B. Sc. & B. A. in Geography

Syllabus

(Effective from the July 2020)

2020 - 2023

Department of General & Applied Geography
School of Applied Sciences
Doctor Harisingh Gour Vishwavidyalaya
(A Central University)
Sagar (M. P.)

B.Sc. / B.A. in Geography

(Semester wise B. Sc. / B. A. Courses/Papers)

Sem	Core Course (CC)	Skill Enhancement Course (SE)	Discipline Specific Elective (EC)	Generic Elective (GE)
I	**Theory:** Physical geography: Lithosphere **Practical:** Map Reading and Interpretation			
II	**Theory:** Human Geography Practical: Relief Analysis and Surveying			
III	**Theory:** Physical Geography: Climatology and Oceanography **Practical**: Weather Forecasting & Interpretation	Regional Planning and Development		
IV	**Theory:** Economic geography **Practical:** Representation of Data and Surveying	Introduction to Remote Sensing and GPS		
V		Introduction to GIS	**Theory:** Environment and Resources **or** Geography of Tourism **Practical:** Map Projection and Surveying	Disaster Risk Reduction
VI		Field Techniques and Survey	**Theory:** Geography of India **or** Disaster Management **Practical**: Quantitative Techniques and Field Report	Sustainability and Development

Objectives and Learning Outcomes

of

B.Sc. / B.A. in Geography

(B. Sc. / B. A. Prescribed Course/Papers according to Semesters are as follows)

I Semester

Paper code	Title of the course/ paper	L	T	P	C
GOG CC 111	Physical Geography: Lithosphere	4	0	0	4
GOG CC 112	Map Reading and Interpretation **(Practical)**	0	0	4	2

II Semester

Paper code	Title of the course/ paper	L	T	P	C
GOG CC 211	Human Geography	4	0	0	4
GOG CC 212	Relief Analysis and Surveying **(Practical)**	0	0	4	2

III Semester

Paper code	Title of the course/ paper	L	T	P	C
GOG CC 311	Physical Geography: Climatology and Oceanography	4	0	0	4
GOG CC 312	Weather Interpretation & Forecasting **(Practical)**	0	0	4	2
GOG SE 311	Regional Planning and Development	2	0	0	2

IV Semester

Paper code	Title of the course/ paper	L	T	P	C
GOG CC 411	Economic Geography	4	0	0	4
GOG CC 412	Representation of Data and Surveying **(Practical)**	0	0	4	2
GOG SE 411	Introduction to Remote Sensing and GPS	2	0	0	2

V Semester

Paper code	Title of the course/ paper	L	T	P	C
Students will select any **one** of the following elective theory courses/ papers					
GOG EC 511	Environment and Resources **or**	4	0	0	4
GOG EC 512	Geography of Tourism	4	0	0	4
GOG EC 513	Map Projection and Surveying **(Practical)**	0	0	4	2
GOG SE 511	Introduction to GIS	2	0	0	2
The **Generic Elective** (Interdisciplinary) course is available only for **B.A. students.**					
GOG GE 511	Disaster Risk Reduction	6	0	0	6

VI Semester

Paper code	Course type	Title of the course/ paper	L	T	P	C
Students will select any **one** of the following elective theory courses/papers						
GOG EC 611		Geography of India **or**	4	0	0	4
GOG EC 612		Disaster Management	4	0	0	4
GOG EC 613		Quantitative Techniques and Field Based Project Report (**Practical)**	0	0	4	2
GOG SE 611		Field Techniques and Survey	2	0	0	2
The **Generic Elective** (Interdisciplinary) course is available only for B.A. students.						
GOG GE 611		Sustainability and Development	6	0	0	6

B. Sc. / B. A. Programme in Geography

General Instructions

1 Under Graduate Programme (B.Sc. / B.A.) in General and Applied Geography will be a programme of Six Semesters.

2 There shall be four Discipline Specific Core Theory Courses (CC) of 4 credits each and four CC practicals of 2 credit each.

3 There shall be two Discipline Specific Elective Theory Courses (EC) of 4 credits each and two EC practical of 2 credits each.

4 Students will select minimum four Skill Enhancement Courses (SE) from the pool of SE Courses available in the school / university of 2 credit each.

5 Students of B.A. V and VI Semesters may opt the Generic Elective (Interdisciplinary) GE-1 & GE-2 courses/ paper of 6 credits each available in the school /university.

6 There will be 100 marks for each theory and practical courses/ paper in all semesters.

7 Division of marks for theory and practical courses/ papers shall be 20% for Mid Semesters Examination and 15% for Internal Assessment wherein 5% marks for 75% Attendance, and 60% for End Semester Examination.

8 The Mid Semester Examination for theory courses shall be of one hour duration and End Semester Examination three hours duration, while the practical courses/ papers will be of two hours for Mid Semesters while three hours for End Semester Examinations.

9 Other instructions and conditions given in the Choice Based Credit System (CBCS) and in the University Ordinance shall also apply in this programme.

B. Sc. & B. A. I Semester
GOG CC 111: Physical Geography: Lithosphere

L	T	P	C
4	0	0	4

(Total Lectures: 60)

Course Objectives: The purpose of the course is to introduce students the evolution, structure and cofigaration landforms and land forming process.

Learning Outcomes: After the completion of the course, the students will have the ability to:

1. Understand the components of the earth system – atmosphere, lithosphere and hydrosphere;
2. Appreciate and understand various features of the spheres with local, regional and global examples;
3. Understand the Earth Movements and development of landforms.

Unit 1

Origin of solar system and the Earth; important hypotheses/ theories: Gaseous, Nebular, Planetasimal, Tidal and Big Bang Theory; The constitution of the earth's interior; Age of the earth; Geological time scale.

(*12 Lectures)*

Unit 2

First order landforms: Origin of the Continents and Oceans: Wegner's theory; Plate tectonics and Earth surface configuration Second order Land forms: Mountains, Plateaues, plains: their classification and distribution; Earth's Materials: Rocks- their origin, classification and characteristics. (*12 Lectures)*

Unit 3

Earth Movements: Endogenetic Processes: Eperogenetic and Orogenetic - Folds and Faults; Seismology: definition, Earthquakes- Classification and world distribution;
Volcanic activity: causes, types, distribution and resultant landforms; Seismic activities: causes and distribution. (*12 Lectures)*

Unit 4

Geomorphic agents and processes: Exogenetic Processes- Danudational agents
Weathering Process: Physical, Chemical and Biological; Mass wasting and resultant landforms (*12 Lectures)*

Unit 5

Fluvial Landforms: work of running water- erosional and depositional landforms. Aeolian Landforms: work of wind- erosional and depositional land forms; Glacial landforms: work of glacial and their resultant landforms

(*12 Lectures)*

Essential Readings:

Strahler, A.N. and Stahler, A.M. ***Modern Physical Geography***. Wiley India, New Delhi, 2016.
Singh, S. ***Physical Geography.*** Pravalika Publications, Allahabad, 2016.
Bryant Richard, H. ***Physical Geography***. Rupa Publication. New Delhi, 2016.
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Suggested Readings:

Hugget, R. J. ***Fundamentals of Geomorphology***, Routledge Taylor & Francis, London, 2017.
Bloom A. L. ***Geomorphology***. Rawat Pulication, Jaipur, 2012.
Robinson, P.J. & S. Henderson. ***Contemporary Climatology***. Henlow, 1999.
Singh, S. ***Geomorphology*****.** Prayag Publications, Allahabad, 1998.
Stoddart,D. R. ***Process and Form in Geomorphology (Edited)***. *Routledge,* New York*,* 1996.
Garner, H.F. ***The Origin of Landscape- A Synthesis of Geomorphology***. O. U.P. London, 1974.
Chorley, R.J. ***Spatial Analysis in Geomorphology***. Methuen, London. 1972.
Sparks, B.W. ***Geomorphology***. Longman, London, 1960.
Thornbury,W. D. ***Principles of Geomorphology***. John Wiley, New York, 1960.
Wooldridge, S.W. and Morgan, R. S. The Physical Basis of Geography- An Outline of Geomorphology. Longman, London, 1959.
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B. Sc. & B. A. I Semester
GOG CC 112: Map Reading and Interpretation (Practical)

Distribution of Marks = 100

Lab work	= 90	
I Mid Sem.	= 20	(1 hour)
II Mid Sem.	= 20	(1 hour)
III End Sem.	= 50	(3 hours)
Sessional + V V	= 10	

L	T	P	C
0	0	4	2

(Total hours: 60)

Course Objectives: The purpose of the course is to introduce students the basics of map science, basic reading and interpretational skills.

