcanoes. **B) Denudational Processes:** Weathering, Types of Weathering, Erosion Mass Movement.	15	15

III	**Land Forms:** Associated with Fluvial, Glacial, Arid, Karts and Coastal processes	15	15
IV	**Slope Morphology:** Types of Slope, Slope Formation and Processes	05	15
V	**Applied Geomorphology:** Geomorphology and Human activities- Agriculture, Industries, Settlement, Transportation and Mining	05	15
	Total	**60**	**80**

Reference Books:

1. Thornbury, W. D. (I960), Principles of Geomorphology, John Wiley and Sons, New York.
2. Chorley, R. J., Schumm, S. A. and Sugden, D. E.(1984): Geomorphology, Methuen, London.
3. Kale, V. S. and Gupta, A. (2001): Introduction to Geomorphology, Orient Longman, Calcutta.
4. Savindra Singh (2002), Geomorphology, Prayag Pustak Bhawan, Allahabad
5. Spark B. W. (1972), Geomorphology, Longman, NewYork
6. Steers, A. (1958), The Unstable Earth, Methuen,London
7. Ollier, C. D. (1981), Tectonics and Landforms, Longman , London
8. Strahler A. H and Strahler, A. N. (1992), Modern Physical Geography, John Wiley, New York
9. Wooldridge and Morgan: Geomorphology
10. Holmes: Physical Geology
11. Fairbridge, R. W. (1968), Encyclopedia of Geomorphology, Reinholdts, New York.

Web Resources:

1. **www.wikipedia.org**
2. **www.encyclopedia.com**
3. **http://jgesnet.com**

Name of the Program : M.A. I Geography		
Semester: I **Theory Paper**	**Name of the Course** **GCT-2: Population Geography**	**Credits : 04**

Course Objectives:

1. To introduce the students to the complex dimensions of population.
2. To understand and evaluate the association between demographic and socio-economic attributes of population and the resultant levels of social well- being and economic development.
3. To understand the role and relationship between population and environment in an ever changing space-time continuum.

Course Outcomes:

1. Analyze the types of data of population geography.
2. Describe the distribution and density of population.
3. Apply the theories of population in arriving at solutions to the issues.
4. Investigate Current Issues and Problems in India.
5. Interpretation of Toposheets, Weather reports, Cartographic techniques & Geo Statistical Methods.
6. Read and interpret the mechanism function of topographical maps and interpretation if weather images.

Course Contents:

Unit	Teaching / Learning Points	Periods	Marks
I	**A) Population Geography:** Definitions, Nature and Scope **B) Basic Concepts:** Population Growth, Birth rate, Death rate, Crude Birth rate, Crude Death Rate, Infant Mortality rate, Fertility, Mortality, Migration, Age, Sex ratio, Age and Sex Pyramid, Density and literacy	15	20
II	**Population Growth:** Influencing Factors 1. Terrain 2. Climate 3. Soil 4. Water Bodies, 5. Mineral Resources 6. Industries 7. Transport 8. Urbanization 9. Socio-economic and Cultural 10. Political Peace and Violence 11. Literacy	15	15
III	**Theory and Model:** Basic Concept, Scope, Applications and Relevance of 1. Malthus' Theory of Population Growth and 2. Demographic Transition Model	10	15

IV	**A) Population Distribution:** Distribution of Population in India, Pattern of World Population Distribution. B) **Migration:** Factors Affecting Migration and Types of Migration	10	15
v	**Population as a Resource:** A) Concepts: 1. Over Population, 2. Optimum Population 3. Under Population B) Various aspects of Population: 1. Size, 2. Growth, 3. Age, 4. Education 5. Health C) Population Resource Regions: 1. Plain 2. Plateau 3. Mountain 4. Coastal	10	15
Total		**60**	**80**

Reference Books:

1. Beaujeu Garnier J. – Geography of Poluation, Longman Group Ltd.
2. Chandna R. C. (2000) – A Geography of Population, Concepts, Determinants and Patterns, Kalyani Publishers, New Delhi
3. Bhende Asha and Kanitkar T. – Principles of Population Studies, Himalaya Publishing House, Bombay, 1993.
4. Clark J. I. Geography of Population Approaches and Applications, Pergamon Press Ltd., Oxford

Web Resources:

1. **www.wikipedia.org**
2. **www.encyclopedia.com**
3. **http://jgesnet.com**

Name of the Program : M.A. I Geography		
Semester: I **Theory Paper**	**Name of the Course** **GGT-1: Fundaments of Remote Sensing, GIS and GPS**	**Credits : 04**

Course Objectives:

1. To introduce GIS (Geographic Information System) as a tool of spatial science.
2. To indicate the basic elements of GIS and methodology of GIS.
3. To outline the steps and areas of application of GIS.
4. To introduce to the students the basic principles of Remote Sensing;
5. To indicate the methods of visual and digital interpretations of satellite imageries.
6. To outline the application value of remote sensing.

Course Outcomes:

1. Analyze the basic concepts of GIS and GPS.
2. Describe the Data, Model and Processes of GIS
3. Apply the GPS instrument and its features.
4. Interpretation of GIS and GPS Technology and its processes.
5. Describe the basic principles of Remote Sensing.
6. Explain the EMR (Electromagnetic Radiation).
7. Describe the Aerial photography and its Classification.
8. Analyze Satellite Data Generation and Aerial Photography Products.

Course Contents:

Unit	Teaching / Learning Points	Periods	Marks
I	**Introduction to Remote Sensing:** Definition of Remote Sensing History of Remote Sensing Type and Scope of Remote Sensing Aerial Remote Sensing Satellite Remote Sensing Indian, European and US Satellite Systems	10	20
II	**EMR (Electromagnetic Radiation):** Stages in remote sensing data acquisition Electromagnetic Radiation and Electromagnetic Spectrum Spectral Quantities Black Body Radiation and Radiation Laws Spectral Signature Interaction of EMR with atmosphere and Earth's surface features	15	15

III	**Introduction to GIS:** Definition of GIS Introduction and Development of GIS Components of GIS Applications of GIS	10	15
IV	**Data, Model and Processes of GIS:** Spatial and Non-Spatial Data Raster Data and Vector Data, Advantages and Disadvantages Processes of GIS DMS (Database Management System)	10	15
V	**A) Introduction to GPS:** Definition of GPS Introduction and Development of GPS Advantages and Disadvantages of GPS and Deferential Global Positions **B) Technology and Processes:** Segments of GPS Technology Ephemeris data Trilateration Process **C) Applications of GPS**	15	15
Grand Total		**60**	**80**

Reference Books:

1. Anji Reddy, M (2008): Textbook of Remote Sensing and Geographic Information System, B.S. Publication, Hyderabad
2. Burrough P.A. and R. A. MC Donnecl (2000), Principles of Geographical Information system, Oxford University, Press.
3. Campbell, J (2002): Introduction to Remote Sensing, Taylor & Francis, London
4. Chang Kang tsug (2002) Introduction to GIS, Tata MCGRAW Hill, New Delhi.
5. Chang Kang tsug (2002) Introduction to GIS, Tata MCGRAW Hill, New Delhi
6. Drury, SA (2001): Image Interpretation in Geology, Blackwell, Oxford
7. George Joseph (2003) Fundamentals of Remote sensing University press, Hyderabad.
8. George Joseph (2003) Fundamentals of Remote sensing University press, Hyderabad
9. Joseph, G. (2004): Fundamentals of Remote Sensing, Universities Press, Hyderabad, India
10. Lillesand, TM, Kiefer, RW and Chipman, JW (2008): Remote Sensing and Image Interpretation, John Wiley & Sons, New Delhi

Web Resources:

1. www.wikipedia.org
2. www.encyclopedia.com
3. http://jgesnet.com

Name of the Program: M.A. I Geography		
Semester: I **Practical Paper**	**Name of the Course** **GCP-1: Practical**	**Credits : 04**

Course Objectives:

1. To understand the morphological analysis with help of calculations.
2. To understand the various demographic Methods with the help of calculations.
3. To understand the representing maps using GIS applications.
4. To understand the importance, basic principles and uses of GPS in surveying.

Course Outcomes:

1. Define the various Drainage basin and stream order.
2. Examine the hypsometric integral, cross profiles and block diagram.
3. Understanding the population pyramid and major statistics.
4. Understand the working of stereoscope and analysis of aerial photographs.
5. Understand the functions the GIS application.
6. Apply GIS in various Geographical studies.
7. Examine of the GPS Functions.

❖ **Practical / field work list:**

Unit No.	Teaching and learning point	Practical	Mark
I	**Morphological analysis:** 1) Profile analysis- Longitudinal, Superimposed, Projected, Composite and indivisibility of Terrains. 2) Calculate stream order and Bifurcation Ratio 3) Hypsometric Curve and Integral.	15	20
II	**Methods of Representing of Population Data** 1) Age-Sex Pyramid 2) Dot Method 3) Pie Diagram 4) Choropleth	15	20
III	**GIS Computer/ Software Based Practical** 1) Geo-referencing methods 2) Digitization 3) To use Mozaking tools 4) To use DEM Data 5) Population data analysis of Using GIS and Computer mapping Technique	15	20
IV	**GPS Survey** 1. To study the GPS equipment 2. To identify point locations (Wax-Point) 3. To apply tracking tool 4. To measure and compare elevation of various locations	15	20
V	**Journal and Viva**	-	20
	Total	**60**	**100**

Reference Book

1. Basu, S.R. and majumder paramita (2006), lamdaslides scenario of the Darjeeling Himalayas in West Bengal, India; Geo.Rev. Ind., V.68, No.2, june 2006.
2. Bryant, M. (1974), Digital Image Processing, Chelmsford, MA, Optronics International publications'.
3. Campbell, J. B. (2002), Introduction to Remote Sensing. London: Taylor and Francis.
4. Clarke, K.C., (1990), Analytical and Computer cartography, Englewood cliffs, N.J. Practice-Hall.
5. Chorly, R. (ed) (1987), Handling Geographic Information, London.
6. Fryirs, K. A., & Brierley, G. J. (2013). Geomorphologic Analysis of River Systems, Chichester: Wiley-Blackwell.
7. Jeff, H. (1995). Differential GPS Explained, Trimble Navigation
8. King, C. A. M. (1966). Techniques in Geomorphology. London: Edward Arnold Ltd.
9. Lawrence, L., & Alex, L. (2008). GPS Made Easy: Using Global Positioning Systems in the Outdoors. Calgary:Rocky Mountain Books.
10. Leopold, L. B., Wolman, M. G., & Miller, J. P. (1964). Fluvial Processes in Geomorphology. San Franscisco.
11. Lillesand, T.M. and R.W. kiefer (1994), Remote Sensing and Image Interpretation, New York, John Wiley and Sons.
12. Mohinder, S. G., Lawrence, R. W., & Angus, P. A. (2001). Global Positioning Systems, Inertial Navigation and Integration, New York: John Wiley and Sons Inc.
13. Ollier Lillesand, T. M., & Ralph, K. W. (2008). Remote Sensing and Image Interpretation. Singapore: John Wiley and Sons.
14. Pijushkanti Saha and Pratha Basu (2010), Advanced Practical Geography, Arunabha Sen, Kolakata.
15. Rogerson, P. A. (2010). Statistical Methods for Geography, London: Sage Publications.
16. Sabins, F. F. (1996). Remote Sensing: Principles and Interpretation, San Francisco: W. H. Freemanand Company.
17. Satheesh, G., Sathikumar, R., & Madhu, N. (2007). Advanced Surveying: Total Station, GIS and Remote Sensing, Delhi: Pearson Educatio.
18. Strahler, A. N. (1964). Part II. Quantitative geomorphology of drainage basins and channel networks. Handbook

