

**SAURASHTRA**

**UNIVERSITY**

**STRUCTURE OF THE COURSES**

**OF**

**SUBJECT : GEOGRAPHY**

**M.A./M.SC. ALL SEMESTER  
(Revised Syllabus in Force from: June-2016)**

# SAURASHTRA UNIVERSITY

## ARTS FACULTY

### REVISED SYLLABUS

(Introduced from June, 2016)

#### M.A /M.Sc. (GEOGRAPHY) ALL SEMESTERS

Sr No	Level	Sem	Course Group	Course (Paper ) Title	Course (Paper) No	Credit	Internal Marks	External Marks	Practical /Viva Marks	Total Marks	Course (Paper) Unique Code
			Core / Elective/ Practical								
1	PG	1	CORE	Principals of Geomorphology-I	1	4	30	70	-	100	1601300102010100
			CORE	Regional Geography of India-I (Physical Division)	2	4	30	70		100	1601300102010200
			Elective	Philosophy of Geographic Thought	3	4	30	70		100	1601300202010100
			Elective	Urban Geography	4	4	30	70		100	1601300302010100
			Practical	Advanced Cartography-I (Practical)	5	8	-	-	100	100	1601300602010100
2	PG	2	CORE	Principals of Geomorphology-II	6	4	30	70		100	1601300102020300
			CORE	Geography of India-II (Socio-Economic Division)	7	4	30	70		100	1601300102020400
			Elective	Bio-Geography	8	4	30	70		100	1601300202020200
			Elective	Resource Geography of Gujarat	9	4	30	70		100	1601300302020200
			Practical	Advanced Cartography-II (Practical)	10	8	-	-	100	100	1601300602020200
3	PG	3	CORE	Climatology-I	11	4	30	70	-	100	1601300102030500
			CORE	The Geography of Natural Hazards and Management	12	4	30	70		100	1601300102030600
			Elective	Fundamentals of & Remote sensing & GIS	13	4	30	70		100	1601300202030300
			Elective	Geography Of Population	14	4	30	70		100	1601300302030300
			Practical	Quantative Techniques in Geography (Practical)	15	8	-	-	100	100	1601300602030300
4	PG	4	CORE	Hydrology & Oceanography	16	4	30	70	-	100	1601300102040700
			CORE	The Geography of Human Hazards and Management	17	4	30	70		100	1601300102040800
			Elective	Men & Environment	18	4	30	70		100	1601300202040400
			Elective	Geography of Tourism	19	4	30	70		100	1601300302040400
			CORE	Dissertation/ Field work	20	8	-	-	100	100	1601300102040900

**Note :**

1. Each paper and practical consist of 100 marks external and 30 marks internal.
2. Each semester consists of 4 Theory , 1 practical.
3. Figures at the end of each topic of all the courses (Theory and Practical ) indicate tentative number of lecture to be delivered on respective topic of theory paper or exercise to be conducted in case of Practical.
4. Students can Carry Stencil Maps in the Examination.
5. Drawing maps and diagrams necessary in each papers.

**Teaching Programme and Conditions:**

1. The total number of courses to be offered by a student will be 20, spread over four semesters. All the 20 courses will be University Courses.
2. Each theory and practical course will be covered in at least 45 lectures. There shall be four periods each of 55 minutes per week, per theory course.
3. There will be a continuous assessment of the student through class tests and / or seminars and home assignments.
4. There shall be a batch of 15 students for each Practical Course. There shall be Three Practical of six (6) hours duration, per week, per practical course.
5. The students will have to declare the option for Dissertation at the beginning of the 3rd semester.
6. The students will maintain a journal for all the practical courses and it will be certified by Head of the Department and will be reassessed at viva-voce. In the semester-end examination, the viva-voce (10) and journal (20) will carry 30 marks.

**Subject: Geography**  
**Course (Paper) Name & No : Principals of Geomorphology-I Paper No-1**

Course (Paper) Unique Code CORE 1601300102010100

**Course Exam Time Duration : 45 Lectures**

Name of Course	Semester	Core/ Elective/ Practical	Paper Code	Paper Title	Credit	Internal Marks	External Marks	Practical/ Viva/ Exam. Marks	External Exam. Time Duration
M. A.	1	Core		Principals of Geomorphology-I	4	30	70		2.15 hrs

### **Course Objective**

The objective of the course is to familiarize the students with the need for understanding of geomorphology with reference to certain fundamental concepts, focusing on the unity of geomorphology in the earth materials and the processes with or without an elements of time process component. Geomorphology is segmented into the internal and external processes of landscape evolution.

### **Course Content**

#### **Unit - 1**

Fundamentals of Geomorphology- Meaning , Definition, History and Development of geomorphology : A brief Review principle of uniformitarianism , Contribution of Hutton, Gilbert, Dutton, and Davis.

#### **Unit-2**

Tectonics and Geomorphology- Inferred Knowledge (Density, Temperature, Pressure), Holmes Convection current Theory, Contribution of the earth's interior ,The Theory of Isostasy - Views of Airy and Pratt.

#### **Unit-3**

Factors controlling landforms Development- Endogenetic forces – Epirogenic and Orogenic movement, Compression, Tension , Folds-Type and Landforms, Fault-Types and Landforms.

#### **Unit-4**

Evolution of continent and ocean- Wegener's Continental Drift Theory, Plate Tectonics,

### **Suggested Readings**

1. Chorleghy, R. J. : Spatial Analysis in Geomorphology, Methuen, London, 1972.
2. Cooke, R. U. and Doornkamp, J. C. : Geomorphology in Environmental Management - A Introduction, Clarendon Press, Oxford, 1974.
3. Dury, G. H. : The Face of the Earth, Penguin Harmondsworth, 1959.
4. Fairbridge, R. W. Encyclopeida of Geomorphyology, Reinholdts, New York, 1968.
5. Goudie, A. : The Nature of the Environment, Oxford & Blackwell, London, 1993.
6. Garner, H. F. : The Origin of landscape - A Synthesis of Geomorphology, Oxford University Press, London, 1974.
7. Mitchell, C. W. : Terrain Evaluation, Longman, London, 1973.
8. Ollier, C. D. : Weathering, Longman, London, 1979.
9. Pitty, A. F. Introduction to Geomorphology, Methuen, London, 1971.
10. Stoddart, D. R. (ed.) : Process and Form in Geomorphology, Routledge, New York, 1996.
11. Skinner, B. J. & Porter, S.C. : The Dynamic Earth John Wiley, New York, 1995.
12. Sparks, B. W. Geomorphology, Longaman, London, 1960.
13. Sharma, H. S. (ed.) : Perspectives in Geomorphology, Concept, New Delhi, 1980.
14. Singh, S.: Geomorphology, Prayag Publication, Allahabad, 1998.
15. Thorunbury, W. D. Principles of Geomorphology, John Wiley, New York, 1960.

**Subject: Geography**  
**Course (Paper) Name & No : Regional Geography of India-I Paper No-2**  
**(Physical Division)**

Course (Paper) Unique Code CORE 1601300102010200

Course Exam Time Duration : 45 Lectures

Name of Course	Semester	Core/ Elective/ Practical	Paper Code	Paper Title	Credit	Internal Marks	External Marks	Practical/ Viva/ Exam. Marks	External Exam. Time Duration
M. A.	1	Core		Regional Geography of India-I (Physical Division)	4	30	70		2.15 hrs

**Course Objectives:**

To understand India in terms of various regional divisions, their important characteristics, Intra-regional and inter-regional linkages; to analyze the natural resource endowments, their conservation and management; to sensitize the students with development issues and policies and Programmes designed for regional development.

**Course Content**

**Unit-1**

Location & Space Relations, Topographic- Structure, relief and Physiographic Divisions of India, Drainage system of India , Climate types-Regional variations

**Unit-2**

Soil Resource- Soil types and distribution, problems, and their remedies. Natural Vegetation - Classification , types and distribution pattern of forests. Live stock in India .

