

Department of Geography

School of Earth Science

Course Contents & Syllabus

Two Year Post Graduate (I to IV Semesters)

**Two Year Post Graduate Programme
Under NEP 2020**

(for Students enrolled 2026-2027 Academic Session)



Hemvati Nandan Bahuguna Garhwal University

(A Central University)

Srinagar Garhwal-246174 (Uttarakhand)

Head
Department of Geography
School of Earth Science
H.N.B. Garhwal University
Srinagar (Uttarakhand)

**Course Structure for P.G. Programmes
(From batches 2026-28 and onwards)**

P.G. First Year (for Two-year P.G. program)

First Semester

Course category	Semester-I	Credits (T + P)
Discipline Specific Core (DSC)	DSC-1 Geomorphology	5
	DSC-2 Advanced Geography of India	5
	DSC-3 History of Geographical Thought	5
SEC/Vocational	SEC-1 Surveying (Practical)	5
Discipline Specific Elective (DSE)	DSE-1 Geography of Resources	4
Or		
Multidisciplinary Elective (M.D.E)	M.D.E-1 Locational Aspects: India and World	4
<i>A student may opt for either one Discipline Specific Elective (DSE) or one Multidisciplinary Elective (MDE) as an elective course.</i>		
AEC (Non-CGPA Course)	Indian Knowledge System	1
Total Credits		24

Second Semester

Course category	Semester-II	Credits (T + P)
Discipline Specific Core (DSC)	DSC-4 Climatology	5
	DSC-5 Geography of Himalaya	5
	DSC-6 Geo-Environmental Studies	5
SEC/Vocational	SEC-2 Quantitative & Qualitative Methods in Geography (Practical)	5
Discipline Specific Elective (DSE)	DSE-2 Population Geography	4
Or		
Multidisciplinary Elective (M.D.E)	M.D.E-2 Introduction to GIS	4
<i>A student may opt for either one Discipline Specific Elective (DSE) or one Multidisciplinary Elective (MDE) as an elective course.</i>		
VAC (Non-CGPA Course)	Constitutional, Ethical and Moral Values	1
Total Credits		24

Third Semester

Course category	Semester-III	Credits (T + P)
Discipline Specific Core (DSC)	DSC-7 Research Methodology and Techniques	5
	DSC-8 Hazards and Disaster Management	5
	DSC-9 Climate Change and Sustainability	5
	DSC-10 Remote Sensing, GIS and Field Study Tour (Practical)	5
Discipline Specific Elective (DSE)	DSE-3 A. Cultural Geography B. Health and Medical Geography C. Political Geography D. Regional Planning and Development	4
Or		
Multidisciplinary Elective (M.D.E)	M.D.E-3 A. Oceanography B. Urban Geography	4
<i>A student may opt for either one Discipline Specific Elective (DSE) or one Multidisciplinary Elective (MDE) as an elective course.</i>		
SEC (Non-CGPA Course)	Academic Library Systems and Services	1
or		
SEC (Non-CGPA Course)	Entrepreneurship & Startup Awareness	1
Total Credits		24

Fourth Semester

Course category	Semester-IV	Credits (T + P)
Discipline Specific Core (DSC)	DSC-11 Geography of Uttarakhand	5
	DSC-12 Dissertation (Major)	10
	DSC-13 Cartography (Practical)	5
Discipline Specific Elective (DSE)	DSE-4 A. Agricultural Geography B. Bio-Geography C. Remote Sensing and Digital Cartography D. Rural Geography E. Social Geography	4
Or		
Multidisciplinary Elective (M.D.E)	M.D.E-4 A. Geography of Tourism B. Geography of Transport	4
<i>A student may opt for either one Discipline Specific Elective (DSE) or one Multidisciplinary Elective (MDE) as an elective course.</i>		
SEC (Non-CGPA Course)	Community Outreach Activities	1
Total Credits		24

**Syllabus of M.A./M.Sc. in Geography as per
Two-Year Post Graduate Programme Under NEP 2020
for Students enrolled in 2026-2027 Academic Session**

Semester	Major Subject	Course Name	Credit	
			T	P
I	DSC-1	Geomorphology	5	-
	DSC-2	Advanced Geography of India	5	-
	DSC-3	History of Geographical Thought	5	-
	SEC-1	Surveying (Practical)	-	5
	DSE-1 Geography of Resources Or MDE-1 Locational Aspects: India and World		4	-
			4	-
	AEC (Non-CGPA Course)	Indian Knowledge System	1	-
	Total		24	
Semester	Major Subject	Course Name	Credit	
II	DSC-4	Climatology	5	-
	DSC-5	Geography of Himalaya	5	-
	DSC-6	Geo-Environmental Studies	5	-
	SEC-2	Quantitative & Qualitative Methods in Geography (Practical)	-	5
	DSE-2 Population Geography Or		4	-
	MDE-2 Introduction to GIS		4	-
	AEC (Non-CGPA Course)	Constitutional, Ethical and Moral Values	1	-
	Total		24	
Semester	Major Subject	Course Name	Credit	
III	DSC-7	Research Methodology and Techniques	5	-
	DSC-8	Hazards and Disaster Management	5	-
	DSC-9	Climate Change and Sustainability	5	-
	DSC-10	Remote Sensing, GIS and Field Study Tour	-	5
	DSE-3	A. Cultural Geography B. Health and Medical Geography C. Political Geography D. Regional Planning and Development	4	-
	Or			
	M.D.E-3	A. Oceanography B. Urban Geography	4	-
	SEC (Non-CGPA Course)	Academic Library Systems and Services Or Entrepreneurship & Startup Awareness	1	-
	Total		24	
Semester	Major Subject	Course Name	Credit	
IV	DSC-11	Geography of Uttarakhand	5	-
	DSC-12	Dissertation (Major)	-	10
	DSC-13	Cartography	-	5
	DSE-4	A. Agricultural Geography B. Bio-Geography C. Remote Sensing and Digital Cartography D. Rural Geography E. Social Geography	4	-
	Or			
	M.D.E-4	A. Geography of Tourism B. Geography of Transport	4	-
	SEC (Non-CGPA Course)	Community Outreach Activities	1	-
	Total		24	

The Board of Studies (BoS) meeting held on 6-7 March 2026 and 10-11 August 2026 discussed and approved the programme structure and syllabus for the M.A./M.Sc. in Geography.

Guidelines for Continuous Internal Assessment for Post Graduate Courses of Geography Semester System

Candidate must pass in theory and practical examinations separately.

Effective from the 1st semester admission for the academic session 2026-27 and onward.

1. Continuous Internal Assessment/ Sessional Test : 40%
 2. End semester Examination : 60%
- Continuous internal assessment may include *objective test, written test, snap test, field work, community outreach activities, assignment, paper presentation, participation in class discussion and laboratory work* whichever is suitable to the course paper presentation should be given priority and presentation must be one of the important methods of internal assessment.
 - Attendance and active participation of students in class room will be the part of continuous internal assessment in both theory and practical.



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Details Syllabus

<u>Master of Arts/ Science (M.A./M.Sc.) I Year</u>		
Theory		
Programme: M.A./M.Sc.	Year: First	Semester: First
Subject: Geography		
Course Code: GEOG/DSC01	Course Title: Geomorphology	
Course Learning Objectives: 1. Understand the concepts, theories, and processes of geomorphology and landscape evolution. 2. Explain endogenic and exogenic processes in shaping Earth's surface. 3. An understanding of the linkages between landscape form and processes. 4. Understanding of the conceptual and dynamic aspects of landform development.		
Course Learning Outcomes: 1. Discuss and apply the fundamental concepts and theories of geomorphology. 2. Explain the origin and evolution of major landforms using classical and contemporary geomorphic theories. 3. Analyse the basic principles and forces for development of landforms through time. 4. Familiarity and experience applying fundamental concepts in physical systems.		
Credits: 5		DSC
Max. Marks: 40+60		Min. Passing Marks: 35
Total No. of Lectures- Tutorials - Practical (in hours per week): L-T-5/W		
Unit	Course Contents	
UNIT-I	Fundamental concepts of Geomorphology; Methods and Approaches of landforms study; Theories of landscape development by Gilbert, Davis, Penck and Hack and morphogenetic region.	
UNIT-II	Plate tectonics; Mountain building; Isostasy; Tectonic Geomorphology; Theories of slope development by Young and King; Peneplain and pediplains; Geological structure and rocks.	
UNIT-III	Denudation process, Mass movement, Geomorphic process-River, Glacier, Wind, underground water and resultant landforms; Morphometry of drainage basin; Profile of equilibrium rejuvenation and polycyclic landscape. (With special reference to Uttarakhand Himalaya)	
UNIT-IV	Applied Geomorphology engineering works; Anthropogenic process and landscape planning; Regional Geomorphology of Uttarakhand.	
Suggested Readings: 1. Allison, R. J. (Ed.). (2002). <i>Applied geomorphology: Theory and practice</i>. John Wiley & Sons Ltd., Chichester. U.K. 2. Anderson, R. S., & Anderson, S. P. (2010). <i>Geomorphology: The mechanics and chemistry of landscapes</i>. Cambridge University Press. Cambridge. 3. Bierman, P. R., & Montgomery, D. R. (2014). <i>Key concepts in geomorphology</i>. W. H. Freeman and Company Publishers. New York. 4. Bloom A. L., (2003). <i>Geomorphology: A Systematic Analysis of Late Cenozoic Landforms</i>, Prentice-Hall of India. New Delhi. 5. Bridges, E. M. (1990). <i>World geomorphology</i>. Cambridge University Press. Cambridge. U.K. 6. Chorley, R. J. (1972). <i>Spatial Analysis in Geomorphology</i>. Methuen London. 7. Christopherson, R. W. (2011), <i>Geosystems: An Introduction to Physical Geography</i>, 8 Ed., Macmillan Publishing Company. 8. Condie, K.C. (2003). <i>Plate Tectonic and Crustal Evolution</i>, Butterworth-Heinemann, Oxford, Burlington. 9. Dayal, P. (2015). <i>Text-Book of Geomorphology</i>, Shukla Book Depot, Patna. 10. Dury, G.H. (Ed.). (1966). <i>Essays in Geomorphology</i>. Heinmann Educational Books Ltd., London. 11. Fairbridge, R.W. (Ed.) (1968). <i>Encyclopedia of Geomorphology</i>. Rein-hold Book Corp., New York. 12. Gabler R.E, Peterson. J.F., Trapasso, L.M., Sack, D. (2009). <i>Physical Geography</i>, Brooks/Cole, Cengage Learning, Belmont, USA. 13. Garner, H.F. (1974). <i>The Origin of Landscape: A Synthesis of Geomorphology</i>. Oxford Univ. Press, New York. 14. Gautam, A (2010): <i>Bhautik Bhugol</i>, Rastogi Publications, Meerut. 15. Gautam, A. (2015). <i>Geomorphology</i>. Sharda Pustak Bhawan. Allahabad. 16. Goudie, A. (Ed.). (2003). <i>Encyclopedia of Geomorphology</i>, Routledge, London.		

17. Goudie, A. (Ed.). (2005). *Geomorphological Techniques* (2nd Edition), Routledge, London.
18. Gregory, K. J., & Goudie, A. S. (Eds.). (2011). *The SAGE handbook of geomorphology*. SAGE Publications.
19. Hails, J.R. (1977). *Applied Geomorphology*. Elsevier.
20. Harvey, A. (2012). *Introducing geomorphology: A guide to landforms and processes*. Dunedin Academic Press.
21. Huggett, R.J. (2011). *Fundamentals of Geomorphology*, (3rd Ed.), Routledge. New York.
22. Kale, V. and Gupta, A. (2001). *Elements of Geomorphology*. Oxford University Press. Delhi.
23. Kale, V.S. and Gupta, A. (2001). *Introduction to Geomorphology*, Orient Longman. Hyderabad. India.
24. Knighton, A.D. (1984). *Fluvial Forms and Processes*, Edward Arnold Publishers Ltd., London. U.K.
25. Leopold, L.B., Wolman, M.G., and Miller, J.P. (1964). *Fluvial Processes in Geomorphology*, W.H. Freeman Company, San Francisco.
26. Mateo-Gutiérrez, J. (2012). *Geomorphology*. CRC Press, Boca Raton (FL). USA.
27. Pitty, A. F. (1971). *Introduction to Geomorphology*. Methuen, London.
28. Richards, K.S. (1982). *Rivers: Form and Processes in Alluvial Channels*, Methuen & C., Ltd., London
29. Schumm, S. A. (1977). *The fluvial system*. John Wiley & Sons, Inc., New York.
30. Selby, M.J. (2005). *Earth's Changing Surface*, Indian Edition, OUP.
31. Singh, S (2009). *Bhautik Bhugol ka Swaroop*, Prayag Pustak, Allahabad
32. Singh, S. (2004). *Geomorphology*. Prayag Pustak Bhawan, Allahabad.
33. Skinner, B. J. and Stephen C. P. (2000). *The Dynamic Earth: An Introduction to physical Geology*, 4th Edition. John Wiley and Sons.
34. Sparks, B. W. (1960). *Geomorphology*. Longman, London.
35. Strahler, A. H. (2013). *Introducing physical geography* (6th ed.). John Wiley & Sons.
36. Summerfield, M. A. (1991). *Global geomorphology*. Pearson Prentice Hall. U.K.
37. Thornbury, W. D. (1968). *Principles of geomorphology* (2nd ed.). John Wiley & Sons. New York.
38. Tikkaa, R. N. (1989). *Bhautik Bhugol ka Swaroop*. Kedarnath Ram Nath. Meerut.
39. Worcester, P. G. (1969). *Textbook of geomorphology*. East-West Press. New Delhi.

Suggested Continuous Evaluation Methods: **Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations** (any methods)

Marks distribution of theory examination: 40 marks by internal assessment and 60 marks by external assessment.

<u>Master of Arts/ Science (M.A./M.Sc.) I Year</u>		
Theory		
Programme: M.A./M.Sc.	Year: First	Semester: First
Subject: Geography		
Course Code: GEOG/DSC02	Course Title: Advanced Geography of India	
Course Learning Objectives: 1. To understand the geological evolution, physiographic characteristics that shape the physical geography of India. 2. To analyse the demographic characteristics, population dynamics and population policies. 3. To examine the spatial patterns of agriculture, agro-climatic regions and infrastructure for sustainable economic growth. 4. To evaluate India's planning process, economic reforms and contemporary developmental issues.		
Course Learning Outcomes: 1. Explain the geological evolution, physiographic and monsoon mechanisms influencing India's physical environment. 2. Analyse the spatial patterns of population, settlement distribution and the implications of the National Population Policy. 3. Assess the characteristics of Indian agriculture, industrial regions, and their role in regional economic development. 4. Critically evaluate India's planning process and emerging contemporary issues affecting regional development.		
<i>Credits: 5</i>	<i>DSC</i>	
<i>Max. Marks: 40+60</i>	<i>Min. Passing Marks: 35</i>	
<i>Total No. of Lectures- Tutorials - Practical (in hours per week): L-T-5/W</i>		
Unit	Course Contents	
UNIT-I	Making of India through geological times, structure and relief; Drainage systems and watersheds; Physiographic divisions; Mechanisms of the Indian Monsoon.	
UNIT-II	Population growth, trends and distribution; Population- density, Sex and literacy, Trends of urbanisation; Spatial distribution and pattern of settlement, National population policy.	
UNIT-III	Agricultural characteristics and trends; Agro-climate region, Infrastructure: irrigation, power, fertilizer, HYV seeds and farm technology; Green, white, blue and yellow revolutions.	
UNIT-IV	Industrial Complex and Industrial regions, New industrial policy, Evolution of Planning in India: Five-Year Plans to NITI Aayog, Integrated Rural Development and Sustainable Livelihoods, Economic Reforms- Multinationals, liberalization and Contemporary Issues.	
Suggested Readings: 1. Chapman, G. and Baker, K.M. (eds.) (1992): The Changing Geography of Asia. Routledge, London. 2. Farmer, B.H. (1983): Introduction to South Asia. Methuen and Company Ltd. and Company Ltd., London. 3. Ganguly, S. and Neil, De Votta (eds.) (2003): Understanding Contemporary India. Lynne Rienner Publishers., Boulder and London. 4. Johnson, B. L. C. (ed.) (2001): Geographical Dictionary of India. Vision Books, New Delhi. Johnson, B.L.C. (1983): Development in South Asia. Penguin Books, Harmondsworth. 5. Khullar, D. R. (2006): India. A Comprehensive Geography. Kalyani Publishers., New Delhi. Krishnan, M. S. (1968): Geology of India and Burma. 4th edition. Higgin Bothams Private. Ltd.,Madras. 6. Nag, P. and Gupta S. S. (1992): Geography of India. Concept Publishing. Company, New Delhi. Sharma, T. C. (2003): India: Economic and Commercial Geography. Vikas Publication., New Delhi. 7. Singh, J. (2003): India: A Comprehensive and Systematic Geography. Gyanodaya Prakashan, Gorakhpur. 8. Singh, R. L. (ed.) (1971): India. A Regional Geography. National Geographical Society of India, Varanasi. 9. Spate, O.H.K., Learmonth, A.T.A. and Farmer, B. H. (1979): India and Pakistan. Methuen and Company Ltd. and Company Ltd., London. 10. Subbarao, B. (1959): The Personality of India. University of Baroda Press, Baroda. 11. Tirtha, R. (2002): Geography of India. Rawat Publications., Jaipur and New Delhi. 12. Tiwari, R. C. (2007): Geography of India, Prayag Pustak Bhawan, Allahabad 13. Wadia, D. N. (1959): Geology of India. MacMillan and Company, London and Madras. Student edition.		

