B.SC. SEMESTER (SYLLABUS)

2016-2017

Course Code	Title	Credits
F.Y.B.SC. (PRINCIPAL) SEMESTER - I		
GPY 1101-C01	LITHOSPHERE	02
GPY 1102-C02	INTRODUCTION TO BIOGEOGRAPHY	03
GPY 1103-C03	ELEMENTS OF MAP MAKING	03
F.Y.B.SC. (SUBSIDIARY) SEMESTER - I		
GPY1104-S01	LITHOSPHERE	02
GPY 1105-S02	INTRODUCTION TO BIOGEOGRAPHY	03
GPY 1106-S03	ELEMENTS OF MAP MAKING	03
F.Y.B.SC. (ELECTIVE – DISCIPLINE SPECIFIC) SEMESTER - I		
GPY 1107-E01	PHYSICAL GEOGRAPHY	02
GPY1108-E02	PHYSICAL GEOGRAPHY OF INDIA	02
F.Y.B.SC. (PRINCIPAL & SUBSIDIARY) SEMESTER - II		
GPY 1201-C04	HYDROSPHERE AND ATMOSPHERE	03
GPY 1202-C05	BIOGEOGRAPHY OF INDIA	02
GPY 1203-C06	STATISTICAL METHODS & SURVEYING	03
GPY 1204-S04	HYDROSPHERE AND ATMOSPHERE	03
GPY 1205-S05	BIOGEOGRAPHY OF INDIA	02
GPY 1206-S06	STATISTICAL METHODS & SURVEYING	03
F.Y.B.SC. (ELECTIVE – DISCIPLINE SPECIFIC)) SEMESTER - II		
GPY 1207-E03	HUMAN GEOGRAPHY	02
GPY 1208-E04	GEOGRAPHY OF GUJARAT	02
S.Y.B.SC. (PRINCIPAL) SEMESTER - III		
GPY 1301-C07	PHYSICAL & HUMAN ASPECTS OF INDIA	03
GPY 1302-C08	BASICS OF HUMAN GEOGRAPHY	03
GPY 1303-C09	PRACTICAL	02
S.Y.B.SC. (SUBSIDIARY) SEMESTER - III		
GPY 1304-S07	PHYSICAL AND HUMAN ASPECTS OF INDIA	04
GPY 1305-S08	BASICS OF HUMAN GEOGRAPHY	04
S.Y.B.SC. (ELECTIVE) SEMESTER - III		
GPY 1306-E05	INDIA: RESOURCES	02
GPY 1307-E06	ENVIRONMENT AND DEVELOPMENT	02
S.Y.B.SC. (PRINCIPAL) SEMESTER - IV		
GPY 1401-C10	INDIA: RESOURCES AND ECONOMIC ASPECTS	03
GPY1402-C11	HUMAN GEOGRAPHY	03
GPY 1403-C12	PRACTICAL	02

S.Y.B.SC. (SUBSIDIARY) SEMESTER - IV		
GPY 1404-S09	INDIA: RESOURCES AND ECONOMIC ASPECTS	04
GPY 1405-S10	HUMAN GEOGRAPHY	04
S.Y.B.SC. (ELECTIVE) SEMESTER - IV		
GPY 1406-E07	WATER MANAGEMENT	02
GPY 1407-E08	GEOGRAPHY OF TOURISM	02

T.Y.B.SC. – V SEMESTER (GEOGRAPHY)
(CREDITS – 24)

Course Code	Title	Credit
GPY 1501-C13	Lithosphere	04
GPY 1502-C14	Geography of South Asia	04
GPY 1503-C15	Man and Environment	04
GPY 1504-C16	Economic Geography	04
GPY 1505-C17	Practical – I	02
GPY 1506-C18	Practical – II	02
GPY 1507-F01	Practical – III	02
GPY 1508-E09	Techniques of Socio-Economic Survey – (1)	01
GPY 1509-E10	Seminar	01

T.Y.B.SC. – VI SEMESTER (GEOGRAPHY)
(CREDITS – 24)

Course Code	Title	Credit
GPY 1601-C19	Hydrosphere and Atmosphere	04
GPY 1602-C20	Geography of South Asia	04
GPY 1603-C21	Man and Environment	04
GPY 1604-C22	Economic Geography	04
GPY 1605-C23	Practical – I	02
GPY 1606-C24	Practical – II	02
GPY 1607-F02	Practical – III	02
GPY 1608-E11	Techniques of Socio-Economic Survey – (2)	01
GPY 1609-E12	Comprehensive Viva	01

F.Y.B.SC. SEMESTER – I
GPY 1101-C01 (PRINCIPAL)
GPY 1104 S01 (SUBSIDIARY)
LITHOSPHERE (02 Credits)

OBJECTIVES:
At the end of this course students will be able to:
- Understand the earth as a unit in the Solar System.
- Explain endogenetic and exogenetic processes affecting Lithosphere

Course Outline (02 Credits)

UNIT-I
- Earth, as a member of the Solar System, Rotation and revolution of the earth, Axis of the earth, Latitude, Longitude, Effect of inclination of axis. Shape of earth- Geoid of rotation equigravitational surface. Internal structure of the earth, Earth crust, : Distribution of land and water areas.
- Rocks, their types and modes of occurrence.
- Earth movements: Slow and fast movements, Folding Faulting and associated landforms.
- Earthquakes and volcanoes, their causes, effects and world distribution.

UNIT-II
- Weathering: types of weathering, functions affecting weathering process denudation, work of running water- erosional and depositional landforms wind, glacier erosional and depositional landforms and sea waves.
- Ground water springs and artesian wells.

Modes of Transaction:
Following methods of teaching would be employed:-

- Generally Lecture Method would be used
- Discussion on some specific topics would be undertaken.
- Appropriate audio visual aids like slides and educational films would be used.
- Wall maps would be used for better understanding.
-

Activities and Assignments:-

- The Practical paper would take care of activities and assignments related to theory.

REFERENCES:
1) Trewarths, G.T., Robinson, A. H. & Hammond, E.H. (1967): Physical Elements of Geography, McGraw Hill, New York.
2) Lake P. (1985): Physical Geography (Indian Edition), Macmillan & Co., Calcutta, Bombay, Madras, London.
3) Kellaway, G.P. (1960): Introduction of Physical Geography, Mcmillan, London.
4) Strahler, A.N. (1975): Physical Geography, John Wiley & Sons, Canada.
5) Singh, Savinder (1997): Physical Geography, Pustak Mahal, Allahabad.
6) Tikka, R.N. (1989): Physical Geography, Kedarnath Ramnath & Co., Meerut.
7) Monkhouse, F.J.: Physical Geography
8) Beckinsale, R.P. : Land, Air & Ocean.
9) Bunnett, R.B. : Physical Geography in Diagrams.
10) Greswell : Physical Geography.
11) Berrocks : Physical Geography.
12) Wooldridge, S.W. & Morgan, R.S. (1988): An Outline of Geomorphology, Longman, Green & Co. Ltd, London.

F.Y.B.SC. SEMESTER – I
GPY 1102-C02 (PRINCIPAL)
GPY 1105-S02 (SUBSIDIARY)
INTRODUCTION TO BIOGEOGRAPHY (03 Credits)

OBJECTIVES:

At the end of this course students will be able to:

- Discuss the nature and scope of Biogeography.
- Understand different components of Biosphere.
- Discuss the geographical distribution of plants and animals in relation to physical and human environment.

Course Content (03 Credits)

UNIT-I

- Definition, meaning, scope and significance of Bio-geography.
- Bio energy cycle in terrestrial ecosystem.
- Energy budget of the earth, trophic levels and food chain.
- Concept of Biome, Ecotone and community.
- Soil formation and process involved.

UNIT-II:

- Origin of Fauna and Flora, domestication of plants and animals, Dispersal agents
- Geographical distribution of plants in relation to soil, climate and human activities.
- Geographical distribution of animal life on the earth and its relation to vegetation types, climate and human activities.

Modes of Transaction:

Following methods of teaching would be employed:-

- Generally Lecture Method would be used
- Discussion on some specific topics would be undertaken.
- Appropriate audio visual aids like slides and educational films would be used.
- Wall maps would be used for better understanding.

Activities and Assignments:-

- The Practical paper would take care of activities and assignments related to theory.

REFERENCES:

1) Barry, C : Biogeography, Blackwell Scientific Publication, Oxford, London, 1993.
2) Begon, M, Harper, T.L. & Townsend: Ecology, Individuals, Population & Communities, Blackwell Scientific Publication.
3) Daubenmire, R.F.: Plant communities, Paper Publishers.
4) Hanks S.L.B.: Ecology & the Biosphere, Principle & Problems, Vanity Bok, Delhi.
5) Kumar, H.D.: Modern concepts of Ecology, Vikas Publishing House Pvt.Ltd.,
6) Mathew, H.S.: Essentials of Biogeography, Pointer Publishers, Jaipur, 1988.
7) Nair, P.K.G.: A Textbook of Environmental Science, Himalaya Publications.
8) Negi, S.S.: Bio diversity and its conservation in India; Indus Pub. Co., N.Delhi
9) Odum, E.P.: Fundamentals of Ecology, Saunders Publications.
10) Philip, J.: Zoogeography: The Geographical Distribution of Animals, John Wiley, New York, 1957.

F.Y.B.SC. SEMESTER – I
GPY 1103-C03 (PRINCIPAL)
GPY1106-S03 (SUBSIDIARY)
ELEMENTS OF MAP MAKING (3 Credits)

OBJECTIVES:

At the end of this course students will be able to:

- Understand the basic concepts of map and map making.