Learning Outcome:

After the completion of course, the students will have ability to:

1. Understand the Nature and Development of Cartography
2. Able to prepare maps with their basic elements.
3. Identification of different rocks structures with their basic properties.

Unit 1

The nature and scope of cartography; Development of cartography; elements of cartography; Application of cartography. (*12 hours)*

Unit 2

Scale: Concept and types- Statement scale, Representative Fraction (R.F.) and Graphical scale. (*12 hours)*

Unit 3

Construction of Graphical /Linear Scale: Simple, Comparative, Diagonal and Time scale; Conversion and Uses of Scale. (*12 hours)*

Unit 4

Maps: concept and types; Enlargement and reduction of Maps: Graphical method: Square & Similar Triangle Method. (*12 hours)*

Unit 5

Identification of different rocks- Igneous, Sedimentary and Metamorphic: Granite, Basalt, Pegmatite, Conglomerate, Sandstones, Limestone, Marble, Gneiss, Schist and Slate. (*12 hours)*

Essential Readings:

Singh L. R. ***Fundamentals of Practical Geography,*** Sharda Pustak Bhawan, Allahabad, 2016.

Singh, R.L. ***Elements of Practical Geography***. Kalyani, New Delhi. 1991.

Sarkar, A. ***Practical geography: A systematic approach.*** Orient Black Swan Private Ltd., New Delhi, 2015.'kekZ] ts-ih-% Singh Gopal. ***Map Work and Practical Geography***. Vikas Publishing, New Delhi. 2012

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Suggested Readings:

Robinson, A.H, et. al**.** ***Elements of Cartography***. 6th ed. John Wiley, New York, 1995.

Misra, R.P. & A. Ramesh : ***Fundamentals of Cartography***. Concept, New Delhi. 1989.

Monkhouse, F.J. ***Maps and Diagrammes***. Methuen, London. 1982.

Raisz, E***. General Cartography***. John Wiley and Sons, New York. 5th edition, 1962.

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B. Sc. & B. A. II Semester
GOG CC 211: Human Geography

L	T	P	C
4	0	0	4

(Total Lectures: 60)

Course Objectives: *The purpose of the course is to introduce students the processes and patterns of human occupance through changing state of human understanding and use of Earth's surface by employing spatial concepts and landscape analysis of human organization and its environmental consequences*

Learning Outcomes:

After the completion of the course, the students will have the ability to:

1. Understand the basic concepts in various sub-fields of human geography;
2. Appreciate the growth, distribution and composition of population in different parts of the world;
3. Analyse the types and patterns of rural and urban settlements, urbanisation and related issues in India and other regions of the world.
4. Appreciate the nature and quality of human landscapes.

Unit 1

Meaning, Nature, scope and relevance of human Geography; Man–Environment relationships; Branches of Human Geography- their general characteristics; Cultural regions of the world: classification and its attributes. (*12 Lectures)*

Unit 2

Division of Mankind into racial groups-their characteristics and distribution in the world and India; Human Adaptation to the natural environment (i) Cold region- Eskimo (ii) Hot region- Bushman, (iii) Humid region-Pigmy. (*12 Lectures)*

Unit 3

Growth of population, Distribution and density of population in the world: Factors affecting distribution of population, Migration: internal and international; Trends of urbanization. (*12 Lectures)*

Unit 4

Settlements: types and patterns of rural settlements, Urban settlements: evolution and classification. (*12 Lectures)*

Unit 5

Geo-politics, nation and state; Frontiers and Boundaries, Indian Ocean and World politics. (*12 Lectures)*

Essential Readings:

Hussain Mazid, ***Human geography***, Anmol Publication, New Delhi, 2014.

Shelar, S. K. ***Human Geography***. Chandralok Prakashan, Kanpur. 2012.

Singh, L.R. ***Fundamentals of Human Geography***. Sharda Pustak Bhawan, Allahabad, 2012.

Prajapati, R. V. ***Principles of Human Geography***. Cyber Tech. Publication. New Delhi. 2011.

Knowles R. & Wareing J., ***Economic and Social Geography***, Rupa Publication, New Delhi, 2004.

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Suggested Readings:

Dikshit, R.D. ***Geographical Thought: A Contextual History of Ideas***. Prentice-Hall of India, New Delhi. 2016.

Chandna, R.C. ***Population Geography***. Kalyani Publisher, New Delhi. 2015.

Whyrne, Hammond, Charles. ***Elements of Human Geography***, George Allen & Unwin, London, 1985.

Brock, J.C. & J.W. Webb, ***Geography of Mankind***. McGraw Hills, New York. 1978.

Chisholm, M**.** ***Human Geography Evolution or Revolution***. 1975

DeBlij, H.J. ***Human Geography- Culture Society and Space***. John Wiley, New York, 1996.

Haggett, Peter, et al. ***Locational Models***. Arnold Heinemann, 1979.

Llyod, P.E. & P. Dicken ***Location in Space***. Harper & Row, London.

Smith, D.M. ***Human Geography – A Welfare Approach***. Arnold Heinemann, London, 1984.

Ambrose, Peter ***Analytical Human Geography***. *Longman, 1970.*

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B. Sc. & B. A. II Semester

GOG CC 212: Relief Analysis and Surveying (Practical)

Distribution of Marks	= 100	Time
Lab work	= 70	
(i) Mid Sem.	= 20	1 hour
(ii) Mid Sem.	= 20	1 hour
(iii) End Sem.	= 30	2 hours
Field work	= 20	2 hours
Sessional + VV	= 10	

L	T	P	C
0	0	4	2

(Total hours: 60)

Course Objectives: The purpose of the course is to introduce students the procedures of representation, surveying and mapping.
Learning Outcomes:
After the completion of the course, the students will have the ability to:
1. Distinguish between various types of maps and also appreciate the elements of map;
2. Appreciate how projections are applied to prepare maps from the globe;
3. Understand the basic principles of surveying
4. Acquire knowledge to interpretation of Topographic maps

Unit 1

Methods of showing relief: Hachure, Shading, spot heights, Bench Mark and Contours; Representation of different landforms by contours, Contours interpolation. (*12 Hours)*

Unit 2

Intervisibility: Contour inspection method, Cross-section method and Gradient method; Cross Profiles: Types- Serial, Superimposed, composite, projected, their relevance in landforms mapping and analysis. (*12 Hours)*

Unit 3

Topographic maps: classification, Numbering and Conventional Sign; Interpretation of physical and cultural features. (*12 Hours)*

Unit 4

Surveying: Basic principles of surveying; Types of surveying- Geodetic, Plane, Triangulation and Transverse. (*12 Hours)*

Unit 5

Surveying by chain and tape, two and three base lines by Tie line method. (*12 Hours)*

Essential Readings:

Singh L. R. ***Fundamentals of Practical Geography,*** Sharda Pustak Bhawan, Allahabad, 2016.
Sarkar, A. ***Practical geography: A systematic approach.*** Orient Black Swan Private Ltd., New Delhi, 2015.
Singh Gopal. ***Map Work and Practical Geography***. Vikas Publishing, New Delhi. 2012
Singh, R.L. ***Elements of Practical Geography***. Kalyani, New Delhi. 1991.
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Suggested Readings:

Robinson, A.H. , et. al**.** ***Elements of Cartography***. 6th ed. John Wiley, New York, 1995.
Misra, R.P. & A. Ramesh : ***Fundamentals of Cartography***. Concept, New Delhi. 1989.
Monkhouse, F.J. ***Maps and Diagrammes***. Methuen, London. 1982.
Raisz, E***. General Cartography***. John Wiley and Sons, New York 5th edition, 1962.