14. Ahmed, Waquar, Amitabh Kundra and Richard Peet (eds.) 2010. India's New Economic Policy: A Cractical Analysis, Jaipur/ Dew Delhi: Rawat Publications
Suggested Continuous Evaluation Methods: Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations (any methods)
Marks distribution of theory examination: 40 marks by internal assessment and 60 marks by external assessment.

<u>Master of Arts/ Science (M.A./M.Sc.) I Year</u>		
Theory		
Programme: M.A./M.Sc.	Year: First	Semester: First
Subject: Geography		
Course Code: GEOG/DSC03	Course Title: History of Geographical Thought	
Course Learning Objectives: 1. To introduce to the basic nature of the discipline, its philosophical and methodological development 2. To examine the landmark contributions of classical, medieval, and modern geographers 3. To analyse the evolution of geography across different schools of thought worldwide 4. To critically engage with models, paradigms, and philosophical approaches in geography		
Course Learning Outcomes: 1. Students will gain a clear understanding of the basic nature, scope, and methodological foundations of geography as a discipline. 2. Students will be able to identify and evaluate the landmark contributions of classical, medieval, and modern geographers across different traditions. 3. Students will develop the ability to analyse the evolution of geography through German, French, American, British, and Indian schools of thought. 4. Students will enhance their critical thinking skills by engaging with models, paradigms, and philosophical approaches, and applying them to contemporary geographical debates.		
Credits: 5	DSC	
Max. Marks: 40+60	Min. Passing Marks: 35	
Total No. of Lectures- Tutorials - Practical (in hours per week): L-T-5/W		
Unit	Course Contents	
UNIT-I	Nature, scope and changing perspectives of Geography; Geography as the study of space, place, region, landscape, environment and human-earth relations; Ancient Indian and selected Asian geographical traditions; Contributions of the Greeks and Romans; Renaissance and the Age of Discovery.	
UNIT-II	Development of modern Geography: German, French, British, American and Russian traditions; Major geographical thinkers -Ratzel, Hettner, Vidal de la Blache, Davis, Mackinder, Sauer, Hartshorne and Schaefer; Dualisms, dichotomies and methodological debates; Development of Geography in India.	
UNIT-III	Philosophical foundations and scientific traditions: Positivism, Pragmatism and Paradigms; Quantitative Revolution, Spatial Science, Models, Laws and Systems Theory; Behavioural and Humanistic Geography (Phenomenology, Idealism and Existentialism); Marxist, Radical and Welfare Geography; Critical Realism	
UNIT-IV	Contemporary geographical thought: Feminist, Political Ecology, Decolonial, Structuralist, Poststructuralist and Postmodern perspectives; Critical Cartography and Digital Geography; Geography in the Anthropocene and Earth-System perspectives; Future directions in Geography; Geographers of Uttarakhand.	
Suggested Readings: 1. Haggett, P. (2001). Geography: A global synthesis. Prentice Hall. 2. Chorley, R. J., & Haggett, P. (Eds.). (1967). Models in geography. Methuen. 3. Johnston, R. J., & Claval, P. (Eds.). (1984). Geography since the Second World War: An international survey. Croom Helm. 4. Johnston, R. J. (1988). The future of geography. Methuen. 5. Adhikari, S. (2006). Fundamentals of geographical thought. Chaitanya Publishing House. 6. Marcus, D. (1999). Post-structuralism in geography: The diabolical art of spatial science. Edinburgh University Press.		

7. Gaile, G. L., & Willmott, C. J. (Eds.). (2003). *Geography in America at the dawn of the 21st century*. Oxford University Press.
8. Hubbard, P., Kitchin, R., Bartley, B., & Fuller, D. (2002). *Thinking geographically: Space, theory and contemporary human geography*. Continuum.
9. Hussain, M. (2007). *Evolution of geographical thought* (5th ed.). Rawat Publications.
10. Dixit, R.D.: *Geographical Thought: A Contextual History of Geographical Ideas*, Prentice Hall of India, New Delhi, 2001.
10. Peet, R. (1998). *Modern geographical thought*. Blackwell.
11. Cloke, P., Crang, P., & Goodwin, M. (Eds.). (2014). *Introducing human geographies* (3rd ed.). Routledge.
12. Cresswell, T. (2013). *Geographic thought: A critical introduction*. Wiley-Blackwell.
13. Holt-Jensen, A. (2018). *Geography: History and concepts* (6th ed.). Sage.
14. Johnston, R. J., & Sidaway, J. D. (2016). *The dictionary of human geography* (5th ed.). Wiley-Blackwell.
15. Livingstone, D. N. (1992). *The geographical tradition: Episodes in the history of a contested enterprise*. Blackwell.
16. Harvey, D. (1989). *The condition of postmodernity*. Blackwell.
17. Soja, E. W. (1989). *Postmodern geographies: The reassertion of space in critical social theory*. Verso
18. Schaefer, F. K. (1953). Exceptionalism in geography: A methodological examination. *Annals of the Association of American Geographers*, 43(3), 226–249.
19. Agnew, J., Livingstone, D. N., & Rogers, A. (Eds.). (1996). *Human geography: An essential anthology*. Blackwell.
20. Negi, M. S., & Sunil (2025) *Geographers of Uttarakhand (Pioneers of Himalayan Geography)*, AKINIK Publication

Suggested Continuous Evaluation Methods: **Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations** (any methods)

Marks distribution of theory examination: 40 marks by internal assessment and 60 marks by external assessment.

<u>Master of Arts/ Science (M.A./M.Sc.) I Year</u>		
Practical		
Programme: M.A./M.Sc.	Year: First	Semester: First
Subject: Geography		
Course Code: GEOG/SEC01(P)	Course Title: Surveying (Practical)	
Course Learning Objectives: 1. To develop advanced knowledge of surveying principles and techniques. 2. To enable students to collect, process and analyse spatial data accurately using classical and modern surveying instruments. 3. To develop the ability to design and execute field survey for geographical research. 4. To promote the application of surveying techniques in solving real-world geographical problems.		
Course Learning Outcomes: 1. Demonstrate advanced proficiency in surveying techniques by applying conventional and modern surveying methods. 2. Analyse and interpret survey data using geospatial techniques to produce an accurate map and spatial analysis for research and planning. 3. Design and conduct an independent field survey by selecting an appropriate survey method, ensuring data quality, and addressing practical challenges in geographical research. 4. Integrate surveying with geospatial technologies such as GIS and remote sensing to solve complex problems in the field of Geography		
Credits: 5	SEC	
Max. Marks: 40+60	Min. Passing Marks: 35	
Total No. of Lectures- Tutorials - Practical (in hours per week): L-T-5/W		
Unit	Course Contents	
UNIT-I	Plain table survey: Intersection and radiation method, Triangulation and determination of heights and contouring with clinometers.	
UNIT-II	Dumpy level survey; Prismatic compass survey, Open and close traverse; Instrument-based: Total station Survey.	
UNIT-III	Weather Map: Weather symbols, Representation of atmospheric features, Interpretation of Indian daily weather maps, Weather forecasting method.	
UNIT-IV	GPS: GPS system, Handling usages, GPS-based data acquisition and applications; Altimeter (Hi-tech with precision): Handling and use.	
Suggested Readings: 1. Campbell, J., Introductory Cartography, Prentice Hall, Inc., Englewood Cliff, New Jersey, 1984. 2. Cuff, D.J., & Mattson, M.T., Thematic Maps, their Design and Production, Mathuen, New York., 1982. 3. Robinson, A.H. & others., Elements of Cartography, John Willey and Sons, New York (New edition). 4. Archer, J.E., & Dalton, T.H., Fieldwork in Geography, London. 5. National Atlas and Thematic Maps Organization (NATMO): National Atlas of India, Calcutta. 6. Monkhouse, F.J., Maps and Diagrams, Methuen & Co., London,1967 7. Sarkar, A. K. (1997): Practical Geography: A Systematic Approach. Orient Longman, Kolkata. 8. Sharma, J. P. (2001): Prayogik Bhugol. Rastogi Publication, Meerut 3rd edition. 9. Singh, R.L. and Singh, Rana P.B. (1993): Elements of Practical Geography. (Hindi and English editions). Kalyani Publishers, New Delhi		
Suggested Continuous Evaluation Methods: Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations (any methods)		
Marks distribution of theory examination: 40 marks by internal assessment and 60 marks by external assessment.		

<u>Master of Arts/ Science (M.A./M.Sc.) I Year</u>		
Theory		
Programme: M.A./M.Sc.	Year: First	Semester: First
Subject: Geography		
Course Code: GEOG/DSE01	Course Title: Geography of Resources	
Course Learning Objectives: 1. To understand the basic concepts of resource and resource management. 2. To discuss the causes of resource depletion and its consequences from local to global. 3. To study the challenges in the management of different natural resources. 4. To study the resource management policy at national and global levels.		
Course Learning Outcomes: 1. Explain the concepts related to the field of natural resource management. 2. Elaborate the regions behind the resource depletion and their impact. 3. Assess the various issues in the field of natural resource management. 4. Explain the sustainable resource management and resource management policies.		
Credits: 4	DSE	
Max. Marks: 40+60	Min. Passing Marks: 35	
Total No. of Lectures- Tutorials - Practical (in hours per week): L-T-4/W		
Unit	Course Contents	
UNIT-I	Natural Resources: Meaning, Definition and Concept; Nature and Scope of Resources Geography; Classification of Resources,	
UNIT-II	Soil, Water and Forest Resource: distribution, utilization, problems, management and conservation; Mineral Resources: Iron ore and Bauxite.	
UNIT-III	Energy Resources-Coal, Petroleum and Natural Gas: distribution, production, problems, management and conservation; Renewable energy resources and World energy crisis.	
UNIT-IV	Contemporary Strategies for Resource Management: Sustainable Resource Development, Resource Management Policies. Community Based Natural Resource Management (CBNRM).	
Suggested Readings: 1. Holechek. J.L. et al: Natural Resources- Ecology, Economics and Policy, Prentice Hall, New Jersey, 2000. 2. Kates, R.W. and Burton, I. (ed): Geography, Resources and Environment, Vol, II, University of Chicago Press, Chicago, 1986. 3. Mc Laren, D.J. and Sklnnet, B.J. (ed): Resources and World Development, Jogn Wiley and Sons, New York, 1986. 4. Newson, M.D.: Land, Water and Development, River Basin System and Management, Routledge, London, 1991. 5. Owen, S. and Owen, P.L.: Environment Resources and Conservation, Cambdridge University Press, New York, 1991. 6. Rees, J.: Natural Resources, Allocation, Economics and Policy, Methuen, London, 1988. 7. Simmons, I.G.: Earth, Air and Water Resources and Environment in Late 20th Century, Edward, Arnold, 1991.		
Suggested Continuous Evaluation Methods: Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations (any methods)		
Marks distribution of theory examination: 40 marks by internal assessment and 60 marks by external assessment.		

<u>Master of Arts/ Science (M.A./M.Sc.) I Year</u> <i>Theory</i>			
Programme: M.A./M.Sc.		Year: First	Semester: First
Subject: Geography			
Course Code: GEOG/MDE01		Course Title: Locational Aspects: India and World	
Course Learning Objectives: 1. To understand the basics of locational aspects. 2. To discuss the location of various administrative units of India and World. 3. To study the location of different geographical features of India and World. 4. To study the important locations of some man-made resource/ features.			
Course Learning Outcomes: 1. Explain the basics of locational aspects. 2. Locate and identify the different administrative units. 3. Locate and identify the different geographical features of India and world. 4. Locate and identify the important man-made features in India and world.			
<i>Credits: 4</i>		<i>DSE</i>	
<i>Max. Marks: 40+60</i>		<i>Min. Passing Marks: 35</i>	
<i>Total No. of Lectures- Tutorials - Practical (in hours per week): L-T-4/W</i>			
Unit		Course Contents	
UNIT-I	Administrative Units: Country, State, District, Developmental Block and Capital; Important Cities.		
UNIT-II	Geographical Features: Mountain and Range, Major Rivers, Glaciers, Lakes, Deserts, Straits, Island, Volcanic and Major Water falls.		
UNIT-III	Man-made Features: Agricultural Belts, Industrial Region, Power Plants; Important Sea & Air Ports, Transportation Routes: Road, Rail and Sea. .		
UNIT-IV	National Parks, Wildlife Sanctuary, Ramsar Sites, Bio-diversity Parks, Grassland, and Contemporary geographical issues.		
Suggested Readings: India & the World – NATMO, School Atlas, Oxford-Atlas & Time UK Print World Atlas and Uttarakhand Atlas.			
Suggested Continuous Evaluation Methods: Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations (any methods)			
Marks distribution of theory examination: 40 marks by internal assessment and 60 marks by external assessment.			

<u>Master of Arts/ Science (M.A./M.Sc.) I Year</u>		
Theory		
Programme: M.A./M.Sc.	Year: First	Semester: Second
Subject: Geography		
Course Code: GEOG/DSC04	Course Title: Climatology	
Course Learning Objectives: 1. To understand the meaning, scope, and development of climatology as a scientific discipline. 2. To analyze atmospheric processes including circulation, precipitation, and climatic systems. 3. To study air masses, fronts, cyclones, and their global/regional impacts. 4. To evaluate climate classification systems and their application to global climatic regions. 5. To critically examine climatic change processes, both natural and anthropogenic.		
Course Learning Outcomes: 1. Students will be able to explain atmospheric equilibrium, adiabatic processes, and global circulation systems. 2. Students will understand the origin, classification, and dynamics of air masses, fronts, and cyclones. 3. Students will apply climate classification methods (Köppen, Thornthwaite) to analyze global climates. 4. Students will evaluate climatic change processes, including solar variability, tree-ring analysis, and human impacts. 5. Students will develop informed perspectives on global warming, acid precipitation, and climate hazards.		
Credits: 5		DSC
Max. Marks: 40+60		Min. Passing Marks: 35
Total No. of Lectures- Tutorials - Practical (in hours per week): L-T-5/W		
Unit	Course Contents	
UNIT-I	Meaning, scope, and development of climatology; Composition and structure of atmosphere, Jet streams and Walker circulation; ENSO phenomena, El Niño and La Niña, and precipitation processes and humidity.	
UNIT-II	Origin, growth, classification, and distribution of air masses; horizontal and vertical motion of winds; fronts and frontogenesis; and tropical and temperate cyclones and anticyclones	
UNIT-III	Climate classification: Köppen and Thornthwaite; Weather analysis and forecasting; Weather modification and human behaviour; Atmospheric hazards: cloudbursts and other extreme weather events.	
UNIT-IV	Climatic change: definition, indicators, anatomy; Human impact on global climate; Global warming and the greenhouse effect; Artificial rain, acid precipitation and contemporary debates and policy perspectives on climate change.	
Suggested Readings: 1. Chorley, R. J., & Barry, R. G. (1995). <i>Atmosphere, Weather and Climate</i>. Methuen & Co. Ltd., London. 2. Critchfield, H. J. (2002). <i>General Climatology</i>. Prentice Hall of India, New Delhi. 3. Hidoore, J. J. (1996). <i>Global Environment Change</i>. Prentice Hall, New Jersey. 4. Lockwood, J. G. (1979). <i>World Climatology</i>. Elbs and Edward Arnold (Pub.) Ltd. 5. Miller, A., et al. <i>Elements of Meteorology</i>. Merrill and Columbus. 6. Oliver, J. E., & Hiddore, J. J. (2003). <i>Climatology: An Atmospheric Science</i>. Pearson Education, India. 7. Thomson, R. D., & Perry, A. (1997). <i>Applied Climatology</i>. Routledge, London and New York. 8. Trewartha, G. T. (1954). <i>An Introduction to Climate</i>. McGraw Hill Series in Geography. 9. Lal, D. S. <i>Climatology</i>. Sharda Pustak Bhawan, Allahabad. 10. Singh, Savindra. (2005). <i>Climatology</i>. Prayag Pustak Bhawan, Allahabad. 11. Lal, D. S. <i>Jalvayu Vigyan</i>. Sharda Pustak Bhawan, Allahabad.		
Suggested Continuous Evaluation Methods: Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations (any methods)		

Marks distribution of theory examination: 40 marks by internal assessment and 60 marks by external assessment.

