National Education Policy-2020

Common Minimum Syllabus for Uttarakhand State Universities and Colleges
Three Year Undergraduate Programme
(1^{st} to 6^{th} Semester)
2025

DEPARTMENT OF GEOGRAPHY
DSB CAMPUS, KUMAUN UNIVERSITY
NAINITAL

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PROGRAMME PREREQUISITES

Any student who has passed intermediate or equivalent examination can opt for Geography in B.A./B.Sc. programme (undergraduate level).

Contents

NEP Tentative Course Structure
Geography

Sem	**Core** Discipline Specific Course (DSC) (4)	Discipline Specific Elective Course (DSE) 4	Generic Elective (GE) 4	Ability Enhancement Course (AEC) 2	Skill Enhancement Course (SEC) (2)	Internship/ Apprenticeship/Project (IAPC) (2)	Value Added Course (VAC) (2)	Total Credit
I	DSC A1 (4) **GG.DSC01-T: Theory (3)- Physical Geography** **GG.DSC01-P: Practical (1) -Basic Cartographic Techniques** DSC B1 (4) DSC C1(4)	**X**	Choose one from a pool of courses GE-1 (4) **GG.GE01-T: Geomorphology**	Choose one from a pool of AEC courses (2)	Choose one from a pool of SEC courses **2**	**X**	Choose one from a pool of courses (2)	
	12		**4**	**2**	**2**		**2**	**22**
II	DSCA2 (4) **GG.DSC02-T: Theory (3) –Human Geography** **GG.DSC02-P: Practical (1) – Research Methodology** DSCB2 (4) DSCB3 (4)	**X**	Choose one from a pool of courses GE-2 (4) **GG.GE02-T: Social and Cultural Diversity of Uttarakhand**	Choose one from a pool of AEC courses (2)	(SEC2) Choose one from a pool of SEC courses	**X**	Choose one from a pool of courses (2)	
	12		**4**	**2**	**2**		**2**	**22**
								Total 44

Sem.	Core Discipline Specific Course (DSC) 4	Discipline Elective Course (DSE) 4	Ability Enhancement Course (AEC) 2	Skill Enhancement Course (SEC) 2	Internship/ Apprentice ship/Project (IAPC) (2)	Value Added Course (VAC) 2	Total Credit
III	DSC A3 (4) **GG.DSC03-T:** **<u>Theory</u> (3) – Evolution of Geographical Thought** **GG.DSC03-P:** **<u>Practical (1)</u> – Surveying Technique** DSC B3 (4) DSC C3 (4)	Choose one from pool of courses, DSE – 1 of A or B or C (4) **GG.DSE03-Ti:** **DSE(3) - Climatology** **GG.DSE03-Pi:** **Pract. (1) : Indian Weather Maps and Representation of Climatic data** **GG.DSE03-Tii:** **DSE(3) - Bio –Geography** **GG.DSE04-Pii:** **Pract. (1): Measurement of Biodiversity** OR Choose one from pool of courses, GE -3 (4) **GG.GE03-T:** **GE-World Regional Geography**	Choose one from a pool of AEC courses (2)	(SEC3) Choose one from a pool of SEC courses	**X**	Choose one from a pool of courses (2)	
	12	**4**	**2**	**2**		**2**	**22**
IV	DSC A4 (4) **GG.DSC04-T:** **<u>Theory</u> (3) Economic Geography** **GG.DSC04-P:** **<u>Practical (1) -</u> Basic computer Application and Quantitative Techniques** DSC B4 (4) DSC C4 (4)	Choose one from pool of courses, DSE – 2 (4) **GG.DSE04-Ti:** DSE(3) **- Geography of Tourism** **GG.DSE04-Pi:** **Pract. (1) :** Schematic Representation of Tourism Data **GG.DSE04-Tii:** DSE**- Regional Planning & Development** **GG.DSE04-Pii:** **Pract. (1)** : Models & Regional Disparities OR in the alternative choose one from pool of courses GE - 4 (4) **GG.GE04-T:** GE**-Environmental Geography**	Choose one from a pool of AEC courses (2)	(SEC 4) Choose one from a pool of SEC courses	**X**	Choose one from a pool of courses (2)	
	12	**4**	**2**	**2**		**2**	**22**
							Total 88

Sem.	Core Discipline Specific Course (DSC) 4	Discipline Specific Elective (DSE) 4	Generic Elective 4	Skill Enhancement Course (SEC) 2	Internship/ Apprentice ship/Project (IAPC) (2)	Value Added Course (VAC) 2	Total Credits
V	DSC A5 (4) **GG.DSC05-T:** **<u>Theory-</u> (3)** **Geography of India** **GG.DSC05-T:** **<u>Practical (1) -</u>Map Projection** DSC B5 (4) DSC C5 (4)	Choose one from a pool of courses DSE (4) **GG.DSE05-Ti:** **DSE (3) - Agricultural Geography** **GG.DSE05-Pi:** **Pract. (1): Agricultural Data Analysis** **GG.DSE05-Tii:** **DSE(3) –Mountain Geography with special reference to the Himalaya** **GG.DSE05-Pii:** **Pract. (1): Field Visit and Report Writing** Or Choose one from a pool of courses GE-5 (4) **GG.GE05-T:** GE-**Settlement Geography**		(SEC 5) Choose one from a pool of SEC courses	Choose one SEC OR Internship/Apprenticeship/Project/Community Outreach (IAPC) (4)*	**X**	
	12	**4**		**2**	**4**		**22**
VI	DSC A6 (4) **GG.DSC06-T:** **<u>Theory-</u>(3)** **Geoinformatics** **GG.DSC06-P:** **<u>Practical (1) -</u>** **Remote Sensing and GIS Exercise** DSC B6 (4) DSC C6 (4)	Choose one from a pool of courses DSE - 4 (4) **GG.DSE06-Ti:** **DSE(3) - Rural Geography** **GG.DSE06-Pi:** **Pract. (1): Surveying** **GG.DSE06-Tii:** DSE**- Introduction to Cryogeography** **GG.DSE06-Pii:** **Pract. (1): Glacial Data Analysis and Mapping** **or** Choose one from a pool of courses GE-6 (4) **GG.GE06-T:** GE**- Socio Cultural Geography**		(SEC 6) Choose one from a pool of SEC courses	Choose one SEC OR Internship/Apprenticeship/Project/Community Outreach (IAPC) (4)	**X**	
	12	**4**		**2**	**4**		**22**
							Total 132

PROGRAMME OUTCOMES [POs]:

PO1: Enrichment of Intellectual Ability: The programme develops students' comprehensive understanding of the various dimensions of geographical and interdisciplinary knowledge and field realities. It acquaints students with the major concepts, thoughts, and ideas of both conventional and modern branches of Geography and interdisciplinary streams of knowledge, and their field applications. It also enriches their analytical, critical, creative faculties.

PO2: Inculcation of Planning Abilities: The programme develops effective planning abilities including time management, resource management, delegation skills and organizational skills of students which may develop their leadership qualities.

PO3: Appropriate Application of Knowledge Methodological Tools: The programme makes a sincere attempt of familiarizing students with critical knowledge and methodological tools which help them in making applications of new ideas, thoughts, and concepts in the real world.

PO4: Formation of Professional Identity: The programme intends to develop professional skills among students that would help them in building their professional identity as well becoming professional leadership from local to global level.

PO5: Developing Communicative Competence: The programme intends to develop grammatical and communicative competence among students and make them aware of the nature, form and function of Hindi and English languages. The programme therefore nurtures listening, writing, speaking and reading skills of students which allow them to communicate effectively and improves their access to new knowledge.

PO6: The knowledge, Knower and Society: The programme disseminates the fact the conception and distribution of knowledge in any form seems meaningless unless it is seen functioning in a society which is defined by the existence of human beings. Thus, the programme intends to integrate knowledge with the human society and nature. This will help in Creating a Sustainable, Flexible, Enduring and Peaceful Global Society.

PO7: Environment and Sustainability: The unprecedented growth and development have disrupted the nature as well as natural resources. In view of this, the programme intends to prepare students to respond to some major issues of environmental conservation and sustainable development. PO8: Lifelong Learning: The programme would motivate and inspire the students to strive on the path of lifelong learning as creation and acquaintance of emerging knowledge and ideas.

Programme Specific Prerequisites: To acquire a Certificate in Science/Arts, with geography as one of the major subjects, a student should have passed 10+2 or equivalent subjects.
Programme specific outcomes (PSOs*): UG I Year / Certificate course Arts/Science*
1. Student will gain the knowledge of Physical Geography. Student will have a general understanding about the geomorphological and geotechnical process and formation. They will be able to correlate the knowledge of physical geography with the human geography. 2. Imbibing knowledge, skills and holistic understanding of the Earth, atmosphere, oceans and the planet through analysis of landform development; crustal mobility and tectonics, climate change and dynamics; soil formation and classification; hydrological and oceanographic studies etc. 3. Associating landforms with structure and process; establishing man-environment relationships; and exploring the place and role of Geography vis-a-vis other social and earth sciences. 4. They will be able to acquire the knowledge of Human Geography and will correlate it with their practical life. 5. Student will be able to analyse the problems of physical as well as cultural environments of both rural and urban areas. Moreover, they will try to find out the possible measures to solve those problems. 6. Students will be able to learn various Field Survey Techniques with diverse Survey Instruments. 7. Students will be able to learn the application of various modern instruments (GPS) and by these they will be able to collect primary data. 8. Students having applied geomorphological knowledge can work independently and will contribute significantly on multidisciplinary streams.
Programme Specific Prerequisites: To acquire Diploma in Science/Arts, with geography as one of the major subjects, a

student should have obtained Certificate Course in Arts/Science from any recognized university.

Programme specific outcomes (PSOs): *UG II Year/ (Diploma in Arts/Science)*

1. Student will have a general understanding about the Tourism Geography of any region. They will be able to correlate the knowledge of Tourism Geography with the Regional Development and Planning.
2. Students will be able analyze the prospects and potential of tourism in Uttarakhand State. Moreover, they will try to find out the possible contribution of tourism development in regional development and planning.
3. Expertise in Statistical Techniques will be useful in quantitative assessment of the geographical data the students can be able to justify their research outcomes which will ultimately contribute to the proper formulation of developmental plans.
4. The earth is three dimensional, and it is a challenge to show information in 3D to communicate with others. The map projection techniques will be helpful to put the earth on the flat surface which makes it easier for all to understand. The map projection techniques the students will be able to map and communicate the geographical information of any region and any plans they have for solving problems that arise.

Programme Specific Prerequisites: To acquire a Bachelor of Arts/Science degree, with geography as one of the major subjects, a student should have obtained Diploma Course in Arts/Science from any recognized university.

