DEPARTMENT OF GEOGRAPHY

BA (Hons.) Geography

Category-I

DISCIPLINE SPECIFIC CORE COURSE – 1 (DSC-1) –: PHYSICAL GEOGRAPHY

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
PHYSICAL GEOGRAPHY	**4**	**3**	**1**	**-**	**12th Pass**	**NIL**

Learning Objectives

The Learning Objectives of this course are as follows:

- To explain the concept, definition and scope of earth systems.
- To recognize the structure of the Earth and describe its characteristic features.
- To understand the atmospheric composition and structure.

Learning outcomes

The Learning Outcomes of this course are as follows:
The students will be able:

- To classify earth into various domains according to its physical features.
- To differentiate between lithosphere, hydrosphere, atmosphere and biosphere, and to understand interrelationship between them.
- To explain the atmospheric composition and structure.
- To assess the impact of anthropogenic activities on earth systems.

SYLLABUS OF DSC-1

UNIT – I (4 Hours)
Physical Geography: Definition, Nature, Scope, Earth as a System and its Components

UNIT – II (16 Hours)
Atmosphere: Composition and Structure, Energy: Insolation and Temperature, Motion in the atmosphere: pressure and circulation

UNIT – III (16 Hours)
Lithosphere: Earth's Interior, Isostasy, Earth's movement: endogenic including folding and faulting and exogenic forces

UNIT – IV (12 Hours)
Hydrosphere: Hydrological Cycle, Ocean Water Movement – Currents and Tides

UNIT – V (12 Hours)
Biosphere: Soil and Vegetation – Factors and Distribution

Practical component (if any) - NIL

Essential/recommended readings

1. Alan H. Strahler and Arthur Strahler (1992). Modern Physical Geography Fourth Edition, John Wiley & Sons, Canada.
2. Barry, R. G., and Chorley, R. J. (2009). Atmosphere, Weather and Climate (9th Edition). Routledge, New York, USA.
3. Christopherson, R. W. and Birkeland, G. H. (2012). Geosystems: An Introduction to Physical Geography (8th edition). Pearson Education, New Jersey, USA.
4. Gupta, L.S. (2000). JalvayuVigyan(Hindi). Hindi Madhyam Karyanvayan Nidishalya, Delhi.
5. Lal, D. S. (2006). JalvayuVigyan (Hindi). PrayagPustakBhavan, Allahabad, India.
6. Sharma, V.K. (2010). Introduction to Process Geomorphology. CRC Press Taylor & Francis Group.
7. Singh, S. (2009). Bhautik Bhugol ka Swaroop (Hindi). Prayag Pustak. Allahabad, India.
8. Tarbuck, E.J., Lutgens, F.K. and Tasa, D. (2012). Earth Science, Thirteenth Edition. Prentice Hall, Delhi
9. Trujillo, A.P., and Thruman, H.V. (2017). Essentials of Oceanography. PHI., New Delhi.

Suggestive readings (if any)

DISCIPLINE SPECIFIC CORE COURSE – 2 (DSC-2): HUMAN GEOGRAPHY

Credit distribution, Eligibility and Prerequisites of the Course

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
HUMAN GEOGRAPHY	4	3	1	-	12th Pass	NIL

Learning Objectives

The Learning Objectives of this course are as follows:

- To understand various dimensions of human geography and cultural landscape.
- To analyses the population growth and distribution.
- To understand the relationship between population and resource.

Learning outcomes

The Learning Outcomes of this course are as follows:

- Detailed exposure of contemporary relevance of cultural landscape.
- In-depth knowledge of space and society of cultural regions.
- Understanding the settlement pattern and population resource relationship.

SYLLABUS OF DSC- 2

UNIT – I (8 Hours)
Human Geography: Definition, Scope and Major Themes; Contemporary Relevance, Understanding Cultural Landscape.

UNIT – II (16 Hours)
Population: World Population Growth – Trends and Patterns, Population Composition (Residence, Literacy and Age).

UNIT – III (12 Hours)
Space and Society: Cultural Regions, Tribes, Religion and Language.

UNIT – IV (12 Hours)
Settlements: Types of Rural Settlements; Classification of Urban Settlements; Trends and Patterns of World Urbanization.

UNIT – V (12 Hours)
Human Development – Measurements (HDI and IHDI), Regional Variations and Sustainable Development Goals.

Practical component (if any) - NIL

Essential/recommended readings

1. Chandna, R.C. (2017). Geography of Population. Kalyani Publishers, Ludhiana, India.
2. Hassan M.I. (2020). Population Geography-A Systematic Exposition. Routledge Taylor and Francis Group, New York.
3. Human Development Reports of United Nations Development Program.
4. Hussain Majid (2021). Human Geography. Rawat Publication.
5. Majid, Hussain (2012). Manav Bhugol. Rawat Publication.
6. Maurya, S.D. (2012). Manav Bhugol. Sharda Pustak Bhawan, Allahabad, India.
7. Patra, P. et. al.(2021). Perspectives of Human Geography. Concept Publications, New Delhi.
8. Rubenstein, J.M. (2008). An Introduction to Human Geography: The Cultural Landscape. Pearson Prentice Hall, NJ.
9. Saroha, J. (2021). Jansankhya Bhugol, Janankiki evam Jansankhya Adhayan. M.K. Books, New Delhi.
10. Singh, S and Saroha, J. (2021). Human and Economic Geography. Pearson Publication.

Suggestive readings (if any)

DISCIPLINE SPECIFIC CORE COURSE– 3 (DSC-3): DIGITAL CARTOGRAPHY (PRACTICAL)

Credit distribution, Eligibility and Pre-requisites of the Course

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
DIGITAL CARTOGRAPHY (PRACTICAL)	4	-	-	4	12th Pass	NIL

Learning Objectives

The Learning Objectives of this course are as follows:

- Create professional and aesthetically pleasing maps through thoughtful application of cartographic conventions digitally.
- Develop an understanding of the concepts regarding scale, map projections to suit map purposes digitally.
- Better understand the techniques of interpretation of topographical and weather maps through digital cartographic techniques.

Learning outcomes

The Learning Outcomes of this course are as follows:
This is a practical hands-on course, when the students have completed this course, they are able:

- To explain how maps work, conceptually and technically and also will be able to understand the science and art of cartography through digital techniques.
- To recognize the benefits and limitations of some common map projections and their use.
- To understand and perform interpretation of topographical maps and weather maps.

SYLLABUS OF DSC-3

UNIT – I (12 Hours)

1.1. Maps: Concepts and classification, Coordinate system, Nature and Scope-Analogue and Digital cartography)
1.2. History and evolution of Cartography: Western and Indian perspectives
1.3. Digital Cartography: Basics of Raster and Vector Data

UNIT – II (12 Hours)

Scale: Plain, Comparative and Diagonal: Construction and Applications

UNIT – III (16 Hours)
Map Projections: Concept of Datum and Spheroid, Fundamentals of Projections-Classification, Properties, Uses and limitations of Polar Zenithal-Stereographic, Conical projection with two standard parallel and Mercator's Projections. Concept and Use of UTM.

UNIT – IV (12 Hours)
Interpretation of Topographic Maps, Conventional symbols, Cross and Longitudinal Profiles, Identification and Inter-relationships between physical and cultural features in the mountain regions.

UNIT – V (8 Hours)
Concept of Map elements in Digital Cartography

Practical components – Lab Exercises **(30 Hours)**

1.1. Using online maps for place look-ups, latitude and longitudes, time zones
1.2 Refer to the text for the history and evolution of cartography as listed in the reference list
1.3 Introduction to available GIS software, raster and vector data presentation
2.1. Construction and applications
3.1. Construction of Polar Zenithal Stereographic, Conical projection with two standard parallel and Mercator's Projections (manual)
3.2. Digital demonstration of projections
5.1 Map layout preparation with the provided data

Essential/recommended readings

1. Cuff J. D. and Mattson M. T. (1982). Thematic Maps: Their Design and Production. Methuen Young Books.
2. Dent B. D., Torguson J. S., and Holder T. W. (2008). Cartography: Thematic Map Design (6th Edition). Mcgraw-Hill Higher Education
3. Gupta K. K. and Tyagi V. C. (1992). Working with Maps. Survey of India, DST, New Delhi.
4. Kraak, M.J. (2010). Cartography: Visualization of Geospatial Data (3rd edition). Pearson Education Ltd., London. UK.
5. Mishra R. P. and Ramesh A. (1989). Fundamentals of Cartography. Concept Publication, New
6. Sharma J. P., 2010: Prayogic Bhugol. Rastogi Publishers, Meerut.
7. Misra, R.P. (2014). Fundamentals of Cartography (Second Revised and Enlarged Edition). Concept Publishing, New Delhi. India.
8. Monkhouse, F. J. and Wilkinson, H. R. (1973). Maps and Diagrams. Methuen.
9. Singh, R.L. and Dutta, P.K. (2012). Prayogatmak Bhugol (Hindi), Central Book Depot, Allahabad.
10. Sharma, J. P. (2010). Prayogic Bhugol (Hindi), Rastogi Publishers, Meerut.

Suggestive readings

BA (Prog.) with Geography as Major

Category-II

DISCIPLINE SPECIFIC CORE COURSE – 1 (DSC-1) –: PHYSICAL

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
PHYSICAL GEOGRAPHY	**4**	**3**	**1**	**-**	**12th Pass**	**NIL**

Learning Objectives

The Learning Objectives of this course are as follows:

- To explain the concept, definition and scope of earth systems.
- To recognize the structure of the Earth and describe its characteristic features.
- To understand the atmospheric composition and structure.

Learning outcomes

The Learning Outcomes of this course are as follows:
The students will be able:

- To classify earth into various domains according to its physical features.
- To differentiate between lithosphere, hydrosphere, atmosphere and biosphere, and to understand interrelationship between them.
- To explain the atmospheric composition and structure.
- To assess the impact of anthropogenic activities on earth systems.

SYLLABUS OF DSC-1

UNIT – I (4 Hours)
Physical Geography: Definition, Nature, Scope, Earth as a System and its Components

UNIT – II (16 Hours)
Atmosphere: Composition and Structure, Energy: Insolation and Temperature, Motion in the atmosphere: pressure and circulation

UNIT – III (16 Hours)
Lithosphere: Earth's Interior, Isostasy, Earth's movement: endogenic including folding and faulting and exogenic forces

UNIT – IV (12 Hours)
Hydrosphere: Hydrological Cycle, Ocean Water Movement – Currents and Tides

UNIT – V (12 Hours)
Biosphere: Soil and Vegetation – Factors and Distribution

Practical component (if any) - NIL

Essential/recommended readings

1. Alan H. Strahler and Arthur Strahler (1992). Modern Physical Geography Fourth Edition, John Wiley & Sons, Canada.
2. Barry, R. G., and Chorley, R. J. (2009). Atmosphere, Weather and Climate (9th Edition). Routledge, New York, USA.
3. Christopherson, R. W. and Birkeland, G. H. (2012). Geosystems: An Introduction to Physical Geography (8th edition). Pearson Education, New Jersey, USA.
4. Gupta, L.S. (2000). JalvayuVigyan(Hindi). Hindi Madhyam Karyanvayan Nidishalya, Delhi.
5. Lal, D. S. (2006). JalvayuVigyan (Hindi). PrayagPustakBhavan, Allahabad, India.
6. Sharma, V.K. (2010). Introduction to Process Geomorphology. CRC Press Taylor & Francis Group.
7. Singh, S. (2009). Bhautik Bhugol ka Swaroop (Hindi). Prayag Pustak. Allahabad, India.
8. Tarbuck, E.J., Lutgens, F.K. and Tasa, D. (2012). Earth Science, Thirteenth Edition. Prentice Hall, Delhi
9. Trujillo, A.P., and Thruman, H.V. (2017). Essentials of Oceanography. PHI., New Delhi.

Suggestive readings (if any)

DISCIPLINE SPECIFIC CORE COURSE – 2 (DSC-2): HUMAN

Credit distribution, Eligibility and Prerequisites of the Course

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
HUMAN GEOGRAPHY	4	3	1	-	12th Pass	NIL

Learning Objectives

The Learning Objectives of this course are as follows:

- To understand various dimensions of human geography and cultural landscape.
- To analyses the population growth and distribution.
- To understand the relationship between population and resource.

Learning outcomes

The Learning Outcomes of this course are as follows:

- Detailed exposure of contemporary relevance of cultural landscape.
- In-depth knowledge of space and society of cultural regions.
- Understanding the settlement pattern and population resource relationship.

SYLLABUS OF DSC- 2

UNIT – I (8 Hours)
Human Geography: Definition, Scope and Major Themes; Contemporary Relevance, Understanding Cultural Landscape.

UNIT – II (16 Hours)
Population: World Population Growth – Trends and Patterns, Population Composition (Residence, Literacy and Age).

UNIT – III (12 Hours)
Space and Society: Cultural Regions, Tribes, Religion and Language.

UNIT – IV (12 Hours)
Settlements: Types of Rural Settlements; Classification of Urban Settlements; Trends and Patterns of World Urbanization.

UNIT – V (12 Hours)
Human Development – Measurements (HDI and IHDI), Regional Variations and Sustainable Development Goals.

Practical component (if any) - NIL

Essential/recommended readings

1. Chandna, R.C. (2017). Geography of Population. Kalyani Publishers, Ludhiana, India.
2. Hassan M.I. (2020). Population Geography-A Systematic Exposition. Routledge Taylor and Francis Group, New York.
3. Human Development Reports of United Nations Development Program.
4. Hussain Majid (2021). Human Geography. Rawat Publication.
5. Majid, Hussain (2012). Manav Bhugol. Rawat Publication.
6. Maurya, S.D. (2012). Manav Bhugol. Sharda Pustak Bhawan, Allahabad, India.
7. Patra, P. et. al.(2021). Perspectives of Human Geography. Concept Publications, New Delhi.
8. Rubenstein, J.M. (2008). An Introduction to Human Geography: The Cultural Landscape. Pearson Prentice Hall, NJ.
9. Saroha, J. (2021). Jansankhya Bhugol, Janankiki evam Jansankhya Adhayan. M.K. Books, New Delhi.
10. Singh, S and Saroha, J. (2021). Human and Economic Geography. Pearson Publication.

Suggestive readings (if any)

BA (Prog.) with Geography as Minor
Category-III

DISCIPLINE SPECIFIC CORE COURSE – 1 (DSC-1) –: PHYSICAL

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
PHYSICAL GEOGRAPHY	4	3	1	-	12th Pass	NIL

Learning Objectives

The Learning Objectives of this course are as follows:

- To explain the concept, definition and scope of earth systems.
- To recognize the structure of the Earth and describe its characteristic features.
- To understand the atmospheric composition and structure.

Learning outcomes

The Learning Outcomes of this course are as follows:
The students will be able:

- To classify earth into various domains according to its physical features.
- To differentiate between lithosphere, hydrosphere, atmosphere and biosphere, and to understand interrelationship between them.
- To explain the atmospheric composition and structure.
- To assess the impact of anthropogenic activities on earth systems.

SYLLABUS OF DSC-1

UNIT – I (4 Hours)
Physical Geography: Definition, Nature, Scope, Earth as a System and its Components

UNIT – II (16 Hours)
Atmosphere: Composition and Structure, Energy: Insolation and Temperature, Motion in the atmosphere: pressure and circulation

UNIT – III (16 Hours)
Lithosphere: Earth's Interior, Isostasy, Earth's movement: endogenic including folding and faulting and exogenic forces

UNIT – IV (12 Hours)
Hydrosphere: Hydrological Cycle, Ocean Water Movement – Currents and Tides

UNIT – V (12 Hours)
Biosphere: Soil and Vegetation – Factors and Distribution

Practical component (if any) - NIL

Essential/recommended readings

1. Alan H. Strahler and Arthur Strahler (1992). Modern Physical Geography Fourth Edition, John Wiley & Sons, Canada.
2. Barry, R. G., and Chorley, R. J. (2009). Atmosphere, Weather and Climate (9th Edition). Routledge, New York, USA.
3. Christopherson, R. W. and Birkeland, G. H. (2012). Geosystems: An Introduction to Physical Geography (8th edition). Pearson Education, New Jersey, USA.
4. Gupta, L.S. (2000). JalvayuVigyan(Hindi). Hindi Madhyam Karyanvayan Nidishalya, Delhi.
5. Lal, D. S. (2006). JalvayuVigyan (Hindi). PrayagPustakBhavan, Allahabad, India.
6. Sharma, V.K. (2010). Introduction to Process Geomorphology. CRC Press Taylor & Francis Group.
7. Singh, S. (2009). Bhautik Bhugol ka Swaroop (Hindi). Prayag Pustak. Allahabad, India.
8. Tarbuck, E.J., Lutgens, F.K. and Tasa, D. (2012). Earth Science, Thirteenth Edition. Prentice Hall, Delhi
9. Trujillo, A.P., and Thruman, H.V. (2017). Essentials of Oceanography. PHI., New Delhi.

Suggestive readings (if any)

COMMON POOL OF GENERIC ELECTIVE (GE) COURSES
Offered by Department of Geography
Category-IV

GENERIC ELECTIVES (GE-1): GEOGRAPHY OF INDIA

Credit distribution, Eligibility and Pre-requisites of the Course

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course
		Lecture	Tutorial	Practical/ Practice		
GEOGRAPHY OF INDIA	4	4	-	-	12th Pass	NIL

Learning Objectives

The Learning Objectives of this course are as follows:

- Various dimensions of the geographical features of India and their spatial distribution.
- Detailed analysis of economic resources of India.
- Understanding of regional divisions of India.

Learning outcomes

The Learning Outcomes of this course are as follows:

- Detailed exposure to the human and physical features of India.
- In-depth knowledge of different resource base of India.
- Understanding social-cultural base of India.

SYLLABUS OF GE-1

UNIT – I (12 Hours)
Physical Setting – Location, Relief and Structure, Drainage and Climate.

UNIT – II (12 Hours)
Population – Growth, Distribution, Literacy, Sex Ratio and Migration.

UNIT – III (12 Hours)
Resource Base – Renewable Resources and Diversification of Agriculture.

UNIT – IV (12 Hours)
Economy - Information Technology and Automobile Industry, Modes of Transport.

UNIT – V (12 Hours)
Key Concerns – Unity in Diversity, Border Issues and Biodiversity Conservation

Practical component (if any) - NIL

Essential/recommended readings

1. Gopal Krishan (2017). The Vitality of India: A Regional Perspective. Rawat Publication, Jaipur. (Hindi Medium)
2. Khullar, D.R. (2020). India – A Comprehensive Geography. Kalyani Publishers, Ludhiana.
3. Majid, H. (2020). Geography of India. McGraw Hill Education (India) Private Ltd.
4. Mamoria, C. B. and Mishra, J. P. (2021). *Bharat ka Bhugol.* Sahitya Bhawan Publication, Agra.
5. Sharma, T.C. (2013). Economic Geography of India. Rawat Publication, Jaipur.
6. Singh, Gopal (2010). Geography of India. Atma Ram and Sons.
7. Singh, S. and Saroha, J. (2019). *Bharat ka Bhugol.* CL Media (P) Ltd, New Delhi.
8. Singh, S. and Saroha, J. (2019). Geography of India,.CL Media (P) Ltd, New Delhi.
9. Tiwari, R. C. (2019). Bharat ka Bhugol. Pravalika Publication, Allahabad.
10. Tiwari, R. C. (2019). Geography of India. Pravalika Publication, Allahabad.

Suggestive readings

GENERIC ELECTIVES (GE-2): SPATIAL DIMENSIONS OF DEVELOPMENT

Credit distribution, Eligibility and Pre-requisites of the Course

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course
		Lecture	Tutorial	Practical/ Practice		
SPATIAL DIMENSIONS OF DEVELOPMENT	4	4	-	-	12th Pass	NIL

Learning Objectives

The Learning Objectives of this course are as follows:

- Understand the meaning and concept of Development.
- Understand the different theories of development.
- Understand global pattern of development.

Learning outcomes

The Learning Outcomes of this course are as follows:
The students will be able:

- To learn changing concept of development.
- To learn the human development index.
- To analyses the different theories of development.

SYLLABUS OF GE-2

UNIT – I (12 Hours)

Concept of Development: Definition and Meaning of Development, Changing Concept of Development (Economic Growth, Modernization, Distributive Justice), Equity-Efficiency Debate, Alternative Development Paradigms.

UNIT – II (12 Hours)
Indicators of Development: Economic, Social and Environmental.

UNIT – III (12 Hours)
Theories of Development: Myrdal, Hirschman, Rostow, Friedman, Under Development and Dependent Development.

UNIT – IV (12 Hours)
Global Patterns of Development: Economic Groupings (United Nations, World Bank, IMF) and Inter Regional Cooperation (SAARC, ASEAN, European Union).

UNIT – V (12 Hours)
Human Development: Concept, Indicators, HDI (India and World).

Practical component (if any) - NIL

Essential/recommended readings

1. Friedmann J. (1966). Regional Development Policy: A Case Study of Venezuela. Cambridge, Mass., MIT.
2. Gore C. (1984). Regions in Question: Space, Development Theory and Regional Policy. London,Methuen.
3. Hirschman A. O. (1958). The Strategy of Economic Development. New Haven, Yale University Press.
4. Murray Warwick E. (2006). Geographies of Globalization. Routledge.
5. Myrdal K. G. (1957). Economic Theory and Underdeveloped Regions. London, Duckworth.
6. Peet R. (1999).Theories of Development. Guilford Press, New York.
7. Pieterse , J.N. (2010). Development Theory. Sage , Los Angeles.
8. Potter R., Conway D., Evans R. and Evans S.L. (2012). Key Concept in Development Geography. SAGE Publications Ltd.
9. Stohr W. B. and Taylor D. R. F. (1981). Development from Above or Below? The Dialectics of Regional Planning in Developing Countries. John Wiley, Chichester.
10. Willis Katie (2011).Theories and Practices of Development. Routledge.