Course Outline (03 Credits)

- Maps and their types, tools of map making, map design.
- Geographic coordinates and grid systems Latitude and Longitude
- Scale – Their use, Methods of showing scale (a) Linear scale, (b) Diagonal scale, (c) Comparative scale, (d) Vernier scale
- Enlargement and reduction of map (a) Graphical method, (b) Instrumental method
- Representation of relief of maps : Contour maps, identification and representation of relief features through contours, drawing sections and interpretation.

Modes of Transaction:

Following Methods of Teaching would be employed:

- Lectures would be given on different topics.
- Students would be shown and be made acquainted with the various techniques of enlarging and reducing maps.
- Toposheets and charts conventional signs and symbols would be taught.

Activities and Assignments:

- Different types of scales would be drawn.
- Maps of different sizes and areas would be enlarged and reduced using various techniques.
- Contours representing different areas would brawn and identified from toposheets. They would be analysed.
- Conventional signs and symbols would be drawn and identified from toposheets and weather maps.

REFERENCES :

1) Bygott B. (1969) : Map work and Practical Geography, Uni. Tutorial Press, London.
2) Ishtiaq (1979) : A Text Book of Practical Geography, Heritage Publication, New Delhi
3) Norman Thomal (1962) : Surveying, The English Language Society & Edward Arnold, Edinburgh.
4) Raisz Erwin (1962) : Principal of Cartography, McGraw Hill Book Co. U.S.A.
5) Singh R.L. (1979) : Elements of Practical Geography, Kalyani Pub., New Delhi.
6) Singh & Kanaujia (1981) : Map work and Practical Geography, Indian University Press, Allahabad

F.Y.B.SC. - SEMESTER - I
GPY : 1107-E01 (ELECTIVE-DISCIPLINE SPECIFIC)
PHYSICAL GEOGRAPHY (02 Credits)

OBJECTIVE:

- At the end of this course students will be able to:
- Understand the Earth as a unit in the Solar System.
- Understand the mechanism of different elements of atmosphere.

UNIT-I

- Earth, as a member of the Solar System, rotation and revolution of the earth and its effects, Shape of earth- Concept of Geoid, Axis of the earth, Latitude, Longitude, Time Zones, Effect of inclination of axis,. Internal structure of the earth, Earth crust, Location and Distribution of Continents and Oceans.
- Earth movements: Slow and fast movements, Folding and Faulting.
- Earthquakes and volcanoes: their causes, effects.

UNIT-II

- Atmosphere: composition and structure.
- Climate: Factors – Temperature, Inversion of Temperature.
  - Pressure, pressure belts, and shifting of pressure belts
  - Winds: Types – permanent, seasonal and local and global patterns of distribution.
- Humidity phenomena: Precipitation - Types and Causes, Clouds – Types.

REFERENCES:

1) Trewartha, G.T., Robinson, A.H. & Hammond, E.H. (1967): Physical Elements of Geography, McGraw Hill, New York.
2) Lake, P. (1985) : Physical Geography (Indian Edition), Macmillan & Co., Calcutta Bombay, Madras, London.
3) Strahler, A.N. (2010) : Physical Geography, Wiley, India.
4) Singh, Savinder (1997) : Physical Geography, Pustak Mahal, Allahabad.
5) Tikka, R.N. (1989) : Physical Geography, Kedarnath Ramnath & Co. Meerut.
6) Lal, D.S. (2009) : Physical Geography, Sharda Pustak Bhawan, Allahabad

F.Y.B.SC. - SEMESTER - I
GPY : 1108-E02 (ELECTIVE- DISCIPLINE SPECIFIC)
PHYSICAL GEOGRAPHY OF INDIA (02 Credits)

OBJECTIVES:

At the end of this course students will be able to:
- Understand the physical aspects of the country

UNIT-I

- Location, Extent, Size, Shape, Boundaries. Significance of location of India and Indian Ocean.
- Brief understanding of geological structure.
- Major Physiographic Regions of India.
- Drainage and river systems of Himalayan and Peninsular India.
- National Water Grid.

UNIT-II

- Salient features of Indian Climate; origin and mechanism of monsoon.
- Seasons in India. Distribution of Annual Rainfall.
- Drought prone and flood prone areas.
- Soils: Classification, Erosion & Conservation.
- Classification and distribution of Natural Vegetation. Problems and conservation of
- forests.

REFERENCES:

1) Tiwari, R.C. (2008): Geography of India, Prayag Pustak Bhandar, Allahabad.
2) Khullar, D. S. (2011): India: A Comprehensive Geography, Kalyani Publishers, New Delhi.
3) Gautam, Alka (2009): Advanced Geography of India, Sharda Pustak Bhavan, Allahabad.

F.Y.B.SC. - SEMESTER – II
GPY 1201-CO4 (PRINCIPAL)
GPY 1204-SO4 (SUBSIDIARY)
HYDROSPHERE AND ATMOSPHERE (03 Credits)

OBJECTIVES:

At the end of this course students will be able to:

- Understand hydrosphere and atmosphere of the Earth.
- Understand the mechanism of the different elements of hydrosphere and atmosphere.

Course Outline (03 Credits)

UNIT-I

- Ocean relief
- Properties of ocean waters – salinity & temperature
- Ocean deposits – Oozes and corals
- Circulation – waves, ocean currents and tides and their impact on the human life.

UNIT-II

- Atmosphere: composition and structure, elements and factors
- Climate: factors influencing temperature, pressure, winds and their broad global patterns of distribution.
- Humidity phenomena: dew, frost, clouds precipitation, types and causes, Major types of rainfall.

Modes of Transaction:

Following methods of teaching would be employed:-

- Generally Lecture Method would be used
- Discussion on some specific topics would be undertaken.
- Appropriate audio visual aids like slides and educational films would be used.
- Wall maps and charts would be used for better understanding.
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Activities and Assignments:-

- The Practical paper would take care of activities and assignments related to theory.

REFERENCES:

1) Trewarths, G.T., Robinson, A. H. & Hammond,m E.H. (1967): Physical Elements of Geography, McGraw Hill, New York.
2) Lake P. (1985): Physical Geography (Indian Edition), Macmillan & Co., Calcutta, Bombay, Madras, London.
3) Kellaway, G.P. (1960): Introduction of Physical Geography, Mcmillan, London.
4) Strahler, A.N. (1975): Physical Geography, John Wiley & Sons, Canada.
5) Singh, Savinder (1997): Physical Geography, Pustak Mahal, Allahabad.
6) Tikka, R.N. (1989): Physical Geography, Kedarnath Ramnath & Co., Meerut.
7) Monkhouse, F.J.: Physical Geography
8) Beckinsale, R.P. : Land, Air & Ocean.
9) Bunnett, R.B. : Physical Geography in Diagrams.
!0) Greswell : Physical Geography.

F.Y.B.SC. - SEMESTER – II
GPY 1202-C05 (PRINCIPAL)
GPY 1205-S05 (SUBSIDIARY)
BIOGEOGRAPHY OF INDIA (02 Credits)

OBJECTIVES:

At the end of this course students will be able to:
- Discuss the nature of communities and ecosystem.
- Explain the impact of community changes on fresh water and marine biology.
- Undertake detailed study of ecological regions of India.

Course Content (02 Credits)

UNIT-I

- Communities:- nature of communities and ecosystem; Bio-diversities, human induced community changes, decay and conservation. (with reference to India)
- Industrial effluent and its effect on fresh water and marine biology.
- Management practices of industrial effluents affecting fresh water and marine biology (with special reference to India)

UNIT-II

- Study of ecological regions of India in relation to their plant and animal life, their interrelations, problems conservation.
  i) Mangrove ii) Tropical rainforest iii) Desert iv) Mountain
  v) Fresh water & marine vi) Deciduous Forests

Modes of Transaction:
Following methods of teaching would be employed:-

- Generally Lecture Method would be used
- Discussion on some specific topics would be undertaken.
- Appropriate audio visual aids like slides and educational films would be used.
- Wall maps would be used for better understanding.

Activities and Assignments:-

- The Practical paper would take care of activities and assignments related to theory.

REFERENCES:

1) Barry, C : Biogeography, Blackwell Scientific Publication, Oxford, London, 1993.
2) Begon, M, Harper, T.L. & Townsend: Ecology, Individuals, Population & Communities, Blackwell Scientific Publication.
3) Daubenmire, R.F.: Plant communities, Paper Publishers.
4) Hanks S.L.B.: Ecology & the Biosphere, Principle & Problems, Vanity Bok, Delhi.
5) Kumar, H.D.: Modern concepts of Ecology, Vikas Publishing House Pvt.Ltd.,
6) Mathur, H.S.: Essentials of Biogeography, Pointer Publishers, Jaipur, 1988.
7) Nair, P.K.G.: A Textbook of Environmental Science, Himalaya Publications.
8) Negi, S.S.: Bio diversity and its conservation in India; Indus Pub. Co., N Delhi
9) Odum, E.P.: Fundamentals of Ecology, Saunders Publications.
10) Philip, J.: Zoogeography: The Geographical Distribution of Animals, John Wiley, New York, 1957.

F.Y.B.SC. - SEMESTER – II
GPY 1203-C06 (PRINCIPAL)
GPY 1206-S06 (SUBSIDIARY)
STATISTICAL METHODS & SURVEYING (03 Credits)

OBJECTIVES:

At the end of this course students will be able to:

- Learn to represent and interpret Statistical Data using diagrams, maps and cartograms.
- Learn two dimensional land survey techniques.
- Identify Common Rocks and Minerals.

