SYLLABUS

for

MASTER OF ARTS/ SCIENCE (M.A./ M.Sc.)

in

GEOGRAPHY

[As per CBCS pattern recommended by UGC]

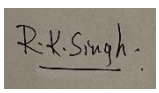
Effective from Academic Session: 2024-2025

VEER BAHDUR SINGH PURVANCHAL UNIVERSITY
JAUNPUR

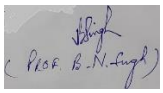
V.B.S. Purvanchal University, Jaunpur
Syllabus based on National Education Policy
Subject: Geography

Syllabus Developed by

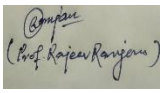
S.N.	Name of the Board of Studies Members	Designation	Department	College/University
01	Prof. Rajendra Kumar Singh	*Professor* (Convener)	*Geography*	T.D. P.G. College, Jaunpur
02	Prof. B.N. Singh	*Professor* (External)	*Geography*	Allahabad University, Prayagraj
03	Prof. Rajeev Ranjan	*Professor* (External)	*Geography*	U.P. College, Varanasi
04	Prof. Manoj Kumar Singh	*Professor (PG Member)*	*Geography*	T.D. P.G. College, Jaunpur
05	Prof. Ravindra Kumar Pandey	*Professor (PG Member)*	*Geography*	S.G.R.P.G. College Dobhi, Jaunpur
06	Dr. Vijay Lakshmi	*Assistant Professor (PG Member)*	*Geography*	T.D. P.G. College, Jaunpur
07	Prof. Shambhu Ram	*Professor (UG Member)*	*Geography*	R.S.K.D. P.G. College, Jaunpur
08	Dr. Alkeshwari Singh	Associate Professor (*UG Member)*	*Geography*	Bayalasi P.G. College, Jaunpur
09	Dr. Sunil K. Shahi	Associate Professor (*UG Member)*	*Geography*	P.G. College, Ghazipur



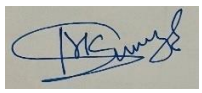
Prof. R. K. Singh
(Convener)



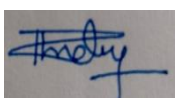
Prof. B. N. Singh
(External)



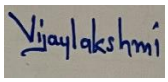
Prof. Rajeev Ranjan
(External)



Prof. M. K. Singh
(PG Member)

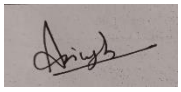


Prof. R.K. Pandey
(PG Member)



Dr. Vijay Lakshmi
(PG Member)

Prof. Shambhu Ram
(UG Member)



Dr. Alkeshwari Singh
(UG Member)

V.B.S. Purvanchal University, Jaunpur
Syllabus based on National Education Policy
Department of Geography, Faculty of Arts
Year-wise Structure of M.A./ M.Sc. in Geography

Year	Semester	Major subject Own Faculty (4 credit each)	Minor Elective Other Faculty	Major Industrial Training/Survey /Research Project (Inter/Intra Faculty related to main subject)	Minimum Credit for the Year	Cumulative Minimum Credit Required for Award of Certificate/ Diploma/ Degree
4	VII	1. Geomorphology	I 4/5/6 (Credit)	(4 Credit)	**52**	**(184)** **Bachelor (Research)** **In Geography**
		2. Environmental Geography				
		3. Geography of India				
		4. Fundamentals of Remote Sensing				
		5. Statistical Methods, Air Photo Interpretation and Field Survey				
	VIII	1. Economic Geography		I (4 Credit)		
		2. Climatology and Hydrology				
		3. Population Geography				
		4. Choose any one from the following :				
		4.1 Geography of Tourism OR 4.2 Geography of Rural Development				
		5. Geological maps, Block Diagrams, Study Tour and Report				
		Dissertation Viva-Voce (8 Credit)				

PS- The Research Project cum Dissertation will be allotted in 7th semester while its evaluation will be made by the end of 8th semester.

5	IX	1. Principles of Oceanography		I (4 Credit)	**48**	**(232) Master In Geography**
		2. Social Geography				
		3. Choose any one from the following :				
		3.1 Disaster Management OR 3.2 Geography of Resources				
		4. Choose any one from the following :				
		4.1Regional Planning & development OR 4.2 Transport Geography				
		5.Topographical Maps,Weather Maps and Field Survey				
	X	1. Modern Geographical Thought		I (4 Credit)		
		2. Choose any one from the following :				
		2.1 Political Geography OR 2.2 Settlement Geography				
		3. Choose any one from the following :				
		3.1 Agricultural Geography OR 3.2 Industrial Geography				
		4.**Choose any one from the following :**				
		4.1 Urban Geography OR 4.2 Research Methodology				
		5. Projections, Diagrams and Field Survey				
		6. Dissertation Viva-Voce (8 Credit)				

PS- The Research Project cum Dissertation will be allotted in 9th semester while its evaluation will be made by the end of 10th semester.

V.B.S. Purvanchal University, Jaunpur
Syllabus based on National Education Policy
Semester- wise Title of the Paper in PG Geography
(Programme: M.A./ M.Sc.)

Year	Sem.	Course code	Paper title	Theory/ Practical	Credit
4	**VII**	A110701T	Geomorphology	Theory	4
		A110702T	Environmental Geography	Theory	4
		A110703T	Geography of India	Theory	4
		A110704T	Fundamentals of Remote Sensing	Theory	4
		A110705P	Statistical Methods, Air Photo Interpretation and Field Survey	Practical	4
4	**VIII**	A110801T	Economic Geography	Theory	4
		A110802T	Climatology and Hydrology	Theory	4
		A110803T	Population Geography	Theory	4
			Select any one paper among papers mentioned below		
		A110804T (A)	(A) Geography of Tourism	Theory	4
		A110804T (B)	OR (B) Geography of Rural Development	Theory	
		A110805P	Geological Maps, Block Diagrams, Study Tour and Report	Practical	4
		A110806R	**Research Project cum Dissertation**	**Viva**	8
5	**IX**	A110901T	Principles of Oceanography	Theory	4
		A110902T	Social Geography	Theory	4
			Select any one paper among papers mentioned below		
		A110903T (A)	(A) Disaster Management OR	Theory	4
		A110903T (B)	(B) Geography of Resources	Theory	4
			Select any one paper among papers mentioned below		
		A110904T (A)	(A) Regional Planning & development	Theory	4
		A110904T (B)	OR (B) Transport Geography	Theory	4
		A110905P	Topographical Maps,Weather Maps and Field Survey	Practical	4
5	**X**	A111001T	Modern Geographical Thought	Theory	4
			Select any one paper among papers mentioned below		
		A111002T (A)	(A) Political Geography	Theory	4
		A111002T (B)	OR (B) Settlement Geography		
			Select any one paper among papers mentioned below		
		A111003T (A)	(A) Agricultural Geography	Theory	4
		A111003T (B)	OR (B) Industrial Geography	Theory	
			Select any one paper among papers		

			mentioned below		
		A111004T (A)	(A) Urban Geography OR (B) Research Methodology	Theory	4
		A111004T (B)		Theory	
		A111005P	Projections, Diagrams and Field Survey	Practical	4
		A111006R	**Research Project cum Dissertation**	**Viva**	8

Examination and Evaluation Pattern
for M.A./ M.Sc.- Year 4th & 5th (All Semester)
THEORY

Year	Semester	Paper	Maximum Marks
4th & 5th	All	Theory(All)	Internal-25 External-75

(A) Examination and evaluation pattern/ method for Internal Assessment

Examination Pattern	Marks	Total Marks
Assignment/ Seminar	**10**	**25**
Written Test	**15**	

(B)Examination and evaluation pattern/ method for External Assessment

Examination Pattern	Section	Number of Questions	Marks for each question	Total Marks of each question	Grand Total
Descriptive Type (Already Prevalent)	Section- A **(very Short Answer Type Questions)**	10	1	10	75
	Section- B **(Short Answer Type Questions)**	5	7	35	
	Section- C **(Long Answer Type Questions)**	2	15	30	

Evaluation of Research Project (P.G.)

Year	Semester	Maximum Marks	Total Marks
4th	VII & VIII	Internal-25 External-75	**100**
5th	IX & X	Internal-25 External-75	**100**

Programme outcomes (After 2 years of study)

a) This course intends to orient the learner with the approaches to the broader discipline of geography.
b) It will help in developing analytical and critical thinking based on the themes and issues of geography.
c) It eventually prepares the students to understand the development of the subject and delve around issues suited to the needs of the contemporary world.
d) It will help in exhaustive understanding of the basic concepts of geography and awareness of the emerging areas of the field.
e) Acquisition of in- depth understanding of the applied aspects of geography as well as interdisciplinary subjects in everyday life.
f) The application of knowledge gained in the field of geography in classroom to the practical solving of societal problems.
g) This programme orients students with tradition geographical knowledge along with advance contemporary skills like remote sensing and GIS.

M.A./M.Sc., Geography, Year 4th , Semester – VII

Course Title:	**GEOMORPHOLOGY**
Course Code:	A110701T
Credit:	04
Type of Course:	Theory
Maximum Marks:	Internal-25 External-75
Course Outcomes:	The course enables the students to analyze the fundamental concepts of lithosphere and establish the relations with geo-physical changes of geomorphic environment.