B. Sc. & B. A. III Semester Geography
GOG CC 311: Physical Geography: Climatology and Oceanography

L	T	P	C
4	0	0	4

(Total Lectures: 60)

Learning Outcomes:

After the completion of course, the students will have ability to:

1. Understand the elements of weather and climate and its impacts at different scales.

2. Comprehend the climatic aspects and its bearing on planet earth.

3. Understand the oceanic process and availability of resources.

Unit 1
Introduction to climatology; Elements of weather and climate; composition and structure of the atmosphere; Temperature: horizontal and vertical distribution; Atmospheric pressure and pressure belts; Winds: planetary, periodic and local. (*12 Lectures)*

Unit 2
Atmospheric moisture –Humidity; processes of evaporation and condensation;
Air Masses, Fronts: Origin, Classification and Characteristics; Atmospheric Disturbances: Cyclone: tropical and temperate; theories of origin and associated weather conditions. (*12 Lectures)*

Unit 3
Types of precipitation: pattern of Rainfall at Global, Regional and seasonal scales; Climatic classification by Koppen; Global Warming, climate change: causes, consequences and measures of control. (*12 Lectures)*

Unit 4
Introduction to Oceanography; surface configuration of the ocean floor; Relief of Atlantic, Pacific, and Indian Oceans; Temperature of Oceanic water: horizontal and vertical distribution; Salinity of Oceanic water: composition, sources and horizontal and vertical distribution. (*12 Lectures)*

Unit 5
Circulation of oceanic water: waves, currents, streams, drifts; Currents of Atlantic, Pacific and Indian Ocean; Tides –Causes, Types and Theories; Coral reefs: types, formation, theories; coastal environment; Marine deposits, Importance of ocean as storehouse of resources. (*12 Lectures)*

Essential Readings:

Anthony J. Voga, and Robert V. Rohli, ***Climatology.*** Jones & Bartlett Learning, 2017.
Siddhartha, K. ***Oceanography A Brief Introduction***, National Book Trust, New Delhi. 2013
Garrison Tom, ***Essentials of Oceanography***. Brooks/ Cole, C.A., USA, 2011. (International Ed.). Singh Savindra, ***Climatology,*** Prayaga Pustak Bhawan, Allahabad, 2006.
Singh, Sukhvinder, ***Oceanography,*** Wisdom Press, New Delhi. 2014.
Malik Ramesh. ***Oceanography***. Sonali Publication. New Delhi. 2012.
Lal, D.S. ***Climatology,*** chaitanya publication, Allahabad, 1986
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Suggested Readings:

Berry, B.J.L. and Chorley, P.J. ***Atmosphere weather and climate***, Routledge India, New Delhi, 2009.
Menon, P. A. 2007. ***Ways of the Weather***, National Book Trust, New Delhi. 2007.
Das, P. K. ***The Monsoon***. National Book Trust, India, New Delhi. 2000.
Critchfield, J.S. ***General Climatology*** prentice Hall, India, 1993
Trewarth, G. T. An Introduction to Climate. MeGraw Hills Inc. New York, 1991.
Peterson, ***Introduction to meteorology*** McGraw Hill Book London, 1969
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B. Sc. & B. A. III Semester Geography

GOG CC 312: Weather Interpretation & Forecasting (Practical)

Distribution of Marks = 100
Lab work = 90
(i) Mid Sem. = 20
(ii) Mid Sem. = 20
(iii) End Sem. = 50
Sessional + VV = 10

L	T	P	C
0	0	4	2

(Total hours: 60)

Learning Outcomes:

After the completion of the course, the students will have the ability to:

1. Understand the basic principles of Weather Interpretation
2. Acquire knowledge about the uses of Meteorological instruments
3. Interpretation of Weather maps

Unit 1

Weather Interpretation: Weather symbols, Representation of atmospheric features: temperature, pressure and rainfall data by Line Graph simple, polygraph, compound, ergograph, climograph and hythergraph. *(12 hours)*

Unit 2

Isopleth maps- uses, merits and demerits- Isotherm, Isobars and Isohyets.

(12 hours)

Unit 3

Meteorological instruments: introduction and their uses: Maximum and minimum Thermometer, Dry and Wet Bulb Thermometer, Fortin's Barometer, Aneroid Barometer, Rain Gauge, Wind Vane, Anemometer. *(12 hours)*

Unit 4

Classification of Indian Meteorological Observatories and methods of collection of weather data. *(12 hours)*

Unit 5

Weather maps: Preparation of weather maps in India; Symbols used in weather maps; Interpretation of Indian daily weather maps (July, October and January).

(12 hours)

Essential Readings:

Singh L. R. ***Fundamentals of Practical Geography,*** Sharda Pustak Bhawan, Allahabad, 2016.
Sarkar, A. ***Practical geography: A systematic approach.*** Orient Black Swan Private Ltd., New Delhi, 2015.
Singh Gopal. ***Map Work and Practical Geography***. Vikas Publishing, New Delhi. 2012
Misra, R.P. & A. Ramesh : ***Fundamentals of Cartography***. Concept, New Delhi. 1989.
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Suggested Readings:

Robinson, A.H. , et. al**.:** ***Elements of Cartography***. 6th ed. John Wiley, New York, 1995.
Singh, R.L.: ***Elements of Practical Geography***. Kalyani, New Delhi. 1991.
Monkhouse, F.J. : ***Maps and Diagrammes***. Methuen, London. 1982.
Raisz, E***. General Cartography***. John Wiley and Sons, New York. 5th edition, 1962.
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B. Sc. & B. A. III Semester Geography
GOG SE 311: Regional Planning and Development

L	T	P	C
2	0	0	2

(Total Lectures: 30)

Learning Outcomes:

After the completion of the course, the students will have the ability to:

1. Appreciate the basics of regional planning methodology and the need for adopting newer models in the planning process;
2. Understand the history of adopting various planning strategies for balanced national development;
3. Capable of diagnosing the regional issues and the necessity to adopt suitable regional planning in India.
4. Have comprehensive understanding regarding the different regions and application of different models and theories for integrated regional development.
5. Select appropriate indicators for the measurement of socio-economic regional development.

Unit 1

Regional Concept of in Geography, Types of region: Formal and Functional, Uniform and Nodal Single feature region and Multi feature region. Methods for delineation of region; Planning: Meaning and Definition. *(6 Lectures)*

Unit 2

Regional planning: Concept and scope of regional planning; Approaches to regional planning; India. Significance of regional Planning and planning region. *(6 Lectures)*

Unit 3

Regional Planning in India: Sectoral and Regional planning in India, Need for regional planning in India, Historical Back Ground of Regional Planning in India. Planning Region: concept, characteristics and delineation; Planning regions of India. *(6 Lectures)*

Unit 4

Regional Development: Concept and Indicators, Regional imbalance, Regional disparities in socio- economic development. Theories of regional development: Growth pole theory. *(6 Lectures)*

Unit 5

Project report: A project report assignment of regional development and disparity of a geographical unit area with the constant guidance from a faculty member. *(6 Lectures)*

Essential Readings:

Gupta, H. S. ***Regional Development and Planning***. Kalyanai Publication, New Delhi. 2017.
Chandana, R. C. ***Regional Planning and Development***, Kalyani Publication. 2016.
Mishra R. P. *Regional Planning: Concepts, Techniques, Policies and Case Studies*. Concept, 2002
Sundram K. V. ***Geography of Planning***. Concept Publishing Co. New Delhi, 2012.
Sundram K. V. ***Development Planning at the Grass Roots,*** Concept, 2012
Chandana,R.C.,***Regional Development and Planning***.Kalyani Publishers, New Delhi, 2005.
Dube, K.K. and Singh, M.B. ***Pradeshik Niyojan***. Tara Book Agency, Varanasi, 1986.