Course Outline (03 Credits)

- Representation of statistical data by : Bar Graph, simple and compound, line graphs, simple and compound, circle, pie diagram rectangular diagram, dot method, square cube, sphere diagrams, block piles, pictorial maps and shading.
- Surveying – Chain and Tape.
- Introduction to Auto cad Survey exercises based on Auto – cad.
- Field work.

Mode of Transaction:

Following methods teaching would be employed

- Lectures would be given on different topics.
- Students would be taught to draw various types of statistical diagrams.
- Two dimensional survey instruments would be shown and different parts would be explained.
- Different types of rocks and minerals would be shown and their characteristics would be taught.

Activities and Assignments:

- The students will have to draw maps of different areas using various two dimensional survey instruments.
- Different statistical diagrams are to be drawn on maps and they would be interpreted.
- Identification and characteristics of different types of rocks and minerals would be undertaken.

REFERENCES:

1) Bygott, B. (1969): Map work and Practical Geography, Uni. Tutorial Press, London.
2) Ishtiaq, (1979): A Textbook of Practical Geography, Heritage Pub., New Delhi.
3) Norman Thomas (1962): Surveying, The English Language Society & Edward Arnold, Edinburgh.
4) Raisz, Erwin. (1962): Principles of Cartography McGraw Hill Book Co., U.S.A.
5) Singh, R.L. (1979): Elements of Practical Geography, Kalyani Pub., New Delhi.
6) Singh & Kanaujia (1981): Map work and Practical Geography, Indian Universities Press, Allahabad.

2016-2017

F.Y.B.SC. - SEMESTER - II
GPY : 1207-E03 (ELECTIVE- DISCIPLINE SPECIFIC)
HUMAN GEOGRAPHY (02 Credits)

OBJECTIVE:

At the end of this course students will be able to:

- Understand the ways in which mankind adapts to the environment.
- Discuss the role of geographical factors in such adaptations.
- Discuss the different components of population and explain the factors affecting them.

UNIT- I

- Introduction to Human Geography.
- Human adaptation: Regional Patterns – Tropical and Humid lands, Arid lands, Mediterranean lands, Temperate Grasslands, Tundra lands, Taiga lands.
- Settlements: Meaning and Classification.
- Rural settlements: Types, Factors affecting rural settlement types, settlement patterns.
- Urban settlements, Types and Classification of towns.

UNIT- II

- Distribution of Population - World patterns. Factors influencing spatial patterns – physical, economic and social. Population – resource relationship.
- Migration: Types, causes and consequences.
- Races: Concept, Bases, Classification and Distribution.
- Linguistic and religious groups and their distribution in the world.

REFERENCES:

1) Singh, L.R. (2005) : Fundamentals of Human Geography, Sharda Pustak Bhawan. Allahabad.
2) Fellmann, J.D. et.al (2007) : Human Geography: Landscapes of Human Activities, McGraw Hill International Edition, Boston.
3) Chandna, R.C. (2007) : Geography of Population, Kalyani Publishers, New Delhi

F.Y.B.SC. - SEMESTER - II
GPY : 1208-E04 (ELECTIVE- DISCIPLINE SPECIFIC)
GEOGRAPHY OF GUJARAT (02 Credits)

OBJECTIVE:

- At the end of this course students will be able to:
- Understand the physical characteristics of the State.
- Discuss the manner in which some of the physical and human resources have been utilized.

UNIT-I

- Location, Geology and Major Physiographic divisions.
- Climate: Characteristics, Factors affecting, Issue of aridity, Problems & prospects of Groundwater.
- Drainage pattern - Major rivers. Other water bodies.
- Soil Characteristics, Natural vegetation – Patterns of Distribution.

UNIT-II

- Agriculture: Crop regions, problems and prospects of agriculture, livestock rearing.
- Distribution of minerals.
- Energy Sources - Power plants: hydel, thermal and atomic.
- Non – Conventional energy sources: wind, solar and bio-gas.
- Industry: Industrial regions and factors of localization and distribution patterns of pharmaceuticals & heavy chemicals, textiles, dairy and automobile industries.

REFERENCES:

1. Dikshit, K.R. Geography of Gujarat National Book Trust , New Delhi
2. Census of India: Gujarat Part General Census Table.
3. Directorate of Economics and Statistics (2006): Statistical Abstract of Gujarat State, Government of Gujarat, Gandhinagar.
4. Directorate of Information: Government of Gujarat
5. Directorate of Agriculture: Statistics of Principal Crops in Gujarat State

S.Y.B.SC. - SEMESTER - III
GPY 1301-C07 (PRINCIPAL)
PHYSICAL & HUMAN ASPECTS OF INDIA (03 Credits)

OBJECTIVES:

At the end of this course students will be able to:
Understand the physical and human aspects of the country

UNIT-I: Physical Aspects: (02 Credits)

- Brief understanding of Geological Structure.
- Major Physiographic Regions of India and their characteristics.
- Drainage and River Systems.
- National Water Grid
- Salient features of Indian climate – Seasons (Temperature, Precipitation and Pressure)
- Origin and Mechanism of Indian Monsoon.
- Drought Prone and Flood Prone Areas.
- Soil and Vegetation – Types and Spatial Distribution.

UNIT-II: Human Aspects (01 Credit)

- **Spatial Patterns of:**

- Racial, Ethnic, Linguistic, Religious and Cultural diversities.
- Scheduled Tribes : Case study of Gond, Bhil and Santhal.
- Scheduled Castes.

- **Population Characteristics:**
- Distribution, Density, Growth, Sex Ratio and Literacy.

REFERENCES:

1) Bhattacharya, A. (1978): Population Geography of India, Shree Pub. House, N.Delhi.
2) Dobby, E.H.G. (1970): Monsoon Asia, University of London Press, London.
3) Johnson B.L.C. (1980): South Asia, Arnold Heinemann, New Delhi.
4) Sharma & Coutinho (1981): Economic & Commercial Geography, Vikad Pub. N. Delhi.
5) Singh Gopal (1988): Geography of India, Atmaram & Sons, Delhi.
6) Singh, R.L. (ed.) (1991): India: A Regional Study, National Geographical Society.
7) Spate, O.H.K. (1972): India, Pakistan & Sri Lanka, Methuen, London.
8) Khullar, D.R. (2000): India: A Comprehensive Geography, Kalyani Publishers.
9) Gautam, Alka (2009): Advanced Geography of India, Sharda Pustak Bhavan, Allahabad
10)Rajaram Kalpana (2010): Geography of India, Spectrum Book Pvt. Ltd.,

S.Y.B.SC. - SEMESTER - III
GPY 1302-C08 (PRINCIPAL)
BASICS OF HUMAN GEOGRAPHY (03 Credits)

OBJECTIVES:

At the end of this course students will be able to:

- Introduce the basic concepts of Human Geography.
- Understand the ways in which mankind adapts to the Environment.
- Highlight the spatial patterns of man's adaptation to the physical environment through cultural adjustments.
- Understand the role of the composite environment.

UNIT-I (01 Credit)

Introduction to Human Geography:

- Meaning and Scope.
- Subject matter.
- Branches of Human Geography.
- Principle of Terrestrial Unity, Principle of Adaptation.
- Elements of Physical & Human Environment.
- Man-Environment Relationship.
- Composite Nature of Environment.

UNIT-II (02 Credits)

Man's Physical and Cultural Adaptation:

- Economies of Mankind – Hunting, fishing and food gathering; Pastoral and Agricultural; Mining and Industrial – with specific reference to Tropical Humid Lands, Arid Lands, Mediterranean Lands, Temperate Grasslands, Tundra Lands and Taiga Lands.
- Human Settlements – Factors of Location, Types and Patterns of Rural and Urban Settlements.

REFERENCES:

1) Robinson, H.(1976): Human Geography, M & E Handbooks, Plymonth.
2) Money, D.C. (1970): Introduction to Human Geography, Univ. Tutorial Press.
3) Jan O.M.Brock, John, W.Webb (1978): A Geography of Manking, McGraw Hill Book Co., New York.
4) Aime Vincent Perpillou (1966): Himan Geography, Longman, London.
5) Leong, Goh Cheng and Morgan G.C. (1979): Human & Economic Geography, Oxford University Press, Oxford.
6) De Blij, H.J. (1977): Human Geography-Culture, Society and Space, John Wiley & Sons, New York.
7) Trewartha, Robinson * Hammond (1967): Elements of Geography, McGraw Hill Book Co., New York.
8) Hagget, P. (1972): Geography: A Modern Synthesis, Harper & Row, N. York.
9) Lebon, J.H.G. : Introduction to Human Geography.
10) Mabogunje, Akin (1997): The State of the Earth: Contemporary Geographic Perspective, Blackwell Publishers, Oxford.
11) Singh, L.R. (2010): Fundamentals of Human Geography, Sharda Pustak Bhawan, Allahabad.

S.Y.B.SC. - SEMESTER - III
GPY 1303-C09 (PRINCIPAL)
PRACTICAL (02 Credits)

Objectives:

At the end of these course students will be able to:

- To learn to represent earth as two dimensional.
- Identified and draw conventional signs and symbols.

Course content (02 credits)

- Classification of Projections : Graphic Construction, Properties and Uses.
- A. Cylindrical Projections – Equidistant, Equal Area and Mercator's
- B. Conical Projection – One Standard and Two Standard Parallels.
- C. Zenithal : Polar Case
- Identification and drawing of conventional signs and symbols
- Identification of contour features from topographical sheets.
- Use of Planimeter and Rotameter – conversion of scales from the same.