<u>Master of Arts/ Science (M.A./M.Sc.) I Year</u>		
Theory		
Programme: M.A./M.Sc.	Year: First	Semester: Second
Subject: Geography		
Course Code: GEOG/DSC05	Course Title: Geography of Himalaya	
Course Learning Objectives: 1. To understand the geo-physical identity, origin, and structural evolution of the Himalaya. 2. To analyze the physiographic and ecological characteristics of the Himalayan region. 3. To examine demographic, economic, and developmental aspects of the Himalayan states. 4. To evaluate regional diversity and policy frameworks for sustainable mountain development.		
Course Learning Outcomes: 1. Students will comprehend the geological formation, physiographic divisions, and geo-sensitivity of the Himalaya. 2. Students will understand the natural and anthropogenic processes shaping Himalayan landscapes and ecosystems. 3. Students will analyze demographic and economic patterns, including agriculture, tourism, and power development. 4. Students will critically assess regional planning and policy approaches for sustainable Himalayan development.		
Credits: 5		DSC
Max. Marks: 40+60		Min. Passing Marks: 35
Total No. of Lectures- Tutorials - Practical (in hours per week): L-T-5/W		
Unit	Course Contents	
UNIT-I	Geo-physical identity and origin of the Himalaya; Structural divisions and their regional significance; Geo-political issues and border dynamics; Cultural appraisal and ethnic diversity; Himalayan people and tribes, Geo-sensitivity and future prospects of the Himalayan region.	
UNIT-II	Geomorphic process and landforms; drainage system and Himalayan water resources; Glaciers, lakes, and mountain passes; Climate and natural vegetation, Natural hazards and geo-ecological problems resulting from anthropogenic activities.	
UNIT-III	Population distribution, density, and growth; Migration and urbanization trends; Agriculture, horticulture, and animal husbandry; Industrial development and tourism; Developmental challenges, Hydroelectric power projects in the Himalayan region.	
UNIT-IV	Geographical division of the Western, Central, and Eastern Himalaya; Regional analysis of the Kashmir Valley, Ladakh, Lahaul & Spiti, Kathmandu Valley, Teesta Valley and Doon valley; Mountain development planning and policy, Sustainable development and climate resilience in the Himalayan states.	
Suggested Readings: 1. Lal, J. S., & Moddie (Ed.). <i>The Himalaya: Aspect of Change</i> . 2. Bose, S. C. <i>Land and People of the Himalaya</i> . 3. Singh, O. P. (Ed.). <i>The Himalaya: Nature, Man and Culture</i> . 4. Joshi, S. C., & Others. <i>Kumaun Himalaya</i> . 5. Nityanand, & Kumar, K. <i>The Holy Himalaya: Geographical Interpretation of Garhwal Himalaya</i> . 6. Kharkwal, S. C. <i>Uttarakhand: Physio-Culture Complex</i> . 7. Maithani, D. D. <i>Central Himalaya: Ecology, Environmental Resources & Development</i> . 8. Rawat, M. S. S. (Ed.). <i>Central Himalaya: Environment and Development</i> (Vols. I & II). 9. Valdiya, K. S. (Ed.). (1988). <i>Kumaun: Land and People</i> . 10. Bhatt, H. P., & Bhatt, S. (1993). <i>Environmental Dimensions of Rural Settlements in the Himalaya</i> . 11. Valdiya, K. S. (1998). <i>The Himalayan Rivers: Aspects of Change</i> . Oxford & IBH Publishing, New Delhi. 12. Ives, J. D., & Messerli, B. (1989). <i>Himalayan Dilemma: Reconciling Development and Conservation</i> . Cambridge University Press, Cambridge. 13. Zoller, H. (1981). <i>Man and Environment in the Himalaya</i> . K. G. Saur Verlag, Munich.		

14. Thapa, M., & Sijapati, B. (2003). <i>A Kingdom Under Siege: Nepal's Maoist Insurgency, 1996–2003</i> . Zed Books, London.
15. Gulia, K. S. (2007). <i>Ecology and Environment in the Himalayas</i> . Isha Books, New Delhi.
Suggested Continuous Evaluation Methods: Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations (any methods)
Marks distribution of theory examination: 40 marks by internal assessment and 60 marks by external assessment.

<u>Master of Arts/ Science (M.A./M.Sc.) I Year</u>		
Theory		
Programme: M.A./M.Sc.	Year: First	Semester: Second
Subject: Geography		
Course Code: GEOG/DSC06	Course Title: Geo-Environmental Studies	
Course Learning Objectivess: 1.To introduce students to the fundamental concepts and scope of Environmental Geography. 2.To provide an in-depth understanding of ecosystems, including their structure, ecological processes and dynamics. 3.To explore the complexities of environmental degradation, pollution and sustainable development initiatives. 4. To develop critical thinking and problem-solving skills to address environmental challenges at local, regional, and global scales.		
Course Learning Outcomes: 1. Students will be able to articulate the key concepts and principles of Environmental Geography. 2. Students will develop the analytical skills necessary to evaluate ecosystem structures and functions. 3. Students will gain the ability to critically analyze environmental degradation, pollution and global environmental challenges. 4. Students will be able to demonstrate awareness of environmental ethics and global environmental challenges.		
Credits: 5		DSC
Max. Marks: 40+60		Min. Passing Marks: 35
Total No. of Lectures- Tutorials - Practical (in hours per week): L-T-5/W		
Unit	Course Contents	
UNIT-I	Meaning and scope of Environmental Geography; Basic concept of Environmental Geography; Component and types of environment; Ecology; Principles, types and ecological succession; Man-environment relationships.	
UNIT-II	Ecosystem - Concept and components; Trophic levels; Food Chain and Food Webs; Energy flow in the ecosystem; Ecosystem stability, and productivity.	
UNIT-III	Environmental degradation; Environmental Pollution- Air, Water and Solid Waste; Environmental Problems- Global Warming, Ozone depletion and Green House effect; Acid rain and climate change.	
UNIT-IV	Environmental Management: Concepts, approaches and management strategies; Environmental dimension in planning and sustainable development; Global Environment Treaty-Limits to growth, Rio Summit, Kyoto Protocol; Environment impact assessment; National environment policy and programs. Sendai Framework for Disaster Risk Reduction.	
Suggested Readings: 1. Sing. L.R. et al.: Environmental Management, Allahabad Geographical Society, Allahabad. 2. National Academy of Sciences: Understanding Climate Changes, Washington, D.C. 3. Furley, P.A. and Neway, W.W.: Man, and the Biosphere, Butterworth, London. 4. Arvil, R.: Man and Environment, Penguin. 5. Bennet, R.J. and Chorley, R.J.: Environmental System- Philosophy, Analysis and Control, Methuen, London. 6. Singh, Savindra: Environmental Geography, Prayag Pushtak Bhawan, Allahabad. 7. Detwler, T.R.: Man’s impact on the Environment, McGraw Hill, New York. 8. Sing, Savindra: ParyavaranBhoogal, Prayag Pushtak Bhawan, Allahabad. 9. Odum, E.P.: Fundamentals of Ecology, W.B. Saunders Co. Philaelfia, 1971. 10. Mather, A.S. and Chapman, K.: Environmental Resources, Longman Group Ltd. U.K., 1995. 11. Smith, K. (1996): Environmental Hazards, Routledge, London		
Suggested Continuous Evaluation Methods: Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations (any methods)		
Marks distribution of theory examination: 40 marks by internal assessment and 60 marks by external assessment.		

<u>Master of Arts/ Science (M.A./M.Sc.) I Year</u>		
<i>Practical</i>		
Programme: M.A./M.Sc.	Year: First	Semester: Second
Subject: Geography		
Course Code: GEOG/SEC02(P)	Course Title: Quantitative & Qualitative Methods in Geography	
Course Learning Objectivess: 1. To introduce students to qualitative research traditions in geography 2. To develop skills in qualitative data collection, analysis, and interpretation 3. To understand ethical, positional, and field-based dimensions of research 4. To enable students to design and conduct small-scale qualitative research		
Course Learning Outcomes: 1. Understand the philosophical foundations and approaches of qualitative research 2. Apply qualitative methods such as interviews, ethnography, and observation 3. Critically analyze qualitative data using coding and thematic interpretation 4. Design and present a qualitative research project with ethical considerations		
<i>Credits: 5</i>	<i>SEC</i>	
<i>Max. Marks: 40+60</i>	<i>Min. Passing Marks: 35</i>	
<i>Total No. of Lectures- Tutorials - Practical (in hours per week): L-T-5/W</i>		
Unit	Course Contents	
UNIT-I	Research methods in geography, quantitative, qualitative and mixed methods, Levels of measurement, nature of data in quantitative and qualitative research; Preparing data collection tools; audio-visual methods, focus group discussion.	
UNIT-II	Content and thematic analysis; discourse and narrative analysis; basic introduction to qualitative data analysis software.	
UNIT-III	Measures of inequality, central tendencies and dispersion, Location quotient; Lorenz curve, Gini’s Co-efficient; Nearest Neighbour Analysis; Rank Size Rule.	
UNIT-IV	Correlation: Spearman’s Rank and Karl Pearson's method, Simple linear regression: basic concepts and construction of regression line; Introduction to basics of R software (hands on training).	
Suggested Readings: 1. Basu, P. (2009). Practical Geography: A Systematic Approach. Orient BlackSwan. 2. Tulsian, P. C. (2007). Business Statistics. Pearson Education India. 3. S. P. Gupta (2021). Statistica Methods, 46th Edition, Sultan Chand and Sons, New Delhi 4. Mahmood, A. (1998). Statistical Methods in Geographical Studies. Rajesh Publications. 5. D. N. Gujrati, D.C. Porter and S. Gunasekar (2017), Basic Econometrics, 5th Edition, McGraw Hill Education 6. Ashis Sarkar (2015). Practical Geography: A Systematic Approach, 3rd Edition, Orient BlackSwan 7. Mishra, R.P. & Ramesh A (1989). Fundamentals of Cartography, 2nd Edition, South Aisa Books 8. Singh, R. L. and R. P. B. Singh (2015). Elements of Practical Geography (English/Hindi), Kalyani Publishers 9. Hay, I. (2010). Qualitative research methods in human geography (3rd ed.). Oxford University Press. 10. Creswell, J. W. (2009). Research design: Qualitative, quantitative, and mixed methods approach (3rd ed.). SAGE Publications. 11. DeLyser, D., Herbert, S., Aitken, S., Crang, M., & McDowell, L. (Eds.). (2010). The SAGE handbook of qualitative geography. SAGE Publications. 12. Clifford, N., & Valentine, G. (Eds.). (2010). Key methods in geography (2nd ed.). SAGE Publications. 13. Silverman, D. (2011). Interpreting qualitative data (4th ed.). SAGE Publications. 14. Kabacoff, R. I. (2015). <i>R in action: Data analysis and graphics with R</i> (2nd ed.). Manning Publications.		
Suggested Continuous Evaluation Methods: Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations (any methods)		

Marks distribution of theory examination: 40 marks by internal assessment and 60 marks by external assessment.

<u>Master of Arts/ Science (M.A./M.Sc.) I Year</u>		
Theory		
Programme: M.A./M.Sc.	Year: First	Semester: Second
Subject: Geography		
Course Code: GEOG/DSE02	Course Title: Population Geography	
Course Learning Objectivess:		
1. Understand the fundamental concepts, theories and approaches of Population Geography and their geographical significance.		
2. Analyse population distribution, composition, dynamics and migration using demographic data and geographical methods.		
3. Evaluate population issues, policies and development challenges from local, national and global perspectives.		
Course Learning Outcomes:		
1. Explain the concepts, theories and methods of Population Geography.		
2. Interpret demographic data to identify patterns of population distribution, composition and change.		
3. Analyse the spatial dimensions of fertility, mortality, migration and population growth.		
Credits: 4	DSE	
Max. Marks: 40+60	Min. Passing Marks: 35	
Total No. of Lectures- Tutorials - Practical (in hours per week): L-T-4/W		
Unit	Course Contents	
UNIT-I	Nature, scope and significance of Population Geography and its relationship with demography, Relevance of Population Geography; Recent approaches and methods to study population geography.	
UNIT-II	Population structure and composition; Population growth, density, distribution patterns and their determinants; Concepts of under, over and optimum Population.	
UNIT-III	Concepts and measurements of fertility, mortality and migrations; major theories of fertility, mortality and migration, demographic transition theory, demographic dividend.	
UNIT-IV	Concept of Human Resource and Management; Population resource regions; Population planning and policies in under-developed and developed countries, Human development index; National Population Policies in India.	
Suggested Readings:		
1. Asha A. Bhende and Tata Kanitkar (2024). Principles of Population Studies, 19 th Edition, Himalaya Publishing House Pvt. Ltd., India		
2. Chandna, R.C. (2000). A Geography of Population; Concept, Determinants and Patterns, Kalyani Pub. New Delhi		
3. Beaujeu-Garnier, Jacqueline (1978). Geography of Population, Longman, London 1970.		
4. Srinivasan, K. (1997). Basic Demographic Techniques and Applications, Sage Pub. New Delhi,		
5. Clarke, J.I. (1972). Population Geography, Pergamon. Oxford		
6. Bhagat, R. B. and Rajan, S. I. (2023). Researching Internal Migration, Routledge, London		
7. Bhagat, R. B. (2008). Assessing the measurement of internal migration in India , Asian and Pacific Migration Journal, 17(1), 91-102		
8. Md Izhaar Hassan (2020): Population Geography-A Systematic Exposition, Routledge, London		
9. United Nations Demographic Manuals: https://www.unpopulation.org/en/development/desa/population/publications/manual/index.html		
10. ORGI, UNFPA (2014), Training Manual on Demographic Techniques, https://india.unfpa.org/en/publications/training-manual-demographic-techniques		
Suggested Continuous Evaluation Methods: Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations (any methods)		
Marks distribution of theory examination: 40 marks by internal assessment and 60 marks by external assessment.		

Master of Arts/ Science (M.A./M.Sc.) I Year Theory			
Programme: M.A./M.Sc.		Year: First	Semester: SECOND
Subject: Geography			
Course Code: GEOG/MDE02		Course Title: Introduction to GIS	
Course Learning Objectives: 1. Explain the basic principles and components of remote sensing. 2. Understand the fundamentals of aerial photogrammetry and image processing for spatial analysis. 3. Analyse land-use and land-cover data using remote sensing techniques. 4. Recognise the applications of remote sensing in geography, environmental monitoring, resource management, and disaster management.			
Course Learning Outcomes: 1. Demonstrate an understanding of the principles and components of Remote Sensing and GIS. 2. Analyse spatial data and satellite imagery using Remote Sensing and GIS techniques. 3. Apply geospatial tools for mapping, spatial analysis, and problem-solving. 4. Evaluate the role of Remote Sensing and GIS in geographical research and sustainable development.			
Credits: 4		DSE	
Max. Marks: 40+60		Min. Passing Marks: 35	
Total No. of Lectures- Tutorials - Practical (in hours per week): L-T-4/W			
Unit		Course Contents	
UNIT-I		Definition, process and stages of Remote Sensing; Energy sources and radiation; EMR; Energy interaction with atmosphere and earth surface principles of microwave Remote Sensing, Remote sensing Platforms, Satellites, sensors and resolution; Digital image and satellite imagery; Elements of visual image interpretation; Digital image processing techniques.	
UNIT-II		Definition, history, types, classification and planning mission of Aerial photography; Basic geometric characteristics- scale, height, overlap, mosaic, resolution, stereoscopic coverage; Fundamental concept of Photogrammetry, Orientation, relief displacement, stereoscopic, 3D viewing, Uses of Aerial photography.	
UNIT-III		Definition, concept, scope and components of GIS; Data and Information; Geo-referencing and rectification; Data imputing methods and GPS. Databases, types of data; Data models in GIS; Data integration; Geospatial data analysis.	
UNIT-IV		Computer Cartography and mapping in digital image; Internal GIS, Web GIS, DTM, Recent trends of GIS, Emerging branches of GIS Science. Application of Remote Sensing and GIS in watershed management, weather information, disaster forecast and geo-information.	
Suggested Readings: 1. Sabine, F.F.: Remote Sensing- Principles & Interpretation. 2. Lillesand, R.M.: Remote Sensing and Image Interpretation Kiefer R.W. 3. Chauniyal, D.D.: Remote Sensing and GIS (Hindi). 4. Jensen, J.R.: Introductory Digital Image Processing- A Remote Sensing Perspective. 5. Demer, M.N.: Fundamentals of Geographic Information System. 6. Martin, D.S.: Geographic Information System- Socio-Economic Applications. 7. Aronoff, S.: Principles of Geographical Information Systems for Land Resource Assessment. 8. Aronoff, S.: Geographic Information System- A Management Perspective. 9. Bontham Carter, G.F.: Geographic Information System for Geoscientists. 10. Jones, C.: Geographical Information System & Computer Cartography. 11. Ayery, T.E.: Introduction to Aerial Photographs. 12. Pratt, W.K.: Digital Image Processing, John Wiley & Sons Now York (1995).			
Suggested Continuous Evaluation Methods: Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations (any methods)			
Marks distribution of theory examination: 40 marks by internal assessment and 60 marks by external assessment.			