Programme specific outcomes (PSOs): UG III Year / Bachelor of Arts/Science

1. Inculcating a tolerant mindset and attitude towards the vast socio-cultural diversity of India by studying and discussing contemporary concepts of social and cultural geography. Understanding and accounting for regional disparities, poverty, unemployment and the impacts of globalization. Explaining and analyzing the regional diversity of India through interpretation of natural and planning regions.
2. Understanding the role and functioning of global economies, industrial locations; and the use and exploitation of resources with impacts.
3. Understanding the history of the subject; over viewing ancient and contemporary geographical thought and its relationship with modern concepts of empiricism, positivism, radicalism, behaviouralism, idealism etc.
4. Students correlate activity of agriculture and its determinants, classify various types of agriculture in the world and differentiate,

Discuss the problems and prospects of agriculture, Acquire new

5. methods, techniques and trends used in agriculture, Understand the concept of sustainable agricultural development.
6. Conduct Social Survey Project: They will be eligible for conducting social survey project which is needed for measuring the status of development of a particular group or section of the society
7. Training in practical techniques of mapping, cartography, software's, interpretation of maps, photographs and images etc; so as to understand the spatial variation of phenomena on the Earth's surface.

DEPARTMENT OF GEOGRAPHY
B.A./B.Sc Geography
(Semester I and II)

Sem	**Core** Discipline Specific Course (DSC) (4)	Discipline Specific Elective Course (DSE) 4	Generic Elective (GE) 4	Ability Enhancement Course (AEC) 2	Skill Enhancement Course (SEC) (2)	Internship/ Apprenticeship/Project (IAPC) (2)	Value Added Course (VAC) (2)	Total Credit
I	DSC A1 (4) **GG.DSC01-T: Theory (3)- Physical Geography** **GG.DSC01-P: Practical (1) -Basic Cartographic Techniques**	**X**	Choose one from a pool of courses GE-1 (4) **GG.GE01-T: Geomorphology**	Choose one from a pool of AEC courses (2)	Choose one from a pool of SEC courses **2**	**X**	Choose one from a pool of courses (2)	
	DSC B1 (4)							
	DSC C1(4)							
	12		**4**	**2**	**2**		**2**	**22**
II	DSCA2 (4) **GG.DSC02-T: Theory (3) –Human Geography** **GG.DSC02-P: Practical (1) – Research Methodology**	**X**	Choose one from a pool of courses GE-2 (4) **GG.GE02-T: Social and Cultural Diversity of Uttarakhand**	Choose one from a pool of AEC courses (2)	(SEC2) Choose one from a pool of SEC courses	**X**	Choose one from a pool of courses (2)	
	DSCB2 (4)							
	DSCB3 (4)							
	12		**4**	**2**	**2**		**2**	**22**
								Total 44

DEPARTMENT OF GEOGRAPHY
B.A./B.Sc Geography
DISCIPLINE SPECIFIC CORE COURSE (DSC) Physical Geography

Programme: Under Graduate in Arts/Science	**Year: I**	**Semester: I**
Subject: Geography	**Course Code: GG.DSC01-T**	**Course Title: Physical Geography**

Course Outcomes
Holistic understanding of Earth as a planet in the Solar System and its relationships with other terrestrial planets. Understanding of the processes occurring in lithosphere, hydrosphere, biosphere, and atmosphere

Theory- (Credit-3)	**Distribution of marks according the University rule**
Total No. of Lectures – Tutorials – Practical (in hours per week): 3-0-1	**15 hrs for 1 credit theory, 30 hrs for 1 credit practical**

Units	Course Contents	Lectures
Unit – I	Meaning, Scope and Branches of Physical Geography, Origin of Earth. Geological Time Scale, Interior of the earth, Rocks: origin and classification.	15
Uni t – II	Origin of continents and ocean basins: Isostasy, Continental drift and Plate Tectonics, Landforms: Fluvial, Arid, Glacial, Marine and Karst topographies, Ocean bottom topography, Ocean deposits, Salinity, Temperature, Ocean currents, Tides and Coral reefs.	15
Unit – III	Composition and structure of atmosphere, Insolation, Vertical and Horizontal Distribution of temperature, Pressure and pressure belts, Winds: Planetary, Periodic and Local. Humidity, Clouds and Precipitation, Cyclones and Anticyclones.	15
Practical (Credit-1) **GG.DSC01-P**	**Course Title: Basic Cartographic Techniques** Nature and scope of cartography Cartographic representation of relief: Hachures, Contours, Form line, Spot height, Bench mark, Trig point, Layer tint; Indian topographical map system: Their classification and types. Interpretation of topographical maps and preparation of base map, index map, drainage map, topographic map, land use map, settlement map and transportation network map.	30

Suggested Reading:

1. Barry, R.G. and Chorley, R.J. (1998). Atmosphere, Weather and Climate. Routledge, London.
2. Bryant, H. Richard (2001). Physical Geography Made Simple. Rupa and Co., New Delhi.
3. Bunnett, R.B. (2003). Physical Geography in Diagrams, Fourth GCSE edition, Pearson Education (Singapore) Pvt Ltd.
4. Garrison T (1998). Oceanography. Wordsworth Cp, Bedmont.
5. Karlekar Shrikant (2019), Introduction to Physical Geography, Daimond Publication, Pune
6. Lutgens, F.K. and Tarbuck, E.J., (2007), The Atmosphere, Pearson Prentice Hall, New Jersey.
7. Lake, P. (1979). Physical Geography (English & Hindi Edition) Cambridge Univ. Press, Cambridge.
8. Monkhouse, F I (1979). Physical Geography, Methuen, London.
9. Singh, S. (2003). Physical Geography (English and Hindi Editions) Prayag Pustak Bhawan, Allahabad.
10. Singh, M.B. (2001) Bhoutik Bhoogol, Tara Book Agency, Varanasi.
11. Strahler, A.N. and Strahler A.M. (1992). Modern Physical Geography, John Wiley and Sons, New York
12. Wooldridge, S.W. and Morgan, R.S. (1959). The Physical Basis of Geography: An Outline of Geomorphology.Longman, London.

DEPARTMENT OF GEOGRAPHY
B.A./B.Sc
GENERIC ELECTIVE (GE) – Geomorphology

Programme: Under Graduate in Arts/Science	**Year: I**	**Semester: I Paper-**
Subject: Geography	**Course Code: GG.GE01-T**	**Course Title: Geomorphology**

Course Outcomes
Understanding of landforms their origin and forces responsible for shaping the landforms. Understanding of the conceptual and dynamic aspects of landform development.

Theory- (Credit-4)	**Distribution of marks according the University rule**
Total No. of Lectures – Tutorials – Practical (in hours per week): 4-0-0	**15 hrs for 1 credit theory, 30 hrs for 1 credit practical**

Unit	Course Content	Lectures
Unit – I	Defnition, subject matter and Scope of Geomorphology, Principle of Uniformitarianism ; Cycle concepts, Views of W.M. Davis, Penk and L C King	15
Unit – II	Crustal Deformation Theories and Principles: Wegner's Continental Drift Theory , Sea Floor Spreading and Convection current Theory of Holmes	15
Unit – III	Mass wasting Processes; Fluvial and Aeolian Landforms	15
Unit – IV	Glacial and Periglacial landforms	15

Suggested Readings:

1. Bloom, A.L. (1992) Geomorphology - A Systematic Analysis. PHI, New Delhi
2. Chorley R J (1972 Spatial Analysis in Geomorphology. Methuen London
3. Cooke R U & Doornkamp, J C (1974) Geomorphology and Environmental Management: An Introduction, Clarendon Press, Oxford.
4. Condie, K.C. 2003. Plate Tectonic and Crustal Evolution, Butterworth-Heinemann, Oxford, Burlington
5. Fairbridge, R W (1968) Encyclopedia of Geomorphology, Reinholdts, New York
6. Huggett, R.J. 2011. Fundamentals of Geomorphology, Routledge, New York.
7. Kale, V. and Gupta, A. (2001): Elements of Geomorphology. Oxford University Press, Delhi.
8. Pitty, A F (1971) Introduction to Geomorphology. Methuen, London
9. Sparks, B.W. (1960) Geomorphology. Longman, London
10. Singh, S. (2004): Geomorphology, Prayag Pustak Bhawan, Allahabad
11. Thornbury, W.D. (1960) Principles of Geomorphology, John Wiley, New York

DEPARTMENT OF GEOGRAPHY
B.A./B.Sc
DISCIPLINE SPECIFIC CORE COURSE (DSC) Human Geography

Programme: Under Graduate in Arts/Science		**Year: I**	**Semester: II Paper-**
Subject: Geography Course		**Course Code: GG.DSC02-T**	**Course Title: Human Geography**
Course Outcomes Introduction to Human Geography. This course aims to bring forward the complex and dynamic behavior and nature of Humans in reference to their surroundings. Also to understand the interaction of Humans with its surroundings.			
Theory-(Credit-3)	**Distribution of marks according the University rule**		
Total No. of Lectures – Tutorials – Practical (in hours per week): 3-0-1		**15 hrs for 1 credit theory, 30 hrs for 1 credit practical**	
Units	Contents		Lectures
Unit – I	Definition and Scope of Human Geography; Human Versus Physical Geography; Branches of Human Geography; Development of Human Geography.		14
Unit – II	Contributions of German and French and Indian Geographers; Schools: Determinism, Possibilism and Positivism; Approaches: Ecological, Landscape, Locational, Welfare and Humanistic.		16
Unit – III	Evolution of Man: Classification of Races, Characteristics of Races and their World Distribution, Human Adaptation to the Environment; Tribes of India: Habitat, Economy and Culture.		15
Practical (Credit-1) **GG.DSC02-P**	**Course Title: Research Methodology** Research and its Types, Tools and techniques of data collection, construction of survey schedule, types of sampling, secondary sources of data; Final report writing		30

Suggested Reading:

1. Hussain, M. (1994): Human Geography. Rawat Publication, Jaipur.
2. Norton W. (1995). Human Geography. Oxford University Press, New York.
3. Kaushik, S.D. and Sharma, A.K. (1996): Principles of Human Geography (Hindi), Rastogi Publication Meerut.
4. Singh, K.N. and Singh J. (2001). Manviya Bhoogol. Gyanodaya Prakashan, Gorakhpur.
5. Haggett, P. (2004). Geography: A Modern Synthesis. Harper and Row, NewYork
6. Singh, L.R. (2005): Fundamentals of Human Geography. Sharda Pustak Bhawan, Allahabad.
7. Singh, J. (2009). मानव भूगोल, Radha Publication.
8. Hushain, M. (2012). Human Geography/ मानव भूगोल (English/Hindi). Rawat Publication, New Delhi.
9. Maurya, S.D. (2021). मानव भूगोल में मॉडल, सिद्धांत एवं नियम, Pravalika Publications.
10. Upadhyay, P.K. (2022). Manav Bhugol ke Pramukh Siddhant, K.K. Publication.
11. Mamoriya, C. (2023). Human Geography, Sahitya Bhawan Publications.
12. Mourya, S.D. (2023). मानव भूगोल, Generic Publication.
13. Singh, V.N. and Singh, M.K. (2021). मानव भूगोल का स्वरुप, Pravalika Publications.
14. Bhalla, L.R. (2022).मानव भूगोल, Kuldeep Publication

DEPARTMENT OF GEOGRAPHY
B.A./B.Sc
GENERIC ELECTIVE (GE) - Social and Cultural Diversity in Uttarakhand

Programme: Graduate in Arts/Science	**Year: I**	**Semester: II Paper-**
Subject: Geography Course	**Course Code: GG.GE02-T**	**Course Title: Social and Cultural Diversity in Uttarakhand**

Course Outcomes
To establish basic understanding on socio-economic setup of Uttarakhand and its diversity.
To understand the physical and cultural diversity within the state.
To identify the impact of physical diversity in determining the Socio-Cultural diversity of the state.