REFERENCES:

1) Bygott B. (1969) : Map work and Practical Geography, Univ. Tutorial Press, London.
2) Ishtiaq (1979) : A Textbook of Practical Geography, heritage Pub. New Delhi.
3) Norman Thomas (1962) : Surveying, The English Language Society & Edward Arnold, Edinburgh.
4) Raisz Erwin (1962) :Principles of Cartography, McGraw hill Book Co. U.S.A.
5) Singh R.L. (1979) : Elements of Practical Geography, Kalyani Pub. New Delhi.
6) Singh and Kanaujia (1981) : Map Work and Practical Geography, Indian universities Press, Allahabad.

S.Y.B.SC. - SEMESTER – III
GPY 1304-S07 (SUBSIDIARY)
PHYSICAL AND HUMAN ASPECTS OF INDIA (04 Credits)

OBJECTIVES:

At the end of this course students will be able to:
Understand the physical and human aspects of the country.

Course Outline (04 Credits)

UNIT – I :
Physical Aspects (02 Credits)

- Location, Extent, Size, Shape and Boundaries.
- India in the context of the world, South Asia and South-East Asia.
- Significance of location of India and Indian Ocean.
- Brief understanding of Geological Structure.
- Major physiographic Regions of India and their characteristics.
- Drainage and River systems.
- National Water Grid.
- Salient features of Indian Climate – Seasons (Temperature, Precipitation and Pressure).
- Mechanism of Indian Monsoon.
- Drought Prone and Flood Prone Areas
- Soil and Vegetation – Types and Spatial Distribution

UNIT – II
Human Aspects (02 Credits)

Spatial patterns of:

- Racial, Ethnic, Linguistic, Religions and Cultural Diversities.
- Scheduled Tribes; Case study of Gond, Bhil and Santhal.
- Scheduled Castes.

Population characteristics:

- Distribution, Density, Growth, Sex Ratio, Literacy, Occupational Structure, Infant Mortality, Child Mortality, Crude Birth, Crude Death Rates, Life Expectancy.

Urbanization: Trends, characteristics and problems.

REFERENCES:

1. Bhattacharya, A. (1978): Population Geography of India, Shree Pub. House, N.Delhi.
2. Dobby, E.H.G. (1970): Monsoon Asia, University of London Press, London.
3. Johnson B.L.C. (1980): South Asia, Arnold Heinemann, New Delhi.
4. Sharma & Coutinho (1981): Economic & Commercial Geography, Vikad Pub. N. Delhi.
5. Singh Gopal (1988): Geography of India, Atmaram & Sons, Delhi.
6. Singh, R.L. (ed.) (1991): India: A Regional Study, National Geographical Society.
7. Spate, O.H.K. (1972): India, Pakistan & Sri Lanka, Methuen, London.
8. Khullar, D.R. (2000): India: A Comprehensive Geography, Kalyani Publishers.
9. Gautam, Alka (2009): Advanced Geography of India, Sharda Pustak Bhavan, Allahabad
10. Rajaram Kalpana (2010): Geography of India, Spectrum Book Pvt. Ltd.,

S.Y.B.SC. - SEMESTER – III
GPY 1305-S08 (SUBSIDIARY)
BASICS OF HUMAN GEOGRAPHY (04 Credits)

OBJECTIVES:
At the end of this course students will be able to:

- Introduce the basic concepts of Human Geography.
- Study the racial composition and distribution in the world.
- Discuss the different components of the population and explain the factors affecting them.
- Learn different demographic theories.

Course Outline (04 Credits)

UNIT-I (02 Credits)
Introduction to Human Geography
- Meaning and Scope
- Subject Matter
- Branches of Human Geography
- Principle of Terrestrial Unity, Principle of Adaptation, Principle of Activity or Change
- Determinism, Possibilism, Neo-Determinism, Probabilism.
- Approaches of Human Geography
- Elements of Physical and Human Environment
- Man-Environment Relationship
- Composite Nature of Environment

UNIT-II (02 Credits)
Mans Physical Cultural Adaptation:
- Economies of Mankind – Hunting, fishing and food gathering; Pastoral and Agricultural; Mining and Industrial – with specific reference to Tropical Humid Lands, Arid Lands, Mediterranean Lands, Temperate Grasslands, Tundra Lands and Taiga Lands.
  Human Settlements – Factors of Location, Types and Patterns of Rural and Urban Settlements.

REFERENCES:

1) Robinson, H.(1976): Human Geography, M & E Handbooks, Plymonth.
2) Money, D.C. (1970): Introduction to Human Geography, Univ. Tutorial Press.
3) Jan O.M.Brock, John, W.Webb (1978): A Geography of Manking, McGraw Hill Book Co., New York.
4) Aime Vincent Perpillou (1966): Himan Geography, Longman, London.
5) Leong, Goh Cheng and Morgan G.C. (1979): Human & Economic Geography, Oxford University Press, Oxford.
6) De Blij, H.J. (1977): Human Geography-Culture, Society and Space, John Wiley & Sons, New York.
7) Trewartha, Robinson * Hammond (1967): Elements of Geography, McGraw Hill Book Co., New York.
8) Hagget, P. (1972): Geography: A Modern Synthesis, Harper & Row, N York.
9) Lebon, J.H.G. : Introduction to Human Geography.
10) Mabogunje, Akin (1997): The State of the Earth: Contemporary Geographic Perspective, Blackwell Publishers, Oxford.

S.Y.B.SC. - SEMESTER – III
GPY 1306-E05 (ELECTIVE)
India: Resources (02 Credits)

Resources : Definition and Types; Distribution and Utilization of

- Land
- Water
- Marine
- Mineral – Iron ore, Coal, Manganese, Bauxite, Copper, Zinc, Limestone, Nickel, Tungsten, Gold, Silver, Mica, Salt.

Energy Resources:

- Petroleum, Hydel, Thermal, Wind

Books Recommended:

1) Dutt, Ashok K.(1975): India's Resources, Potentialities & Planning, Oxford IBM, N Delhi.
2) Krishnaswamy K. (1972): India's Mineral Resources, Oxford IBM, New Delhi.
3) Rao K.L. (1975): India's Water Wealth, Orient Longman, New Delhi.
4) Sharma & Coutinho (1981): Economic & Commercial Geography, Vikad Pub. Del
5) Singh Gopal (1988): Geography of India, Atmaram & Sons, Delhi.
6) Singh, R.L. (ed.) (1991): India: A Regional Study, National Geographical Society.
7) Spate, O.H.K. (1972): India, Pakistan & Sri Lanka, Methuen, London.
8) Khullar, D.R. (2000): India: A Comprehensive Geography, Kalyani Publishers.
9) Gautam, Alka (2009): Advanced Geography of India, Sharda Pustak Bha, Allahabad
10) Rajaram Kalpana (2010): Geography of India, Spectrum Book Pvt. Ltd.,

S.Y.B.SC. - SEMESTER – III
GPY 1307-E06 (ELECTIVE)
Environment and Development (02 Credits)

- Meaning of Environment; Types of Environment – Physical and Cultural
- Meaning of Development
- Indicators of Developments
- Interrelationship between environment and development; Impact on physical environment in terms soil erosion, land degradation, deforestation.
- Pollution in developed and developing countries.

Books Recommanded:

1) Basak Anindita (2009): Environmental Studies, Pearson, New Delhi.
2) Leong, Goh Cheng and G.C. Morgan (1979): Human and Economic Geography, Oxford University Press, Oxford.
3) Mobogunja Aken (1977): The state of of the Earth : Contemporary Geographic Perspective, Blackwell Publishers, Oxford.
4) Singh L.R. (2010): Fundamentals of Human Geography, Sharada Publishing House, Allahabad.

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S.Y.B.SC. - SEMESTER - IV
GPY 1401- C10 (PRINCIPAL)
INDIA: RESOURSES AND ECONOMIC ASPECTS (03 Credits)

OBJECTIVES:

At the end of this course students will be able to:

- Study the different resources of the country.
- Acquaint with the different industries and the factors contributing to their development.
- Familiarise with the agricultural infrastructure of the country.
- Discuss the prospects and problems of agriculture of the country.

UNIT-I: INDIA (02 Credits)

Resources: Distribution and Utilization of

- Land
- Marine
- Minerals – Iron ore, Coal, Manganese, Bauxite, Copper, Zinc, Limestone, Nickel, Tungsten, Gold, Silver, Mica, Salt.
- Energy Resources – Petroleum, Hydel, Thermal, Wind.
  Agriculture : Characteristics of cropping pattern – Rice, Wheat, Millets and Pulses; Groundnut, Tobacco, Cotton, Sugarcane; Tea, Coffee, Rubber; Horticulture.
- Infrastructure and inputs – Irrigation, High Yielding Variety seeds, Fertilizers and Pesticides.
- Agricultural Regions.
  Industries : Location and Distribution of Major Industries – Iron and Steel, Alluminium, Cotton Textile, Sugar, Chemical and Allied, Cement and Paper.
- Industrial Regions, Special Economic Zones.

UNIT-II: GUJARAT (01 Credit)

- Location and Major Physiographic divisions.
- Climate: Characteristics, Factors affecting, Issue of aridity.
- Drainage pattern - Major rivers.
- Soil Characteristics, Natural vegetation – Patterns of Distribution.
- Agriculture: Crop regions, problems and prospects of agriculture, livestock rearing.
- Distribution of minerals.
- Energy Sources - Power plants: hydel, thermal and atomic.
- Non – Conventional energy sources: wind, solar and bio-gas.
- Industry: Industrial regions and factors of localization and distribution patterns of pharmaceuticals & heavy chemicals, textiles, dairy and automobile industries.