Suggested Readings:

Chand, M. and Puri, V.K. ***Regional planning in India***; Allied Publishers, New Delhi, 2016.
Publishing Co. New Delhi, 2012.
Haynes J., ***Development Studies***, Polity Short Introduction Series, 2008.
Bhat, L.S. ***Micro Planning: A Case Study of Karnal Area***, KB Publications, New Delhi, 2003.
Publishing, New Delhi, 2002.
Claval P.l., ***An Introduction to Regional Geography***, Blackwell Publishers, Delhi,1998.
Mishra, R.P, Sundaram, K.V., and Prakasarao, V.L.S. ***Regional Development*** MIT Press, Massachusetts, 1976.
Kuklinski, A.R. ***Growth Centres in Regional Planning***. Mounton & Company, Paris, 1972.
Bhat, L.S. ***Regional Planning in India***, Indian Statistical Institute, Calcutta, 1972.
Blij H. J. De, ***Geography: Regions and Concepts***, John Wiley and Sons, 1971.
Johnson E. A. J. ***The Organization of Space in Developing Countries***, MIT Press, 1970.
Friedman, J. and Alonse, W. (eds.), ***Regional Development and Planning***, M.I.T.
Press, Cambridge-Massachusetts, 1968.
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B. Sc. & B. A. IV Semester Geography
GOG CC 411: Economic Geography

L	T	P	C
4	0	0	4

(Total Lectures: 60)

Course Objectives: The purpose of the course is to introduce students a better understanding on production, consumption and exchange behaviors of human society.

Learning Outcome:
After the completion of the course, the students will have the ability to:
1. Appreciate the basic concepts and approaches of economic geography;
2. Examine the significance and relevance of theories in relation to the location of different economic activities;
3. Distinguish different types of human activities and their inter and intra relationships.
4. Distinguish different types of economic activities and their utilities.

Unit 1
Economic geography: Definition, Scope and Significane; Sectors of economic activity: Primary, Secondary and Tertiary; Agriculture: Primary crops-Wheat, Rice and Maize.
(12 Lectures)

Unit 2
Agriculture: Commercial crops –Cotton, Sugarcane, Tea, Coffee; Fisheries – factors and important fishing grounds; Agricultutre regions of the world. *(12 Lectures)*

Unit 3
Mineral resources: Iron ore, Bauxiate, manganese and Copper; Power resources: Coal, petroleum and hydroelectric power; Non-conventional sources of energy- types and potentials; Atomic energy. *(12 Lectures)*

Unit 4
Manufacturing industries: locational factors, distribution and production - Iron and steel: (USA, Russia and Germany); Textile (cotton and wollen) -(USA, China and Japan); Petro-chemical.
(12 Lectures)

Unit 5
World Transportation: Relative significance of different means of transport- Land, Air and Water, Factors affecting land, water and air transport; World oceanic routes; important inland waterways and important canals; International trade, Impact of globalization on economic development. *(12 Lectures)*

Essential Readings:

Singh K. & Siddiqui A. R. ***Economic Geography***, Pravalika Publisher, Allahabad. 2016.

Roy, P. K. ***Economic geography: A Study of Resources***, New Central Book Agency Ltd. Kolkata, 2014.
Saxena, H. M. ***Economic geography***. Rawat Publication. New Delhi. 2013.
Sharm, T.C. ***Economic geography of India,*** Rawat Publication. New Delhi. 2013.
Knowles R. & Wareing J., ***Economic and Social Geography***, Rupa Publication, New Delhi, 2004.
Brynt, R. H., ***Economic and Social Geography***, Made Simple Book, Rupa Publication, New Dehi, 1990.
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Suggested Readings:

Guha, J. L. & Chhottoraj, P. R. ***A New Approach to Economic geography: A Study of Resources***. World Press Pvt. Ltd. Kolkata. 2001.
Wheeler, J.O. et.al. ***Economic Geography*****.** John Wiley, New York, 1995.
Hartshorn, T.N. & J.W. Alexander: ***Economic Geography***. Prentice Hall India, New Delhi, 1988.
Smith, D.M. ;***Human Geography – A Welfare Approach***. Arnold Heinemann, London, 1984.

Smith, D.M: ***Industrial Location- An Economic Geographical Analysis.*** John Wiley,New York, 1981.
Leong, G. C. and Morgan, G. C. Human and Economic Geography. Oxford Economic Press. 1973.
Mc Carty, H.H. & J.B. Lindberg: ***A Preface to Economic Geography****.Prentice Hall, New Jersey.1966.*

B. Sc. & B.A. IV Semester Geography
GOG CC 412: Representation of Data and Surveying (Practical)

Distribution of Marks	= 100	Time
Lab work	= 70	
I Mid Sem.	= 20	1 hour
Internal Assessment	= 20	1 hour
End Sem.	= 30	2 hours
Field work	= 20	
Sessional + VV	= 10	

L	T	P	C
0	0	4	2

(Total hours: 60)

Learning Outcomes:

After the completion of course, the students will have ability to:

1. Develop the skill so as to use geographical data for Diagrammatic representation

2. Prepare the Distribution maps based on different schemes

3. Understand the basics of Remote Sensing and Geographical Information System (GIS)

Unit 1
Diagrammatic representation of geographical data: types and their uses;
One-dimensional: Line diagram, bar diagrams- simple bar, compound bar, multiple bar diagram; pyramid diagram- age-sex pyramid. *(12 hours)*

Unit 2
Two-dimensional: Square and Rectangular diagrams, Pie diagram ; Three-dimensional: Cube, and Sphere diagrams. *(12 hours)*

Unit 3
Distribution maps: Dot, Isopleth, Choropleth, Chorochromatic and Choroschematic methods and their characteristics. *(12 hours)*

Unit 4
Introduction to Aerial photograph, Remote Sensing, Geographical Information System (GIS) and Global Positioning System (GPS). *(12 hours)*

Unit 5
Surveying: Prismatic compass survey: Radiation and Inter-section methods. *(12 hours)*

Essential Readings:

Singh L. R. ***Fundamentals of Practical Geography,*** Sharda Pustak Bhawan, Allahabad, 2016.
Sarkar, A. ***Practical geography: A systematic approach.*** Orient Black Swan Private Ltd., New Delhi, 2015.
Singh Gopal. ***Map Work and Practical Geography***. Vikas Publishing, New Delhi. 2012
Misra, R.P. & A. Ramesh. ***Fundamentals of Cartography****.* Concept, New Delhi. 1989.
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Suggested Readings:

Robinson, A.H. et. al**.** ***Elements of Cartography***. 6th ed. John Wiley, New York, 1995.
Singh, R.L. ***Elements of Practical Geography****.* Kalyani, New Delhi. 1991.
Monkhouse, F.J. ***Maps and Diagrammes****.* Methuen, London. 1982.
Raisz, E***. General Cartography***. John Wiley and Sons, New York. 5th edition, 1962.
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B. Sc. & B. A. IV Semester Geography
GOG SE 411: Introduction to Remote Sensing and GPS

L	T	P	C
2	0	0	2

(Total Lectures: 30)

Learning Outcomes:

After the completion of the course, the students will have the ability to:

1. Appreciate the development and uses of aerial and satellite remote sensing system and navigation satellite systems;
2. Understand the basics of EMR and energy interaction in atmosphere and on earth surface features;
3. Analyse and interpret the aerial and satellite data products and GNSS/GPS survey results.
4. Appreciate the strength and application of remote sensing

Unit 1

Remote Sensing: Definition, types and platforms; Development in the world and India, relevance in geographical studies. *(6 Lectures)*

Unit 2

Satellite Remote Sensing: Principles, EMR Interaction with Atmosphere and Earth Surface; Satellites (Landsat and IRS) and Sensors; Interpretation and Application of Remote Sensing: Land use/ Land Cover studies. *(6 Lectures)*

Unit 3

Aerial Photography: Types of photographs, marginal information on aerial photographs; simple geometry of conventional vertical aerial photographs. *(6 Lectures)*

Unit 4

Global Positioning System (GPS) – basic concepts and applications; Segments of GPS; Errors in GPS; GPS operations and methods; IRNSS. *(6 Lectures)*

Unit 5

Prepare a project report as assigned by the course coordinator. *(6 Lectures)*

Essential Readings:

Atiqur R. & Shahab A. ***Global Positioning System: Concept, Technique and Application***, New Age International Publisher, New Delhi. 2017.