Master of Arts/ Science (M.A./M.Sc.) 2 Year		
Theory		
Programme: M.A./M.Sc.	Year: Second	Semester: Third
Subject: Geography		
Course Code: GEOG/DSC07	Course Title: Research Methodology and Techniques	
Course Learning Objectives: 1. To understand the concepts, methodologies of geographical research and formulate scientifically relevant research problems. 2. To develop competencies in research design, sampling techniques and the application of appropriate statistical tools. 3. To apply geospatial technologies and interpretation in geographical research. 4. To acquire skills in scientific writing, dissemination of research findings and ethical research practices.		
Course Learning Outcomes: 1. Explain the fundamental concepts and methods in Geography, and formulate appropriate research problems. 2. Design and conduct geographical research using suitable sampling techniques. 3. Analyse and interpret quantitative, qualitative and statistical techniques to address geographical problems. 4. Prepare research proposals, pilot studies, project reports and research papers, citation practices and research ethics.		
Credits: 5	DSC	
Max. Marks: 40+60	Min. Passing Marks: 35	
Total No. of Lectures- Tutorials - Practical (in hours per week): L-T-5/W		
Unit	Course Contents	
UNIT-I	Concept & significance of research in Geography; Nature, objective and basis of research; Types of research, Approaches and methods; Review of literature, Formulation of Research problem; Techniques and research process.	
UNIT-II	Research Design: Meaning, need, features and types; Sampling: Types, methods and steps; Design of spatial sampling; Survey and experiments; Data collection methods - primary and secondary data, schedule, questionnaire and observation.	
UNIT-III	Hypothesis: meaning, characteristic importance and formulation; Testing of Hypothesis; Parametric and non-parametric tests; Introduction to open sources statistical software;	
UNIT-IV	Research Ethics and plagiarism; Writing of research report/paper and dissertation; Framing of pilot projects; Citation and referencing using softwares.	
Suggested Readings: 1. Bhatt H. P. and Bansal S.C. (2012): Research methodology (in Hindi), Meenakshi Prakashan, Meerut. 2. Ahuja, R. (2001): Research Methods, Rawat methodology, Excel Books, New Delhi. 3. Bhattacharya, D.K. (2005): Research Methodology, Excel Books, New Delhi. 4. Blaxter, L.; Hughes, C. and Tight, M. (1996): How to Research. Open University Press, Buckingham. 5. Crang, Mike 1999. Cultural Geography. Routledge, London. 6. Denzin, N.K. and Lincoln, Y.S., (eds.) (2000): handbook of Qualitative Research thousand Oaks C.A. Sage Publications. 7. Dikshit, R.D. (2003): The Art and Science of Geography: Integrated Readings. Prentice- Hall of India, New Delhi. 8. Dorling, D. And Simpson, L.(eds.) (1999): Statistics in Society. Edward Arnold, London. 9. Fisher, P. And Unwin, D., (eds.) (2002): Virtual Reality in Geography, Taylor and Francis, London. 10. Hay, I. (ed.) (2000): Qualitative research Methods in Human Geography. Oxford University Press, New York. 11. Henn, M., Mark W., and Nick F. (2006): A short introduction to Social Research, Vistara Publications, New Delhi. 12. Eyles J. And Smith D.M. (1988): Qualitative Methods in Human Geography, Polity Press, Dales Brewering Cambridge. 13. Kitchin, R. And Tate, N., (2001): Conducting Research into Human geography, Theory, Methodology and Practice. Prentice-hall, London. 14. Har Prasad: Research Methodology and Techniques in Geography, Rawat Publications, Jaipur.		
Suggested Continuous Evaluation Methods: Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations (any methods)		
Marks distribution of theory examination: 40 marks by internal assessment and 60 marks by external assessment.		

<u>Master of Arts/ Science (M.A./M.Sc.) 2 Year</u>		
Theory		
Programme: M.A./M.Sc.	Year: Second	Semester: Third
Subject: Geography		
Course Code: GEOG/DSC08	Course Title: Hazards and Disaster Management	
Course Learning Objectives: 1. Develop clear understanding of the concepts of disasters, calamity, risk and hazard. 2. Understand natural and anthropogenic hazards, disasters, and disaster risk reduction. 3. Analyze the causes, impacts, vulnerability, and resilience associated with different types of disasters using geographical approaches. 4. Apply geospatial technologies, disaster management frameworks, and field-based methods for disaster preparedness, mitigation, and sustainable development.		
Course Learning Outcomes: 1. Explain the concepts, and components of hazards, disasters, vulnerability, resilience, and disaster risk reduction. 2. Ability to assess the significance of disasters and their implications for communities and society. 3. Prepare disaster management plans integrating preparedness, mitigation, response, recovery, and climate change adaptation strategies. 4. Proficiency in understanding national disaster management policies and requirements.		
Credits: 5	DSC	
Max. Marks: 40+60	Min. Passing Marks: 35	
Total No. of Lectures- Tutorials - Practical (in hours per week): L-T-5/W		
Unit	Course Contents	
UNIT-I	Meaning, concept, type and magnitude of Hazards and Disaster; Cause and consequences; Major global hazards and disaster.	
UNIT-II	Natural Hazards- Typology; Regional dimension of Hazards; Occurrence and trends; Methods of identifying hazard prone regions; Major terrestrial disaster- seismic disasters, volcanic disaster, landslides and tsunamic disasters; Reasons of increasing frequency of disasters.	
UNIT-III	Disaster Management: Concept, stages, preparedness, prediction and warning; Disaster mitigation and disaster prevention; post-disaster stage-rescue and relief work; Remedial measures; Long term disaster planning.	
UNIT-IV	Disaster and hazard prone areas in India: Policies and approaches; Response to disasters, mitigation and management; Appraisal of government programs/institution of disaster management; Significance of Remote Sensing and GIS; Disaster Scenario and Management System in Uttarakhand.	
Suggested Readings: 1. Alexander, D. (1993). Natural Disasters, ULC Press Ltd, London. 2. Bryant, E. A. (2005). Natural Hazards, Cambridge University Press. <i>Cambridge, New York, Melbourne.</i> 3. Collins, L. R. (2000). Disaster management and preparedness. CRC Press. 4. Coppola, Damon P. (2006). Introduction to International Disaster Management. Butterworth-Heinemann. 5. Edwards, B. (2005): Natural Hazards, Cambridge University Press, UK. 6. Ghosh, S.T. (2013). Disaster Vulnerability, Hazards and Resilience: Perspectives from India. Rawat Publications. 7. Government of India, (1997). Vulnerability Atlas of India, New Delhi, Building Materials & Technology Promotion Council, Ministry of Urban Development, Govt. of India. 8. Government of India, (2005). Disaster Management Act, 2005, The Gazette of India, New Delhi. 9. Government of India. (2011). Disaster Management in India. Ministry of Home Affairs. Government of India Publication. 10. Gupta, H. K. (2003). Disaster Management. Universities Press. 11. Hyndman, D., & Hyndman, D. (2006). Natural hazards and disasters. Cengage Learning. 12. Kataria, S.K. (2020). Disaster Management: Future Challenges and Opportunities. Kataria Publications. 13. Kapur, A. (2010). Vulnerable India: A Geographical Study of Disasters, Sage Publication, New Delhi. 14. Kapur, A. (2005). Disasters in India: Studies of grim reality, Rawat Publications, New Delhi. 15. Kumar, M. (2021). Emergencies and Disaster Management. Sage Publications India. 16. Modh, S. (2010) Managing Natural Disaster: Hydrological, Marine and Geological. 17. NDMA (2005 & updates). Disaster Management Guidelines. Government of India.		

18. NDMA (2009): National Policy on Disaster Management, NDMA, New Delhi.
19. Parasuraman, S. (2000). India Disasters Report: Towards a Policy Initiatives, Oxford University Press.
20. Petak, W. J., & Atkisson, A. A. (1982). *Natural hazard risk assessment and public policy: anticipating the unexpected* (p. 489). New York: Springer-Verlag.
21. Punmia, B.C. (2005). Natural Hazards and Disaster Management: Vulnerability and Mitigation. Firewall Media.
22. Sahni, Pardeep et.al. (Eds.) 2002, Disaster Mitigation, Experiences and Reflections. Prentice Hall of India, New Delhi.
23. Shaw, R., & Krishnamurthy, R. (2009). Disaster Management: Global Challenges and Local Solutions. Universities Press.
24. Singh, R. B. (ed.), (2006). Natural Hazards and Disaster Management: Vulnerability and Mitigation, Rawat Publications, New Delhi.
25. Smith, K. (2011): Natural Hazards, Routledge, London.
26. United Nations ISDR. (2004). Living with Risk: A Global Review of Disaster Reduction Initiatives. UN Publications.
27. White, G.F.: (ed.) (1974): Natural Hazards – Local, National, Global. Oxford University Press.
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Suggested Continuous Evaluation Methods: **Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations** (any methods)

Marks distribution of theory examination: 40 marks by internal assessment and 60 marks by external assessment.

<u>Master of Arts/ Science (M.A./M.Sc.) 2 Year</u>		
Theory		
Programme: M.A./M.Sc.	Year: Second	Semester: Third
Subject: Geography		
Course Code: GEOG/DSC09	Course Title: Climate Change and Sustainability	
Course Learning Objectives: 1. Develop an in-depth understanding of the science, drivers, impacts, and risks of climate change. 2. Explain the principles of sustainability and sustainable development from geographical and socio-ecological perspectives. 3. Critically examine climate governance, international environmental agreements, and national policies related to climate change and sustainability. 4. Evaluate adaptation, mitigation, resilience, and sustainable development strategies for addressing contemporary environmental and developmental challenges.		
Course Learning Outcomes: 1. Explain the scientific basis, causes, impacts, and vulnerability dimensions of climate change. 2. Analyse the interrelationships among climate change, sustainability, socio-ecological systems, demographic dynamics, and development. 3. Critically evaluate global and national climate governance frameworks, climate finance, climate justice, and sustainability policies. 4. Apply concepts of adaptation, mitigation, resilience, sustainable resource management, and governance to analyse real-world climate and sustainability issues.		
Credits: 5	DSC	
Max. Marks: 40+60	Min. Passing Marks: 35	
Total No. of Lectures- Tutorials - Practical (in hours per week): L-T-5/W		
Unit	Course Contents	
UNIT-I	Introduction to climate change: concepts, nature and scope; climate change theories; causes of climate change, evidence and impacts; climate vulnerability and risk; adaptation and resilience; IPCC and CoP findings.	
UNIT-II	Global climate change and governance; international climate agreements; climate finance; India's climate policy; climate justice; emerging climate issues, measures and mitigation strategies.	
UNIT-III	Introduction to sustainability, nature and approaches, Geography and sustainability relationship, Social- ecological systems perspective, Demographic changes and environmental issues.	
UNIT-IV	Concept of development and growth, Emerging global policies on sustainability, Sustainability and human health, Energy crisis and development, Management practices and approaches, governance and policy issues in India.	
Suggested Readings: 1. Barry, R. G. and Chorley, R. J. 2003: Atmosphere, weather and climate, Routledge, 8th edition. London: Methuen. 2. United Nation (1972): Report of the United Nations Conference on the Human Environment, Stockholm, New York 3. Walter Leal Filho (Editor) (2019): Encyclopaedia of Sustainability in Higher Education, Springer 4. Fabio Zagonari (2022): Environmental Ethics, Sustainability and Decisions-Literature Problems and Suggested Solutions, Springer 5. H. Komiyama, S. Kraines (2008): Vision 2050 Roadmap for a Sustainable Earth, Springer 6. Huddart, D. and Stott, T. 2010: Earth environments past, present and future, Wiley Blackwell, 1st edition, West Sussex. 7. Shroder, J.F. (edited) 2005: Himalaya to the sea geology, geomorphology and the Quaternary, Taylor & Francis, London. 8. Margaret Robertson (2017): Sustainability Principles and Practice (2nd Ed), Routledge, NY 9. Anderson, G.D.; Maasch, K.A.; Sandweiss, D.H. (edited) 2007: Climate Change and cultural dynamics, a global perspective on Mid-Holocene Transition, Academic Press, London. 10. Andreas Schmittner, Introduction to Climate Science, OREGON STATE UNIVERSITY CORVALLIS, Introduction to Climate Science – Open Textbook (oregonstate.education). 11. Craig D. Idso, Robert M. Carter, S. Fred Singe (2016) Why Scientists Disagree About Global Warming the NIPCC Report on Scientific Consensus, Published by The Heartland Institute, Illinois.		

12. Mike Hulme (2022) Climate Change key ideas in Geography, Routledge.
13. Navroz K. Dubash (2012) Handbook of Climate Change and India Development, Politics and Governance, Routledge, Taylor and Francis Group.
14. Walker, Mike 2005: Quaternary Dating Methods, John Wiley & Sons, West Sussex. Last, W.M. and Smol, J.P. (edited) 2002: Tracking Environmental change using lake sediment vol I, Kluwer Academic Publishing, New York.
15. Bennet, M.R. and Glasser, N.F. 2009: Glacial geology ice sheets and landforms, Wiley Blackwell, West Sussex.
16. IPCC Assessment Reports (2001, 2004, 2007, 2020)
17. Climate Change- An Indian Perspective by S.K.Das , Foundation books
18. United Nations Conference Proceeding (1972-2022): <https://www.un.org/en/conferences/environment/rio1992>

Journals:

Climate Dynamics, Weather and Climate Extremes, Climate of the Past, Nature Geoscience, Quaternary International, Quaternary International Review, Journal of Quaternary Science, Quaternary, International Journal of Sustainable Development & World Ecology

Other Readings:

Climate Change Reconsidered – Climate Change Reconsidered

Suggested Continuous Evaluation Methods: **Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations** (any methods)

Marks distribution of theory examination: 40 marks by internal assessment and 60 marks by external assessment.

<u>Master of Arts/ Science (M.A./M.Sc.) 2 Year</u>		
Practical		
Programme: M.A./M.Sc.	Year: Second	Semester: Third
Subject: Geography		
Course Code: GEOG/DSC10 (P)	Course Title: Remote Sensing & GIS and Field Study Tour	
Course Learning Objectives: 1. Develop proficiency in Remote Sensing, GIS, and field-based geospatial techniques. 2. Acquire skills in spatial data collection, processing, and geospatial database management. 3. Integrate field observations with geospatial technologies for spatial analysis and mapping. 4. Evaluate geographical and environmental problems using geospatial tools and field evidence.		
Course Learning Outcomes: 1. Skilled in remote sensing, GIS, and field surveying techniques. 2. Create technical reports, geographical databases, and thematic maps. 3. Utilize geospatial techniques to analyze geographical and environmental challenges. 4. Analyze geospatial solutions for planning, resource management, and research.		
Credits: 5		DSC
Max. Marks: 40+60		Min. Passing Marks: 35
Total No. of Lectures- Tutorials - Practical (in hours per week): L-T-5/W		
SECTION A – Laboratory Work		
Unit	Course Contents	
UNIT-I	Concept, type and elements of maps; Coordinate systems, Datum and map projections, Geospatial data sources and types, Layer stacking of multispectral imagery.	
UNIT-II	Georeferencing and digitization, Image enhancement and image classification technique, Satellite data acquisition and earth observation missions -IRS, Landsat, Sentinel, Cartosat.	
UNIT-III	Digital elevation models and terrain derivatives, Land use/land cover mapping and change detection, Preparation of thematic maps and cartographic visualization, Introduction to web GIS and cloud-based geospatial platforms.	
UNIT-IV	Planning and design of field investigations, Reconnaissance survey and sampling techniques, Mobile GPS/GNSS-based field data collection, Report writing.	
SECTION B – Field Work		
(i) The field study is compulsory for all students, those who will not take part, will not be given any mark for this. The field study work is designed to acquaint the students that, “Geography is an observational science” and field work is one of the important methodologies in geographical studies. (ii) The students are to be sensitized about pre-field work preparation, conduct of field work, post field work and report writing. (iii) Filed study tour to provide traverses across and macro regions of the country especially problem areas, areas in news and needs will be arranged of about two-week duration. Student will be trained in field work collection of data, mapping, sketching and collection of socio-economic data etc. using observational and interview method etc. (iv) The report will involve statement of objective, selection of area (reasons), method of field study data collection, analysis of collection data/information etc. in which minimum 5 maps and diagrams and 50 pages of write up is necessary. (v) Field Study Guide (Faculty) will submit a precise report (1 or 2 pages) of field study work with the list of students present/attended the field study to the HOD concern.		
Note: The Syllabi for practical are divided into two sections, Section- ‘A’ is related to laboratory work and section ‘B’ is related to field work (Geographical Tour). The Laboratory work is divided into four units. Eight questions will be set selecting at least two questions from each unit. The division of marks in practical is given below:		
Note: Examination Departmental Committee Appointed by HoD for University Campuses. External Examiners will be Appointed by the University for Affiliated Colleges.		
Laboratory Work and Sessional Records:	M.M. 20	
Field Work:	M.M. 30	
Viva-voce:	M.M. 10	
Suggested Readings: 1. Jenson, J.R.: Introduction to Digital Image Processing, Prentice Hall, Englewood Cliffs, NJ.		