Web Resources:

1. **www.wikipedia.org**
2. **www.encyclopedia.com**
3. **http://jgesnet.com**
4. Survey of India: www.surveyofindia.gov.in
5. ISRO Bhuvan 2D Platform:
6. bhuvan.nrsc.gov.in/map/bhuvan/bhuvan2d.php
7. USGS Global Visualization Viewer: www.glovis.usgs.gov

Name of the Program : M.A. I Geography		
Semester: I **Multidisciplinary Theory Paper**	**Name of the Course** **Foundation / Bridge Course** **GMT1: Introduction of Geography**	**Credits : 02**

Course Objectives:

1. Possess basic skills for map reading and interpretation. Students should become familiar with and proficient in the use of: map symbols, scale, direction, and distance; various types of maps and their distinctive properties; maps to present geographic information and to interpret and
2. Possess a somewhat detailed "mental map" of the world. Students should know the locations of Earth's most important physical and human features and conditions, the chief agents responsible for their formation
3. Understand the basic relationships that exist between humans and the natural environments they occupy. Students should recognize the different fundamental ways by which various societies culturally adapt to, use, and modify the natural environment(s) they occupy. They also should understand and appreciate the concept of natural resources and the need for an enhanced global environmental ethic.

Course Outcomes:

1. Classify and describe landforms.
2. Explain the theories of Climate.
3. Describe the significance of spatial and temporal scales in topology.
4. Analyze geomorphological systems in terms of resisting and driving forces.
5. Explain the surface processes important in the creation of landforms.

Course Contents:

Unit	Teaching / Learning Points	Periods	Marks
I	**Introduction of Geography** Meaning of Geography Definition of Geography Scope of Geography	05	10
II	**Branches of Geography,:** **Physical Geography:** Geomorphology, Climatology, Oceanography, Biogeography etc. **Human Geography:** Population, Economics, Social, Cultural, Political etc.	05	10
III	**Fundamental Concept in Physical Geography:** Latitudes, longitudes, Grid, International Date line, Interior of the earth, Structure of the atmosphere, Ocean bottom relief, Climate Change , Carbon sink etc.	07	10

IV	**Fundamental Concept in Human Geography:** **Population:** Density, Sex ratio, Growth, Literacy, Migration etc. **Economics:** Economic activity, Transportation and Communication, Human Settlements etc.	07	10
V	**Identification of Maps:** Physical maps: Mountain Ranges, Rivers, Oceans, and Deserts Political Maps: Continents, Selected Countries, National Highways etc.	06	10
	Total	**30**	**50**

Reference Books:

1. Chandana R.C. (2000), A Geography of Population, concepts, determinants and Patterns, Kalyani publications, New Delhi.
2. Fundamental of Physical Geography, Class XII by NCERT.
3. Fundamental of Human Geography, Class XII by NCERT.
4. Navneet School Atlas.
5. The Orient school Atlas.

Web Resources:

1. **www.wikipedia.org**
2. **www.encyclopedia.com**
3. **http://jgesnet.com**

Name of the Program: M.A. I Geography		
Semester: II **Theory Paper**	**Name of the Course** **GCT-3: Climatology**	**Credits : 04**

❖ **Course Objectives:**

The aim of the course is to provide an understanding of weather phenomena; dynamics of global climates and generation of climatic information and their application.

❖ **Course Outcomes:**

1. Describe the meteorology and climatology
2. Describe the scientific problems addressed by metrology and climatology.
3. Describe the methods and techniques of the data gathering
4. Perform meteorological measurements and use meteorological data for climatic analysis.
5. Describe/implement the basic meteorological process in the Earth atmosphere.
6. Describe the climate diversity over the Earth and knowledge of the basic climatic zones.
7. Perform climatic analysis on the basis of meteorological data.

❖ **Course Contents:**

Unit	Teaching / Learning Points	Periods	Marks
I	**Basic Concepts:** Nature and Scope of Climatology, Development of Modern Climatology, Weather and Climate,	10	15
II	**Earth's Atmosphere:** Composition and Vertical Structure, Heat Balance and Budget of Earth	10	15
III	**A) Temperature and Air Pressure:** Distribution of Temperature: Vertical and Horizontal Distribution of Pressure, Atmospheric pressure & general circulation of winds **B) Humidity:** Evaporation, Humidity, Condensation Formation of Clouds and their types Precipitation – types and characteristics.	10	20
IV	**A) Air Masses and Fronts:** Source Regions, Classification Frontogenesis and Frontolysis, Types of Fronts. **B) Atmospheric Disturbances:** Cyclones, Anticyclones, Storms, Water spouts, thunderstorms and tornadoes.	15	15
V	**Classification of Climate:** Bases of Classification Kop pen's Classification of Climate	15	15
Grand Total		**60**	**80**

Reference Books:

1. Frederick K. Lutgen, Edward Tar buck: "The Atmosphere An Introduction to Meteorology" Prentice Hall, Englewood Cliffs, New Jersey 0762 ,1998
2. 4. Sellers W.D : "Physical Climatology"University of Chicago Press. 1965
3. 5. Trewartha G.T: An Introduction to climate "McGraw Hill BK Co. New York, 1968.
4. 6. Das P. K. : The Mansoon, Prayag pustak Bhavan, Allahabad.
5. Shastri Rama: Weather and Weather Forecasting, Ministry & Information NBT Delhi.
6. Lal D. S.: Climatology. Prayag pustak Bhavan, Allahabad.
7. Ramashatri: Weather & Weather forecasting, Ministry of Information & Broadcasting.
8. Savindra Sing (2000) : Climatology, Prayag Pustak Bhavan, Allahabad.
9. Mather JR (1975): Climatology : Fundamentals & Applications. Mc Gray Hills Book, New York.
10. Hobbs J.E. (1980) : Applied Climatology, Butterworth, London
11. Crist Field : Principles of Climatology; Prentice Hall, London.
12. Oliver J. E. (1973) : Climate & Mans Environment, John Wiley & Sons; New York.
13. Byers R.H. : "General Meteorology "McGraw Hill BKCo New York 1974

❖ **Web Resources:**

1. www.wikipedia.org
2. www.encyclopedia.com
3. http://jgesnet.com
4. http://www.imd.gov.in

Name of the Program: M.A. I Geography		
Semester: II **Theory Paper**	**Name of the Course** **GCT-4: Geography of Marathwada**	**Credits : 04**

Course Objectives:

1. To acquaint students with Geography of our Region.
2. To make students aware of the magnitude of problems and prospects inMarathwada.
3. To help students understand the interrelationship between the subject and the society.
4. To help students understand the recent trends in regional studies.

Course Outcomes:

1. Describe the Administrative Set up of Marathwada.
2. Describe the Physical settings of Marathwada region.
3. Describe the Climate characteristics of Marathwada region.
4. Describe the impact of Resources on regional development.
5. Explain the agriculture development of Marathwada region.

Course Contents:

Unit	Teaching / Learning Points	Periods	Marks
I	**Administrative Set up of Marathwada:** Historical and Political Background of the Region Geographical location of Marathwada Adjoining States and Districts Administrative Districts	10	20
II	**Physical settings:** Geological Structure of Marathwada. Physical Structure (Mountain, plateau, Plains) Drainage Pattern (East and West flowing rivers) Major Soil types and Distribution.	10	15
III	**Climate:** Climatic Regions of Maharashtra Distribution of Rainfall Draught prone areas- Problems and Management Flood areas - Problems and Management	10	15
IV	**Resources:** Water: Problems in Utilization and conservation Forest: Types and Conservation Power: Hydro, Thermal	15	15
V	**Agriculture:** Types of Agriculture Major agriculture region Major Crops: Changing Cropping Pattern	15	15
	Total	**60**	**80**

Reference Books:

1. Annual Report (2015-16), Department of Agriculture, Cooperation and Farmers Welfare, Ministry of Agriculture and Farmers Welfare, Government of India
2. Director, Soil Conservation & Watershed Management, Commissionerate of Agriculture Maharashtra Shasan Pune (2013), Impact Assessment Study of Farm Ponds in 13 Districts of Nagpur, Amravati And Latur Divisions of Maharashtra, Formerly Agricultural Finance Corporation Ltd.
3. Jadhav Shivanand Tanajirao (2018), A geographical study of watershed area in marathwada region, Unpublished Ph.D. Thesis, submitted Dr. Babasaheb Ambedkar Marathwada University, Aurangabd
4. Maharashtra state Agricultural Atlas
5. Phule Suresh J. (2000), Agricultural geography of marathwada region, Unpublished Ph.D. Thesis, submitted Dr. Babasaheb Ambedkar Marathwada University, Aurangabd

Web Resources:

1. www.wikipedia.org
2. www.encyclopedia.com
3. http://jgesnet.com
4. http://www.imd.gov.in

Name of the Program: M.A. I Geography		
Semester: II **Theory Paper**	**Name of the Course** **GET-1: Agriculture Geography**	**Credits : 04**

Course Objectives:

1. To familiarize the students with the concept, origin, and development of agriculture.
2. To examine the role of agricultural determinants towards changing cropping patterns, intensity, productivity, diversification and specialization. The course further aims to familiarize the students with the application of various theories, models and classification schemes of cropping patterns and productivity.
3. Its objectives are also to discuss environmental, technological and social issues in agricultural sector with special reference to India.

Course Outcomes:

1. Define the basic concepts of agriculture geography.
2. Describe the Land Classification in India.
3. Examine the Agricultural Patterns.
4. Investigate the Problems & Prospects of Agriculture.
5. Interpreter Agricultural Regionalization and Methods.