Syllabus	No. of Lectures
UNIT I Meaning and Scope of Geomorphology, Recent Trends in Geomorphology, Basic concepts in Geomorphology: Structure, Process and Stage/Time -Davis and Penk.	**16**
UNIT II Concept of Plate tectonics; Mass movement of rock waste and resultant landforms; Concept, Classification and analysis of slopes.	**16**
UNIT III Structural Geomorphology - Fold, Fault and Domal Structures and Landforms; – Denudation Chronology of peninsular India, Himalayas and Northern Plains.	**14**
UNIT IV Applied Geomorphology: Terrain classification and its applications, Oil exploitation Engineering projects, Drainage network analysis – Stream orders, Sinuosity index and Drainage density.	**14**

Books Recommended

1. Ahmed, E. (1985): Geomorphology. Kalyani Publishers, New Delhi.
2. Bloom. A. L. (1998/2000): Geomorphology. 3rd Edition. Prentice Hall of India, New Delhi.
3. Chorley, R.J. Schumm S A and Sugden D E. (1984): Geomorphology. Methuen and Company Ltd., London.
4. Dayal, P. (1994): A Text book of Geomorphology .Kalyani Publishers, New Delhi.
5. Fairbridge, R. W. (ed.) (1968): Encyclopedic of Geomorphology, Reinhold Book Corporation, London.
6. Jog, S. R. (ed.) (1995): Indian Geomorphology (2 vols.) Rawat Publications, Jaipur.
7. Kale, V. and Gupta, A. (2001): Introduction of Geomorphology. Orient Longman, Hyderabad.
8. King, C.A.M. (1996): Techniques in Geomorphology. Edward Arnold, London.
9. Sharma, P. R. (ed.), (1993): Applied Geomorphology in Tropics. Rishi Publications, Varanasi.
10. Singh, S. (2004): Geomorphology, PravalikaPrakashan, Allahabad.
11. Sparks, B.W. (1986): Geomorphology. Longmans, London.
12. Thornbury, W.D. (2005): Principles of Geomorphology. John Wiley and Sons, New York.
13. Wooldridge, S.W. and Morgan, R.S. (1959): The Physical Basic of Geography- An Outline of Geomorphology. Longman, London.
14. Worcester, P.G. (2017): A Text Book of Geomorphology, D.Van Nontrand Company, Inc. Toronto, New York, London.

M.A./M.Sc., Geography, Year 4th ,Semester – VII

Course Title:	**ENVIRONMENTAL GEOGRAPHY**
Course Code:	A110702T
Credit:	04
Type of Course:	Theory
Maximum Marks:	Internal-25 External-75
Course Outcomes:	Students will be able to know the various aspects of ecological degradation and generate the enthusiasm for protection, planning, preservation and sustainable management of environment.

Syllabus	No. of Lectures
UNIT I Meaning and Scope of Environmental Geography: Basic principles of Environmental Geography: Composition and types of environment; Ecological principles; Man-environment relationship	**16**
UNIT II: Ecosystem: concept and components: Trophic levels; Food chains and food webs: Energy flow in the ecosystem; Circulation of matter in the ecosystem.	**14**
UNIT III Environmental degradation; Extreme events, hazards and disasters (earthquake, volcanoes, cyclones, floods); Environmental pollution (air, water, solid waste, soil and noise pollution); Environmental pollution in India; Environmental Problems - global warming, ozone depletion	**16**
UNIT IV Environmental management; concept and approaches; Environmental dimension in planning - sustainable development; environmental consciousness, Environmental policy.	**14**

Books Recommended

1. Anjuneyulu, Y. (2004): Introduction of Environmental science. B. S. Publication, Hyderabad.
2. Bharucha, Erach (2015): Paryavaran Adhyayan, Orient black Swam.
3. Huggett, R.J. (1998): Fundamental Biogeography. Routledge, London.
4. Nag, P. Kumra, V.K. and Singh, J. (1990): Geography and Environmental issues at Local, Regional and National Levels. (In 3 vols.), Concept Publishing Company, New Delhi.
5. Odum, E.P. (1975): Ecology. Rawman and Littlefield, Lanham, USA.
6. Rajagopalan, R. (2005): Environmental studies: From Crisis to Cure, Oxford University Press, New Delhi.
7. Sexena, H.M. (2000): Environmental Management, Rawat publications, Jaipur and New Delhi.
8. Singh, D.N. Singh, J. and Raju, K.N.P. (eds.) (2003): Water Crisis and Sustainable Management, Tara Book Agency, Varanasi.
9. Singh, O., Nag, P., Kumra, V.K. and Singh, J. (eds.) (1993): Frontier in Environmental Geography. Concept Publishing Company, New Delhi.
10. Singh, R.B. (ed.) (1990): Environmental Geography, Heritage Publication, New Delhi.
11. Singh, S. (2006): Environmental Geography, PravalikaPrakashan, Allahabad.
12. Singh, S. (2007): Paryavaran Bhugol. PravalikaPrakashan, Allahabad.

M.A./M.Sc., Geography, Year 4th , Semester – VII

Course Title:	**GEOGRAPHY OF INDIA**
Course Code:	A110703T
Credit:	04
Type of Course:	Theory
Maximum Marks:	Internal-25 External-75
Course Outcomes:	On completion of this course ,learners will be able to understand the wider aspect of geography of India.

Syllabus	No. of Lectures
UNIT I Physiographical & Structural Regions of India; Indian Monsoon- Origin: Traditional and Recent Concepts; IOD, MJO; Climatic Regions of India by Koppen, Trewartha, R.L. Singh, Classification of Indian soil.	**16**
UNIT II Indian Agriculture: Crop Production & Pattern, New Trends -Dry Land Farming, Green and White Revolutions, Eco –Farming; Agro-Climatic Regions, Conventional and Non- Conventional Energy resources, Coal, Petroleum; Production and Distribution of Mineral Resources; Iron-ore, Bauxite; Atomic Energy: Thorium, Locational Factors of Indian Industries; Industrial Regions.	**16**
UNIT III India: Growth, Distribution, Density of Population, Literacy, Sex Ratio, Changing Pattern of Urban-Rural Population, Recent Trends in Urbanization in India, Origin and Dispersal of Races in India, Major Tribes-Distribution and Classification.	**16**
UNIT IV Five Year Planning in India: Achievements and Failures; Multi-level Planning: Planning at National, State, District, Block and Panchyat level: Planning Regions- Bases of delimitation & Classification.	**12**

Books Recommended

1. Ahmed, Waqar, Amitabh Kundra and Richard Peet(eds.) 2010. India's New Economic Policy: A Critical Analysis, Jaipur/New Delhi: Rawat Publication.
2. Gole, P. N. (2001): Nature Conservation and Sustainble Development in India, Rawat Publications, Jaipur and New Delhi.
3. Johnson, B.L.C. (ed.) (2001): Geographical Dictionary of India. Vision Books, New Delhi.
4. Khullar, D.R. (2006): India. A Comprehensive Geography. Kalyani Publishers, New Delhi.
5. Krishnan, M.S. (1968): Geology of India and Burma. 4th Edition. Higgin Bothams Private. Ltd, Madras.
6. Nag, P. and Gupta, S.S. (1992): Geography of India. Concept publishing Company, New Delhi.
7. Singh, R.L. (ed.) (1971): India. A Regional Geography. National Geographical Society of India, Varanasi.
8. Sukhwal, P.L. (1987): India. Economic Resources Base and Cotemporary Political Patterns, Sterling Publications, New Delhi.
9. Tirtha, R. (2002): Geography of India. Rawat publications, Jaipur and New Delhi.
10. Tiwari, R.C. (2007): Geography of India, PrayagPustak Bhawan, Allahabad.
11. Wadia, D.N. (1959): Geology of India. Macmillan and Company, London & Madras. Student edition.

M.A./M.Sc., Geography, Year 4th ,Semester –VII

Course Title:	**FUNDMENTALS OF REMOTE SENSING**
Course Code:	A110704T
Credit:	04
Type of Course:	Theory
Maximum Marks:	Internal-25 External-75
Course Outcomes:	After the end of syllabus students will be able to understand various geo-spatial data with the help of aerial photographs, remote sensing and photogrammetric technique.

Syllabus	No. of Lectures
UNIT I Remote Sensing -definition and Scope, electro-magnetic radiation, characteristics: interaction with matter, type of remote sensing and remote sensing platform.	**16**
UNIT II Aerial photos: Types, Scale, Resolution, Geometric Properties of Aerial photos, Stereoscopic Parallax,Relief displacement.	**16**
UNIT III General orbital characteristics of remote sensing satellites, General characteristics of remote sensing sensor, Characteristics of remote sensing data.	**14**
UNIT IV Elements of image interpretation, image processing techniques, visual and digital, Remote sensing in resource mapping and environmental monitoring. Land use and land cover mapping: a cover study.	**14**

Books Recommended

1. Campbell, J. B. (2002): Introduction to Remote Sensing. 5th edition. Taylor and ancis, London.
2. Cracknell, A. and Hayes, L. (1990): Remote Sensing Year Book, Taylor and Francis,London.
3. Curran, P.J. (1985): Principles of Remote Sensing, Longman, London.
4. Deekshatulu, B.L. and Rajan, Y.S. (ed.) (1984): Remote Sensing. Indian Academy of Science, Bangalore.
5. Floyd, F. and Sabins, Jr. (1986): Remote Sensing: Principles and Interpretation, W.H.Freeman, N.Y.
6. Guham, P. K. (2003): Remote Sensing for Beginners. Affiliated East-West Press Private Ltd.,New Delhi.
7. Hallert, B. (1960): Photogrammetry, McGraw Hill Book Company Inc., New York.
8. Harry, C.A. (ed.) (1978): Digital Image Processing, IEEE Computer Society, California
9. Hord, R.M. (1982): Digital Image Processing of Remotely Sensed Data, Academic ress,New York.
10. Leuder, D.R. (1959): Aerial Photographic Interpretation: Principles and Application.McGraw Hill, NY.
11. Lillesand, T.M. and Kiefer, R.W. (2000): Remote Sensing and Image Interpretation. 4th edition. John Wiley and Sons, New York.
12. Nag, P. (ed.) 1992: Thematic Cartography and Remote Sensing, Concept Publishing. Company, New Delhi.
13. Reeves, R.G. (ed.) (1983): Manual of Remote Sensing, Vols. 1 and 2, American Society of Photogrammetry and Remote Sensing, Falls Church, Virginia.
14. Siegel, B.S. and Gillespie, R. (1985): Remote Sensing in Geology, John Wiley and Sons,New York.
15. Survey of India, (1973): Photogrammetry, Survey of India, Dehradun.
16. Swain, P.H. and Davis, S.M. (ed.), (1978): Remote Sensing: The Quantitative Approach. McGraw Hill, New York.