2. Pratt, W.K.: Digital Image Processing, John Wiley & Sons, New York, 1995.
3. Hord, R.M.: Digital Image Processing of Remotely sensed data, Academic Press, New York, 1989.
4. Nag, P.: Thematic cartography and Remote Sensing Concept, Publishing House, New Delhi.
5. Blackwell, B.: Statistics in Geography, Basil Blackwell Ltd., 1988.
6. Sinha, P.K. & Sinha, P.: Computer Fundamentals, 3rd Ed. B.P.B. Publishing.
7. Lo, C.P.: Applied Remote Sensing, Longman Scientific and Technical, Harlow, ESSEX.
8. PEUQUET, D.J. & Marble, D.F.: Introductory Readings in Geographic Information Systems, Taylor & Francis, Washington, 1990.
9. Spurr, R.: Photogrammetry and Photo Interpretation, The Rolland Press, Co. London, 1960.
10. Cole, J.P. and King, C.A.M.: Quantitative Geography, John Wiley, London, 1968.

Suggested Continuous Evaluation Methods: **Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations** (any methods)

Marks distribution of theory examination: 40 marks by internal assessment and 60 marks by external assessment.

<u>Master of Arts/ Science (M.A./M.Sc.) 2 Year</u>		
Theory		
Programme: M.A./M.Sc.	Year: Second	Semester: Third
Subject: Geography		
Course Code: GEOG/DSE03(A)	Course Title: Cultural Geography	
Course Learning Objectives: 1. To understand the key concept of culture and its various aspects. 2. To discuss the development of culture and cultural values in human history. 3. To study the evolution and types of the human race. 4. To provide a critical understanding of the contemporary issues.		
Course Learning Outcomes: 1. Explain the key concepts related to the field of cultural geography. 2. Elaborate the development of cultural geography. 3. Explain the developmental history of the human being as a race. 4. Explain the contemporary issues related to culture.		
Credits: 4		DSE
Max. Marks: 40+60		Min. Passing Marks: 35
Total No. of Lectures- Tutorials - Practical (in hours per week): L-T-4/W		
Unit	Course Contents	
UNIT-I	Cultural Geography: Meaning, nature, scope and development; Concept of culture, Cultural landscape; Process of cultural evolution; Cultural diffusion.	
UNIT-II	Evolution and development of man; Cultural hearths, Cultural ecology, Cultural complexes, Cultural convergence, Cultural heritage.	
UNIT-III	Human races: Concept, Origin, bases of race determination; Types, distribution and theories of races; Ethnic groups; Languages groups; Religion.	
UNIT-IV	Cultural realm of the world: Meaning, concept, Bases of delimitation and classification; Contemporary Issues.	
Suggested Readings: 1. Spencer, J.E & thomses, W.I.: Introducing cultural Geography. 2. Rostlund, F. Outline of cultural Geography. 3. Wegner, P. J & Mikesell, M.W[eds] Reading cultural Geography. 4. Frezir, D. E.: Rece and cultural contact in the modern word. 5. Sopher, D.F.: Geography of Religions. 6. Carter G.F.: Man, and the land a cultural Geography. 7. Dhora, F.E. &Sommers L.M. [eds] Cultural Geography selected Readings. 8. Brood, J. M.: Geography of mankind. 9. Jain, J.K. & Vohara, D.M.: Sanaskritbhoogol (hindi). 10. Prasad, Gayatri: Sanskrit bhoogol (hindi)		
Suggested Continuous Evaluation Methods: Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations (any methods)		
Marks distribution of theory examination: 40 marks by internal assessment and 60 marks by external assessment.		

<u>Master of Arts/ Science (M.A./M.Sc.) 2 Year</u>		
Theory		
Programme: M.A./M.Sc.	Year: Second	Semester: Third
Subject: Geography		
Course Code: GEOG/DSE03 (B)	Course Title: Health and Medical Geography	
Course Learning Objectives: 1. To provide students with a comprehensive understanding of the scope, evolution, and theoretical foundations of medical and health geography. 2. To develop knowledge of epidemiological concepts, disease classification, and global health measurement frameworks. 3. To examine the role of environment, ecology, and socio-economic determinants in shaping health outcomes and inequalities. 4. To analyze health care delivery systems, policies, and reforms in India, with emphasis on the National Health Policy 2017 and National Digital Health Mission. 5. To equip students with geospatial and analytical tools for studying health patterns, disease mapping, and health system performance.		
Course Learning Outcomes: 1. Explain the concepts, evolution, theories, and interdisciplinary nature of Medical and Health Geography, and distinguish it from related disciplines. 2. Analyse the spatial distribution, determinants, and epidemiological patterns of diseases using concepts of epidemiology, disease ecology, and health transition. 3. Evaluate the influence of environmental, socio-economic, demographic, and behavioral determinants on health inequalities and population health outcomes. 4. Assess the organization, functioning, and effectiveness of health care systems, health policies, and public health programmes in India, including the National Health Policy (2017) and the Ayushman Bharat Digital Mission (ABDM). 5. Apply geospatial technologies, GIS, and spatial analytical methods to map disease patterns, assess health care accessibility, and support evidence-based public health planning and decision-making.		
Credits: 4	DSE	
Max. Marks: 40+60	Min. Passing Marks: 35	
Total No. of Lectures- Tutorials - Practical (in hours per week): L-T-4/W		
Unit	Course Contents	
UNIT-I	Nature, Scope and evolution of medical and health geography, Different perspectives and approaches, basic concepts, epidemiology and public health, epidemics and pandemic, endemic, types of diseases.	
UNIT-II	Morbidity vs mortality, measures of morbidity-rate, ratio, incidence, prevalence, International Classification of Diseases and causes of death, Epidemiological transition model, One health global health, Global Burden of Disease and Measurements-DALY, HALY.	
UNIT-III	Health inequalities, determinants affecting human health and diseases, human ecology, disease ecology, environment-health relationship, climate change & health, Geospatial methods in applied medical geography.	
UNIT-IV	Health care delivery system, Indian Public Health Standards, challenges in Indian health care system, determinants and measurement of health system performance; human rights approach in health; National & International health policies, National Health Policy 2017 & Ayushman Bharat Digital Health Mission.	
Suggested Readings: 1. Meade, M. S., & Emch, M. (2010). <i>Medical geography</i> (3rd ed.). Guilford Press. 2. Bhunia, G. S., & Shit, P. K. (2019). <i>Geospatial analysis of public health</i> . Springer. https://doi.org/10.1007/978-3-030-01680-7 3. Park, K. (2025). Park's textbook of preventive and social medicine (28th ed.). Banarsidas Bhanot Publishers. 4. Neiderud, C. J. (2015). How urbanization affects the epidemiology of emerging infectious diseases. <i>Infection Ecology & Epidemiology</i> , 5(1). https://doi.org/10.3402/iee.v5.27060 5. Rao, K. Sujatha (2017), Do We Care? India's Health System, Oxford University Press, India 6. Omran A. R. (2005). The epidemiologic transition: a theory of the epidemiology of population change.		

7. 1971. The Milbank quarterly, 83(4), 731–757.
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9. One Health High-Level Expert Panel (OHHLEP). (2022). One Health: A new definition for a sustainable and healthy future. *PLoS Pathogens*, 18(6), e1010537. <https://doi.org/10.1371/journal.ppat.1010537>
10. World Health Organization. (2023). *One Health*. <https://www.who.int/health-topics/one-health>
11. IFPMA (2018). *50 years of global health progress*. <https://50years.ifpma.org/wp-content/uploads/2018/05/50-years-of-global-health-progress-report-ifpma-sustainability-2018.pdf>
12. Chen, L. et al. (2004). Human resources for health: overcoming the crisis, *Lancet* 364(9449):1984-1990.
13. Ravindran, T. K. S., & Gaitonde, R. (Eds.). (2018). *Health inequities in India: A synthesis of recent evidence*. Springer. <https://doi.org/10.1007/978-981-10-5089-3>
14. Gwatkin, D.R. (2000). Health inequalities and the health of the poor: what do we know? What can we do? *Bulletin of the World Health Organization* 78(1):3-18.
15. Link, B. G., & Phelan, J. (1995). Social conditions as fundamental causes of disease. *Journal of health and social behavior, Spec No*, 80–94.
16. London, L. (2008). What is a human-rights based approach to health and does it matter? *Health Human Rights* 10(1): 65-80.
17. Klotz, S., Bielefeldt, H., Schmidhuber, M., & Frewer, A. (Eds.). (2017). *Healthcare as a human rights issue: Normative profile, conflicts and implementation*. transcript Verlag. <https://doi.org/10.1515/9783839440544>
18. Nambiar, D., & Muralidharan, A. (Eds.). (2017). *The social determinants of health in India: Concepts, processes, and indicators*. Springer. <https://doi.org/10.1007/978-981-10-5999-5>
19. Murray, C.J.L., Frenk, J. (2000). A framework for assessing the performance of health systems, *Bulletin of the World Health Organization* 78(6): 717-731. Mills, A., Rasheed, F., Tollman, S. (2006). Strengthening health systems, In *Disease Control Priorities in Developing Countries* (2nd Edition), pages 87-102, New York: Oxford University Press.
20. Merson, M. H., Black, R. E., & Mills, A. J. (Eds.). (2006). *International public health: Diseases, programs, systems, and policies* (2nd ed.). Jones and Bartlett Publishers.
21. Murray, C.J.L., Saloman, J.A., Mathers, C.D., Lopez, A.D. (2002). Summary measures of population health: concepts, ethics, measurement and applications, *The World Health Organization*: Geneva.
22. Pallikadavath, S., Singh, A., Ogollah, R., Dean, T., Stones, W. (2013). Human resource inequalities at the base of India's public health care system, *Health & Place* 23: 26-32.
23. United Nations Department of Economic and Social Affairs. (2019). *The sustainable development goals report 2019*. United Nations. <https://digitallibrary.un.org/record/3812145/files/The-Sustainable-Development-Goals-Report-2019.pdf>
24. Intergovernmental Panel on Climate Change. (2008). *Climate change 2007: Synthesis report*. Intergovernmental Panel on Climate Change. https://digitallibrary.un.org/record/643582/files/ar4_syr_full_report.pdf
25. Confalonieri, U., B. Menne, R. Akhtar, K.L. Ebi, M. Hauengue, R.S. Kovats, B. Revich and A. Woodward, 2007: Human health. *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson, Eds., Cambridge University Press, Cambridge, UK, 391-431; <https://www.ipcc.ch/report/ar4/wg2/>
26. Ministry of Health and Family Welfare. (2022). *Indian Public Health Standards (IPHS) 2022* (Vols. I–IV). Government of India. <https://iphs.mohfw.gov.in/>
27. Ministry of Health and Family Welfare. (2017). *National Health Policy 2017*. Government of India.
28. National Health Authority. (2021). *Ayushman Bharat Digital Mission: Building digital health ecosystem*. Government of India. <https://abdm.gov.in/ebook>
29. Baltussen, R., & Niessen, L. (2006). Priority setting of health interventions: the need for multi-criteria decision analysis. *Cost effectiveness and resource allocation*, 4(1), 14.
30. Ruger, J. P. (2007). Global health governance and the World Bank. *The Lancet*, 370(9597), 1471-1474.

Suggested Continuous Evaluation Methods: **Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations** (any methods)

Marks distribution of theory examination: 40 marks by internal assessment and 60 marks by external assessment.

Master of Arts/ Science (M.A./M.Sc.) 2 Year Theory		
Programme: M.A./M.Sc.		Year: Second
Semester: Third		
Subject: Geography		
Course Code: GEOG/DSE03(C)		Course Title: Political Geography
Course Learning Objectives: 1. Understand the basic concepts, theories and approaches of Political Geography, including state, territory, boundaries, geopolitics and electoral geography. 2. Analyse contemporary geopolitical processes, territorial issues, international relations and India's strategic position at regional and global levels. 3. Develop the ability to interpret political patterns, electoral changes and spatial issues using geographical perspectives.		
Course Learning Outcomes: 1. Identify the fundamental concepts, terminologies and major theories related to Political Geography and Geopolitics. 2. Explain the relationship between territory, state, boundaries, geopolitical processes and political developments. 3. Apply geographical knowledge to examine contemporary geopolitical issues, electoral patterns and political changes at different spatial levels. 4. Analyze geopolitical situations, border issues, voting behaviour and changing political landscapes through geographical approaches. 5. Evaluate the impact of geopolitical developments, electoral processes and strategic decisions on regional, national and global political systems.		
Credits: 4		DSE
Max. Marks: 40+60		Min. Passing Marks: 35
Total No. of Lectures- Tutorials - Practical (in hours per week): L-T-4/W		
Unit	Course Contents	
UNIT-I	Political Geography and Political Space: Meaning, scope, approaches and development; nation, state, territory; spatial organization of states, core areas, core-periphery, buffer states and strategic regions. Classical and contemporary geopolitics: Sea power, Heartland, Spykman's Rimland Theories; Geostrategy and recent geopolitics.	
UNIT-II	Capital city, boundaries and Maritime Space: Types and functions of capital cities; boundaries and frontiers, delimitation and territorial disputes; maritime boundaries, Zones of Sea and Indian Ocean geopolitics. Regional and Emerging Geopolitical Blocs: NATO, SAARC, ASEAN, and OPEC, QUAD and BRICS.	
UNIT-III	Resources, Security and Geopolitics: Colonialism, decolonisation, neo-colonialism, and globalisation; federalism, military alliances, collective security, and the Non-Aligned Movement: water dispute, energy, terrorism, and climate security, India's role in regional and global cooperation.	
UNIT-IV	Electoral geography and representation: Meaning, scope, approaches and development; Constituencies, delimitation, electoral boundaries, gerrymandering and legislative representation, Bases of political parties, voting and electoral change; Voting behaviour: social, economic, demographic, and spatial factors; Emerging political landscape; Delimitation and re-delineation; Electoral reforms; GIS based electoral management.	
Suggested Readings: 1. Acharya, A. (2014). The end of American world order. Polity Press. 2. Adhikari, S. (2017). Political geography. Rawat Publications. 3. Agnew, J. (1994). The territorial trap: The geographical assumptions of international relations theory. Review of International Political Economy, 1(1), 53–80. 4. Agnew, J. (1996). Mapping politics: How context counts in electoral geography. Political Geography, 15(2), 129–146. 5. Agnew, J. (2003). Geopolitics: Re-visioning world politics (2nd ed.). Routledge. 6. Bergman,E.F.: Modern Political Geography, WMC Brown. CO Dobuque, Iowa, 1975. 7. Dalby, S. (2009). Security and environmental change. Polity Press. 8. Dikshit R.D.: Political Geography- A Century of Progress, sage. New Delhi, 1999. 9. Dikshit, R.D.: RajnitikBhoogol, Tata MaGraw Hill, New Delhi. 10. Dikshit,R.D.: Political Geography-a Contemporary Perspective, Tata MaGraw Hill Pub, New Delhi, 1996. 11. Dodds, K. (2019). Geopolitics: A very short introduction (3rd ed.). Oxford University Press. (OUP Academic) 12. Duggan, N. (Ed.). (2020). BRICS and the evolution of a new world order: Perspectives from Brazil, Russia, India, China		

and South Africa. Routledge.