Theory-(Credit-4)	**Distribution of marks according the University rule**
Total No. of Lectures – Tutorials – Practical (in hours per week): 4-0-0	**15 hrs for 1 credit theory, 30 hrs for 1 credit practical**

Unit	Course Content	Lectures
Unit – I	Fundamental Base: Location and Extent; Geology; Physiography; Climate and Drainage System; Demographic and Socio-cultural Characteristics.	15
Unit – II	Socio-cultural Milieu: Ethnic/tribal Groups and their Spatial Distribution, Fairs, Festivals and Languages and Dialects, Settlements: Types and Patterns.	15
Unit – III	Socio-cultural Diversity: Components of social diversity; tribes and their distribution; Tribal region; Cultural regions: elements of cultural regionalization: race, caste, dance, music, cuisine, costumes, dialect, language, religion	15
Unit – IV	Regional perspectives: Socio-cultural diversity in the tribal groups of mountains and foothills; Changing cultural adaptations.	15

Suggested Readings

1. Singh O.P. (ed.). (1983): The Himalaya: Nature, Man and Culture
2. Joshi, S.C. (2001): Uttaranchal: Environment & Development
3. Planning Commission (1981) : Report on Development of Tribal Areas, Government of India.
4. Srivastava, S.K.(1958): The Tharus, A study of Culture Dynamics, Agra
5. Walton, H.G. (1921) British Garhwal: A Gazetteer, Vol. xxxvi, District Gazetteer of the United Provinces of Agra, Allahabaad
6. Singh, L.R. (1965): The Tarai Region of U.P., Allahabad
7. Guha, B.S.: Racial Elements in India's Population.

DEPARTMENT OF GEOGRAPHY
B.A./B.Sc.
(Semester III & IV)

Sem.	Core Discipline Specific Course (DSC) 4	Discipline Elective Course (DSE) 4	Ability Enhancement Course (AEC) 2	Skill Enhancement Course (SEC) 2	Internship/ Apprentice ship/Project (IAPC) (2)	Value Added Course (VAC) 2	Total Credit
III	DSC A3 (4) **GG.DSC03-T:** **Theory (3) – Evolution of Geographical Thought** **GG.DSC03-P:** **Practical (1) – Surveying Technique** DSC B3 (4) DSC C3 (4)	Choose one from pool of courses, DSE – 1 of A or B or C (4) **GG.DSE03-Ti:** **DSE(3) - Climatology** **GG.DSE03-Pi:** **Pract. (1) : Indian Weather Maps and Representation of Climatic data** **GG.DSE03-Tii:** **DSE(3) - Bio –Geography** **GG.DSE03-Pii:** **Pract. (1): Measurement of Biodiversity** OR Choose one from pool of courses, GE -3 (4) **GG.GE03-T:** **GE-World Regional Geography**	Choose one from a pool of AEC courses (2)	(SEC3) Choose one from a pool of SEC courses	**X**	Choose one from a pool of courses (2)	
	12	**4**	**2**	**2**		**2**	**22**
IV	DSC A4 (4) **GG.DSC04-T:** **Theory (3) Economic Geography** **GG.DSC04-P:** **Practical (1) - Basic computer Application and Quantitative Techniques** DSC B4 (4) DSC C4 (4)	Choose one from pool of courses, DSE – 2 (4) **GG.DSE04-Ti:** DSE(3) **- Geography of Tourism** **GG.DSE04-Pi:** **Pract. (1) :** Schematic Representation of Tourism Data **GG.DSE04-Tii:** DSE**- Regional Planning & Development** **GG.DSE04-Pii:** **Pract. (1)** : Models & Regional Disparities OR in the alternative choose one from pool of courses GE - 4 (4) **GG.GE04-T:** GE**-Environmental Geography**	Choose one from a pool of AEC courses (2)	(SEC 4) Choose one from a pool of SEC courses	OR Internship/Apprentices hip/Project/Communit y Outreach (IAPC) (2) **X**	Choose one from a pool of courses (2)	
	12	**4**	**2**	**2**		**2**	22
							Total 88

DEPARTMENT OF GEOGRAPHY
B.A./B.Sc Geography
DISCIPLINE SPECIFIC CORE COURSE (DSC) Evolution of Geographical Thought

Programme: Under Graduate in Arts/Science	**Year: II**	**Semester: III Paper-**
Subject: Geography	**Course Code: GG.DSC03-T**	**Course Title: Evolution of Geographical Thought**

Course Outcomes

1. Main objectives of this course are to acquaint the students with the philosophy.
2. Also teach the Methodology and historical development of geography as a professional field.
3. The idea is to address the spirit and purpose of the changing geographies and to what we as geographers contribute towards knowledge production.
4. Know the impact of expedition, discoveries and exploration on Geographical knowledge.

Theory- (Credit-3)	**Distribution of marks according the University rule**
Total No. of Lectures – Tutorials – Practical (in hours per week): 3-0-1	**15 hrs for 1 credit theory, 30 hrs for 1 credit practical**

Units	Contents	Lectures
Unit – I	Definition and purpose of Geography, Science and philosophy of Geography, The basic concepts of Geography, Techniques and tools in Geography, Different branches of Geography, Aspects of study and Relationship with other Sciences.	14
Uni t – II	Geography in classical times: Greek and Roman Geographers, Contribution by Arab and Indian Geographers, Renaissance, Eighteenth century Geography, Classical period of Geography.	16
Unit – III	Formulation of scientific Geography, Schools of thought; German, French, British, American and former Soviet Union; Environmental determinism, Possibilism and Neo-determinism	15
Practical (Credit-1) **GG.DSC03-P**	**Course Title: Surveying Technique** i. Fundamentals of Surveying: Objects, Classification. ii. Plane Table Surveying: Radiation, Intersection, Close Traverse, Open Traverse, Resection by two point and three-point problems; Measurement of height and depth by Indian Pattern Clinometer.	30

Suggested Readings

1. Abler, Ronald; Adams John S. Gould, Peter (1971) Spatial Organization: The Geographer's View of the world. Prentice Hall.N.I.
2. Ali.S.M: The Geography of Puranas (1996) People of Publishing House, Delhi.
3. Husain, Majid. (2002): Evolution of Geographical Thought, Rawat Publications, Jaipur.
4. Amedeo, Douglas (1971) An Introduction to scientific Reasoning in Geography, John Wiley, USA.
5. Dikshit, R. D. (2003): Geographical Thought. A Critical History of Ideas. Prentice-Hall of India, New Delhi. (in English and Hindi). Hartshone, R. (1959) Perspectives on Nature of Geography, Rand Mcnally &co.
6. Husain, M. (1984) Evaluation of Geographical thought, Rawat Publication, Jaipur.
7. Johston,R.J.(1983)PhilosophyandHumanGeography,EdwardArnoldLondon,Johnston
8. R.H. (1988) The future of Geography, Methuen, London.
9. Rawling, E. and Daugherty, R. (eds.) (2005): Geography into the Twenty-first Century. 2nd edition. John Wiley and Sons, Chichester.
10. Mishull, R. (1970) The Changing Nature of Geography, Hutchinson University library, London.
11. Adhikari S. (1992): Geographical Thought, Chiatanya Pub. House, Allahabad.
12. Chorley, R.J. & Hagget.P.(1965) Frontier in Geographical Teaching, Oxford University Press.
13. Singh, Ravi S. (ed.) 2009: Indian Geography in the 21st Century: The Young Geographers Agenda. Cambridge Scholars Publishing, New Castle upon Tyne (UK).

DEPARTMENT OF GEOGRAPHY
B.A./B.Sc Geography
DISCIPLINE SPECIFIC ELECTIVE (DSE) Climatology

Programme: Graduate in Arts/Science	**Year: II**	**Semester: III Paper-**
Subject: Geography Course	**Course Code: GG.DSE03-Ti**	**Course Title: Climatology**

Course outcomes

On successful completion of this course, students should be able to understand the mean global atmospheric circulations and disturbances, world climate systems, climatic variability and change.

Theory-(Credit-3)	**Distribution of marks according the University rule**
Total No. of Lectures – Tutorials – Practical (in hours per week): 3-0-1	**15 hrs for 1 credit theory, 30 hrs for 1 credit practical**

Units	Contents	Lectures
Unit – I	Nature and scope of climatology, General circulation of the atmosphere, The monsoon, Local winds, Humidity, Fog and clouds, Precipitation, Cyclones and anticyclones	15
Unit – II	Atmospheric Processes: Air masses, fronts and associated atmospheric disturbances; concepts and methods of determining evaporation; evapotranspiration and moisture indices.	15
Unit – III	Classification of climate: Koeppen classification and Thornthwaite classification, Climate type and their distribution, Climate change.	15
Practical (Credit-1) **GG.DSE03-Pi**	**Course Title: Indian weather maps and Representation of Climatic Data:** Interpretation and preparation of weather report, Climatograph, Climograph, and Hythergraph.	30

Suggested Readings:

1. Aguado, E. Burt, J.E. (2001): Understanding Weather and Climate, Prentice Hall of India Pvt. Ltd, New Delhi.
2. Critchfield, H.J. (1983): General Climatology, Prentice Hall of India, New Delhi.
3. Lal, D. S. 2003. Climatology, Allahabad: Sharda Pustak Bhawan.
4. Oliver John, E. and Hidore John, J. (2003): Climatology, Pearson Education.
5. Subramanyam (1983): General Climatology, Heritage, New Delhi.
6. Singh Savindra 2015. Paryawaran Bhoogol, Prayag Pushtak Bhawan, Allahabad (Hindi).
7. Parmesan, C., Yohe, G. 2003. A globally coherent fingerprint of climate change impacts across natural systems. Nature, Inaugurating 421 (6918), 37–42.
8. Trewartha, G.T. and Horn, L.A. (1980): An Introduction to Climate, Mc Graw Hill, New York.

DEPARTMENT OF GEOGRAPHY
B.A./B.Sc Geography
DISCIPLINE SPECIFIC ELECTIVE (DSE) Bio-Geography

Programme: Graduate in Arts/Science	**Year: II**	**Semester: III Paper-**
Subject: Geography Course	**Course Code: GG.DSE03-Tii**	**Course Title: Bio-Geography**

Course Outcomes
Developed the concept of biogeography. Its components, interpretation and application of biogeography. Interaction between living organisms and non-living organisms.