Course Contents:

Unit	Teaching / Learning Points	Periods	Marks
I	**A) Introduction to Agricultural Geography:** Nature scope and significance. Different Approaches to study the subject **B) Land use:** General and Agricultural Land use Land use surveys Land Classification in India	10	20
II	**Determinants of Agricultural Patterns:** Relief, climate, soil Land holding, marketing, transport Irrigation Mechanization. Biochemical inputs	10	15
III	**Agricultural Types:** Shifting cultivation Intensive subsistent farming. Mixed farming Plantation agriculture Commercial grain farming	15	15
IV	**Problems & Prospects of Agriculture:** Definition and characteristics of arid and semi-arid regions. Droughts and famines Role of irrigation and dry farming.	10	15

V	**Agricultural Regionalization (Methods):** Classification of Agriculture regions by Derwent Whittlesey Agricultural regions of India. Theory of Agriculture Location by Von Thunen	15	15
Total		**60**	**80**

Reference Books:

1. Aiyer, A.K.Y.N.(1949) – Agricultural and Allied Arts in Vedic India.
2. Grigg. D.G. (1974) – The Agricultural Systems of the world An Evolutionary Approach.
3. Grigg. D.G.(1964) – An Introduction to Agricultural Geography Hutchinson & Co.Ltd.,
4. Illbery, B.W. (1985) – Agricultural Geography, Social & Economic Analysis, Oxford University Press.
5. Morgan. W.B. & S.C. Monton (1971) – Agricultural Geography Methuen, London.
6. Randhawa, M.S. (1980) – An History of Agriculture in India Vols. I, II, III,IV ICAR, New Delhi.
7. Singh. J. and Dhillon S.S. (1994) – Agricultural Geography. Tata McGraw Hill, Publishing Co. Ltd.
8. Symons, Leslie (1970) – Agricultural Geography, G. Belt and Sons Ltd., London.
9. Tarrent, J.R. (1970) – Agricultural Geography, David and Charles, Newton Abbot.
10. Majjid Hussain (2021)- Agriculture Geography, second Edition.

Web Resources:

1. www.wikipedia.org
2. www.encyclopedia.com
3. http://jgesnet.com

Name of the Program: M.A. I Geography		
Semester: II **Theory Paper**	**Name of the Course** **GET-2: Geography of Tourism**	**Credits : 04**

Course Objectives:

1. To familiarize the students with aspects of tourism which have a bearing on subject matter of geography;
2. To orient the students to the logistics of tourism industry and the role of tourism in regional development;
3. To understand the impact of tourism on physical and human environments.

Course Outcomes:

1. Define the basic concepts of Geography of Tourism.
2. Describe the Classification Tourism in India.
3. Examine the tourism industry.
4. Investigate the Problems & Prospects of tourism.
5. Interpreter impact of tourism on physical and human environments.

Course Contents:

Unit	Teaching / Learning Points	Periods	Marks
I	**Introduction to Tourism:** 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.	10	20
II	**Geography of Tourism:** Its spatial affinity: areal and locational dimensions comprising physical, cultural, historical and economic Tourism types: cultural, eco ethno coastal and adventure tourism, National and international tourism: globalization and tourism.	15	15
III	**Indian Tourism:** Regional dimensions of tourist attraction Evolution of tourism, Promotion of tourism.	10	15
IV	**Infrastructure and Support System:** Accommodation and supplementary accommodation Other facilities and amenities Tourism circuits-short and longer detraction Agencies and intermediacies - Indian hotel industry.	10	15
V	**Impacts of Tourism:** Physical, economic and social and perceptional positive and negative impacts Environmental laws and tourism - Current trends, spatial patterns Recent changes: Role of foreign capital & impact of globalization on tourism.	15	15
Total		**60**	**80**

Reference Books:

1. Bhatia A.K. : Tourism Development: Principles and Practices. Sterling Publishers, New Delhi 1996.
2. Bhatiya, A.K. International Tourism - Fundamentals and Practices, Sterling, New Delhi, (1991).
3. Chandra R.H.: Hill Tourism: Planning and Development, Kanishka Publishers, New Delhi, 1998.
4. Hunter C and Green H: Tourism and the Environment: A Sustainable Relationship, Routledge, London, 1995.
5. Inskeep. E : Tourism Planning: An Integrated and Sustainable Development Approach, Van Nostrand and Reinhold, New York, 1991.
6. Kaul R.K. Dynamics of Tourism & Recreation. Inter-India, New Delhi. (1985).
7. Kaur J. : Himalayan Pilgrimages & New Tourism Himalayan Books, New Delhi, 1985.
8. Lea J.: Tourism and Development in the Third World, Routledge, London, 1988.
9. Milton D.: Geography of World Tourism Prentice. Hall, New York, 1993.
10. Pearce D.G.: Tourism To-day: A Geographical Analysis, Harlow, Longman, 1987.
11. Robinson, H. A Geography of Tourism. Macdonald and Evans, London, 1996.
12. Sharma J.K. (ed.) : Tourism Planning and Development - A new perspective, Kanishka Publishers, New Delhi, 2000.
13. Shaw G. and Williams A.M. : Critical issues in Tourism-A Geographical Perspective, Oxford: Blackwell, 1994.
14. Sinha P. C. (ed.) : Tourism Impact Assessment, Anmol Publishers, New Delhi, 1998.
15. Theobald W. (ed.) : Global Tourism: The Next decade, Oxford, Butterworth, Heinemann, Oxford,1994.
16. Voase R. : Tourism: The Human Perspective Hodder & Stoughton, London, 1995.
17. Williams A.M. and Shaw G. (eds.): Tourism and Economic Development - Western
18. European Experiences, Belhaven, London.

Web Resources:

1. www.wikipedia.org
2. www.encyclopedia.com
3. http://jgesnet.com

Name of the Program : M.A. I Geography		
Semester: II **Theory Paper**	**Name of the Course** **GET-3: Regional Planning and Development**	**Credits : 04**

Course Objectives:

1. To understand and evaluate the concept of region in geography and its role and relevance in regional planning;
2. To identify the issues relating to the development of the region through the process of spatial organization of various attributes and their inter relationship.
3. To identify the causes of regional disparities in development, perspectives and policy imperatives.

Course Outcomes:

1. Define the major concepts of regional planning and development. .
2. Classify theories and models of regional planning and development.
3. Solve the regional imbalances in India.
4. Examine the regional planning in India.
5. Investigate the geographical need and feasibility.

❖ **Course Contents:**

Unit	Teaching / Learning Points	Periods	Marks
I	**Basic Concepts:** Concept of Region, Types and hierarchy of regions Concept of Planning, Types of planning Concept of Approach, Different Approaches to Regional planning Concept of Geographical Indication, its relation with Planning Concept of Growth and Development. Indicators of development Measures of regional development	10	20
II	**Theories and Models:** a) Models of economic growth: Rastows stages of economic growth Gunnar Myrdal's concept of internal growth b) Theoretical frame work for regional planning: Central Place Theory Growth Pole Theory	15	15
III	**Regional imbalances in India** Industrial Imbalances Agricultural Imbalances Rural-Urban ratio Imbalances Infrastructural Development and its Imbalances	10	15

IV	**Regional Planning in India** Metropolitan planning Rural development planning Tribal area development planning	10	15
V	**Geographical Need and Feasibility** a) Geographical Factors affecting on Planning and Development b) Urgent Needs for Planning and Development Watersheds Solid and Liquid Domestic Wastes Disaster and Hazard Drinking Water and Health Services	15	15
	Total	**60**	**80**

Reference Books:

1. Bhandari S (1992): Transport and Regional Development, Concept Publication, New Delhi
2. Bhat, L. S. (1973): Regional Planning in India, Statistical Publishing Society, Kolkata
3. Chandana, R. C. (2000): Regional Planning - A Comprehensive Text, Kalyani Publishers, Ludhiana
4. Dube K. N. (ed) (1990): Planning and Development in India, Asia Publishing House, New Delhi
5. Friedmann, J Alanso W (1967): Regional Development and planning - A Reader, MIT Press Mass
6. Govt. of India (1986), Regional Plan 2001 - National Capital Region, NCRPB, Ministry of Urban Development, New Delhi
7. Hall P. (1992) Urban and Regional Planning, Routledge, London
8. Mishra R. P (Ed.) (1992): Regional Planning, Concepts, Techniques, Policies and Case Studies, Concept Pub. New Delhi.
9. Vaidya B C (eds)(1998): Reading in Transport Geography: A Regional Perspective, Devika Publications, New Delhi

Web Resources:

1. www.wikipedia.org
2. www.encyclopedia.com
3. http://jgesnet.com

Name of the Program : M.A. I Geography		
Semester II **Theory Paper**	**Name of the Course** **GET-4: Political Geography**	**Credits : 04**

Course Objectives:

1. To familiarize the students with the geographical factors which have a bearing on the political/administrative organization of space.
2. To enhance awareness of multi-dimensional nature of geo-political space**.**
3. To examine the role of Political geography in development of nation and its deferent sectors. The course further aims to familiarize the students with the application of various theories, models and classification schemes in Political geography.
4. Its objectives are also to discuss environmental, technological and social issues in Political sector with special reference to India.

Course Outcomes:

1. Define the basic concepts of political geography.
2. Describe the structure and elements of modern world political map.
3. Examine the Territorial aspects of international relations and world politics.
4. Investigate the Problems & Prospects of Political and geographical organization of the state.
5. Interpreter Political and social problems using geographical models.

Course Contents:

Unit	Teaching / Learning Points	Periods	Marks
I	**a) Introduction to Political Geography:** Nature, scope and significance. Land Classification in India Subject matter of political geography Political geography and geopolitics. **b) Different Approaches to study the subject:** Morphological, functional and unified field theory. Role of physical, demographic, economic, socio-cultural and historical factors in the emergence of States.	15	20
II	**State as a politico-territorial phenomenon::** Changing nature of location, size and shape in political geography of States; Political and administrative framework and its hierarchical relationship to unitary and federal forms of governance. Boundaries and frontiers. Functions and classification of international boundaries.	15	15
III	**Global strategic views:** Mackinder Spykman de. Seversky Mahan Their relevance to contemporary world situation.	10	15

IV	**Underdevelopment and international policies:** The North-South dialogue; SAARC and ASEAN the New International Economic order; International tensions; identification of tension areas and factors contributing to tension in different areas; West Asia, and Indian Ocean region; Regionalism in International relations.	10	15
V	**Politics of Displacement & Political Geography of Resource Conflicts** Issues of relief, compensation and rehabilitation: with reference to Dams, Highways and Special Economic Zones Water Sharing Disputes, Disputes and Conflicts Related to Forest Rights and Minerals.	10	15
Total		**60**	**80**

Reference Books:

1. Bhagwati, J.N. (ed.): New International Economic Order - The North-South Debate, M.I.T. Press, London, 1976.
2. Dikshit, R.D.: Political Geography: A Contemporary Perspective, Tata McGraw-Hill Publishing Co., New Delhi, 1982 (also latest edition).
3. Glassner M.I.: Political Geography, John Wiley, New York, 1993.
4. Panikkar, K.M. Geographical factors in Indian History. Bharatiya Vidya Bhavan, Bombay 1956.
5. Pounds N.T.: Political Geography Mc Graw Hill, New York, 1972.
6. Prescott, J.R.V.: Political Geography, Methuen & Co., London, 1972.
7. Schwartzberg, J.E.: A Historical Atlas of South Asia, University of Chicago Press, U.S.A. 1993.
8. Short, J.R. : An Introduction to Political Geography, Routledge and Kegan Paul, London, 1982.
9. Taylor P.J (ed.): Political Geography of the 20th Centuary - A Global Analysis. New York, 1993.
10. Taylor, Peter: Political Geography, Longman, London, 1985.
11. William C.H. (ed.): Political Geography of the New World Order Halsted Ben, New York, 1993.