13. Dwivedi, R.L.: Political Geography, Chaitanya Publication Allahabad.
14. Election Commission of India. (2023). Delimitation and electoral statistics.
15. Harvey, D. (2003). The new imperialism. Oxford University Press.
16. IPCC. (2023). Climate change 2023: Synthesis report. Intergovernmental Panel on Climate Change.
17. Jaishankar, S. (2020). The India way: Strategies for an uncertain world. HarperCollins India.
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19. Johnston, R. J., & Taylor, P. J. (1979). Geography of elections. Croom Helm.
20. Johnston, R.J.: Geography and the state, Macmillan.
21. Kaplan, R. D. (2010). Monsoon: The Indian Ocean and the battle for the twenty-first century. Random House.
22. Longley, P. A., Goodchild, M. F., Maguire, D. J., & Rhind, D. W. (2015). Geographic information science and systems (4th ed.). Wiley.
23. Ministry of External Affairs, Government of India. (2023). India's Indo-Pacific vision and initiatives.
24. Mohan, C. R. (2012). Samudra Manthan: Sino-Indian rivalry in the Indo-Pacific. Carnegie Endowment for International Peace.
25. Mohan, C. R. (2015). Modi's world: Expanding India's sphere of influence. HarperCollins India.
26. Newman, D. (2006). The lines that continue to separate us: Borders in our "borderless" world. Progress in Human Geography, 30(2), 143–161.
27. Nijman, A.J.: The Geopolitics of Power and Conflict, Belhaven Press, 1993.
28. Nkrumah, K. (1965). Neo-colonialism: The last stage of imperialism. Thomas Nelson & Sons.
29. Norrils R.E.: and Haring, L.L.: Political Geography, Bell and Hawell, 1980.
30. Ó Tuathail, G. (1996). Critical geopolitics: The politics of writing global space. University of Minnesota Press.
31. O'Brien, K., & Williams, M. (2016). Global political economy: Evolution and dynamics (5th ed.). Palgrave Macmillan.
32. Pant, H. V. (2021). Indian foreign policy: An overview. Orient BlackSwan.
33. Prescott, J. R. V. (1987). Political frontiers and boundaries. Routledge.
34. Rogers, P., & Lydon, P. (1994). Water in the Arab world: Perspectives and prognoses. Harvard University Press.
35. Sack, R. D. (1986). Human territoriality: Its theory and history. Cambridge University Press.
36. Scott, D. (2018). The Indo-Pacific in US strategy: Responding to power shifts. Routledge.
37. Short, J.R.: An Introduction to Political Geography, Routledge, London, 1982.
38. Sinha, Manorma: Political Geography, Horizen Publication, Allahabad.
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<https://www.mea.gov.in/>

<https://www.routledge.com/Geopolitics-Re-Visioning-World-Politics/Agnew/p/book/9780415307152>

https://www.un.org/depts/los/convention_agreements/convention_overview_convention.htm

<https://www.upress.umn.edu/book-division/books/critical-geopolitics>

Suggested Continuous Evaluation Methods: **Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations** (any methods)

Marks distribution of theory examination: 40 marks by internal assessment and 60 marks by external assessment.

<u>Master of Arts/ Science (M.A./M.Sc.) 2 Year</u>		
Theory		
Programme: M.A./M.Sc.	Year: Second	Semester: Third
Subject: Geography		
Course Code: GEOG/DSE03(D)	Course Title: Regional Planning and Development	
Course Learning Objectives: 1. To understand the fundamental concepts, and significance in balanced regional development. 2. To develop knowledge of regional planning methodologies and decentralized scales. 3. To analyse regional development strategies for different geographical settings and sustainable regional development. 4. To evaluate regional disparities, planning challenges, contemporary development policies, and the role of institutions.		
Course Learning Outcomes: 1. Explain the concepts, scope and planning regions of India in the context of regional planning. 2. Apply appropriate regional planning methodologies, and planning processes for spatial and sectoral development. 3. Assess regional development strategies and critically examine planning issues and Himalayan regions. 4. Evaluate regional inequalities, development indicators and contemporary regional development policies.		
Credits: 4	DSE	
Max. Marks: 40+60	Min. Passing Marks: 35	
Total No. of Lectures- Tutorials - Practical (in hours per week): L-T-4/W		
Unit	Course Contents	
UNIT-I	Concept, scope and types of planning, regional planning: meaning and needs; Approaches to regional planning; Historical development of regional planning, Planning regions of the India.	
UNIT-II	Methodology and techniques of regional planning; Analytical techniques and procedural techniques; Principles of regionalization; Planning processes- sectoral and spatial planning; Short-term and long-term perspective planning; multi-regional, multi- level and decentralize planning.	
UNIT-III	Regional development strategies: Identification of planning region; Regional Planning strategies for backward areas, hill areas, tribal areas; Problems and prospects of Himalayan region.	
UNIT-IV	Spatial inequalities and regional imbalances in India; Problems of planning regions, indicators and level of regional development; Regional planning and development strategies in the 21st century; NITI Aayog.	
Suggested Readings: 1. Chandna, R. C. (2000): Regional Planning: A Comprehensive Text. Kalyani Publishers., New Delhi. 2. Chaudhuri, J. R. (2001): An Introduction to Development and Regional Planning with special reference to India. Orient Longman, Hyderabad. 3. Cowen, M.P. and Shenton, R.W. (1996): Doctrines of Development. Routledge, London. 4. Doyle, T. and McEachern, D. (1998): Environment and Politics. Routledge, London. 5. Friedmann, J. (1992): Empowerment: The Politics of Alternative Development. Blackwell, Cambridge MA and Oxford. 6. Friedmann, J. and Alonso, W. (ed.) (1973): Regional Development and Planning. The MIT Press, Mass. 7. Hettne, B.; Inotai, A. and Sunkel, O. (eds.) (1999 – 2000): Studies in the New Regionalism. Vol. I-V. Macmillan Press, London. 8. Isard, W. (1960): Methods of Regional Analysis. MIT Press, Cambridge, MA. 9. Kuklinski, A. R. (1972): Growth Poles and Growth Centers in Regional Planning. Mouton and Co., Paris. 10. Kuklinski, A.R. (ed.) (1975): Regional Development and Planning: International Perspective, Sijthoff-Leydor. 11. Leys, C. (1996): The Rise and Fall of Development Theory. Indian University Press, Bloomington, and James Curry, Oxford. 12. Mahapatra, A.C. and Pathak, C. R. (eds.) (2003): Economic liberalization and Regional Disparities in India. Special Focus on the North Eastern Region. Star Publishing House, Shillong. 13. Kane, M. and William M.K.T. (2007): Concept Mapping for Planning and Evaluation, Sage Publications, London. 14. Misra, R. P. (ed.) (1992): Regional Planning: Concepts, Techniques, Policies and Case Studies. 2nd edition. Concept Publishing Company., New Delhi. 15. Misra, R.P. and Natraj, V.K. (1978): Regional Planning and National Development. Vikas, New Delhi.		

16. Misra, R.P., Sundaram, K. V. Pradas Rao, V. L. S. (1976): Regional Development Planning in India. Vikas Publishers, New Delhi.
17. Moseley, M.J., (1974): Growth Centres in Spatial Planning. Pergamon Press, Oxford.
18. Närman, A. and Karunanayake, K. (eds.) (2002): Towards a New Regional and Local Development Research Agenda. Dept. of Geography, Göteborg University (Sweden), series B, No100 and Centre for Development Studies, University of Kelaniya (Sri Lanka), No. 1. Norgaard,
19. R. B. (1994): Development Betrayed. The End of Progress and a Coevolutionary Revisioning of the Future. Routledge, London.
20. Pathak, C. R. (2003): Spatial Structure and Processes of Development in India. Regional Science Association., Kolkata.
21. Sanyal, B. M. (2001): Decentralised Planning: Themes and Issues. Concept Publishing. Company, New Delhi.
22. Sharma, P. V., Rao, V. L., and Pathak, C. R. (eds.) (2000): Sustainable Regional Development (with special reference to Andhra Pradesh). Regional Science. Association, Kolkata and School of Economics, Andhra University, Vishakapatnam.
23. Sen, A. (1999): Development as Freedom. Oxford University Press, Oxford.
24. Sen, A. and Dreze, J. (eds.) (1996): Indian Development: Selected Regional Perspectives. Oxford University Press, Oxford.
25. Smith, D. and Närman, A. (eds.) (1999): Development Theory and Practice: Current Perspectives on Development and Development Co-operation. Longman, London.
26. Stöhr, W. B. and Taylor, D.F.R. (eds.) (1981): Development from Above and Below? The Dialectics of Regional Planning in Developing Countries. John Wiley and Sons, Chichester.
27. Sundaram, K. V. (1997): Decentralized Multilevel Planning: Principles and Practice (Asian and African Experiences). Concept Publishing Company, New Delhi.
28. Sundaram, K. V. (2004): The Trodden Path: Essays on Regional and Micro Level Planning. Anaunya Publications., New Delhi.

Suggested Continuous Evaluation Methods: **Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations** (any methods)

Marks distribution of theory examination: 40 marks by internal assessment and 60 marks by external assessment.

<u>Master of Arts/ Science (M.A./M.Sc.) 2 Year</u>		
Theory		
Programme: M.A./M.Sc.	Year: Second	Semester: Third
Subject: Geography		
Course Code: GEOG/MDE03(A)	Course Title: Oceanography	
Course Learning Objectives: 1. To understand the fundamental principles, scope, and significance of oceanography. 2. To analyze the physical and chemical properties of ocean water and their spatial variations. 3. To study oceanic processes such as currents, tides, and waves, and their influence on global climate. 4. To examine marine resources, oceanic hazards, and sustainable management strategies.		
Course Learning Outcomes: 1. Students will comprehend the structure and configuration of ocean basins and submarine topography. 2. Students will understand oceanic temperature, salinity, circulation systems, and their climatic implications. 3. Students will analyze marine deposits, coral reefs, and resource utilization patterns. 4. Students will evaluate oceanic environmental issues, including pollution, sea-level change, and global warming		
Credits: 4	DSE	
Max. Marks: 40+60	Min. Passing Marks: 35	
Total No. of Lectures- Tutorials - Practical (in hours per week): L-T-4/W		
Unit	Course Contents	
UNIT-I	Meaning, objectives, scope, and significance of oceanography; submarine topography and ocean floor configuration; sea-floor spreading and plate tectonics and distribution and characteristics of the Pacific, Atlantic, and Indian Ocean basins.	
UNIT-II	Temperature and salinity of ocean water; oceanic circulation: Waves, gyres, currents, and tides; Ocean-atmosphere interaction; Ocean and global climate.	
UNIT-III	Ocean deposits and coral reefs; marine resources: mineral, biotic, and energy resources; marine pollution and ocean dumping; Coastal erosion and management strategies.	
UNIT-IV	Zonation of seas and laws; Tsunami, El Niño & La Niña-modoki, ENSO, ocean dipole phenomena; global warming and sea-level change, ocean acidification and sustainable ocean management policies.	
Suggested Readings: 1. Davis, R. J. A. (1986). <i>Oceanography – An Introduction of the Marine Environment</i>. Wm. C. Brown, Iowa. 2. Griffith, J. F. (1976). <i>Applied Climatology</i>. Oxford University Press, New York. 3. Huntington, E., & Visher, S. S. (1922). <i>Climatic Changes</i>. Yale University Press, New Haven. 4. Hussain, T., & Tahir, M. (2003). <i>Oceanography</i>. Jawahar Publishers, New Delhi. 5. King, C. A. M. (1963). <i>An Introduction to Oceanography</i>. McGraw-Hill, New York. 6. Lamb, H. H. (1972). <i>Climate: Present, Past and Future</i>. Methuen, London. 7. Thurman, H. V. (1978). <i>Introduction to Oceanography</i>. Charles E. Merrill Publishing Co., London. 8. Weyl, P. K. (1970). <i>Oceanography – An Introduction of the Marine Environment</i>. John Wiley & Sons Ltd., London. 9. Barry, R. G., & Chorley, R. J. (1995). <i>Atmosphere, Weather and Climate</i>. Methuen & Co. Ltd., London. 10. Critchfield, H. J. (2002). <i>General Climatology</i>. Prentice Hall of India, New Delhi. 11. Oliver, J. E., & Hiddore, J. J. (2003). <i>Climatology: An Atmospheric Science</i>. Pearson Education, India. 12. Trewartha, G. T. (1954). <i>An Introduction to Climate</i>. McGraw-Hill, New York. 13. Lal, D. S. <i>Climatology</i>. Sharda Pustak Bhawan, Allahabad. 14. Singh, Savindra. (2005). <i>Climatology</i>. Prayag Pustak Bhawan, Allahabad. 15. Lal, D. S. <i>जलवायु विज्ञान (Jalvayu Vigyan)</i>. Sharda Pustak Bhawan, Allahabad. 16. Singh, Savindra. <i>जलवायु विज्ञान (Jalvayu Vigyan)</i>. Prayag Pustak Bhawan, Allahabad. 17. Lal, D. S. <i>Climatology and Oceanography</i>. Sharda Pustak Bhawan, Allahabad. 18. Lal, D. S. <i>जलवायु एवं समुद्र विज्ञान (Jalavayu Evam Samudra Vigyaan)</i>. Sharda Pustak Bhawan, Allahabad. 19. Singh, Savindra. <i>समुद्र विज्ञान (Samudra Vigyan)</i>. Prayag Pustak Bhawan, Allahabad.		
Suggested Continuous Evaluation Methods: Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations (any methods)		
Marks distribution of theory examination: 40 marks by internal assessment and 60 marks by external assessment.		

<u>Master of Arts/ Science (M.A./M.Sc.) 2 Year</u>		
Theory		
Programme: M.A./M.Sc.	Year: Second	Semester: Third
Subject: Geography		
Course Code: GEOG/MDE03(B)	Course Title: Urban Geography	
Course Learning Objectives: 1. To understand the meaning, scope, and various approaches of Urban Geography, including its changing paradigms over time. 2. To explore the development of Urban Geography in India, tracing its historical evolution and contemporary trends. 3. To analyze theories of urban origin, urbanization cycles. 4. To study global and Indian trends in urbanization from both historical and spatial perspectives.		
Course Learning Outcomes: 1. Identify and explain the changing paradigms within Urban Geography, illustrating how theoretical frameworks have evolved over time. 2. Evaluate the significance of Urban Geography in the context of India, recognizing its unique challenges and contributions to the discipline & global landscape. 3. Analyse spatial structure and morphology of the cities using classical and contemporary models of urban land use and urban development. 4. Demonstrate effective communication and teamwork through presentations and reports on urban geographical issues.		
Credits: 4	DSE	
Max. Marks: 40+60	Min. Passing Marks: 35	
Total No. of Lectures- Tutorials - Practical (in hours per week): L-T-4/W		
Unit	Course Contents	
UNIT-I	Meaning, nature and scope of urban geography; Approaches to study urban geography; Urbanisation: concept and characteristics; Theories of urban origin; early Urban Hearths.	
UNIT-II	Trends of urbanisation in developed and developing nations; Concept of Primate City and Rank Size Rule; Concept of City Region; Functional Classification of Towns.	
UNIT-III	Urban Land use Theories: Concept and Characteristics of Central Business District; Morphology of urban place, Concentric Zone Theory, Sector Theory, and Multiple Nuclei Theory; Concept of Centrality: Christaller's Central Place Theory; Rural- Urban Fringe; Concept of Umland, concept of 15 minutes cities.	
UNIT-IV	Urban Problems: Urban Poverty, Housing, Slums, Solid Waste, Transportation and Urban Environment-Case Study of Delhi and Dehradun, Concept of Smart City, Planned cities - Chandigarh and New Tehri, National Urban Policy.	
Suggested Readings: 1. Singh, L.S. and Goiledge, R.G.: Cities, Space and Behaviour: Elements of Urban Geography, Prentice Hall, New Delhi. 2. Mishra, H.N. (ed.): Urban Geography, Heritage. 3. Northam, R.M.: Urban Geography, John Wiley, New York. 4. Short, R.J.: An Introduction to Urban Geography, Routledge and Kegan Paul, London,1984. 5. Johnston, R.J.: City and Society, Hutchinson, London. 6. Herbert, D.T.: Urban Geography: A Social Perspective, David and Charles Newton and Abbot, 1977. 7. Johnston, J.H.: Urban Geography: An Introductory Analysis, Pergamon Press, London,1972. 8. Singh, R.L.: Urban Geography in Development Countries, National Geographical Society of India, Varanasi. 9. Berry, B.J.L. and Harton, F.F.: Geographic Perspective on Urban System, Prentice Hall, Englewood Cliffs, New Jersey, 1970. 10. Ramchandran, R.: Urbanization and Urban System of India, Oxford, New Delhi, 1993. 11. Knox, P.L. and Taylor, P.J.: World Cities in a World System, Cambridge University Press, UK, 1995. 12. Harvey, D.: Social Justice and the City, Arnold, 1973.		
Suggested Continuous Evaluation Methods: Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations (any methods)		
Marks distribution of theory examination: 40 marks by internal assessment and 60 marks by external assessment.		