**Unit-3**

Water Recourses-water resources of India and their utilization, Distribution of irrigated areas and sources of irrigation, main canals of India, Multi purpose projects and their classification.

**Unit-4**

Mineral Recourses - Mineral Belts, Mineral Reserves, Mineral production and conservation of minerals. Classification of major minerals (Metallic and Non Metallic) and their distribution. ,

Energy Resources - scenario on India, source of energy (Conventional and non conventional energy).

**Suggested Readings :**

1. Singh R. L. : India-A Regional Geography (National Geographical Society India Varansasi-1971)
2. Agarwal G. N. : India's Population Problems (Tata-Mc Graw Hill Co.)
3. Spate OHK & ATA : Learmonth - India & Pakistan (Methuen London-1967)
4. Sharma T. C. : Economic and Commercial Geography of India (Vikas Publishing House Pvt. Ltd.)
5. Sinha B. M. : Industrial Geography of India (World Press Pvt. LTd. Calcutta)
6. Bharangar L. P. : Transport in Modern India (Kishore Publishing House - Kanpur)
7. Prasan Amba : Indian Railways (Asia Publishing House)
8. Dhenckey M. R. : Air Transport in India Growth and Problems (Vora & Co. - Mumbai)
9. Roa K. L. : India's Water Wealth (Orient - Longmans)
10. Wadia D. N. : Minerals of India (National Book Turst)
11. Dubey R. N. : Economic Geography of India.
12. Singh Josbir : Agricultural Atlas of India.
13. Centre ofr Science & Environment (1988) State of India's Environment (New Delhi).
14. Deshpande C. D. : India a Regional Interpretation (ICSSR & Northern Book Centre - 1992)
15. Hrtha R & Gopal Krishna : Emerging India (Reprinted by Rawal Publications Jaipur-1996).
16. Das P. K. : The Monsoons (National Book Turst)

**Subject: Geography**  
**Course (Paper) Name & No : Philosophy of Geographic Thought Paper No-3**

Course (Paper) Unique Code ELECTIVE-1 1601300202010100  
**Course Exam Time Duration : 45 Lectures**

Name of Course	Semester	Core/ Elective/ Practical	Paper Code	Paper Title	Credit	Internal Marks	External Marks	Practical/ Viva/ Exam. Marks	External Exam. Time Duration
M. A.	1	Elect		Philosophy of Geographic Thought	3	30	70	Exam. Marks 100	2.15 hrs

**Course Objectives:**

This introductory paper is intended to acquaint the students with distinctiveness of geography as a field of learning in social science as well as in natural science. The philosophy, History and methodology of the subject is discussed in such away that students develop a keen interest in the subject and pursue it for higher studies.

**Course Content**

**Unit-1**

Geography as a scientific discipline, science and Philosophy of geography, Basic concept of Geography, Dualism and Dichotomy - Dualism in geography. Environmental Determinism ,Possibilism, Neo-Determinism and Probablism,

**Unit-2**

Contribution of classical geographers Greeks and Roman Geographers (600-BC to 300 AD), Early Medieval Geographers and contributions by Arab Geographers (300 AD to 1200 AD),Late Medieval Geographers –Renaissance (About 1250 AD to 1700 AD )

**Unit-3**

18<sup>th</sup> Century Geography, Politic –Statistical Geography , Reine Geography , Scientific Methods, Philosophical Methods and Classification of Geography, Geographers of the 19<sup>th</sup> Century, Classical period of Geography,

**Unit-4**

German School of Geographic Thought , French school of Geographic Thought. The British, The American and the soviet schools of Geography.

Recent trends -1950 onwards - change in methodology and explanation, quantitative revolution, Development of laws, theories and models (Concentric Zone Theory, Von Thunen Theory ,Walter Christaller`s Theory) .

**Suggested Readings :**

1. Abler, R., Almae, J., and Guld P. 1972, Spatial Organization-Prentice Hall.
2. Ackerman, E. A., 1965. The Science of Geography, Washington.
3. Ali, S. M.; \_\_\_\_\_ Geography, Aligarh Mulsim University Press-Aligarh.
4. Ali, S. M., The Geography of Paranas. Aligarh.
5. Banbary, E. H., 1883. A History of Aneicat Geography, Methuen, London.
6. Davies, W. K., 1972. Conceptual Revolution in Geography, London.
7. Dickinson, R. E., 1969, The Makers of Modern Geography, Routlege and Kegan Paul, London.
8. Freeman, T. W., 1961, A Hundred Years of Geography, London.
9. Harvey D., 1969, Explanation in Geography, Arnold.
10. Harvey, M.E. and Holly, B. P. 1983, Themes in Geographic Thought, London.
11. Chorley and Haggett, (eds.) 1967, Models in Geography, Methuen, London.
12. Hartshorne, 1961, The Nature of Geography, Lancaster.
13. James, P. E., 1972, All possible Worlds : A History of Geographical Ideas, New York.
14. James, P. E. and Jones, C. E. (eds.) 1954, American Geography : Inventory and Prospect, Association of American Geographers, Washington.
15. Johnston, R. J., 1983, Geography and Geographers, Arnold-Heinamann, London.
16. Kimble, G.H.T., 1952, Geography 'During the Middle Ages; 'University Press, London.
17. Minshull, R. 1970, The Changing Nature of Geography, London.
18. Mandal, R. B., Recent Trends in Geography, Concept, New Delhi.
19. Taylor, G., Geography in the 20th Century, Methuen.
20. Wooldridge, S. W. 1951. The Geographer as scientist, T. Nelson, London.
21. Wooldridge, and East, 1955, The Spirit and Purpose of Geography, Hutchinsion, London.
22. Board, C. and other; 1959, Progress in Geography, vol. I to IX, Edward Arnold, London.
23. Majid Hussin, 1990, Evolution of Geographical Thought, (If Edition), Rawat Publications, Jaipur

**Subject: Geography**  
**Course (Paper) Name & No : Urban Geography Paper No-4**

Course (Paper) Unique Code ELECTIVE-2 1601300302010100

Course Exam Time Duration : 45 Lectures

Name of Course	Semester	Core/ Elective/ Practical	Paper Code	Paper Title	Credit	Internal Marks	External Marks	Practical/ Viva/ Exam. Marks	External Exam. Time Duration
M. A.	1	Elect		Urban Geography	3	30	70		2.15 hrs

**Course Objectives:**

The objectives of this course is to make the students understand the process of urbanization and origin, growth and classification of urban settlements with relevant theories and models; Examine the changing economic base and structure of the contemporary cities; Relate urbanization process and the evolution of urban system; Examine the contemporary urban issues and suggest new urban planning and urban policy perspectives.

**Course Content:**

**Unit - I:**

Urban geography: Meaning, definition and scope of urban geography, Relationship of urban geography with other disciplines. Approaches to the study of urban geography.

**Unit - II:**

Urban growth: Factors affecting origin and evolution of urban, stages of urban growth. Site and situation of urban: Meaning and essential elements of site and situation, Factors affecting the site and situation of urban, classification of the site and situation of urban. Central place theory of chris taller, theories of urban internal structure (concentric zone theory, sector theory and multiple nuclei theory)

### **Unit - III:**

Urban morphology: Definition, constituents and factors affecting urban morphology, types of urban layout plan, problems of improvement and reconstruction of urban layout, outer Shape of urban. Urban Planning: meaning, definition and aims of urban planning, types of urban planning, Concepts of urban planning, urban planning in India.

### **Unit - IV:**

Urban Problems: environmental, transport, water, electricity, healthy and other.

Urban Slums: Definition, characteristics and responsible factors the Slums, effects and remedy of slums.