Suggestive readings -

GENERIC ELECTIVES (GE-3): GEOGRAPHY OF HEALTH AND WELLBEING

Credit distribution, Eligibility and Pre-requisites of the Course

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course
		Lecture	Tutorial	Practical/ Practice		
GEOGRAPHY OF HEALTH AND WELLBEING	4	4	-	-	12th Pass	NIL

Learning Objectives

The Learning Objectives of this course are as follows:

- To understand various dimensions of health geography and its linkages with environment.
- To familiarize the student with the theoretical foundations and conceptual grounding of unique geography of social well-being.
- To appreciate the roles of geographic factors in socio-cultural diversity and well –being.
- To analyses in details the social wellbeing, problems and welfare programmes and policies.

Learning outcomes

The Learning Outcomes of this course are as follows:
After studying, students will be able to:

1. Get detailed exposure of health and environment.
2. Get Knowledge of the geography of social well-being and social diversity.
3. Appraise the key concepts of social geography in regional context; geographic factors underlying patterns of social well-being and inclusive development.
4. Explain the social problems and the welfare programs and policies.

SYLLABUS OF GE-3

UNIT – I (12 Hours)
Introduction to the concept of Health Geography, Medical Geography, approaches, nature and scope.

UNIT – II (12 Hours)
Wellness and Wellbeing: Concept, Social wellbeing, indicators and approaches.

UNIT – III (12 Hours)
Environment and Health Interface: Pollution; Climate change and Health.

UNIT – IV (12 Hours)
Development and Health interface: Economic activities (Agriculture, Industry, work-place) and Health.

UNIT – V (12 Hours)
Contemporary health challenges and policy implications in India: Lifestyle diseases, communicable diseases, mental health.

Practical component (if any) - NIL

Essential/recommended readings

1. Akhtar Rais (Ed.), (1990). Environment and Health Themes in Medical Geography. Ashish Publishing House, New Delhi
2. Anthony C. Gatrell, Susan J. Elliott, (2014). Geographies of Health. Wiley Pub.

3. E. Banister, (1987). Contemporary Health Issues (Health Sciences). Jones and Bartlett Publishers
4. Helen Hazen, Peter Anthamatten, (2020). An Introduction to the Geography of Health. Routledge
5. Mahajan and Gupta (fourth edition) (2013). Text book of preventive and social medicine. Jaypee Brothers Medical Publishers (P) Ltd.
6. Michael Emch, Elisabeth Dowling Root, Margaret Carrel (2017). Health and Medical Geography,
7. National health Policy-India (2017) [https://www.nhp.gov.in/nhpfiles/national_health_policy_2017.pdf]
8. Paul, L. Knox (1975). Social Well-being: A Spatial Perspective (Theory & Practice in Geography). Oxford University Press
9. Phillips, D.and Verhasselt, Y. (1994). Health and Development. Routledge, London.
10. हरीशकुमारखत्री, स्वास्थ्यभूगोल, कैलाशपुस्तकसदन, भोपाल, 9788189900731

Suggestive readings

INDEX

DEPARTMENT OF GEOGRAPHY
SEMESTER – II

DISCIPLINE SPECIFIC CORE COURSE – 4 (DSC-4): GEOMORPHOLOGY

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
GEOMORPHOLOGY	4	3	1	-	-	-

Learning Objectives

The Learning Objectives of this course are as follows:

- To understand the association between geomorphologic landforms, concepts and processes.
- To critically evaluate and connect information about geomorphic processes.
- To provide a theoretical and empirical framework for understanding landscape evolution and the characteristics of individual types of geomorphic landscapes.

Learning outcomes

The Learning Outcomes of this course are as follows:

- To know the functioning of earth systems in real time and analyze how the natural and anthropogenic operating factors affects the development of landforms.
- To distinguish between the mechanisms that controls these processes.
- To assess the roles of structure, stage and time in shaping the landforms, interpret geomorphological maps and apply the knowledge in geographical research.

SYLLABUS OF DSC-4

UNIT – I (2Weeks)
Geomorphology: Definitions, Principles, Recent Trends

UNIT – II (4Weeks)
Plate Tectonics: Concept, Mechanism, Boundaries, Movements and Resultant effects

UNIT – III (3Weeks)
Denudation: Weathering, Mass Wasting, Erosion

UNIT – IV (3Weeks)
Landform development: Cyclic (ideas of Davis and Penck), non-cyclic and poly-cyclic concepts

UNIT – V (5 Weeks)
Landforms: Fluvial, Aeolian, Glacial, and Coastal Landforms

Practical component (if any) - NIL

Suggestive readings

1. Bloom, A.L., (2003). Geomorphology: A Systematic Analysis of Late Cenozoic Landforms. First Indian Reprint. Delhi: Pearson Education (Singapore) Pte. Ltd.
2. Dyal., P. (2014). Bho-Akriti Vigyan. Rajesh Publications, New Delhi (Hindi).
3. Gupta, S.L. (2008). Bho-Akriti Vigyan. University of Delhi (Hindi).
4. Jat., B.C. (2004). Bho-Akriti Vigyan. Rawat Publications, New Delhi, (Hindi).
5. Singh, S. (1998). Geomorphology. PrayagPuskak Bhawan: Allahabad.
6. Strahler, A.H. and Strahler, A.N. (1992). Modern Physical Geography, Fourth Edition. John Wiley & Sons, Canada.
7. Summerfield, M.A, (1991). Global Geomorphology: an Introduction to the Study of Landforms. Longman, New York.
8. Tarbuck, E.J., Lutgens, F.K and Tasa, D. (2012). Earth Science, Thirteenth Edition, Prentice Hall. Delhi.
9. Thornbury, W.D., (1993). Principles of Geomorphology, Second Edition. Wiley Eastern Limited, New Delhi.

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

DISCIPLINE SPECIFIC CORE COURSE – 5 (DSC-5): POPULATION GEOGRAPHY

Credit distribution, Eligibility and Pre-requisites of the Course

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
POPULATION GEOGRAPHY	4	3	1	-	-	-

Learning Objectives

The Learning Objectives of this course are as follows:

- It introduces the basic concepts of population geography to the students.
- An understanding of the importance and need of Demographic data.
- Spatial understanding of population dynamics.

Learning outcomes

The Learning Outcomes of this course are as follows:

- The students would get an understanding of the distribution and trends of population growth in the developed and less developed countries, along with population theories.
- The students would get an understanding of the dynamics of the population.

- An Understanding of the implications of population composition in different regions of the world.

SYLLABUS OF DSC-5

UNIT – I (3 Weeks)

Nature and Scope of Population Geography, Sources of Population Data with special reference of Indian Census.

UNIT – II (4Weeks)

Population Size, Distribution and Growth – Determinants and Patterns; Theories of Growth – Malthusian Theory and Demographic Transition Theory.

UNIT – III (4Weeks)

Population Dynamics: Fertility and Mortality – Measures and Determinants, Migration – Determinants and Implications.

UNIT – IV (4Weeks)

Dynamics of Population Pyramids and Women Empowerment and Indian Population Policies.

UNIT – V (2 Weeks)

Contemporary Issues - Ageing of Population, Demographic Dividends, Global Refugee Crisis.

Practical component (if any) - NIL

Suggestive readings

1. Bhende A. and Kanitkar T. (2019). Principles of Population Studies. Himalaya Publishing House, New Delhi, India.
2. Chandna, R.C. (2017). Geography of Population. Kalyani Publishers, Ludhiana, India.
3. Clarks, John, I. (1972). Population Geography. Pergamon Press, New York.
4. Hassan M.I. (2020). Population Geography, A Systematic Exposition. Routledge Taylor and Francis Group, New York.
5. Lutz, W., Warren, C. S. and Scherbov, S. (2004). The End of the World Population Growth in the 21st Century. UK: Earthscan.
6. Majumdar, P.K. (2010). Fundamentals of Demography. Rawat publications, Jaipur.
7. Maurya, S. D. (2021). *JansankyaBhugol*. Sharda Pustak Bhawan, Allahabad.
8. Newbold, K. B. (2017). Population Geography: Tools and Issues. Rowman and Littlefield Publishers,NY, USA.
9. Saroha, J. (2021). JansankhyaBhugol, JanankikievamJansankhyaAdhayan. M.K. Books, New Delhi.
10. Weeks, John R. (2020) Population: An Introduction to Concepts and Issues. Cengage Learning, Boston.

DISCIPLINE SPECIFIC CORE COURSE – 6 (DSC-6): STATISTICAL METHODS IN GEOGRAPHY

Credit distribution, Eligibility and Pre-requisites of the Course

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
STATISTICAL METHODS IN GEOGRAPHY (PRACTICAL)	4	-	-	8		

Learning Objectives

The Learning Objectives of this course are as follows:

- The concept of quantitative information in general and Geographical data in particular. The importance of data analytics. The ways data is collected, or data is taken from different sources. The sampling methods' application for data collection purposes.
- To understand the ways to handle the collected data through classification, tabulation and stigmatization.
- To compute relations and impacts among the data series.

Learning outcomes

The Learning Outcomes of this course are as follows:

- To differentiate between qualitative and quantitative information.
- To know the nature of various data, different sources and methods of data collection.
- To present data through graphical and diagrammatic formats.
- To analyse the variations in spatial and non-spatial data.

SYLLABUS OF DSC-6

UNIT – I (3 Weeks)

Data in Geography: Sources of Data, Scales of Measurements in Geography, Tabulation, Frequency Distribution, Geographical Data Matrix.

UNIT – II (5 Weeks)

Descriptive Statistics: Central Tendencies – Mean, Median, Mode; Measures of Partitions - Quartile, Decile, Percentile; Measures of Dispersion- Standard Deviation and Coefficient of Variation; Spatial Centro-graphic Techniques – Mean Centre, Median Centre.

UNIT – III (3 Weeks)

Sampling Methods: Sampling (Simple Random, Systematic, and Stratified); and Non-probability sampling.

UNIT – IV (3 Weeks)

Theoretical Distribution: Concept of Probability Distribution (Theoretical only), Normal Distribution – Characteristics, Area under Normal Curve.

UNIT – V (3 Weeks)

Relationship Analysis: Correlation - Spearman's and Karl Pearson's coefficient of correlation; Simple Regression.

Practical component (if any) – Practical File*

Suggestive readings

1. Alvi Z. (1995). Statistical Geography: Methods and Applications. RawatPublications, Jaipur.
2. Mahmood A. (1999). Statistical Methods in Geographical Studies. Rajesh Publications, New Delhi.
3. Pal S. K. (1998). Statistics for Geoscientists. Tata McGraw Hill, New Delhi.
4. Rogerson P.A. (2014). Statistical Methods for Geography: A Student's Guide. Sage, New Delhi.
5. Singh D. (2018). प्रारंभिकसांख्यिकीविधियाँ. New Delhi. R K Books, New Delhi.
6. Ebdon D. (1977). Statistics in Geography: A Practical Approach. Oxford, UK. Blackwell.
7. Singh D. (2018). Elementary Statistical Methods. R K Books, New Delhi.
8. Sinha, I. (2007). सांख्यिकीभूगोल. Discovery Publishing House, New Delhi.
9. Walford N. (2011). Practical Statistics for Geographers and Earth Scientists. Wiley-Blackwell, West Sussex, United Kingdom.
10. SPSS (Statistical Package for Social Sciences)
11. Tableau Desktop software/R.

Note:

***1. Students should construct/collect data matrix (75X5) with each row 75 representing an aerial unit (district/village/town) and 5 columns of relevant attributes of areal units.**

2. All the exercises will be based on the data matrix collected by the students.

3. Simple calculator is allowed in the examination.

Category II

Geography Courses for Undergraduate Programme of study with Geography as one of the Core Disciplines

(B.A. Programmes with Geography as Major discipline)

DISCIPLINE SPECIFIC CORE COURSE – 3 (DSC-3): GEOMORPHOLOGY

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
GEOMORPHOLOGY	4	3	1	-	-	-

Learning Objectives

The Learning Objectives of this course are as follows:

- To understand the association between geomorphologic landforms, concepts and processes.
- To critically evaluate and connect information about geomorphic processes.
- To provide a theoretical and empirical framework for understanding landscape evolution and the characteristics of individual types of geomorphic landscapes.

Learning outcomes

The Learning Outcomes of this course are as follows:

- To understand the functioning of earth systems in real time and analyze how the natural and anthropogenic operating factors affects the development of landforms.
- To distinguish between the mechanisms that controls these processes.
- To assess the roles of structure, stage and time in shaping the landforms, interpret geomorphological maps and apply the knowledge in geographical research.

SYLLABUS OF DSC-3

UNIT – I (2 Weeks)
Geomorphology: Definitions, Principles, Recent Trends

UNIT – II (4 Weeks)
Plate Tectonics: Concept, Mechanism, Boundaries, Movements and Resultant effects

UNIT – III (3 Weeks)
Denudation: Weathering, Mass Wasting, Erosion

UNIT – IV (3 Weeks)

Landform development: Cyclic (ideas of Davis and Penck), non-cyclic and poly-cyclic concepts

UNIT – V (5 Weeks)

Landforms: Fluvial, Aeolian, Glacial, and Coastal Landforms

Practical component (if any) - NIL

Suggestive readings

1. Bloom, A.L., (2003). Geomorphology: A Systematic Analysis of Late Cenozoic Landforms. First Indian Reprint. Delhi: Pearson Education (Singapore) Pte. Ltd.
2. Dyal., P. (2014). Bho-Akriti Vigyan. Rajesh Publications, New Delhi (Hindi).
3. Gupta, S.L. (2008). Bho-Akriti Vigyan. University of Delhi (Hindi).
4. Jat., B.C. (2004). Bho-Akriti Vigyan. Rawat Publications, New Delhi, (Hindi).
5. Singh, S. (1998). Geomorphology. PrayagPuskak Bhawan: Allahabad.
6. Strahler, A.H. and Strahler, A.N. (1992). Modern Physical Geography, Fourth Edition. John Wiley & Sons, Canada.
7. Summerfield, M.A, (1991). Global Geomorphology: an Introduction to the Study of Landforms. Longman, New York.
8. Tarbuck, E.J., Lutgens, F.K and Tasa, D. (2012). Earth Science, Thirteenth Edition, Prentice Hall. Delhi.
9. Thornbury, W.D., (1993). Principles of Geomorphology, Second Edition. Wiley Eastern Limited, New Delhi.

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

DISCIPLINE SPECIFIC CORE COURSE – 4 (DSC-4): POPULATION GEOGRAPHY

Credit distribution, Eligibility and Pre-requisites of the Course

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
POPULATION GEOGRAPHY	4	3	1	-	-	-

Learning Objectives

The Learning Objectives of this course are as follows:

- It introduces the basic concepts of population geography to the students.
- An understanding of the importance and need for Demographic data.
- Spatial understanding of population dynamics.

Learning outcomes

The Learning Outcomes of this course are as follows:

- The students would get an understanding of the distribution and trends of population growth in the developed and less developed countries, along with population theories.
- The students would get an understanding of the dynamics of the population.
- An Understanding of the implications of population composition in different regions of the world.

SYLLABUS OF DSC-4

UNIT – I (3 Weeks)
Nature and Scope of Population Geography, Sources of Population Data with special reference of Indian Census.

UNIT – II (4 Weeks)
Population Size, Distribution and Growth – Determinants and Patterns; Theories of Growth – Malthusian Theory and Demographic Transition Theory.

UNIT – III (4 Weeks)
Population Dynamics: Fertility and Mortality – Measures and Determinants, Migration – Determinants and Implications.

UNIT – IV (4 Weeks)
Dynamics of Population Pyramids and Women Empowerment and Indian Population Policies.

UNIT – V (2 Weeks)
Contemporary Issues - Ageing of Population, Demographic Dividends, Global Refugee Crisis.

Practical component (if any) - NIL

Suggestive readings
1. Bhende A. and Kanitkar T. (2019). Principles of Population Studies. Himalaya Publishing House, New Delhi, India.
2. Chandna, R.C. (2017). Geography of Population. Kalyani Publishers, Ludhiana, India.
3. Clarks, John, I. (1972). Population Geography. Pergamon Press, New York.
4. Hassan M.I. (2020). Population Geography, A Systematic Exposition. Routledge Taylor and Francis Group, New York.
5. Lutz, W., Warren, C. S. and Scherbov, S. (2004). The End of the World Population Growth in the 21st Century. UK: Earthscan.
6. Majumdar, P.K. (2010). Fundamentals of Demography. Rawat publications, Jaipur.
7. Maurya, S. D. (2021). *JansankyaBhugol*. Sharda Pustak Bhawan, Allahabad.
8. Newbold, K. B. (2017). Population Geography: Tools and Issues. Rowman and Littlefield Publishers,NY, USA.
9. Saroha, J. (2021). JansankhyaBhugol, JanankikievamJansankhyaAdhayan. M.K. Books, New Delhi.
10. Weeks, John R. (2020) Population: An Introduction to Concepts and Issues. Cengage Learning, Boston.

Category III

Geography Courses for Undergraduate Programme of study with Geography as one of the Core Disciplines

(B.A. Programmes with Geography as non-Major or Minor discipline)

DISCIPLINE SPECIFIC CORE COURSE – 2 (DSC-2): HUMAN GEOGRAPHY

Credit distribution, Eligibility and Prerequisites of the Course

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
HUMAN GEOGRAPHY	4	3	1	-	-	-

Learning Objectives

The Learning Objectives of this course are as follows:

- To understand various dimensions of human geography and cultural landscape.
- To analyses the population growth and distribution.
- To understand the relationship between population and resource.

Learning outcomes

The Learning Outcomes of this course are as follows:

- Detailed exposure to contemporary relevance of cultural landscape.
- In-depth knowledge of space and the society of cultural regions.
- Understanding the settlement pattern and population resource relationship.

SYLLABUS OF DSC- 2

UNIT – I (2 Weeks)

Human Geography: Definition, Scope and Major Themes; Contemporary Relevance, Understanding Cultural Landscape.

UNIT – II (4 Weeks)

Population: World Population Growth – Trends and Patterns, Population Composition (Residence, Literacy and Age).

UNIT – III (4 Weeks)

Space and Society: Cultural Regions, Tribes, Religion and Language.

UNIT – IV (4 Weeks)

Settlements: Types of Rural Settlements; Classification of Urban Settlements; Trends and Patterns of World Urbanization.

UNIT – V (3 Weeks)

Human Development – Measurements (HDI and IHDI), Regional Variations and Sustainable Development Goals.

Practical component (if any) - NIL

Suggestive readings

1. Chandna, R.C. (2017). Geography of Population. Kalyani Publishers, Ludhiana, India.
2. Hassan M.I. (2020). Population Geography-A Systematic Exposition. Routledge Taylor and Francis Group, New York.
3. Human Development Reports of United Nations Development Program.
4. Hussain Majid (2021). Human Geography. Rawat Publication.
5. Majid, Hussain (2012). Manav Bhugol. Rawat Publication.
6. Maurya, S.D. (2012). Manav Bhugol. Sharda Pustak Bhawan, Allahabad, India.
7. Patra, P. et. al.(2021). Perspectives of Human Geography. Concept Publications, New Delhi.
8. Rubenstein, J.M. (2008). An Introduction to Human Geography: The Cultural Landscape. Pearson Prentice Hall, NJ.
9. Saroha, J. (2021). JansankhyaBhugol, JanankikievamJansankhyaAdhayan. M.K. Books, New Delhi.
10. Singh, S and Saroha, J. (2021). Human and Economic Geography. Pearson Publication.

COMMON POOL OF GENERIC ELECTIVES (GE) COURSES OFFERED BY THE DEPARTMENT OF GEOGRAPHY

GENERIC ELECTIVES (GE-4): GLOBALIZATION AND MOBILITY

Credit distribution, Eligibility and Pre-requisites of the Course

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course	Department offering the course
		Lecture	Tutorial	Practical/ Practice			
GLOBALIZATION AND MOBILITY	4	3	1	-	-	-	GEOGRAPHY

Learning Objectives

The Learning Objectives of this course are as follows:

- To understand the concept of mobility and migration.
- To understand the global cities, global village and borderless world.
- To understand flexible labour market and mass mobility.

Learning outcomes

The Learning Outcomes of this course are as follows:

- The students will able to learn the concept of migration.
- Students will able to differentiate between mobility and migration.
- Students will able to learn the implications of flexible labour market.

SYLLABUS OF GE-4

UNIT – I (2 Weeks)
Globalization: Concept and Indicators; Mobility and Migration: Concept and Significance.

UNIT – II (4 Weeks)
Global Cities, Global Village and Borderless World: Intensification and integration of Economic and Political Relations across borders.

UNIT – III (4 Weeks)
Role of freedom of Trade and Information Technology on Human Mobility. Challenges of Globalization.

UNIT – IV (4 Weeks)
Mobility: Frequency, Trends, Patterns and Factors; Pressure on Social Infrastructure.

UNIT – V (3 Weeks)

Globality: Implications of Flexible Labour Market, Individual and Mass Mobility.

Practical component (if any) - NIL

Suggestive readings

1. Acharya, L.M. (2012). Economic Geography, Migration and Global Politics. KUNAI Books.
2. Ahmad, Aijazuddin (2002). Social Geography. Rawat Books, Jaipur.
3. Jone, V and Pertierra (2013). Migration, Diaspora and Information technology in Global Societies. Routledge Publication.
4. Kent, Bruce (1991). Building the Global Village. Hopper Collins Publishers Inc.
5. Marshall, Tim (2021). The Power of Geography: Ten Maps That Reveal The Future of Our World. Elliott & Thompson limited.
6. Rajgopalan, S (2012). Rural Urban Migration: Trends, Challenges and Strategies. SBS Publishers.
7. Sengupta, Anita (2015). Globalizing Geographies. KW Publishers Pvt. Ltd.
8. Shrinivasan, Ramesh (2017). Whose Global Village? Rethinking How Technology Shapes Our World. NYU Press.
9. Shroff, Menon (2019). Social Changes in Migration Globalization. Amiga Press Inc.