Web Resources:

1. www.wikipedia.org
2. www.encyclopedia.com
3. http://jgesnet.com

Name of the Program : M. A. I Geography		
Semester: II **Practical Paper**	**Name of the Course** **GCP-2: Practical**	**Credits: 04**

Course Objectives:

1. To acquaint the students with techniques of different types of map interpretation in Geography
2. To familiarize the students with geographical data representation techniques

Course Outcomes:

1. Define the various sampling and analysis methods of soil.
2. Examine the soil sample, classified and plot graph it.
3. Understand the basics parameters of soil.
4. Understanding the various soil testing methods.
5. Apply the soil testing methods in the soil lab.
6. Define the Development and various types of SOI toposheet.
7. Understanding the body of SOI toposheet.
8. Give the locations of various Geographical features with the help of grids reference.

❖ Practical / field work list:

Unit	Teaching and Learning points	Practical's	Marks
I	**Basics of Toposheets** 1) Historical Development of SOI. 2) Types of SOI Toposheet. 3) Indexing System and elaborate it with drawings 4) Draw the Signs and Symbols. 5) Marginal Information of the SOI Toposheet 6) Grid System, its type and to give the Example	15	20
II	**Relief Representation** 1) Draw the signs and symbols used for topographical elevation, e.g. spot height, bench mark, triangulation station, counters, etc from given toposheet. 2) Representation of following features by contours: uniform slope, concave slope, convex slope, terraced slope, conical hill, plateau, ridge, saddle, V-shaped valley, U-shaped valley, waterfall, gorge, spur, cliff	15	20
III	**Climatology Practical:** 1) Conventional Sing and Symbols of Weather 2) Climatic map analysis: Daily IMD weather reports 3) Preparations of Climatic maps and Diagrams- Circular Graph, Climograph and Wind rose.	15	20
IV	**Agriculture Practical** 1) Crop Combination Method Weaver's Method Thomas Method 2) Agricultural Efficiency Kendal's Methos Bhatia's Method	15	20
V	**Journal and Viva**	-	20
	Total	**60**	**100**

Reference Book

1. Birkeland, P. W (1999). Soils and Geomorphology. New York: Oxford University Press.
2. Brady, N. C., & Weil, R. R. (2008). The Nature and Properties of Soils. New Jersey: Prentice Hall.
3. Bridges, E. M., & Davidson, D. A. (1982). Principles and Applications of Soil Geography. London: Longman Group.
4. Daji, J. A. (1970). A Textbook of Soil Science. New York: Asia Publication House.
5. Dury, G. H. (1972). Map Interpretation. London: Pitman and Sons.
6. Kimerling, A.J., Buckley, A.R., Muehrcke, P.C., Muehrcke, J.O. (2011). Map Use: Reading, Analysis, Interpretation. 7th ed, Esri Press.
7. Pijushkanti Saha and Pratha Basu (2010), Advanced Practical Geography, Arunabha Sen, Kolakata.
8. Ramamurthy, K. (1982). Map Interpretation. Madras: Rex Printer.
   Singh, G. (1996). Map Work and Practical Geography. New Delhi: Vikas Publication.
9. Wilkinson, F. J., & Monkhouse, H. R. (1966). Maps and Diagrams: Their Compilation and Construction. London: Metheun and Co.
10. Pitty, A. F. (1978). Geography and Soil Properties, London: Methuen and Co.
11. Scovel, M. J. S., Brien, E. J. O', McCormack, J. C., & Chapman, R. B. (1965). Atlas of Landforms. John Wily and Sons / U.S. Military Academy.
12. Tamaskar, B. G., & Deshmukh, V. M. (1974). Geographical Interpretation of Indian Topographical maps. Kolkata: Orient Longman.
13. Vaidyanadhan, R., & Subbarao, K. V. (2014). Landforms of India from Topomaps and Images. Geological Society of India.
14. Vaidyanadhan, R. & Subbarao, K. V. (2006). Recognition of Landforms from Topographical Maps of India.
15. Vaidyanadhan, R. (1968). Index to a Set of Sixty Topographic Maps: Illustrating Specified Physiographic Features from India. Council of Scientific and Industrial Research, Ministry of Education, Government of India.

Web Resources:

1. **www.wikipedia.org**
2. **www.encyclopedia.com**
3. **http://jgesnet.com**

Name of the Program : M.A. II Geography		
Semester III **Theory Paper**	**Name of the Course** **GCT-5: Oceanography**	**Credits : 04**

Course Objectives:

The objectives of the course are to introduce students to the many facets of Oceans, such as, evolution of the oceans, physical and chemical properties of sea water, atmospheric and oceanographic circulation, the fascinating world of marine life and the characteristic of marine environment and the impact of man on the marine environment.

Course Outcomes:

1. Define the major concepts in oceanography.
2. Describe the oceanic floor.
3. Interpreter the properties of sea water.
4. Examine the waves in oceanic region.
5. Appraise the tides.

Course Contents:

Unit	Teaching / Learning Points	Periods	Marks
I	**Introduction to Oceanography:** • Meaning of Oceanography: Definition, nature and scope • Historical background and development of oceanography A) Golden B) Dark C) Modern • Distribution of Sea and Ocean	10	15
II	**The Morphology of the Ocean Bottom:** • Continental Margin: Shelf, Slope and Rise. • Oceanic Ridges • Oceanic Landforms: Abyssal Plains, Seamounts and Guyots. • Oceanic Deep and Trenches	10	15
III	**Properties of Ocean Water:** • Temperature: 1) Source of Heat 2) Distribution of Temperature : Horizontal and Vertical 3) Factor affecting on ocean temperature • Density: 1) Distribution of Density of sea water 2) Controlling factors of Density of Seawater • Salinity: 1) Composition of sea water 2) Sources of Oceanic Salinity 3) Distribution of Salinity 4) Controlling factors of Salinity	15	15

	• Relationship between Density, Temperature and Salinity.		
IV	**Ocean Movements:** • Wave: 1) Formation of Sea Wave 2) Characteristics of Wave: Height, Length, Period, Frequency, Velocity and Steepness. • Tide: 1) Origin of Tide 2) Types of Tide 3) Equilibrium Theory 4) Tidal Effect in Coastal Areas • Current: 1) Origin of Ocean Current 2) Types of Ocean Current 3) Distribution of Ocean Current 4) Indian Monsoon: El Nino, La Nina.	15	20
V	**Ocean Deposits** • Sources and Types of Marine Deposits 1) Terrigenous 2) Volcanic Matter 3) Biotic 4) Abiotic • Classification of Ocean Deposits • Coral Reefs 1) Condition of Coral Growth 2) Types of Coral Reefs 3) Distribution of Coral Reefs.	10	15
Total		**60**	**80**

❖ **Reference Books:**

1. Basu S.K. (2003) (ed): Handbook of Oceanography, Global Vision, Delhi
2. Davis Richard A. (1972): Oceanography, Addition Wesley Publishing Co.
3. Garrison Tom (1999): Oceanography, Brooks/ Cole Wadsworth, New York
4. Garrison Tom (2004): Essentials of Oceanography. Thompson, Australia
5. Grant Gross M. (1982): Oceanography, Prentice hall, Ince, New Jersey
6. King Cuchlain A. M (1962): Oceanography for Geographers (ED) Edward Arnold
7. Sharma & Vatal (1962): Oceanography for Geographers. Chaitanya Publishing House, Allahabad
8. Thurman Harold V. (1985): Introductory Oceanography. Bell & Howell Co. London
9. Weisberg J. and Howard P. (1974): Introductory Oceanography. McGraw Hill, Kogakusha, Tokyo.

❖ **Web Resources:**

1. www.wikipedia.org
2. www.encyclopedia.com
3. http://jgesnet.com

Name of the Program : M.A. II Geography		
Semester: III **Theory Paper**	**Name of the Course** **GSTG-1: Fluvial Geomorphology**	**Credits : 04**

Course Objectives:

1. The rivers being the major geomorphic agent of erosion, the course assumes significance as it mainly deals with an understanding of the fluvial forms and processes. The evolution of drainage pattern and alluvial channels are governed by the forces resisting and driving the flow of water. The students are introduced to the activities of these two forces and their resultant effects on the flow patterns, sediment load and channel patterns.
2. The use of rivers and the landscape develop certain feedback mechanism within the system which has the ability to alter the human vis-à-vis fluvial environments.

Course Outcomes:

1. Analyze the basic concepts of Fluvial Geomorphology.
2. Describe the Features of channel morphology.
3. Interpret of fluvial erosion and its landforms.
4. Examine the Sediment Transportation of Fluvial system.
5. Explain the Fluvial Deposition and its landforms.

Course Contents:

Unit	Teaching / Learning Points	Periods	Marks
I	**Fluvial Geomorphology and Geography;** • Definition and scope • Hydrological cycle and Sub-cycle • Drainage pattern evolution • Limits of drainage development • Channel changes with time	10	15
II	**Fundamentals of river mechanics:** • Types of flow and flow discrimination • Forces acting in channels • Low regimes • Sediment load of streams. • Sediment transport • Competent velocity; • Lift force; • Critical tractive force.	20	20

III	**Hydraulic geometry of streams at a station and down-stream:** • Channel thalweg • Causes of concavity; • Channel patterns, • Equilibrium profile - straight, meandering and braided.	10	15
IV	**Drainage basin as a fundamental geomorphic unit.** • Drainage basin - form and process • Drainage basin morphometry • Morphometric interrelations	10	15
V	**Applied fluvial geomorphology;** • Human adjustment to flood plain, • Alluvial fans and deltaic environments (case studies). • Effects of reservoirs on fluvial systems. • Remote sensing and GIS application to fluvial environments.	10	15
Total		**60**	**80**

Reference Books:

1. Chorley R.J. (ed) ' Introduction of Fluvial Processes Methuen & Co., London, 1973.
2. Coates D.R. and Vitek J.I. Thresholds in Geomorphology. George Allen Unwin, London 1980.
3. Gregory K.J. 'River Channel Changes' John Wiley & Sons, New York, 1977.
4. Gregory K.J. and Walling, D.E.: Drainage Basin: Forms and Process- A Geomorphological Approach. John Wiley & Sons, New York, 1985.
5. Kingston D. Fluvial Forms and Processes Edward Arnold, London, 1984.
6. Leopold C.B. et.al..: Fluvial Processes in Geomorphology; Freeman, London 1964.
7. Morisawa M.(ed.) Fluvial Geomorphology. George Allen & Unwin, 1981.
8. Gleick, P.H. (ed.): Water in Crisis Oxford University Press, New York 1993.
9. Morisawa M: 'Streams - Their Dynamics and Morphology' McGraw Hill, New York, 1968.
10. Leopold, L. B., Wolman, M. G. and Miller, P. (1954) Fluvial processes in Geomorphology, Freeman and Co., San Francisco.
11. Schumm, S. A. (1977). Fluvial Systems. Wiley, New York.
12. Richards, K. (1982). River: Forms and processes in alluvial channels. Methuen and Co. London Morisawa, M. (1985). Rivers: Forms and Processes, Longman
13. Dr. Kale, V. S. and Gupta, A. (2001). Introduction of Geomorphology, Orient Longman, Kolkata.