### **Selected Readings**

1. Alam, S. M. : Hyderabad-Secunderabad Twin Cities Asia Publishing House, Bombay, 1964.
2. Berry, B.J.L. and Horton F.F. Geographic Perspectives on Urban Systems, Prentice Hall, Englewood Cliffs, New Jersey, 1970.
3. Carter : The Study of Urban Geography, Edward Arnold Publishers, London, 1972.
4. Chorley, R. J. O., Haggett P. (ed.) : Models in Geography, Methuen, London, 1966.
5. Dickinson, R. E. : City and Region, Routledge, London, 1964.
6. Dwyer, D. J. (Ed.). The City as a Centre of Change in Asia, University of Hong Kong Press, Hongkong, 1971.
7. Gibbs J. P. : Urban Research Methods D. Van Nostrand Co. Inc. Princeton, New Jersey, 1961.
8. Hall P. : Urban and Regional Planning, Routledge, London, 1992.
9. Hauser, Philip M. and Schnore Leo F. (ed.) : The Study of Urbanization, Wiley, New York, 1965.
10. James, P. E. and Jones C. F. (eds.) : American Geography, Inventory and Prospect, Syracuse University Press, Syracuse, 1954.
11. Kundu, A. : Urban Development and Urban Research in India, Khanna Publication, 1992.

12. Meyor, H. M. Kohn C. F. (eds.) : Readings in Urban Geography, University of Chicago Press, Chicago, 1955.
13. Mumford, L : Culture of Cities, McMillan & Co. London, 1958.
14. Nangia, Sudesh Delhi Metropolitan Region : A study in settlement geography, Rajesh Publication, 1976.
15. Rao V.L.S.P. : Urbanisation in India : Special Dimensions, Concept Publishing Co. New Delhi Concept, New Delhi.
16. Rao V.L.S.P. : The Structure of an Indian Metropolis : A study of Bangalore Allied Publishers Bangalore, 1979.
17. Singh K and Steinberg F. (eds.) : Urban India in Crisis, New Age Interns, New Delhi, 1998.
18. Smailes A. E. : The Geography of Twons, Hutchinsonson, London, 1953.
19. Tewari, Vinod, K, Jay A. Weinstein, VLS Prakasa Rao (editors) Indian Cities : Ecological Prespectives Concept 1986.

**Subject: : Geography**  
**Course (Paper) Name & No : Advanced Cartography (Practical) Paper No-5**

Course (Paper) Unique Code PRACTICAL 1601300602010100

Course Exam Time Duration : 45 Lectures

Name of Course	Semester	Core/ Elective/ Practical	Paper Code	Paper Title	Credit	Internal Marks	External Marks	Practical/ Viva/ Exam. Marks	External Exam. Time Duration
M. A.	1	Pract		Advanced Cartography	6	-	100	70+30	5 hrs

**Note :**

1. One practical of Five hours duration.
2. The Course shall be covering three practical sessions per week. Each practical session shall of two periods each period of 1(one) hours.
3. Diagramic Representation of Statistical Data using population, agriculture, industry and transportation data

**Course Content**

**Unit-1 –**

Cartography – Nature and Scope , Scales - Concept and application, Conversion of Scale, Representative Fraction, Construction of Plain, Comparative and Diagonal Scales.

**Unit -2**

Relief and Climatic Diagrams –Cross Profile , Long Profile, Indivisibility of Terrain Study and Exercise on Contour Maps-Slope and Gradients. Profiles: i) superimposed ii) projected iii) composite iv) longitudinal profile v) Transverse Profile

**Unit-3**

Introduction to Survey of India (SOI) Toposheet, Numbering , Scale, Grid Reference, Signs and Symbols , Study and Interpretation of SOI

**Unit -4**

Field report Recorded in Journal. & viva-Voce

**Note-**

- 1 Candidate shall record their practical working the journal and the journal duly certified by the professor In -charge and the certificate should be produced at the time of examination. Candidates who have no journal or completed the

practical should not be appear at the Examination.

- 2 Draw and interpretation of diagrams and use
3. 100 marks Paper external, paper no internal marks.
4. Scheme of Evolution yearly
  - a) Practical Exam-70
  - b) Viva-Voce and journal - 20+10=30 Marks
  - c)Time -5 Hours

**Suggested Readings :**

1. Singh. R.L: Elements of Practical Geography
- 3 Misra R. P. : Fundamentals of Cartography (Prasaranga University- Maysore)
4. Singh and Dutt : Elements of Practical Geography (Students friend - Allahabad)
5. Monkhouse and Wikinson : Maps and Diagrams (Methuen)
6. Birch T. W. : Geographical and Statistical Maps (Oxford University Press)

**Subject: : Geography**  
**Course (Paper) Name & No : Principals of Geomorphology-II Paper No-6**

Course (Paper) Unique Code CORE 1601300102020300

**Course Exam Time Duration : 45 Lectures**

Name of Course	Semester	Core/ Elective/ Practical	Paper Code	Paper Title	Credit	Internal Marks	External Marks	Practical/ Viva/ Exam. Marks	External Exam. Time Duration
M. A.	2	Core		Principals of Geomorphology-II	4	30	70		2.15 hrs

### **Course Objectives**

The objective of the course is to familiarize the students with the need for understanding of geomorphology with reference to certain fundamental concepts, focusing on Denudational process, Weathering and Erosional process of geomorphology in the earth materials and the processes with or without an elements of time process component. Geomorphology is segmented into the internal and external processes of landscape evolution.

### **Course Content**

#### **Unit-1**

Denudational processes- weathering, Types of Weathering-Physical, Chemical and Biological, Erosion and mass wasting, Mass Movement-Slides, Falls, Flow and Creep. The Concept of cycle of Erosion- Penk's, Davis, Slope development-Views of Davis, Penk's, Wood and King

#### **Unit-2**

Fluvial Processes (River)-Drainage Basin and Drainage Patterns, Mechanisms of Erosion, Transportation and Deposition, Erosional Landforms, Depositional landforms

#### **Unit-3**

Glacial Processes –Types of Glaciers, Mechanisms of Erosion, Transportation and Deposition, Erosional Landforms, Depositional landforms

Karst Process- Mechanisms of Erosion, Transportation and Deposition, Erosional Landforms, Depositional landforms

#### **Unit-4**

Arid and semi Arid Process(Wind)- Landforms produced by Water and wind in the Desert, Concept of Pediplaination. Mechanisms of Erosion, Transportation and Deposition.

Sea waves Coastal Process- Machines of Erosion, Transportation and Deposition ,  
Erosional Landforms, Depositional landforms

### **Suggested Readings**

- 1.Chorleghy, R. J. : Spatial Analysis in Geomorphology, Methuen, London, 1972.
- 2.Cooke, R. U. and Doornkamp, J. C. : Geomorphology in Environmental Management - A Introduction, Clarendon Press, Oxford, 1974.
- 3.Dury, G. H. : The Face of the Earth, Penguin Harmondsworth, 1959.
- 4.Fairbridge, R. W. Encyclopeida of Geomorphyology, Reinholdts, New York, 1968.
- 5.Goudie, A. : The Nature of the Environment, Oxford & Blackwell, London, 1993.
- 6.Garner, H. F. : The Origin of landscape - A Synthesis of Geomorphology, Oxford University Press, London, 1974.
- 7.Mitchell, C. W. : Terrain Evaluation, Longman, London, 1973.
- 8.Ollier, C. D. : Weathering, Longman, London, 1979.
- 9.Pitty, A. F. Introduction to Geomorphology, Methuen, London, 1971.
- 10.Stoddart, D. R. (ed.) : Process and Form in Geomorphology, Routledge, New York, 1996.
- 11.Skinner, B. J. & Porter, S.C. : The Dynamic Earth John Wiley, New York, 1995.
- 12.Sparks, B. W. Geomorphology, Longaman, London, 1960.
- 13.Sharma, H. S. (ed.) : Perspectives in Geomorphology, Concept, New Delhi, 1980.
- 14.Singh, S.: Geomorphology, Prayag Publication, Allahabad, 1998.
- 15.Thorunbury, W. D. Principles of Geomorphology, John Wiley, New York, 1960.