M.A./M.Sc., Geography, Year 4th , Semester –VII

Course Title:	**STATISTICAL METHODS ,AIR PHOTO INTERPRETATION AND FIELD SURVEY**
Course Code:	A110705P
Credit:	04
Type of Course:	Practical
Maximum Marks:	Internal-25 External-75
Course Outcomes:	After the end of syllabus students will be able to correlate their class room knowledge with practical reality during empirical field based survey.

Syllabus	**No. of Lectures**
UNIT I Statistical Methods: Measures of Central Tendencies. Measures of Dispersion: Variance, Standard Deviation; Coefficient of Variation; Rank Order Correlation of Spearman, Product Movement Method/ Co-efficient of correlation by Karl Pearson, Regression, Normal Frequency distribution curve and its characteristics, Sampling Procedures: Random, Systematic and Cluster.	**20**
UNIT II Aerial Photographs: Introduction, Scale, Terminology and Interpretation of aerial photographs, Stereoscope: Functioning and Uses.	**18**
UNIT III Plotting of field book by Prismatic compass and solving problems. Problems related to surveying- solving three point and two point problems, correction of bearing, removing closing error, plotting of readings obtained by prismatic compass.	**22**

Books Recommended

1. Campbell, J. B. (2002): Introduction to Remote Sensing. 5th edition. Taylor and Francis, London.
2. Cracknell, A and Hayes, L. (1990): Remote Sensing Year Book, Taylor and Francis,London.
3. Curran, P.J. (1985): Principles of Remote Sensing, Longman, London.
4. Deekshatulu, B.L. and Rajan, Y.S. (ed.) (1984): Remote Sensing. Indian Academy of Science, Bangalore.
5. D.N. Elahance, Fundamentals of Statistics.
6. D.N. Elahance, Political Problems in Statistics.
7. Floyd, F.and Sabins, Jr. (1986): Remote Sensing: Principles and Interpretation, W.H. Freeman, N.Y
8. Gregory, S., Statistical Method and the Geographer.
9. Guham, P.K.(2003):Remote Sensing for Beginners. Affiliated East-West Press Private Ltd., New Delhi.
10. Harry, C.A. (ed.)(1978): Digital Image Processing, IEEE Computer Society, California.
11. Henery, E. Garrel, Statistics in Psychology and Education.
12. Hira Lal, Prayogatmak Bhoogol Ke Adhar (Hindi)
13. Hord,R.M.(1982):Digital Image Processing of Remotely Sensed Data, Academic Press, New York.
14. Leuder, D.R.(1959):Aerial Photographic Interpretation: Principles and Application. McGraw Hill, N.Y.
15. Lillesand, T.M. and Kiefer, R.W. (2000): Remote Sensing and Image Interpretation.4th edition. John Wiley and Sons, New York.
16. Nag, P(ed.)1992:Thematic Cartography and Remote Sensing, Concept Publishing. Company, New Delhi.
17. Reeves, R.G. (ed.) (1983): Manual of Remote Sensing, Vols. 1 and 2, American Society of Photogrammetry and Remote Sensing, Falls Church, Virginia.
18. Robinson, A.H., Elements of Cartography.
19. Sharma, J.P. Prayogatmak Bhoogol Ki Rooprekha (Hindi)
20. Siegel, B.S. and Gillespie, R.(1985):Remote Sensing in Geology, John Wiley and Sons, New York.
21. Singh, L.R. & Singh, R.N. Map work and practical Geography (Eng./Hindi)
22. Smith, H.T.V. Aerial Photographs and their Applications.
23. Survey of India,(1973): Photogrammetry, Survey of India,
24. Tiwari, R.C.and Tiwari, Sudhakar, Abhinav Prayogic Bhoogol.

Assessment of Practical Examination

External Assessment		Internal Assessment	
Units	**Maximum Marks**	**Pattern**	**Maximum Marks**
UNIT I	20	Assignment	10
UNIT II	20		
UNIT III	20	Written Test	15
Record file & Viva Voce	15		
Total	**75**	**Total**	**25**

M.A./M.Sc., Geography, Year 4th , Semester – VIII

Course Title:	**ECONOMIC GEOGRAPHY**
Course Code:	A110801T
Credit:	04
Type of Course:	Theory
Maximum Marks:	Internal-25 External-75
Course Outcomes:	On completion of the course students will be able to develop theideas regarding geographical aspects of economy, types of economic activities, and will also conceptualize, demarcate and analyze the geographical determinants of manufacturing activities and energy resources.

Syllabus	No. of Lectures
UNIT I Fundamental Concepts, Scope, Evolution of Economic geography, Spatial Organization, Sectors of Economy-Primary, Secondary, Tertiary and Quaternary.	**14**
UNIT II Concepts of Resources, Resource Classification and Conservation, Mineral Resource: Iron-ore, Bauxite and Power Resources: Coal, Petroleum, Von-Thunen's model of Agricultural Location and its Modifications; Agricultural Regions of the World.	**16**
UNIT III Classification of Industries: Resource based and footloose Industries. Theories of Industrial location-Weber and Isard. Case studies of selected industries: Iron and steel, Textiles, Sugar, Petro-Chemicals. Industrial regions of the World: USA, Japan, Special Economic Zone, Gig Economy.	**16**
UNIT IV Transport Systems, Economic Regions and Their Salient Features. Impact of WTO, Globalization, Liberalization & Privatization on the Economy of Developing World.	**14**

Suggested Readings:

1. Chatterjee,S.P.: Economic Geography of Asia,Allied BookAgency,Calcutta,1984.
2. Chorley, R.J. and Hagget, P. (ed.) Network Analysis in Geography, Arnold, 1969.
3. Jones C.F. and Darkenwald, G.G.: Economic Geography, McMillan Co. N.Y., 1975.
4. Millar E:Geography of Manufacturing,Prentice Hall,N.Y.,1962.
5. Raza M. and Agrawal, Y.: Transport Geography of India,Concepts, New Delhi, 1986.
6. Singh, K.N. and Siddiqui: Economic Geography, Pravalika Prakashan,Allahabad
7. Smith, D.M.: Industrial location: An Economic Geographical Analysis,John Wiley,N.Y. 1971.
8. Thomas,R.S.: The Geography of Economic Activities, McGrawHill,N.Y.1962.

M.A./M.Sc., Geography, Year 4th , Semester –VIII

Course Title:	**CLIMATOLOGY AND HYDROLOGY**
Course Code:	A110802T
Credit:	04
Type of Course:	Theory
Maximum Marks:	Internal-25 External-75
Course Outcomes:	Students will be able to conceptualize, analyze and apply the concepts of weather and climate and correlate it with daily weather events. Students will develop the causal relations of climate with other social, economic and cultural activities. Students will be able to understand wider aspect of hydrology and its relevance.

Syllabus	**No. of Lectures**
UNIT I Composition, mass and structure of the atmosphere, Insolation, Heat balance of the earth and atmosphere, Pressure and pressure belts, tri cell Circulation of wind, Jet stream, Permanent, Seasonal and Local winds, Recants Concepts of Monsoon.	**16**
UNIT II Concepts, Classification, Characteristics of air masses and fronts, Climatic classification of Koppen, and R.L.Singh. **Climate Change-** Causes and Theories: Global warming – Evidences, Causes and Effects; Global Cooling Concepts; Atmospheric Hazards and disasters- Tropical Cyclones-Tornado, Typhoon Hurricane & thunderstorm and cloud-bursts; El-Nino, La-Nina, Walker Circulation, Southern Oscillation (ENSO).	**16**
UNIT III Definition and scope of hydrology, hydrological cycle, Precipitation intensity and duration, Infiltration, Surface run off and Floods, Man's interference on hydrological cycle.	**14**
UNIT IV Principles and Determination of water balance: Sub-surface water, Soil moisture, Ground Water-occurrence, Storage, Movement. Water Table Fluctuation and Safe Yield. Applied Hydrology.	**14**

Suggested Readings

1. Berry R.G.and. Chorley. R. J: Atmosphere, Weather and Climate,Rutledge, London and NY, 1998.
2. Critchfield, J.H.: General Climatology, Prentiçe Hall, New Delhi,1993.
3. Lal, D.S.: Climatology, Chaitanya Publications, Allahabad, 1986.
4. Lydolpbh, P.E.: The Climate of the Earth, Rowman, 1985.
5. Robinson P.J. and Henderson S: Contemporary Climatology, Henlow,1999.
6. Upadhyaya D.P., and Singh R.A.: Climatology and Hydrology.
7. Addison H: Land, Water and flood, Chapman and Hall, London,1961.
8. Chorley, R.J.: Water, Earth and Man, Methuen, London, 1967.
9. Jones, J.A.A Global hydrology: Process, Resources andEnvironmental Management, Longman, London, 1997
10. Todd, D.K.: Ground water Hydrology, John Wiley, New York, 1959.