Web Resources:

1. **www.wikipedia.org**
2. **www.encyclopedia.com**
3. **http://jgesnet.com**

Name of the Program: M.A. II Geography		
Semester III **Theory Paper**	**Name of the Course** **GSTG-2: Coastal Geomorphology**	**Credits : 04**

Course Objectives:

The basic objective of this course is to enlighten the students about the mechanism of landform development resulting from coastal and marine processes. In view of the fact that about one-third of the world population lives in coastal areas. Thus coastal geomorphology becomes relevant to geographers. This branch involves reinterpretation of coastal environment through geomorphologic view points. Since this study has both academic as well as applied interests, the objective is to train the students in both to prepare them as better academicians and better researches.

Course Outcomes:

1. Analyze the basic concepts of Costal Geomorphology.
2. Describe the Features of costal waves.
3. Explain the oceanic currents.
4. Interpret the tides and Ebbs.
5. Examine the Equilibrium Theory of tides.
6. Evaluate the Temporal Sea level changes.

Course contents:

Unit	Teaching / Learning Points	Periods	Marks
I	**Significance of coastal geomorphology;** • Classification of coasts and shore; coastal • Processes - waves in shallow and deep water, wave energy, wave induced currents, • Tides and tidal waves; coastal materials - sand and shingle, organic reefs.	10	15
II	**Coastal erosion-** • Movement of materials, sorting; beach profile. • Coastal landforms: Sand dunes and sand ridges, spits, barriers, lagoons, cliffs - their origin and distribution.	10	20
III	**Classification :** • Classification of coasts by Johnson, Shepard and Cotton. Submarine morphology, • Continental shelf, continental slope, submarine canyons and oceanic ridges.	10	15

IV	**Tidal landforms;** • Tidal landforms; mudflats- processes and morphology. • Salt Marsh- Processes and Morphology. • Formation of estuaries and mangroves.	15	15
V	**Applied coastal geomorphology;** • Mechanism of sea-level changes, and eustatic movements; • Evolution of Eastern and Western Coasts of India, Coast Zone Management.	15	15
Grand Total		**60**	**80**

Reference Books:

1. Ahmad, E.: Coastal Geomorphology of India. Orient Longmans, Bombay, 1973.
2. Bose, A. et. al: Coastal Zone Management of West Bengal, Pub. Sea Explorers Institute, Calcutta, 1985. Curriculum Development Committee in Geography 113
3. Bird, E.C.: Coasts -An Inroduction to Coastal Geomorphology. Basil-Blackwell, Oxford,1984
4. Davis, J.L.: Geographical Variation in Coastal Development. Hafner Pub. Co., New York, 1973.
5. French, P.W.: Coastal and Estuarine Management, Routledge, London, 1997.
6. John, P: An Introduction to Coastal Geomorphology. Arnold- Heinemann, London,1984.
7. King, C.A.M; Beaches & Coasts, Edward Arnold, London, 1972.
8. Scientific American : Readings in Earth Sciences, Vols I-III. Taraporevala Pub., Bombay, 1975..
9. Shepard, F.P. and Wanless, N.R.: Our Changing Coastlines. Oxford University Press, 1971.

Web Resources:

1. **www.wikipedia.org**
2. **www.encyclopedia.com**
3. **http://jgesnet.com**

Name of the Program : M.A. II Geography		
Semester III **Theory Paper**	**Name of the Course** **GSTP-1: Demography**	**Credits : 04**

Course Objectives:

1. Introduce the students to the complex dimensions of Demography.
2. Understand the Demographic transition
3. Define the Demographic data and its processes.
4. Explain the Age-Sex Structure and its Dynamics.

Course Outcomes:

1. Analyze the basic concepts of Demography.
2. Describe the Features of Demographic Transition.
3. Classify the sources of demographic data.
4. Interpret the Age-Sex Structure and its Dynamics.

Course Contents:

Unit	Teaching / Learning Points	Periods	Marks
I	**Introduction to Demography** • Definition and Conceptual Understanding. • Evolution of demography as a scientific discipline;	05	15
II	• Nature and scope of the subject Demography. • Changes in Demography over the time period. • Multi-disciplinary nature of demography, its links with other social science disciplines. • Basic demographic concepts. • Components of population change.	10	15
III	**Demographic transition** • Historical population trends - World and India. • Past, present and future population trends across world, continents, major regions, India and Indian states, with brief description of causes. • Demographic Transition Theory – by Frank W. Notestein. • Demographic Transitions of Major Countries including India.	15	15

IV	**Sources of Demographic Data** • Data requirement, type of demographic data. • Different sources of data. • Population censuses across the world. • Indian censuses, details of different items on which Indian censuses collect data. • Vital registration system, sample registration system, survey on causes of death. • National Sample Survey Organization's surveys, details of different rounds collecting population and health data. • Nationwide sample surveys, National Family Health Survey, District Level Household Survey, etc.	15	15
V	**Age-Sex Structure and its Dynamics** • Role of the study of age-sex structure in demography. • Present levels, past trends and probable future changes in age-sex structure of the world and major regions. • Present levels, past trends and probable future changes in age-sex structure of India and states. • Determinants and consequences of sex-age structure of population. Demographic dividend. • Ageing of the population. Relative role of low fertility and low mortality in ageing. Socio-economic consequences of population ageing.	15	20
Grand Total		**60**	**80**

Reference Books:

1. Jacob S. Siegel and David a. Swanson (2004): The Methods and Materials of Demography, Second Edition, Chapters 1, 2, 3, 7, 9,10, Elsevier Science, USA.
2. John Weeks (2005): Population: An Introduction to Concepts and Issues, Wordsworth Learning. Singapore 9 edition.
3. United Nations, (1973): The Determinants and Consequences of Population Trends, Vol. I, Population Studies, No. 50, Chapter VII, New York.
4. Bhende, A., (1996): Principles of Population Studies (Seventh Edition), Himalaya Publishing House, Bombay.
5. United Nations, World Population Ageing, 1950-2050

Web Resources:

1. **www.wikipedia.org**
2. **www.encyclopedia.com**
3. **http://jgesnet.com**
4. **http://censusindia.gov.in/**

Name of the Program : M.A. II Geography		
Semester III **Theory Paper**	**Name of the Course** **GSTP-2: Social and cultural Geography**	**Credits : 04**

Course Objectives:

1. Understand diversity of cultures in the world as well as in India.
2. Comprehend the diffusion of various ethnic traits and religions.
3. Understand the relationship between cultures and pattern of living and economic development
4. Familiarize the students with the understanding of the society through concepts and social theory, philosophical approaches and spatial processes.
5. Examine the process of social region formats in India with the help of social cultural and historical factors;
6. Examine social distortion and regionalise the various components of social well- being in India.
7. Review problems and suggest alternatives to improve the social well-being in environmentally problematic areas.

Course Outcomes:

1. Analyze the basic concepts of Social and cultural Geography.
2. Describe the Socio-Cultural Setup and Regions.
3. Classify the Regional Differentiation of Social and Cultural Characteristics
4. Interpret the Social and Cultural Issues.

Course Contents:

Unit	Teaching / Learning Points	Periods	Marks
I	**Nature and Scope:** • Definition of social Geography and cultural Geography • Nature and Scope of Social and Cultural Geography • Different approaches of study • Culture and Society as a Essential Elements of Geographical Studies • Evolution of Culture and Social Things	10	15
II	**Socio-Cultural Setup and Regions** • Region • Social Diversity, • Social Areas, • North-South and East-West Socio-Cultural Diversity of India • Griffith Taylor's Theory	10	15
III	**Differential Factor of Socio-Cultural Set-up** • Human Race • Language • Religion • Castes • Tribes • Migration of other activities.	10	15

IV	**Regional Differentiation of Social and Cultural Characteristics** • Social and Cultural Region • Tribal Region and their social activities • Tribes and their cultural activities • Social and Cultural reforms • Urban and Rural Difference	15	15
V	**Issues** • Causes of Social and Cultural problems • Social Cultural problems and migration Demography • Human development Index • Social well being (meaning Patterns, measuring, method) • Social justice : equality and welfare • Social cultural problems and migration	15	20
Grand Total		**60**	**80**

Reference Books:

1. Ahmad, Aijazuddin (1999): Social Geography, Rawat Publication, Jaipur.
2. Blij, H. J. (195); The Earth-an Introduction to its Physical and Human Geography, John Willy & Sons, inc: New York.
3. Broad, Jan O M. & Webb, John W (1973): Geography of Mankind, McGraw Hill Book Co. New York.
4. Cater, Hohn & John, Trevor (1989): Social Geogaphy-an Introduction to Contemporary Issues, Arnold Publishers, New Delhi.
5. Jackson, Peter (1989): Maps of Meaning- An introduction to Cultural Geography, Unwin Hyman and London.
6. Jackson, Richard H & Loyd E. Hudman (1990): Cultural Geography-people, places and environment West Publishing Co. New York.
7. Jones, Emrys & Eyles, John (1977): An introduction to social Geography, Oxford University Press, Oxford.
8. Jorden, Terry G & Rowntree, Lester (1976): The Human Mosaic A Thematic Introduction to culture Geography, Canfield press, sen Francis Co. Harper & Row Publisher, New York.
9. Tripathi, R. S. & Parmar, S.B. Singh: Social and Economic Development in India.
10. Smith, David M (1977): Human Geography – A welfare Approach, Arnold-Hinman, London.
11. Majid Hussain (1994): Human Geography, Rawat Publication, Jaipur.