**Subject: : Geography**  
**Course (Paper) Name & No : Regional Geography of India-II Paper No-7**  
**(Socio-Economic Division)**

Course (Paper) Unique Code CORE 1601300102020400

Course Exam Time Duration : 45 Lectures

Name of Course	Semester	Core/ Elective/ Practical	Paper Code	Paper Title	Credit	Internal Marks	External Marks	Practical/ Viva/ Exam. Marks	External Exam. Time Duration
M. A.	2	Core		Regional Geography of India-II (Socio-Economic Division)	4	30	70		2.15hrs

### **Course Objectives**

The course is aimed at presenting a comprehensive , integrated and empirically based profile of India. The objective is highlight the agricultural, Industrial and socio-economic aspects on the basis of various linkages of India and regional development.

### **Course Content**

#### **Unit-1**

Agriculture-Principal crops (Rice, Wheat, Maize, Sugarcane, Groundnut, Tea, Coffee, Cotton, Jute, Rubber, Tobacco and cropping regions, Agro-climatic Zones; agro-ecological regions,

#### **Unit-II** Industrialization and Major Industries, Industrial development during the plans

- (i) iron and steel industries, Aluminum, Copper, Lead.
- (ii) Cotton, Jute, Silk, Woolen
- (iii) Heavy Mechanical Engineering, Electronic and information Technology (IT).
- (iv) Petrochemical, Fertilizer Drug and Pharmaceutical, Plastic, Cement , Paper.
- (v) Sugar Industry, Agro based Industries etc.

Industrial regions of India, New Industrial Pockets, special economic zones, tourism and its types.

#### **Unit-3** Population Growth and Distribution; Ethnic Diversity, Language, Religious structure Density, Composition, Occupational Structure,

#### **Unit-4**

Road, railways, airways and pipe line network and there complementary roles in regional development, Trade policy, Export Processing Zones. Development of communication and information technology.

**Suggested Readings :**

1. Singh R. L. : India-A Regional Geography (National Geographical Society India Varansasi-1971)
2. Agarwal G. N. : India's Population Problems (Tata-Mc Graw Hill Co.)
3. Spate OHK & ATA : Learmonth - India & Pakistan (Methuen London-1967)
4. Sharma T. C. : Economic and Commercial Geography of India (Vikas Publishing House Pvt. Ltd.)
5. Sinha B. M. : Industrial Geography of India (World Press Pvt. LTd. Calcutta)
6. Bharangar L. P. : Transport in Modern India (Kishore Publishing House - Kanpur)
7. Prasan Amba : Indian Railways (Asia Publishing House)
8. Dhenckey M. R. : Air Transport in India Growth and Problems (Vora & Co. - Mumbai)
9. Roa K. L. : India's Water Wealth (Orient - Longmans)
10. Wadia D. N. : Minerals of India (National Book Turst)
11. Dubey R. N. : Economic Geography of India.
12. Singh Josbir : Agricultural Atlas of India.
13. Centre ofr Science & Environment (1988) State of India's Environment (New Delhi).
14. Deshpande C. D. : India a Regional Interpretation (ICSSR & Northern Book Centre - 1992)
15. Hrtha R & Gopal Krishna : Emerging India (Reprinted by Rawal Publications Jaipur-1996).
16. Das P. K. : The Monsoons (National Book Turst)

**Subject: : Geography**  
**Course (Paper) Name & No : Bio-Geography Paper No-8**

Course (Paper) Unique Code ELECTIVE-1 1601300202020200

**Course Exam Time Duration : 45 Lectures**

Name of Course	Semester	Core/ Elective/ Practical	Paper Code	Paper Title	Credit	Internal Marks	External Marks	Practical/ Viva/ Exam. Marks	External Exam. Time Duration
M. A.	2	Core		Bio-Geography	4	30	70		2.15 hrs

**Course objectives-**

The purpose of this paper is to appraise the students of the interrelationships among the living organisms within the environment and the importance of conservation of biosphere and biodiversity.

**Course contain**

**UNIT I**

Biogeography: Nature, Scope, Significance, Approaches, History, Recent Development; Concept of Ecology, Ecosystem, Succession and Ecological Adaptation.

**UNIT II**

Historical Evolution of Plants and animals; pattern and causes of plant and animal distribution; Major plant formations of the tropics- forests, grasslands, deserts, mangroves; Bio geographical regions of world and India.

**UNIT III**

Biodiversity: concept and significance; Biodiversity and global climatic change; Plaeobotanical and plaeo climatological records of environmental change in India; Biogeography of the seas and islands.

**UNIT IV**

Conservation of wildlife and forests, soil conservation of forestation, reforestry, social forestry, National forest policy of India; International and national efforts for conserving biological resources; Biosphere reserves;

### **Suggested Readings :**

1. M.J.Bradshaw: Earth and Living Planet, ELBS, London,1979.
2. C.B.Cox and P.D. Moore: Biogeography: An Ecological and Evolutionary Approach, 5<sup>th</sup> Edition . Blackwell,1993.
3. J.B.Hogt: Man and the Earth,Prentice Hall,USA,1992.
4. R.J.Huggett: Fundamentals of Biogeography, Routledge,USA,1998.
5. B.M.Bansereau: Bio-geography-An Ecological Perspective, Ronald Press, New York,1957.
6. T.Joy: Bio-geography: A Study of Plants in the Ecosphere, Oliver & Boyd, Edinburgh,1977.
7. M.S.Masi (Ed): Bio-geography of India,The Hogue,1975.
8. C. Martin: Plant Geography,Methuen, London,1975.
9. H.S.Mathur: Essentials of Bio-geography,Any Printers,Jaipur,1998.
10. N.Pears: Basic Bio-geography, Education,Longman, London,1985.
11. H Robinson: Bio-geography,Mc Donald, London,1982
12. G.H.Smith: Conservation of Natural Resources,Wiley & Sons, London,1962.
13. H.A.Viles: Bio-geomorphology, Oxford Basil Blackwell, 1988.
14. S.S.Negi: Biodiversity and its Conservation in India: Indus Publishing Co. New Delhi,1993.
15. J.H.Brown and A.C.Gibson: Biogeography, St. Louis, Mesby,1983.
16. B.Seddon: Introduction to Bio-geography, Duckworth, London,1971.

**Subject: : Geography**  
**Course (Paper) Name & No : Resource Geography of Gujarat Paper No-9**

Course (Paper) Unique Code ELECTIVE-2 1601300302020200

**Course Exam Time Duration : 45 Lectures**

Name of Course	Semester	Core/ Elective/ Practical	Paper Code	Paper Title	Credit	Internal Marks	External Marks	Practical/ Viva/ Exam. Marks	External Exam. Time Duration
M. A.	2	Elect		Resource Geography of Gujarat	3	30	70		2.15 hrs

### **Course objectives**

The objective of this paper is to provide an overview of resource of Gujarat and its interface with environment. The course aims to provide an understanding of the existing reality of resource utilization and environmental depletion; further aims to sensitize the students to the concept of sustainable resource use and sustainable development.

### **Course Contents:**

#### **Unit - I:**

Meaning of resources, Resource creating factors.

Water resources: Major Rivers and multipurpose irrigation projects in Gujarat.

#### **Unit - II:**

Forest resources: Types, distributions and utility in Gujarat.

Animal resources: Major types of animals in Gujarat and its products - milk, milk products, wool, meat.

#### **Unit - III:**

Mineral resources: Importance and distribution in Gujarat (Fluorspar, Limestone, Bauxite and China clay)

Conventional and non conventional energy resources sources in Gujarat, Importance and utility emerge in Gujarat. (Lignite, Mineral oil, Natural gas, solar, wind and biogas)

**Unit - IV:**

Human resource: Growth, density and distribution. Conservation of resources,  
Resource regions of Gujarat, Resources related problems in Gujarat.