M.A./M.Sc., Geography, Year 4th ,Semester – VIII

Course Title:	**POPULATION GEOGRAPHY**
Course Code:	A110803T
Credit:	04
Type of Course:	Theory
Maximum Marks:	Internal-25 External-75
Course Outcomes:	At the end of this course, it is expected that students will enable to describe and evaluate spatial and temporal dimension of population dynamics.

Syllabus	No. of Lectures
UNIT I Nature and Scope of Population Geography, Development of Population geography. Sources of population data; The Census, Vital Registration and OtherSources, Problems relating to reliability of data and mapping.	**15**
UNIT II Population Dynamics- Measurement of fertility and mortality; Migration – causes& consequences, types and patterns. Theories of Migration: Ravenstein, Lee's Laws and Behavioral model.	**15**
UNIT III Theories of population growth- Malthus, Neo-Malthus and Demographic Transition Model, Density types, World Pattern of population distribution and Density, India: Population Growth, Distribution and Density, Population Composition- Rural and Urban population, Sex Ratio, Literacy, Occupational structure.	**16**
UNIT IV Population-Resource Regions of the World and India, Human Development Index and its Components, Population Policies and Planning with Special Reference to India.	**14**

Suggested Readings

1. Bogue, D.J.: Principles of Demography, John Wiley, N.Y., 1969.
2. Chandana, R.C.: Geography of population: Concept, determinantsand Patterns, KalyamiPulblishers, 2000.
3. Clarke, John. I: Population Geography, Pergaman Press, Oxford,1973.
4. Crook, Nigel: Principles of Population and Development,Pergaman Press, N.Y, 1997.
5. Daugherty Helen Gin, Kenncth C.W. Kammeyer: An Introductionto Popuilation, the Guilford Press, N.Y., London, 1998.
6. Garmier, J.B.: Geography of Population, Longman, London, 1970.
7. Mamoria, C.B.: India's Population Problem, Kitab Mahal, NewDelhi, 1981.
8. Premi, M.K.: India's Population: Heading Towards a Billion, B.R.Publishing Corporation, 1991.
9. Srinivasan K. and M Blassoff: Population Development Nexus inIndia: Challenges for the New Millennium, Tata McGraw Hill,New Delhi, 2001.
10. Woods, R.: Population Analysis in Geography, Longman, London,1979
11. Zelinsky, Wilber; A Prologue to Population Geography, PrenticeHall, 1966.

M.A./M.Sc., Geography, Year 4th ,Semester – VIII

Course Title:	**GEOGRAPHY OF TOURISM**
Course Code:	A110804T
Credit:	04
Type of Course:	Theory(Optional)
Maximum Marks:	Internal-25 External-75
Course Outcomes:	At end of this course, student will able to describe about the importance of geography in tourism and tourism potential hotspot inthe various tourism generating regions of India.

Syllabus	No. of Lectures
UNIT I Definition of tourism, Factors influencing tourism-historical, natural, Socio-cultural and economic; Motivating factors for pilgrimages, leisure and recreation, tourism as an industry.	**16**
UNIT II Geography of Tourism: Its Spatial Affinity, Tourism Types-Cultural and Adventure Tourism, National and International Tourism. Globalization and Tourism.	**14**
UNIT III Indian tourism: Regional dimensions of tourist attraction, Evolution of tourism, Promotion of tourism. Infrastructure and support system-accommodation and supplementary accommodation, Homestay, other facilities and amenities.	**16**
UNIT IV Impacts of tourism- Economic and Social. Positive and negative impacts, Current trends, spatial patterns and recent changes, Impact of globalization on tourism. Major tourist destinations of India.	**14**

Suggested Readings:

1. Bhatia, A.K.: Tourism : Development and Practices, Sterling Pub.New Delhi, 1996.
2. Chandra, R.H. Hill Tourism Planning and Development,Kanishka Pub., New Delhi; 1998.
3. Hunter C and Green H: Tourism and the Environment: ASustainable Relationship, Routledge, London, 1995.
4. Kaur J: Himalayan Pilgrimages and New Tourism, HimalayanBooks, New Delhi, 1993.
5. Milton, D: Geography of World Tourism, Prentice Hall, N.Y.1993.
6. Voase, R: Tourism: The Human Perspective, Hodder andStoughton, London. 1995.
7. Williams Stephen: Tourism Geography, Routledge, London, 1998

M.A./M.Sc., Geography, Year 4th ,Semester – VIII

Course Title:	**GEOGRAPHY OF RURAL DEVELOPMENT**
Course Code:	A110804T
Credit:	04
Type of Course:	Theory(Optional)
Maximum Marks:	Internal-25 External-75
Course Outcomes:	Students will be able to efficiently formulate the issues and challenges of rural settlement and critically evaluate the suitability of different plans adapted for rural development in varying spatialcontext.

Syllabus	No. of Lectures
UNIT I Rural development: A geographical Perspective; Rural Markets and Market Centers, growth Poles and Growth Centers; Rural land use and its problems and Planning.	**14**
UNIT II Rural Economy: Physical, Human and Socio-economic Dimensions, Infrastructural Facilities, Rural Migration: Causes and Consequences; Effect of Agriculture on Rural Development.	**14**
UNIT III Social Issues of Rural Areas- Poverty, Housing and Shelter, Deprivation, and Inequality, Women Empowerment, Health Care and Unemployment. Environmental Issues: Water supply, Sanitation, Drainage, Occupational Health Hazards.	**16**
UNIT IV Balanced Development Strategies of India- Panchayati Raj System, Role of Panchayati Raj Institutions (Village Panchayat, Panchayat Samiti and Zila Parishad) and Administrative Structure (Village, Block and District). Integrated Rural Development Strategy.	**16**

Suggested Readings:

1. Kuklinski, A.R. (ed): Growth Poles and Growth Centres inRegional Planning, Moutan, The Hague, 1972.
2. Kundu A. And Raza M; Indian Economy; The RegionalDimension, Spectrum Publishers, New Delhi, 1982.
3. Richardson, H.W.: Regional Economics, Weidenfeld andNicholson, London, 1969.
4. Clout, H.D.: Rural Geography, Pergman, Oxford, 1977.
5. Ram Chandran, H: Village Clusters and Rural Development,Concept Publication, New Delhi, 1985.
6. Rao, E.N.: Strategy for Integrated Rural Development, R.B.Publication Cor. Delhi, 19860
7. Sriniwas M.N.: Village India, Asia Publication House, Bombay,1968.
8. Wanmali, S; Service centres in Rural India, B.R. Publication Cor.Delhi, 1983.

M.A./M.Sc., Geography, Year 4th,Semester – VIII

Course Title:	**GEOLOGICAL MAP, BLOCK DIAGRAMS, STUDY TOUR AND REPORT**
Course Code:	A110805P
Credit:	04
Type of Course:	Practical
Maximum Marks:	Internal-25 External-75

Syllabus	**No. of Lectures**
UNIT I Geological Maps -Drawing and interpretation of Geological cross-sections and maps inclined, folded, faulted and unconformable structures, igneous intrusions.	**18**
UNIT II Block Diagrams Selection of block Diagrams, one point perspective and two point perspective block diagram. Conversion of contour map into one point perspective blocks diagrams. Important landforms on block diagrams one point & two point block diagrams.	**17**
UNIT III Tour and Tour report The following shall be the guidelines and structure of Educational tour; **Geographical Excursion Committee** 1. All faculty members shall organize geographical excursion as 'tour in-charge' in rotation according to departmental seniority list. 2. There shall be Geographical Excursion Committee headed by HOD in University and HOD/departmental in-charge in Colleges. HOD/ departmental in-charge will organize a tour committee of departmental members and four/ five meritorious students of Geography department in college. Tour in-charge shall act as convener of committee and in-charge teacher in college. 3. Committee shall: 1. Study tour will be conducted by concerning department. T.A./D.A. and related expenses to teachers and supporting staff on tour study shall be met by the representative institutions. 2. Tour shall be at least 5-7 days but it can be extended according to recommendat of tour in-charge keeping in view relevancy of tour region. 3. Normally Two teachers and one attendant will accompany the tour party. 4. Study tour will be conducted to different regions other than institute is located. (Mountainous Region, Plateaus Region, Coastal Region & Desert Region.) 5. A comprehensive tour report on the area / region shall be submitted by the stude with in two weeks on their return from the tour and students have to appear for viva – voce examination.	**25**

Books Recommended:

1. Sharma, J.P. Prayogatmak Bhoogol Ki Rooprekha (Hindi)
2. Singh, R.L. Elements of Practical Geography.
3. Singh, L.R. & Singh, R.N. Map work and practical Geography (Eng./Hindi)
4. Hira Lal, Prayogatmak BhoogolKeAdhar (Hindi)
5. Tiwari, R.C. and Tiwari, Sudhakar, Abhinav Prayogic Bhoogol.