Joseph, G. ***Fundamentals of Remote Sensing,*** Universities Press, India. 2016.

Nath Sandhu. ***An Introduction to Remote Sensing***, Koross Press, London. 2015.

Michael, N. Demers. ***Fundamentals of Geographic Information System***, Wiley India. New Delhi. 2015.

Campbell J. B., ***Introduction to Remote Sensing,*** Guildford Press, 2007.

Lillesand, Thomas M. ***Remote Sensing and Image Interpreation***. Wiley India, New Delhi. 2016.

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Suggested Readings:

Ben L. & Lawrence H. ***GPS Systems: Technology, Operation, and Applications***, Discover Net Publishing, Walnet Street, USA, 2016.

Lawrence Fox III**.** ***Essentials Earth Imaging for GIS.*** ESRI Press. 2015.

Schowengerdt, R. A. ***Remote Sensing: Models and Methods for Image Processing***. Elsevier, Amsterdum. 2013

Walter Fisher. ***Remote Sensing for GIS***, NYX Academics, New Castle. 2012.

Lillesand T. M., Kiefer R. W. and Chipman J. W., ***Remote Sensing and Image Interpretation,*** Wiley. (Wiley Student Edition), 2004.

Jensen J. R., ***Introductory Digital Image Processing: A Remote Sensing Perspective***, Prentice Hall, 2004.

Rees W. G., ***Physical Principles of Remote Sensing,*** Cambridge University Press, 2001.

Wolf P. R. & Dewitt B. A., ***Elements of Photogrammetry: With Applications in GIS***, McGraw-Hill, 2000.

Rampal, K. K. ***Handbook of aerial Photography & Interpretation***, Concept Publication, New Delhi. 1999.

Nag P. & Kudra, M., ***Digital Remote Sensing,*** Concept, New Delhi, 1998.

Singh R. B. & Murai S., ***Space-informatics for Sustainable Development***, Oxford and IBH Pub, 1998.

B. Sc. & B. A. V Semester Geography
GOG EC 511: Environment and Resources

L	T	P	C
4	0	0	4

(Total Lectures: 60)

Course Objectives: The purpose of the course is to introduce students with a meaningfull about structure, functions and bahviors of environment and its relationship with man.

Learning Outcomes:

After the completion of the course, the students will have the ability to:

1. Understand the dynamic interactive relationship between man and environment.

2. Have sound understanding on distribution, utilization and proper management of natural resources at global level.

3. Make assessment and review of planning and policies related to environment and natural resources.

Unit 1

Environment: Meaning, definition and components; Ecosystem: types and functioning; Classification of resources - renewable and non-renewable, biotic and abiotic resources; Resources and environment interfaces. *(12 Lectures)*

Unit 2

Resources: minerals and energy resources; water, forests and soils resources-their economic and environmental significance and conservation methods. *(12 Lectures)*

Unit 3

Human resource: size, distribution and density; Population explosion, Population pressure and resources utilization, Food security. *(12 Lectures)*

Unit 4

Environmental disasters and pollutions: types, causes and related problems; Emerging environmental problems: Global warming, climatic change. *(12 Lectures)*

Unit 5

Impact of human activities on environment: deforestation, excessive mining, intensive agriculture and industrialization on environment; Environmental conservation and management; sustainable resource use. *(12 Lectures)*

Essential Readings:

Singh, S. ***Environmental Geography***. Prawalika Publication, Allahabad, 2016.
Barucha, Arach***. Textbook of Environmental Studies***, University Press India, Hyderabad. 2016.
Siddhartha, K. ***Ecology and Environment***. Kisalaya Publication Pvt. Ltd. Newdelhi. 2015.
Saxena, H. M. ***Environmental Geography.*** Rawat Publications. Jaipur, 1999.
Roy, P. K. ***Resource Studies***. New Central Book Agency, Calcutta, 2006.
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Suggested Readings:

Gautam, A. ***Geography of resources: Exploitation, conservation and management***. Sharda Pustak Bhawan, Allahabad, 2013.
Sharma, B.L. & Puar P. ***Global Environmental Challenges***. Rohini Books, Publishers &Distributors, Jaipur, 2004.
Saxena, H. M. ***Environmental Management.*** Rawat Publications, Jaipur, 2000.
Goudie, Andrew. ***The Human Impact on the Natural Environment.*** *Blackwell* Oxford, 1994.
Mukerji, A. and V.K. Agnihotri. ***Environment and Development***. Concept , New Delhi, 1993.
Smith, R. L. ***Man and his Environment****: An Ecosystem Approach.* Harper & Row, London, 1992.
Singh, K.N. and D.N. Singh. **Population Growth, Environment and Development***: Issues, Impacts and Responses.* Environment & Development Study Centre Varanasi, 1991.
Detwyler, J.R. **Man's Impact on Environment**. Pelican, 1970.

U.N.E.P.: ***Global Environmental Outlook*** . U.N. Pub. New York. Online
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B. Sc. & B. A. V Semester Geography
GOG EC 512: Geography of Tourism

L	T	P	C
4	0	0	4

(Total Lectures: 60)

Course Objectives: The purpose of the course is to introduce students a better knowhow about spatial behaviours of tourism, culture, economy and development.

Learning Outcomes:

After the completion of the course, the students will have the ability to:

1. Appreciate the basic concepts and geographical parameters of tourism;
2. Acquire knowledge on the recent trends and patterns of tourism development in India and other countries;
3. Understand the impacts of tourism on national, regional and local economy, environment and society.
4. Equip with a basic understanding of nature and scope, trends and patterns of various types of tourisms.
5. Have sound knowledge on geographical, environmental and socio-cultural aspects of tourism in India.
6. Apply the principles of eco-tourism and analyse the prospects and problems associated with pilgrimage tourism.

Unit 1

Tourism: Concepts, Nature, Scope and Importance; Inter-Relationships of Tourism, Recreation and Leisure; Determinants of tourism; Geographical Parameters of Tourism by Robinson; Recent Trends of Tourism. *(12 Lectures)*

Unit 2

Type of Tourism- Nature Tourism, Cultural Tourism, Medical Tourism and Pilgrimage; Classification of tourism based on nationality- national and international.

(12 Lectures)

Unit 3

Eco- Tourism: concept, types and importance; Sustainable Tourism: concept and importance; Meetings, Incentives, Conventions and Exhibitions (MICE) in tourism.

(12 Lectures)

Unit 4

Impact of Tourism on Society, Culture, Economy and Environment; Tourism and national development. *(12 Lectures)*

Unit 5

Tourism in India: Tourism Infrastructure; Case Studies of Himalaya, Desert, Coastal and Heritage; National Tourism Policy; Tourism in Madhya Pradesh /Bundelkhnad.

(12 Lectures)

Essential Readings:

Khan, M. Y. ***Tourism Geography***. Wisdom Press. New Delhi. 2016.

Krisnan, K. karma & Mohinder Chand ***Basic of Tourism – Theory, operation and Practices***. Kanishka Pub. New Delhi 2015

Bhatia, A.K. International Tourism Management, Sterling Pub. (p) Ltd. New Delhi, 2014

Hall, M. and Stephen, P., ***Geography of Tourism and Recreation –Environment, Place and Space,*** Routledge, London, 2006.

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Suggested Readings:

Singh Jagbir, ***Eco-Tourism,*** Published by - I.K. International Pvt. Ltd. S-25, Green Park Extension, Uphaar Cinema Market, New Delhi, 2014. (www.ikbooks.com).

Page, S. J. ***Tourism Management: An Introduction***, Butterworth- Heinemann- USA. Chapter 2, 2011.

Kamra, K. K. and Chand, M. ***Basics of Tourism: Theory, Operation and Practise,*** Kanishka Publishers, Pune, 2007.