**Suggested Readings:**

- 1) દવે મંજુલાબેન બી.: ગુજરાતની આર્થિક અને પ્રાદેશિક ભૂગોળ (યુનિ. ગ્રંથ નિર્માણ બોર્ડ, અમદાવાદ)
- 2) સી. સી. ડોક્ટર: ગુજરાતની વસ્તી (યુનિ. ગ્રંથ નિર્માણ બોર્ડ, અમદાવાદ)
- 3) નકશામાં ગુજરાત: (યુનિ. ગ્રંથ નિર્માણ બોર્ડ, અમદાવાદ)
- 4) Dikshit K.R. Geography of Gujarat (National Book Trust of India)
- 5) Spate O.H.K. India and Pakistan.
- 6) Kapadia – Animal Life in Gujrat.
- 7) Bhatt – Ports of Gujarat.
- 8) Statistical Beaur Government of Gujarat – Statistical Atlas of Gujarat.

**Subject: : Geography**  
**Course (Paper) Name & No : Advanced Cartography-II (Practical) Paper No -10**

Course (Paper) Unique Code PRACTICAL 1601300602020200  
**Course Exam Time Duration : 45 Lectures**

Name of Course	Semester	Core/ Elective/ Practical	Paper Code	Paper Title	Credit	Internal Marks	External Marks	Practical/ Viva/ Exam. Marks	External Exam. Time Duration
M. A.	2	Practical		Advanced Cartography-II	6	-	100	70+30	5 hrs

### Course Objective

The objectives of this course are to train the student in the art of representing demographic and Socio-economic data base o any area through simple statistical techniques and cartograms. The techniques and map projections necessary for accurate geographical positioning and preparing physical plans of an area also form parts of the practical exercise. This course thus train the preparing different types of Cartographic maps and Cartograms diagrams

### Note :

1. Practical's each of Five hours duration.
2. The Course shall be covering three practical sessions per week.  
Each practical session shall of two periods each period of 1(one) hours.
3. Diagramic Representation of statistical Data using Climatic ,population, agriculture, industry and transportation data

### Unit-1 –

Representation of Statistical Data-  
 Compound Bar Graph , Compound Pyramid, Divided Rectangle, Pie Diagram, Wind rose, Triangular graph- (three variables) ,Cumulative graph , Deviational graph , Scatter diagram

### Unit -2

Mapping of Climatic, Socio –Economic Phenomomena  
 Dot method , Bar Graph ,Pie Diagram, Block Diagram, Circle ,Sphere ,Chloropleth map , Isopleth Map ,Flow Chart relevance to distribution

**Unit-3**

Indian daily Weather report- Weather Elements and Weather Instruments, Weather Signs and Symbols, Study and Analyses of weather Reports.

**Unit-4** Field Toor

Recorded in Journal. & viva-Voce

**Note-**

1. Candidate shall record their practical working the journal and the journal duly certified by the professor in charge and the certificate should be produced at the time of examination. Candidates who have no journal or completed the practical should not be appear at the Examination.
2. There shall be one Practical's Session of five hours duration.
3. 100 marks Paper external, paper no internal marks.
4. Scheme of Evolution Semesters wise
  - Practical Exam-70
  - Viva-Voce and journal - 20+10=30 Marks
  - Time -5 Hours

**Suggested Readings :**

1. Singh. R.L: Elements of Practical Geography
- 3 Misra R. P. : Fundamentals of Cartography (Prasaranga University- Maysore)
4. Singh and Dutt : Elements of Practical Geography (Students friend - Allahabad)
5. Monkhouse and Wikinson : Maps and Diagrams (Methuen)
6. Birch T. W. : Geographical and Statistical Maps (Oxford University Press)

**Subject: : Geography**  
**Course (Paper) Name & No : Climatology Paper No-11**

Course (Paper) Unique Code CORE 1601300102030500

**Course Exam Time Duration : 45 Lectures**

Name of Course	Semester	Core/ Elective/ Practical	Paper Code	Paper Title	Credit	Internal Marks	External Marks	Practical/ Viva/ Exam. Marks	External Exam. Time Duration
M. A.	3	Core		Climatology	4	30	70		2.15 hrs

### **Course Objectives:**

The objectives of this course is to make the students.

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 Contents:**

#### **Unit-1**

Climatology -Definition and Scope, Sub divisions of Climatology and Meteorology and Climatology. Insolation, factors affecting the Insolation and distribution of Insolation, Heat Budget of the Earth. Temperature, Controls of temperature, distribution of temperature, Temperature Inversions, Methods of Heating and Cooling of Atmosphere.

#### **Unit-2**

Temperature Zone, Pressure Belts, Factor effecting the Pressure, Distribution of Atmospheric pressure.

Condensation and Precipitation – Types, Factors affecting Rainfall and World Distribution of Rainfall, Mechanism of monsoon.

#### **Unit-3**

Types of Air masses and Fronts - its properties, Atmospheric disturbances: Cyclones and its kind, (tropical and temperate cyclones) Climatic classification; basis of Koppen's classification and types - distribution, Characteristics.

#### **Unit-4**

Global climatic Change, Role of Man in World Climatic Change, Consequences of Climatic Change , Applied Climatology; Clothing, Health, Architecture, Agriculture, Industries, Tourism and Transport.

**Suggested Reading.**

1. પ્રા. મહેન્દ્રકુમાર આર. શાહ અને પ્રા. કાનજીભાઈ એન. જસાણી : ભૌતિક ભૂગોળ, ગુજરાત ગ્રંથ નિર્માણ બોર્ડ.
2. Barry, R. G. and Chorley P. J. : Atmosphere, Weather and Climate, Routledge, London and New York, 1998.
3. Critchfield, J. H. : General Climatology, Prentice Hall, India, New Delhi, 1993.
4. Das, P. K. : Monsoons National Book Trust, New Delhi, 1987.
5. Fein, J. S. and Stephens, P. N. : Monsoons, Wiley Interscience, 1987.
6. India Met. Deptt. : Climatological Tables of Observatories in India, Govt. of India, 1968.
7. Lal, D. S. : Climatology, Chaitanya Publications, Allahabad, 1986.
8. Lydolph, P. E. : The Climate of the Earth, Rowman, 1985.
9. Menon, P. A. : Our Weather, N.B.T., New Delhi, 1989.
10. Peterson, S. : Introduction of Meteorology, Mc Graw Hill Book, London, 1969.
11. Robinson, P. J. and Henderson S. : Contemporary Climatology, Henlow, 1999.
12. Thompson, R. D. and Perry, A (ed.) : Applied Climatology, Principles and Practice, Routledge, London, 1997.

**Subject: : Geography**  
**Course (Paper) Name & No : Geography of Natural Hazards Management Paper No-12**

Course (Paper) Unique Code CORE 1601300102030600

Course Exam Time Duration : 45 Lectures

Name of Course	Semester	Core/ Elective/ Practical	Paper Code	Paper Title	Credit	Internal Marks	External Marks	Practical/ Viva/ Exam. Marks	External Exam. Time Duration
M. A.	3	Core		Geography of Natural Hazards Management	4	30	70		2.15 hrs

### Course Content

To introduce student to the study of Natural Hazards and men's role in its causes. Its information and their application Prediction, Control Measures and Planning for Natural Hazards.

#### UNIT I

Types of natural hazards-Earthquake, Tsunamis, Volcanic eruptions, Landslides, Avalanches, Floods, famines and Droughts, Cyclones, Distribution of natural hazards;

#### UNIT II

Hazard prone areas of the world and India; Man's role in natural hazard.

Natural Hazards in India: Seismic zones, Tsunamis, Landslides prone areas, Flood prone areas, Drought prone areas;

#### UNIT III

Damager due to natural hazards in India; Some natural hazards of recent history- Earthquake- Koyna, Uttarkashi, Bhuj ; Tsunamis of 2005. Landslides in the Garhwal Himalays; Floods of the Ganga valley; Cyclones along Orissa Coast; Drought prone areas of India.

#### UNIT IV

Management of Natural Hazards- Prediction of natural hazards; Control measures for natural hazards; Planning for natural hazards- (a) long-term policy.