Assessment of Practical Examination

External Assessment		Internal Assessment	
Units	**Maximum Marks**	**Pattern**	**Maximum Marks**
UNIT I	15	Assignment	10
UNIT II	15		
UNIT III	30	Written Test	15
Record file & Viva Voce	15		
Total	**75**	**Total**	**25**

M.A./M.Sc., Geography, Year 4th , Semester – VIII

Course Title:	Research Project cum Dissertation
Course Code:	A110806R
Credit:	08

M.A./M.Sc., Geography, Year 5th Semester – IX

Course Title:	**PRINCIPLES OF OCEANOGRAPHY**
Course Code:	A110901T
Credit:	04
Type of Course:	Theory
Maximum Marks:	Internal-25 External-75
Course Outcomes:	After the end of syllabus students will be able to examine and compare the different ocean and water bodies with their distinctoceanic bottom relief, circulation system and marine deposit.

Syllabus	**No. of Lectures**
UNIT I Oceanography – nature, scope and development, distribution of land and water, Ocean bottom topography, bottom relief of Pacific, Atlantic and Indian Ocean.	**16**
UNIT II Characteristics of Ocean water: temperature, density and salinity. Factors affecting distribution of temperature, density and salinity.	**16**
UNIT III Movement of ocean water: currents - causes and characteristics, currents of Atlantic, Indian and Pacific Ocean, Waves, tides and theories of origin.	**14**
UNIT IV Ocean deposits and coral reefs: sources, types and distribution of ocean deposits, coral reefs – formation, condition of growth, types and theories of origin.	**14**

BOOKS RECOMMENTED:

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

M.A./M.Sc., Geography, Year 5th ,Semester – IX

Course Title:	**SOCIAL GEOGRAPHY**
Course Code:	A110902T
Credit:	04
Type of Course:	Theory
Maximum Marks:	Internal-25 External-75
Course Outcomes:	Students will be able to assess the causal role of Geography in production of different social groups and shaping of their unique features. Students will be efficient and able to evaluate the emerging social spaces, stratification, social well being and issues of socialjustice through spatial perspective.

Syllabus	**No. of Lectures**
UNIT I Social Geography: Meaning, Scope and Significance of Social Geography, Social Geography as an Applied Branch of Human Geography, Relationship of Social Geography with other Social Sciences.	**16**
UNIT II Social well-being and its Indicators, Human Development Index (HDI), Inclusive Growth, Social Segregation and Ghetto Formation, Social Exclusion.	**14**
UNIT III Gender Issues and social changes: Gender inequality, women empowerment, women literacy health, social change with special reference to caste and tribal groups, Environment & Human health.	**16**
UNIT IV Social Differentiation and Region formation: Spatial distribution of tribes, castes and linguistic groups. Relationship between social identity and Economic conditions.	**14**

Books Recommended:

1. Aijazuddin Ahmad, Social Geography.
2. Garden, J.F., Geography as a social science.
3. Gregory, D. & Urry, J., Social relationship.
4. Hammelt, Chris (Ed), social Geography: A Reader.
5. Harvey, D, Social justice and the city.
6. John, E. (ed) social geography in International Perspective.
7. Jones, E & Eyles, J., An introduction to social geography.
8. John, E. (ed) Readings in social geography.
9. Kaushik, Devesh, Samajik Bhugol, Arjun Publishing House.
10. Kulkarni, K.M. geographical patterns of social well-being.
11. Maurya, S.D., Samajik Bhugol, Sharda Pustak Bhawan, Allahabad.
12. Pacliona, M. (ed) social geography Progress and prospects.
13. Paul Knox, social well-being a spatial perspective.
14. Pandey, Pushpa & Singh, Komal, Samajik Bhugol, SBPD Publications.
15. Rao. M.S.A. Urbanization and social changes.
16. Smith, David, social problem and the city.
17. Smith, David, The geography of social well-being.
18. Sriniwas, M.N., Social changes in Modern India.

M.A./M.Sc., Geography, Year 5th Semester – IX

Course Title:	**DISASTER MANAGEMENT**
Course Code:	A110903T
Credit:	04
Type of Course:	Theory(Optional)
Maximum Marks:	Internal-25 External-75
Course Outcomes:	After the end of this course, it is expected that students will be able to understand various aspect of natural calamities related to disaster impact region.

Syllabus	No. of Lectures
UNIT I Disaster – meaning, concept and classification; hazards, risk. Disaster: Its Effect on Different Social Groups; Poverty and Vulnerability. Disaster Management: Prevention, Preparedness and Mitigation.	**16**
UNIT II Natural Disaster – Earthquake, Floods, Drought. Global Warming: Causes, Consequences and Mitigation. Natural disaster – Examples from India.	**14**
UNIT III Man Made Disasters: Their Types – Technological and Industrialdisasters. Social Disasters: Causes, Consequences and Mitigation. Man Made Disasters – Examples from India.	**14**
UNIT IV Disaster management – relief and response; reconstruction and rehabilitation.Disaster: strategies for survival. Importance of information in Disaster management, significance of remote sensing and GIS. Planning in the context of disaster management.	**16**

Books Recommended:

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

M.A./M.Sc., Geography, Year 5th ,Semester – IX

Course Title:	**GEOGRAPHY OF RESOURCES**
Course Code:	A110903T
Credit:	04
Type of Course:	Theory(Optional)
Maximum Marks:	Internal-25 External-75
Course Outcomes:	Students will be able to visualize different resource rich and scarceareas in terms of water, forest, marine, mineral and energy resources. It will create the values of resource preservation and sustainable resource utilization among students.

Syllabus	No. of Lectures
UNIT I Nature, scope and significance of geography of resources. Definition andconcept of natural resources. Classification of resources.	**16**
UNIT II Characteristics of natural resources: Resource conservation andmanagement with reference to land and forest resource.	**14**
UNIT III Water resources-Hydrologic Cycle, fresh water resources, surface and underground water supplies, problems of water supplies. Marine resources, major fishing grounds of the world. India's natural resource: water resource, conservation and management and its utilization.	**16**
UNIT IV Energy resources-Conventional energy resources - coal, petroleum, non –conventional - solar and geothermal energy.	**14**

Books Recommended:

1. Alexander, J.W., Economic Geography, New Jersey, 1965.
2. Ali, S.A., Resources for Future Economic Growth, New Delhi, 1979.
3. Behends, William, W, The Dynamics of Natural Resource Utilization in D. Meadow (Ed.), Masaclusetts, 1972.
4. Duncan, G., Resource Utilization and Conservation, New York, 1975.
5. Earl, D.K., Forest Energy and Economic Development, Oxford, 1975.
6. Ranner, G.T., Conservation of Natural Resources, New York, 1942.
7. Zimmerman, E.W., Introduction to World Resources (edited by H.L. Honker, The Ohio State University, New York, 1964.
8. Zimmermann, E.N., World Resources & Industries, New York

M.A./M.Sc., Geography, Year 5th ,Semester – IX

Course Title:	**REGIONAL PLANNING & DEVELOPMENT**
Course Code:	A110904T
Credit:	04
Type of Course:	Theory(Optional)
Maximum Marks:	Internal-25 External-75
Course Outcomes:	After the end of this syllabus, students will be able to understand regional perspectives in development process. They are expected to efficiently formulate, appreciate and apply specific theories and plans for regional growth and development.

Syllabus	No. of Lectures
UNIT I Concept and Types of Regional Planning; City as Unit of Regional Planning; Approaches to Regional Planning; Historical Perspective of Regional Planning.	**14**
UNIT II Methodology and Techniques of Regional Planning; Principles of Regionalization; Indicators of Development and their Data Sources; Regional Disparities in India; Planning Process- Sectoral and Spatial Planning; Multilevel Planning.	**15**
UNIT III Regional Development Strategies: Growth Poles and Growth Centers in Regional Development; Industrial Dispersal, Identification of Planning Regions of India; Regional Planning Strategies for Backwards Areas-Drought Prone Area, Hill Area, Tribal Area and Rural Area.	**16**
UNIT IV Role of Urban Centers in Regional Planning; City Regions and City Problems; City Region Planning, Slum Areas; Metropolitan Planning; Preparation of Master Plans, Smart Cities.	**15**

Books Recommended

1. Chandna, R. C. (2000): Regional Planning: Comprehensive Text Kalyani Publishers. New Delhi.
2. Chaudhuri, J. R. (2001): An Introduction to Development and Regional Planning with special reference to India. Orient Longman, Hyderabad.
3. Cowen, M.P. and Shenton, R.W. (1996): Doctrines of Development. Routledge, London.
4. Doyle, T. and McEachern, D. (1998): Environment and Politics. Routledge, London.
5. Friedmann, J. and Alonso, W. (ed.) (1973): Regional Development and Planning. The MIT Press, Mass.
6. Hettne, B.; Inotai, A. and Sunkel, O. (eds.) (1999-2000): Studies in the New Regionalism. Vol. I-V. Macmillan Press, London.
7. lsard, W. (1960): Methods of Regional Analysis. MIT Press, Cambridge, MA.
8. Kuklinski, A. R. (1972): Growth Poles and Growth Centers in Regional Planning. Moutonand Co., Paris.
9. Misra, R. P. (ed.) (1992): Regional Planning: Concepts, Techniques, Policies and CaseStudies 2nd edition. Concept Publishing Company. New Delhi.
10. Misra, R.P, and Natraj, V.K. (1978): Regional Planning and National Development. Vikas, New Delhi.
11. Misra, R.P., Sundaram, K. V. Pradasa Rao, V. L. S. (1976): Regional Development Planning in India. Vikas Publishers, New Delhi.
12. Moseley, M.J., (1974): Growth Centres in Spatial Planning. Pergamon Press, Oxford.