Raj, R. and Nigel, D., ***Morpeth Religious Tourism and Pilgrimage Festivals Management: An International perspective*** by, CABI, Cambridge, 2007. www.cabi.org.

Dhar, P.N., ***International Tourism: Emerging Challenges and Future, Prospects.*** Kanishka, New Delhi, *2006.*
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B. Sc. & B. A. V Semester Geography

GOG EC 513: Map Projections and Surveying (Practical)

Distribution of Marks	**= 100**	**Time**
Lab work	= 70	
I Mid Sem.	= 20	1 hour
II Mid Sem.	= 20	1 hour
End Sem.	= 30	2 hours
Field work	= 20	2 hours
Sessional & VV	= 10	

L	**T**	**P**	**C**
0	**0**	**4**	**2**

(Total hours: 60)

Course Objective: *The purpose of the course is to learn and skill students the basic concepts, principles and techniques of Map Projections*

Learning Outcomes:

After the completion of the course, the students will have the ability to:

1. Distinguish between various types of maps and also appreciate the elements of map;
2. Appreciate how projections are applied to prepare maps from the globe;
3. Acquire knowledge to prepare maps from geographic data and also the ability to interpret them.

Unit 1
Properties of the maps and globe; Map Projection: General principles and classification of Projections: Construction, Properties, limitations and uses of projections. *(12 hours)*

Unit 2
Zenithal projections: Gnomonic, Stereographic and Orthographic (Polar cases)- characteristics and their uses. *(12 hours)*

Unit 3
Conical projections: One standard parallel, Two standard parallels, Bonne's and Polyconic proejction- characteristics and their uses. *(12 hours)*

Unit 4
Cylindrical projections: Simple cylindrical, Equal area cylindrical- characteristics and uses. *(12 hours)*

Unit 5
Surveying: Plane Table survey by intersection and Resection methods. *(12 hours)*

Essential Readings:

Singh L. R. ***Fundamentals of Practical Geography,*** Sharda Pustak Bhawan, Allahabad, 2016.
Sarkar, A. ***Practical geography: A systematic approach.*** Orient Black Swan Private Ltd., New Delhi, 2015.
Singh Gopal. ***Map Work and Practical Geography***. Vikas Publishing, New Delhi. 2012
Singh, R.L. ***Elements of Practical Geography***. Kalyani, New Delhi. 1991.
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Suggested Readings:

Robinson, A.H. et. al**.:** ***Elements of Cartography***. 6th ed. John Wiley, New York, 1995.
Misra, R.P. & A. Ramesh. ***Fundamentals of Cartography***. Concept, New Delhi. 1989.
Monkhouse, F.J. ***Maps and Diagrammes***. Methuen, London. 1982.
Raisz, E***. General Cartography***. John Wiley and Sons, New York. 5th edition, 1962.
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B. Sc. & B. A. V Semester Geography
GOG SE 511: Introduction to GIS

L	T	P	C
2	0	0	2

(Total Lectures: 30)

Learning Outcomes:

After the completion of the course, the students will have the ability to:

1. Appreciate the basic principles and components of GIS;
2. Apply raster and vector data structure for GIS analysis;
3. Analyse the basic resources, land use and urban related data using GIS software for meaningful interpretation.
4. Apply GIS in various geographical studies

Unit 1

Geographical Information System (GIS): Definition, scope and specific characteristics; its development in the world and in India; Relation of GIS with other collateral subjects like Cartography, Remote Sensing, Computer Science and Geography.

(6 Lectures)

Unit 2

Basic concepts and essential elements of GIS – Map concepts; data types involved in GIS; types of data structures, their characteristics, and merits-demerits; Components of GIS. Methods of inputting data in GIS. *(6 Lectures)*

Unit 3

GIS softwares: paid and open. Integration of remote sensing data with GIS; Digital terrain modeling and its application in GIS; Spatial analysis in GIS. *(6 Lectures)*

Unit 4

Generation Date Base Mangement System (DBMS), shapefile; point, line, polygon. Geo-referencing and prepertion of maps *(6 Lectures)*

Unit 5

Prepare a project report as assigned by the course coordinator . *(6 Lectures)*

Essential Readings:

Lillesand, Thomas M. ***Remote Sensing and Image Interpreation***. Wiley India, New Delhi. 2016.
Michael, N. Demers. ***Fundamentals of Geographic Information System***, Wiley India. New Delhi. 2015.
Nag, P., ***Introduction to GIS,*** Concept India, New Delhi, 2008.
Lo C.P. & Yeung A.K.W., ***An Introduction to GIS***, P.H.I/Pearson Edu., Asia, 2002
Haywood I., Cornelius I. & Carver S., ***An introduction to GIS***, Longman/Pearson Education Asia, 1998/2000.
Martin D. ***GIS and their Socio-economic Applications,*** Routledge, 2nd ed., 1997.
Goutam, N.C., ***Fundamentals of GIS***, Pink Pubs. 1993.
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Suggested Readings:

Joseph George. ***Fundamentals of Remote Sensing***, Universities Press. India. 2016.
Schowengerdt, R. A. ***Remote Sensing: Models and Methods for Image Processing***. Elsevier, Amsterdum. 2013.
Jha, M.M. and Singh, R.B., ***Land Use: Reflection on Spatial Informatics Agriculture and Development,*** *Concept,* New Delhi, 2008.
Heywoods, I., Cornelius, S and Carver, S., ***An Introduction to Geographical Infromation system***. Prentice Hall,2006.
Kraak M.J. & Ormeling F., ***Cartography: visualization of Geo-spatial Data,*** Pearson Education Asia., 2nd Ed., 2004.
Agarwal N.K., ***Essentials of GPS,*** Spatial Networks, 2004.
Burrough P.A. & McDonnell R.A., ***Principles of GIS for Land Resource Assessment,*** OUP, 2nd ed. 1998.
Chrisman N., ***Exploring Geographic Information Systems***, Wiley, 1997.
Geodetic Survey Division, ***GPS Positioning Guide,*** Govt. of Canada, 1995.
Singh, R.B. and Murai, S., ***Space Informatics for Sustainable Development***, Oxford and IBH, New Delhi, 1998.
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B. A. V Semester Geography
GOG GE 511: Disaster Risk Reduction

L	T	P	C
6	0	0	6

(Total Lectures: 90)

Course Objectives: The purpose of the course is to introduce students with a better knowledge about natural as well as manmade extrimities and prospects of mitigation.

Learning Outcome:

After the completion of the course, the students will have the ability to:
1. Gain a perspective of disasters and various dimensions of disaster management
2. Acquire knowledge on concepts, types, distribution and mapping of disasters;
3. Understand the man-made disasters and human negligence in the context of environment;
4. Bring awareness about the preparedness, mitigation and processes of disaster risk reduction.
5. Understand processes and impact of disaster

Unit 1
Environmental Hazards: Risk, Vulnerability and Disasters: Definition and Concepts; Types of Environmental Hazards. *(18 Lectures)*

Unit 2
Natural- Flood, Landslide, Drought, Earthquake, Tsunami and Cyclone; Man-induced hazards - Technological disasters, Armed conflicts and Civil Unrest. *(18 Lectures)*

Unit 3
Disasters in India: Causes Impact, Distribution and Mapping: Flood and Drought, Earthquake and Cyclone. *(18 Lectures)*

Unit 4
Disaster Risk Reduction: Mitigation and Preparedness; Disaster Risk Reduction Strategies, Disaster Cycle, Phases of Disaster, Preparedness Plans, Action Plans and Procedures, Early warning Systems. *(18 Lectures)*

Unit 5
Models in disaster preparedness, Components of Disaster Relief: Water, food, sanitation, shelter, Health and Waste Management; NDMA and NIDM; Community-Based Disaster Management; Do's and Don'ts during Disasters. *(18 Lectures)*

Essential Readings:

Singh, S. ***Environmental Geography***. Prawalika Publication, Allahabad, 2016.
Barucha, Arach***. Textbook of Environmental Studies***, University Press India, Hyderabad. 2016.
Siddhartha, K. ***Ecology and Environment***. Kisalaya Publication Pvt. Ltd. Newdelhi. 2015.
Thakur, D. K. ***A Text Book of Environment Disaster Management***. Manisha Prakashan. Jaipur. 2014.
Singh, R.B., ***Risk Assessment and Vulnerability Analysis***, IGNOU, New Delhi, Chapter 1, 2 & 3, 2005.
Sinha, A., ***Disaster Management- Lessons Drawn and Strategies for Future,*** New United Press, New Delhi, 2001.
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Suggested Readings:

Kapur, A., ***Vulnerable India: A Geographical Study of Disasters,*** Sage Publication, New Delhi., 2010.
Modh, S., ***Managing Natural Disaster: Hydrological, Marine and Geological Disasters***, Macmillan, Delhi, 2010.
Singh, R. B. (ed.), ***Natural Hazards and Disaster Management: Vulnerability and Mitigation,*** Rawat Publications, New Delhi, 2006.
Stoltman, J.P. et al., ***International Perspectives on Natural Disasters***, Kluwer Academic Publications, Dordrecht, 2004.
Government of India, ***Vulnerability Atlas of India. New Delhi, Building Materials & Technology Promotion Council***, Ministry of Urban Development, Government of India, 1997.
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B. A. VI Semester Geography
GOG EC 611: Geography of India

L	T	P	C
4	0	0	4

(Total Lectures: 60)

Course Objectives: The purpose of the course is to introduce students a improved understanding on variable characteristics physical, cultural and developemt configuration of India.

Learning Outcome:

After the completion of the course, the students will have the ability to:

1. Understand the physical profile of the country
2. Understand the demographic component and settlement structure in India;
3. Study the economy and various types of resources in India.

Unit 1

Physical setting: Locational characteristics, Geology, Physiographic divisions; Drainage system, Climate: Origin of monsoon, climatic regions in India; Soils: types, characteristic and distribution; Vegetation: types and distribution. *(12 Lectures)*

Unit 2

Population: Size, Growth, Distribution and Density; Population characteristics: literacy, sex ratio; Trends of Urbanization in India. *(12 Lectures)*

Unit 3

Resource Base: Minerals –Iron ore, Manganese, Bauxite and Copper; Power resources- Coal, Petroleum, Hydroelectric power; Non-conventional sources of energy. *(12 Lectures)*

Unit 4

Agriculture: Major crops- wheat, rice, sugarcane, cotton and tea –their distribution, production and trade; Impacts of Green revolution on Indian agriculture; Agricultural regions in India. *(12 Lectures)*

Unit 5

Industries: Iron and Steel, Cement, Cotton textile and Sugar –locational factors, distribution and production; International trade; Globalization and Economic Development. *(12 Lectures)*

Essential Readings:

Khullar, D.r. ***India: A Comprehensive study*** kalyani pub., Luchiana, New Delhi, 2016.
Tiwari, R.C., ***Geography of India***. Allahabad: Pravalika Publication. Allahabad, 2016.
Singh Gopal. A Geography of India. Atmaram and Sons, New Delhi. 2010.
Husain, Majid, ***Geography of India,*** McGraw-Hill Com. New Delhi, 2008.
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xkSre] vydk] Hkkjr dk c`gn~ Hkwxksy] "kkjnk iqLrd Hkou] bykgkckn] 2015

Suggested Readings:

Basham, A. L. ***The Wonder that was India***. Picador, London. 2004.
Das, P.K., *The* ***Monsoon***. National Book Trust of India, New Delhi. 2002.
Sharma, T.C. & Countinho O., ***Economic and Commercial Geography of India***, Vikash Publication, New Delhi. 1998.
Singh, R. L., ed., ***India- A Regional Geography***. N. G. S. India, Varanasi, 1971.
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B. Sc. & B.A. VI Semester Geography
GOG EC 612: Disaster Management

L	T	P	C
4	0	0	4

(Total Lectures: 60)

Course Objectives: The purpose of the course is to introduce students with better knowledge on mitigational measures of disasters.

Learning Outcomes:

After the completion of the course, the students will have the ability to:

1. Understand the basic concepts and the classification method of disasters;
2. Acquire knowledge on the causes, impacts, distribution and mapping of disasters of India;
3. Appreciate the responses and mitigation measures of disasters in India.
4. Understand processes and impact of disaster
5. Understand both the natural and man-made disaster and human negligence in context of environment
6. Gain a perspective of disasters and various dimensions of disaster management
7. Examine the response and mitigation measures of disaster

Unit 1

Environmental Hazards, Risks, Vulnerability and Disasters: Meaning, Definitions and Concepts; Types of Environmental Hazards: Natural- Flood, Landslide, Drought, Earthquake, Tsunami and Cyclone. *(12 Lectures)*

Unit 2

Man-induced hazards - Technological disasters, Armed conflicts and Civil Unrest
Human induced disasters: Causes, Types, Impacts, Distribution and Mapping.
(12 Lectures)

Unit 3

Disasters in India: Causes, Impact, Distribution and Mapping- Flood, Landslide, Drought, Earthquake, Tsunami and Cyclone. *(12 Lectures)*

Unit 4

Response and Mitigation to Disasters: Mitigation and Preparedness; Psychosocial issues and recovery during emergency situations, Equity issues in disasters, different stake holders in Disaster Relief; Refugee operations during disasters, Human Resettlement and Rehabilitation issues during and after disasters, Inter-sectoral coordination during disasters. *(12 Lectures)*

Unit 5

National Disaster Management Authority (NDMA) and National Institute of Disaster Management (NIDM) and NDRF: Functions and strategies; Indigenous Knowledge and Community-Based Disaster Management; Do's and Don'ts During Disasters Relationship between Disasters, vulnerabilities and Development.
(12 Lectures)

Essential Readings:

Singh, S. ***Environmental Geography***. Prawalika Publication, Allahabad, 2016.
Barucha, Arach***. Textbook of Environmental Studies***, University Press India, Hyderabad. 2016.
Siddhartha, K. ***Ecology and Environment***. Kisalaya Publication Pvt. Ltd. Newdelhi. 2015.
Thakur, D. K. ***A Text Book of Environment Disaster Management***. Manisha Prakashan. Jaipur. 2014.
Singh, R.B., ***Risk Assessment and Vulnerability Analysis***, IGNOU, New Delhi, Chapter 1, 2 & 3, 2005.
Sinha, A., ***Disaster Management- Lessons Drawn and Strategies for Future,*** New United Press, New Delhi, 2001.
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Suggested Readings:

Kapur, A., ***Vulnerable India: A Geographical Study of Disasters,*** Sage Publication, New Delhi., 2010.
Modh, S., ***Managing Natural Disaster: Hydrological, Marine and Geological Disasters***, Macmillan, Delhi, 2010.
Government of India, ***Vulnerability Atlas of India. New Delhi, Building Materials & Technology Promotion Council***, Ministry of Urban Development, Government of India, 1997.
Singh, R. B. (ed.), ***Natural Hazards and Disaster Management: Vulnerability and Mitigation,*** Rawat Publications, New Delhi, 2006.
Stoltman, J.P. et al., ***International Perspectives on Natural Disasters***, Kluwer Academic Publications, Dordrecht, 2004.
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B. Sc. & B. A. VI Semester Geography
GOG EC 613: Quantitative Techniques and Field Based Project Report (Practical)

Distribution of Marks	**= 100**	**Time**
Lab work	= 70	
I Mid Sem.	= 20	1 hour
II Mid Sem.	= 20	1 hour
End Sem.	= 30	3 hours
Field work	= 20	
Sessional + VV	= 10	

L	T	P	C
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(Total Hours: 60)

Objective: *The purpose of the course is to learn and skill students the basic concepts, principles and techniques of Field Excursion and data collection.*

Learning Outcomes: *After the completion of course, the students will have ability to:*

1. *Understand the basics of field excursion and data collection.*
2. *Develop an insight upon the ecological setting of field based on empirical observation and processing for the meaningful outcomes.*
3. *Learn the methods of data analysis and report writing and put in practice the results*

Unit 1

Sources of Data; Tabulation and Classification of Data; Frequency Distribution, Histogram, Frequency Polygon and Ogive Curve. *(12 hours)*

Unit 2

Measures of Central Tendency: Mean, Median and Mode. *(12 hours)*

Unit 3

Measures of dispersion: Range, Quartiles, Mean Deviation and Standard Deviation. *(12 hours)*

Unit 4

Correlation- Karl Pearson and Spearman's rank correlation coefficient. *(12 hours)*

Unit 5

Project report: One day field excursion of any specific geographical unit- village/ward or geomorphic site and its survey based project report. *(12 hours)*

Essential Readings:

Mahmood Aslam. ***Statistical Methods in Geographical Studies***, Rajesh Publication. New Delhi. 2016.