GENERIC ELECTIVES (GE-5): DISASTER MANAGEMENT

Credit distribution, Eligibility and Pre-requisites of the Course

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course	Department offering the course
		Lecture	Tutorial	Practical/ Practice			
DISASTER MANAGEMENT	4	3	1	-	-	-	GEOGRAPHY

Learning Objectives

The Learning Objectives of this course are as follows:

- Understanding the basic concepts of disaster management.
- Detailed analysis about the different types of disasters in India.
- Evaluating the role of institutional frameworks to mitigate the disasters in the country.

Learning outcomes

The Learning Outcomes of this course are as follows:

- In depth understanding about the various disasters in the country.
- It will provide thorough understanding about the human responses to the disasters.
- It will highlight the responses and mitigation measures to both natural and manmade disasters.

SYLLABUS OF GE-5

UNIT – I (4 Weeks)

Disasters, Hazards, Risk, Vulnerability- Definition, Concept and Classification;Hazard, Risk Vulnerability Capacity (HRVC) - Methods, Analysis and Mapping

UNIT – II (3 Weeks)

Disaster Management- Disaster Management Cycle, Community Based Disaster Management

UNIT – III (3 Weeks)

Floods, Earthquake, Drought, Cyclone

UNIT – IV (3 Weeks)

Industrial,War, Fire, Epidemics, Nuclear

UNIT – V (4 Weeks)

Strategies for disaster management: International- Yokohama Strategy for a Safer World 1994, Hyogo framework for Action 2005-2015; Sendei Framework for Disaster Risk Reduction 2015-2030; Indian Policyfor disaster management: Disaster Management Act 2005,10 point Agenda of Prime minister on DRR

Practical component (if any) - NIL

Suggestive readings

1. Asthana , N.C. and Asthana P. (2014). Disaster Management. Pointer Publishers
2. Bryant , E.(2004). Natural Hazards. Cambridge University Press, India
3. Kapur ,Anu(2010). Vulnerable India: A Geographical Study Of Disasters. Sage Publications,
4. Savinder Singh(2019). ApdaPrabandhan.PravalikaPrakashan (Hindi).
5. Smith, Keith (2013). Environmental Hazards: Assessing risk and reducing disasters
6. Wisner, B., Blaikie P et al. (2004). At Risk: Natural Hazards, People's Vulnerability and Disasters. Routledge Taylor and Francis Group , NY (https://www.preventionweb.net/files/670_72351.pdf)
7. Singh R.B. (ed.) (2006). Natural Hazards and Disaster Management: Vulnerability and Mitigation . Rawat Publications, Jaipur.
8. Singh, J. (2007). Disaster Management: Future Challenges and Opportunities.IK International Pvt. Ltd, New Delhi.
9. Sinha, A. (2001). Disaster Management: Lessons drawn and Strategies for Future. New United Press, New Delhi.
10. Modh, S. (2010). Managing Natural Disaster: Hydrological, Marine and Geological Disasters. Macmillan, Delhi.

GENERIC ELECTIVES (GE-6): INDIGENOUS KNOWLEDGE SYSTEM AND PRACTICES

Credit distribution, Eligibility and Pre-requisites of the Course

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course	Department offering the course
		Lecture	Tutorial	Practical/ Practice			
INDIGENOUS KNOWLEDGE AND PRACTICES	4	3	1	-	-	-	GEOGRAPHY

Learning Objectives

The Learning Objectives of this course are as follows:

- To know the meaning of indigenous knowledge system and its significance.
- To be aware of the concept of sustainability and ecosystem services.
- To be acquainted with about the indigenous knowledge of soil and water conservation techniques.

Learning outcomes

The Learning Outcomes of this course are as follows:

- Students will be able to know the importance of our indigenous knowledge system.
- Students will learn how indigenous knowledge system will be effective to conserve out resources.
- Students will able to know about the intellectual property rights and socio-cultural heritage.

SYLLABUS OF GE-6

UNIT – I (2 Weeks)

Introduction: Concept, Meaning and Definition, Approaches of Indigenous Knowledge System, Identification, Documentation, and Validation of Indigenous Knowledge system, Significance of Indigenous Knowledge System.

UNIT – II (4 Weeks)

Indigenous Knowledge System (IKS), Sustainability and Ecosystem Services: Indigenous Knowledge and Sustainability, Indigenous Knowledge and Ecosystem Services, Nature Based Solutions (NBSs).

UNIT – III (3 Weeks)

Indigenous Knowledge System and Practice: Case Studies: Agriculture, Land and Soil, Water, Forest.

UNIT – IV (4 Weeks)

Indigenous Knowledge System and Rights of Communities: Role of Institutions, Intellectual Property Rights (IPRs), Indigenous Knowledge System and Socio-cultural Heritage.

UNIT – V (4 Weeks)

Policy Implications/Way Forward: Revival and recognition of Indigenous Knowledge System, Integration of Intergenerational transmission of Indigenous Knowledge System, Need for Policy framework and Role of Various Initiatives with respect to India, Strength, Weakness, Opportunities and Threats (Challenges).

Practical component (if any) - NIL

Suggestive readings

1. Berkes, F. and Gadgil, M. (1995). Indigenous Knowledge for biodiversity conservation. *Ambio,* 22(2-3): 151-156.
2. Berkes, F. (1999). Sacred Ecology: Traditional Ecological Knowledge and Resource *Management.* Milton Park: Taylor & Francis.
3. Brokensha D.W., Warren D.M. and Werner, O. (1980). Indigenous Knowledge Systems and Development. Washington DC: University Press of America.
4. Brush, S. (1993). Indigenous knowledge of biological resources and intellectual property rights: The role of anthropology. *American Anthropologist,* 95 (3): 653–86.
5. Ford, J. and Martínez, D. (2000). Traditional ecological knowledge, ecosystem and environmental management. *Ecol. Application,* 10: 1249-1250.
6. Melissa, N. and Shilling, D. (2018). Traditional Ecological Knowledge: Learning from Indigenous Environmental Sustainability. Cambridge University Press.
7. Mishra, P.K. and Rai S.C. (2013). Use of Indigenous Soil and Water Conservation Practices among Farmers in Sikkim Himalaya. *Indian Journal of Traditional Knowledge*, 12(3), July, Pp. 454-464. NISCAR, CSIR, New Delhi.
8. Rai, S.C. and Mishra, P.K. (2022).Traditional Ecological Knowledge of Resource Management in Asia. Springer Nature Switzerland AG (In Press).
9. Stori F.T., Peres C.M., Turra, A. and Pressey R.L. (2019) Traditional Ecological Knowledge Supports Ecosystem-Based Management in Disturbed Coastal Marine Social-Ecological Systems. *Frontier in Marie. Science*, 6:571.
10. Warren D.M., Slikkerveer L.J. andBrokensha, D. (1995) The cultural dimension of development: Indigenous Knowledge Systems. Intermediate Technology Publications, London.

DEPARTMENT OF GEOGRAPHY

CATEGORY -I
BA (HONS. GEOGRAPHY

DISCIPLINE SPECIFIC CORE COURSE – 07 (DSC-07): CLIMATOLOGY

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
CLIMATOLOGY	4	3	1	0	12th pass	Nil

Learning Objectives

The Learning Outcomes of this course are as follows:

- Explaining various dimensions of climatology
- Analysing atmospheric moisture along with disturbances
- An understanding world climatic regions

Learning outcomes

The Learning Outcomes of this course are as follows:

- Detailed exposure to climatology.
- In-depth knowledge of atmospheric moisture and cyclonic features.
- Knowledge of the mechanism of monsoon and climatic classification.

SYLLABUS OF DSC-07

Unit-I: Introduction: **(2hrs)**

- Nature, Scope, and Application

Unit-II: Atmospheric Moisture (12hrs)

- Humidity-types, Evapotranspiration, Condensation- process and forms (a. clouds, and b. fog), Precipitation- forms and types, Atmospheric Stability and Instability.(10hrs)

Unit-III: Atmospheric Disturbances: (12hrs)

- Tropical Cyclones- Characteristics, Mechanism and Distribution.

- Temperate Cyclones- Characteristics, Mechanism (Polar Front Theory) and Distribution.(

Unit-IV: Monsoon (10hrs)

- Mechanism of monsoon.
- Global teleconnections in relation to monsoon in India, ENSO, Indian Ocean Dipole Effect.
- Jet Streams and Monsoon in India.

Unit-V: Climatic Classification (9hrs)

- Concept and Purpose of Classification.
- Koppen's Classification.

Suggestive Readings

1. Frederick K. Lutgens, Edward J. Tarbuck, Dennis G. Tasa (2015) The Atmosphere: An Introduction to Meteorology, Pearson Education

2. Barry R. G. and Carleton A. M. (2001) Synoptic and Dynamic Climatology, Routledge, UK. 2

3. Barry R. G. and Corley R. J. (2003) Atmosphere, Weather and Climate, Routledge, New York.

4. Critchfield H. J. (1987) General Climatology, Prentice-Hall of India, New Delhi

5. Lutgens F. K., Tarbuck E. J. and Tasa D. (2009) The Atmosphere: An Introduction to Meteorolog

6. Oliver J. E. and Hidore J.J. (2002) Climatology: An Atmospheric Science, Pearson

7. Trewartha G. T. and Horne L. H. (1980) An Introduction to Climate, McGraw-Hill.

8. Gupta S.L. (2000): Jalvayu Vigyan, Hindi Madhyam Karyanvay Nidishalya, Delhi Vishwa Vidhyalaya, Delhi

9. Lal, D. S. (2006): Jalvayu Vigyan, Prayag Pustak Bhavan, Allahabad

10. Vatal, M. (1986): Bhautik Bhugol, Central Book Depot, Allahabad

11. Singh, S. (2009): Jalvayu Vigyan, Prayag Pustak Bhawan, Allahabad

12. Malhotra, N. and Sen, S. (2018) Climatology, M K Books, New Delhi

Practical component (if any) - NIL

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

DISCIPLINE SPECIFIC CORE COURSE – 08 (DSC-08): URBAN GEOGRAPHY

Credit distribution, Eligibility and Pre-requisites of the Course

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
URBAN GEOGRAPHY	4	3	1	0	12th pass	Nil

Learning Objectives

- To familiarize student with the nature and scope of urban geography.
- To understand the morphology and hierarchy in urban system.
- To learn about the importance of urban issues in mega- cities.
- To provide knowledge about urban planning and governance.
- To make students learn about the new perspectives of futuristic cities.

Learning outcomes

- Comprehend the fundamentals of urbanization, morphology and hierarchy theories that explain the process of urban development.
- Be conversant with the morphology of Indian cities.
- Be Aware about the issues faced in mega cities.
- Have insight into the master plans, renewal plans, UN-Habitat and urban local bodies
- Explore about the concepts of new urbanism, sustainable, smart and inclusive cities.

SYLLABUS OF DSC-08

Unit-1: Introduction (3hrs)

- Definition of urban; Nature and scope of urban geography; Theories of urban origin (reference Carter).

Unit-II: Urban Morphology and Hierarchy (12hrs)

- Concept and Theories of morphology (Kearsley modified Burgess, Harris & Ullman and White' model; Concept and Theories of Hierarchy-Christaller, and Rank size; Morphology of an Indian City (Madurai or Delhi or Jamshedpur) (ONLY ONE).

Unit-III: Urban Issues in Mega Cities of India (9hrs)

- Urban Basic Services (water in detail with reference to Chennai); Housing and slums (Mumbai).
- Heat island (suitable examples).

Unit-IV: Urban Planning and Governance (9hrs)

- Planning: Concept of Master Plans, AMRUT; Institutions: UN-Habitat, Urban local bodies in India.

Unit-V: Futuristic Cities (12hrs)

- Concept of New Urbanism; Concepts of futuristic cities: sustainable city, smart city, compact city, virtual city, network city, world class city, global city and inclusive city (no question on individual concept); Sustainable city or smart city concept in detail (ONLY ONE).

Suggestive Readings

1. Carter, H. (2010) The Study of Urban Geography, Arnold Publishers, London.
2. Pacione, M. (2009). Urban Geography: A Global Perspective. Taylor and Francis , UK
3. Fyfe, N. R. and Kenny, J. T. (2020). The Urban Geography Reader. London, UK: Routledge.
4. Kaplan, D. H., Wheeler, J. O. and Holloway, S. R. (2008). Urban Geography, John Wiley, New York
5. Ramachandran, R., (1992). Urbanisation and Urban Systems of India. New Delhi, India: Oxford University Press.
6. Singh, S and Saroha, J. (2021) Urban Geography, Pearson Education.
7. मंडल, आर.बी. (2012) नगरिय भुगोल, कॉन्सेप्ट पब्लिशिंग कंपनी, नई दिल्ली।
8. बंसल, एस.सी. (1997) नगरिय भुगोल, मीनाक्षी प्रकाशन, मेरठ।
9. Misra , R.P. (2013) Urbanisation in South Asia, Cambridge University Press, New Delhi
10. Knox, P. L., and McCarthy, L. (2005) Urbanization: An Introduction to Urban Geography, Pearson Prentice Hall, New York
11. Grant, J. (2005) Planning the Good Community: New Urbanism Theory and Practice, Routledge, London
12. Sharma, P. and Rajput, S. (Eds.) (2017). Sustainable Smart Cities in India; Challenges and Future Perspectives, Springer Nature AG, Switzeland
13. Palen, J.J. (2012) The Urban World. Paradigm Publishers, Boulder, USA
14. Graham H. and Colin H. (2003)Sustainable Cities, Routledge, London
15. Singh, R.B., (Ed.) (2015). Urban Development, challenges, risks and Resilience in Asian megacities, Springer

Practical Component (if any): NIL

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi

DISCIPLINE SPECIFIC CORE COURSE – 09 (DSC-09): FUNDAMENTALS OF REMOTE SENSING (PRACTICAL)

Credit distribution, Eligibility and Pre-requisites of the Course

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
FUNDAMENTALS OF REMOTE SENSING (PRACTICAL)	4	0	0	4	12th Pass	Nil

Note: one credit of practical is equal to two hours

Learning Objectives

The Learning Objectives of this course are as follows:

- To apprise the students with the relevance of Remote Sensing in Geography and the historical growth of Satellites in India and the world.
- To impart the knowledge of fundamentals of remote sensing and its applications.
- To facilitate the students to have hands on experience on different steps of visual interpretation of satellite images & photographs.
- To facilitate the students to have hands on experience on different steps of satellite image processing using one or more software for a geographical application.

Learning outcomes

On completion of this course, the student shall be able:

- To comprehend the concepts related to remote sensing and in understanding their relevance in geography discipline.
- To enhance their ability in describing the basic principles of image processing, visualization and analysis.
- To enrich their ability to conduct basic image processing of satellite multispectral imagery.

Practical Component (120)

SYLLABUS OF DSC-09

UNIT – I: Introduction to Remote Sensing

- Meaning and Definition
- Historical Evolution of Remote Sensing
  - (i) Platforms (Ground, Air, Space)
  - (ii) Types of Remote Sensing (Passive, Active).
  - (iii) Resolution Types (Spatial, Spectral, Radiometric, Temporal)
- Satellite data sources/Search engines: EARTHDATA, USGS, GLCF, LP-DAAC
- Software: QGIS, ARCGIS , ERDAS, IDRISI, TerrSet, ENVI, R, SAGA

UNIT – II: Aerial Photos: Geometry and Types of Aerial Photography, Stereoscope, Annotation, Interpretation Keys, and Interpretation

- Calculation of photo scale
- Orientation of Aerial Photo

- Annotation and Interpretation Keys

UNIT – III: Satellite Remote Sensing:

- Principles, Resolutions, EMR Interaction with Atmosphere and Earth Surface Features; Major Satellites and Sensors (LANDSAT, IRS, IKONOS, SPOT, MODIS, Sentinel, QUICKBIRD, any two)
- Downloading Bhuvan Data
- Downloading LANDSAT data (EARTHDATA)
- Band-wise reflection of EMR
- **UNIT–IV: Satellite Image Processing:**
- Pre-processing (Radiometric and Geometric Correction); Enhancement (Filtering); Classification Basics (Supervised and Un-supervised), DN to reflectance conversion
- Geometric Correction

UNIT – V Application of Remote Sensing :

- Land Use/Land Cover,
- Urban Sprawl,
- Vegetation Monitoring

Suggestive readings

1. Campbell, J. C., and Wynne, R. H. (2022) Introduction to Remote Sensing, 5th ed. The Guilford Press. New York 622p.
2. Jenson, J.R. (2000). Remote Sensing of the environment – An Earth Resource Perspective, Prentice Hall Inc.
3. Jensen, J.R. (2015) Introductory Digital Image Processing: A Remote Sensing Perspective, 4th Edition, Pearson India.
4. Joseph, G. and Jegganathan, C. (2017) Fundamentals of Remote Sensing, 3rd Edition, Universities Press..
5. Leshner, R.B. and Hogan, T. (2019) The View from Space : NASA'S evolving Struggle to understand our Planet, Lawrence, Kansas : University Press of Kansas, 249pp.
6. Lillisand, T. M. and Keifer, R. W. (2011)). Remote Sensing and Image interpretation', 3rd Edition John Willey and Sons, New York.
7. NASA (2018) EOSDIS Handbook, NASA, 52 pp.(https://www.earthdata.nasa.gov/s3fs-public/imported/EOSDIS_Handbook_1.5.pdf)
8. NRSC, ISRO (2015) Bhuvan : User Handbook, NRSC-DPPAWA-GWGSG,NRSC-ISRO, 92 pp.
9. Qihao, W.(2012)An Introduction to Contemporary Remote Sensing, McGraw Hill Pub, ISBN: 9780071740111
10. Sabins, F.F. (2007) Remote Sensing: Principles and Interpretation, 3rd Edition, Waveland Pr, Inc ,ISBN-13-978-1577665076
11. Toro, F.G. and Tsourdos, (2017) UAV OR Drones for Remote Sensing Applications, MDPI, 406 pp,
12. Tempfli, K., Kerle, N., Huurneman, G.C. and Janssen, L.L.F. (Eds) (2009) Principles of Remote Sensing : An Introductory Text Book, ITC: Enschede, The Netherlands.
13. Wegmann M., Leutner, B., Dech, S. (eds) 2016. Remote sensing and GIS for Ecologists. Pelagic Publishing, UK. 331pp.

Category II

Geography Courses for Undergraduate Programme of study with Geography as one of the Core Disciplines

(B.A. Programmes with Geography as Major discipline)

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

DISCIPLINE SPECIFIC CORE COURSE – 3 (DSC-07): CLIMATOLOGY

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
CLIMATOLOGY	4	3	1	0	12th Pass	Nil

Learning Objectives

The Learning Outcomes of this course are as follows:

- Explaining various dimensions of climatology
- Analysing atmospheric moisture along with disturbances
- An understanding world climatic region

Learning outcomes

The Learning Outcomes of this course are as follows:

- Detailed exposure to climatology.
- In-depth knowledge of atmospheric moisture and cyclonic features.
- Knowledge of the mechanism of monsoon and climatic classification.

SYLLABUS OF DSC-07

Unit-I: Introduction (2hrs):

- Nature, Scope, and Application.

Unit-II: Atmospheric Moisture (12hrs):

- Humidity-types, Evapotranspiration, Condensation- process and forms (a. clouds, and b. fog), Precipitation- forms and types, Atmospheric Stability and Instability.

Unit-III: Atmospheric Disturbances (12hrs):

- Tropical Cyclones- Characteristics, Mechanism and Distribution.
- Temperate Cyclones- Characteristics, Mechanism (Polar Front Theory) and Distribution.

Unit-IV: Monsoon (10hrs):

- Mechanism of monsoon.
- Global teleconnections in relation to monsoon in India, ENSO, Indian Ocean Dipole Effect.
- Jet Streams and Monsoon in India.

Unit-V: Climatic Classification (9hrs):

- Concept and Purpose of Classification.
- Koppen's Classification.

Suggestive Readings

1. Frederick K. Lutgens, Edward J. Tarbuck, Dennis G. Tasa (2015) The Atmosphere: An Introduction to Meteorology, Pearson Education

2. Barry R. G. and Carleton A. M. (2001) Synoptic and Dynamic Climatology, Routledge, UK. 2

3. Barry R. G. and Corley R. J. (2003) Atmosphere, Weather and Climate, Routledge, New York.

4. Critchfield H. J. (1987) General Climatology, Prentice-Hall of India, New Delhi

5. Lutgens F. K., Tarbuck E. J. and Tasa D. (2009) The Atmosphere: An Introduction to Meteorolog

6. Oliver J. E. and Hidore J.J. (2002) Climatology: An Atmospheric Science, Pearson

7. Trewartha G. T. and Horne L. H. (1980) An Introduction to Climate, McGraw-Hill.

8. Gupta S.L. (2000): Jalvayu Vigyan, Hindi MadhyamKaryanvayNidishalya, Delhi Vishwa Vidhyalaya, Delhi

9. Lal, D. S. (2006): Jalvayu Vigyan, PrayagPustak Bhavan, Allahabad

10. Vatal, M. (1986): BhautikBhugol, Central Book Depot, Allahabad

11. Singh, S. (2009): Jalvayu Vigyan, PrayagPustak Bhawan, Allahabad

12. Malhotra, N. and Sen, S. (2018) Climatology, M K Books, New Delhi

Practical component (if any) - NIL

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

DISCIPLINE SPECIFIC CORE COURSE – 4 (DSC-08): URBAN GEOGRAPHY

Credit distribution, Eligibility and Pre-requisites of the Course

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
URBAN GEOGRAPHY	4	3	1	0	12th Pass	Nil

Learning Objectives

- To familiarize student with the nature and scope of urban geography.
- To understand the morphology and hierarchy in urban system.
- To learn about the importance of urban issues in mega- cities.
- To provide knowledge about urban planning and governance.
- To make students learn about the new perspectives of futuristic cities.