Theory- (Credit-3)	**Distribution of marks according the University rule**
Total No. of Lectures – Tutorials – Practical (in hours per week): 3-0-1	**15 hrs for 1 credit theory, 30 hrs for 1 credit practical**

Unit	Course Content	Lectures
Unit – I	Fundamental Concepts: Concept, Scope, Significance and Development of Biogeography; Environment, Habitats and Plant-animal Association.	14
Unit – II	Biosphere & bio-geography-concept, scope and components, Ecosystem concept, component and functioning, Distribution of plants in different ecosystem and ecological conditions, Distribution of animals in different ecosystem and ecological conditions.	16
Unit – III	National Forest and Wildlife Policy of India, Conservation of biotic resources. Protected Areas and their management with special reference to National Parks and Biosphere Reserves of Uttarakhand.	15
Practical (Credit-1) **GG.DSE03-Pii**	**Course Title: Measurement of Biodiversity** – Alpha diversity, Beta diversity, Gamma diversity, Identification of plant type/class growing in and around your college/campus and their habitat characteristics.	30

Suggested Readings:

1. Agarwal, D.P. (1992) : Man and Environment in India Through Ages, Books and Books.
2. Bradshaw, M.J. (1979): Earth and Living Planet, ELBS, London.
3. Cox, C.D. and Moore, P.D. (1993): Biogeography: An Ecological and Evolutionary Approach, 5th Edn., Blackwell.
4. Gaur, R. (1987): Environment and Ecology of Early Man in Northern India, R.B. Publication, Corporation.
5. Hoyt, J.B. (1992): Man and the Earth, Prentice Hall, U.S.A.
6. Odum, P. E. and Barret, W. G. (2005): Fundamentals of Ecology, Thomson Asia Pvt Ltd, Singapur.
7. Hugget, R.J. (1998): Fundamentals of Biogeography, Routledge, U.S.A.
8. Sivaperuman, Chandrakasan et al. 2018. Biodiversity and Climate Change Adaptation in Tropical Islands. Academic Press, London.

DEPARTMENT OF GEOGRAPHY
B.A./B.Sc
GENERIC ELECTIVE (GE) – World Regional Geography

Programme: Under Graduate in Arts/Science	**Year: II**	**Semester: III Paper-**
Subject: Geography Course	**Course Code: GG.GE03-T**	**Course Title: World Regional Geography**

Course Outcomes

1. Students will get an introduction to the main regions of the world in terms of both their uniqueness and similarities.
2. Students will be exposed to historical, economic, cultural, social and physical characteristics of different regions of the world.
3. Evaluating the impacts of human activities on natural environments special reference to global regions.

Theory-(Credit-4)	**Distribution of marks according the University rule**
Total No. of Lectures – Tutorials – Practical (in hours per week): 4-0-0	**15 hrs for 1 credit theory, 30 hrs for 1 credit practical**

Units	Contents	Lectures
Unit – I	Meaning and scope of Regional Geography, Regions and regionalism, Globalization and WTO	15
Unit – II	Europe: A geographical introduction, Physical structure, Economic and demographic pattern, Regional study of United Kingdom.	15
Unit – III	North America: A geographical introduction, Physical structure, Economic and demographic pattern, Regional study of United States of America.	15
Unit – IV	Latin America: A geographical introduction, Physical structure, Economic and demographic pattern, Regional study of Brazil.	15

Suggested Readings:

1. Hobbs, J J (2007) World regional geography. Wadsworth publishing con inc
2. Hobbs, J J (2012) Fundamentals of world regional geography. Brooks cole
3. Fouberg, E H & Moseley W G (2016) Understanding world regional geagraphy. Wiley
4. Johnson, D L, Haarmann & Johnson M L (2015) World regional geography: a development approach. Pearson
5. Saksena, H M, Saksena, & Saksena, Pooja (2010) Vishwa ka pradeshik bhugol. Rastogi publication, Meerut.
6. di Blij, H. and Muller, O. (1993): Geography: Regions and Concepts. John Wiley and Sons, New York.
7. Jackson, R. H. and Husman, L. E. (1991): World Regional Geography: Issues for Today. John Wiley and Sons, New York.
8. Jones, P. and Bryan, P. (1954): North America: An Historical, Economic and Regional Geography, Methuen and Company. Ltd, London.
9. Stamp, L. D. (1976): Asia: A Regional and Economic Geography, Methuen, London

DEPARTMENT OF GEOGRAPHY

B.A./B.Sc Geography

DISCIPLINE SPECIFIC CORE COURSE (DSC) Economic Geography

Programme: Under Graduate in Arts/Science	**Year: II**	**Semester: IV Paper-**
Subject: Geography Course	**Course Code: GG.DSC04-T**	**Course Title: Economic Geography**

Course Outcomes

Economic geography is the study of the spatial distribution of economic activity and development. It also helps us to identify and measure the industrial specialization of a given region and the regional concentration. And how in an increasingly globalized world, economic activities occur unevenly over geographical space

Theory- (Credit-3)	**Distribution of marks according the University rule**.
Total No. of Lectures – Tutorials – Practical (in hours per week): 3-0-1	**15 hrs for 1 credit theory, 30 hrs for 1 credit practical**

Units	Contents	Lectures
Unit – I	Meaning, aim and scope of economic geography; Resources: Meaning, classification, conservation	15
Uni t – II	Primary production, Vegetation & forest economy, Soil resources, Mineral resources (Iron ore and bauxite), Power resources (Coal, Petroleum and Hydroelectricity).	15
Unit – III	Main crops in the world: Wheat, paddy, sugarcane, coffee and tea; Industries: Iron & steel, textiles, petro-chemical and sugar.	15
Practical (Credit-1) **GG.DSC04-P**	**Course Title: Basic computer Application and Quantitative Techniques:** Computer and its application: Components of a Computer, Computer Software. Data: Meaning, and Types, Collection of data, Sampling Techniques and Methods, Measures of central tendency: Mean, Mode, and Median; Measures of dispersion; Mean Deviation, Quartile Deviation and Standard deviation.	30

Suggested Reading:

1. Alexander, I W (1988) Economic Geography. Prentice Hall, New Delhi.
2. Boesch, H (1964) A Geography of World Economy. Von Nostrand, New York.
3. Gautam, A (2006) Arthik Bhugol ke Mool Tatve. Sharda Pustak Bhawan, Allahabad.
4. Hartshorne, TA & Alaxender IW (1988) Economic Geography. Englewood Cliff, New Jersey.
5. Singh, KN and Singh I (2003) Arthik Bhugol ke Mool Tatve. Gyanodaya Prakashan,Gorakhpur
6. Hanink, D. M. (1997): Principles and Applications of Economic Geography: Economy, Policy, Environment. John Wiley and Sons, Inc, New York.
7. Hartshorne, T. A. and Alexander, J. W. (1988): Economic Geography (3rd revised edition) Englewood Cliff , New Jersey, Prentice Hall
8. Hudson, R. (2005): Economic Geographies: Circuits, Flows and Spaces. Sage Publications, London.
9. Knowles, R, Wareing, J. (2000): Economic and Social Geography Made Simple, Rupa and Company, New Delhi.
10. Sokal, Martin 2011. Economic Geographics of Globalisation: A short Introduction. Cheltenham, UK : Edward El

DEPARTMENT OF GEOGRAPHY
B.A./B.Sc Geography
DISCIPLINE SPECIFIC CORE COURSE (DSE) Geography of Tourism

Programme: Post Graduate in Arts/Science	**Year: II**	**Semester: IV Paper-**
Subject: Geography Course	**Course Code: GG.DSE04-Ti**	**Course Title: Geography of Tourism**

Course Outcomes
Introduction to the subject is helps us identify and understand geographical approaches to tourism and categories of tourism places, spaces and landscapes. It will also help to learn to comprehend the possibilities and unforeseen challenges in travel and tourism activity.

Theory- (Credit-3)	**Distribution of marks according the University rule**.
Total No. of Lectures – Tutorials – Practical (in hours per week): 3-0-1	**15 hrs for 1 credit theory, 30 hrs for 1 credit practical**

Unit	**Tourism Geography**	Lectures
Unit - I	Concept of Leisure and Tourism; Development of Tourism; Types of Tourism; Definition, Scope and Significance of Geography of Tourism; Geographical, Basis of Tourism; Resources and Infrastructure for Tourism: Transportation, Accommodation and Basic Infrastructure.	16
Unit- II	Impact of Tourism: Physical, Economic, Social and Cultural Impacts; Concept of Ecotourism; New Emerging Trends in Tourism.	14
Unit – III	Tourism Marketing: Marketing Concepts and Marketing in Tourism; The Tourist Product; Segmentation- A Priori Segmentation; Tourism Circuits; Tour Agencies. Components of a Tourism Plan, The Tourism Planning Process.	15
Practical (Credit -1) **GG.DSE04-Pi**	**Course Title: Schematic Representation of Tourism Data**: Preparation of line, bar, and pie diagrams of tourism data and analysis. Preparation of flow, proportional circle and choroschematic maps by using tourism data and interpretation.	30

Suggested Reading:

1. Bhatia A.K. (1978). Tourism in India. Sterling pub. New Delhi.
2. Burkarl, A.J. (1974). Tourism, Past, present and future Heineman London.
3. Gearing Charles, E (1976). Planning for Tourism development Praeger Pub, NewYork
4. Lawbon, F &Bauet B. (1977) Tourism and recreation Development mass, CBI pub.
5. Robinson H. (1976). A Geography of Tourism. MacDonald and Evans Ltd; London.
6. Douglas Pearce (1981). Topics in Applied Geography, Tourist Development. Longman London New York
7. Stephen L.J. smoth (1989). Tourism Analysis: A Handbook-Longman Scientific of Telchnical.
8. Ministry of Tourism Govt. of India (1999): Report on National Tourism.
9. Seth, P. N., (1992), Successful Tourism Management Vol. 1 & 2, Sterling Publications, Delhi
10. Pande, G.C. and D.C. Pandey (1999). Environmental Development and Management: Strategies and Policies, New Delhi.

DEPARTMENT OF GEOGRAPHY
B.A./B.Sc
DISCIPLINE SPECIFIC CORE COURSE – 1 (DSE) Regional Planning and Development

Programme: Under Graduate in Arts/Science	**Year: II**	**Semester: IV Paper-**
Subject: Geography Course	**Course Code: GG.DSE04-Tii**	**Course Title: Regional Planning and Development**

Course Outcomes
Regional planning helps us to understand concepts, and theoretical approaches related to regional development and planning. It involves the efficient placement of land-use activities, infrastructure, and settlement growth across a larger area of land.