Master of Arts/ Science (M.A./M.Sc.) 2 Year		
Theory		
Programme: M.A./M.Sc.	Year: Second	Semester: Four
Subject: Geography		
Course Code: GEOG/DSC11	Course Title: Geography of Uttarakhand	
Course Learning Objectives: 1. To develop a comprehensive understanding of the physical, human, economic, and environmental geography of Uttarakhand. 2. To examine the interaction between natural resources, socio-economic development, and environmental sustainability in Uttarakhand. 3. To analyze contemporary geographical issues using field observations. 4. To come up with the solutions for contemporary issues for Uttarakhand.		
Course Learning Outcomes: 1. Explain the physical, cultural, and economic characteristics of Uttarakhand and their regional variations. 2. Evaluate environmental challenges, natural hazards, and sustainable development issues in the Himalayan ecosystem. 3. Apply regional planning and resource management in Uttarakhand. 4. Drive Lessons from Success Stories.		
Credits: 5	DSC	
Max. Marks: 40+60	Min. Passing Marks: 35	
Total No. of Lectures- Tutorials - Practical (in hours per week): L-T-5/W		
Unit	Course Contents	
UNIT-I	Political and physical settings: Location, geology, physiography, climate, drainage, soils, flora and fauna; Natural and bio-geographic regions.	
UNIT-II	Population and human resource: Spatial pattern, structure, Composition and dynamics of population; Tribal group and their spatial distribution; Festivals and languages; Settlements: Types and Pattern	
UNIT-III	Agricultural Crops; Livestock, Horticulture, Floriculture and Agricultural Regions; Industrial development: Hydroelectricity, Trade, Transport, health, and Industrial Region.	
UNIT-IV	Contemporary Issues: Hazards and disasters; Man-animal conflicts; Out-migration, tourism, infrastructural development, Sustainable Development Plan for Uttarakhand Himalaya; Socio-economic and Environment Success stories.	
Suggested Readings: 1. Badoni, P.D. (2004). Economic Geography of Uttarakhand. New Delhi: Concept Publishing Company. 2. Bhatt, S.C. (2004). Uttarakhand: Ecology and environment. Anmol Publications. 3. Kharakwal, S.C.: (). Uttarakhand Physico-culture Complex. 4. Maitani, D.D., Prasad, G. & Rajesh, N. (2010). Geography of Uttarakhand. Sharda Pushtak Bhawan, Allahabad. 5. Nautiyal, A. (2022). Uttarakhand: Geography and Environment. New Delhi: Gyan Publishing House. 24. 6. Nautiyal, P. (2018). Regional Geography of Uttarakhand. Jaipur: Rawat Publications. 7. Nautiyal, S.P. (2005). Physical Geography of Uttarakhand Himalaya. New Delhi: Mittal Publications. 8. Negi, M.S. (2002). Geography of Uttarakhand. New Delhi: Concept Publishing Company. 9. Negi, S. S. (1995). Uttarakhand: Land and people. M.D. Publications. 10. Pandey, A.K. (2021). Forest Geography of Uttarakhand. New Delhi: Concept Publishing Company. 11. Pandey, D.D. (2010). Climate Change and Geography of Uttarakhand. New Delhi: Concept Publishing Company. 12. Pant, B. R. (2010). Tribal Demography of India, Anamika Publication, New Delhi 288p. 13. Pant, B. R., Chand, R. and Mehta, B.S. (2022). उत्तराखंड: जर्निङ्ग्या पररदृश्य एवां पररवततन, पहाड़ नैनीताल 14. Pant, M. (2022). Population Geography of Uttarakhand. New Delhi: Rawat Publications. 15. Rawat, M. S. (2012). Tourism in Uttarakhand: Problems and prospects. Mohit Publications. 16. Rawat, M.K. (2011). Uttarakhand: A Geographical Study. New Delhi: Rawat Publications. 17. Rawat, P. (2014). Cultural Geography of Uttarakhand. Jaipur: Rawat Publications. 18. Rawat, S.L. (2023). River Systems and Geography of Uttarakhand. New Delhi: Concept Publishing Company. 19. Sharma, V.K. (2021). Uttarakhand Himalaya: Geographical Analysis. New Delhi: Scientific Publishers.		
Suggested Continuous Evaluation Methods: Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations (any methods)		
Marks distribution of theory examination: 40 marks by internal assessment and 60 marks by external assessment.		

<u>Master of Arts/ Science (M.A./M.Sc.) 2 Year</u>		
Major (Practical)		
Programme: M.A./M.Sc.	Year: Second	Semester: Four
Subject: Geography		
Course Code: GEOG/DSC12 (P)	Course Title: Dissertation	
Course Learning Objectives: To discuss how to write report/dissertation.		
Course Learning Outcomes: To explain the report/dissertation writing process.		
<i>Credits: 10</i>	<i>DSC</i>	
<i>Max. Marks: 40+60</i>	<i>Min. Passing Marks: 35</i>	
Note: Topic of dissertation will be assigned by HOD or Supervisor of the Dept. concerned. HOD will ensure no repetition of topic and area. Dissertation topic will be selected from any core/elective paper offered by the student in semester only. Area of study shall be the Himalaya region preferably. Distribution of marks Internal Assessment by Supervisor - 40 Marks Dissertation (evaluation by external examiner and supervisor jointly) - 50 Marks Power Point/ Viva-voce - 10 Marks		
The project report will involve statement of problems, objectives and scope of field investigation, methods of field work for studies at different scales (Macro, Meso and Micro), Pre field study, Preparation of a questionnaire/schedule, sampling techniques, collection, processing, presentation, analysis and interpretation of data/information. The candidates are required to write a project report on assigned problem involving field investigations. 1. The candidates are required to submit their project reports one week before the commencement of examination to the concerned head of the department. 2. Assessment of report will be done by a Board of Examiners, consisting of external examiner and internal examiner. 3. Power point presentation is must, Separate external examiner will be appointed by the University, Supervisor of dissertation will act as an Internal examiner. In the absence of Supervisor, HOD will act as internal examiner.		
Suggested Continuous Evaluation Methods: Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations (any methods)		
Marks distribution of theory examination: 40 marks by internal assessment and 60 marks by external assessment.		

Master of Arts/ Science (M.A./M.Sc.) 2 Year		
Major (Practical)		
Programme: M.A./M.Sc.	Year: Second	Semester: Four
Subject: Geography		
Course Code: GEOG/DSC13 (P)	Course Title: Cartography	
Course Learning Objectives: - To develop an advanced understanding of cartographic principles, map design, and spatial data visualization. - To train students in conventional and digital cartographic techniques for geographical analysis. - To enable students to interpret, and evaluate thematic and digital maps using modern techniques.		
Course Learning Outcomes: - Explain the principles of map projections, and visualization. - Prepare and interpret topographic, thematic, and digital maps using conventional and GIS-based techniques. - Apply cartographic methods for spatial analysis, planning, and decision-making.		
Credits: 5	DSC	
Max. Marks: 40+60	Min. Passing Marks: 35	
Total No. of Lectures- Tutorials - Practical (in hours per week): L-T-5/W		
Unit	Course Contents	
UNIT-I	Map Projection: Principles and Classification, Datum and WGS-84; Mercator's, Modified Mollweide's, Sinusoidal Projection, Polyconic, conical projection with two standard and Zenithal.	
UNIT-II	Slope Analysis: Wentworth's, Smith's, Henry-Riaz's and Robinson's Methods; Analysis of relief characteristics from contour; Topographic Profile: Transverse, Longitudinal, Serial, Superimposed, Projected and Composite; Area-height, Altimetric Frequency and Hypsometric Curve.	
UNIT-III	Morphometric Analysis: Linear, Areal and Relief; Geomorphic Mapping	
UNIT-IV	Interpretation of Topographical maps; Topographical mapping; Geological Cross-Section Drawing; Tourist mapping; Service and utility mapping.	
Suggested Readings: - Anson R. and Ormelling F. J., 1994: International Cartographic Association: Basic Cartographic Vol. Pregmen Press. - Archer, J.E., & Dalton, T.H. (1968). Fieldwork in Geography, London. - Campbell, J. (1984). Introductory Cartography, Prentice Hall, Inc., Englewood Cliff, New Jersey. - Cuff, D.J., & Mattson, M.T. (1982). Thematic Maps, their Design and Production, Mathuen, New York. - Davis, P. (1947). Data Description and Presentation. Oxford University Press. London. - Dent B. D., Torguson J. S., and Holder T. W., 2008: Cartography: Thematic Map Design (6thEdition), Mcgraw-Hill Higher Education. - Dickinson. G.C. (1968). Statistical Mapping and Presentation of Statistics. Edward Arnold. London. - Dickinson, G.C. (1969). Maps and Air Photographs. Edward Arnold. London. - Garnett, A. (1930). Geographical Interpretation of Topographical Maps. Harrap. - Gupta K.K. and Tyagi, V. C. (1992). Working with Map, Survey of India, DST, New Delhi. - Ishtiaque, M., A Textbook of Practical Geography. - Khan, J., Hasan, T., & Shamshad. (2014). Scales, Academic Publications. - Lawrence. G.R.P. (1971). Cartographic Methods. Methuen, London. - Mishra, R.P. & Ramesh, A. (1989). Fundamentals of Cartography. Concept Publishing Company. New Delhi. - Monkhous. F. J. and Wilkinson. H. R. (1963). Maps and Diagrams. Methuen & Co. Ltd. London - National Atlas and Thematic Maps Organization (NATMO): National Atlas of India, Calcutta. - Raisz. E. (1962). Principles of Cartography. McGraw Hill, New York. - Raza, M. (1978). Sources of Economic and Social Statistics of India. Eureka Publication. New Delhi. - Rhind D. W. and Taylor D. R. F., (eds.), (1989). Cartography: Past, Present and Future, Elsevier,International Cartographic Association. - Robinson. A.H. (1969). Elements of Cartography. John Wiley, New York. - Sarkar, A. (2015) Practical geography: A systematic approach. Orient Black Swan Private Ltd., New Delhi. - Sharma, J.P. (2024). Prayogik Bhugol (Practical Geography) (Hindi). Rastogi Publications. - Sharma, J. P. (2010). Prayogtmak Bhugol ki Rooprekha, Rastogi Publications, Meerut. - Singh, L.R. (2010). Fundamentals of Practical Geography. Sharda Pustak Bhawan. - Singh, R. L. & Dutta, P K (2012). Prayogatmak Bhugol, Central Book Depot, Allahabad. - Singh, L. R. & Singh R. (1977): Manchitra or Pryaogatamek Bhugol , Central Book, Depot, Allahabad.		
Suggested Continuous Evaluation Methods: Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations (any methods)		
Marks distribution of theory examination: 40 marks by internal assessment and 60 marks by external assessment.		

Master of Arts/ Science (M.A./M.Sc.) 2 Year		
Theory		
Programme: M.A./M.Sc.	Year: Second	Semester: Four
Subject: Geography		
Course Code: GEOG/DSE04(A)	Course Title: Agricultural Geography	
Course Learning Objectives: 1. To understand the concepts, principles, and approaches of sustainable agriculture and agroecosystems. 2. To examine sustainable farming practices, agricultural innovations, and climate-resilient agricultural strategies. 3. To analyse the relationship between climate change, agricultural policies, food systems and sustainable livelihoods. 4. To evaluate the challenges and prospects of Himalayan agriculture and sustainable mountain development with special reference to Uttarakhand.		
Course Learning Outcomes: 1. Explain the concepts, principles, and approaches of sustainable agriculture and agroecosystem management. 2. Evaluate sustainable agricultural practices, innovations, and climate-smart farming strategies. 3. Analyse the impacts of climate change, agricultural policies, and food systems on agricultural resilience and livelihoods. 4. Assess the challenges and opportunities of Himalayan agriculture, terrace farming, and sustainable mountain development with special reference to Uttarakhand.		
Credits: 4	DSE	
Max. Marks: 40+60	Min. Passing Marks: 35	
Total No. of Lectures- Tutorials - Practical (in hours per week): L-T-4/W		
Unit	Course Contents	
UNIT-I	Agricultural Geography: Meaning, Nature, Theory, & Philosophies; Origin and Dispersion of Agriculture, Contemporary Agricultural Issues: World, India & Uttarakhand.	
UNIT-II	Agricultural Governance; Determinants, Growth & Development: Productivity, Crop Diversification, & Specialization; Climate-Smart Agriculture; Precision Agriculture; Circular Agriculture, SDGs 1&2.	
UNIT-III	Agricultural Regionalization: India & World; Crop Combination Region; Agro-Climatic Region; Agricultural policies: India & Uttarakhand.	
UNIT-IV	Agriculture of Uttarakhand: Organic Farming, Horticulture, Mixed Farming; Challenges of Terrace Farming; Sustainable Mountain Agricultural Development.	
Suggested Readings: 1. Altieri, M. A. (2018). <i>Agroecology: The science of sustainable agriculture</i> (2nd ed.). CRC Press. 2. Food and Agriculture Organization of the United Nations. (2013). <i>Climate-smart agriculture sourcebook</i>. FAO. 3. Gliessman, S. R., Engles, E., & Krieger, R. (1998). <i>Agroecology: Ecological processes in sustainable agriculture</i>. CRC Press. 4. Government of India. (2014). <i>National mission for sustainable agriculture (NMSA): Mission document</i>. Ministry of Agriculture and Farmers Welfare, Government of India. s 5. Intergovernmental Panel on Climate Change. (2019). <i>Climate change and land: An IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems</i>. IPCC. 6. Lal, R. (2020). Regenerative agriculture for food and climate. <i>Journal of Soil and Water Conservation</i>, 75(5), 123A–124A. https://doi.org/10.2489/jswc.2020.0620A 7. Pretty, J. (2002). <i>Agri-culture: Reconnecting people, land and nature</i>. Earthscan. 8. Pretty, J. (2008). Agricultural sustainability: Concepts, principles and evidence. <i>Philosophical Transactions of the Royal Society B: Biological Sciences</i>, 363(1491), 447–465. https://doi.org/10.1098/rstb.2007.2163 9. Rahaman, H. Ansari, S. (2025). <i>Sustainable land use practice and agricultural innovation in India: A case study from Murshidabad district of West Bengal</i>. Springer Nature. 10. Singh, J., & Dhillon, S. S. (2004). <i>Agricultural geography</i> (3rd ed.). Tata McGraw-Hill Education.		
Suggested Continuous Evaluation Methods: Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations (any methods)		
Marks distribution of theory examination: 40 marks by internal assessment and 60 marks by external assessment.		

<u>Master of Arts/ Science (M.A./M.Sc.) 2 Year</u>		
Theory		
Programme: M.A./M.Sc.	Year: Second	Semester: Four
Subject: Geography		
Course Code: GEOG/DSE04(B)	Course Title: Bio-Geography	
Course Learning Objectives: 1. To develop an advanced understanding of the spatial and temporal distribution of plants and ecosystems across the earth. 2. To examine the ecological, evolutionary, geological and climate factors that influence species distribution and biodiversity. 3. To assess the role of bio-geography in biodiversity conservation and sustainable natural resource management. 4. To conduct independent research by interpreting biogeographical data and addressing contemporary environmental issues such as climate change, habitat fragmentation, and invasive species		
Course Learning Outcomes: 1. Demonstrate a comprehensive understanding of the concepts, theories, and process governing the distribution of flora, fauna, and ecosystems. 2. Evaluate the influence of climate, evolution and human activities on species distribution and biodiversity patterns at different spatial and temporal scales. 3. Critically assess biodiversity conservation strategies, habitat loss, invasive species, and the impact of climate change using biogeographical principles. 4. Design and carry out biogeographical research by collecting, analysing, interpreting and presenting scientific data in accordance with academic and professional standards.		
Credits: 4		DSE
Max. Marks: 40+60		Min. Passing Marks: 35
Total No. of Lectures- Tutorials - Practical (in hours per week): L-T-4/W		
Unit	Course Contents	
UNIT-I	Biogeography: meaning, nature, approaches, significance, and scope; Historical development of Bio-Geographic studies; Recent trends and development in Bio-Geography; Concept of biodiversity and endemism.	
UNIT-II	Ecological Succession: mono-climax and Poly-climax; Ecological Biogeography: Environmental gradients and species distributions; Factors influencing the distribution of life; Biogeographic regions of the world and characteristics.	
UNIT-III	World Distribution of plants and animals; Biodiversity and global climate change; Adaptations of plants and animals to the environment; Biodiversity of Uttarakhand Himalaya;	
UNIT-IV	In situ and ex situ conservation; Conservation of wildlife and forestry; Biodiversity hotspots in India; International and national policies for biodiversity conservation.	
Suggested Readings: 1. Bradshaw, M.J.: Earth and Living Planet, ELBS, London, 1979. 2. Cox, C.B. and Moore, P.D.: Biogeography: An Ecological and Evolutionary Approach, 5th Edition Blackwell, 1993. 3. Hoyt, J.B.: Man, and the Earth, Prentice Hall, USA, 1992. 4. Huggett, R.J.: Fundamentals of Biogeography, Rout ledge, USA, 1998. 5. Bansereau, B.M.: Biogeography-An Ecological perspective, Round Press, New York, 1957. 6. Joy, T.: Biogeography: A study of Plants in the Ecosphere, Oliver & Boyd, Edinburgh, 1977. 7. Mani, M.S. (ed.): Biogeography of India, The Hague, 1975. 8. Martin, C.: Plant Geography, Methuen, London, 1975. 9. Singh, Savindra Jaiv Bhoogol (Hindi). Allahabad, India: Prayag Pushtak Bhawan, 2015 10.L.C. Aggarwal, Biogeography, Rawat publication Jaipur, 2018		
Suggested Continuous Evaluation Methods: Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations (any methods)		
Marks distribution of theory examination: 40 marks by internal assessment and 60 marks by external assessment.		