REFERENCES:

1) Dutt, Ashok K.(1975): India's Resources, Potentialities & Planning, Oxford IBM, N Delhi.
2) Krishnaswamy K. (1972): India's Mineral Resources, Oxford IBM, New Delhi.
3) Rao K.L. (1975): India's Water Wealth, Orient Longman, New Delhi.
4) Sharma & Coutinho (1981): Economic & Commercial Geography, Vikad Pub. Del
5) Singh Gopal (1988): Geography of India, Atmaram & Sons, Delhi.
6) Singh, R.L. (ed.) (1991): India: A Regional Study, National Geographical Society.
7) Spate, O.H.K. (1972): India, Pakistan & Sri Lanka, Methuen, London.
8) Khullar, D.R. (2000): India: A Comprehensive Geography, Kalyani Publishers.
9) Gautam, Alka (2009): Advanced Geography of India, Sharda Pustak Bha, Allahabad
10) Rajaram Kalpana (2010): Geography of India, Spectrum Book Pvt. Ltd.,
11) Dikshit, K.R. Geography of Gujarat National Book Trust, New Delhi

S.Y.B.SC. - SEMESTER - IV
GPY 1402 – C11 (PRINCIPAL)
HUMAN GEOGRAPHY (03 Credits)

OBJECTIVES:

At the end of this course students will be able to:

- Discuss the different components of population and explain the factors affecting them.
- Understand the social, economic and political characteristics of the human environment.
- Understand the concept of development.
- Understand the indicators and levels of development.
- Explain the impact of development on physical and human environment.
- Introduce the perspectives of Sustainable Development.

UNIT – I (02 Credits)

ORGANIZATION OF THE HUMAN ENVIRONMENT – WORLD PATTERNS :

- Demographic characteristics – Population distribution, density, age group, migration, growth (Demographic transition, Malthusian theory, population and resource relationship.
- Social characteristics – Racial/Ethnic groups, definition, process of formation classification distribution of Major language groups; religious groups and their distribution.
- Economic characteristics – Resources, type of resources (Physical and human resources), Broad World Patterns of physical resource, land, mineral, agricultural and marine use and their consequences.

UNIT – II (01 Credit)

ENVIRONMENT AND DEVELOPMENT :

Definition of Development, indicators and development, classification (Levels of development) and characteristics of development in different parts of the world,

BOOKS RECOMMENDED :

1. Robinson H.(1976) : Human Geography, M & E Handbooks, Plymonth.
2. Money D.C.(1970) : introduction to Human Geography, Unive. Tutorial Press
3. Jan O.M. Brock John, W. Webb (1978) : A Geography of Manking, McGraw Hill BookCo., New Delhi.
4. Aime Vincent Perpillon (1966): Human Geography, Longman, London.
5. Leong, goh Cheng and Morgan G.C.(1979) : Human & Economic Geography, Oxford university Press, Oxford.
6. De Blij H.J. (1977) : human Geography –Culture, society and Space, John Wiley & Sons, New York.
7. Trewartha Robinson & Hammond (1967): Elements of Geography, McGraw Hill Book Co., New York.
8. Hagget P. (1972) : Geography : A Modern Synthesis, Harper & Raw, New York.
9. Lebon J.H.G : Introduction to Human Geography.
10. Mobogunje Akin (1977) : The State of the Earth : Contemporary Geographic Perspective, Blackwell Publishers, Oxford.
11. Singh, L.R. (2010): Fundamentals of Human Geography, Sharda Publishers House, Allahabad.

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S.Y.B.SC. - SEMESTER - IV
GPY 1403 – C12 (PRINCIPAL)
PRACTICAL (02 Credits)

OBJECTIVES:

At the end of this course students will be able to:

- Learn to represent and interpret Statistical Data using diagrams, maps and cartograms.
- Learn two dimensional land survey techniques.
- Identify Common Rocks and Minerals.

Course Outline (02 Credits)

- Surveying – 1) Prismatic Compass. 2) Plane Table
- Representation of statistical data on maps and their interpretation (Spheres, Squares, Cubes Block Piles, Pictorial, Proportional Circles and Divided Circles, Shading and Choroplething)
- Identification of common Rocks and Minerals.

REFERENCES:

1) Bygott B. (1969) : Map work and Practical Geography, Univ. Tutorial Press,London.
2) Ishtiaq (1979) : A Textbook of Practical Geography, heritage Pub. New Delhi.
3) Norman Thomas (1962) : Surveying, The English Language Society & Edward Arnold, Edinburgh.
4) Raisz Erwin (1962) :Principles of Cartography, McGraw hill Book Co. U.S.A.
5) Singh R.L. (1979) : Elements of Practical Geography, Kalyani Pub. New Delhi.
6) Singh and Kanaujia (1981) : Map Work and Practical Geography, Indian universities Press, Allahabad.

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S.Y.B.SC. - SEMESTER – IV
GPY 1404 – S09 (SUBSIDIARY)
INDIA: RESOURCES AND ECONOMIC ASPECTS (04 Credits)

OBJECTIVES:

At the end of this course students will be able to:

- Study the different resources of the country.
- Acquaint with the different industries and the factors contributing to their development.
- Familiarise with the agricultural infrastructure ,prospects and problems of agriculture of the country.

Course Outline (04 Credits)

UNIT-I: (03 Credits)

Resources: Distribution and Utilization of

- Land
- Marine
- Minerals – Iron ore, Coal, Manganese, Bauxite, Copper, Zinc, Limestone, Nickel, Tungsten, Gold, Silver, Mica, Salt.
- Energy Resources – Petroleum, Hydel, Thermal, Wind.
  Agriculture : Characteristics of cropping pattern – Rice, Wheat, Millets and Pulses; Groundnut, Tobacco, Cotton Textile, Sugarcane; Tea, Coffee, Rubber; Horticulture.
- Infrastructure and inputs – Irrigation, High yielding Variety seeds, Fertilizers and Pesticides.
- Agricultural Regions.
  Industries : Location and Distribution of Major Industries – Iron and Steel, Alluminium, Cotton, Sugar, Chemical and Allied, Cement and Paper.
- Industrial Regions, Special Economic Zones.
- Transport, communications, Trade: Road transport: Classification of roads, Geographical distribution of roads, problem of Road Transport. Rail Transport : Significance of Railways. In India's Economic. Rail network pattern problems of rail Transport. Air Transport : Significances of Air Transport Air ports, air services, problems of air Transport. Water Transport: Inland waterways, potential and actual utilization, pattern of Inland . Water Transport. Ports: Major ports.
  Communications: Postal System, Telecommunications.
  International Trade: Importance, Imports and Exports Direction of Trade.

UNIT-II (01 Credit)

GUJARAT

- Location and Major Physiographic divisions.
- Climate: Characteristics, Factors affecting, Issue of aridity.
- Drainage pattern - Major rivers.
- Soil Characteristics, Natural vegetation – Patterns of Distribution.
- Agriculture: Crop regions, problems and prospects of agriculture, livestock rearing.
- Distribution of minerals.
- Energy Sources - Power plants: hydel, thermal and atomic.
- Non – Conventional energy sources: wind, solar and bio-gas.
- Industry: Industrial regions and factors of localization and distribution patterns of pharmaceuticals & heavy chemicals, textiles, dairy and automobile industries.

REFERENCES:

1) Dutt, Ashok K.(1975): India's Resources, Potentialities & Planning, Oxford IBM, N Delhi.
2) Krishnaswamy K. (1972): India's Mineral Resources, Oxford IBM, New Delhi.
3) Rao K.L. (1975): India's Water Wealth, Orient Longman, New Delhi.
4) Sharma & Coutinho (1981): Economic & Commercial Geography, Vikad Pub. Del
5) Singh Gopal (1988): Geography of India, Atmaram & Sons, Delhi.
6) Singh, R.L. (ed.) (1991): India: A Regional Study, National Geographical Society.
7) Spate, O.H.K. (1972): India, Pakistan & Sri Lanka, Methuen, London.
8) Khullar, D.R. (2000): India: A Comprehensive Geography, Kalyani Publishers.
9) Gautam, Alka (2009): Advanced Geography of India, Sharda Pustak Bha, Allahabad
10) Rajaram Kalpana (2010): Geography of India, Spectrum Book Pvt. Ltd.,
11) Dikshit, K.R. Geography of Gujarat National Book Trust , New Delhi
12) Census of India: Gujarat Part General Census Table.

S.Y.B.SC. - SEMESTER – IV
GPY 1405 – S10 (SUBSIDIARY)
HUMAN GEOGRAPHY (04 Credits)

OBJECTIVES:
At the end of this course students will be able to:
- Discuss the different components of population and explain the factors affecting hem.
- Understand the social, economic and political characteristics of the human environment.
- Explain the concept of development.
- Understand the indicators and levels of development.
- Explain the impact of development on physical and human environment.

Course Outline (04 Credits)

UNIT – I (02 Credits)
ORGANIZATION OF THE HUMAN ENVIRONMENT – WORLD PATTERNS :

- Demographic characteristics – Population distribution, density, age group, migration, growth (Demographic transition, Malthusian theory, population and resource relationship.
- Social characteristics – Racial/Ethnic groups, definition, process of formation classification distribution of Major language groups; religious groups and their distribution.
- Economic characteristics – Resources, type of resources (Physical and human resources), Broad World Patterns of physical resource, mineral, agricultural and marine use and their consequences.

UNIT – II (02 Credits)
ENVIRONMENT AND DEVELOPMENT :

Definition of Development, indicators and development, classification (Levels of development) and characteristics of development in different parts of the world, Impact of development on the physical environment (Soil erosion, land degradation, deforestation, urban industrial pollution etc.), and on the human environment (man health, crime etc.) in developed, developing and least developed countries, spatial perspectives on sustainable development.