Theory-(Credit-3)	**Distribution of marks according the University rule**.
Total No. of Lectures – Tutorials – Practical (in hours per week): 3-0-1	**15 hrs for 1 credit theory, 30 hrs for 1 credit practical**

Units	Contents	Lectures
Unit I	Regional concept in Geography: Concept, Scope & purpose of regional planning, Types of regions: Formal and functional; uniform and nodal, single purpose and composite region.	14
Unit II	Regional Planning: Planning process - sectoral, temporal and spatial dimensions; short-term and long-term perspective planning, Indicators of development and their data sources, measuring levels for regional development and disparities	16
Unit III	Regional development strategies: Regional planning and development in India through Five year plans and NITI Ayog, problems and prospects, Regional disparities: causes and consequences. Concept of Multi-level planning: Decentralized planning; Theories and Models for Regional Planning: Growth Pole Model of Perroux; Myrdal, Rostow and Friedmann	15
Practical (Credit-1) **GG.DSE04-Pii**	**Course Title: Models & Regional Disparities:** Exercises on gravity model, measure of centrality, location quotient analysis, and cell model. Measurement of Regional Disparities –Quartile index method, aggregation of relative scores method, standard deviation method, range categorization method.	***30***

Suggested Reading:

1. Chitambar, J.B. (1993) Introductory Rural Sociology, Wiley Eastern, New Delhi.
2. Goomen, M.A. and Datta, A. (1995) Panchayats and their Finance, Rawat Pub. Co., New Delhi.
3. Matthews G. (editor) (1995) Status of Panchayati Raj: 1994, Institute of Social Sciences / Rawat Pub. Co.,New Delhi.
4. Matthews A. (1994) Panchayati Raj: From Legislation to Movements, Rawat Pub. Co., New Delhi:
5. Misra, H.M. (ed) (1987) Contributions to Indian Geography, Volume 9: New Delhi.
6. De Blij, H.J. and Muller, P.O. (1997) Geography: R.R.C, 8th edition, J. W. & S. Ltd., NewYork.

7. Dickinson, J., Gould, B., Clarke, C., Mather, S., Prothero, M., Siddle, D., Smith, C. and Thomas-Hope, E. (1996) A Geography of the Third World, 2nd edition, Routledge, London
8. Bhat, L.S. (1972) Regional Planning in India, Indian Statistical Institute, Calcutta.
9. Bhat, L.S. (2003) Micro Planning: A Case Study of Karnal Area, KB Publications, New Delhi.
10. Chand, M. and Puri, V.K. (2004) Regional planning in India; Allied Publishers, New Delhi.
11. Chandana, R. C. (2005) Regional Development and Planning. Kalyani Publishers, New Delhi.
12. Dube, K.K. and Singh, M.B. (1986): Pradeshik Niyojan. Tara Book Agency, Varanasi.
13. Friedman, J.& Alonse, W. (1968) Regional Development & Planning, M.I.T. Press, Cambridge Massachusetts.
14. Kuklinski, A.R. (ed.) (1975) Regional Development & Planning: International Perspectives.
15. Kuklinski, A.R. (1972) Growth Centres in Regional Planning. Mounton and Company, Paris.
16. Mishra, R.P, Sundaram, K.V., and Prakasarao, V.L.S. (1976) Regional Development Planning in India, Vikas Publishers., New Delhi.
17. Mishra, R.P. (1969) Regional Planning. University of Mysore, Mysore.
18. Mishra, R.P. (2002) Regional Planning, Concepts, Techniques, Policies and Case Studies, Concept Publishing Company, New Delhi.
19. Pandey, D.C. and P.C. Tiwari (1989) Dimensions of Development Planning, Volumes I and II, New Delhi.
20. Singh O.P. and D.C. Pandey (1986) Development Planning: Theory and Practice, Nainital.
21. Sharma, P.R. (ed.) (1993) Regional Policies and Development in the Third World. Rishi Publication.,Varanasi.
22. Sundaram, K.V. (1977) Urban and Regional Planning in India, Vikas Publishers. New Delhi.
23. Sundaram, K.V. (1997) Decentralized Multilevel Planning: Principles and Practice. Asian and African Experience. Concept Publishing Company, New Delhi.

DEPARTMENT OF GEOGRAPHY
B.A./B.Sc Geography
General Elective (GE) Environmental Geography

Programme: Under Graduate in Arts/Science	**Year: II**	**Semester: IV Paper-**
Subject: Geography Course	**Course Code: GG.GE04-T**	**Course Title: Environmental Geography**

Course Outcomes
Environmental geography is the study of the spatial interactions between the natural world and humanity. It describes the components of the environment, human interactions with those components, and the spatial variation of these components across the Earth's surface.

Theory- (Credit-4)	**Distribution of marks according the University rule**.
Total No. of Lectures – Tutorials – Practical (in hours per week): 4-0-0	**15 hrs for 1 credit theory, 30 hrs for 1 credit practical**

Unit	Contents	Lectures
Unit - I	Definition, Scope and evolution of Environmental Geography, Concepts of Environmental Geography, Environment, Man and environmental processes.	15
Unit- II	Ecosystem: Food chains, Trophic levels and Productivity, Energy flow, Circulation of element and Geobiochemical cycle.	15
Unit – III	Ecosystem services, Biomes, Bio-diversity, Soil system, Man and climate.	15
Unit – IV	Environmental degradation, Environmental events and hazards, Environmental pollution, Environmental conservation and planning. Environmental Programmes and Policies – Global, National and Local levels	15

Suggested Reading:

1. Chandna R. C., 2002: Environmental Geography, Kalyani, Ludhiana.
2. Botkin, D B and Keller E A (1982) Environmental Studies. Bell & Howell Co, London
3. Chanlett, E T (1979) Environmental Protection. McGraw Hill, New York
4. Garrels T A (1975) Chemical Cycle and the Global Environment. William Kaufmann,California
5. Cunninghum W. P. and Cunninghum M. A., 2004: Principals of Environmental Science: Inquiry and Applications, Tata Macgraw Hill, New Delhi.
6. Goudie A., 2001: The Nature of the Environment, Blackwell, Oxford.
7. Singh, R.B. (Eds.) (2009) Biogeography and Biodiversity. Rawat Publication, Jaipur

8. Miller G. T., 2004: Environmental Science: Working with the Earth, Thomson BrooksCole, Singapore.
9. MoEF, 2006: National Environmental Policy-2006, Ministry of Environment andForests, Government of India.
10. Singh, R.B. and Hietala, R. (Eds.) (2014) Livelihood security in Northwestern Himalaya: Case studies from changing socio-economic environments in Himachal Pradesh, India. Advances in Geographical and Environmental Studies, Springer
11. Odum, E. P. et al, 2005: Fundamentals of Ecology, Ceneage Learning India.
12. Singh S., 1997: Environmental Geography, Prayag Pustak Bhawan. Allahabad.
13. UNEP, 2007: Global Environment Outlook: GEO4: Environment For Development, United Nations Environment Programme.
14. Singh, M., Singh, R.B. and Hassan, M.I. (Eds.) (2014) Climate change and biodiversity: Proceedings of IGU Rohtak Conference, Volume 1. Advances in Geographical and Environmental Studies, Springer
15. Singh, Savindra 2001. Paryavaran Bhugol, Prayag Pustak Bhawan, Allahabad. (in Hindi)

DEPARTMENT OF GEOGRAPHY
B.A./B.S.C.
(Semester V and VI)

Sem.	Core Discipline Specific Course (DSC) 4	Discipline Specific Elective (DSE) 4	Generic Elective 4	Skill Enhancement Course (SEC) 2	Internship/ Apprenticeship/Project (IAPC) (2)	Value Added Course (VAC) 2	Total Credits
V	DSC A5 (4) **GG.DSC05-T:** **Theory- (3)** **Geography of India** **GG.DSC05-T:** **Practical (1) -Map Projection** DSC B5 (4) DSC C5 (4)	Choose one from a pool of courses DSE (4) **GG.DSE05-Ti:** **DSE (3) - Agricultural Geography** **GG.DSE05-Pi:** **Pract. (1): Agricultural Data Analysis** **GG.DSE05-Tii:** **DSE(3) –Mountain Geography with special reference to the Himalaya** **GG.DSE05-Pii:** **Pract. (1): Field Visit and Report Writing** Or Choose one from a pool of courses GE-5 (4) **GG.GE05-T:** GE-**Settlement Geography**		(SEC 5) Choose one from a pool of SEC courses	Choose one SECmOR Internship/Apprenticeship/Project/Community Outreach (IAPC) (4)*	**X**	
	12	**4**		**2**	**4**		**22**
VI	DSC A6 (4) **GG.DSC06-T:** **Theory-(3)** **Geoinformatics** **GG.DSC06-P:** **Practical (1) -** **Remote Sensing and GIS Exercise** DSC B6 (4) DSC C6 (4)	Choose one from a pool of courses DSE - 4 (4) **GG.DSE06-Ti:** **DSE(3) - Rural Geography** **GG.DSE06-Pi:** **Pract. (1): Surveying** **GG.DSE06-Tii:** DSE**- Introduction to Cryogeography** **GG.DSE06-Pii:** **Pract. (1): Glacial Data Analysis and Mapping or** Choose one from a pool of courses GE-6 (4) **GG.GE06-T:** GE**- Socio Cultural Geography**		(SEC 6) Choose one from a pool of SEC courses	Choose one SEC OR Internship/Apprenticeship/Project/Community Outreach (IAPC) (4)	**X**	
	12	**4**		**2**	**4**		**22**
							Total 132

DEPARTMENT OF GEOGRAPHY
B.A./B.Sc.

DISCIPLINE SPECIFIC CORE COURSE (DSC) Geography of India

Programme: Under Graduate in Arts/Science	**Year: III**	**Semester: V**
Subject: Geography Course	**Course Code: GG.DSC05-T**	**Course Title: Geography of India**

Course Outcomes
The course provides the basic understanding of India in a brief but adequate manner. At the end of this course, students are expected to have an understanding of the inter linkages and interaction between physical aspects and resource base of India.