<u>Master of Arts/ Science (M.A./M.Sc.) 2 Year</u>		
Theory		
Programme: M.A./M.Sc.	Year: Second	Semester: Four
Subject: Geography		
Course Code: GEOG/DSE04(C)	Course Title: Remote Sensing and Digital Cartography	
Course Learning Objectives: 1. Understand the principles of Remote Sensing and Digital Cartography. 2. Develop skills in geospatial data acquisition, processing, and visualization.		
Course Learning Outcomes: 1. Explain remote sensing and digital mapping techniques for spatial analysis. 2. Evaluate geospatial applications in research, planning, and resource management		
Credits: 4		DSE
Max. Marks: 40+60		Min. Passing Marks: 35
Total No. of Lectures- Tutorials - Practical (in hours per week): L-T-4/W		
Unit	Course Contents	
UNIT-I	Evolution, concepts, and scope of Remote Sensing, Principles of Electromagnetic Radiation and spectral characteristics, Energy-atmosphere-surface interactions, Sensor characteristics and image resolution, Satellite missions and Earth Observation programmes -IRS, Landsat, Sentinel, Cartosat, Resourcesat.	
UNIT-II	Image acquisition, preprocessing, and correction techniques, Image enhancement and transformation, Visual image interpretation, Digital image classification: Supervised, Unsupervised, and Object-Based approaches, Accuracy assessment and error matrix	
UNIT-III	Evolution and concepts of Digital Cartography, Digital Elevation Models, terrain derivatives, and 3D visualization, Land Use/Land Cover mapping and change detection analysis, multi-temporal and multi-spectral data analysis, GIS-based digital mapping concepts	
UNIT-IV	Geospatial database design and management, GPS/GNSS and mobile geospatial data acquisition, Digital map compilation, editing, and database integration, Thematic and analytical mapping techniques, Terrain mapping and cartographic representation, Web Cartography and Geovisualization, Cartographic modelling and spatial decision support, Contemporary trends in Digital Cartography	
Suggested Readings: 1. Burrough, P. A., & McDonnell, R. A. (1998). Principles of Geographical Information Systems. Oxford University Press. 2. Campbell, J. B., & Wynne, R. H. (2011). Introduction to Remote Sensing (5th ed.). Guilford Press. 3. Lillesand, T. M., Kiefer, R. W., & Chipman, J. W. (2015). Remote Sensing and Image Interpretation (7th ed.). Wiley. 4. Longley, P. A., Goodchild, M. F., Maguire, D. J., & Rhind, D. W. (2015). Geographic Information Science and Systems (4th ed.). Wiley. 5. Jensen, J. R. (2016). Introductory Digital Image Processing: A Remote Sensing Perspective (4th ed.). Pearson. 6. Slocum, T. A., McMaster, R. B., Kessler, F. C., & Howard, H. H. (2022). Thematic Cartography and Geovisualization (5th ed.). CRC Press. 7. Dent, B. D., Torguson, J. S., & Hodler, T. W. (2009). Cartography: Thematic Map Design (6th ed.). McGraw-Hill. 8. Chang, K. T. (2021). Introduction to Geographic Information Systems (10th ed.). McGraw-Hill Education. 9. Joseph, G., & Jagannathan, C. (2018). Fundamentals of Remote Sensing (3rd ed.). Universities Press. 10. Kumar, M. (2018). Digital Cartography. Concept Publishing Company.		
Recommended Software: ✓ QGIS ✓ ArcGIS Pro ✓ ERDAS IMAGINE ✓ SNAP ✓ Google Earth Pro ✓ Google Earth Engine (Introductory)		
Suggested Continuous Evaluation Methods: Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations (any methods)		
Marks distribution of theory examination: 40 marks by internal assessment and 60 marks by external assessment.		

<u>Master of Arts/ Science (M.A./M.Sc.) 2 Year</u>		
Theory		
Programme: M.A./M.Sc.	Year: Second	Semester: Four
Subject: Geography		
Course Code: GEOG/DSE04(D)	Course Title: Rural Geography	
Course Learning Objectives: 1. To understand the concepts, significance and theoretical approaches of Rural Geography and rural settlements. 2. To examine the origin, evolution, morphology, and spatial characteristics of rural settlements in India. 3. To analyse rural land use systems, and sustainable land management practices using geographical approaches. 4. To evaluate the structure of the rural economy and contemporary rural development issues in India and Uttarakhand.		
Course Learning Outcomes: 1. Explain the concepts, scope, significance and approaches of Rural Geography 2. Analyse rural settlement morphology and contemporary transformations in rural landscapes. 3. Assess rural land-use systems, land degradation and sustainable resource management. 4. Evaluate the rural economy for sustainable rural development in India and Uttarakhand.		
Credits: 4	DSE	
Max. Marks: 40+60	Min. Passing Marks: 35	
Total No. of Lectures- Tutorials - Practical (in hours per week): L-T-4/W		
Unit	Course Contents	
UNIT-I	Meaning, nature, scope and significance of Rural Geography; Concepts, approaches and characteristics of Rural Settlements. Histogenesis of Rural Settlements, Sequence of occupancy; Site, situations, size, type, pattern and spacing of rural settlements.	
UNIT-II	Morphology of Rural settlement with special reference to India, House types and field patterns, their categories and related factors; Rural houses in different Geographical environs, folk culture and folk architecture, Contemporary transformations in rural settlements.	
UNIT-III	Concepts and classification of rural land use, Agricultural land utilization and cropping systems, Forest land, pasture land, wasteland, and their sustainable management; Resource Mapping; land-use conflicts and contemporary issues in agricultural land management.	
UNIT-IV	Rural Economy; Primary occupation Agriculture; Animal husbandry, Transhumance in Himalayan region. Rural handicrafts; economic potential; contemporary issue related to rural economy of India and Uttarakhand; National rural development programmes and policies.	
Suggested Readings: 1. Bhatt H.P. & Bhatt Sangeeta: Environmental Dimensions of Rural Settlements in the Himalaya in 1993. 2. Daniel, P. (2002): Geography of Settlement. Rawat Publications., Jaipur and New Delhi. 3. Ghosh, S. (1999): A Geography of Settlements. Orient Longman, Kolkata. 4. Hudson, F. S. (1976): A Geography of Settlements. MacDonald and Evans, New York. 5. Mitra, A. (1960): Report on House Types and Village Settlement Patterns in India. Publication Division, Govt. of India, New Delhi. 6. Mosley, M.J. (2005): Rural Development: Principles and Practice. Sage Publication, London. 7. Oliver, P. (1987): Dwellings. The House across the World. University of Texas Press, Austin. 8. Rapoport, A. (1969): House, Form and Culture. Prentice-Hall, Inc., 9. Englewood Cliffs, NJ. Rykwert, J. (ed.) (2004): Settlements. University of Pennsylvania Press, University Park, USA. 10. Singh, R.L. (eds.) (1973): Rural Settlements in Monsoon Asia, National Geographical Society of India, Varanasi. 11. Singh, R. L., Singh, K.N. and Singh, Rana P.B., (eds.) (1975): Readings in Rural Settlement Geography, National Geographical Society of India, Varanasi. 12. Singh, R.Y. (2005): Geography of Settlements. Rawat Publications, Jaipur and New Delhi. 13. Singh, S.B. (1977): Rural Settlement Geography. U.B.B.P., Publications, Gorakhpur. 14. Tiwari, R. C. (2000): Settlement Geography; in Hindi. Prayag Pustak Bhawan Allahabad. 15. Wood, M. (2005): Rural Geography: Processes, Responses and Experiences of Rural Restructuring. Sage Publication, London.		
Suggested Continuous Evaluation Methods: Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations (any methods)		
Marks distribution of theory examination: 40 marks by internal assessment and 60 marks by external assessment.		

<u>Master of Arts/ Science (M.A./M.Sc.) 2 Year</u>		
Theory		
Programme: M.A./M.Sc.	Year: Second	Semester: Four
Subject: Geography		
Course Code: GEOG/DSE04(E)	Course Title: Social Geography	
Course Learning Objectives: 1. To introduce students to the fundamental concepts, nature, scope, approaches, and contemporary perspectives of Social Geography. 2. To develop an understanding of the spatial dimensions of social structures, social diversity, inequality, and social transformation 3. To familiarize students with theories and methods used in analysing social well-being, social development, and social justice from a geographical perspective. 4. To enable students to critically examine social development policies, planning, and regional disparities in India with special reference to Uttarakhand.		
Course Learning Outcomes: 1. To learn the nature, scope, and relevance of Social Geography, its approaches and to understand the different fundamental concepts of Social Geography. 2. To apply social geographical perspective to examine the spatial distribution and diversity, processes of social transformation and social mobility of different social groups in India. 3. To analyse the different indicators of social well-being and social development for detailed understanding of different social issues in India. 4. To evaluate the development policies and planning (in promoting equity and social development) with reference to India and Uttarakhand.		
Credits: 4	DSE	
Max. Marks: 40+60	Min. Passing Marks: 35	
Total No. of Lectures- Tutorials - Practical (in hours per week): L-T-4/W		
Unit	Course Contents	
UNIT-I	Definition, nature and scope of social geography; concept of place, space and society and relevance of social geography; approaches and methods.	
UNIT-II	Key concepts in social geography- social stratification and differences, social hierarchy, culture, social structure, power structure and space; social ecology and space, mobility and space, social pluralism and diversity.	
UNIT-III	Components of social space in India, process of social transformation- Sanskritization, westernization, modernization, post-modern approaches, social bases of identity; social groups, distribution of castes, tribes and language in India, social factors in region formation; socio-cultural regionalism in India.	
UNIT-IV	Segregation and assimilation; social and spatial justice; inclusion and exclusion, indicators of social well-being and social pathology, problems and processes of socio-economic and political-inequality, social security and protective discrimination, policies and planning with special reference to India and Uttarakhand.	
Suggested Readings: 1. Ahmed, A. (1999). Social Geography, Rawat Publication, Jaipur. 2. Kath Browne, D. Borisa, M. Gilmartin, Niharika Banerjea (2024). Social Geographies the Basics, Routledge, London 3. Social Geography, IGNOU Self Learning Material, https://egyankosh.ac.in/handle/123456789/109916 4. Jones, E. and John Eyles (1979). Social Geography. Oxford University Press, London 5. Harvey, D. (1989). The Condition of Postmodernity: An Enquiry into the Origins of Cultural Change. Oxford: Blackwell. 6. Smith, David M. (1977). Human Geography: A Welfare Approach, Edward Arnold, London 7. Soja, E. W. (2009). The city and spatial justice. http://www.jssj.org . 8. Pirie, G. H. (1983). On Spatial Justice. Environment and Planning: Economy and Space. 15(4) https://doi.org/10.1068/a150465 . 9. Crane, R.I. (1973), Regions and regionalism in South Asia Studies: An Exploratory Study, Durham, Duke University. 10. Dube, S.C. (1991), Indian Societies, National Book Trust of India, New Delhi.		

11. Kaufmann V. (2005). Re-thinking Mobility. Contemporary Sociology, Hampshire: Ashgate
12. Rawat, P.S. (1993): Migration and structural change a study of rural society in Garhwal Himalaya, Sarita Book House, Delhi, India
13. Indian Institute of Public Administration. (2020). Caste-Based Segregation in Public Spaces. New Delhi: IIPA.
14. Lefebvre, H. (1991). The Production of Space. Blackwell.
15. Pahl, R. E. (1965). 'Trends in Social Geography.', In Chorley, R. J. & Haggett, P. (Eds.). Frontiers in Geographical Teaching., London: Routledge.
16. Sheldon, Eleanor B., and Wilbert E. Moore (Eds.) (1968). Indicators of Social Change: Concepts and Measurements. New York: Russell Sage Foundation.
17. Laitinen, A., & Särkelä, A. (2018). Four conceptions of social pathology. European Journal of Social Theory, 22(1), 80-102. <https://doi.org/10.1177/1368431018769593> (Original work published 2019)
18. Mukherjee, R. (1979). The construction of social indicators, The Use of Socio-Economic Indicators in Development Planning. Paris: UNESCO, United Nations Educational, Scientific and Cultural Organization, pp. 33 59.
19. Bhagat, R. B. (2023). Population and Political Imagination: Census, Register and Citizenship in India, Routledge, London

Suggested Continuous Evaluation Methods: **Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations** (any methods)

Marks distribution of theory examination: 40 marks by internal assessment and 60 marks by external assessment.

<u>Master of Arts/ Science (M.A./M.Sc.) 2 Year</u>		
Theory		
Programme: M.A./M.Sc.	Year: Second	Semester: Four
Subject: Geography		
Course Code: GEOG/MDE04(A)	Course Title: Geography of Tourism	
Course Learning Objectives: 1. To understand the relationship between Geography and Tourism, including the nature, scope, and significance of Tourism Geography. 2. To explore the concept of tourism and its various types, with a focus on understanding tourism patterns in India, particularly in the Himalayan region. 3. To analyze tourism promotion policies in India, examining their impact on tourism development and sustainability		
Course Learning Outcomes: 1. Demonstrate knowledge of the diverse types of tourism and their patterns in India, with particular emphasis on the Himalayan region, through the determination of tourism patterns. 2. Evaluate the significance of tourism promotion policies in India, understanding their role in shaping tourism development and strategies for sustainable tourism growth.		
Credits: 4		DSE
Max. Marks: 40+60		Min. Passing Marks: 35
Total No. of Lectures- Tutorials - Practical (in hours per week): L-T-4/W		
Unit	Course Contents	
UNIT-I	Geography and Tourism; Nature, scope and significance of Tourism Geography; Concept of Tourism; Type of Tourism ; Determination of Tourism patterns in India with special reference to Himalaya, Tourism promotion policies in India.	
UNIT-II	Tourism attractions in Uttarakhand - Geographical component ; Eco-Tourism; Mass Tourism; Adventure Tourism; Pilgrimage.	
UNIT-III	Tourism Attraction: Switzerland, Singapore, Indonesia, Thailand, Malaysia, Arunachal Pradesh, Assam, Goa, Gujrat, Himanchal Pradesh. Tourism Organization : UNWTO, WTTC and ITDC.	
UNIT-IV	Impact of Tourism in Uttarakhand; economy, environment, society and culture; Tourism Infrastructure; Case Studies of Uttarakhand.	
Suggested Readings: 1. Bhardwaj, D.S. Chaudhary, M.: Contemporary issues in Tourism, Himalaya, Mumbai, 1997. 2. Bhatt ,Rajesh and Kumar, K., Uttarakhand Tourism Geography, Research India Press, New Delhi,2018. 3. Bhatla, A.K.: Tourism Development, Principles and Practices, Sterling, Bangalore, 1989. 4. Cris, Ryan: Recreationl Tourism, A Social Science Perspective, Routledge, London, 1991. 5. Garg, N.K.: Tourism and Economics Development, Avishkar, Jaipur, 1996. 6. Hall,C.M: and Page, S.J.: Tourism in South and South East Asia; Issues and Cases Butterworth Heinemann, Oxford, 2001. 7. Kaul, R.K.: Dynamics of Tourism and Recreation, Inter India, New Delhi, 1985.		
Suggested Continuous Evaluation Methods: Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations (any methods)		
Marks distribution of theory examination: 40 marks by internal assessment and 60 marks by external assessment.		

<u>Master of Arts/ Science (M.A./M.Sc.) 2 Year</u>		
Theory		
Programme: M.A./M.Sc.	Year: Second	Semester: Four
Subject: Geography		
Course Code: GEOG/MDE04(B)	Course Title: Geography of Transport	
Course Learning Objectives: 1. To introduce students to the basic concepts, scope, and significance of Transport Geography. 2. To understand the different modes of transportation and the transport network in India. 3. To examine the role of transport in regional development, tourism, and the economy, with special reference to Uttarakhand.		
Course Learning Outcomes: 1. Explain the concept, scope, and importance of Transport Geography. 2. Describe the different modes of transport and the transport system in India. 3. Evaluate the role of transport in regional development, tourism and identify the major transport issues of Uttarakhand.		
Credits: 4		DSE
Max. Marks: 40+60		Min. Passing Marks: 35
Total No. of Lectures- Tutorials - Practical (in hours per week): L-T-4/W		
Unit	Course Contents	
UNIT-I	Definition and scope of Transport Geography; Evolution of Transportation: Characteristics and significance of different means of transportation, Graph theory and network connectivity index.	
UNIT-II	Structure of transport network; Concept of accessibility, mobility, locational utility and transport spatial coverage index: concept of gravity potential model and spatial interaction.	
UNIT-III	Transport system in India-Rail, Road, Waterways and Air transport; Major transport routes of the World.	
UNIT-IV	Transport and regional development; Transport planning; transport system and related problems in Uttarakhand; Role of transport in economy and tourism of Uttarakhand	
Suggested Readings: 1. Hurst, Elliot-Transport Geography: Comments and Readings. 2. Kansky, J. – The structure of transport network. 3. Rolui, R. – The Geography of transport. 4. Singh, Jagdish – Transport Geography of South Bihar. 5. Singh, K. N. – Transport network analysis in Geography.		
Suggested Continuous Evaluation Methods: Assignment/ Test/ Quiz (MCQ)/ Seminar/ Presentations (any methods)		
Marks distribution of theory examination: 40 marks by internal assessment and 60 marks by external assessment.		



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