Learning outcomes

- Comprehend the fundamentals of urbanization, morphology and hierarchy theories that explain the process of urban development.
- Be conversant with the morphology of Indian cities.
- Be Aware about the issues faced in mega cities.
- Have insight into the master plans, renewal plans, UN-Habitat and urban local bodies
- Explore about the concepts of new urbanism, sustainable, smart and inclusive cities.

SYLLABUS OF DSC-08

Unit-1: Introduction (3hrs):

Definition of urban; Nature and scope of urban geography; Theories of urban origin (reference Carter).

Unit-II: Urban Morphology and Hierarchy (12hrs):

Concept and Theories of morphology (Kearsley modified Burgess, Harris & Ullman and White' model; Concept and Theories of Hierarchy - Christaller and Rank size; Morphology of an Indian City (Madurai or Delhi or Jamshedpur) (ONLY ONE).

Unit-III: Urban Issues in Mega Cities of India (9hrs):

Urban Basic Services (water in detail with reference to Chennai); Housing and slums (Mumbai); Heat island (suitable examples).

Unit-IV: Urban Planning and Governance (9hrs):

Planning: Concept of Master Plans, AMRUT; Institutions: UN-Habitat, Urban local bodies in India.

Unit-V: Futuristic Cities (12hrs):

Concept of New Urbanism; Concepts of futuristic cities: sustainable city, smart city, compact city, virtual city, network city, world class city, global city and inclusive city (no question on individual concept); Sustainable city or smart city concept in detail (ONLY ONE).

Suggestive Readings

1. Carter, H. (2010) The Study of Urban Geography, Arnold Publishers, London.

2. Pacione, M. (2009). Urban Geography: A Global Perspective. Taylor and Francis, UK.

3. Fyfe, N. R. and Kenny, J. T. (2020). The Urban Geography Reader. London, UK: Routledge.

4. Kaplan, D. H., Wheeler, J. O. and Holloway, S. R. (2008). Urban Geography, John Wiley, New York

5. Ramachandran, R., (1992). Urbanisation and Urban Systems of India. New Delhi, India: Oxford University Press.

6. Singh, S and Saroha, J. (2021) Urban Geography, Pearson Education.

7. मंडल, आर.बी. (2012) नगरिय भुगोल, कॉन्सेप्ट पब्लिशिंग कंपनी, नई दिल्ली।

8. बंसल, एस.सी. (1997) नगरिय भुगोल, मीनाक्षी प्रकाशन, मेरठ।

9. Misra, R.P. (2013) Urbanisation in South Asia, Cambridge University Press, New Delhi

10. Knox, P. L., and McCarthy, L. (2005) Urbanization: An Introduction to Urban Geography, Pearson Prentice Hall, New York

11. Grant, J. (2005) Planning the Good Community: New Urbanism Theory and Practice, Routledge, London

12. Sharma, P. and Rajput, S. (Eds.) (2017). Sustainable Smart Cities in India; Challenges and Future Perspectives, Springer Nature AG, Switzeland

13. Palen, J.J. (2012) The Urban World. Paradigm Publishers, Boulder, USA

14. Graham H. and Colin H. (2003) Sustainable Cities, Routledge, London

15. Singh, R.B., (Ed.) (2015). Urban Development, challenges, risks and Resilience in Asian megacities, Springer

Practical Component (if any): NIL

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi

Category III

B.A. Programmes with Geography as non-Major or Minor discipline

DISCIPLINE SPECIFIC CORE COURSE – 5 (DSC-07): CLIMATOLOGY

Credit distribution, Eligibility and Pre-requisites of the Course

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
CLIMATOLOGY	4	3	1	0	12th Pass	NIL

Learning Objectives

The Learning Outcomes of this course are as follows:

- Explaining various dimensions of climatology
- Analysing atmospheric moisture along with disturbances
- An understanding world climatic region

Learning outcomes

The Learning Outcomes of this course are as follows:

1. Detailed exposure to climatology.
2. In-depth knowledge of atmospheric moisture and cyclonic features.
3. Knowledge of the mechanism of monsoon and climatic classification.

SYLLABUS OF DSC-07

Unit-I: Introduction (2hrs):

- Nature, Scope, and Application.

Unit-II: Atmospheric Moisture (12hrs):

- Humidity-types, Evapotranspiration, Condensation- process and forms (a. clouds, and b. fog), Precipitation- forms and types, Atmospheric Stability and Instability.

Unit-III: Atmospheric Disturbances (12hrs):

- Tropical Cyclones- Characteristics, Mechanism and Distribution.
- Temperate Cyclones- Characteristics, Mechanism (Polar Front Theory) and Distribution.

Unit-IV: Monsoon (10hrs):

- Mechanism of monsoon.
- Global teleconnections in relation to monsoon in India, ENSO, Indian Ocean Dipole Effect.

- Jet Streams and Monsoon in India.

Unit-V: Climatic Classification (9hrs):

- Concept and Purpose of Classification.
- Koppen's Classification.

Suggestive Readings

1. Frederick K. Lutgens, Edward J. Tarbuck, Dennis G. Tasa (2015) The Atmosphere: An Introduction to Meteorology, Pearson Education

2. Barry R. G. and Carleton A. M. (2001) Synoptic and Dynamic Climatology, Routledge, UK. 2

3. Barry R. G. and Corley R. J. (2003) Atmosphere, Weather and Climate, Routledge, New York.

4. Critchfield H. J. (1987) General Climatology, Prentice-Hall of India, New Delhi

5. Lutgens F. K., Tarbuck E. J. and Tasa D. (2009) The Atmosphere: An Introduction to Meteorolog

6. Oliver J. E. and Hidore J.J. (2002) Climatology: An Atmospheric Science, Pearson

7. Trewartha G. T. and Horne L. H. (1980) An Introduction to Climate, McGraw-Hill.

8. Gupta S.L. (2000): Jalvayu Vigyan, Hindi Madhyam Karyanvay Nidishalya, Delhi Vishwa Vidhyalaya, Delhi

9. Lal, D. S. (2006): Jalvayu Vigyan, Prayag Pustak Bhavan, Allahabad

10. Vatal, M. (1986): Bhautik Bhugol, Central Book Depot, Allahabad

11. Singh, S. (2009): Jalvayu Vigyan, Prayag Pustak Bhawan, Allahabad

12. Malhotra, N. and Sen, S. (2018) Climatology, M K Books, New Delhi

Practical component (if any) - NIL

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

COMMON POOL OF DISCIPLINE SPECIFIC ELECTIVE (DSE) COURSES OFFERED BY THE DEPARTMENT OF GEOGRAPHY

DISCIPLINE SPECIFIC ELECTIVE COURSE – 01 (DSE-01): BIOGEOGRAPHY

GENERIC ELECTIVES (GE-4): GLOBALIZATION AND MOBILITY

Credit distribution, Eligibility and Pre-requisites of the Course

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course	Department offering the course
		Lecture	Tutorial	Practical/ Practice			
BIOGEOGRAPHY	4	3	1	0	12th Pass	Nil	GEOGRAPHY

Course Objectives:

- To understand various dimensions of biogeography.
- To get detailed analysis of energy cycles and their function.
- To understand the concept of ecological succession and various biogeographical processes.
- To identify geographical distribution of flora and flora of the world.
- To realize and understand the conservation of biodiversity.

Learning Outcome:

- Detailed exposure of biogeography and biodiversity.
- In-depth knowledge of circulation of biogeochemical cycles.
- Functionality of the biogeographical processes.
- Knowledge of Phytogeographical realms and Zoogeographical realms.
- Develop understanding of the global level efforts to conserve biodiversity.
-

SYLLABUS OF DSE-01

Unit-I: Introduction (2hrs):

- Nature, Approaches, significance and Scope.

Unit-II: Biogeographical Processes (12hrs):

- Dispersal, Speciation, Ecological Succession, Extinction.

Unit-III: Biogeochemical Cycles (12hrs):

- Oxygen, Carbon and Nitrogen.

Unit-IV: Geographical Distribution of flora and fauna (12hrs):

- Phytogeographical realms, Zoogeographical realms (with specific reference to Wallace and Weber line)- Basis and Classification.

Unit-V: Conservation (7hrs):

- In situ and ex situ, CBD (Convention on Biodiversity).

Suggestive Readings:

1. Bhattacharyya, N.N. (2003). Biogeography. New Delhi, India: Rajesh Publications.
2. Huggett, R.J. (1998). Fundamentals of Biogeography, USA: Routeldge
3. Lomolino, Mark. V., 2020, Biogeography: A Very Short Introduction, Oxford Publication, ISBN: 9780198850069
4. Cox, C.B, et.al, 2016, Biogeography: An Ecological and Evolutionary Approach, 9th Edition, Wiley-Blackwell.
5. Taylor, J.A., 2021, Themes in Biogeography, Routledge, Taylor and Francis publications, ISBN 9780367351106
6. Pielou, E.C., 1979, Biogeography, John Wiley & Sons, USA.
10: 0471058459ISBN 13: 9780471058458
7. L.C Aggarwal, 2018, Biogeography, Rawat publication Jaipur
8. Mathur, H.S. (1998). Essentials of Biogeography. Jaipur, India: Anuj Printers.
9. Singh,Savindra. (2015). Jaiv Bhoogol (Hindi). Allahabad, India: Prayag Pushtak Bhawan
10. Sivaperuman, Chandrakasan et al. (2018). Biodiversity and Climate Change Adaptation in Tropical Islands. London, UK: Academic Press.

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

DISCIPLINE SPECIFIC ELECTIVES (DSE-02): GEOGRAPHY OF ARID AND SEMI-ARID REGION

Credit distribution, Eligibility and Pre-requisites of the Course

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course	Department offering the course
		Lecture	Tutorial	Practical/ Practice			
GEOGRAPHY OF ARID AND SEMI-ARID REGION	4	3	1	0	12th Pass	Nil	GEOGRAPHY

Course Objectives:

- To evolve the understanding of the regional dimensions of arid and semi-arid regions.
- To correlate the physical dimensions with human perspectives as population size and occupation of arid regions.
- To understand the challenges of aridity in global perspective and measures of sustainability.

Learning Outcome:

- Developing the skill to differentiate the geographical uniquities on space.
- Comprehend the regional knowledge of arid regions for the application of social welfare.
- Analysis and evaluation of regional geographical parameters of aridity related to its challenges and livelihood security.

SYLLABUS OF DSE-02

Unit-I: Introduction (5hrs):

- Extent, Characteristics and Determinants of arid and semi-arid regions of the world

Unit-II: Climate and Vegetation (10hrs):

- Types and characteristics.

Unit-III: Human Aspects (10hrs):

- Population distribution and major tribes.

Unit-IV: Economic Aspects (10hrs):

- Agriculture, Livestock rearing and tertiary activities.

Unit-V: Challenges and sustainability (10hrs):

- Desertification, land degradation, biodiversity loss and practices of livelihood security.

Suggestive Readings:

1. Hill, Michael, 2002, Arid and Semi-Arid Environments, Hodder Murray, London.
2. Campos-Lopez, Enrique and Anderson, Robert J. (eds), 2018, Natural Resources and Development in Arid Regions, Routledge, Newyork.
3. Goudie, Andrew, S., 2013, Arid and Semi-Arid Geomorphology, Cambridge University Press.
4. Ferguson, Gabriel, 2015, Arid and Semi-Arid Environments, NOVA.
5. Whitford, W.G. and Duval, B.D., 2019, Ecology of Desert Systems, Elsevier.
6. Laity. J., 2018, Deserts and Desert Environments, Wiley Blackwell.
7. Sharma, R.C., 1998, Thar: The Great Indian Deserts, Roli Books.
8. Warner, T., 2004, Desert Meteorology, Cambridge University Press.
9. Bhandari, M.M. and Vyas, S.P. 2019, Flora of The Indian Desert: Their Economic And Medicinal Value, Scientific Publishers.
10. Walton, Kenneth, 2009, The Arid Zones, Aldine Transactions, New Brunswick (UDA), London (UK).
11. Gritzner, Charles F., 2007, Geography of Extreme Environments: Deserts, Chelsea House, Newyork.
12. Aleshire, Peter, 2008, The Extreme Earth: Deserts, Chelsea House, Newyork.

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

GENERIC ELECTIVES (GE-07): CONTEMPORARY ENVIRONMENTAL ISSUES

Credit distribution, Eligibility and Pre-requisites of the Course

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course	Department offering the course
		Lecture	Tutorial	Practical/ Practice			
CONTEMPORARY ENVIRONMENTAL ISSUES	4	3	1	0	12th Pass	Nil	GEOGRAPHY

Learning Objectives

- To understand the basic concepts of human environment and the resultant impact.
- To evaluate the contemporary environmental issues world over.
- To assess each problem in detail along with a case study of the best practices in the world.
- To discuss the global level initiatives or policies related to these issues.

Learning Outcomes

- The changes that have taken place due to the human impact on nature.
- Recognize the concept of planetary boundaries and how humanity has already crossed the tipping point.
- Have an understanding of both the problems and some specific solutions.
- An in-depth understanding on the global policies and where the world stands today.
-

SYLLABUS OF GE-07

Unit-I: Introduction (5hrs):

- Understanding the human environment relationship and its historical progression, concept of planetary boundaries.

Unit-II: Biodiversity Loss (10hrs):

- Causes and impacts, Conservation and Global initiatives, Case study on best practices.

Unit-III: Pollution (12hrs):

- Air and Water (causes and impacts), Solid Waste (impact and management), Global initiatives, case Study on best practices.

Unit-IV: Land Degradation (10hrs):

- Causes and impacts, Global initiatives, Case Study on best practices.

Unit-V: Climate Change (8hrs):

- Concept, Adaptation and Mitigation.

Suggested Readings

1. Brusseau M L, Pepper I L and Gerba C P (2019) Environmental and Pollution Science, Academic Press, USA.
2. Cunninghum, WP and Cunninghum, M A (2004) *Principals of Environmental Science: Inquiry and Applications*, Delhi: Tata Macgraw Hill.
3. Goudie A (2001) *The Nature of the Environment*, Blackwell, Oxford, UK: Blackwell.
4. Haris F (Ed) (2004) *Global Environmental Issues*, John Wiley and Sons, W Sussex.
5. Kemp D D(1994)*Global Environmental Issues: A Climatological Approach*, Routledge London and NY.
6. Pickering K T and Owen L A (2017)*An Introduction to Global Environmental Issues,* Routledge London (eBook).
7. Raven P H, Berg L R, Hassenzehl D M et al. (2015) *Environment*, John Wiley and Sons, Jefferson City.
8. Rich Nathalien(2020) *Losing Earth: A Recent History*, Picador, New York.
9. Rockstrom J and Gaffney O (2021) *Breaking Boundaries: The Science of Our Planet*, Penguin Random House LLC.
10. Sivaperuman, Chandrakasan. et al. (2018) *Biodiversity and Climate Change Adaptation in Tropical Islands,* London, UK: Academic Press.
11. Tsing A Lowenhaupt et al. (Ed) (2017) Arts of Living on a Damaged Planet: Ghosts and Monsters of the Anthropocene, University of Minnesota Press, Minneapolis.
12. Wright RT and Boorse DF (2010) Towards a Sustainable Future, PHI Learning Pvt Ltd, New Delhi.

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

GENERIC ELECTIVES (GE-08): GEOGRAPHY OF TOURISM

Credit distribution, Eligibility and Pre-requisites of the Course

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course	Department offering the course
		Lecture	Tutorial	Practical/ Practice			
GEOGRPHY OF TOURISM	4	3	1	0	12th Pass	NIL	GEOGRAPHY

Course Objectives

- To be aware of the various dimensions of Geography of Tourism.
- To make the students aware about the growth and development of international and domestic tourism with its positive and negative impacts.
- To assess sustainable ecotourism and other contemporary forms of tourism with help of case study.
- To critically evaluate the infrastructure in tourism in India along with reviewing the tourism policy.

Learning Outcome:

- Equip with a basic understanding of nature and scope of geography of tourism and various types of tourists and tourism.
- Have sound knowledge of geographical, environmental, and socio-cultural aspects of tourism.
- Apply the principles of sustainable tourism and analyse the prospects and problems associated with unsustainable tourism activities

SYLLABUS OF GE-08

Unit-I: Introduction (5hrs):

- Nature and Scope; Tourism, Recreation and Leisure;
- Types of Tourism and Types of Tourists

Unit-II: Factors affecting Tourism (10hrs):

- Growth and Development of International and Domestic Tourism.

Unit-III: Significance of Tourism (10hrs):

- Impact on Environment, Economy, Society and Culture.

Unit-IV: Contemporary Forms of Tourism (12hrs):

- Sustainable - Ecotourism (Case Study), Geo-Heritage (Case Study), Space tourism, E-Tourism, MICE.

Unit-V: Tourism Infrastructure (8hrs):

- Infrastructure Development in India, National Tourism Policy of India.

Suggested Readings

1. Brian Boniface, Chris Cooper, Robyn Cooper., Worldwide Destinations: The Geography of Travel and Tourism (8th edition, 2020).

2. Douglas G. Pearce., Tourist Development (Topics in applied geography). 19813rd Edition.

3. Stephen Williams, Alan A. Lew., Tourism Geography- Critical Understandings of Place, Space and Experience.

4. Velvet Nelson., An Introduction to the Geography of Tourism, 3rd edition, 2021.

5. Maria Giaoutzi., Tourism and Regional Development - New pathways (economic geography series) 2017. Routledge.

5. Stephen Hall, C. Michael and J.Page., The Geography of Tourism and Recreation: Environment, Place and Space. 4th edition, 2014. Routledge.

6. Chaturbhuj Mamoria and Komal Singh. पर्यटन का भूगोल (Geography of Tourism)

7. पर्यटन भूगोल: प्रा.के.ए. खतीब, मेहता पब्लिशिंग हाऊस

8. Kapoor, B.K. (2008) Paryatan Bhugol, Vishwa Bharti Publication, Delhi.

9. E Book of India Tourism Statistics, 2022. Ministry of Tourism, Govt. of India.

10. UNWTO, 2022. Tourism Data Dashboard.

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

GENERIC ELECTIVES (GE-09): SPATIAL INFORMATION TECHNOLOGY

Credit distribution, Eligibility and Pre-requisites of the Course

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course	Department offering the course
		Lecture	Tutorial	Practical/ Practice			
SPATIAL INFORMATION TECHNOLOGY	4	3	1	0	12th Pass	NIL	GEOGRAPHY

Course Objectives:

1. The main objective of this course is to give students an insight on the concepts of spatial information technology.
2. The paper discusses the concept, historical developments, functioning and application of spatial information technology in detail.

Learning Outcome:

1. Will be familiar with the concept, components of SIT.
2. Will gained knowledge on various data sources, structures, and their interpolation and modeling.
3. Will acquire in-depth knowledge of various functions applied in SIT.
4. Will gather detailed information on the application of SIT in various fields of mapping.

SYLLABUS OF GE-09

Unit-I: Introduction (5hrs):

- Definitions, Concept, Components and Historical Development.

Unit-II: Spatial Information/Data (10hrs):

- Web data sources; Registration and projection; Data types structures; Data interpolation and modelling.

Unit-III: Working on Spatial Information System (12hrs):

- Data creation with GIS software, making layers, data editing and cleaning, spatial and non-spatial data linking, extracting information.

Unit-IV: Functions of Spatial Information System (12hrs):

- Overlay Analysis; Buffer Analysis, Network Analysis.

Unit-V: Application (6hrs):

- Application of Spatial Information Technology for sustainable development.

Suggested Readings

1. D. Tomlin. (1990). *Geographic Information Systems and Cartographic Modeling*.USA: Prentice-Hall, Englewood Cliffs, NJ, ISBN0-13-350927-3.
2. Esperança and Samet, H. (1997). *An overview of the spatial data base system, to appear in Communications of the ACM.* (http://www.cs.umd.edu/~hjs/pubs/sandprog.ps.gz)
3. Heywood, I., Comelius, S., and Carver, S. (1988). *An Introduction to Geographical Information Systems*. NewYork , USA: Addison Wiley Longmont.
4. Samet, H. (1990). *Applications of Spatial Data Structures: Computer Graphics, Image Processing, and GIS*. USA: Addison-Wesley, Reading, MA, ISBN 0-201- 50300-0.
5. Samet, H. (1990). *The Design and Analysis of Spatial Data Structures*. USA: Addison-Wesley, Reading, MA, ISBN0-201-50255-0.
6. Samet, H. (1995). *Spatial Data Structures in Modern Database Systems: The Object Model, Interoperability, and Beyond*, W. Kim, (Ed.,) USA: Addison-Wesley/ACM Press, 361.
7. http://www.cs.umd.edu/~hjs/pubs/kim.ps
8. http://www.cs.umd.edu/~hjs/pubs/kim2.ps

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

DEPARTMENT OF GEOGRAPHY

Category I

(B.A. Honours in Geography in three years)

SEMESTER-IV

DISCIPLINE SPECIFIC CORE COURSE – OCENOGRAPHY (DSC 10)

Course title & Code	Credits	Duration (Hrs per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
OCEANOGRAPHY	4	3	1	0	Class 12th	NIL

Learning Objectives:

The Learning Objectives of this course are as follows:

- To enable the learner to understand the basics of oceanography.
- To enable the learner to explain the configuration of the ocean bottom
- To enable the learner to discuss ocean water and its unique ecosystem
- To equip the learner to appreciate and elaborate the problems and policies for sustainable oceans
-

Learning Outcomes:

The Learning Outcomes of this course are as follows:

- The students would be able to comprehend and establish the relationship between human action and global ocean conditions. They would be able to explain the ocean as a regulator of global climate.
- Illustrate the dynamic ocean bottom topography and appreciate the circulation of cold and warm Ocean currents.
- Discuss the salinity and temperature distribution of ocean water on a three-dimensional spatial perspective.
- Elaborate the marine ecosystems as well as explain the problems and address the policies to resolve them.