Credits: 03	**Distribution of marks according the University rule**.
Total No. of Lectures – Tutorials – Practical (in hours per week): 3-0-1	**15 hrs for 1 credit theory, 30 hrs for 1 credit practical**

Unit	Course Content	Lectures
Unit– I	India- A Subcontinent, Physical Features, Geology, Drainage System, Climate, Natural Vegetation, Soils	14
Unit– II	Crops (Food, Plantation and Commercial), Agriculture Production, Agriculture Regions, Irrigation, Livestock Raising and Fishery. Industries:, Steel and iron, Textile, sugar; Minerals and Power Resources	16
Unit – III	Population (Density, Distribution and Urbanization), Multipurpose Projects. Regional Development and Planning, Regional Disparities, Transportation: Roads and Railways, Air Transportation and Pipeline Transportation; Trade: Internal and External (Trend, Composition and Direction); SEZ (Special Economic Zones).	15
Practical (Credit-1) **GG.DSC05-P**	**Course Title: Map Projection:** Definition, Necessity and Classification of map projection, Construction of map projections: Simple conical projection with one and two standard parallels, Bonne's projection, Polyconic projection. Cylindrical projections: Mercator's, Gall's stereographic projection. Zenithal Projections: Polar zenithal equidistant, Equatorial zenithal equidistant.	30

Suggested Readigs

1. Chauhan B.S. & Gautam Alka (2011) Bharat (Geography of India), Rastogi Publication, Meerut.
2. Chauhan B.S. & GautamAlka (2013) Bharat Varshka Vistrat Bhogool, Rastogi Publication, Meerut.
3. Hussain, Majid (2015) Geography of India, McGraw Hill Education, NewDelhi.
4. Mamoria, C.B. (2007) Bharat Ka Bhoogol. Sahitya Bahwan, Agra.
5. Sharma, Y.K. (2009) Geography of India, Lakshmi Narayan, Agra.
6. Sharma, M.L. & Sharma H.S. (2011) Bharatka Bhogool, Rastogi Publication, Meerut.
7. Sharma, J.K. & Kalwar, S.C. (2011) Bharatka Bhogool, Rastogi Publication, Meerut.
8. Singh, R.L. (1993) Regional Geography of India, National Geographic Society of India, Varanasi.

DEPARTMENT OF GEOGRAPHY
B.A./B.Sc
DISCIPLINE SPECIFIC CORE COURSE (DSE) – Agricultural Geography

Programme: Under Graduate in Arts/Science	**Year: III**	**Semester: V Paper-**
Subject: Geography Course	**Course Code: GG.DSE05-Ti**	**Course Title: Agricultural Geography**

Course Outcomes
Agricultural geography is a sub-discipline of human geography that studies the spatial relationships between humans and agriculture which helps to understand the scope and nature of agricultural geography and the factors that influence the agricultural system.

Theory-(Credit-3)	**Distribution of marks according the University rule**.
Total No. of Lectures – Tutorials – Practical (in hours per week): 3-0-1	**15 hrs for 1 credit theory, 30 hrs for 1 credit practical**

Units	Contents	Lectures
Unit - I	Nature, scope, significance and development of Agriculture Geography, Approaches to the study of Agricultural Geography: Commodity, systematic, regional, and behavioral, Origin and dispersal of agriculture.	14
Unit - II	Determinants of agricultural land use: Physical, economic, social, and technological, Land holding and land tenure systems, Agricultural efficiency Concepts, Techniques and Methods of measurements; Methods of delimiting crop combination, cropping pattern, crop concentration, intensity of cropping	15
Unit - III	Theories of Agriculture Geography, Von Thunen's theory (model) of agricultural location and its recent modifications, Demarcation of Agricultural regions, Whittlesey's classification of agricultural regions; Land use/ Land cover , Green Revolution, White Revolution, Food deficit and food surplus regions.	16
Practical (Credit-1) **GG.DSE05-Pi**	**Course Title: Agriculture Data Analysis:** Crop combination, crop intensity, and agricultural efficiency; Agricultural land use mapping.	***30***

Suggested Reading:

1. Bhalla, G.S. and Alagh, Y.K. (1979) Performance of Indian Agriculture: A District-wise Study, Sterling, New Delhi.
2. Das, M.M. (1982) Peasant Agriculture in Assam, Inter India, New Delhi.
3. Gobind, N. (1986) Regional perspective in agriculture, concept, New Delhi.
4. Hussain, M. (1979) Agricultural Geography, Inter India, New Delhi.
5. Mergra, W.B. & Munton, R.J.C. (1971) Agricultural Geography, methuen, London.
6. Mitchel, P. (1979) Agro-ecosystem, Inter India Publication,New Delhi
7. Shafi, M. (1984) Agricultural productivity and regional imbalance, concept, New Delhi.
8. Singh J. and Dhillon, S.S. (1985) Agricultural Geography, Tata McGraw Hill, New Delhi.
9. Singh, J. (1974) Agricultural Atlas of India: A Geographical perspective, Vishal Publications, Kurukshetra.
10. Kumar, Pramila, (2024) Krishi Bhoogol, Madhya Pradesh Hindi Granth Academi, Bhopal, MP.
11. Ferroni, Marco, 2013. Transforming Indian agriculture- India 2040: Productivity, Markets and Institutions, Sage Publications, New Delhi.
12. White P. 2007. Emergence of agriculture: A global view, Routledge, London.
13. Wright J. 2009. Sustainable agriculture and food security in an era of oil scarcity, Earthscan, London.
14. Singh, R. B. 2000. Environmental Consequences of Agricultural Development: A Case Study from the Green Revolution state of Haryana, India, Agriculture, Ecosystems and Environment 82, 97–103.

DEPARTMENT OF GEOGRAPHY
B.A./B.Sc.

Discipline Specific Elective (DSE) – Mountain Geography with Special Reference to the Himalaya

Programme: Under Graduate in Arts/Science	**Year: IV**	**Semester: V Paper-**
Subject: Geography Course	**Course Code: GG.DSE05-Tii**	**Mountain Geography with special reference to the Himalaya**

Course Outcomes

1. Ability to describe and compare the geographical features of major mountain systems, particularly the Himalaya, in terms of location, extent, and physiography.
2. Competence in assessing the natural resources of the Himalaya and understanding the implications of resource degradation on ecosystems and communities.
3. Proficiency in recognizing and addressing environmental challenges in the Himalayan region, including implementing strategies for conservation and disaster management.
4. Understanding of the demographic, social, and cultural dynamics of Himalayan communities, including the role of indigenous knowledge in sustainable development.
5. Capability to analyze the economic activities and potentials of the Himalayan region, with a focus on promoting sustainable livelihoods and fostering responsible tourism practices.

Theory- (Credit-3)	**Distribution of marks according the University rule**
Total No. of Lectures – Tutorials – Practical (in hours per week): 3-0-1	**15 hrs for 1 credit theory, 30 hrs for 1 credit practical**

Unit	**Mountain Geography with special reference to the Himalaya**	Lectures
Unit – I	Mountain Systems of the World: Location, Extent, Origin and Physiography of the major mountain systems (i.e., Alps, Andes, Rockies and Himalaya) of the world. Natural Resources of the Himalaya: Land Resource, Water Resource (Rivers, Glaciers and Lakes), Forests (Natural Vegetation) and Biodiversity; Degradation of natural resources	15
Unit – II	Major Environmental Challenges of the Himalaya: Erosional Hazards, Deforestation, Loss of Biodiversity, and wild life, Natural Disasters: Earthquakes, Landslides, Forest Fires, Climate Change.	15
Unit – III	Demographic Traits, Society and Culture: Population: Growth and Distribution, Population Migration, Major Tribes (Gaddies, Bhotias, Gujars and Galo), Local Indigenous Knowledge of different societies /groups	15
Practical (Credit-1) **GG.DSE05-Pii**	**Course Title: Field Visit in the Himalayan region and Report Writing**	30

Suggested readings:

1. P. Wester, A. Mishra, A. Mukherji, A. B. Shrestha (eds), The Hindu Kush Himalaya
2. Assessment: Mountains, Climate Change, Sustainability and People, Springer Nature Switzerland AG, Cham. pp., 2019
3. World Bank, South Asia's Hotspots Impacts of Temperature and Precipitation Changes on Living Standards, Report Preview Spring 2018, World Ban Group, Washington D.C. 2018
4. S. Irudaya Rajan, R. B. Bhagat eds, Climate Change, Vulnerability and Migration, Routledge, India, 2018
5. M.S.S. Rawat et al. (eds), Environment, Resources and Development of the Indian Himalaya, Transmedia Publication, Srinagar, Garhwal, Uttarakhand, India, 2018
6. Tor H. Aase, Climate Change and the Future of Himalayan Farming, Oxford University Press, 2017
7. Velma Grover et al.(eds), Global Change and Mountains: Consequences, Responsesnand Opportunities, Science Publishers, CRS Press, Taylor and Francis, USA, 2015
8. E. Grohmann et al. (eds), Environmental Deterioration and Human Health: Natural and Anthropogenic Determinents, Springer, Dordrecht, 2014
9. Ning, Wu; Rawat, G.S.; Joshi, S.; Ismail, M.; Sharma, E. (Eds) High-altitude rangelands and their interfaces in the Hindu Kush Himalayas. Kathmandu: ICIMOD, 2013
10. Jean Palutikof et al. (eds.) Climate Adaptation Futures, Wiley Publishing Company, U.K., 2013
11. C. Margottini et al. (eds), Landslide Science and P ractice, Vol. 4, Springer - Verlag, Berlin, Heidelberg, Germany, 2013
12. Velma Grover (ed) Impact of Climate Change on Water and Health, CRC Press, Taylor and Francis Group, 2013
13. G. Rasul and M. Karki (eds) Policy Priorities for Sustainable Mountain Development, Kathmandu: International Center for Integrated Mountain Development, 2008
14. Huddlestone, B., Ataman, E. and d'Ostlanl, L. F., Towards a GIS-based analysis of mountain environments and populations, FAO, Rome, 2003
15. ICIMOD, Mountains of the world: ecosystem Services in a Time of global and climate change: seizing opportunities meeting challenges Framework paper prepared for the Mountain Initiative of the Government of Nepal by ICIMOD and the Government of Nepal, Ministry of Environment
16. IPCC, Climate change: Impacts, adaptation, and vulnerability, Part A: Global and sectoral aspects, Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, Summary for policymakers, Cambridge University Press, Cambridge, United Kingdom and New York, USA, 2014
17. Tse-ring, K., Sharma, E., Chettri, N., Shrestha, A. (eds), Climate change vulnerability of mountain ecosystems in the eastern Himalayas. Climate change impact on vulnerability in the eastern Himalayas-synthesis report. Kathmandu: ICIMOD, 2010
18. M. Beniston, Environmental change in mountains and uplands. London, 2000.
19. Food and Agricultural Organization, Food Security in Mountains – High time for action. Brochure of the International Mountain Day 2008. http://www.mountaineering.ie/documentbank/uploads/IMD08%20brochure.pdf
20. Food and Agricultural Organization, International Year of the Mountains. Food and Agriculture Organisation of the United Nations, Rome, 2002.

21. Food and Agricultural Organization, Land-water linkages in rural watersheds. Land and Water Bulletin 9. Food and Agriculture Organisation of the United Nations, Rome, 2002
22. Martin J. Haigh, Headwater control: integrating land and livelihoods, paper presented at the International conference on Sustainable Development of Headwater Resources.
23. United Nation's International University, Nairobi, Kenya, September, 2002.
24. ICIMOD, Mountains of the World –Ecosystem Services in a Time of Global and Climate Change: Seizing Opportunities – Meeting Challenges. Framework paper prepared for the Mountain Initiative of the Government of Nepal by ICIMOD and the Government of Nepal, Ministry of Environment, 2010
25. ICIMOD, The Changing Himalayas: Impact of Climate Change on Water Resources and Livelihoods in the Greater Himalayas. ICIMOD, Kathmandu, Nepal, 2009
26. Postgraduate (MA/MSc) Semester Course Framework of Geography, Kumaun University, Nainital
27. IPCC, Climate change 2007: The scientifi c basis. Working Group I contribution to the Intergovernmental Panel on Climate Change Fourth Assessment Report. Cambridge: Cambridge University Press, 2007
28. IPCC, Climate Change: Impacts, adaptation and vulnerability. Working Group II contribution to the Intergovernmental Panel on Climate Change Fourth Assessment
29. Report. Cambridge: Cambridge University Press, 2007
30. Messerli, B. and Ives, J. D. (eds), Mountains of the world – A global priority. A contribution to Chapter 13 of Agenda 21. New York: Parthenon, 2007

DEPARTMENT OF GEOGRAPHY
B.A./B.Sc.