13. Pathak, C.R. (2003): Spatial Structure and Processes of Development in India. Regional Science Association. Kolkata.
14. Sanyal, B.M. (2001) Decentralized Planning: Themes and Issues. Concept Publishing Company, New Delhi.
15. Sen, A. and Dreze, J. (eds.) (1996): Indian Development: Selected Regional Perspectives. Oxford University Press, Oxford.
16. Sundaram, K. V. (1997) the Decentralized Multilevel Planning; Principles and Practice (Asian and African Experiences). Concept publishing company, New Delhi.
17. Sundaram, K. V, (2004) thetrodden Path: Essays on Regional and Micro Level Planning. Anaunya Publications., New Delhi.
18. World Bank (2000): Entering the 21st Century. World Development Report. The World Bank and Oxford Univcrsity Press, New York and Oxford,
19. Yugandhar, B. N. and Mukherjee, A. (eds.) 1991): Readings in De-centralized Planning (with special reference to district planning), 2 vols. Concept Publishing., New Delhi.

M.A./M.Sc., Geography, Year 5th ,Semester – IX

Course Title:	**TRANSPORT GEOGRAPHY**
Course Code:	A110904T
Credit:	04
Type of Course:	Theory(Optional)
Maximum Marks:	Internal-25 External-75
Course Outcomes:	After the completion of this syllabus, students will be able to describe in detail the basic concept of transport geography and the importance of transport geography.

Syllabus	No. of Lectures
UNIT I Nature, Scope, Significance and Development of Transport Geography. Factors Associated with the Development of Transport System-Physical, Economic, Social, Cultural and Institutional. Evolution of Transport Networks.	**14**
UNIT II Characteristics and Relative Significance of Different Modes of Transport: Railways, Roads, Airways and Waterways. Accessibility and Flow Models, Network Structure, Graph Theory, Models of Network Change, Linear Programming and Gravity models.	**15**
UNIT III Theories related to freight rate structure, bases of spatial interaction: complementarily, intervening opportunity, transferability and potential models of Spatial Interaction. Transport System in India: Railways, Roads, Airways and Waterways, Patterns of Movement, Movement Geometry.	**16**
UNIT IV Transport of goods in developed and developing countries, Urban transportation-growth and problems. Transport and environmental degradation, Alternatives to transport system in Megacities of India, National Highway Development and planning in India. Transport policy and planning.	**15**

Suggested Readings:

1. Chorley, R.J. and Hagget P; Models in Geography, Methuen & Co. London, 1967.
2. Hurst, M.E. (ed): Transportation Geography, McGraw Hill, 1974.
3. Hagget P. and Chorley R.J.: Network Analysis, Edward Arnold, London, 1968.
4. Hay A: Transport Economy, Macmillan, London, 1973.
5. Hoyle, B.S. (ed); Transport and Development, Macmillan, London, 1973.
6. Raza M. and Agrawal Y.P.: Transport Geography of India, Concept, New Delhi, 1985.
7. Robinson H. and Bamford G.G.: Geography of Transport, Macdonald & Evans, London, 1978
8. Taffe, D.J. and Gauthier (Jr.) H.L.; Geography of Transportation, Prentice Hall, Englewood Cliffs, N.J., 1973.
9. White H.P. and Senior M.L.: Transport Geography, Longman, London, 1953.

M.A./M.Sc., Geography, Year 5th ,Semester – IX

Course Title:	**TOPOGRAPHICAL MAPS, WEATHER MAPS AND FIELD SURVEY**
Course Code:	A110905P
Credit:	04
Type of Course:	Practical
Maximum Marks:	Internal-25 External-75

Syllabus	No. of Lectures
UNIT I Topographical maps: scale, conventional signs and interpretation of top sheets.	**20**
UNIT II Weather maps: importance, symbols, instruments. Interpretation of weather maps. Technological development in weather forecasting.	**18**
UNIT III Sextant surveying	**22**

Books Recommended:

1. Sharma,J.P.Prayogatmak Bhoogol Ki Rooprekha (Hindi)
2. Singh,R.L.,Elements of Practical Geography.
3. Singh,L.R. & Singh,R.N. Map work and practical Geography (Eng./Hindi)
4. Hira Lal, Prayogatmak Bhoogol Ke Adhar (Hindi)
5. Tiwari, R.C. and Tiwari, Sudhakar, Abhinav Prayogic Bhoogol.

Assessment of Practical Examination

External Assessment		**Internal Assessment**	
Units	**Maximum Marks**	**Pattern**	**Maximum Marks**
UNIT I	20	Assignment	10
UNIT II	20		
UNITIII	20	Written Test	15
Record file & Viva Voce	15		
Total	**75**	**Total**	**25**

M.A./M.Sc., Geography, Year 5th ,Semester – X

Course Title:	**MODERN GEOGRAPHICAL THOUGHT**
Course Code:	A111001T
Credit:	04
Type of Course:	Theory
Maximum Marks:	Internal-25 External-75
Course Outcomes:	At the end of this course students will be able to know and apply the recent theoretical and philosophical aspects of Geography.

Syllabus	No. of Lectures
UNIT I Development of Geography in Second Half of the 20th Century; Concept of Paradigm; Paradigm shift, Positivism & Logical Positivism, Quantitative Revolution, Models, System Analysis in Geography.	**16**
UNIT II Reactions to Quantitative Revolution, Behavioral Geography - Cognition, Perception, Mental Maps, Decision making and Behavior, Time Space Geography, Humanistic Geography - Phenomenological Approaches.	**16**
UNIT III Structuralism, Realism, Functionalism, Welfare Geography, Post colonialism, Post – Modernism, Gaya Hypothesis.	**14**
UNIT IV Applied Geography, Contribution of Indian Geographer, Feminist Geography, G.I.S. as a tool of geography, Future of Geography.	**14**

Books Recommended:

1. Anderson, K., Domosh, M., Pile, S. and Thrift, N. (eds.) (2003): Handbook of Cultural Geography. Sage Publications, London.
2. Barnes, T. and Gregory, D. (eds.) (1997): Readings in Human Geography: The Poetics and Politics of Inquiry. Arnold, London.
3. Daniels, P., Bradshaw, M., Shaw, D. and Sidaway, J. (2000): An Introduction to Human Geography. Issues for the 21st Century. Prentice Hall, London.
4. Dear, M. J. and Flusty, S. (2002): The Spaces of Post modernity: Readings in Human Geography. Blackwell Publishers, Oxford.
5. Dikshit, R. D. (2004): Geographical Thought. A Critical History of Ideas. Prentice-Hall of India, New Delhi. (In English and Hindi).
6. Doel, M. (1999): Poststructuralist Geographies. The Diabolical Art of Spatial Science. Edinburgh University Press, Edinburgh
7. Harvey, D. (1969): Explanation in Geography. Arnold, London.
8. Harvey, M. E. and Holly, P.B. (2002): Themes in Geographic Thought. Rawat Publications. Jaipur and New Delhi.
9. Hartshorne (1959): Perspective on the Nature of Geography, Rand Macnally& Co. London.

10. Hubbard, P., Kitchin, R., Bartley, B. and Fuller, D. (2002): Thinking Geographically: Space, Theory and Contemporary Human Geography. Continuum, London.
11. James, P.E. 1980. All Possible Worlds. A History of Geographical Ideas. Ist Edition, Sachin Publication Jawahar Nager, Jaipur.
12. Johnston, R, Gregory D, Pratt G, Watts M. and Whatmore S. (2003): The Dictionary of Human Geography. Blackwell Publishers, Oxford. 5th edition.
13. Johnston, R.J. (1985): The Future of Geography, Metheun and Company Ltd., New York.(2003 edition published).
14. Johnston, R.J. and Sidaway, J.D. (2004): Geography and Geographers. 6th edition, Edward Arnold, London.
15. Kapur, A. (ed.) (2001): Indian Geography - Voice of Concern. Concept Publishing. Company, New Delhi.
16. Peet, R. (1998): Modern Geographical Thought. Blackwell Publishers Inc, Massachusetts.
17. Singh, R. L. and Singh, Rana P.B. (eds.) (1990): Literature and Humanistic Geography. National Geographical Society of India, BHU, Varanasi, Publication number 37
18. Singh, R. L. and Singh, Rana P.B. (eds.) (1992): The Roots of Indian Geography: Search and Research. National Geographical Society of India, B.H.U., Varanasi, Publication number 39.
19. Singh, Ravi S (ed.) 2009. Indian Geography: Perspectives, Concerns and Issues. Jaipur/New Delhi: Rawat Publications
20. Soja, E. (1989): Post-modern Geographies. Verso Press, London. Reprinted 1997: Rawat Publications, Jaipur and New Delhi.
21. Taylor, G. (ed.) (1953): Geography in the Twentieth Century. Methuen and Company Ltd. And Company, London.
22. Tuan, Yi-Fu (1977): Space and Place. The Perspective of Experience. Edward Arnold, London.

M.A./M.Sc., Geography, Year 5th , Semester – X

Course Title:	**POLITICAL GEOGRAPHY**
Course Code:	A111002T
Credit:	04
Type of Course:	Theory(Optional)
Maximum Marks:	Internal-25 External-75
Course Outcomes:	Students will be able to critically examine the geographical bases of political studies. They will be able to evaluate and correlate different theories with contemporary geopolitical and geo-strategic issues.