Course Outline:

UNIT 1: Introduction to Oceanography: (8 hrs)

- Significance of Oceanography, Human actions and the Oceans, Challenges to Sustainability of Marine Ecosystems, Role ofSea surface Temperature (SST) as Global Climate Regulator

UNIT 2: Geomorphological Oceanography: (8 hrs)

- Ocean Bottom Topography – Relief ofOcean Floor with Global examples

UNIT 3: Physical and Chemical Oceanography: (9 hrs)

- Properties of Ocean Water: Salinityand Temperature (Horizontal and Vertical Distribution); Oceanic currents

UNIT 4: Biological Oceanography: (10 hrs)

- Marine Ecosystems: Coral Reef, Mangrove, Openand Deep Sea

UNIT 5: Sustainability of Oceans- Problems and Policies: (10 hrs)

- Marine Challenges andManagement, Marine Policy: Integrated Coastal Zone Management (ICZM) with reference to India and SDG 14; Life Below Water

Readings

- Basu S.K. (2003). Hand Book of Oceanography. Global Vision, Delhi.
- Davis, R. J.A. (1996). Oceanography: An Introduction to the Marine Environment. Brown Co, Lowa.
- Garrison, T. (2016). Oceanography: An Invitation to Marine Science. 9th ed, Cengage Learning, Boston.
- Lal. D.S. (2003) Oceanography. Sharada Pustak Bhavan, Allahabad.
- Pinet, P.R. (2014). Invitation to Oceanography. 7th ed, Jones and Barlett Publishers, Burlington.
- Sharma, R. C. and Vatal, M. (2018) Oceanography for Geographers. Surjeet Publications, Delhi.
- Singh, S. (2015). Oceanography. Pravalika Publication, Allahabad,
- Sverdrup K. A. and Armrest, E. V. (2008). An Introduction to the World Ocean. McGraw Hill, Boston.

Readings (Hindi)

- Gautam, A. (2005) Jalwayu Evam Samudra Vigyan. Rastogi Publication, Meeruth.
- Kulshrestha, K.P. (2004). Samudra Vigyan. Kitab Ghar, Kanpur.
- Singh, S. (2015). Samudra Vigyan. Pravalika Publication, Allahabad.
- Tiwari, R. K. (2016). Bhautik Bhugol. Rajsthan Hindi Granth Academy, Jaipur.

DISCIPLINE SPECIFIC CORE COURSE – ECONOMIC GEOGRAPHY (DSC 11)

Course title & Code	Credits	Duration (Hrs per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
ECONOMIC GEOGRAPHY	4	3	1	0	Class 12th	NIL

Learning Objectives:

- To evolve an understanding about the significance of space and time as attributes of human economic activities.
- To comprehend the role of geographical factors in determining the transformation of human economic activities.
- To develop an understanding of historical progression of trends and transformation of Primary, Secondary and Tertiary economic activities.

Learning Outcomes:

- To enable the learner to appreciate the role of geographical parameters in determining various economic activities and to understand the scope of economic geography, differentiating it from classification of economic activities.
- To enable the learner to assess and analyse the role of space and location in pursuit of economic activities.
- To enable the learner to develop the capability of analyzing transformation of economic activities with reference to space, time and diffusion of technology.

Course Outline

UNIT 1: Introduction: (10 hrs)

- Nature, scope and concepts and Approaches to EconomicGeography; Classification of Economic activities.

UNIT 2: Locational Factors of Economic Activities: (9 hrs)

- Factors affecting location of economic activities in agriculture industry and services; Weber's Theory of IndustrialLocation.

UNIT 3: Transitions and emerging trends in primary and secondary economic activities: (9 hrs)

- contemporary agriculture, Agro based Industry; SEZ and Technology Parks.; Pharmaceutical Industry

UNIT 4: Progressions in Tertiary Activities: **(9 hrs)**

- Case study approach to Knowledge basedindustries; IT enabled Services industry; Wellness industry

UNIT 5: Globalization of Economic activities: **(8 hrs)**

- globalization, liberalization, Ecommerce, gig economy (selected case studies)

Readings

- Alexander J. W., 1963: Economic Geography, Prentice-Hall Inc., Englewood Cliffs, New Jersey.
- Coe N. M., Kelly P. F. and Yeung H. W., 2007: Economic Geography: A Contemporary Introduction,Wiley-Blackwell.
- Roy, Prithwish, 2014, Economic Geography, New Central Book Agency.
- Combes P., Mayer T. and Thisse J. F., 2008: Economic Geography: The Integration of Regions and Nations, Princeton University Press.
- Wheeler J. O., 1998: Economic Geography, Wiley..
- Maurya, S. D., 2018, Economic Geography, Pravalika Publication, Allahabad.
- Bagchi-Sen S. and Smith H. L., 2006: Economic Geography: Past, Present and Future, Taylor and Francis.
- Singh, S. and Saroha, J., 2021, Human and Economic Geography, Pearson.
- MacKinnon, D, and Cumbers A., 2007, An Introduction to Economic Geography: Globalization, Uneven Development and Place, Harlow: Pearson Education.
- Mamoria, C. and Joshi, R., 2019, Aarthik Bhugol (Economic Geography), Sahitya Bhawan Publication, Agra. (Hindi Edition).

DISCIPLINE SPECIFIC CORE COURSE – FUNDAMENTALS OF GIS (PRACTICAL) (DSC 12)

	Credits	Duration (Hrs per week)				Prerequisite
Course title & Code		**Lecture**	**Tutorial**	**Practical/ Practice**	**Eligibility Criteria**	
FUNDAMENTALS OF GIS (PRACTICAL)	**4**	**2**	**0**	**2**	**Class 12th**	**NIL**

Learning Objectives:

The learning objectives of this course are as following:

- In this course the students will get the basic understanding of the concept of GIS, its definitions and components and its significance in geographical study.

- They will gain the working experience to handle digitally, both spatial and attribute geographical data, its collection, storage and management through GIS and the use of locational specific data in GIS using GPS.
- They learn the fundamental steps in data analysis and the GIS application to the geographical study of land uses, urban sprawl, and forests through the means of spatial mapping.

Learning Outcomes:

Through this practical, hands-on course the students will be able to know the GIS basics and when completed they would be able to:

- Develop a basic understanding of GIS skills and learn to work on a GIS Software using computer/ laptop/ and or any other digital medium.
- Understand GIS Data Structures and GIS Data Analysis for geographical enquiry.
- Learn to apply basic GIS operations/skills to analyse the spatial data for mapping, monitoring and to detect both spatial and temporal changes in land use/cover, forests, urban sprawl, and natural resources.
- Students will be aware of spatial thinking and its manifestation in resolving issues through this computer-based technology.

Course Outline

UNIT 1: Geographical Information System/Science (GIS): **(5 hrs)**

- Definition and overview,Components, Different types of GIS Software, Significance and emerging trends.

UNIT 2 : GIS Data Structures: (5 hrs)

- Types (spatial and non-spatial), Point, Line and Area;Raster and Vector Data Structure, Database Management System (DBMS).

UNIT 3: GIS Data Analysis – I: **(5 hrs)**

- Data Input; Methods, Geo-referencing, GPS for GIS Data creation, Digitization, Input of Attribute data, Data Editing; Errors in input data, BasicGeo-processing tools.

UNIT 4: GIS Data Analysis – II: (5 hrs)

- Query and Output; Conversion, Buffering, Overlays, MapLayout

UNIT 5: Application of GIS : (5 hrs)

- Land Use / Land Cover Change, Morphometric Analysis,Urban Studies

Practical Record: 60 Hrs.

- A **record file** consisting of **5 exercises** using any GIS Software.
- The exercises should focus on any one of the above-mentioned applications based on using vector / raster data layers for Query analysis /Proximities / Finding relationship / Seeing Patterns / monitoring change.

Readings:

- Bhatta, B. (2010). *Analysis of Urban Growth and Sprawl from Remote Sensing*, Berlin, Germany: Springer.
- Burrough, P.A., McDonnell, R.A. and Lloyd, D. McDonnell (2016). *Principles of Geographical Information Systems,* UK: Oxford University Press.
- DeMers M. N., 2000: *Fundamentals of Geographic Information Systems*, NJ, USA: John Wiley & Sons.
- Gomarasca, M. A. (2009). *Basics of Geomatics.* NY, USA: Springer Science.
- Heywoods, I., Cornelius, S and Carver, S. (2006). *An Introduction to Geographical*
- *Information system.* NJ, USA: Prentice Hall.
- Jones, C. B. (2014). *Geographical Information Systems and Computer Cartography*. London, UK: Taylor& Francis.
- Longley, P. A., Goodchild, M., Maguire, D. J., & Rhind, D. W. (2010). *Geographic Information Systems and Science.* NJ, USA: John Wiley & Sons.
- O'Sullivan, D., & Unwin, D. (2014). *Geographic Information Analysis*. NJ, USA: Wiley.
- Saha K and Froyen YK (2022) *Learning GIS Using Open Source Software: An Applied Guide for GeoSpatial Analysis*, Routledge
- Singh, R.B. and Murai, S. (1998). *Space Informatics for Sustainable Development*. NewDelhi, India: Oxford and IBH.

Suggestive:

- Chang K.-T., 2009: *Introduction to Geographic Information Systems,* McGraw-Hill.
- Chauniyal, D.D. (2010). *Sudur Samvedanevam Bhogolik Suchana Pranali.* Allahabad, India: Sharda Pustak Bhawan.
- Clarke K. C., 2001: *Getting Started with Geographic Information Systems*, NJ, USA: Pearson Prentice Hall.
- Elangovan.K (2020) *GIS Fundamentals, Applications, and Implementations*, New India Publishing Agency
- Kumar, Dilip, Singh, R.B. and Kaur, R. (2019). *Spatial Information Technology for*
- *Sustainable Development Goals.* New Delhi, India: Springer.
- Nag, P. (2008). *Introduction to GIS.* New Delhi, India: Concept.
- Sarkar, A. (2015) *Practical geography: A systematic approach*. New Delhi, India:Orient Black Swan Private Ltd.

DISCIPLINE SPECIFIC ELECTIVE COURSE – GEOGRAPHY OF HIMALAYAS (DSE 3)

Course title& Code	Credits	Duration (Hrs per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
GEOGRAPHY OF HIMALAYAS	4	3	1	0	Class 12th	NIL

Learning Objectives:

- Understanding the importance of the Himalayan Mountains.
- Various aspects of the physical and human geography of the Himalayan mountain ranges.
- Understanding of climate change adaptation practices and initiatives by international and national agencies and communities.

Learning outcomes:

- To enable understanding of origin and, Political-Climatological-Social-Spiritual-Ecological significance of the Himalayan Mountain ranges.
- To understand the distinct physiography, climatology, hydrology, population dynamics, livelihood options, and developmental activities in the Himalayan Mountain ranges.
- To appreciate climate change and human activities-led impacts in the Himalayan region and related initiatives to cope up with these impacts.

Course Outline

Unit 1: Understanding Himalayan Mountains: **(5 hrs)**

- Origin, Climatological-Social-Spiritual-Ecological significance.

Unit 2: Geography of the Himalayas: **(11 hrs)**

- Geology and Physiography; soils andvegetation; Climates and River Systems of the Himalayas

Unit 3: Population dynamics: **(11 hrs)**

- Demographic indicators, population, livelihood optionsand, developmental activities in the Himalayan Region

Unit 4: Climate change and human-induced impacts: **(10 hrs)**

- Environmental degradation, Hydro-meteorological and geo-environmental disasters; glacial recession; Land usechange, deforestation and biodiversity loss

Unit 5: Policy Initiatives and Disaster Mitigation: (8 hrs)

- Climate Change Adaptation Practices, Disaster Risk Reduction, Role of International and National Institutions,Community-based eco-friendly practices

Readings

- Funnell, D. C., & Price, M. F. (2003). Mountain geography: a review. *The GeographicalJournal*, *169*(3), 183–190.
- Hund, A. J., & Wren, J. A. (2018). *The Himalayas: An Encyclopedia of Geography, History, and Culture*. ABC-CLIO/Greenwood Press.
- Ives, J. D. (1987). The theory of Himalayan environmental degradation: its validity and application challenged by recent research. *Mountain Research and Development*, *7*, 189.
- Ives, J., & Messerli, B. (2003). *The Himalayan Dilemma: Reconciling Development and Conservation*. The United Nations University (UNU) Routledge. https://doi.org/https://doi.org/10.4324/9780203169193
- Kohler, T., & Maselli, D. (2009). Mountains and Climate Change: From Understanding to Action. *Published by Geographica Bernensia with the Support of the Swiss Agency for Development and Cooperation (SDC), and an International Team of Contributors. Bern*.
- Pandit, M. K. (2017). *Life in the Himalaya: An Ecosystem at Risk*. Harvard University Press.
- Price, M. F., Byers, A. C., Friend, D. A., Kohler, T., & Price, L. W. (Eds.). (2013). *Mountain Geography*. University of California Press. https://doi.org/https://doi.org/10.4324/9780203169193
- Schickhoff, U., Singh, R. B., & Mal, S. (2022). *Mountain Landscapes in Transition: Effects of Land Use and Climate Change*. Springer Nature. https://doi.org/https://doi.org/10.1007/978-3-030-70238-0
- Singh, R. B., Schickhoff, U., & Mal, S. (2016). Climate change, glacier response, and vegetation dynamics in the Himalaya: Contributions toward future earth initiatives. In *Climate Change, Glacier Response, and Vegetation Dynamics in the Himalaya: Contributions Toward Future Earth Initiatives*. Springer Cham. https://doi.org/10.1007/978-3-319-28977-9
- Valdiya, K. S. (1998). Dynamic Himalaya. In *Gondwana Research* (pp. 1–178). Jawaharlal Nehru Centre for Advanced Scientific Research. https://doi.org/10.1016/s1342-937x(05)70174-x
- Valdiya, K. S. (2015). *The Making of India: Geodynamic Evolution*. Springer International Publishing.
- Wester, P., Mishra, A., Mukherji, A., & Shrestha, A. B. (2019). The Hindu Kush Himalaya Assessment. In *The Hindu Kush Himalaya Assessment*. Springer Cham. https://doi.org/10.1007/978-3-319-92288-1

DISCIPLINE SPECIFIC ELECTIVE COURSE – RURAL DEVELOPMENT (DSE 4)

Course title & Code	Credits	Duration (Hrs per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
RURAL DEVELOPMENT	4	3	1	0	Class 12th	NIL

Learning Objectives:

- The course is designed to impart an integrated understanding of the crucial dimensions of rural development.
- It aims to introduce students to the need and practice of rural development projects and programmes in India.

Learning Outcomes:

At the end of the course, the students shall develop an understand of the following :

- concepts related to the need and approaches to rural development;
- Issues pertaining to rural society and economy;
- the existing rural development programs and institutions and knowledge of successful case studies from India and the sub-continent.

Course Outline

Unit 1. Understanding Rural Development: (5 hrs)

- Concept of Development; Development, Relevance and Approaches to Rural Development

Unit 2. Theories of Rural Development: (11 hrs)

- Modernization Theory; Dependency Theory;Theory of The Big Push; Leibenstein's Critical Minimum Effort theory

Unit 3. Rural Society and Economy: (11 hrs)

- Agriculture and allied activities; Seasonality and need for expanding non-farm activities; Issues of landholdings and land reforms; Concepts of social mobility and social change.

Unit 4. Rural Development Programs in India: (10 hrs)

- Poverty Alleviation Programmes;Programmes for Employment and Social Security; Other Development Programmes (PMGSY, MNREGA, PURA)

Unit 5. Rural Development Institutions and Case studies: (8 hrs)

- Panchayati Raj institutions,Cooperatives, Training & Finance Institutions, and Voluntary organisations. RuralDevelopment Experience (case study from India and the Indian sub-continent)

Readings:

- Venkata Reddy, K. Agriculture and Rural Development (Emerging Trends and Right Approach to Development), HmalayaPublshing House Pvt., Ltd., Mumbai, 2012.

- Jain L.C. 1985, Grass without roots; Rural Development under Government Auspices, Sage Publications, New Delhi.
- Seshadri, K. 1976, Political Linkages and Rural Development, National Publishing House, New Delhi.
- Maheswari S. (1985) Rural Development in India, - A Public Policy Approach, Sage Publication, New Delhi.
- Satyasundaram (1997), Rural Development, Himalaya Publishing House, New Delhi.
- Singh. Katar. 2009. Rural Development Principles, Policies ad Management. New Delhi: Sage Publications.
- Sharma S.K and S.L. Malhotra. Integrated Rural Development: Approach, Strategy and Perspectives, New Delhi: Heritage.

Online Resources:

- https://www.researchgate.net/publication/326394634_A_Handbook_of_Rural_India
- https://www.researchgate.net/publication/363239631_Rural_and_Agricultural_Development_Policy_and_Politics
- https://www.researchgate.net/publication/346462814_Democracy_Development_and_the_Countryside_Urban-Rural_Struggles_in_India
- https://www.researchgate.net/publication/363306272_The_South_Asian_Path_of_Development_A_Historical_and_Anthropological_Perspective
- https://www.researchgate.net/publication/327282616_Changing_Face_of_Rural_India
- https://www.researchgate.net/publication/368608447_Application_of_Science_Technology_for_Rural_Development
- https://www.researchgate.net/publication/229779918_Theory_in_Rural_Development_An_Introduction_and_Overview

DISCIPLINE SPECIFIC ELECTIVE COURSE – NATURAL RESOURCE MANAGEMENT (DSE 5)

Course title & Code	Credits	Duration (Hrs per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
NATURAL RESOURCE MANAGEMENT	4	3	1	0	Class 12th	NIL

Learning Objectives:

The learning objectives of this course are as follows:

- To understand the basic concepts of natural resources, resource appraisal and resource management
- To explain the issues and challenges of management of different natural resources
- To discuss sustainable development of natural resources
- To analyse the resource management policies

Learning Outcomes:

The Learning Outcomes of this course are as follows:

- The students would be able to comprehend the concepts related to the field of natural resource management.
- The students would be able to assess the issues and challenges of management land, soil, water, forest and energy resources.
- The students would elaborate sustainable resource development, natural resource governance and policies.

Course Outline

Unit 1: Introduction: (9 hrs)

- Meaning and concepts of Natural Resources; Classification ofnatural resources, Approaches to Natural Resource Management, Resource Appraisal

Unit 2: Land and Soil Resources: (9 hrs)

- Utilization, Issues and challenges; Management andconservation**Unit 3: Water and Forest Resources: (9 hrs)**
- Utilization, Issues and challenges;Management and conservation

Unit 4: Energy Resources: (9 hrs)

- Growing global energy needs; Use of alternate energyresources; Management and conservation

Unit 5: Contemporary Strategies for Natural Resource Management: (9 hrs)

- SustainableResource Development; Natural Resources Governance Framework; Resource Management Policies.

Readings

- Gautam, A. (2018 Natural Resource: Exploitation, Conservation and Management, Sharda Pustak Bhawan, Allhabad.
- Potter, K. (2022) Natural Resources: Exploitation, Depletion and Conservation, Callisto Reference, New York
- Singh, J. and G. Pandey (2015) Natural Resource Management and Conservation, New Delhi: Kalyani Publishers.
- Cooper, P. (2018) Ecology and Natural Resource Management, Syrawood Publishing House, New York
- Cole, R.A. (1999) Natural Resources: Ecology, Economics and Policy, Prentice Hall College Division
- Thakur, B. (2009) Perspectives in Resource Management in Developing Countries, Vol 1: Resource Management-Theory and Practices, Concept Publishing House, NewDelhi.
- Thakur, B. (2009) Perspectives in Resource Management in Developing Countries, Vol 4: Land Appraisal and Development, Concept Publishing House, New Delhi.
- Zilberman, D., J.M. Perloff and C.S. Berck (2023) Sustainable Resource Development in the 21st Century, Natural Resource Management Policy: Vol. 57, Springer
- Pereira L.S. et al (2013) Coping With Water Scarity: Addressing the Challenges, Springer
- Misra, H. N. (2014) Managing Natural Resources: Focus on Land and Water, PHI Learning Pvt. Ltd., New Delhi.
- Pathak, P. and R.R. Srivastav (2021) Alternate Energy Resources: The way to Sustainable Modern Society, Springer.
- Grebner, D.L. et el (2021) Introduction to Forestry and natural Resources, Academic Press, U.K.
- Saxena, H. M. (2013) Economic Geography, Rawat Publication, New Delhi.

GENERAL ELECTIVE -SUSTAINABLE DEVELOPMENT: SOCIETY AND POLICY INTERFACE (GE 10)

NOTECourse title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
SUSTAINABLE DEVELOPMENT: SOCIETY AND POLICY INTERFACE	4	3	1	0	Class 12th	NIL

Learning Objectives:

- To understand emerging sustainable science disciplines and associated concepts,
- To explain principles of sustainable development, including components of sustainable development
- To discuss methods of measuring sustainable development and issues related to the same.

Learning Outcomes:

After transacting the course, students will be able to:

- Understand the basic concept of sustainable development.
- Assess sustainability and related methods to measure the same.
- To explain major issues related to sustainability including ways to achieve the same.

Course Outline

Unit 1: Sustainable Development: (7 hrs)

- Meaning and Concept of Sustainable Development, Components, Historical Background, Sustainability Sciences.

Unit 2: Sustainable Development Goals: (10 hrs)

- Illustrative SDGs**;** Goal-Based Development;Financing for Sustainable Development

Unit 3 : Sustainability Assessment and Appraisal: (10 hrs)

- Sustainability Indicators,Ecological Footprint Analysis, Sustainability Index, India SDG Index.