GERERIC ELECTIVE (GE)- Settlement Geography

Program: Under Graduate in Arts/Science	**Year: III**	**Semester: V Paper-**
Subject: Geography Course	**Course Code: GG.GE05-T**	**Course Title: Settlement Geography**

Course Outcomes
Introduction to the subject Settlement Geography. Understand the various aspects of origin and growth human settlements in the form of rural and urban. Understand Morphology and Patterns of rural and urban settlement.

Theory- (Credit-4)	**Distribution of marks according the University rule**.
Total No. of Lectures – Tutorials – Practical (in hours per week): 4-0-0	**15 hrs for 1 credit theory, 30 hrs for 1 credit practical**

Unit	Course Content	Lectures
Unit – I	Introduction of Settlement Geography: Settlement Geography: Definitions, Meaning and Scope; Importance of Settlement Studies in Geography; Concept of Hierarchy of Settlement.	10
Uni t – II	Development and classification of Settlement: Development of Settlement; Factors Influencing Growth of Settlements; Industrial growth and urban expansion; Functional Classification of Towns: Rural and Urban Settlement.	12
Unit – III	Rural Settlements in India: Origin and Growth of Rural Settlements in India; Structure of House and Building Materials Used in Rural Settlements of India; Regional Variations in Rural Settlement.	12
Unit – IV	Urban Settlements in India: Origin and Growth of Urban Settlements; Urbanization in India: Trends and Types of Towns; Urban problems in Indian cities; Smart City: Concept, Need and Implementation in India; Urban Morphological Theories: Central Place theory (Christaller), Rank Size Rule and Primate City; Classical Model of Burgess and Homer Hoyt.	26

Suggested Readings

1. Alam, S. M. (2007). Settlement system of India. Rajesh Publications.
2. Bose, A (1980): India's Urbanization, Tata McGraw Hill, New Delhi.
3. Chaudhary, P. (2011). Human settlements in India: Growth and challenges. Concept Publishing.
4. Hall, P. (2014). Cities of tomorrow: An intellectual history of urban planning and design in the twentieth century (4th ed.). Wiley-Blackwell.

5. Hall, T. (2006): Urban Geography, Routledge, London.
6. Harvey, D. (2009). Social justice and the city (Revised ed.). University of Georgia Press.
7. Husain, M. (2014). Urban geography. Rawat Publications.
8. Johnston, R. J. (2000). The dictionary of human geography (4th ed.). Blackwell.
9. Julfikar Hussain (2021): Settlement Geography, Notion Press.
10. Knox, P. L., & McCarthy, L. (2011). Urbanization: An introduction to urban geography (3rd ed.). Pearson.
11. Knox, P. L., & Pinch, S. (2014). Urban social geography: An introduction (6th ed.). Routledge.
12. Kundu A. (1992): Urban Development and Urban Research in India, Khanna Publication.
13. Lehmann, S., & Crocker, R. (Eds.). (2012). Designing for zero waste: Consumption, technologies and the built environment. Routledge.
14. Majid Husain. (2015). Urban geography. Rawat Publications.
15. Mandal, R. B. (2013). Urban geography: A textbook. Concept Publishing Company.
16. Misra, R. P. (2008). Rural development: Towards sustainability. Concept Publishing Company.
17. Mourya S.D. and Kumar P. (2022): अधिवास भूगोल, Sharda Pustak Bhawan.
18. Nanda, R. (2021). City and village: Changing settlement patterns in India. Sage Publications India.
19. Pacione, M. (2005). Urban geography: A global perspective. Routledge.
20. Pacione, M. (2009). Urban geography: A global perspective (3rd ed.). Routledge.
21. Pathak, C. R. (2018). Urbanization and settlement systems in India. Concept Publishing.
22. R. Y. Singh (2002): Geography of Settlements, Rawat Publication.
23. Ramachandran, R. (1992): Urbanisation and Urban Systems in India, Oxford University Press, New Delhi.
24. Roy, R. (2016): Settlement Geography, Centrum Press.
25. Sahay, A., Sinha, V.N.P. and Verma U. (2017): Introduction to Settlement Geography, Rajesh Publications.
26. Sharma, P. R. (2013). Settlement geography of India: Patterns, processes and models. Rawat Publications.
27. Short, J. R. (2019). Human geography: A short introduction. Oxford University Press.
28. Shukla, R. and Shukla R. (2011): अधिवास भूगोल, Arjun publishing house.
29. Singh R. (2005): अधिवास भूगोल, Rawat Publication.
30. Singh R.L. and Kashi Nath Singh (eds.) (1975): Readings in Rural Settlement Geography, National Geographical Society of India, Varanasi.
31. Singh, J. (2015). Urbanisation in India: Nature and patterns. Gyan Publishing House.
32. Singh, R. Y. (2009). Geography of settlement: Rural and urban. Rawat Publications.
33. Singh, S.N. (2023): ग्रामीण अधिवास भूगोल, Radha Prakashan
34. Sinha, V. N. P. (2017). Patterns of rural settlements in India. Gyan Publishing.
35. Smith, M. P. (2016). Transnational urbanism: Locating globalization. Wiley-Blackwell.
36. Soja, E. W. (2010). Seeking spatial justice. University of Minnesota Press.
37. Verma, R. L. (2019). Dynamics of urban and rural settlements in India. Mittal Publications.

Internship/Apprenticeship/Project/Community Outreach (IAPC)

<table>
<tr><td colspan="2">Programme: Under Graduate in Arts</td><td>Year: III</td><td>Semester: V</td></tr>
<tr><td colspan="4">Subject: Geography</td></tr>
<tr><td colspan="2">Course Code: GG.IAPC05</td><td colspan="2">Course Title: Internship/Apprenticeship/Project/Community Outreach (IAPC)</td></tr>
<tr><td colspan="4">Outcome
To learn how to write a project report based on research gap found during the literature survey or field observations made. Preparation of synopsis/outline will be also learned. Finally student will learn how to collect data and write a report based on the data analysis</td></tr>
<tr><td>Credits: 04</td><td colspan="3">Max. Marks: 100 (Evaluation by External & Internal Examiner)
Dissertation: 75
Internal Assessment: Viva Voce + Attendance : 25 (20+5)</td></tr>
<tr><td colspan="4">The students will be required to select a topic and area of their interests with the help of their respective supervisors allotted to them by the Department. Research Project must be submitted to the Department one week before the commencement of the Theory Examinations. The size of the Dissertation normally ranges around 50 to 60 pages. The Research Project Dissertation will be evaluated by the external and internal examiners.</td></tr>
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DEPARTMENT OF GEOGRAPHY
B.A./B.Sc Geography
DISCIPLINE SPECIFIC CORE COURSE (DSC) Geoinformatics

Programme: Under Graduate in Arts/Science	**Year: III**	**Semester: VI Paper-**
Subject: Geography Course	**Course Code: GG.DSC06-T**	**Course Title: Geoinformatics**

Course Outcomes
GeoInformatics is a science of living structure, not only for better understanding geographic forms and processes but also more importantly for better making and remaking geographic space to be living or more living. Analysis of objects and space time phenomena related to the surface and underneath of Earth. Studying Geoinformatics helps us gaining the skills to collect, analyze, and interpret spatial data, which is highly valuable for informed decision-making.

Theory- (Credit-3)	**Distribution of marks according the University rule**.
Total No. of Lectures – Tutorials – Practical (in hours per week): 3-0-1	**15 hrs for 1 credit theory, 30 hrs for 1 credit practical**

Unit	Contents	Lectures
Unit – I	Definition of Remote sensing, Advantages and limitations, Remote sensing process, Electromagnetic Radiation (EMR): EMR Spectrum and its properties, EMR wavelength regions and their applications. Remote Sensing Satellite: LISS-I, LISS-II, LISS-III, LISS-IV, Wifs and PAN; Aerial Photograph: Types, Fundamentals of aerial photograph Interpretation.	17
Unit – II	Basics Geodesy, Concept of Datum; Geographic Positioning System and its Components; DGPS.	14
Unit – III	Introduction to GIS; Definition and types, Components; Types of Data: Spatial and Non-Spatial Data, Geometry, Attribute Data in GIS, Application of Geoinformatics: LULC, , Urban Mapping and Vegetation etc.	14
Practical (Credit-1) GG.DSC06-P	**Course Title: Remote Sensing and GIS Exercise:** Base Map Preparation; Familiarization with software; Visualization; Import and export of data to various formats; Geo-referencing of data; Digitization – point, line, polygon; GPS/DGPS Handling and Data collection; Satellite Imagery formats; Layer Stacking of Multispectral Imagery.	30

Suggested Reading:

1. American Society of Photogrammetry, 1983: Manual Of Remote Sensing (2nd Edition), ASP Falls Church, Virginia.
2. Aerial photographic interpretation, Lueder, D.R., McGraw Hill Book Co., 1959 Elements of Photogrammetry, Paul R. Wolf, McGraw-Hill, 2000.
3. Jensen, J.R. 2000, Remote Sensing of the Environment: An Earth resource Perspective. Prentice Hall.
4. Joseph George, 2003, Fundamentals of remote sensing. Universities Press
5. Lillesand, T.M., and Kieffer, R.M., 1987, Remote Sensing and Image Interpretation, John Wiley.
6. Sabbins, F.F., 1985, Remote sensing Principles and interpretation. W.H.Freeman and company
7. Jahne, B. 1991 Digital Image Processing New York: Springer-Verlag.
8. Jain, A.K. 1989, Fundamentals of Digital Image Processing, Englewood Cliffs, NJ, Prentice Hall.
9. Jonson, J.R. 1996, Introductory Digital Image Processing, Printice-Hall, Inc.
10. Peter .A Burroughs and McDonell, Rachel A, Principles of Geographic Information System
11. Ksang-tsung Chang, 2010, Geographic Information System
12. Ahmed El-Rabbany, 2012, Introduction to GPS: The Global Positioning System.