### Recommended Books:

1. C.Enbleton: Natural Hazards and Global Change, I.T.C. Journal, 1989, 3/4, pp. 169-178.
2. W.J.Petak and A.D.Atkinson: Natural Hazard Risk Assessment and Public Policy,

Spinger-Verlay,New York,1982.

3. L. Tianch: Landslide Hazard Mapping and Management in China, ICIMOD, Nepal,1996.

4. K.S.Valdiya: Environmental Geology,Tata Mc Graw Hill Co.Ltd.New Delhi,1987.

5. Q.Zareba and V. Mance : Landslides and their Control, Elsevier Amsterdam,1969.

6. G.F.White (Ed): Natural Hazards: Local ,National,Global, Oxford University Press,London,1974.

7. H.K.Gupta: Dans and Earthquakes,Elsever, Amsterdam,1976.

8. I.Burton et al: The Environment as Hazard, O.P.U. New York,1978.

9. B.A.Bolt et al (Ed):Geological Hazards,Spinger Verlay,New York,1950.

**Subject: : Geography**  
**Course (Paper) Name & No : Remote Sensing and Geographical Information System (GIS) Paper No -13**

Course (Paper) Unique Code ELECTIVE-1 1601300202030300  
**Course Exam Time Duration : 45 Lectures**

Name of Course	Semester	Core/ Elective/ Practical	Paper Code	Paper Title	Credit	Internal Marks	External Marks	Practical/ Viva/ Exam. Marks	External Exam. Time Duration
M. A.	3	Core		Remote Sensing and Geographical Information System (GIS)	4	30	70		2.15 hrs

**Course Contain**

To introduce

- To the students the basic Principals of Air Photograph, Remote Sensing & Geographical Information System (GIS).
- To Indicate the fundamentals of Visual and Digital Interpretation of Satellite Images ,
- To outline the application value of Air Photo, Remote Sensing & GIS

**UNIT I**

Aerial photograph -Definitions and concepts; aerial cameras and aerial photographs, Geometry of aerial photographs, scale of aerial photographs; image displacement; measurement of height differences, Air photo interpretation,

**UNIT II**

Remote Sensing – definition, types and historical development; Process and stages of Remote sensing , Electromagnetic waves, Basic Principles of Thermal Remote sensing and characteristics of Indian Remote Sensing Imageries .

**UNIT III**

Platforms of Remote Sensing , Remote Sensors, satellite , Application of Remote Sensing , Advantage of Remote Sensing And Digital Image Processing, Remote Sensing Programmes of India.

## UNIT IV

Geographical Information System (GIS)-Meaning , Definition, Importance, Objectives, Development and Elements , Data Model and Structure, Remote Sensing & Data Integration , Applications and Error

### **Suggested Reading.**

1. F.F. Sabins (Jr) Remote Sensing: Principles and Interpretations, John Wiley and sons, New york,1987.
2. J.R.Jenson: Digital Image Processing.
3. P.R.Wolf: Elements of Photogrammetry.
4. T.M. Lillesand and R.W. Keifer : Remote Sensing and Image Interpretation, John Wiley and Sons, New York, 1979.
5. American Society of Photogrammetry: Manual of Photogrammetry, 3<sup>rd</sup> Ed. Verginia 1966.
6. American Society of Photogrammetry: Manual of Remote Sensing,Verginia 1975.
7. T.E.Avery and G.L.Berlin: Fundamentals of Remote Sensing and Airphoto Interpretation, 5<sup>th</sup> Ed. Mac Millan, Publishing co. New York 1983.
8. P.J.Curran: Principles of Remote Sensing; ELBS Edn.Longman Hong Kong 1988.
9. Robert G.Reeves (Ed): Manual of Remote Sensing ( 2 vols),The American Society of Photogrammetry.
10. R.N.Colwell (Ed): Manual of Remote Sensing,2<sup>nd</sup> Ed. Falls Chuch Va: American Society of Photogrammetry,1983
11. J.Campbell: Introduction to Remote Sensing, Guilford, New York.
12. R.M.Hard: Gigittal Image Processing of Remotely Sensed Data, Academic Press,New York.
13. C.P.Lo: Applied Remote Sensing, Longman ,Scientific and Technical

**Subject: : Geography**  
**Course (Paper) Name & No : Geography of Population Paper No -14**

Course (Paper) Unique Code ELECTIVE-2 1601300302030300

**Course Exam Time Duration : 45 Lectures**

Name of Course	Semester	Core/ Elective/ Practical	Paper Code	Paper Title	Credit	Internal Marks	External Marks	Practical/ Viva/ Exam. Marks	External Exam. Time Duration
M. A.	3	Elect		Geography of Population	3	30	70		2.15hrs

### **Course Contain**

The course is meant to provide an understanding of Spatial and Structural dimensions of Population and the end the immersing issues.

The course is further aimed at familiarizing the students with global and regional level problems and also equip them for Comprehending the Indian situation.

#### **Unit-1**

Population Geography -Scope and objectives, development of population, population geography , Theories in population, distribution and growth, world pattern and their determinates, Factors affecting to distribution population, density and growth patterns, concepts of under-population and over population.

#### **Unit-2**

Population composition.-Age and sex, family and households, literacy and education, religion, caste and tribes, rural and urban, occupational structure gender issues;

#### **Unit-3**

Population Dynamics ,Measurement of Fertility and Mortality, Migration - Types of Migration, National and international etc.

#### **Unit-4**

Population and development- Population resource regions, regions and levels of population and socio-economic development, India's population policies.

Population issues and policies.

### **Suggested Readings**

1. Bilasborrow, Richard E and Daniel Hogan, Population and Deforestation in the Humid Tropics, International Union for the Scientific Study of Population, Belgium 1999.
2. Bogue, D. J. Principles in Demography, John Wiley, New Yourk 1969.
3. Bose, Ashish et. al. : Population in India's Development (1947-2000); Vikas Publishing House, New Delhi 1974.
4. Census of India, India : A Sate Profile, 1991.
5. Chandna, R. C. Geography of Population; concept, Determinants and Patterns. Kalyani Publishers, New York 2000.
6. Clarke, John I., Population Geography, Pergamon Press, Oxford 1973.
7. Crook, Nigel Principles of Population and Development. Pergmon Press, New York, 1997.
8. Daugherty, Helen Gin, Kenneth C. W. Kammeyir, An Introduction to Population (Second Edition), The Guilford Press, New York, London 1998.
9. Garnier, B. J. Geography of Population Longman, London, 1970
10. Kochhar, Rajesh, The Vedic People : Their History and Geography Orient Longman Ltd., New Delhi 2000.
11. Mamoria C. B. India's Population Problem, Kitab Mahal New Delhi 1981.
12. Mitra, Ashok, India's Population : Aspects of Quality and Control. Vol. I & II, Abhinar Publications, New Delhi 1978.
13. Premi M. K., India's Population : Heading Towards a Billion, B. R. Publishing Corporation, 1991.
14. Srinivasan K. and M. Vlassoff, Population Development Nexus in India : Challenges for the New Millennium. Tata McGraw-Hill, New Delhi, 2001.
15. Srinivasan, K. Basic Demographic Techniques and Applications Sage Publications, New Delhi, 1998.
16. Sundaram K. V. and Sudesh Nangia, (ed.) Population Geography, Heritage, Publications, Delhi 1986.
17. UNDP : Human Development Report. Oxford University Press, Oxford 2000.
18. United Nations, Methods for Projections of Urban and Rural Populations, No. VIII, New York. 1974.
19. Woods R. Population Analysis in Geography. Longman, London, 1979.
20. Zelinsky Wilbur, A Prologue to Population Geography, Prentice Hall, 1966.