Syllabus	No. of Lectures
UNIT I Meaning, Scope, Approaches, Development of Political Geography; Concept of State and Nation; Spatial factors of State; Buffer State, Core Area, Ecumene, Capital city, Frontiers and Boundaries.	**14**
UNIT II Concept of Geo-Strategy; World Geopolitics in Changing Perspectives- Colonialism to Federalism; Geopolitical ideas of Mahan, Mackinder, Spykman and their Relevance in the Modern World.	**16**
UNIT III Geopolitical Significance of the Indian Ocean; Role of Third World Countries; Political geography and Regional Co-operation; Geopolitical Study of USA, East Asia and South Asia.	**16**
UNIT IV Nature and Scope of Electoral Geography; Geography of Elections with Special Reference to India; Interstate Issues, Insurgence in Border States; Emergence of New States.	**14**

Suggested Readings

1. Alexander, L.M.: World Political Patterns, Ran McNally, Chicago, 1963.
2. De Blij H.J. and Glassner, Martin: Systematic Political Geography, Jolin Wiley, N.Y1968.
3. Deshpande, C.D.: India: A Regional Interpretation, Northern Book Centre, New Delhi, 1992.
4. Dikshit, R.D.: Political Geography: A contemporary Perspective,Tata McGraw Hill, New Delhi, 1996.
5. Dikshit, R.D.: Political Geography: A Century of Progress, Sage New Delhi, 1999.
6. Fisher, Charles: Essays in Political Geography, Methuen, London, 1968.
7. John R. Short: An Introduction to Political Geography, Routledee.
8. Moddie A.E.: Gcography behind Politics, Hutchinson, London, 2000.
9. Pounds, N.J.G.: Political Geography McGraw Hill, N.Y., 1972.
10. Prescott, J.R.V.: The Geography of Frontiers and Boundaries, Aldine, Chigago.
11. Panikkar, K.M.: Geographical Factors in Indian Hlistory, 2 Vols, Asia Publishing House, Bombay, 1959.
12. Sukhwal, B.L.: Modern Political Geography of India, Sterling Publisher, New Delhi, 1968.
13. Taylor, P: Political Geography, Longman, London, 1985.

M.A./M.Sc., Geography, Year 5th , Semester – X

Course Title:	**SETTLEMENT GEOGRAPHY**
Course Code:	A111002T
Credit:	04
Type of Course:	Theory(Optional)
Maximum Marks:	Internal-25 External-75
Course Outcome:	After the end of this course, students will be able to acquire clear concepts of rural and urban settlements. Inculcate a greater understanding of man-land relationship which is crucial for sustainable development.

Syllabus	No. of Lectures
UNIT I Nature, Scope, Development and Approaches of Settlement Geography, Definition and Characteristics of Settlements, Rural-urban Continuum; Histogenesis of Settlements: Spatio-temporal Dimensions, Distribution, Size and Spacing of Settlements.	**14**
UNIT II Types and Patterns of Rural Settlements; functional classification of rural settlements, morphology of rural settlements. Rural Service Centers: their nature, hierarchy and functions. Service centers as growth points.	**14**
UNIT III House types and their spatial patterns. Origin, evolution, size, spatial structure of Indian villages. Social issues in rural settlements-poverty, housing , deprivation, and inequality. Environmental issues in rural settlements-water supply, sanitation, drainage and health hazards. Planning of rural settlements with special reference to India.	**16**
UNIT IV Meaning and scope of Urban Geography, Origin and Development of cities, recent trends in urbanization. Rural-Urban Fringe, Umland, suburb and satellite towns, Morphology of Urban Settlements, Urban problems, Planning of Urban Settlements and master plan.	**16**

Suggested Readings:

1. Pacione, Michael, 1983: Progress in Urban Geography, Croom Helm, London.
2. Pacione, M., 1984: Rural Geography, Harper and Row, London.
3. Raza, Moonis (ed) 1979: A Survey of Research in Geography, 1969-1972, ICSSR, Allied Publishers Private Ltd., Bombay.
4. Robson, B.T., 1969: Urban Analysis: A Study of City Structure, Cambridge University Press, Cambridge.
5. Saxena, Sudha, 1970: Trends of Urbanization in Uttar Pradesh, Satish Book Enterprise, Agra.
6. Sen, L.K. et al., 1971: Planning Rural Growth Centers for Integrated Area Development, A Study inMiryalguda Taluka, NICD, Hyderabad.
7. Sharma, R.C., 1972: Settlement Geography of the Indian Desert, Kumar Brothers, New Delhi, 199 pp.

8. Singh, Jagadish 1979: Central Places and Spatial Organization in a Backward Economy: Gorakhpur Region-A Study in Integrated Regional Development, Uttar Bharat Bhoogol Parishad, Gorakhpur, 147 pp.
9. Singh, R.L. 1955: Banaras: A Study in Urban Geography, Nand Kishore & Bros. Varanasi.
10. Singh, R.L. (ed) 1972: Rural Settlements in Monsoon Asia, NGSI, Varanasi,510 pp.
11. Singh, R.L., 1973: Urban Geography in Developing Countries, Proceedings of the IGU Varanasi Symposium, NGSI, Varanasi, 371 pp.
12. Singh, R.L. & Rana P.B. Singh, (eds) 1978: Transformation of Rural Habitat in Indian Perspective, A Geographic Dimension, NGSI, Varanasi, 200 pp.
13. Singh, R.L. and Rana P.B. Singh, 1978: Spatial Planning in Indian Perspective: An Approach Towards Theory and its Application, NGSI, Varanasi, 50 pp.
14. Singh, R.L. & Rana P.B. Singh, (eds) 1979: Place of Small Towns in India, NGSI, Varanasi,175 pp.
15. Singh, R.Y., 1994: Geography of Settlements, Rawat Publications, Jaipur,
16. Singh, S.B. (ed.), 1995: Emerging Frontiers of Urban Settlement Geography, M.D. Publications Pvt. Ltd. New Delhi,
17. Sovani, N.V., 1966: Urbanization and Urban India, Asia Publishing House, Bombay.
18. Taneja, K.L., 1971: Morphology of Indian Cities, NGSI, Varanasi,
19. Taylor, G., 1964: Urban Geography, Methuen, London.
20. Thacker, M.S., 1965: India's Urban Problem, Uni. of Mysore Press, Mysore.
21. Thompson, W.S., 1948: The Growth of Metropolitan Districts in the United States 1900-1940, Washington, D.C.
22. Tiwari, R.C., 2018: Settlement Geography, Pravalika Prakashan Allahabad,
23. Turner, R. 1962: India's Urban Future, Oxford University Press, Bombay.
24. Walker, Mabel L., 1938: Urban Blight and Slums, Harvard City Planning Studies, Vol. 12, Harvard Uni. Press.
25. Weber, Alfred, 1929: Theory of the Location of Industries (Translation of the original German edition of1909), Uni, of Chicago Press, Chicago.

M.A./M.Sc., Geography, Year 5th , Semester – X

Course Title:	**AGRICULTURAL GEOGRAPHY**
Course Code:	A111003T
Credit:	04
Type of Course:	Theory(Optional)
Maximum Marks:	Internal-25 External-75
Course Outcomes:	At the end of this course students will be able to evaluate the Agricultural dynamics which includes land use, agricultural systems and major rawbacks in agricultural development.

Syllabus	No. of Lectures
UNIT I Meaning, scope, approaches and development of agricultural Geography; Origin and dispersal of agriculture, major agricultural hearths; Diffusion of agricultural innovations.	**13**
UNIT II Determinants of agriculture- physical, economic, political, technological, socio-cultural; land reforms, measurements of agricultural productivity, cropping intensity, Cropping pattern: methods of delineating crop combination regions (Weaver and Rafiullah).	**16**
UNIT III Theories of agricultural location: Von Thunen's model and its modification- Sinclair's approach; Whittlesey's classification of agricultural regions; Agricultural typology, Agro-climatic regions of India. Land capability classification and land use planning.	**16**
UNIT IV Recent trends in Indian agriculture- Green revolution in India and its impact on Indian agriculture, white revolution; concept of second green revolution in India, Problems of Indian agriculture. Measures for Agricultural Development.	**15**

Suggested Readings

1. Baylist smith T.P.: The Ecology of Agricultural System, Cambridge University Press, London, 1987.
2. Gregor, HP. Geography of Agriculture, Prentice Hall, N.Y., 1970.
3. Mannion, A.M.: Agriculture and Environmental Change, John Wiley, London. 1971.
4. Morgan, W.B. and Norton, R.J.C.: Agricultural Geography. Methuen, London, 1971.
5. Morgan, W.B.: Agriculture in the Third World A Spatial Analysis, West view Press, Boulder, 19780
6. Sauer, C.O.: Agricultural Origins and Dispersals, M.I. Press, Westview Press, Mass, USA, 1969.
7. Singh J. and Dhillon S S: Agricultural Geography, Tata MeGraw Hill Pub. New Delhi, 1988.
8. Tarrant, J.R.: Agricultural Geography, Wiley, N.Y., 1974.

M.A./M.Sc., Geography, Year 5th , Semester – X

Course Title:	**INDUSTRIAL GEOGRAPHY**
Course Code:	A111003T
Credit:	04
Type of Course:	Theory(Optional)
Maximum Marks:	Internal-25 External-75
Course Outcomes:	After completion of this course, the student will be able to assessthe role of location and place in development and distribution of industries, importance of industrial corridors and site specific problems facing by different industrial regions.