BOOKS RECOMMENDED :
1. Robinson H.(1976) : Human Geography, M & E Handbooks, Plymonth.
2. Money D.C.(1970) : introduction to Human Geography, University Tutorial Press
3. Jan O.M. Brock John, W. Webb (1978) : A Geography of Mankind, McGraw Hill Book Co., New Delhi.
4. Aime Vincent Perpillon (1966): Human Geography, Longman, London.
5. Leong, goh Cheng and Morgan G.C.(1979) : Human & Economic Geography, Oxford University Press, Oxford.
6. De Blij H.J. (1977) : human Geography –Culture, society and Space, John Wiley & Sons, New York.
7. Trewartha Robinson & Hammond (1967): Elements of Geography, McGraw Hill Book Co., New York.
8. Hagget P. (1972) : Geography : A Modern Synthesis, Harper & Raw, New York.
9. Lebon J.H.G : Introduction to Human Geography.
10. Mobogunje Akin (1977) : The State of the Earth : Contemporary Geographic Perspective, Blackwell Publishers, Oxford.
11. Singh, L.R. (2010): Fundamentals of Human Geography, Sharda Publishers House, Allahabad.

S.Y.B.SC. - SEMESTER IV
GPY 1406 – E07 (ELECTIVE)
WATER MANAGEMENT (02 Credits)

Surface and Ground Water System

Origin of water: Meteoric, juvenile, magmatic and sea waters, Hydrologic cycle; Precipitation, runoff, infiltration and evapo-transpiration, Drainage basins and streams. Development of drainage system and drainage patterns, Water balance.
Ground Water Occurrence: Ground water hydrologic cycle, origin of ground water, rock properties effecting ground water, vertical distribution of ground water, zone of aeration and zone of saturation, geologic formation as Aquifers, types of aquifers, Springs, porosity, Specific yield and Specific retention, Ground water table fluctuations and its causative factors, environmental impacts.

Water Resource Management

Methods of Irrigation, surface irrigation, drip and sprinkler irrigation Erosion control and watershed development, Rain water harnessing and recharge or ground water; role of society and people's participation for sustainable water resource development.

REFERENCE BOOKS:

1. Ground water Hydrology by David Keith Todd, John Wiley & Sons, New Yord.
2) Ground water by H.M. Raghunath, Wiley Eastern Ltd.
3) Todd. D.K. (2nd Ed. 2006) : Ground Water Hydrology, Wiley India Pvt.Ltd., New Delhi.
4) Ground Water by Bawvwr, John Wiley & Sons.
5) Ground Water System Planning & Management – R. Willes & W.W.G. Yeh, Prentice Hall.
6) Applied Hydrology by C.W. Fetta, CBS Publishers & Distributers.
7) Arthur Bloom (2002), Geomorphology, Prentice Hall Inc.
8) Cech Thomas V., Principles of wate4r resources: history, development, management and policy. John Wiley and Sons Inc., New Delhi 2003.
9) Debarry A. Paul, Watersheds, Wiley and Sons 2004

S.Y.B.SC. - SEMESTER IV
GPY 1407 – E08 (ELECTIVE)
GEOGRAPHY OF TOURISM (02 Credits)

- Definition, Scope and Nature – Concepts and Issues, Types of Tourists, Tourism, recreation and leisure, their interrelationships.

- International and Domestic Tourism – Recent Trends

- Type of Tourism: Nature tourism, Heritage Tourism, Medical Tourism, Pilgrimage.

- Impact of Tourism: On Economy, Environment and Society, Concept of Ecotourism.

- Tourism Infrastructure – Transport, Facilitations and Hospitality Industry.

REFERENCES

1) Babu S.S., Mishra S., and Parida B.A. 1998 (eds) : Tourism Development Revisited – Concepts, Issues and Paradigms, Sage
2) Bhardwaj et. Al. (eds): International Tourism: Issues and Challenges, Kanishka, New Delhi,
3) Bhatia, A.K. 1991: International Tourism: Fundamentals and Practices, Sterling, New Delhi.
4) Boniface B.G. and Chris C., 2005 : Worldwide Destinations: The Geography of Traveland Tourism, Elsevier Butterworth-Heinemann, Oxford.
5) Dhar P.N. 2006 : International Tourism: Emerging Challenges and Future Prospects, Kanishka, New Delhi.
6) Hall M. and Stephan P., 2006 : Geography of Tourism and Recreation – Environment, Place and Space, Routledge, London.

T.Y.B.SC. - SEMESTER – V
GPY 1501 – C13
LITHOSPHERE (04 Credits)

OBJECTIVES:

At the end of this course students will be able to:

- Discuss different theories related to Lithosphere.
- Understand the cycle of Erosion.

Course Outline (04 credits)

UNIT-I (03 credits)

- Theories of the origin of the Earth.
- Origin of the continents and ocean basins.
- Theories: Tetrahedral, Continental Drift, Plate Tectonic
- Theory of Isostasy and its application
- Theories regarding mountain building

UNIT-II (01 credits)

- The concept of cycle of erosion. Normal cycle, Arid cycle, Glacial cycle and the associated landforms.

REFERENCES:

1) Lake, Philip (1985): Physical Geography. McMillan & Co. Calcutta, Bombay, Madras, London.
2) Wooldridge, S.W. & Morgan, R.S. (1988): An Outline of Geomorphology, Longman, Green & Co. Ltd., London.
3) Holmes, Arthur & Doris L. (1978): Principle of Physical Geology, English Language Book Society & Nelson, Middlesex.
4) Peel, R.F. : Physical Geography.
5) Ordway Richard, J. : The Earth's Science.
6) Fletcher, W. (1953): The Earth's Science, D.C.Health & Co., Boston.
7) Monkhouse, F.J. (1962): Physical Geography, Uni. of London Press, London.
8) Steers, J.A. (1961): The Unstable Earth, Methuen, London.
9) Strahler, A.N. (1975): Physical Geography, John Wiley & Sons, Canada.
10) Kellaway, G.P. (1960): Physical Geography, McMillan, London.
11) Trewartha, G.T. (1954): An Introduction to Climate, McGraw Hill Book, N. York
12) Englen, O.D.von (1949): Geomorphology, The McMillan Co., New York.

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T.Y.B.SC. - SEMESTER – V
GPY 1502 – C14
GEOGRAPHY OF SOUTH ASIA (04 Credits)

OBJECTIVES:
At the end of this course students will be able to:

- Known about South Asia as a geographical region.
- Understand the physical aspects of South Asia.
- Study the Demographic characteristics of South Asia.

Course Outline (04Credits)

UNIT-I : INTRODUCTION (02 credits)

- Delimiting the South Asian Countries:- Views expressed by different social scientists in defining South Asia as a region.
- Physical background: Physiographic units, Drainage patterns, Climatic variations, Soil types, Natural Vegetation and their interrelationships.
- Historical background of the countries- role of historical processes in region formation.

UNIT-II : POPULATION AND INFRASTRUCTURE (02 credits)

- Population growth density and distribution. Demographic characteristics –birth rates, death rates, infant mortality rates, literacy rates. Urbanisation and growth of cities.
- Racial, ethnic, linguistic, and religious characteristics.
- Internal and international migrations. Factors responsible for the migration and consequences of migration.
- Population and resources: The concept of over population and under-population.
- A review of infrastructural facilities national and international transport, roads networks, banks etc.

REFERENCES:

1) Schwartzburg, J.E. : Historical Atlas of South Asia.
2) Farmer, B.H. (1983): Introduction of South Asia, Methuen, London.
3) Johnson, B.L.C. (1983): South Asia, Meinmenn Education Book Ltd., London
4) Ginsburg, N. (1958): The Patterns of Asia, Prentice Hall.
5) Spate, O.H.K. (1972): India, Pakistan & Ceylon, Methuen, London.
6) Cressey, G.B. (1951): Asia's Lands and Peoples, McGraw Hill Book Company INC. New York, London.
7) Robinson, Francis (Ed.) (1989): The Cambridge Encyclopedia of India, Pakistan, Bangladesh, Sri Lankam Nepal, Bhutan & The Maldives, Cambridge Uni. Press, New York, Sydney.
8) Robinson, H. (1978): Monsoon Asia. McDonald & Evans Ltd., Estever, Plymouth

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T.Y.B.SC. - SEMESTER – V
GPY 1503 – C15
MAN AND ENVIRONMENT (04 Credits)

OBJECTIVES:

At the end of this course students will be able to:

- Understand the concept of Environment.
- Study of Environment in Geography.
- Explain the approaches to study man-environment relationship.
- Understand the impact of man's activities on physical environment.

Course Outline (04 Credits)

UNIT-I (01 credits)

- Environment – Concept, types & components – physical and cultural environment.
- Ecology and ecosystem and their relation to geography.
- Environmental Geography – Role of geographers in environmental studies.

UNIT-II (03 credits)

- Man-environment relationship in space and time – deterministic and possibilistic approaches. Changes in relationship caused by population explosion and technology.
- Impact of man's activities on environment – effects on atmospheric, water and land resources in tropical, temperate and polar areas.

REFERENCES:

1) Singh, L.P. & Tiwari, S.C. (1980): Man & his Environment, Concept Publishing Co., New Delhi.
2) Kumar, H.D. (1986): Modern Concepts of Ecology, Vikas Pub. House, N. Delhi.
3) Chatterji, N. (1981): Energy and Environment in Developing Countries, John Wiley and Sons, New York.
4) Budyro, M.I. (1980): Global Ecology. Progress Publishers, Moscow.
5) Strahler, A.(1972): Geography and Man's Environment. John Wiley & Sons. N.York
6) Jennings, B.H. & Murphy J. (1972): Interaction of Man and His Environment. Plenum Press, New York
7) Tolba, M.K. (1993): Development without Destruction, Tycolly International Pub. Ltd., Dublin.
8) Singh S. (1993): Environmental Geography. Prayag Pustakalaya, Allahabad.
9) Mr. Michael, A.J. (1995): Planetary Overload, Cambridge University Press, London.