❖ **Web Resources:**

1. www.wikipedia.org
2. www.encyclopedia.com
3. http://jgesnet.com

Name of the Program : M.A. II Geography		
Semester III **Service Course**	**Name of the Course** **GSCT1: Disaster Management**	**Credits : 04**

Course Objectives:

1. Understanding foundations of hazards, disasters and associated natural/social phenomena
2. Introduce knowledge about existing global frameworks and existing agreements (e.g. Sendai)
3. Give introduce Technological innovations in Disaster Risk Reduction: Advantages and problems
4. Experience on conducting independent DM study including data search, analysis and presentation of disaster case study

Course Outcomes:

1. State the major concepts about disaster management.
2. Classify the major cyclonic regions.
3. Solve the problems of arrival cyclones.
4. Examine the major flood Disaster regions.
5. Design the Disaster warning system**.**

Course Contents:

Unit	Teaching / Learning Points	Periods	Marks
I	Meaning of disaster, calamity, Hazards, Major characteristics of disasters. Physical and cultural disasters. Major regions of the world of such disasters and loss of life and property.	15	15
II	Hazards-cyclone, Hurricanes Tornado, Typhoons, causes for the formation of cyclones. Regions of the cyclones.	15	15
III	Precautions before the arrival of cyclones. Effect of cyclonic hazards. Thunder storm, lightening, hail storms and cloud burst calamities.	10	15
IV	Flood disaster. Reasons and types of flood disasters. Wet draught areas. Consequences of floods. Major rivers of heavy floods, measures of flood controls.	10	20
V	Disaster warning system. Rehabilitations, Prevention, Social Response measures for disasters.	10	15
Total		**60**	**80**

Reference Books:

1. Dhara S : Natural disaster, Minimizing Risks the Hindu survey of Environment (2001)
2. Daoglas I and Spencer T : Environmental change and Tropical Geomorphology (Edited) George Allen and Unwin London (1985)
3. Embleton C: Natural Hazards and Global change, ITC Journal 1989 ¾ pp 169-175, Erickson S. L and King B. J. Fundamental of Environmental Management wiley New York (1999)
4. Gupta H. K. Dons and Earthquakes Elsevier Amsterdam (1976)
5. Press F. Need for Action Reduction copying with Natural Hazards, UNESCO (1993)
6. Sinha D. K. towards Basic of Natural disasters, University of Calcutta (1990)
7. Verstappen H. T. Geomorphology, Natural disaster and Global disaster. Proceeding of the symposium sept- 14-16 1989, Enschede Netherlands PP 159- 164.

Web Resources:

1. www.wikipedia.org
2. www.encyclopedia.com
3. http://jgesnet.com

Name of the Program: M.A. II Geography		
Semester: III **Practical Paper**	**Name of the Course** **GCPG: 1 Practical in Geomorphology**	**Credit : 04**

Course Objectives:

1. To study the costal landform, drainage basin and sub basin
2. To determine the distance and angle between different objects.
3. To Understand the various river basin aspect.
4. To apply soil and sediment analysis techniques to understand geographical phenomena.
5. To familiarize the students with identification of slope and methods.

Course Outcomes:

1. Define the coastal landform with the help of topographic map and satellite image.
2. Judge the drainage basin in the SOI toposheet.
3. Apply the statistical methods of river basin analysis.
4. Understand the hill slopes of various tools.
5. Define the hills and slopes of them with help of couture lines in the SOI toposheet.
6. Understanding the land slopes in the SOI toposheet.

Practical / field work list:

Unit No.	Teaching and learning point	Practical	Marks
I	**Morphologic Analysis:** 1) Coastal landforms using Topographic maps and Satellite image. 2) Measurement of river channel cross section in the field. 3) Demarcate selected drainage basin and its sub-basins by using hilly region's SOI Toposheet. **River Basin Analysis** 1. Measure the Drainage Density of given basin. 2. Measure the Stream Frequency of given basin. 3. Measure the Drainage Intensity of given basin. 4. Measure the Drainage Texture of given basin.	**15**	**20**
II	**Hill slope Analysis** 1) The functions and uses of the Brunton Clino Meter. 2) Measuring vertical angles, height, and distance using by the Brunton Clino Meter. 3) Calculation of slope from Contour Lines in a Topographic Map of given region. 4) Measure the degree of slope by using simple Protractor method. 5) Measurement of the degree of slope by using simple measuring tape and staff method.	**15**	**20**
III	**Sediment Analysis** 1) To prepare for soil sampling and collect soil samples for analysis / testing. 2) To analyze sandy sample, using by Sieving Method. 3) To analyze clayey sample, using by Sieving Method. 4) To plot the data on probability graph paper.	**15**	**20**

	5) To analyze soil sample, using by Pipette Method. 6) To measure the grain size and plot the graph.		
IV	**Soil Testing** 1) To understand different purposes and basics parameters of soil with their methods of testing (Major, Secondary and Minor Nutrients). 2) To measure the soil pH using a ratio of 2:5 soil/ Water paste in soils 3) To measure the soil EC (Electrical conductivity) using a ratio of 2:5 soil/ Water paste in soils 4) To estimate the soil texture by hydrometer method. 5) To estimate the soil moisture by Gravimetric method 6) To estimate soil Bulky density (Db) from situ undisturbed soil method 7) To estimate the soil porosity	**15**	**20**
V	**Journal and Viva**	**-**	**20**
	Total	**60**	**100**

Reference Book

1. Bloom, A. L. (2002). Geomorphology: A Systematic Analysis of Late Cenozoic, Landforms, New Delhi: Prentice-Hall of India.
2. Downs, P. W., & Gregory, K. J. (2004). River Channel Management, London: Arnold
3. King, C. A. M. (1972). Beaches and Coasts, London: Edward Arnold.
4. Pethick, J. (1984). An Introduction to Coastal Geomorphology. London: Arnold-Heinemann.
5. Pijushkanti Saha and Pratha Basu (2010), Advanced Practical Geography, Arunabha Sen, Kolakata.
6. Smith, M. J., Paron, P., & Griffiths, J. (2011). Geomorphological Mapping. Amsterdam: Elsevier.
7. Strahler, A. N. (1964). Part II. Quantitative geomorphology of drainage basins and channel networks. Handbook

Web Resources:

1. **www.wikipedia.org**
2. **www.encyclopedia.com**
3. **http://jgesnet.com**

Name of the Program: M.A. II Geography		
Semester: III **Practical Paper**	**Name of the Course** **GCPP: 1 Practical in Population**	**Credit : 04**

Course Objectives:

1. To Understand the Demographic indices of population in India.
2. To make students aware of the importance of economic activities.
3. To familiarize the students with statistical analysis with help of economic indices.

Course Outcomes:

1. Examine the various demographic aspect.
2. Understanding the child and female related aspect.
3. Judge the drainage basin in the SOI toposheet.
4. Apply the statistical methods of river basin analysis.
5. Understand the Economic activity.
6. Define the Various Agriculture Indices.
7. Apply the statistical methods of analysis agriculture indices.

Practical / field work list:

Unit	Teaching and learning point	Practical	Marks
I	**Demography** 1) Indices and Projection 1. Child-women ratio 2. Dependency ratio 3. Infant mortality rate 4. Age specific mortality 5. Population growth rate	15	20
II	**Various Demographic Indices and calculate it with suitable examples -** 1. Mean age of female at marriage and fertility 2. Mean age of female at marriage and infant mortality 3. Under weight children of 1 to 47 months and under 5 year mortality rate 4. Percentage of women married to blood relative and infant mortality 5. Mean age of female at marriage and delivery deaths 6. Per capita income of the family and infant mortality rate 7. Level of education of mother and number of deliveries	15	20
III	**Population and Economic Activities** **(Industry, Agriculture, Trade, Transport, Settlement, landuse etc)** 1) Economic Density of the given region. 2) Marginal Resource Density of the given region. 3) Caloric Density of the given region. 4) Nutritional Density of the given region. 5) Agricultural Density of the given region. 6) Index of Agricultural Efficiency of the given region. 7) Agricultural Productivity of the given region.	15	20

IV	**Various Agriculture Indices and calculate it with suitable examples** 1. Index of Area under Crop, b) Index of Net Area Sown, 2. c) Index of Cropping Pattern, d) Index of Yield, 3. e) Index of Productivity per Hectare of Net Area 4. f) Relative Yield index.... etc of given region. 5. Calculate Location Quotient of given Industry from the given region. 6. Understand Lorenz Curve and estimate it with suitable example. 7. Understand Gini's Coefficient with suitable example. **8.** Understand the Law of Retail Trade Gravitation and calculate the Breaking Point for any two selected cities	15	20
V	**Journal and Viva**	-	20
	Total	**60**	**100**

Reference Book

1. Agarwal, S. N. (1962). Age at Marriage in India, Allahabad: Kitab Mahal Pvt. Ltd.
2. Ali, M. (1979). Dynamics of Agricultural Development in India. New Delhi: Concept Publication.
3. Barclay, G. W. (1958). Techniques of Population Analysis, New York: John Wiley and Sons.
4. Bhende, A. A. and Kanitkar, T. (2011): Principles of Population Studies, Himalaya Publishing House, Mumbai.
5. Chandana, R. C. (2013): Population Geography, Kalyani Publications, Delhi
6. Hussain, M. (1978). Agricultural Geography. Jaipur: Rawat Publication.
7. Liendsor, J. M. (1997). Techniques in Human Geography. London: Routledge.
8. Mandal, R. B., Uyanga, J., & Prasad, H. (2007), Introductory Methods in Population Analysis, New Delhi: Concept Publishing Company.
9. Pathak, K. B., & Ram, F. (2013). Techniques of Demographic Analysis, Mumbai: Himalaya Publishing House.
10. Pijushkanti Saha and Pratha Basu (2010), Advanced Practical Geography, Arunabha Sen, Kolakata.
11. Rao, V. K. R. V. (1966): Education and Human Resource Development, Allied Publishers, Bombay
12. Singh, J., & Dhillon, S. S. (1994). Agricultural Geography. New Delhi: Tata McGraw Hill Publishing Co. Ltd.
13. Vaidya, B. C. (1997). Agricultural Land use in India. New Delhi: Manak Publications.

Web Resources:

1. **www.wikipedia.org**
2. **www.encyclopedia.com**
3. **http://jgesnet.com**

Name of the Program : M.A. II Geography		
Semester IV **Theory Paper**	**Name of the Course** **GCT-6 Geographical Thoughts**	**Credits : 04**

Course Objectives:

1. Define the geographical thoughts.
2. Describe the contribution of modern geographers.
3. Solve the paradigms and philosophy in geography.
4. Examine laws theories and models in geography.
5. Judge the major approaches in geography.
6. Assemble laws and theories in geography**.**

Course Outcomes:

1. Students will understand the philosophical and methodological foundations of the subject and its place in the world of knowledge.
2. Student Familiaritive with the major landmarks in development of geographic thoughts of different periods of time.