Unit 4: Issues in Sustainability: (10 hrs)

- Poverty and Disease, Universal Health Coverage;Policies and Global Cooperation for Climate Change, Biodiversity loss

Unit 5: Sustainable Policies and Success Stories: (8 hrs)

- Good Governance for Sustainability, Gandhian Philosophy of rural development, Sustainable Cities, Micro-level Success stories: Piplantri Village (Rajasthan) and Kundrakudi Village (Tamil Nadu)

Practical component (if any) – NIL

Readings

- Atkinson, G., Dietz, S. Neumayer, E. (2007) Handbook of Sustainable Development, Edward Elgar, Massachusetts, USA.
- Blewitt, J. (2008) *Understanding Sustainable Development*, Earthscan, London.
- Bosselmann, K. (2008) The Principle of Sustainability: Transforming Law and Governance, Ashgate, England.
- Cole, V. and Sinclair, A.J. (2002) Measuring the ecological footprint of a Himalayan tourist centre. *Mountain Research and Development*, 22(2: 132-141.
- Khuman Y.S.C., Mohapatra, S., Yadav, S.K. and Salooja, M.K. (2014) Sustainability science in India, *Current Science*, 106(1): 24-26.
- Kopnina, H. and Shoreman-Ouimet, E. (eds) Sustainability: Key Issues, London and New York: Routledge.
- Piplantri: A Rajasthan village which celebrates the birth of every girl child with 111 trees. Ministry of Women and Girl Child. Weblink: https://wcd.nic.in/sites/default/files/Piplantri.pdf
- Planning Commission (1986) Towards improved local level planning for rural development: Lessons from some Experience. Multi-Level Planning Section. Government of India, New Delhi.
- Sachs, J.D. (2015) *The Age of Sustainable Development*, Columbia University Press, New York.
- SDG India: Index & Dashboard 2020-21, Partnerships in the Decade of Action, Niti Aayog Report, Government of India, New Delhi.
- Soubbotina, T.P. (2004) Beyond Economic Growth: An Introduction to Sustainable Development, The World Bank, Washington, D.C.
- Wackernagel, M. and Rees, W. (1996) Our Ecological Footprint: Reducing Human Impact on the Earth. New Society Publishers, Philadelphia.

GENERAL ELECTIVE-GEOGRAPHY OF CONFLICT AND PEACE STUDIES (GE 11)

Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
GEOGRAPHY OF CONFLICT AND PEACE STUDIES	**4**	**3**	**1**	**0**	**Class 12th**	**NIL**

Learning Objectives:

- Develop an understanding about the Geography of Conflict and Peace Studies as an academic discipline. The course is organised around three principal themes: Introduction to Geography of Conflict and Peace Studies, Conflict Resolution, Peace building and Peace-making in spatial context.

Learning Outcome:

At the end of the course the students shall understand -

- Core Concepts of Geography of Conflict and Peace Studies
- Conflict and peace related different perspectives
- International and Intra state Conflicts with case examples
- Historical experiences of Conflict Resolution at global and regional level
- Peace making and Peace Building Process
- They will also gain knowledge to explain and analyse world politics around different geographical contexts.

Course Content:

Unit 1: Introduction: (8 hrs)

- Conflict and Peace: Definitions, Cause based classification of conflicts, Emergence of Conflicts and Peace Studies in Geography, Global Indices of Conflict and peace -Global peace Index, Global Conflict Risk Index

Unit 2: Philosophical perspectives on Conflict and peace: (10 hrs)

- Marxist, Socialist, Gandhian: key concepts, Global and Indian Experiences

Unit 3: International and Inter state Conflicts: (9 hrs)

- Conflicts in the International System: Treaty of Versailles and World War II, Intra-state river water and boundary disputes, Contemporary wars-Bio Warfare, Resource wars

Unit 4: Peace making and Peace Building: (9 hrs)

- Concept, Process, approaches; India 's Soft Power and peace-making, India's participation in UN peace keeping

Unit 5: Conflict Resolution - Global and National case studies: (9 hrs)

- Geneva Convention, Hague Conventions of 1899 and 1907, North Atlantic Treaty Organization (NATO) , Formation of League of Nations, Establishment of United Nations ; National Panchsheel Principles , Indian Peace Accords

Readings

- Audrey Kobayashi (ed), 2015, Geographies of Peace and Armed Conflict, Routledge
- Tim Marshall ,2016, Prisoners of Geography, 2016, Elliott & Thompson Limited
- Tim Marshall, 2021.THE POWER OF GEOGRAPHY: Ten Maps That Reveal the Future of Our World, Elliott & Thompson Limited
- Robert D. Kaplan ,2013, The Revenge of Geography: What the Map Tells Us About Coming Conflicts and the Battle Against Fate, RHUS; Reprint edition
- John Schwarzmantel, Hendrik Jan Kraetzschmar (ed) , 2013,Democracy and Violence: Global Debates and Local Challenges , Routledge;
- Colin Flint, 2004, The Geography of War and Peace: From Death Camps to Diplomats, OUP USA
- Björkdahl, A., Buckley-Zistel, S. (eds) Spatializing Peace and Conflict. Rethinking Peace and Conflict Studies. Palgrave Macmillan, London. https://doi.org/10.1057/9781137550484_1

- Nurit Kliot, Stanley Waterman, The Political Geography of Conflict and Peace,1999, Belhaven Press
- Galtung, John, 1996, Peace by Peaceful Means, Sage
- Nicholas John Spykman ,1944, The Geography Of The Peace, Harcourt, Brace And Company, Inc.
- Brown, Michael E, Owen R. Cote, Sean M. Lynn-Jones & Steven E. Miller, eds., 1998, Theories of War and Peace. An International Security Reader. Cambridge, MA: MIT Press
- Bercovitch, Jacob, et.al. 2009. The Sage Handbook of Conflict Resolution. New Delhi: Sage Publication.
- Azar, Edward E., 1990, The Management of Protracted Social Conflict: Theory and Cases Aldershot: Dartmouth
- Berrovitch, Jacob and Jeffery Z. Rubin, (eds), Mediation in International Relations: Multiple Approaches to Conflict Management, New York: St. Martin's Press,
- Burton, John, 1990, Conflict: Resolution and Prevention, London: Macmillan.
- Elshtain, Jean Bethke, 1995, Women and War, Chicago: University of Chicago Press.
- Kriesberg, Louis, et.al., eds., 1989, Intractable Conflicts and their Transformation, Syracuse University Press,
- Kriesberg, Louis and Thorson, Stuart J., eds., 1991, Timing and the De-escalation of International Conflicts,Syracuse: Syracuse University Press
- Lederach, John Paul, 2004, Building Peace: Sustainable Reconciliation in Divided Societies, Princeton: Princeton Uni Press,
- Miall, Hugh, Ramsbotham and Woodhouse, Tom, 1999, Contemporary Conflict Resolution: The Prevention, Management and Transformation of Conflicts, Cambridge: Polity Press.
- Michael, C.R., 1981, The Structure of International Conflict, London: Macmillan,
- Parekh, Bhikhu,1989, Gandhi's Political Philosophy: A Critical Examination, London:
- Parekh, Bhikhu, 2001, Gandhi, (London: Oxford Paperback,)
- Vayreynen, Raimo, Dieter Senghaas and Christian Schmidt (eds.), 1987, The Quest for Peace: Cultures and States, California: Beverly Hills
- Wallensteen, Peter (ed.),1998, Preventing Violent Conflicts: Past Record and Future Challenges, Uppsala University: Sweden: Department of Peace and Conflict Resolution
- Zartman, I. William and Rasmussen, J. Lewis. (eds.) 1997, Peace-making in International Conflict Methods & Techniques, Washington, DC: US Institute of Peace Press,
- Chomsky, Noam,1999, World Orders: Old & New, Oxford University Press
- Bose, Anima. 1987. Dimensions of Peace and Non-violence: The Gandhian Perspectives, Juergensmeyer, Mark. 2003. Gandhi's Way: A Handbook of Conflict Resolution. New Delhi: Oxford

GENERAL ELECTIVE-REGIONAL DEVELOPMENT (GE 12)

Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
REGIONAL DEVELOPMENT	4	3	1	0	Class 12th	NIL

Learning Objective

The Learning Objectives of this paper are as follows:

- To understand the importance of balanced regional development.
- To familiarize the students about multi-sectoral regional disparities at regional and global levels
- To introduce students to theoretical and practical aspects of regional planning and regional development.

Learning Outcome:

The Learning Outcomes of this paper are following:

- The students will understand the causes of regional disparities and significance of balanced regional development.
- The students will be able to assess the level of regional inequalities in different sectors
- of economy and in human development.
- The students will gain insights into the spatial- regional aspects of development and the importance of planned efforts to develop backward areas.

Course Outline

- **Unit 1: Introduction: (8 hrs)** Concept of Regional Development, Determinants of regional disparities and significance of balanced Regional Development.
- **Unit 2: Global Regional Disparities**: **(10 hrs)** Spatial patterns of Human Development-HDI of Developed, Developing and Least Developed Countries, Case study of Sahel and Western Europe.
- **Unit 3: Regional Disparities in India: (9 hrs)** Regional disparities in agricultural and industrial development, regional disparities in Human Development (Poverty, Education and Health).
- **Unit 4: Theories of Regional Development**: **(9 hrs)** Growth Pole and Growth Centre; Cumulative Causation and Core-periphery.
- **Unit 5: Regional Development Planning**: **(9 hrs)** Multipurpose Dam Project (Sardar Sarovar Project); Urban Planning (National Capital Region) and Target-Group Approach (Integrated Tribal Development Programme).

Readings

- Chandna, R.C. (2000) Regional Planning: A Comprehensive Text, Kalyani Publishers, New Delhi.
- Chaudhuri, J.R. (2001) An Introduction to Development and Regional Planning with special reference to India, Orient Longman, Hyderabad.
- Kuklinski, A.R. (1972) Regional Development and Planning: International Perspective, Sijthoff-Leydor.
- Mahesh Chand and V.K. Puri (1983) Regional Planning in India, Allied Publishers, New Delhi.
- Misra, R.P. (ed.) (1992) Regional Planning: Concepts, Techniques, Policies and Case Studies, 2nd Edition, Concept Publishing Company, New Delhi.
- Misra, R.P. and Natraj, V.K. (1978) Regional Planning and National Development, Vikas Publication, New Delhi.
- Patnaik, C.S. (1981) Economics of Regional Development and Planning in Third World Countries, Associate Publishing House, New Delhi.
- Saroha, J and Singh, S (2022) Geography of India (3rd Edition), Pearson India Education Services, Noida.
- Singh, S and Saroha, J (2021) Human and Economic Geography, Pearson India Education Services, Noida.
- Sundaram, K.V. (1986) Urban and Regional Planning in India, Vikas Publishing House, New Delhi.
- Eleventh Five Plan of India, Planning Commission of India, Government of India.

SEMESTER-V

Category I

(B.A. Honours in Geography in three years)

DISCIPLINE SPECIFIC CORE COURSE – ENVIRONMENT AND ECOLOGY (DSC 13)

Course title & Code	Credits	Duration (Hrs per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
ENVIRONMENT AND ECOLOGY	4	3	1	0	Class 12th	NIL

Learning Objectives:

1. Various dimensions of ecology and ecosystems, their spatial distribution.
2. To learn about the global environmental challenges and management
3. To know about regional environmental challenges.
4. Understanding of environmental governance.

Learning Outcomes:

1. Detailed exposure to the concept of ecology, ecosystem, processes, theories and concepts.
2. In-depth knowledge of anthropogenic interventions and impacts, conservation strategies and planning.
3. Understanding the environmental concerns at global and regional level.
4. Evaluation and achievement of different environmental programs, policies and legislations.

Course Outline:

Unit-1 Introduction: (7 hrs)

- Concept of Environment, Ecology and Ecosystem; Types of Ecology; Concepts of Ecosystem Services; Ecological and Material Footprint; Global Planetary Boundaries.

Unit-2 Ecology and Ecosystem: (9 hrs)

- Species Interactions; Ecological Limiting Factors; Ecosystem: Structure and Functions; Human Adaptation

Unit-3 Global Environmental Challenges and Management: (11 hrs)

- Climate Change,Biodiversity loss, Land degradation and Human health issues

Unit-4 Regional Ecological Issues and Management: (11 hrs)

- Coastal and Marine Ecology: Loss of mangroves and corals, Garbage Patches; Urban Ecology: Waste disposal and Pollution

Unit-5 Programmes and Policies: (7 hrs)

- Environmental Impact Assessment; Global andNational Environment Policy of India

Readings:

- Brewster, E. N. 2010. Climate Change Adaptation: Steps for a Vulnerable Planet, New York, Nova Science.
- Cain, M.L., Bowman, W.D. and Hacker S.D. (2011). Ecology, 2nd Edition, Sinauer Associates Inc.
- Chandna R. C., 2002: *Environmental Geography*, Kalyani, Ludhiana.
- Chapman, J.L.& M.J. Reiss. (1998). Ecology: Principles and Applications. Cambridge Univ. press.
- Cunninghum W. P. and Cunninghum M. A., 2004: *Principals of Environmental Science: Inquiry and Applications*, Tata Macgraw Hill, New Delhi.
- Das, R. C., 1998. The Environmental Divide: The Dilemma of Developing Countries, A.P.H. Pub., New Delhi.
- Freedman, Bill. 1995. Environmental Ecology: The Ecological Effects of Pollution, Disturbance, and Other Stresses, Academic Press. London.
- Global Environment Monitoring UNEP, https://wesr.unep.org/article/global-environment-monitoring
- Global Environmental Outlook Reports UNEP https://www.unep.org/geo/ Intergovernmental Panel on Climate Change IPCC Reports(2021-23) https://www.ipcc.ch/report/ar6/wg2/

DISCIPLINE SPECIFIC CORE COURSE – AGRICULTURAL GEOGRAPHY ANDFOOD SECURITY (DSC 14)

Course title& Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
AGRICULTURAL GEOGRAPHY AND FOOD SECURITY	4	3	1	0	Class 12th	NIL

Learning Objectives:

- To understand the nature and scope of agricultural geography.
- To provide a detailed analysis of landuse- landcover classification by NRSA.
- To enable the learners to appreciate the geographical factors affecting agriculture
- To enable the learner to identify and understand modern agricultural practices.
- To enable the learner to identify and understand the concept and dimensions of food security.

Learning Outcomes:

- A detailed insight into the subfield of agricultural geography.
- An in-depth knowledge of geographical factors affecting agriculture.
- An understanding of models and regionalization of agriculture.
- Knowledge of concepts and dimensions of food security.
- An understanding of challenges, programme and policies related to sustainable agriculture.

Course Outline

UNIT 1: **Concept of Agricultural Geography**: **(7 hrs)**

- Nature and Scope, concept andclassification of landuse- landcover (twenty two fold NRSA).

Unit 2: Geographical Factors affecting Agriculture: (10 hrs)

- Physical, Economic, Technological,Institutional and socio-cultural.

Unit 3: Models, Theories and Regionalization: (10 hrs)

- Whittlesey's classification of Agricultural regions; Agro ecological regions of India

Unit 4: Agricultural Development: (11 hrs)

- Concept and relevance of Sustainable Agriculture, Modern Agricultural Practices (Green Revolution, Organic farming, Precision Agriculture: role of Remote Sensing and GIS modelling, role of Artificial Intelligence)

Unit 5: Food Security: (7 hrs)

- Concept and dimensions, Food security in India: Challenges, Programmes and Policy.

Readings:

- Gregor, H.P.: Geography of Agriculture. Prentice Hall, New York, 1970.
- Grigg, D. (1984): 'An Introduction to Agricultural Geography', Hutchinson Publication, London
- Hussain, M., 2000, Agricultural Geography, Rawat Publications
- Modgal, Suresh, 2017, Food Security of India, National Book Trust, 81-237-7131-2
- Ramaswamy, S. and Surulivel, L., 2017, Food Security in India, MJP Publishers, ISBN: 9788180943386, 8180943380
- Singh, J. and Dhillon, S.S. (1988), "Agricultural Geography", 2nd edition, Tata McGraw-Hill, NewDelhi
- Swaminathan, M.S., 2016, Combating Hunger and Achieving Food Security, Cambridge University Press, 9781107123113
- Symons, L. (1972): 'Agricultural Geography', Bell and Sons, London.
- Tarrant, J.R.(1974): Agricultural Geography, Problems in Modern Geography Series, John Wiley and Sons
- माजिद हुसैन, 2000, कृषि भूगोल, Rawat Publications, 9788170335658

DISCIPLINE SPECIFIC CORE COURSE – RESEARCH METHODOLOGY AND FIELDWORK (PRACTICAL) (DSC 15)

Course title & Code	Credits	Duration (Hrs per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
RESEARCH METHODOLOGY AND FIELDWORK (PRACTICAL)	**4**	**2**	**0**	**2**	**Class 12th**	**NIL**

Learning Objectives:

1. To form an understanding of various dimensions of fieldwork and its role in geographical studies.
2. To understand in detail various field techniques .
3. Understanding of nuances of research instruments, field tools and report writing.

Learning Outcomes:

1. Detailed exposure of field techniques to study new geographical landscapes.
2. In-depth knowledge of different research instruments and field techniques.
3. Understanding field ethics.

Course Outline

UNIT 1: Research methodology and fieldwork: **(5 hrs)**

- concept, relevance, ethics and steps.

UNIT 2: Framing a research proposal: (5 hrs)

- identifying the research problem and study area, literature review, research questions, hypothesis, objectives, delineating the database and methods, framing the study relevance.

UNIT 3: Methods of Data collection and fieldwork: **(5 hrs)**

- Observation, Questionnaires,Interviews, Transects and Quadrants, Triangulation, pilot surveys, Recent trends

UNIT 4: Data analysis and interpretation: (5 hrs)

- Qualitative and Quantitative techniques ofanalysis; interpreting research findings

UNIT 5: Field Report: (5 hrs)

- Organisation and preparation, referencing, endnote, footnotes,supplementary materials. **Practical Record: 60 Hours**

1. Each student will prepare a report based on primary and secondary data collected during the field.
2. Handwritten (not less than 30 pages)/ typed (8000-12000 words), including preface, certificate of originality, acknowledgement, table of contents, list of figures and tables, chapters, conclusions, bibliography and appendixes.
3. One copy of the report on A 4 size paper should be submitted in soft binding.

Readings

- Creswell, J., (1994). Research Design: Qualitative and Quantitative Approaches. UK: Sage Publications.
- Dikshit, R. D. (2003). The Art and Science of Geography: Integrated Readings. New Delhi, India: Prentice-Hall of India.
- Robinson, A. (1998). Thinking Straight and Writing That Way. In Pryczak, F. and

Bruce, R. P. eds.. Writing Empirical Research Reports: A Basic Guide for Students of the Social and Behavioural Sciences. Los Angeles, USA: Routlege.

- Special Issue on “Doing Fieldwork” The Geographical Review 91:1-2 (2001)
- Evans, M. (1988). Participant Observation: The Researcher as Research Tool. In Eylesand, J and D. Smith (eds). Qualitative Methods in Human Geography. Cambridge, UK: Polity.
- Mukherjee, N. (2002). Participatory Learning and Action: with 100 Field Methods. Delhi, India: Concept Publs. Co.
- Vero, E. Sara, (2021) Fieldwork Rady: An Introductory Guide to Field Research for Agriculture, Environment and Soil Scientists, Wiley, Hoboken, USA.
- Pole, S and Hillyard, S., (2015), Doing Fieldwork. Sage Publication, LA, New Delhi.
- Wolcott, H. (1995). The Art of Fieldwork. CA, USA: Alta Mira Press.
- Krishnanad and Raman VAV., (2018) A Geographer's Guide to Field Work and Research Methodology" Book Age Publications, New Delhi.

Hindi

- Jain, BM (2015) रिसर्च मेथोडोलॉजी! Research Publications in Social Science, Delhi-Jaipur.
- Ganeshan, SN. (2009) अनुसंधान प्रविधध ससद्धान्त अौ प्रक्रिया ! Lokbharti Prakashan, Allahabad.
- Sharma, RA (2021) **शिक्षा अनुसन्धान के मूल तत्व एवं िोध प्रक्रिया**. R Lall Book Depot, Meerut.

DISCIPLINE SPECIFIC ELECTIVE COURSE - POLITICAL GEOGRAPHY (DSE 6)

Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
POLITICAL GEOGRAPHY	4	3	1	0	Class 12th	NIL

Learning Objectives

The learning objectives of the course are as follows:

- To explain the evolution of the sub field of political geography, and the contribution of its leading scholars
- To explain the key concepts and theories of the subfield of political geography
- To explain the significance of political processes and their relation to space

Learning outcomes

After completing this course, the student would be able to:

- Distinguish between Political Geography and Geopolitics and understand the importance of both
- Understand how geography affects politics and how politics affects geography
- Understand the role of geographical factors in influencing voter turnout, voting behaviour and the outcome of elections
- Understand conflicts over resources and issues related to displacement at different scales.

Course Outline

Unit 1: Introduction: (9 hrs)

- Evolution of Political Geography; Concept of State, Nation and Nation-state; Attributes of State; Frontiers and Boundaries.

Unit 2: Geopolitics: (10 hrs)

- Geopolitics: Concept; Theories of Ratzel; Geostrategic views of Mackinder and Spykman;

Unit 3: Electoral Geography: (8 hrs)

- Geographic influences on voting pattern; geography of representation and Gerrymandering.