Syllabus	No. of Lectures
UNIT I Nature, Scope and recent developments in industrial Geography; Factors of industrial location; Centralization and decentralization of Industries, Horizontal, vertical and diagonal linkages of modern industries.	**14**
UNIT II Theories and models of industrial location; Weber, Losch and Hoover; Distribution and spatial pattern of major industries, Major industrial regions of the World.	**14**
UNIT III Historical review of Indian industrialization since 1947; Evolution of industrial regions in India; Development of small scale and cottage industries; Multinational corporations and Industrial policy of India.	**16**
UNIT IV Problems of industrial development; industrial development and environmental degradation, Industries and economic development; Impact of globalization on industrial development; Industrial decentralization and its impact on urban fringe.	**16**

Books Recommended

1. Alexander, J.W.; Economic Geography, Prentice Hall, Englewood, Cliffs
2. Alexanderson, C: Geography of Manufacturing, Prentice Hall, Bombay, 1967.
3. Hoover, E.M.: The Location and Space Economy, McGraw Hill, N.W., 1948.
4. Isard, W; Methods of Regional Analysis, the Technology Press orM.LT. & John Wiley & Sons, N.Y., 1956.
5. Miller, E: A Geography of Manufacturing, Prentice Hall, Englewood Cliffs, N.J., 1962.
6. Weber, Alfred: Theory of Location of industries, Chicago University Press, Chicago

M.A./M.Sc., Geography, Year 5th , Semester – X

Course Title:	**URBAN GEOGRAPHY**
Course Code:	A111004T
Credit:	04
Type of Course:	Theory(Optional)
Maximum Marks:	Internal-25 External-75
Course Outcomes:	This course helps to evaluate the structure, morphology, pattern and dimensions of changes in urban places and cities.

Syllabus	No. of Lectures
UNIT I Meaning, scope, approaches and evolution of urban geography. Origin and growth of urban settlements. The models of urban growth: concentric zone, sectoral and multinuclei.	**14**
UNIT II Bases and process of Urbanization and urban development, Urban growth, urban hierarchy and rank size rule, Urban economic base: Occupational structure: basic and non-basic functions, Functional classification of cities, Morphology and land use, C.B.D., Modern Urban Landscape.	**14**
UNIT III The urban profile, Demographic structure and characteristics of urban population. Movement of population within and beyond corporate limit. City as central place, Umland, Rural-Urban fringe.	**16**
UNIT IV Urban problems-Urban poverty, Urban renewal, Urban sprawl, Slums, transportation, Housing, Urban pollution, Solid waste, Urban crime and environmental health. Urban policy and planning, planning for new wards, Satellite towns, Green belt, Garden cities, megalopolis and conurbation, Smart Cities, Global Cities.	**16**

Suggested Readings:

1. Berry, B.J.L. and Horton, F.F.: Geographic Perspectives on Urban Systems, Prentice Hall, Englewood cliffs, N.J. 1970.
2. Dickinson, R.E. City and Region, Routledge, London, 1964.
3. Gibbs, J.P.: Urban Research Methods, Van Nostrand Co. Princeton, N.J. 1961.
4. Hall P. Urban and Regional Planning, Routledge, London, 1992.
5. Kundu, A.: Urban Development and Urban Research in India ,Khanna Publication, 1992.
6. Rao, V.L. S.P.: Urbanisation In India: Spatial Dimensions, Concepts Publishing Co. New Delhi.
7. Smailes, A.E.: The Geography of Towns, Hutchinson, London, 1953.

M.A./M.Sc., Geography, Year 5th , Semester – X

Course Title:	**RESEARCH METHODOLOGY**
Course Code:	A111004T
Credit:	04
Type of Course:	Theory(Optional)
Maximum Marks:	Internal-25 External-75
Course Outcomes:	After completion of this course, the student will be able to assessthe role of research methodology in research work.

Syllabus	No. of Lectures
UNIT I **Introduction to research in Geography**: Concept and significance of research in geography; Philosophy and methods; Naturalism and anti-naturalism; realism, idealism and Behaviouralism.	**16**
UNIT II **Scientific Research; Inductive and deductive approaches;** Research design, Formulation of research problem; Development and testing of hypothesis; Techniques of data collection, Sampling and field survey.	**16**
UNIT III **Qualitative research:** Qualitative research design; Case study; Ethnography; Phenomenology and participatory research.	**14**
UNIT IV **Data Analysis, interpretation and report writing:** Data classification and tabulation; Data analysis and interpretation, writing thesis, project report and research paper.	**14**

Books Recommended

1. Ahuja, R. (2001): Research Methods, Rawat Publications, Jaipur and New Delhi.
2. Bhattacharyya, D. K. (2005) Rescarch Methodology, Excel Books, New Delhi
3. Denzin, N. K. and Lincoln, Y.S., (cds.) (2000): Handbook of Qualitative Research. Thousand Oaks CA. Sage Publications.
4. Dorling, D. and Simpson, L. (cds.) (1999): Statistics in Society. Edward Arnold, London.
5. Henn, M., Mark W., and Nick F. (2006): A Short Introduction to Social Research, Vistaar Publications, New Delhi
6. Eyles J. and Smith D. M. (1988): Qualitative Methods in Human Geography, Polity Press, Dales Brewering Cambridge.
7. Kitchin, R. and Fuller, D., (2003): The Academic's Guide to Publishing, Vistaar Publications, New Delhi
8. Limb, M. (2001): Qualitative Methodologies for Geographers. Issue and Debates. Edward Arnold, London.
9. Lofland, J. and Lofland, LH. (1995): Analysing Social Setting. A Guide to Qualitative Observation and Analysis. Wadsworth, Belmont, CA.

10. Longley, P., Goodchild, M.F., Maguire, D. and Rhind, D. (1999): Geographic Information Systems. Principles, Techniques, Management, Applications. John Wiley and Sons, New York.
11. Maso, I., Atkinson, P.A. Delamont, S. and Verhoeven, J.C. (eds.) (1995): Openness in Research. The 'Tension between Self and Other. Van Gorcum, Assen, Netherlands.
12. Mikkclsen, B. (2005): Methods for Development Work and Research: A New Guide for Practitioners. Sage Publications, London.
13. O' Leary, Z. (2005): The Essential Guide in Doing Research, Vistaar Publications, New Delhi
14. Pacione, M., (cd.) (1999): Applied Geography: Principle and Practice. Routledge, London.
15. Parsons, T, and Knight, P. G., (1995); How to Do Your Dissertation in Geography and Related Disciplines. Chapman and Hall, London.
16. Patrick M. and Chapman S. (1990): Research Methods(Third Edition), Routledge, London
17. Peet, R. and Thrift, N. (cd.) (1989/ 2002): New Models in Geography (2 vols.). Rawat Publishers., Jaipur and New Delhi.
18. Sheskin, Ira, M. (1987); Survey Research for Geographers, Scientific Publishers, Jodhpur.
19. Silverman, D. (1993); Interpreting Qualitative Data, Methods for Analysing Talk, Text and Interaction. Sage Publications, London,
20. Sharma P.R., Yadava, R.S. and Sharma, V.N., (2011), Interdisciplinary Research Methods: Concepts and Studies, RK. Books Publishers, New Delhi.
21. Wolcott, H. (1995): The Art of Fieldwork. Alta Mira Press, Walnut Creek, CA
22. Wright, D.B. (1997): Understanding Statistics. An Introduction for the Social Sciences. Sage Publications, London.

M.A./M.Sc., Geography, Year 5th , Semester – X

Course Title:	**PROJECTIONS, DIAGRAMS AND FIELD SURVEY**
Course Code:	A110905P
Credit:	04
Type of Course:	Practical
Maximum Marks:	Internal-25 External-75

Syllabus	No. of Lectures
UNIT I Projections- Classification, properties, choice, merits and demerits of projections. Drawing of the following map projections by using mathematical methods: Bonne's, Mercator's, Mollweide's and interrupted Mollweide's projection, Sinusoidal and Interrupted sinusoidal projection, Cylindrical Equal Area Projection and International Projection.	**20**
UNIT II Diagrams- Cartographic Representation of Statistical Data, Water surplus/Balance graph, Rainfall dispersion diagram, Traffic flow cartogram, Distribution maps- Isopleth, choropleth and multiple Dots, landuse maps, Locational quotient, Co-efficient of localization and localization curve.	**20**
UNIT III Horizontal and vertical measurement of angle by Theodolite and Height/depth Calculation.	**20**

Books Recommended:

1. Sharma,J.P.Prayogatmak Bhoogol Ki Rooprekha (Hindi)
2. Singh, R.L., Elements of Practical Geography.
3. Singh,L.R. & Singh, R.N. Map work and practical Geography (Eng./Hindi)
4. Hira Lal, Prayogatmak Bhoogol Ke Adhar (Hindi)
5. Tiwari, R.C.and Tiwari, Sudhakar, Abhinav Prayogic Bhoogol.

Assessment of Practical Examination

External Assessment		**Internal Assessment**	
Units	**Maximum Marks**	**Pattern**	**Maximum Marks**
UNIT I	20	Assignment	10
UNIT II	20		
UNIT III	20	Written Test	15
Record file & Viva Voce	15		
Total	**75**	**Total**	**25**

M.A./M.Sc., Geography, Year 5th , Semester – X

Course Title:	**Research Project Cum Dissertation**
Course Code:	A110906R
Credit:	08