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T.Y.B.SC. - SEMESTER – V
GPY 1504 – C16
ECONOMIC GEOGRAPHY (04 credits)

OBJECTIVES:
At the end of this course students will be able to:
- Discuss the nature and scope of Economic Geography.
- Understand the relationship of Economic Geography with other social sciences.
- Discuss different economics of the world and learn about their characteristics.
- Discuss the concept of Resource.
- Explain the factors influencing agriculture

Course Outline (04 Credits)

UNIT-I (02 credits)
- Definition, Nature & Scope of Economic Geography. Recent trends, Approaches of Economic Geography. Place of Economic Geography in Human Geography. Relationship of Economic Geography with Economics and allied disciplines.
- Classification of the economies of the World; Primitive (hunting and food gathering), agricultural, industrial and market. Sectors of economy: primary, secondary, tertiary, quaternary, and quinary.

UNIT-II (02 credits)
- Concept of Resource. Classification – Renewable and non-renewable, Spatial patterns of distribution of renewable and non-renewable resources: forest, water, petroleum, iron-ore, conservation of resources.
- Agriculture: Physical and Human factors influencing crop production. Spatial patterns of crop cultivation in the world-selected food and cash crops. Types of agriculture, areas and characteristics.

REFERENCES:

1) Bengtson M.A. & Royen V. (1971) : Fundamentals of Economic Geography, Prentice hall, New Delhi.
2) Berry Conkling & Ray (1976) : Geography of Economic System.
3) Boyce R.R. (1978) : The Basin of Economic Geography, Holt, Renehart & Winston, New York.
4) Cain H.R. (1975) : Economic and Human Geography, Longman.
5) Janki V.A. (1977) : Economic Geography, Concept, New Delhi.
6) John A.W. (1977) : Economic Geography, Prentice Hall of India.
7) Jones & Darkenwald : Economic Geography, Surjeet Publication, New Delhi.
8) Leong, G.C & Morgan G.C (1979): Human and Economic Geography, Surjeet Publication, N. Delhi
9) Nc Nee R.B. (1971) : A Primer of Economic Geography
10) Roy Prithwish (1977): Economic Geography : A Study of resources New Central Book Agency Pvt. Ltd., Calcutta.

T.Y.B.SC. - SEMESTER – V
GPY 1505 – C17
PRACTICAL – I (02 Credits)

OBJECTIVES:

At the end of this course students will be able to:

- Study the Statistical Techniques and statistical diagram

Course Content (02 Credits)

Elementary statistical method – Frequency distribution, measures of central tendency – mean, median, mode; measures of dispersion-quartile deviation, mean deviation, standard deviation. Representation of statistical date through statistical diagram and maps and their interpretation.

REFERENCES:

1) Robinson (1963) : Elementary of Cartography, Wiley International Edition, London.
2) Raisz, Ervin (1962): Principles of Cartography, McGraw Hill Book Co., U.S.A.
3) Mishra, R.P. (1969): Fundamentals of Cartography, Prasaranga, Manasgangotri, Mysore.
4) Bygott, B. (1969): Practical Geography, Uni. Tutorial Press, London.
5) Monkhouse & Wilkinson (1980): Maps and Diagrams, B.I.Pub., New Delhi.
6) Singh, Harinder (1982): Surveying, Tata McGraw Hill Pub. Co. Ltd., N.Delhi.
7) Singh, R.L. (1979): Elements of Practical Geography, Kalyani Pub. N.Delhi.
8) Mehmood Aslam (1977): Statistical Methods in Geographical Studies, Rajesh Publications, New Delhi.
9) Miller, A. : Skin of the Earth, Methuen & Co. Ltd., London.
10) Norman, Thomas (1963): Surveying, The English Language Society & Edward Arnold, Edinburgh.

T.Y.B.SC. - SEMESTER – V
GPY 1506 – C18
PRACTICAL – II (02 Credits)

OBJECTIVES:

At the end of this course students will be able to:

- Learn to study the interpretation of weather.

Course Content (02 Credits)

1. Study of weather instrument and weather maps.

Acquaintance with meteorological instruments – thermometer, wet and dry bulb, maximum & minimum, thermograph, hair hygrograph, anemometer, wind vane, rain guage.
Construction of climatic diagrams and their interpretation – climograph, hythergraph, wind rose.
Identification of weather signs and symbols and interpretation of weather maps of three seasons.

REFERENCES:

1) Robinson (1963) : Elementary of Cartography, Wiley International Edition, London.
2) Raisz, Ervin (1962): Principles of Cartography, McGraw Hill Book Co., U.S.A.
3) Mishra, R.P. (1969): Fundamentals of Cartography, Prasaranga, Manasgangotri, Mysore.
4) Bygott, B. (1969): Practical Geography, Uni. Tutorial Press, London.
5) Monkhouse & Wilkinson (1980): Maps and Diagrams, B.I.Pub., New Delhi.
6) Singh, Harinder (1982): Surveying, Tata McGraw Hill Pub. Co. Ltd., N.Delhi.
7) Singh, R.L. (1979): Elements of Practical Geography, Kalyani Pub. N.Delhi.
8) Mehmood Aslam (1977): Statistical Methods in Geographical Studies, Rajesh Publications, New Delhi.
9) Miller, A. : Skin of the Earth, Methuen & Co. Ltd., London.
10) Norman, Thomas (1963): Surveying, The English Language Society & Edward Arnold, Edinburgh.

T.Y.B.SC. - SEMESTER – V
GPY 1507 – F01
PRACTICAL – III (02 Credits)

OBJECTIVES:

At the end of this course students will be able to:

- Students will get acquainted with modern technique of Remote Sensing

Course content (02 Credits)

Remote Sensing – basics, platforms, space segments, electromagnetic Spectrum, Indian space Programme, Comparison between topographical map, aerial photograph and satellite imagery

REFERENCES:

1) Robinson (1963) : Elementary of Cartography, Wiley International Edition, London.
2) Bygott, B. (1969): Practical Geography, Uni. Tutorial Press, London.
3) Monkhouse & Wilkinson (1980): Maps and Diagrams, B.I.Pub., New Delhi.
4) Singh, R.L. (1979): Elements of Practical Geography, Kalyani Pub. N.Delhi.
5) Mehmood Aslam (1977): Statistical Methods in Geographical Studies,Rajesh Publications, New Delhi.

T.Y.B.SC. - SEMESTER – V
GPY 1508 – E09

TECHNIQUES OF SOCIO-ECONOMIC SURVEY - (1) (01 Credits)

T.Y.B.SC. - SEMESTER – V
GPY 1509 – E10

SEMINAR (01 Credits)

2016-2017

T.Y.B.SC. - SEMESTER – VI

GPY 1601 C19 : HYDROSPHERE AND ATMOSPHERE (04 Credits)

OBJECTIVES:

At the end of this course students will be able to:

- Explain the mechanism of Earth's atmosphere.
- Learn about different types of climate.
- Discuss the aspects of climatic change.
- Discuss the spatial variations of characteristics of ocean.

Course Outline (04 Credits)

UNIT-I (02 credits)

- Insulation and Heat Budget. Vertical and Horizontal distribution of temperature.
- Atmospheric circulation and atmospheric disturbances. Polar and tropical air masses. Polar front theory. Jet Streams.
- Classification of climates.
- Climatic changes.

UNIT-II (02 credits)

- Relief of the ocean Basins.
- Temperature and Salinity of Ocean Water.
- Circulation of ocean water – surface and sub-surface.
- Ocean deposits.
- Coral reefs and atolls: Theories regarding their formation.

REFERENCES:

1) Wooldridge, S.W. & Morgan, R.S. (1988): An Outline of Geomorphology, Longman, Green & Co. Ltd., London.
2) Holmes, Arthur & Doris L. (1978): Principle of Physical Geology, English Language Book Society & Nelson, Middlesex.
3) Peel, R.F. : Physical Geography.
4) Ordway Richard, J. : The Earth's Science.
5) Fletcher, W. (1953): The Earth's Science, D.C.Health & Co., Boston.
6) Monkhouse, F.J. (1962): Physical Geography, Uni. of London Press, London.
7) Steers, J.A. (1961): The Unstable Earth, Methuen, London.
8) Strahler, A.N. (1975): Physical Geography, John Wiley & Sons, Canada.
9) Kellaway, G.P. (1960): Physical Geography, McMillan, London.
10) Trewartha, G.T. (1954): An Introduction to Climate, McGraw Hill Book, N. York
11) Englen, O.D.von (1949): Geomorphology, The McMillan Co., New York.
12) Physical Geography. McMillan & Co. Calcutta, Bombay, Madras, London.

T.Y.B.SC. - SEMESTER – VI

GPY 1602 C20 : GEOGRAPHY OF SOUTH ASIA (04 Credits)

OBJECTIVES:

At the end of this course students will be able to:

- Understand the changes and the contemporary agricultural practices practiced in South Asia.
- Study the agricultural infrastructure of the region.
- Study the resource of South Asia.
- Understand the spatial pattern of different industries in the region.
- Explain the different factors which are instrumental in the process of development.
- Understand South Asia as a Political Unit.