Course Contents:

Unit	Teaching / Learning Points	Periods	Marks
I	**Pre-Historical Review:** Contributors and their Role in Geography Impact of Explorations and Discoveries, Contribution of Indian Geographer.	15	20
II	**Founders of Modern Geographical Thought:** Alexander von-Humboldt, Carl Ritter, Friedrich Ratzel, Vidal de la Blache, Richard Hartshorne	15	15
III	**A) Dualism and Dichotomies in Geography:** Determinism verses Possibilism Systematic verses Regional Geography **B) Conceptual and Methodological development:** Paradigms and philosophy in Geography	10	15
IV	**A) Measurements and explanation in Geography:** Laws, theories and models **B) Areal differentiation and Spatial Organization:** Structure, Pattern & Process	10	15

V	**Approaches:** Positivism, Humanism, Radicalism, Behaviouralism Quantitative revolution in Geography	10	15
Total		**60**	**80**

❖ **Reference Books:**

1. Abler, Adms J.& Gould P.(1971): Spatial organization. The Geographer's view of the world. Prentice Hall, Engle wood cliff, New Jersey.
2. Adhikari Sudeepta(1972): Fundamentals of Geographic Thought. Chaitanya Pub,lishing House, Allahabad.
3. Dickinson R.E.(1969) : The makers of modern Geography. Rout/edge & kegan Paul, London.
4. Dixit R.D. (1999): Development of Geographic Thought Longmans India Limited.
5. Free Man T.w.(1965): Geography As social science. Harper International Edition Harper & Row, Publishers, New York.
6. Harvey D. (1969): Explanation in Geography. London, Edward Arnold.
7. Hartshorne R.(1959): Perspective on the Nature of Geography. Rand McNally, Chicago.
8. Majid Hussain (1999): Geographic Thought. Rawat Publishing House, Jaipur.
9. Richard Peet (1977): Radical Geography - Alternative view points on contemporary social issue. Methuen & Co. Ltd. London.
10. Holt Jensen, Arid: (1998) Geography: History and Concepts, Sage publication, New Delhi.

❖ **Web Resources:**

1. www.wikipedia.org
2. www.encyclopedia.com
3. http://jgesnet.com

Name of the Program : M.A. II Geography		
Semester IV **Theory Paper**	**Name of the Course** **GSTG-3: Arid and Karst Geomorphology**	**Credits : 04**

Course Objectives:

1. As the arid and semi—arid climatic regions occupy a major portion of the continents, it becomes essential to understand the deserts in detail as they hold a key to the natural resource evaluation.
2. Aeolian environments are particularly sensitive to aridity, bio-mass and human interferences. All these activities affect wind shear in different degrees, set time in motion the processes of erosion and deposition. These processes and their resulting forms are highlighted in the course content.
3. Aeolian activities are not restricted to the present day conditions but also to the past environmental stress conditions. These palaeo- environments are discernible by using established dating techniques which have enabled the interpretation of past climates and pre-historic cultures. A direction is set for the application of Aeolian geomorphic principles for the efficient management of land-based human economic activities through advanced monitoring technique with special reference to India.
4. Understand the Karst Geomorphology & Its formation.

Course Outcomes:

1. Define the major concepts in Arid Geomorphology.
2. Described the desert landscape surfaces.
3. Interpret the arid and desert terrain.
4. Examine the water in the arid region.
5. Understanding of Karst Topography & Land features.

Course Contents:

Unit	Teaching / Learning Points	Periods	Marks
I	**Wind Environments:** • Introduction; desert wind systems; directional variability and • Resultant drift potential; • Scope of aeolian geomorphology. Grain in motion: • Fluid flows - flow types; interaction of the wind and the bed - wind shear; entrainment – lift and drag; Thresholds of movement: static and dynamic; • Modes of transport: saltation, creep, reptation and suspension; transport rates.	10	15
II	**Wind erosion and landforms:** • Processes: abrasion, deflation and aerodynamic erosion; • Landforms: ventifacts, yardangs, pans, stone pavements, deflation hollows; • Desert varnish; processes and significance. Dusts-Sources; - contemporary and proximal, mineral composition; • Dust-generating and dust yielding systems, gross spatial patterns of production and removal;	15	20

	• Deposition: loess, types, palaeo -environmental significance.		
III	**Forms of wind deposition:** • Sand ripples, obstacle dunes; • Dune- classification schemes; • Morphodynamics of the crescentic, longitudinal and complex dunes.	10	15
IV	**Karst Geomorphology:** • Ground water: meaning and concept; • Geomorphic work o f groundwater • Erosional work • Depositional work • limestone (karst) topography	15	15
V	**Karst Features** • Distribution o f karst areas • Erosional landforms • Karst cycle o f erosion.	10	15
Grand Total		**60**	**80**

Reference Books:

1. Abrahams, A.D. and Parsons, A.J. (eds.), Geomorpology of Desert Environments Chapman & Hall, London, 1994.
2. Goudie,A and Hegde : Palaeo-geography and Pre-history of Indian Desert, Academic Press, London,1980. .
3. Baumont, P.: Drylands-Environment, Management and Development, Routledge, New York,1993.
4. Bagnold, R.A. The Physics of Blown Sand and Desert Dunes, Methuen, London, 1941.
5. Cook, R.U., Waren, A. and Goudie, A.S. Desert Geomorphology, London, UCL Press, London, 1993.
6. Embleton, C. and Thornes, J. (eds.), Process in Geomorphology, Arnold -Heinemann, New Delhi, 1980.
7. Greeley, R and Iversen, J.D., Wind as a Geological Process. Cambridge University Press, Cambridge, 1985.
8. Lancaster, N: Geomorphology of Desert Dunes Routledge, New York,1995.
9. Livingstone I. and Warren, A. Aeolian Geomorphology ,Adison Wesley, Longman, Essex, 1996.
10. Mckee, E.D. (ed.) A Study of Global Sand Seas, Castel House, Kent, 1980.
11. Nickling, W.G. (ed.) Aeolian Geomorphology. Allen & Unwin, Boston, 1986. Curriculum Development Committee in Geography 106
12. Singhvi, A.K. and Derbyshire, E.(eds.) Palaeo—environmental Reconstruction in Arid Lands, Oxford & IBH, New Delhi, 1999.
13. Tchakerian, V.P. (ed.) Desert Aeolian Process ,Chapman & Hall, London, 1995.

❖ **Web Resources:**

1. www.wikipedia.org
2. www.encyclopedia.com
3. http://jgesnet.com

Name of the Program : M.A. II Geography		
Semester: IV **Theory Paper**	**Name of the Course** **GSTG-4: Glacial Geomorphology**	**Credits : 04**

Course Objectives:

1. Appreciate the contrasting geomorphic processes operating in glacial and periglacial environments.
2. Understand the deformational behavior of ice and the melt water.
3. Understand the sensitiveness of the periglacial environment to heat budget.
4. Understand the impact of human activities on permafrost environment.

Course Outcomes:

1. Define the major concepts in glacial geomorphology.
2. Describe the type of glaciers.
3. Solve the glacial formation and movements.
4. Examine the Erosion by glaciers with landforms.
5. Judge the transportation and deposition by glacial landforms.

Course Contents:

Unit	Teaching / Learning Points	Periods	Marks
I	**Ice Ages and World Glacitation:** • Causes of Ice Ages-Pleistocene Glacitation: • Onset and retreat direct and indirect effects of Pleistocene Glacitation-glacier regimes: • definition, mass balance and response to climatic changes-glacier ice: physical and thermal properties, glacier flow and internal deformation.	10	15
II	**Erosional Process:** • glacial erosion: ice and meltwater-mechanical and chemical processes of erosion; • development of erosional landforms-morphodynamics of the features of erosion at or inside glacier margins-glacial thermofrost; • superglacial, englacial, and basal.	10	15
III	**Depositional Process:** • Processes-stratified and non-stratified; drifts-morphodynamics • of moraines: forms of moraines-glaciofluvial and glacio-lacustrine environment; • Pleistocene glacitation in South Asia-Hazards in glacial environment: glacial surges and glacier dam bursts.	15	20
IV	**Periglacial Processes:** • frozen ground phenomenon: identification, depth variations, • thermal properties, classification and distribution-ground ice: • types and morph dynamics of periglacial processes: • Mechanism of frost action, mass wasting, nivation.	15	15
V	**Periglacial landforms;** • frost actions and landforms-mass wasting and landforms • Adaptation of human beings to periglacial environment.	10	15
Total		**60**	**80**

Reference Books:

1. Brown, R.J.E., Permafrost in Canada. University of Toronto Press, Toronto, 1970.
2. Carson MA. and Kirkby M.J., Hillslope Form and Process, Cambridge University Press, 1972.
3. Coates, D.R.(ed.), Glacial Geomorphology, State University of New York,1974, New York, 1974.
4. Dixon, J.C. and Abrahams, A.D. (eds.), :Periglacial Geomorphology. John Wiley, New York, 1992.
5. Drewry, D., Glacial Geological Processes, Edward Arnold, London, 1986.
6. Embleton, C. and King, C.A.M., Glacial and Periglacial Geomorphology, Edward Arnold, London, 1968.
7. Embleton, C. and Thormes, J. (eds.), Process in Geopmorphology, Arnold - Hesnemann, New Delhi, 1980.
8. Hails, J.R. (ed.): Applied Geomorphology Elsevier Sci. Amsterdam, 1977.
9. Pewe, T.L.(ed.):. The Periglacial Environment. Mc. Gill- Queen's University Press, Montreal1969.
10. Peterson, W.S.B., The Physics of Glaciers. Pergamon Press, Oxford 1969.
11. Price, L.W., The Periglacial Environment, Permafrost and Man., Commission on College Geography, Resource Paper No. 14, Washington, D.C,1972.
12. Ritter, D.F. Craig, R. and Miller, J.P., Process of Geomorphology. , W.C. Brown Dubuque, 1995.
13. Slymaker, O. (ed.), Steepland Geomorphology., John Wiley, London, 1995.
14. Sugden, D.E. and John, B.S. Glaciers and Landscape. Edward Arnold, London, 1976.
15. Vander Veen, C.J., Fundamentals of Glacier Dynamics., A.A. Balkemma, Rotterdam, 1999.
16. Wright, A.E and Mosley, P.(eds), Ice Ages: Ancient and Modern., Seel House Press, Liverpool,1975

Web Resources:

1. www.wikipedia.org
2. www.encyclopedia.com
3. http://jgesnet.com

Name of the Program : M.A. II Geography		
Semester IV **Theory Paper**	**Name of the Course** **GSTP-3: Urban Geography**	**Credits : 04**

Course Objectives:

1. Understand the process of urbanization and origin, growth and classification of urban settlements with relevant theories and models.
2. Examine the changing economic base and structure of the contemporary cities.
3. Relate urbanization process and the evolution of urban system.
4. Examine the contemporary urban issues and suggest new urban planning and urban policy perspectives.