Unit 4: Geography of Conflicts and Displacement (case studies): (9 hrs)

- Water sharingdisputes; Rights of indigenous people to forests; Boundary conflicts and forced migration; Development induced displacement

Unit 5: Contemporary Political Issues: **(9 hrs)**

- Environmental Politics; India as an emerging power (Global and Regional)

References:

Essential:

- Agnew, J. (2002*) Making Political Geography*. London,UK: Arnold
- Painter J. and Jeffrey, A. (2009) *Political Geography*. USA: Sage Publications
- Taylor, P. and Flint, C. (2000*) Political Geography*. UK: Pearson Education
- Verma, M.K. (2004*) Development, Displacement and Resettlement*. Delhi: Rawat Publications
- Adhikari,S. (2013*) Political Geography of India*. Allahabad:Sharda Pustak Bhawan
- Glassner, M. (1993) *Political Geography*. USA:Wiley
- Zamindar, V. F. (2013*) India-Pakistan Partition 1947 and forced migratio*n. Wiley Online Library https://doi.org/10.1002/9781444351071.wbeghm285
- Sibley, D. (2002*) Geographies of Exclusion.* Routledge
- DeSombre, E.R. (2020*) What is Environmental Politics?* Wiley

Suggestive:

- Cox, K. (2002) *Political Geography: Territory, State and Society*. USA: Wiley-Blackwell
- Gallaher, C. et al. (2009*) Key Concepts in Political Geography*. USA: Sage Publications
- Smith, S. (2020) Political Geography*: A Critical Introduction*. USA: Wiley-Blackwell
- Rosenbaum, W.A. (2022*) Environmental Politics and Policy 12th Edition.* CQ Press
- Dwivedi, R.L. and Misra, H.N. (2019*) Fundamentals of Political Geography*. Surjeet Publications.

DISCIPLINE SPECIFIC ELECTIVE COURSE –SOCIAL GEOGRAPHY (DSE 7)

Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
SOCIAL GEOGRAPHY	4	3	1	0	Class 12th	NIL

Learning Objectives

- To familiarise the student with the theoretical foundations of Social Geography.
- To help students appreciate how social diversity is manifested in socio-spatial patterns.
- To help student understand that social wellbeing is a spatially variable condition and appreciate its correlates.

Learning Outcomes:

On completion of the course, students will:

- understand the basic concepts of social geography, social diversity, social wellbeing and social exclusion/ inclusion.
- possess the knowledge of socio-cultural regions of India.

- understand patterns of social well-being, and welfare policies and programs in India.
- understand the relation between the process of social exclusion/inclusion and space.

Course Outline

Unit 1: Social Geography: (8 hrs)
- Origin, Nature and Scope; Concept of Social Space.

Unit 2 : Social Differences and Diversity: (10 hrs)
- Concepts; Socio- Cultural Regions, languageregions of India

Unit 3: Social Wellbeing: (9 hrs)
- Concept of Social Well Being; Needs and Wants; Componentsof Social Well Being: Healthcare, Education, Housing; Gender Equality in India.

Unit 4: Social Geographies of Exclusion and Inclusion: (9 hrs)
- Ethnicity, race, religion basedsocial and spatial exclusion, Disability and Space.

Unit 5: Social Welfare Policies and Programs: (9 hrs)
- Policies for People with Disabilities,senior citizens and Transgenders.

Readings:

- Ahmed, A., (1999): Social Geography, Rawat Publications.
- Buttimer, A., (1969): "Social Space in Interdisciplinary Perspective", Geographical Review, Vol. 59, No. 3
- Casino, V. J. D., Jr., (2009): Social Geography: A Critical Introduction, Wiley Blackwell.
- Cater, J. and Jones, T., (2000): Social Geography: An Introduction to Contemporary Issues, Hodder Arnold.
- Dutt, A.K., Thakur, B., Wadhwa, V., and Costa, F.J. (2012) Facets of Social Geography: International and Indian Perspective, Cambridge University Press India Ltd.
- Lefebvre, H., (1991): The Production of Space, Wiley-Blackwell.
- Maurya, S.D., (2022): सामाजजक भमू ोल, Sharda Pustak Bhawan
- Panday,P and Singh, (2020): सामाजजक भ ोल , SBPD Publications
- Panelli, R., (2004): Social Geographies: From Difference to Action, Sage.
- Paine, R. Burke, M., Fuller, D., Gough, J., Macfarlane, R. and Mowl, G., (2001): Introducing Social Geographies, Oxford University Press.
- Ramotra, K.C., (2008): Development Processes and the scheduled Castes, Rawat Publication.
- Slum Almanac 2015-16- A UN Habitat Report
- Smith, D. M., (1977): Human geography: A Welfare Approach, Edward Arnold, London.
- Smith, D. M., (1994): Geography and Social Justice, Blackwell, Oxford.
- Smith, S. J., Pain, R., Marston, S. A., Jones, J. P., (2009): The SAGE Handbook of Social Geographies, Sage Publications.
- Soja,E.W., (1996): *Thirdspace: Journeys to Los Angeles and Other Real-and-Imagined Places*, Wiley-Blackwell.

- Soja, E.W., (1999): Thirdspace: Expanding the Scope of the Geographical Imagination, D. Massey, J. Allen, P.Sarre, Human Geography Today, Blackwell Publishers, Cambridge, UK,
- Soldatic, K., Morgan, H. and Roulstone, A., (2019): *Disability, Spaces and Places of Policy Exclusion*, Routledge.
- Sopher, David., (1980): *An Exploration of India*, Cornell University Press, Ithasa.
- Valentine, G., (2001): *Social Geographies: Space and Society*, Prentice Hall.

GENERAL ELECTIVE- WORLD REGIONAL GEOGRAPHY (GE 13)

Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
WORLD REGIONAL GEOGRAPHY	**4**	**3**	**1**	**0**	**Class 12th**	**NIL**

Learning Objectives:

- To provide a comprehensive understanding of the world's regions
- To develop an in-depth knowledge about the different regions and their distinctive features
- To understand the interconnectedness of global issues and global regions.

Learning Outcomes:

- Detailed exposure to the concept and nature of regions in geography.
- In-depth knowledge of different regions based on multidimensional criteria.
- Understanding the interrelationship of cultural and economic factors in creating regionscapes.
- Comprehending the intricate interwoven reality of regions through the case study approach of South Asia.

Course Outline

Unit 1- Introduction: (8 hrs)

- Concept of a Region, Classification of Regions- Formal (Natural,Cultural), Functional (Economic, Administrative) and Perceptual Regions (6 Hours)

Unit 2- Natural Regions: (10 hrs)

- Equatorial, Tropical, Temperate, Taiga, Tundra regions (Location,Climate, Natural Vegetation, Human and Economic life in these regions) (12 Hours)

Unit 3- Economic Regions: (9 hrs)

- Major industrial (manufacturing) regions of Asia, North America,South America, Europe and Africa (One Case Study from each continent) (10 Hours)

Unit 4- Cultural Regions: (9 hrs)

- Major Cultural Realms/Regions of the World as given by Russelland Kniffen, 1951 and Broek and Webb, 1967. (7 Hours)

Unit 5- Systematic study of South Asia: (9 hrs)

- Natural Divisions, Economy, Demography andPopulation Dynamics (10 Hours)

Readings

- Broek, J. O. M., Webb, J. W., & Hsu, M. L. (1968). A Geography of Mankind. New York: McGraw-Hill.
- De Blij, H. J., Muller, P. O., Nijman, J., & Schouten, F. G. (2012). Geography: Realms, Regions, and Concepts. Wiley.
- Goh, C. L. (1974). Certificate Physical and Human Geography. Oxford University Press.
- Hopkins, J., & Spillman, B. (2017). The Geography of the World Economy. Routledge.
- Jordan-Bychkov, T. G., Domosh, M., & Rowntree, L. (2013). The Human Mosaic: A Thematic Introduction to Cultural Geography. W. H. Freeman.
- Knox, P. L., & Marston, S. A. (2019). Human geography: Places and regions in global context. Pearson.
- Russell, R. J., & Kniffen, F. B. (1951). Culture Worlds. New York.
- Schwartzberg, J. E. (1978): A Historical Atlas of South Asia. The University of Chicago Press, Chicago and London.
- White, G. W., Bradshaw, M. J., Dymond, J., & White, G. (2011). Essentials of World Regional Geography. New York: McGraw-Hill.

Hindi

- Gautam, Alka. (2018): Vishwa ka Pradeshik Bhugol, Sharda Pustak Bhavan, Allahabad.

GENERAL ELECTIVE- GEOGRAPHY OF TRADE AND COMMERCE (GE 14)

Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
Geography of Trade and Commerce	4	3	1	0	Class 12th	NIL

Learning Objectives:

The learning objectives for the Course are as follows:

- To develop an understanding of the concepts relating to trade and commerce.
- To introduce major theories of trade
- To learn about spatial patterns and spatiality of trade regimes
- To appreciate the trajectory of India's international trade

Learning Outcomes:

The students will learn the following:

- to appreciate factors and barriers to international trade and commerce
- Students would be able to develop an understanding of the key theories of international trade
- Students would be able to identify the institutional mechanisms governing international trade and be exposed to actual case studies
- Students would be able to analyze the patterns of International Trade with reference to India

Course Outline

Unit 1: Introduction to Trade and Commerce: (8 hrs)

- Definition and Concepts- Internationaltrade, Commerce, Export/Import and Balance of trade; Factors affecting internationaltrade; Barriers to international trade

Unit 2: Theories of Trade: (10 hrs)

- Classical Theories- David Ricardo's Comparative

Advantage, Contemporary Theories-Paul Krugman's New Trade Theory

Unit 3: Trade Blocs and Institutional Bodies: (9 hrs)

- WTO, IMF and World Bank; RegionalTrade Blocks: European Union, ASEAN, CACM, OPEC;

Unit 4: Impact of International Trade: (9 hrs)

- Case studies of Bangladesh garment industryand Brazil service trade

Unit 5: Patterns of International Trade with reference to India: (9 hrs)

- Volume of Trade ;Direction of Trade Flows ; Commodity Composition

Readings

- Batra, A. (2022). India's Trade Policy in the 21st Century. Routledge.
- Dee, M. (2015). The European Union in a multipolar world: world trade, global governance and the case of the WTO. Springer.
- Ernst, D., Ganiatsos, T., & Mytelka, L. (Eds.). (2003). Technological capabilities and export success in Asia. Routledge.
- ESCAP, U. (1995). Development of the export-oriented electronics goods sector in Asia and the Pacific.
- Gandolfo, G., & Trionfetti, F. (2014). International trade theory and policy. Berlin, Heidelberg, New York: Springer.
- Garavini, G. (2019). The rise and fall of OPEC in the twentieth century. Oxford University Press.
- Hoekman, B. M., Mattoo, A., & English, P. (Eds.). (2002). Development, trade, and the WTO: a handbook (Vol. 1). World Bank Publications.
- Kathuria, S., & Malouche, M. M. (2015). Toward New Sources of Competitiveness in Bangladesh: Key Insights of the Diagnostic Trade Integration Study. World Bank Publications.
- Kobayashi, K., Rashid, K. A., Furuichi, M., & Anderson, W. P. (Eds.). (2017). Economic integration and regional development: the ASEAN economic community. Routledge.
- Krugman, P. R. (2018). International trade: Theory and policy. Pearson.
- Leong, G.H. and Morgan, G. C. (1982) Human and Economic Geography. Oxford University Press.
- Lopez-Acevedo, G., & Robertson, R. (Eds.). (2016). Stitches to riches?: Apparel employment, trade, and economic development in South Asia. World Bank Publications.
- Michael, P. Todaro, and C. Smith Stephen (2000). Economic Development. Pearson.
- Peet, R. (2009). Unholy trinity: the IMF, World Bank and WTO. Bloomsbury Publishing.
- Pereira, L. V., Sennes, R. U., & Mulder, N. (2009). Brazil's emergence at the regional export leader in services: a case specialization in business services. ECLAC.
- Rahman, S. (2013). Broken promises of globalization: The case of the Bangladesh garment industry. Lexington Books.
- Raychauduri, A., De, P., & Gupta, S. (Eds.). (2020). World Trade and India: Multilateralism, Progress and Policy Response. Sage Publications Pvt. Limited.
- Seymour, I. (1980). OPEC: instrument of change. Springer.
- Sinha, V.C. (2015). अंतर्राष्ट्रीय व्यापार् और् षित्त. Mayur Paperbacks: Ghaziabad.
- Suranovic, S. (2010). International trade: Theory and policy.
- Thoman, R. S., & Conkling, E. C. (1967). Geography of International Trade. Prentice-Hall.
- Veeramani, C., & Nagaraj, R. (Eds.). (2018). International trade and industrial development in India: Emerging trends, patterns and issues. Orient BlackSwan.
- Yadav, P. (2021). Geographical perspectives on international trade. Springer International Publishing.

GENERAL ELECTIVE- CLIMATE CHANGE AND ADAPTATION (GE 15)

Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
CLIMATE CHANGE AND ADAPTATION	4	3	1	0	Class 12th	NIL

Learning Objectives:
The course deals with a critical global concern. The key objectives are:

- To explain various dimensions of climate change.
- To develop a detailed analysis of vulnerability and its impacts.
- To discuss the importance of mitigation and adaptation strategies.
- To evaluate the role of global initiatives and policies for climate change.

Learning Outcomes:
On transacting the course students will have an in-depth knowledge of the following:

- Anthropogenic Climate Change and related issues
- Geographic dimensions of vulnerability.
- Impact of climate change, adaptation and mitigation
- Need for effective policy making

Course Outline

Unit 1: Understanding Climate Change: **(9 hrs)**
- Natural and Anthropogenic causes andevidences

Unit 2: Climate Change and Vulnerability: (9 hrs)
- Physical, Economic and SocialVulnerability

Unit 3: Impact of Climate Change: (10 hrs)
- Ecosystem-Terrestrial and Aquatic; Agricultureand Food Security

Unit 4: Global Initiatives for Adaptation and Mitigation: (9 hrs)
- National andinternational case studies

Unit 5: Climate Change Policy: **(8 hrs)**

- Framework from Kyoto to Paris: Role of IPCC;UNFCCC and COPs

Readings

- IPCC. *Climate Change 2022: Impacts, Adaptation, and Vulnerability. SIXTH Assessment Report of the Intergovernmental Panel on Climate Change.* NY, USA:Cambridge University Press, Cambridge, United Kingdom and New York.
- Trevor. M. Letcher (edited) 2009: *Climate Change: Observed impacts on Planet Earth*
- Narain.S 2021:*Climate Change Science and Politics. Centre for Science andEnvironment*
- Sarah L. Burch and Sara E. Harris: *Understanding Climate Change: Science, Policy andPractice*
- Sen, Roy, S., and Singh, R.B., (2002). *Climate Variability, Extreme Events and Agricultural Productivity in Mountain Regions*. Delhi, India: Oxford & IBH Pub.
- Leary Neil and others, 2008: *Climate Change and Adaptation*
- OECD. (2008). *Climate Change Mitigation: What do we do?* (Organization andEconomic Co-operation and Development).
- UNEP. (2007). *Global Environment Outlook: GEO4: Environment for Development*.Nairobi, Kenya: United Nations Environment Programme.
- Reddy M.A, Vijay Lakshmi T "*Climate Change:Vulnerability and Adaptation"*

SEMESTER-VI

BA (Hons.) Geography

DISCIPLINE SPECIFIC CORE COURSE – REGIONAL GEOGRAPHY OF INDIA (DSC 16)

Course title & Code	Credits	Duration (Hrs per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
REGIONAL GEOGRAPHY OF INDIA	4	3	1	0	Class 12th	NIL

Learning Objectives:

- To introduce the regional dimensions of physiography, climate, soils and vegetation of India
- To show variations in resource base and population dynamics
- To understand the regionalization of India on the basis of different geographical parameters

Learning Outcomes:

- After completing this course students will be able to understand the regional diversity of India in terms of physiography, climate, resources and demography
- Students will be able to understand the basis of regionalization of India based on physiographic, economic and socio cultural factors

Course Outline

UNIT 1: Physical Setting: (9 hrs)

- Major Physiographic Divisions, Climate, Drainage Basins(Peninsular and Extra Peninsular).

UNIT 2: Natural Resources: (9 hrs)

- Soil, Natural Vegetation, Mineral (Iron Ore), andRenewable Energy Resources.

UNIT 3: Population: (9 hrs)

- Growth, Distribution and Density, Population Composition(Sex, Age and Literacy).

UNIT 4: Economy: (9 hrs)

- Agriculture (Rice and Wheat); Industries (Automobile industry and Information Technology), Development of diversified transport network.

UNIT 5: Regionalisation of India: (9 hrs)

- Physiographic (R.L. Singh), Social-cultural (Sopher)and Economic (P.Sen Gupta)

Teaching Plan

Unit 1: 9 hours

Unit 2: 9 hours

Unit 3: 9 hours

Unit 4: 9 hours

Unit 5: 9 hours

Total : 45 hours

Essential Readings

- Singh, R.L. (ed.) (1971) India: A Regional Geography, National Geographical Society ofIndia, Varanasi.
- Sopher, David E. (1980) An Exploration of India: Geographical Perspectives on Societyand Culture, Cornell University Press, Ithaca, New York.
- Gupta, P.Sen and Galina Sdasyuk (1967) Economic Regionalisation of India: Problemsand Approaches, Census of India (1961); Monography Series – 1(8).

Suggested Readings

- Saroha, J and Singh, S. (2022) Geography of India, Pearson India Education Services,Noida.
- Sharma, T.C. (2013) Economic Geography of India, Rawat Publication, Jaipur.
- Majid, H. (2020) Geography of India, McGraw Hill Education (India) Private Ltd.
- Tiwari, R. C. (2019) Geography of India. Pravalika Publication, Allahabad.
- Khullar, D.R. (2020) India – A Comprehensive Geography, Kalyani Publishers, Ludhiana.
- Gopal Krishan (2017) The Vitality of India: A Regional Perspective, Rawat Publication,Jaipur.
- Singh, Gopal (2010) Geography of India, Atma Ram and Sons.

Hindi

- Tiwari, R. C. (2019) *Bharat ka Bhugol*, Pravalika Publication, Allahabad.
- Singh, S. and Saroha, J. (2019) *Bharat ka Bhugol*, CL Media (P) Ltd, New Delhi.
- Mamoria, C. B. and Mishra, J. P. (2021) *Bharat ka Bhugol,* Sahitya Bhawan Publication,Agra.

DISCIPLINE SPECIFIC CORE COURSE – EVOLUTION OF GEOGRAPHICAL THOUGHT (DSC 17)

Course title & Code	Credits	Duration (Hrs per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
EVOLUTION OF GEOGRAPHICAL THOUGHT	4	3	1	0	Class 12th	NIL

Learning Objectives:

- The course aims to present an overview of the evolution of the discipline.
- The course will introduce students to the multi paradigmic nature of geography as adiscipline, key debates and emergence of modern geography

Learning Outcomes:

- On transacting this core course the students will be able to grasp the uniquedisciplinary focus of Geography
- Students will be able to identify the key debates that have shaped the subject
- Students will be well acquainted with the changing paradigms in Geography and theemergence of modern geography

Course Outline

Unit-1: Pre-Modern: Foundations of Geography: (9 hrs)

- Greek and Roman School, Arab School, Contributions of Chinese travellers, Age of Discovery and its Impact.

Unit 2: Paradigms in Geography: (9 hrs)

- Definition of 'Paradigm', major paradigms in geography – Determinism, Possibilism, Areal differentiation, Spatial Organization

Unit-3: Key Debates and Developments in Geography: (9 hrs)

- Geography as idiographic & Nomothetic, Systematic and Particular, General and Regional, Quantitative Revolution, Schaefer-Hartshorne Debate, impact of Darwin's theory

Unit-4: Theories and Models in Geography: **9 hrs)**

- Systems Approach and its relevance in Geography, concepts of place, space, environment, interconnection, scale

Unit -5: Emergence of Modern Geography: (9 hrs)

- Emergence of Radical, Behavioral and Feminist Geography, Evolution of Geographical Thinking and Disciplinary Trends in Germany, France and USA, India

Teaching Plan

Unit 1: 9 hours

Unit 2: 9 hours

Unit 3: 9 hours

Unit 4: 9 hours

Unit 5: 9 hours

Total: 45 hours

Essential Readings

- Holt-Jenson, A. (2011), *Geography: History and Concepts*: *A Students Guide*, Sage.
- Couper, P. (2015). *A Student's Introduction to Geographical Thought: Theories, Philosophies, Methodologies*. SAGE Publications.
- Nayak, Anoop, and Alex Jeffrey (2013). *Geographical thought: An introduction to ideas in human geography*. Routledge, 2013.

Suggested Readings

- Cresswell, Tim. (2013). *Geographic thought : a critical introduction*. Chichester, West Sussex, UK :Wiley-Blackwell
- Arentsen M.,Stam R. and Thuijis R.(2000), *Post-Modern Approaches to Space*, e-book
- Kapur, A. (2002) Indian Geography: Voice of Concern, New Delhi: Concept PublishingCompany.

- Dickinson, R.E. (1969), *The Makers of Modern Geography*, Routledge & Kegan Paul,London.
- Dikshit, R.D. (1997), *Geographical Thought: A Contextual History of Ideas*, Prentice Hallof India.
- James, P.E. & G.J. Martin (1981) *All Possible Worlds: A History of Geographical Ideas*,Third Edition, John Wiley and Sons, New York.
- Johnston, R.J. (1997, 2004), *Geography and Geographers: Anglo-American HumanGeography Since 1945*, 5th and 6th Ed., Edward Arnold, London.
- Peet, R. (1998), *Modern Geographical Thought*, Blackwell.
- Soja, E.W. (1997), Postmodern Geographies: The Reassertion of Space in Critical SocialTheory, Rawat Publishers, Jaipur and New Delhi

DISCIPLINE SPECIFIC CORE COURSE – DISASTER MANAGEMENT-BASED PROJECT REPORT (DSC 18)

Course title & Code	Credits	Duration (Hrs per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
DISASTER MANAGEMENT-BASED PROJECT REPORT (PRACTICAL)	**4**	**2**	**0**	**2**	**Class 12th**	**NIL**

Learning Objectives:

- Understanding the basic concepts related to disaster management
- Detailed analysis about the different types of disasters in India
- Evaluating multiple dimensions of disaster management through field based study

Learning Outcomes:

- The course aims to provide an in depth understanding about types disastersoccurring at different scales
- It will provide thorough understanding about human responses to different kinds ofdisasters
- It will give an in-depth knowledge about tracing the

disasterscapes throughfieldwork

Course Outline

Unit 1: Introduction: **(6 hrs)**

- Concept of Hazard, Disaster, Risk, Vulnerability, Classification ofdisasters, Disaster Management Cycle, Capacity and Resilience.