Singh L. R. ***Fundamentals of Practical Geography,*** Sharda Pustak Bhawan, Allahabad, 2016.

Sarkar, A. ***Practical geography: A systematic approach.*** Orient Black Swan Private Ltd., New Delhi, 2015.

Singh Gopal. ***Map Work and Practical Geography***. Vikas Publishing, New Delhi. 2012

Gupta, S.P. **Advanced Practical Statistics**, Sultan Chand and Company, New Delhi. 1998.

Zamir, A. **Statistical Geography: Methods and Applications**, Rawat Publications, Jaipur. 2003.

Mahmood, A. **Statistical Methods in Geographical Studies**, Rajesh Publications, New Delhi. 1986.

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Suggested Readings:

Bhagwathi, V. and Pillai, R.S.N. **Practical Statistics**, Sultan Chand and Company, New Delhi. 2003.

Robinson, A.H. et. al**.:** ***Elements of Cartography***. 6th ed. John Wiley, New York, 1995.

Singh, R.L. ***Elements of Practical Geography***. Kalyani, New Delhi. 1991.

Misra, R.P. & A. Ramesh. ***Fundamentals of Cartography***. Concept, New Delhi. 1989.

Monkhouse, F.J. ***Maps and Diagrammes***. Methuen, London. 1982.

Ebdon, D. **Statistics in Geography: A Practical Approach**, Blackwell Publishers Inc., Massachusetts. 1977.

Gregory, S. **Statistical Methods and the Geographer**, Longman, London. 1973.

Raisz, E***. General Cartography***. John Wiley and Sons, New York. 5th edition, 1962.

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B. Sc. & B. A. VI Semester Geography
GOG SE 611: Field Techniques and Survey

L	T	P	C
2	0	0	2

(Total Lectures: 30)

Learning Outcomes:

After the completion of the course, the students will have the ability to:

1. Conduct field work, besides investigating socio-economic and environmental issues;

2. Develop tools to collect primary data from the field and interpret them meaningfully; 3. Prepare field report with suitable tables, maps and diagrams based on the data collected from the field and secondary sources.

Unit 1
Field Work in Geographical Studies – Role, Value and Ethics of Field-Work; Defining the Field and Identifying the Case Study – Rural / Urban / Physical / Human / Environmental. *(6 Lectures)*

Unit 2
Field Techniques – Merits, Demerits and Selection of the Appropriate Technique; observation (Participant / Non Participant). *(6 Lectures)*

Unit 3
Methods of primary data collection: Questionnaires (Open/ Closed / Structured / Non-Structured); Schedule, Interview. *(6 Lectures)*

Unit 4
Space Survey (Transects and Quadrants, constructing a Sketch). *(6 Lectures)*

Unit 5
Designing the Field Report – Aims and Objectives, Methodology, Analysis, Interpretation and Writing the Report. *(6 Lectures)*

Practical Record

1. Each student will prepare an individual report based on primary and secondary data collected during field work.
2. The duration of the field work should not exceed 10 days.
3. The word count of the report should be about 8000 to 12,000 excluding figures, tables, photographs, maps, references and appendices.
4. One copy of the report on A 4 size paper should be submitted in soft binding.

Essential Readings:

Kanitkar, T. P. ***Surveying and Leveling (Part I & Part II),*** Vidyarthi Griha. Pune. 2016.
Creswell J. ***Research Design: Qualitative and Quantitative Approaches***, Sage Publications, 1994.
Wolcott, H. ***The Art of Fieldwork***. Alta Mira Press, Walnut Creek, CA, 1995.
Stoddard R. H. ***Field Techniques and Research Methods in Geography***, Kendall/Hunt, 1982.
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Suggested Readings:

Dikshit, R. D. ***The Art and Science of Geography: Integrated Readings***, Prentice-Hall of India, New Delhi, 2003.
Mukherjee, Neela ***Participatory Learning and Action: with 100 Field Methods***. Concept Publs. Co., New Delhi, 2002.
Robinson A. ***Thinking Straight and Writing That Way***, in Writing Empirical Research Reports: *A Basic Guide for Students of the Social and Behavioural Sciences*, eds. by F. Pryczak and R. Bruce Pryczak Publishing, Los Angeles, 1998.
Mukherjee, Neela ***Participatory Rural Appraisal: Methodology and Application,*** Concept Publs. Co., New Delhi, 1993.

Evans M. ***Participant Observation: The Researcher as Research Tool*** in Qualitative Methods in Human Geography, eds. J. Eyles and D. Smith, Polity, 1988.

B. A. VI Semester Geography
GOG GE 611: Sustainability and Development

L	T	P	C
6	0	0	6

(Total Lectures: 90)

Course Objectives: The purpose of the course is to introduce students with understanding on problems and prospects of development, deficit and sustainability.

Learning Outcomes:

After the completion of course, the students will have ability to:
1. Understand difficulties in defining the components of sustainable development;
2. Distinguish the patterns of regional development of the world and the need for sustainable development plan;
3. Appreciate the efforts and initiatives of the Governments in reducing the levels of poverty and inequality among the people of various countries.

Unit 1

Sustainability: Definition, Components and Sustainability for Development; Sustainable development: meaning, concept and Need and examples from different Ecosystems. *(16 Lectures)*

Unit 2

The Millennium Development Goals: National Strategies and International Experiences. *(16 Lectures)*

Unit 3

Inclusive Development: Education, Health; The role of higher education in sustainability; the human right to health; Poverty and disease. *(16 Lectures)*

Unit 4

Sustainable Livelihood Model; Policies and Global Cooperation for Climate Change; Sustainable Development Policies and Programmes: Rio+20. *(16 Lectures)*

Unit 5

Goal-Based Development; Financing for Sustainable Development; Principles of Good Governance; National Environmental Policy, CDM. *(16 Lectures)*

Essential Readings:

Sharma, P. D. ***Ecology and Environment***. Rastogi Publication. Meerut. 2016.
Fulekar, M.H. et al. ***Environment and Sustainable Development***. Springer India, 2014.
Robbins, Paul ***Political Ecology: A Critical Introduction***. Blackwell Publishing, 2004.
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Suggested Readings:

Martínez-Alier, Joan et. al., ***Sustainable de-growth: Mapping the context, criticisms and future prospects of an emergent paradigm,*** Ecological Economics 69: 1741-1747, 2010.
Ayers, J. and David D., ***Climate change adaptation and development I: the state of the debate.*** Progress in Development Studies 10 (2): pp. 161-168, 2010.
Baker, Susan ***Sustainable Development.*** Milton Park, Abingdon, Oxon; Routledge, New York, 2006.Osorio, Leonardo et al., ***Debates on sustainable development: towards a holistic view of reality,*** Environment, Development and Sustainability 7: 501-518, 2005.
Agyeman, Julian, Robert D. Bullard and Bob Evans (Eds.) ***Just Sustainabilities: Development in an Unequal World***. London, 2003.
Lohman, Larry, ***Re-imagining the population debate,*** Corner House Briefing 28, 2003.

Brosius, Peter, ***Endangered forest, endangered people: Environmentalist representations of indigenous knowledge"***, Human Ecology 25: 47-69, 1997.
Merchant, Carolyn (Ed.), ***Ecology.*** *Atlantic Highlands****,*** N.J: Humanities Press, 1994.