Course Outline (04 Credits)

UNIT-I : AGRICULTURE, MINING AND INDUSTRIES (02 credits)

- Agraicultural practices & cropping patterns – Impact of physical base, Changes from pre-colonial period to date.
- Use of fertilizers, high yielding variety seeds and irrigation and the impact of their use in agricultural productivity and efficiency.
- Agricultural Regions.
- Potentiality, utilization, distribution and consumption of energy and mineral resources.
- History of industrialization and the impact of globalization.
- Factors affecting the establishment of different types of industries.
- Regional patterns of agro-based, mineral-based and forest-based industries.
- Industrial Regions.
-

UNIT-II ; DEVELOPMENT AND PLANNING (02 credits)

- Problems of development – Environmental, Social, Economic and Political.
- Significance & objectives of planning in the region.
- Role of SAARC nations: Emergence of India as a center of power in South Asia and Indian Ocean.

REFERENCES:

1) Schwartzburg, J.E. : Historical Atlas of South Asia.
2) Farmer, B.H. (1983): Introduction of South Asia, Methuen, London.
3) Johnson, B.L.C. (1983): South Asia, Meinmenn Education Book Ltd., London
4) Ginsburg, N. (1958): The Patterns of Asia, Prentice Hall.
5) Spate, O.H.K. (1972): India, Pakistan & Ceylon, Methuen, London.
6) Cressey, G.B. (1951): Asia's Lands and Peoples, McGraw Hill Book Company INC. N.York, London.
7) Robinson, Francis (Ed.) (1989): The Cambridge Encyclopedia of India, Pakistan, Bangladesh, Sri Lankam Nepal, Bhutan & The Maldives, Cambridge Uni. Press, N,York, Sydney.
8) Robinson, H. (1978): Monsoon Asia. McDonald & Evans Ltd., Estever, Plymouth

T.Y.B.SC. - SEMESTER – VI

GPY 1603 C21 : MAN AND ENVIRONMENT (04 Credits)

OBJECTIVES:

At the end of this course students will be able to:

- Understand man's perception and responses to environmental hazards.
- Explain the natural and manmade hazards of Environment.
- Discuss the relationship between Environment and development.
- Highlight aspects of environmental planning and management.
- Explain Environmental Impact Assessment.

Course Outline (04 Credits)

UNIT-I (02 credits)

- Environmental Hazards – Natural and man-made.
- Natural Hazards – Floods cyclones, landslides, volcanic eruptions, earthquakes, forest fires.
- Man-made hazards – Destruction of forest, mining, oil drilling, transportation.
- Man's perception and responses to environmental hazards.
- Environmental Pollution- Air, water and noise pollution their sources and their effect on land, flora, fauna and human life.
- Environmental pollution problems in India.

UNIT- (02 credits)

- Environment and Development – Effect of environment of agricultural development, industrialization, urbanization, tourism.
- Environmental planning and management – need for awareness and planning at individual, regional, national and international levels.
- Environmental Impact Assessment – meaning and need.
- Environment and sustainable development.

REFERENCES:

1) Singh, L.P. & Tiwari, S.C. (1980): Man & his Environment, Concept Publishing Co., N.Delhi.
2) Kumar, H.D. (1986): Modern Concepts of Ecology, Vikas Pub. House, N. Delhi.
3) Chatterji, N. (1981): Energy and Environment in Developing Countries, John Wiley and Sons, New York.
4) Budyro, M.I. (1980): Global Ecology. Progress Publishers, Moscow.
5) Strahler, A.(1972): Geography and Man's Environment. John Wiley & Sons. N.York
6) Jennings, B.H. & Murphy J. (1972): Interaction of Man and His Environment. Plenum Press, New York
7) Tolba, M.K. (1993): Development without Destruction, Tycolly International Pub. Ltd., Dublin.
8) Singh S. (1993): Environmental Geography. Prayag Pustakalaya, Allahabad.
9) Mr. Michael, A.J. (1995): Planetary Overload, Cambridge University Press, London.

T.Y.B.SC. SEMESTER – VI

GPY 1604 C22 : ECONOMIC GEOGRAPHY (04 Credits)

OBJECTIVES:

At the end of this course students will be able to:

- Discuss aspects pertaining to mining and industrial economies.
- Discuss aspects pertaining to transportation and trade.

Course Outline (04 Credits)

UNIT-I (02 credits)

- Mining: Classification of Minerals (ferrous/non-ferrous) and their world distribution. Factors affecting mining.
- Industries: Factors of localization, concept and characteristics of Industrial Regions; Major Industrial Regions of the world: Detailed study of iron and steel and sugar industries of the world

UNIT-II (02 credits)

- Transport: Means of Transport, Geographical factors in their development. Major water ways and air transport. Problems.
- Trade: Internal and International, Trade regions of the world, Role of World Trade Organization (WTO) and Globalization.

REFERENCES:

1) Bengtson M.A. & Royen V. (1971) : Fundamentals of Economic Geography, Prentice hall, New Delhi.
2) Berry Conkling & Ray (1976) : Geography of Economic System.
3) Boyce R.R. (1978) : The Basin of Economic Geography, Holt, Renehart & Winston, New York.
4) Cain H.R. (1975) : Economic and Human Geography, Longman.
5) Janki V.A. (1977) : Economic Geography, Concept, New Delhi.
6) John A.W. (1977) : Economic Geography, Prentice Hall of India.
7) Jones & Darkenwald : Economic Geography, Surjeet Publication, New Delhi.
8) Leong, G.C & Morgan G.C (1979): Human and Economic Geography, Surjeet Publication, N. Delhi
9) Nc Nee R.B. (1971) : A Primer of Economic Geography
10) Roy Prithwish (1977): Economic Geography : A Study of resources New Central Book Agency Pvt. Ltd., Calcutta.

T.Y.B.SC. SEMESTER – VI

GPY 1605 C23 : PRACTICAL – I (02 Credits)

OBJECTIVES:

At the end of this course students will be able to:

- To learn to represent Earth as two dimensional

Course Content (02 Credits)

1. Map Projection : Representation of Globe on a Plan Surface; Classification of Projections, their properties of use. Trigonometrical construction of the following projection.
   A. Cylindrical Projection – Equidistant and Equal Area Mercator's
   B. Conical Projection – One Standard Parallel & Two Standard Parallel, Bonne's Polyconic.
   C. Zenithal (Polar Case) – Gnomonic, Stereographic and orthographic.

REFERENCES:

1) Robinson (1963) : Elementary of Cartography, Wiley International Edition, London.
2) Raisz, Ervin (1962): Principles of Cartography, McGraw Hill Book Co., U.S.A.
3) Mishra, R.P. (1969): Fundamentals of Cartography, Prasaranga, Manasgangotri, Mysore.
4) Bygott, B. (1969): Practical Geography, Uni. Tutorial Press, London.
5) Monkhouse & Wilkinson (1980): Maps and Diagrams, B.I.Pub., New Delhi.
6) Singh, Harinder (1982): Surveying, Tata McGraw Hill Pub. Co. Ltd., N.Delhi.
7) Singh, R.L. (1979): Elements of Practical Geography, Kalyani Pub. N.Delhi.
8) Mehmood Aslam (1977): Statistical Methods in Geographical Studies, Rajesh Publications, New Delhi.
9) Miller, A. : Skin of the Earth, Methuen & Co. Ltd., London.
10) Norman, Thomas (1963): Surveying, The English Language Society & Edward Arnold, Edinburgh.

T.Y.B.SC. - SEMESTER – VI

GPY 1606 C24: PRACTICAL – II (02 Credits)

OBJECTIVES:

At the end of this course students will be able to:

- Study the interpretation of physical and cultural aspects of land

Course Content (02 Credits)

Map reading – orientation of map true and magnetic north and grid lines.
Differences between Indian and Foreign toposheets.
Interpretation of topographical sheets of plain, plateau, mountain, karst, coastal and glacial areas.

REFERENCES:

1) Robinson (1963) : Elementary of Cartography, Wiley International Edition, London.
2) Raisz, Ervin (1962): Principles of Cartography, McGraw Hill Book Co., U.S.A.
3) Mishra, R.P. (1969): Fundamentals of Cartography, Prasaranga, Manasgangotri, Mysore.
4) Bygott, B. (1969): Practical Geography, Uni. Tutorial Press, London.
5) Monkhouse & Wilkinson (1980): Maps and Diagrams, B.I.Pub., New Delhi.
1) Singh, R.L. (1979): Elements of Practical Geography, Kalyani Pub. N.Delhi.

2016-2017

B.SC. - SEMESTER – VI

GPY 1607 F02 : PRACTICAL – III (02 Credits)

OBJECTIVES:

At the end of this course students will be able to:

- Study the instruments of Surveying

Course Content (02 Credits)

Surveying with theodolite, Dumpy level, Sextant.
Land use mapping.

REFERENCES:

1) Mishra, R.P. (1969): Fundamentals of Cartography, Prasaranga, Manasgangotri, Mysore.
2) Monkhouse & Wilkinson (1980): Maps and Diagrams, B.I.Pub., New Delhi.
3) Singh, Harinder (1982): Surveying, Tata McGraw Hill Pub. Co. Ltd., N.Delhi.
4) Singh, R.L. (1979): Elements of Practical Geography, Kalyani Pub. N.Delhi.
5) Norman, Thomas (1963): Surveying, The English Language Society & Edward Arnold, Edinburgh.

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T.Y.B.SC. SEMESTER – VI

GPY 1608 E11 : TECHNIQUES OF SOCIO-ECONOMIC SURVEY – (2) (01 Credit)

T.Y.B.SC. SEMESTER – VI

GPY 1609 E12 : COMPREHENSIVE VIVA (01 Credit)