Unit 2: Disasters and Institutional Framework in India: (8 hrs)

- Disaster Profiles of India (Earthquake, Flood, Drought, Cyclone, Landslide, Avalanche, Fire); Disaster Management Act; Role of Government and NGOs in Disaster Management.

Unit 3: Community-Based Disaster Management: **(8 hrs)**

- Concept and Framework; Indigenous Knowledge and Practices; Role of Civil Society.

Unit 4: Data Assessment and Analysis: (8 hrs)

- IMD and Bhuvan Portal-Demonstration; Multi- Criteria Decision Making: Concept and Method.

Unit 5: Project Report: **(60 hrs)**

Project work to be based on any one of three of the following topics of student's choice. (1) The first should be a field-based case study of any particular disasterand the (2) second should be local/college-based term paper. (3) third should be preparation of earthquake/landslide/flood/forest fire or any other hazard susceptibility map of any area

Teaching Plan

Unit 1: 6 hours

Unit 2: 8 hours

Unit 3: 8 hours

Unit 4: 8 hours

Unit 5: 60 hours

Total: 90 hours

Essential Readings

- Srivastava, P. K., Singh, S. K., Mohanty, U. C., & Murty, T. (2020). *Techniques for Disaster Risk Management and Mitigation*. *Techniques for Disaster Risk Management and Mitigation* (pp. 1–328). wiley.
- Government of India. (2011). Disaster Management in India. Delhi, India: Ministry ofHome Affairs.
- Kapur, A. (2010). Vulnerable India: A Geographical Study of Disasters. Delhi, India:Sage Publication.

Suggested Readings

- Taherdoost, H.; Madanchian, M. (2023) Multi-Criteria Decision Making (MCDM) Methods and Concepts. Encyclopedia 3,: 77–87. https://doi.org/10.3390/encyclopedia3010006
- Mishra, P.K.; Tripathi, S.; Abdelrahman, K.; Tiwari, A.; Fnais, M.S. (2023) Integrated Flood Hazard Vulnerability Modeling of Neluwa (Sri Lanka) Using Analytical HierarchyProcess and Geospatial Techniques. Water 15, 1212. https://doi.org/10.3390/w15061212
- Pathak, G. K. (2021) Apda Prabandhan (Hindi), Rajesh Publications, New Delhi.
- Pandey, R.K. (2020). Disaster Management in India. Sage Text, India
- Government of India. (2008). Vulnerability Atlas of India. New Delhi, India: BuildingMaterials & Technology Promotion Council, Ministry of Urban Development, Government of India.
- Ram kumar, M. (2009). Geological Hazards: Causes, Consequences and Methods of Containment. New Delhi, India: New India Publishing Agency.
- Singh, S. (2014) Apda Prabandhan (Hindi), Pwalika Publications, AIllahabad.
- Modh, S. (2010). Managing Natural Disaster: Hydrological, Marine and GeologicalDisasters. Delhi, India: Macmillan.
- Bhuvan Portal: Disaster Management Support Services - https://bhuvan-app1.nrsc.gov.in/bhuvandisaster/#forestfire
- IMD:https://mausam.imd.gov.in/imd_latest/contents/stationwis e-nowcast-warning.php#
- Singh, J. (2007) Disaster Management, I.K.International Publishing House, New Delhi.

DISCIPLINE SPECIFIC ELECTIVE COURSE –GEOGRAPHIES OF CRIME (DSE 8)

Course title& Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
GEOGRAPHIES OF CRIME	4	3	1	0	Class 12th	NIL

Learning Objectives:

To develop an understanding of Crime from a spatial perspective. The course is organized around three principles: The concept of crime, crime as a spatial construct; and the planning,Governance and spatial strategies to develop a safe place.

Learning Outcomes:

At the end of the course, the students shall understand-

- Definition of crime, its theories and types
- the geographic base of crime
- How differences in society construct space and impact crime;
- What role Policy, planning and Governance strategies play in preventing crime.

Course Outline

Unit 1: Introduction to crime: (9 hrs)

- Definitions; Typology of crimes: Traditional Crimes,Victimless crimes, Family-centered crimes, Environmental Crimes.

Unit 2: Geographies of crime: (9 hrs)

- Crime areas; Environmental correlates of crime; Spatial patterns of crime; Marginalisation of 'Problem Area'

Unit 3: Spatial Construct of Crime: (9 hrs)

- Class, Gender, Age, Disability, Race and Ethnicity based social differences and geographies of crime, Crime against third gender and gendered crimes

Unit 4: Urban Crime: (9 hrs)

- Governance and Policing, Urban settings and Crime Prevention,Attributes and Assessment of safe places.

Unit 5: Policy Intervention: **(9 hrs)**

- Crime Prevention: Environmental design; Local Challenges and situational crime prevention; Policies for awareness generation and deterrence.

Teaching Plan

Unit 1: 9 hours

Unit 2: 9 hours

Unit 3: 9 hours

Unit 4: 9 hours

Unit 5: 9 hours

Total: 45 hours

Essential Readings:

- Wyant, B. R. (2015). Geography and Crime. In *The Encyclopedia of Crime and Punishment* (pp. 1–5). John Wiley & Sons, Inc. https://doi.org/10.1002/9781118519639.wbecpx007
- Lersch and Hart. (2011). Space, Time and Crime 3rd Edition. Carolina Academic Press.Durham, North Carolina.
- Herbert, David. The Geography of Urban Crime. London: Longman, 1982.

Suggested Readings

- Marsh, I., Melville, G., Morgan, K., Norris, G., & Walkington, Z. (2006). *Theories of crime*. *Theories of Crime* (pp. 1–205). Routledge Taylor & Francis Group. https://doi.org/10.4324/9780203030516

- Cater, John, and Trevor Jones "Crime and Disorder." In Social Geography. Edited by J.Cater and T. Jones, 79–113. London: Edward Arnold, 1989.
- Evans, David, and David Herbert eds. The Geography of Crime. London: Routledge,1989.
- Pain, Rachel "Crime, Space and Inequality." In Introducing Social Geographies. Edited by R. Pain, M. Barke, D. Fuller, J. Gough, R. MacFarlane, and M. Graham, 231–253. London: Arnold, 2001.
- P.J., Brantingham, "Criminality of Place: Crime Generators and Crime Attractors", European Journal of Criminal Policy and Research, 3, 5-26, 1995.
- Johnston, R.J., Gregory, D., Pratt, G. and Watts, M. (2000). The Dictionary

of HumanGeography. Oxford, Blackwell Publishers Inc.
- Knox, P. (1995). Urban Social Geography. Essex, England. Logman Group Limited.

Online Resources

- https://www.unodc.org/unodc/es/urban-safety/urbansafetygovernanceapproach.html
- https://www.unodc.org/unodc/en/urban-safety/crime-prevention/unodcity/unodcity-pilots.html
- https://www.unodc.org/unodc/en/urban-safety/UNODC-toolsandresources.html
- https://www.perlego.com/book/1505927/crime-prevention-approaches-practices-and-evaluations-pdf
- https://www.unodc.org/pdf/criminal_justice/Handbook_on_Crime_Prevention_Guidelines_-_Making_them_work.pdf
- https://www.researchgate.net/publication/343721767_Crime_Geography

DISCIPLINE SPECIFIC ELECTIVE COURSE – GENDER AND DEVELOPMENT (DSE 9)

	Credits	Duration (per week)				Prerequisite
Course title & Code		Lecture	Tutorial	Practical/ Practice	Eligibility Criteria	
GENDER AND DEVELOPMENT	4	3	1	0	Class 12th	NIL

Learning Objectives

- This course aims to teach the basic idea of development through a gender lens.
- The course also aims to apply feminist approaches to understanding gender inequality
- It aims to bring awareness that development is not a linear and uniformly distributedphenomenon but has gendered patterns.
- The course also aims to demonstrate that gender-inclusive policies can bring sustainable development and social change through examples from the Global Northand Global South.

Learning Outcomes:

The course would enable the student to:

- Develop a basic understanding of the concept of gender, Gender identities, feminism,and related concepts
- Understand the spatial dimensions of development through a gender lens
- Have an idea about the Global North-Global South and Rural-Urban divide of gendereddevelopment

- To know some qualitative and quantitative methods to measure gender development

Course Outline

Unit 1: Introduction: **(9 hrs)**

- Sex and Gender, Gender Identities; Liberal Feminism, Radical Feminism, Socialist Feminism Post Colonial Feminism

Unit 2: Approaches and Measures to Study Gender and Development: (9 hrs)

- Women in Development (WID), Women and Development(WAD), Gender and Development (GAD); Mainstream Gender Equality (MGE); Gender Development Index (GDI), Gender Empowerment Measure (GEM), Gender Parity Index

Unit 3: Gendered Patterns of Well Being and Development: (9 hrs)

- Global patterns of life expectancies, maternal mortality, child-woman ratio, sex ratio, female literacy, Crime against women, electoral participation and women in Leadership Roles

Unit 4: Gendered Work and Livelihoods: (9 hrs)

- Productive paid work and reproductive work; Invisible work and double burdens, women's work participation in Global North and Global South.

Unit 5: Gender and Contemporary Global Concerns: (9 hrs)

- Gendered impacts of hazards and disasters, climate change, tourism, gendered violence and livelihood loss; Sustainable Development Goal (SDG 5); Policy framework for resilient communities.

Teaching Plan

Unit 1: 9 hours

Unit 2: 9 hours

Unit 3: 9 hours

Unit 4: 9 hours

Unit 5: 9 hours

Total : 45 hours

Essential Readings:

- Coles, Anne, Leslie Gray, and Janet Momsen, eds. ***The Routledge Handbook of Gender and Development*.** Routledge, 2015.

- Momsen, Janet. ***Gender and Development*. Routledge, 2019.**
- Mosse, Julia Cleves. *Half the world half a chance: An introduction to gender and development*. Oxfam GB, 1993.**.**

Suggested Readings

- Moser, Caroline. ***Gender planning and development: Theory, practice and training***. Routledge, 2012
- Datta, Anindita, ed. *Gender, space and agency in India: exploring regional genderscapes*. Taylor & Francis, 2020.
- Parihar, S.M. and Bannerjee, T. '***Women Empowerment Atlas of India: Science & Technology Perspective",*** SEED-DST, Government of India.,2022
- Raju, S, Peter Atkins, Naresh Kumar and Janet Townsend, *Atlas of women and men in India,* 1999
- Datta, Anindita, Peter Hopkins, Lynda Johnston, Elizabeth Olson, and Joseli Maria Silva, eds. *Routledge handbook of gender and feminist geographies*. Routledge, 2020.
- Raju, S, *Gendered Geographies: Space and Place in South Asia,* Oxford UniversityPress, 2011
- Spary Carole**, *Gender, Development, and the State in India*. Routledge**,2019
- Terry, Geraldine**. *Climate Change and gender justice*. Oxfam G.B.,** 2009.
- U.N. Women, Generation Equality Accountability Report 022 World Economic Forum, Global Gender Gap Report, 2022

GENERAL ELECTIVE- GEO HERITAGE AND GEO TOURISM (GE 16)

Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
GEO HERITAGE AND GEO TOURISM	**4**	**3**	**1**	**0**	**Class 12th**	**NIL**

Learning Objectives:

- To understand the concepts associated with geoheritage and the emergence of thesubfield of Geoheritage and Geotourism.

- To create awareness about issues related to Geodiversity, geoconservation togetherwith threats and barriers to geoconservation.
- To identify and understand selection criteria for Geoheritage sites and Geoheritageprotection laws.
- To assess the potential and role of geoheritage and geotourism for sustainabledevelopment through case studies.

Learning Outcomes:

Transacting the course will enable students to:

- Evolve a basic understanding of Geoheritage and Geotourism and appreciate theimportance of Geodiversity and Geoconservation.
- Develop a sound knowledge of the potential and role of Geoheritage in sustainabledevelopment with application of GIS
- Apply the principles of Geoconservation to analyse problems associated withunsustainable tourism activities.

Course Outline

Unit 1: Introduction to Geo heritage and Geo tourism: (9 hrs)

- Definition, Concept and evolution; Relationship between Geo heritage and Geo tourism; Significance of Geo heritage and Geo tourism.

Unit 2: Geodiversity and Geo conservation: (9 hrs)

- Geodiversity Values – Intrinsic, cultural, aesthetic, economic, functional, and scientific; Threats to Geodiversity; Geo conservation principles to protect Geo heritage.

Unit 3: Potential of Geo heritage and Geo tourism: (9 hrs)

- Case Study of Geoparks, Mountain landscape, Geothermal sites and Volcanic landscape.

Unit 4: Geoheritage, Geotourism and Sustainable Development: (9 hrs)

- Role of Geoheritage and Geotourism for sustainable social, economic and cultural development of a region.Application of GIS in Geotourism**.**

Unit 5: Inventory of World Geo heritage Sites: (9 hrs)

- Identification and selection criteria with special reference to UNESCO. Geoheritage and Protection Laws: Role of Government**.**

Teaching Plan

Unit 1: 9 hours

Unit 2: 9 hours

Unit 3: 9 hours

Unit 4: 9 hours

Unit 5: 9 hours

Total : 45 hours

Essential Readings

- Reynard, Emmanuel Jose Brilha., Geoheritage Assessment, Protection, andManagement, December 5, 2017 ISBN: 9780128095317Wolfgang Eder F, Peter T. Bobrowsky, Jesus Martinez-Frias Geoheritage. 2023. Geoparks and Geotourism Conservation and Management Series., Springer, 2023
- Brilha José Inventory and Quantitative Assessment of Geosites and Geodiversity Sites:a Review *The European Association for Conservation of the Geological Heritage 2015.*

Suggested Readings

- Wolfgang Eder F, Peter T. Bobrowsky, Jesus Martinez-Frias Geoheritage. 2023. Geoparks and Geotourism Conservation and Management Series., Springer, 2023
- Gordon, J.E. Geoconservation principles and protected area management. *InternationalJournal of Geoheritage* and *Parks.* 7 (2019) 199–210.
- Gray, M. Geodiversity, Geoheritage and Geoconservation for societies *InternationalJournal of Geoheritage and Parks.* 7 (2019) 226–237.
- Newsome, David and Dowling, Ross, 2018.. Geotourism: The tourism of geology and landscape. Goodfellow publishers, United Kingdom. ISBN:978 1-906884-09-3 DOI: 10.23912/978-1-906884-09-3-21
- Marija Belij, Snežana Đurđić, Sanja Stojković. The Evaluation of Geoheritage for Geotourism Development. 2018. doi:10.5937/zrgfub1802121B
- Newsome, David and Dowling, Ross, 2018. Geoheritage and Geotourism in *Geoheritage, Assessment, Protection, and Management* 2018, Pages 305-321

GENERAL ELECTIVE- GEOGRAPHY OF MEDIA (GE 17)

Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
GEOGRAPHY OF MEDIA	4	3	1	0	Class 12th	NIL

Learning Objectives:

- Geography of media seeks to understand how media depends on and is shaped by geographical patterns and processes.
- This course looks at the basic nature and spatial characteristics of media, its typesand processes.
- The course also deals with various roles mass media plays across geographical boundaries

Learning Outcomes:

Students would be able to:

- To develop an understanding of different forms of media, concepts and process of Media.
- To critically understand media and its functions.
- To understand historical growth, spatial pattern, development and trends ofdifferent forms of media.
- To develop insights about links between media and space and media spaces

Course Outline

Unit 1: Introduction: **(9 hrs)**

- Geography of Media, historical development and approachesto study.

Unit 2: Forms of Media: **(9 hrs)**

- Print, audio visual, digital and social media; vernacular, regional and national circulations, importance and role in geographical knowledge.

Unit 3: Functions of Media is shaping Geographical Spaces: (9 hrs)

- Surveillance, Linkage,Representation and consumption of rural and urban landscapes

Unit 4: Role of Media: (9 hrs)

- Role of media in shaping culture, politics and environmentalvalues, role in creation of global markets.

Unit 5: Media and Development: (9 hrs)

- Media as public sphere and media as public service, coverage of global issues concerning environment, disasters and conflict.

Teaching Plan

Unit 1: 9 hours

Unit 2: 9 hours

Unit 3: 9 hours

Unit 4: 9 hours

Unit 5: 9 hours

Total : 45 hours

Essential Readings

- Rajagopal, A. and Rao, A. 2016. Media and Utopia: History Imagination and Technology,Routledge: London and New York.
- Adams, P. C. 2009. Geographies of Media and Communication: A CriticalIntroduction, London: Wiley-Blackwell.
- Burgess, J. and John R. Gold, eds. 1985. Geography, the Media, and Popular Culture, New York: St. Martin's.

Suggested Readings

- Claude, G. Robin L.Benjamin L, Hugues P.2016. International agenda-setting,the mediaand geography: A multi-dimensional analysis of news flows L'Espace géographique (English Edition), Vol. 45, No. 1 (January-February-March 2016), pp. 1-18.
- Laurent,B,Claude, G, and Marta S. 2016. Geographic Spaces and Media Representations, L'Espace géographique (English Edition), Vol. 45, No. 1 (January-February-March 2016), pp. 1-4
- Travis, C. And von Lunen. A. (eds), 2016. The Digital Arts and Humanities, Neo geography, Social Media, Big Data Integrations and applications, Springer: Switzerland.
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GENERAL ELECTIVE- EDUCATION FOR SUSTAINABLE DEVELOPMENT (GE 18)

Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
EDUCATION FOR SUSTAINABLE DEVELOPMENT	**4**	**3**	**1**	**0**	**Class 12th**	**NIL**

Learning Objectives:

This paper seeks to:

- Clarify concepts of sustainability, sustainability values and principles, sustainablelifestyles and responsible consumption as well as the synergies between them.
- Deepen and expand knowledge about new paradigms of education associated witheducation for sustainability, sustainable lifestyles and transformative education.

- Strengthen the capacities and skills of the students henceforth called learners to integrate the values of sustainability in their areas of action, and promote a new awareness of our relationship with the environment and sustainable lifestyles.
- Motivate and inspire students to contribute, through their areas of action in building more coherent, harmonious, and sustainable societies.

Learning Outcomes:

Transacting the course will enable students to :

- Develop a greater understanding of Education for Sustainable Development (ESD) andits application in education including a basic understanding of Sustainable Development.
- Be familiar with new paradigms of education within the framework of Education for Sustainable Development, and related themes.
- Deepen knowledge to incorporate values-based education for sustainable development in educational programmes and processes.

Course Outline

Unit 1: Education for Sustainable Development: **(9 hrs)**

- Concept and Meaning, History,Global Perspectives

Unit 2: Education for Sustainable Development and Sustainable DevelopmentGoals: **(9 hrs)**

- Quality Education, Gender Equality, Sustainable Lifestyle

Unit 3: Transformative Learning: (9 hrs)

- Values, Ethics and Experiences, Peace Education

Unit 4: Communities and Sustainable Practices: **(9 hrs)**

- Role of Institutions, GreenTechnology and Entrepreneurship, Nature Based Solutions (NBSs)

Unit 5: Education for Sustainable Development in India: **(9 hrs)**

- Educational Policy andCurriculum, Institutes imparting ESD.

Teaching Plan

Unit 1: 9 hours

Unit 2: 9 hours

Unit 3: 9 hours

Unit 4: 9 hours

Unit 5: 9 hours

Total : 45 hours

Essential Readings

- Ossewaarde, M.J. (2018) *Introduction to Sustainable Development***,** Sage Text, India.
- Baker, S. (2015) Sustainable Development (pp. 1-449). London: Routledge. https://doi.org/10.4324/9780203121177
- Buckler, C. and Creech, H. (2014) Shaping the future, we want: UN Decade of Education for Sustainable Development (2005–2014) final report. Paris, France: UNESCO. Available at: http://unesdoc.unesco.org/images/0023/002301/230171e.pdf

Suggested Readings

- Priyadarshani, N. (2020) *Suatinable Development & Education Discovery* Publishing House Pvt Ltd, New Delhi
- Arbuthnott, K.D. (2009) Education for sustainable development beyond attitude change. *International Journal of Sustainability in Higher Education*, 10(2): 152-163. https://doi.org/10.1108/14676370910945954
- Firth, R. and Smith, M. (2017) *Education for Sustainable Development What was achieved in the DESD*? (Ed.) Routledge.
- Mohanty, A. (2018) Education for sustainable development: A conceptual model of sustainable education for India", *International Journal of Development and Sustainability*. 7(9): 2242-2255.
- Redecker C, Leis M, Leendertse M, Punie Y, Gijsbers G, Kirschner P, Stoyanov S, Hoogveld B. (2011) The Future of Learning: Preparing for Change. EUR 24960 EN. Luxembourg: Publications Office of the European Union. Available at https://op.europa.eu/en/publication-detail/-/publication/248604cb-9598-48a7-adad-8ff00e061a05/language-en
- Nevin, E (2008) 'Education and sustainable development', Policy and Practice: A Development Education Review. 6: 49-62.
- UNDESD (2005-14) Education for sustainable development toolkit. Education for Sustainable Development in Action, Learning & Training Tools. available at: https://unesdoc.unesco.org/ark:/48223/pf0000152453