DEPARTMENT OF GEOGRAPHY
B.A./B.Sc
DISCIPLINE SPECIFIC CORE COURSE (DSE) Rural Geography

Programme: Under Graduate in Arts/Science		**Year: III**	**Semester: VI** **Paper-**
Subject: Geography	**Course Code: GG.DSE06-Ti**		**Course Title: Rural Geography**
Course Outcomes 1. Define the rural areas, rural economy and development and issues or Rural Development in general and address them through various development strategies 2. Explain the rural local self-governance namely Pachayati Raj Institutions and its role in planning and development of rural areas			
Credits: 03	**Distribution of marks according the University rule**.		
Total No. of Lectures – Tutorials – Practical (in hours per week): 3-0-1		**15 hrs for 1 credit theory, 30 hrs for 1 credit practical**	

Units	Contents	Lectures
Unit – I	The concept of Rural Development, meaning and definition need and objectives of rural development, Dimensions and approaches.	14
Unit – II	Programmes for the rural development: Area Based approach to rural development and their implication; Agricultural development: Green revolution, Sansad Adrash Gram Yojna and Mahatma Gandi National Rural Employment Guarantee scheme.	15
Unit – III	Planning for Rural development: Rural settlement characteristics, influencing factors, ecological and non-ecological, types and patterns; Dimensions of Rural Development: Approaches and problems, Rural Growth Centre approach, identification of problems and planning for development.	16
Practical (Credit-1) **GG.DSE06-Pi**	**Course Title: Surveying:** Introduction to Surveying and Leveling, Dumpy Level Survey: Rise and Fall Method, Theodolite Survey: Slope and Height determination, GPS: Road Mapping. Report writing on Socio-economic study of Rural area. .	30

Suggested Readings

1. Bharati, T. (2022). Changing rural landscapes in India: Regional perspectives. Sage Publications India.
2. Bryant, C. R., & Pini, B. (2010). Gender and rural geography: Identity, sexuality and power in the countryside. Routledge.
3. Cloke, P., Marsden, T., & Mooney, P. H. (Eds.). (2006). Handbook of rural studies. Sage.
4. Gilg A. W. (1985): An Introduction to Rural Geography, Edwin Arnold, London.
5. Halfacree, K. (2007). Trial by space for a 'radical rural': Introducing alternative localities, representations and lives. Journal of Rural Studies, 23(2), 125–141.
6. Krishnamurthy, J. (2000): Rural Development – Problems and Prospects, Rawat Publs., Jaipur.
7. Lapping, M. B. (2021). The rural landscape in North America: Development and change since 1900. Routledge.
8. Lee D. A. and Chaudhri D. P. (eds.) (1983): Rural Development and State, Methuen, London.
9. Marsden, T. (2017). Agri-food and rural development: Sustainable place-making. Bloomsbury.
10. Mishra and Sharma (2007): Rural Growth Centers for micro level planning, Ritu publication.
11. Misra R. P. and Sundaram, K. V. (eds) (1979): Rural Area Development: Perspectives and Approaches, Sterling, New Delhi.
12. Misra, R. P. (ed.) (1985): Rural Development: Capitalist and Socialist Paths, Vol. 1, Concept, New Delhi.
13. Palione M. (1984): Rural Geography, Harper and Row, London.
14. Ramachandran H. and Guimaraes J.P.C. (1992): Integrated Rural Development in Wanmali S. Rural Infrastructure Settlement Systems and Development of the Regional Economy in South India, International Food Policy Research Institute, Washington, D.C.
15. Rao, P. R. (2010). Rural development and rural geography in India. Concept Publishing Company.
16. Robb P. (ed.), (1983): Rural South Asia: Linkages, Change and Development, Curzon Press.
17. Sharma P.K. and Sharma S. C. (2018): Rural Development reading in Settlement Geography, English Bookhouse, Jaipur.
18. Sharma, H. S. (2013). Rural geography of India: Patterns, processes, and development. Rawat Publications.
19. Singh, R. B., & Mishra, S. (2014). Environment, livelihood and rural development: Perspectives from India. Rawat Publications.
20. Singh, R. L. (Ed.). (2009). Readings in rural settlement geography. National Geographical Society of India.
21. Singh, S. (2020). Rural transformations in India: Emerging challenges and opportunities. Springer.
22. Tiwari, R. P. (2012). Agricultural geography and rural development. Prayag Pustak Bhawan.
23. Woods, M. (2005). Rural geography: Processes, responses and experiences in rural restructuring. Sage.
24. Woods, M. (2011). Rural (Key Ideas in Geography series). Routledge.
25. Yugandhar, B. N. and Mukherjee, Neela (eds.) (1991): Studies in Village India: Issues in Rural Development, Concept Publs. Co., New Delhi**.**

DEPARTMENT OF GEOGRAPHY
B.A./B.Sc
DISCIPLINE SPECIFIC CORE COURSE (DSE) - Cryogeography

Programme: Under Graduate in Arts/Science	**Year: III**	**Semester: VI Paper-**
Subject: Geography Course	**Course Code: GG.DSE06-Tii**	**Course Title: Cryogeography**

Course Outcomes

After studying Cryogeography, learners will understand its focus on analyzing the Earth's frozen surfaces, encompassing components such as ice sheets, glaciers, and permafrost. They will recognize the global distribution of the cryosphere and its crucial role in climate dynamics, including its impacts on sea levels, weather patterns, and ecosystems. Moreover, students will grasp the environmental and societal implications of cryosphere changes, such as melting ice leading to sea level rise and affecting biodiversity and human communities. They will be familiar with research methods and technologies utilized in Cryogeography, and able to apply this knowledge to real-world scenarios, predicting outcomes and assessing vulnerabilities.

Theory- (Credit-3)	**Distribution of marks according the University rule**.
Total No. of Lectures – Tutorials – Practical (in hours per week): 3-0-1	**15 hrs for 1 credit theory, 30 hrs for 1 credit practical**

Units	Contents	Lectures
Unit - I	Meaning, concept Scope and significance of Cryogeography; Cryosphere and its component; Ice ages and Glaciation.	16
Unit - II	Glacial and periglacial environment: Types of Permafrost; Glacial and Periglacial Processes and landforms.	15
Unit - III	Cryogeography and Human Society; Human Adaptation: Agriculture, food, settlement and water	14
Practical (Credit-1) **GG.DSE06-Pii**	**Course Title: Glacial data analysis and Mapping:** Collection and Tabulation of published retreat data of glaciers; Extraction of Glacier boundary/outline, Glacial Geomorphological mapping etc.	30

Suggested Reading:

1. Benn, D. I., and Evans, D. J. A. 1998. Glaciers and Glaciations, New York, New York, Wiley
2. Barry Roger G., 2019, The Global Cryosphere, Cambridge University Press, ISBN: 9781108720588, Pages: 586
3. Cortez, Ford, 2016, Cryosphere and Earth Science, Syrawood Publishing House, ISBN-10 : 1682860205 ,ISBN-13 : 978-16828602
4. Dahe Qin, Tandong Yao, Yongjian Ding, Jiawen Ren, 2021, Introduction to Cryospheric Science, Springer Singapore, 978-981-16-6425-0, https://doi.org/10.1007/978-981-16-6425-0
5. Garry Kinder, 2017, The High-Mountain Cryosphere, Cambridge University Press, ISBN 139781107662759
6. Kulkarni, A. V. 1992. Mass balance of Himalayan glaciers using AAR and ELA methods. Journal of Glaciology, 38: 101-104
7. Pelto, Mauri, 2017. Recent Climate Change Impacts on Mountain Glaciers (The Cryosphere Science Series), Wiley-Blackwell, UK
8. Singh, Savindra, 2023, Cryogeography, Pravalika Publications, ISBN: 9789384292782
9. Slaymaker, Olav and Kelly, Richard, 2006. The Cryosphere and Global Environmental Change, Wiley-Blackwel
10. Sugden, D. E. and John, B. S. 1976. Glaciers and Landscape, New York, New York, Wiley

DEPARTMENT OF GEOGRAPHY
B.A./B.Sc. Geography

Generic Elective (GE)- Socio Cultural Geography

Programme: Under Graduate in Arts/Science	**Year: III**	**Semester: VI Paper-**
Subject: Geography Course	**Course Code: GG.GE06-T**	**Course Title:** Socio Cultural Geography

Course Outcomes

The paper intends to sensitize students with socio-cultural aspects and the related contemporary issues in India and the world with a geographical outlook. The philosophy of the subject is to be taught in order to develop a keen interest in the subject and to pursue it for higher studies.

Credits: 04	**Distribution of marks according the University rule**.
Total No. of Lectures – Tutorials – Practical (in hours per week): 4-0-0	**15 hrs for 1 credit theory, 30 hrs for 1 credit practical**

Unit	Course Content	Lectures
Unit – I	Nature, scope, and significance of Social and Cultural Geography: Definitionsof Society, social plurality, culture, cultural types, cultural divergence and cultural convergence.	15
Uni t – II	Geographical Factors in India's Social Evolution; Theories of evolution ofraces, Physical characteristics & early patterns, migration and distribution.	15
Unit – III	Evolution of later social and cultural groups: religions and languages, Socio-cultural diversity in India and in the world.	10
Unit – IV	Components of social diversity; tribes and their distribution; Tribal regions of India; Cultural regions in India: elements of cultural regionalization: race, caste, dialect, language, religion. The Indian tribal groups; Race, language, distribution and cultural adaptations; Impact of globalization and social transformation in India.	20

Suggested Readings

1. Ahmad, Aijazuddin (1999) : Social Geography, Rawat Publication, New Delhi.
2. De Blij, H.D. : Human Geography, John Wiley and Son, New York.
3. Dreze Jean and Amartya Sen (1996) : Economic Development and SocialOpportunity, Oxford University Press, New Delhi.
4. Dubey, S.C. (1991) : Indian Society, National Book Trust, New Delhi.
5. Gregory, D. and J. Larry (eds) (1985) : Social Relations and Spatial Structures,McMilan.

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Internship/Apprenticeship/Project/Community Outreach (IAPC)

<table>
<tr><td colspan="2">Programme: Under Graduate in Arts/Science</td><td>Year: III</td><td>Semester: VI</td></tr>
<tr><td colspan="4">Subject: Geography</td></tr>
<tr><td colspan="2">Course Code: GG.IAPC06</td><td colspan="2">Course Title: Internship/Apprenticeship/Project/Community Outreach (IAPC)</td></tr>
<tr><td colspan="4">Outcome
To learn how to write a project report based on research gap found during the literature survey or field observations made. Preparation of synopsis/outline will be also learned. Finally, student will learn how to collect data and write a report based on the data analysis</td></tr>
<tr><td>Credits: 04</td><td colspan="3">Max. Marks: 100 (Evaluation by External & Internal Examiner)
Dissertation: 75
Internal Assessment: Viva Voce + Attendance: 25 (20+5)</td></tr>
<tr><td colspan="4">The students will be required to select a topic and area of their interests with the help of their respective supervisors allotted to them by the Department. Research Project must be submitted to the Department one week before the commencement of the Theory Examinations. The size of the Dissertation normally ranges between 50 and 60 pages. The Research Project Dissertation will be evaluated by the external and internal examiners.</td></tr>
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