Course Outcomes:

1. Define the basic concepts of urban geography.
2. Describe the urban morphological models.
3. Discuss about urban classification.
4. Examine the rural-urban fringe.
5. Investigate the central place and urban hierarchy.

Course Contents:

Unit	Teaching / Learning Points	Periods	Marks
I	**Urbanization - Basic Concepts:** • Urban Geography • Nature and Scope of Urban Geography • Strengths of Urban Geographer • Meaning of Urban Settlement • Urbanization • Behavioral, Structural and Demographical Concept of Urbanization • Urbanization Curve • Contemporary factors of Urbanization	10	15
II	**Urban Morphology - Models:** • Park and Burgess Model • Homer Hoyet Model • Harris and Ullman Model • Characteristics and Demarcation of CBD	10	15
III	**Urban Classification:** • Various Approaches to Classification • Urban Functions and its Classification • Functional Classification of Towns and Cities • by C.D. Harris and H.J. Nelson	10	15
IV	**Rural-Urban Fringe:** • Meaning of Rural-Urban Fringe • Characteristics of Rural-Urban Fringe • Methods of Demarcation of Suburban areas • Concepts : Conurbation, Megalopolis, Satellite Towns, Urban Sprawl	15	20

V	**Central Place and Urban Hierarchy:** • Concept - Central Place • Christaller's Central Place Theory • Rank-size Relationships and Rules • Concept – Urban Hierarchy • Hierarchy of Urban Settlements	15	15
Total		**60**	**80**

References:

1. Carter, H., (1972): The study of Urban Geography, Edward Arnold, London.
2. Fyfe, N. R. and Kenny, J. T., (2005): The Urban Geography Reader, Routledge.
3. Graham, S. and Marvin, S., (2001): Splintering Urbanism: Networked Infrastructures, Technological Mobilities and the Urban Condition, Routledge.
4. Hall, T., (2006): Urban Geography, Taylor and Francis.
5. Kaplan, D. H., Wheeler, J. O. and Holloway, S. R., (2008): Urban Geography, John Wiley.
6. Knox, P. L., and McCarthy, L., (2005): Urbanization: An Introduction to Urban Geography, Pearson Prentice Hall New York.
7. Knox, P. L., and Pinch, S., (2006): Urban Social Geography: An Introduction, Prentice-Hall.
8. Pacione, M., (2009): Urban Geography: A Global Perspective, Taylor and Francis.
9. Ramachandran, R., (1989): Urbanisation and Urban Systems of India, Oxford University Press, New Delhi
10. Ramachandran, R., (1992): The Study of Urbanisation, Oxford University Press, Delhi

Web Resources:

1. www.wikipedia.org
2. www.encyclopedia.com
3. http://jgesnet.com

Name of the Program : M.A. II Geography		
Semester: IV **Theory Paper**	**Name of the Course** **GSTP-4: Rural Geography**	**Credits : 04**

Course Objectives:

1. Understand the growth and evolution of rural settlements.
2. Recognize and analyze the distributions, patterns, morphology and functions of rural settlements.
3. Analyze and suggest rural settlement planning in India.
4. Examine the prevailing social and environmental issues in rural areas of India.

Course Outcomes:

1. Define the basic concepts of rural geography.
2. Describe the types and patterns of rural settlement.
3. Compare the rural morphology and its models
4. Examine the rural landscape and settlements.
5. Investigate of rural central places.

Course Contents:

Unit	Teaching / Learning Points	Periods	Marks
I	**Urbanization - Basic Concepts:** • Rural Geography: Rural Population and Settlement • Nature and Scope of Rural Geography • Site, Situation and Location of Rural Settlements • Settlement Size and Shape • Evolution of Settlement • Rural-Urban Dichotomy • Transformation of Villages	15	15
II	**Types and Patterns of Rural Settlements:** • Difference between Type and Pattern • Types of Settlement: Clustered, Compact and Nucleated • Basic Village / Settlement Forms • Patterns of Rural Settlement: Rectangular, Circular, Star, Linear etc • Classification of Settlement • Functional Classification of Villages	15	20
III	**Rural Morphology - Models:** • Morphological Changes • Factors Responsible for Dispersion • Socio-Spatial Structure, Caste and Segregation of Settlements • Index of Dispersion of Settlement by Albert Demangeon • Nearest Neighbour Analysis	10	15
IV	**Rural Landscape and Settlements:** • Meaning of Village and Surrounding Farmland • Von Thunen's Agriculture Landuse Model • Economic Rent and Farming Patterns • Rural Dwelling: Rural house types, Building material, Size etc	10	15

V	**Rural Central Places:** • Concept – Rural Central Place • Rural Market Centers • Factors affecting on Rural Market Centers • Periodic Markets : types, functions, periodicity etc • Problems of Rural Market System • Rural-Urban Relationship	10	15
Grand Total		**60**	**80**

References:

1. Anand, Subhash.,(2013): Dynamics of Rural Development, Research India Press, Delhi
2. Gilg, A. W., (1985): An Introduction to Rural Geography, Edwin Arnold, London.
3. Krishnamurthy, J.,(2000): Rural Development - Problems and Prospects, RawatPubls., Jaipur
4. Lee, D. A. and Chaudhri, D. P., (eds.)(1983): Rural Development and State, Methuen, London.
5. Misra, R. P., and Sundaram, K. V., (eds.)(1979): Rural Area Development: Perspectives and Approaches, Sterling, New Delhi.
6. Misra, R. P., (ed.), (1985): Rural Development: Capitalist and Socialist Paths, Vol. 1, Concept, New Delhi. Palione, M., (1984): Rural Geography, Harper and Row, London.
8. Ramachandran, H., and Guimaraes, J.P.C., (1991): Integrated Rural Development in Asia– Leaning fromRecent Experience, Concept Publishing, New Delhi.
9. Robb, P.,(1983): Rural South Asia: Linkages, Change and Development, Curzon Press.
10. Singh, R.B., (1985): Geography of Rural Development, Inter India, New Delhi.
11. UNAPDI (1986):Local Level Planning and Rural Development: Alternative Strategies. (United Nations Asian & Pacific Development Institute, Bangkok), Concept Publs. Co., New Delhi.
12. Wanmali, S., (1992): Rural Infrastructure Settlement Systems and Development of the RegionalEconomy in South India, International Food Policy Research Institute, Washington, D.C.
13. Yugandhar, B. N. and Mukherjee, Neela., (eds.) (1991): Studies in Village India: Issues in Rural Development, Concept Publications. Co., New Delhi.

Web Resources:

1. www.wikipedia.org
2. www.encyclopedia.com
3. http://jgesnet.com

Name of the Program: M.A. II Geography		
Semester: IV **Practical Paper**	**Name of the Course** **GCPG: 2 Surveying practical**	**Credit: 04**

Course Objectives:

1. To understand various techniques in surveying.
2. To analyses the principles and various methodologies involved in surveying.
3. To generate the drawings using advanced surveying equipment & application software.
4. To sensitize the students with advanced surveying equipment.

Course Outcomes:

1. Understanding the survey.
2. Explain the major types of surveying.
3. Apply the methods of survey with the help of various instruments.
4. Understand the Correction Bearing and close of Bodwitch method.
5. Apply the Dumpy level instrument of river cross section.
6. Understanding the sampling methods of data collections of village survey.
7. Preparation of the questionnaires for the village survey.
8. Preparation and Submission of Village Survey Report

Practical / field work list:

Unit	Teaching and learning point	Practical	Marks
	Section A: Instrumental Survey		
I	**Surveying** i) Introduction ii) Definition of Survey iii)Types of Surveying a) Chain and tape survey b) Plane table Survey c) Prismatic compass Survey d) Dumpy level survey e) Theodolite survey f) Abney level survey g) Total station survey h) Drone survey i) GPS and DGPS survey iv. Classification of Surveying	**10**	**10**
II	**A) Plane Table Surveying** i) Introduction ii) Use of plane table survey iii) Advantages and disadvantages of plane table survey iv) Equipments of plane table survey v) Methods of plane table survey	**10**	**10**
	B Dumpy levels Survey i) Introduction ii)Uses of Dumpy levels iii) Equipments of Dumpy level survey iv)Methods of dumpy level Survey ▪ Collimation methods ▪ Rise and Fall methods v) Advantages and Disadvantages of Dumpy levels	**10**	**10**
III	**Prismatic Compass Survey** i) Introduction ii) Preparation of Prismatic Compass Survey	**10**	**10**

	iii) Methods of Prismatic Compass Survey • Intersection Method • Open Traverse Method • Close Traverse Method iv) Correction Bearing and close of Bodwitch method.		
Section B: Village Survey & Geographical Study Tour			
IV	**Village Survey**	**10**	**20**
	Preparation for the Village Survey		
	Village Survey Database Compilation and Processing		
	Preparation and Submission of Village Survey Report		
	Geographical Study Tour and Report	**10**	**20**
V	Journal, Village Report and Viva	**-**	**20**
	Total	**60**	**100**

Reference Book

1. Arjun Kumbar (1998), Practical Geography, Sumeru Publication, Dombiwali, Thane.
2. Basak, N. N. (1994). Surveying and Levelling. Delhi: Tata McGraw-Hill Education.
3. Bhavikatt, S. S. (2009). Surveying and Levelling. New Delhi: I. K. International.
4. Frank, H., & Althoen, S. C. (1994). Statistics: Concepts and Applications. Cambridge: Cambridge University Press.
5. Hammond, R., & McCullagh, P. (1991). Quantitative Techniques in Geography. Oxford: Clarendon Press.
6. Kanetkar, T. P., & Kulkarni, S.V. (I960). Surveying and Leveling- Part I and II. Pune: A. V. Ghriha Prakashan.
7. Mann, P. S. (2007). Introductory Statistics. New Delhi: John Wiley and Sons.
8. Pacione, M. (1999). Applied Geography: Principles and Practice. London: Routledge.
9. Pijushkanti Saha and Pratha Basu (2010), Advanced Practical Geography, Arunabha Sen, Kolakata
10. Pugh, J. C. (1975). Surveying for Field Scientists. London: Methuen and Co.
11. Robinson, G.M. (1998). Methods and Techniques in Human Geography. Michigan: John Wiley.
12. Roy, S. K. (2004). Fundamentals of Surveying. New Delhi: PHI Learning.
13. Satheesh, G., Sathikumar, R., & Madhu, N. (2007). Advanced Surveying: Total Station, GIS and Remote Sensing, Delhi: Pearson Educatio

Web Resources:

1. **www.wikipedia.org**
2. **www.encyclopedia.com**
3. **http://jgesnet.com**
4. Survey of India: www.surveyofindia.gov.in
5. ISRO Bhuvan 2D Platform:
6. bhuvan.nrsc.gov.in/map/bhuvan/bhuvan2d.php