**Subject: : Geography**  
**Course (Paper) Name & No : Quantitative Techniques in Geography (Practical )**  
**Paper No -15**

Course (Paper) Unique Code PRACTICAL 1601300602030300

Course Exam Time Duration : 45 Lectures

Name of Course	Semester	Core/ Elective/ Practical	Paper Code	Paper Title	Credit	Internal Marks	External Marks	Practical/ Viva/ Exam. Marks	External Exam. Time Duration
M. A.	3	Pract		Quantitative Techniques in Geography	6	-	100	70+30	5 hrs

**Course objectives**

To introduce some basic statistical procedures to the students to be applied to various themes in geography.

-To indicate the assumptions, limitations and interpretation of these procedures and results.

-To train the students to handle these statistics towards analyzing the geographical problems.:

**Note:-**

1. Practical's each of Five hours duration.
2. The Course shall be covering three practical sessions per week.  
Each practical session shall of two periods each period of 1(one) hours.
3. Diagramic Representation of statistical Data using Climatic ,population, agriculture, industry and transportation data

**Course contain**

**Unit 1**

Research- Scientific methods, Problems formulation and Planning ,Hypothesis, Variables, Concepts, Types of Research, Research Procedure, Revised work Method, Data, Questionnaire, Schedule, Tabulation, Analysis of Data,

**Unit 2**

Definition of Statistics, Importance & use of statistical techniques in geography. Statistical methods - Frequency Distribution- class intervals, frequency, frequency density, cumulative and relative frequency, Histogram, Polygon,

**Unit 3**

Measures of central tendency- Calculation of mean, Grouped Data Median, Group and Un Group Data , Quartiles .

Measure of dispersion –Absolute measurements- Mean deviation , Quartile deviation, and Standard deviation.

Correlation Analysis- Karl Person's Product movement correlation coefficient – Spearman's rank order

**Note-**

1. Candidate shall record their practical working the journal and the journal duly certified by the professor in charge and the certificate should be produced at the time of examination. Candidates who have no journal or completed the practical should not be appear at the Examination.
2. There shall be one Practical's Session of five hours duration.
3. 100 marks Paper external, paper no internal marks.
4. Scheme of Evolution Semesters wise
  - Practical Exam-70
  - Viva-Voce and journal - 20+10=30 Marks
  - Time -5 Hours

**Suggested Readings**

1. Cole J.P & King, C.A.M (1968) : Quantitative Techniques in Geography. John Wiley & sons
2. Elhance, D.N.(1972): Fundamentals of Geography, Kitab Mahal
3. Gregory, S (1968) Statistical methods and the geography methods and the geographer Longman, London
4. King, L.J (1991) Stastical Analysis in Geography Prentice Hall, Englewood
5. Singh .R.L : Elements of Practical Geography

**Subject:** : **Geography**  
**Course (Paper) Name & No** : **Oceanography Paper No-16**

Course (Paper) Unique Code CORE 1601300102040700

**Course Exam Time Duration : 45 Lectures**

Name of Course	Semester	Core/ Elective/ Practical	Paper Code	Paper Title	Credit	Internal Marks	External Marks	Practical/ Viva/ Exam. Marks	External Exam. Time Duration
M. A.	4	Core		Oceanography	4	30	70		2.15 hrs

### **Course Objectives:**

The objectives of this course is to make the students

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

### **Course Contents:**

#### **Unit-1**

Nature and scope of oceanography, Relevance of oceanography in earth and atmospheric sciences: Definition of Oceanography , Distribution of land and water. Submarine relief of Ocean, Ocean floor, continental shelf, continental slope, abyssal plain, mid-oceanic and oceanic trenches.

#### **Unit-2**

Distribution of temperature and salinity of oceans and seas, Circulation of oceanic waters: waves their influence, tides and its theories their influence, currents and their influence - currents of the Atlantic, pacific and Indian Ocean.

#### **Unit-3**

Formation theories of Coral Reefs reefs and atolls, Marine deposits, types and distribution of deposits, Oceanic biological life.

#### Unit-4

Geographical important of Ocean as storehouse of resources for the future, Impact of Humans on the Marine Environment.

#### Suggested Readings

1. પ્રા. કાનજીભાઈ એન. જસાણી : સમુદ્રશાસ્ત્ર, યુનિવર્સિટી ગ્રંથનિર્માણ બોર્ડ.
2. પ્રા. મહેન્દ્રકુમાર આર. શાહ અને પ્રા. કાનજીભાઈ એન. જસાણી : ભૌતિક ભૂગોળ, યુનિવર્સિટી ગ્રંથનિર્માણ બોર્ડ.
3. Davis Richard J.A. Oceanography : An introduction to marine Environment W.M.C. Brownlowa 1986.
4. Duxbury C.A. and Duxbary B. An introduction to the world's oceans - (Brown lowa 2nd Ed. 1996).
5. Garriossn, T. : "Oceanography - An Introduction to Marine Science, Books/Cole, Pacific Grove, USA, 2001.
6. Gross, M. Grant : Oceanography, a View of the earth, Prantice - Hall Inc. New Jersey, 1987.
7. King. C.A.M. Oceanography for Geographers 1962.
8. Sharma, R.C. "The Oceans", Rajesh N. Delhi. 1985.
9. Ummerkutty, A.N.P. Science of the Oceans and Human life, NBT, New Delhi, 1985.

**Subject: : Geography**  
**Course (Paper) Name & No : Geography of Human Hazards and Management**  
**Paper No-17**

Course (Paper) Unique Code CORE 1601300102040800

**Course Exam Time Duration : 45 Lectures**

Name of Course	Semester	Core/ Elective/ Practical	Paper Code	Paper Title	Credit	Internal Marks	External Marks	Practical/ Viva/ Exam. Marks	External Exam. Time Duration
M. A.	4	Core		Geography of Human Hazards Management	4	30	70		2.15 hrs

**Course contain**

To introduce the student about the Hazards , the concept of Human Hazards and its impacts on society and nature and their application, interaction between them.

**UNIT-I**

Introduction Types of man induced hazards – physical, chemical, biological, and pollution. Man induced Physical Hazards -Cause and effects of Landslides, Soil erosion, forest fires, desertification etc.

**UNIT-II**

Biological Hazards induced by man – effects of over exploitation ,entrophication, adverse impact on biodiversity.

**UNIT-II**

Chemical Hazards Nuclear Hazards, release of toxic elements in the air, soil and water, oil spills etc.

**UNIT-III**

Population - Air pollution , source and types of pollutants, effects on nature and society, water pollution, sources, types and effects and controls , soil, solid waste, noise and cultural pollution- causes, consequences and measurements.

**UNIT-IV**

Global issue and National issues Global Warming , Effects of global warming, ozone depletion ,Carbon budgeting, Global terrorism

### Reference Books :

1. Turk J. (1985) : Introduction to Environmental Studies, Saunders, College Publication, Japan
2. Singh Savindra (2000) : Environmental Geography, Parag Pustak Bhavan, Allahabad
3. Morrisawa M (Ed) (1994) : Geomorphology and Natural Hazards, Elsevier, Amsterdam
4. Hart M. G. (1986) : Geomorphology, Pure and Applied, George Allen and Unwin, London
5. Valdiya K. S. (1987) : Environmental Geology, Tata McGraw Hill, New Delhi
6. Bryant Edward (2000) : Natural Hazards, Cambridge University Press
7. Daly Herman E. (1996) : Beyond Growth, Beacon Press, Boston
8. Daly Herman E and Twonseed Keneth N (Ed) (1993) : Valuing the earth – Economics, Ecology and Ethics, MIT Press, London
9. Agarwal Anil and Narain Sunita (Ed) (1999) : State of India's Environment The Citizens Report, Centre for Science and Environment, New Delhi
10. Rangachari R, Sengupta Nirmal, et al (2000) : WCD Case Study Large Dams : India's Experience Final Report, Secretariate of World Commission on Dams
11. Dupont, R.R. Baxter, T.E. and Theodore, L. (1998) : Environmental Management :- Problems and Solutions, CRC Press
12. Smith, K. (2001) : Environmental Hazards : Assessing Risk and Reducing Disaster, Routledge.

**Subject: : Geography**  
**Course (Paper) Name & No : Men and Environment System Paper No-18**

Course (Paper) Unique Code ELECTIVE-1 1601300202040400

**Course Exam Time Duration : 45 Lectures**

Name of Course	Semester	Core/ Elective/ Practical	Paper Code	Paper Title	Credit	Internal Marks	External Marks	Practical/ Viva/ Exam. Marks	External Exam. Time Duration
M. A.	4	Elect		Men and Environment System	3	30	70		2.15 hrs

### **Course objectives**

The basic objectives of this course are to familiarize the students with the interrelationship between man and environment within which he lives and his linkages with other organisms. The importance of conserving biodiversity to maintain ecological balance has also been emphasized in the course. Examples of some man induced ecological changes have been highlighted and restoration measures suggested.

### **Unit-1**

Introduction- Nature and Scope of Environmental Geography - Perspective of environment relationship, Historical perspective of men – environment ,Classification of Environment-Physical, Biological, Social, Economic and Ecological etc.

### **Unit-2**

Approaches Environmental Studies -Landscape ecology, economic approach environmental approach , Hazards- Nature and causes, Pollution—Types of Pollution -Air, Water, Noise, Land, etc, Origen and Causes, Characteristics and Consequences

### **Unit-3**

Ecology-Types of ecosystem, structure and function of Ecosystem, The Water cycle, Carbon cycle, Oxygen cycle, Nitrogen cycle, Mineral cycle, Ecological Balance,

### **Unit-4**

Study of any two Ecological regions of India in relation to their plant and animal life in their relations, Environmental Planning- Approaches towards maintaining and restaring ecological balance,-Integrated environmental planning.

### **Suggested Readings**

1. Ackerman, E. A., Geography as a Fundamental Research Discipline, University of Chicago Research Papers, 1958.
2. Agarwal, A. and Sen, S. : The Citizens Fifth Report, Centre for Science and Environment New Delhi, 1999.
3. Bertalanffy, L. General Systems Theory, George Bragiller New York, 1958.
4. Bodkin, E. : Environmental Studies, Charles E. Merrill Pub. Co., Columbus, Ohio, 1982.
5. Chandna, R. C. Environmental Awareness, Kalyani Publishers, New Delhi, 1998.
6. Chorley, R. J., Geomorphology and General Systems Theory, U.S.G.S. Professional Paper, 500 B, 1962.
7. Eyre, S. R. and Jones, G.R.J. (eds.), Geography as Human Ecology, Edward Arnold, London, 1966.
8. Kormondy, E. J. : Concepts of Ecology, Prentice Hall, 1989.
9. Manners, I. R. and Mikesell, M.W. (eds.), Perspectives on Environment, Commission on College Geography. Publ. No.13, Washington, D. C., 1974.
10. Nobel and Wright : Environmental Science, Prentice Hall, New York, 1996.
11. Odum, E. P. : Fundamentals of Ecology, W. B. Saunders, Philadelphia, 1971.
12. Russwurm, L. H. and Sommerville, E. (eds.) : Man's Natural Environment - A systems Approach, Duxbury, Massachusetts, 1985.
13. Sharma, H. S. : Ranthambhore Sanctuary - Dilemma of Eco-development, Concept, New Delhi, 2000.
14. Simmons, I. G. Ecology of Natural Resources, Edward Arnold, London, 1981.
15. Singh, S. : Environmental Geography, Prayag Publications, Allahabad, 1991.
16. Smith, R. L. : Man and his Environment : An Ecosystem Approach, Harper & Row, London, 1992.
17. U.N.E.P. : Global Environmental Outlook, U. N. Pub., New York, 1998.
18. World Resources Institute : World Resources, (Latest Report) Washington D. C.
19. World Watch Institute : State of the World, (Latest Report) Washington, D.C.

**Subject: : Geography**  
**Course (Paper) Name & No : Geography of Tourism Paper No-19**

Course (Paper) Unique Code ELECTIVE-2 1601300302040400

**Course Exam Time Duration : 45 Lectures**

Name of Course	Semester	Core/ Elective/ Practical	Paper Code	Paper Title	Credit	Internal Marks	External Marks	Practical/ Viva/ Exam. Marks	External Exam. Time Duration
M. A.	4	Elect		Geography of Tourism	3	30	70		2.15 hrs

### **Course Objectives:**

The objectives of this course are:

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

### **Course Contain**

#### **Unit-I**

Definition , Nature, and Scope of Tourism, Relationship between Geography and tourism, Factors affecting Tourism.

#### **Unit-II**

Types of Tourism -Nature tourism, Heritage Tourism, Medical Tourism, Pilgrimage Infrastructure– Transport, Facilitations and Hospitality Industry and Support system for Tourism, Development and Planning for Tourism.

#### **Unit-III**

Economic, Social, physical, and Cultural impacts of Tourism, Evolution of Tourism potential.

#### **Unit-IV**

Impact of Tourism: On Economy, Environment and Society; Concept of Ecotourism Globalization and Tourism, Environmental Laws and Tourism

### **Suggested readings**

- 1.Robinson, H (1996)- A Geography of Tourism, Macdonald and Evans, London

2. Bhatia, A.K. (1996)- Tourism Development, Principles and Practices, Sterling Publisher Ltd. New Delhi
3. Bhatia, A.K. (1991)- International Tourism –fundamentals and Practices, Sterling Publisher Ltd. New Delhi
4. Das, M. (1999)- India, A tourist Paradise, Sterling Publisher Ltd. New Delhi
5. Smith, L.J.S. (2010)- Tourism Analysis, A Hand book, Halsted Press, Sydney
6. Pearce, D.G. (1987)- Tourism Today, A Geographical Analysis, Longman, Harlow

**Subject: : Geography**  
**Course (Paper) Name & No : Dissertation (Practical & Field work) Paper No-20**

Course (Paper) Unique Code CORE 1601300102040900

**Course Exam Time Duration : 45 Lectures**

Name of Course	Semester	Core/ Elective/ Practical	Paper Code	Paper Title	Credit	Internal Marks	External Marks	Practical/ Viva/ Exam. Marks	External Exam. Time Duration
M. A.	4	Practical		Dissertation	6		100	70+30	5 hrs

**Course Objectives:**

The main objective of the field work (Physical) is to conduct an extensive survey of a contiguous wider region and identify salient landforms; their genesis and their impact on human life, flora and fauna.

**(1) Dissertation (Assessment of thesis record)**

1. A candidate may write a dissertation of at text 75 to 100 types page (single space - typed pages) on any Geographical region or problems making use of cartographic techniques; field methods, statically methods and library work under the supervision of recognized post Graduate Teachers.
2. A candidate is expected to write a dissertation individually on any approved subject evincing capacity for independent investigation on geographical problems.
3. The topic and working plan of the dissertation should be finalized in the beginning of the first term of M.A. Part-II

**Note-**

1. The dissertation in three written copies (Typed with CD) should be submitted one month before the semester ends of University examination.
2. Presentation of thesis viva by modern technique.
3. No internal exam , 100 marks external exam.

**SCHEME OF EVOLUTION : ( OUT OF 70)**

- A) Evolution Dissertation : -70 Marks
- B) Seminar/Presentation/ Viva- Voce - 30 Marks

## **SAMPLE QUESTIONS**

**Note : This Paper Contains Certain Sections.**

### **Section-A**

**Note-1** :This section consists of Four essay type question of fifteen (15) marks to be answered in about one thousand (1000) words on any of the following topic.

1. This section consists of Four essay type question with internal options of fifteen (15) marks each to be answered in about one thousand (1000) words on any of the following topic. Diagrams and map wherever necessary.

(15 x 4 = 60 marks)

2. This section consists of Four short notes type question with general options of five (5) marks each to be answered five (250) words on any of the following topic. Diagrams and map wherever necessary.

(5 x 2 = 10 marks)