

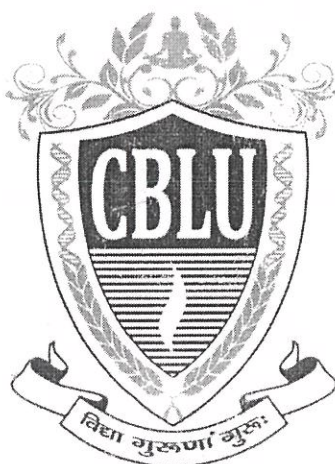
Chaudhary Bansi Lal University

Hansi Road, Prem Nagar, Bhiwani

(A State University Established under Govt. of Haryana Act No 25 of 2014)

Scheme of Examination for Under-Graduate Programmes Subject: Geography

With Effect from the Academic Session: 2024-25
(As per NEP:2020)



Department Of Geography

Chaudhary Bansi Lal University, Prem Nagar -127031,
Bhiwani, Haryana, India

UGBOS: 11 July 2025

Approved

Faculty Board: 02 Aug 2025

Sem 4	CC-4 MCC-6	A, B, C, D	25UN -GEO- 401	Fundamentals of Economic Geography (Theory)	3	3	20	50	70	3
				Fundamentals of Economic Geography (Practical)	1	2	10	20	30	3
	MCC-7	B & C	25UN -GEO- 402	Introduction to Social Geography (Theory)	3	3	20	50	70	3
				Introduction to Social Geography (Practical)	1	2	10	20	30	3
				Geography of Settlements (Theory)	3	3	20	50	70	3
	MCC-8	B & C	25UN -GEO- 403	Geography of Settlements (Practical)	1	2	10	20	30	3
				Fundamentals of Bio-Geography (Theory)	3	3	20	50	70	3
				Fundamentals of Bio-Geography (Practical)	1	2	10	20	30	3
			Or							
	DSE-1	B & C	25UN -GEO- DSE- 405	Geography of Tourism (Theory)	3	3	20	50	70	3
				Geography of Tourism (Practical)	1	2	10	20	30	3
				Web GIS (Theory)	3	3	20	50	70	3
				Web GIS (Practical)	1	2	10	20	30	3
	CC-M4 (V)	A, B, C, D	25UN-GEO-VOC 401	Basic of Professional GIS (Theory)	3	3	20	50	70	3
				Basic of Professional GIS (Practical)	1	2	10	20	30	3
				Population, Environment and Ecology	2	2	15	35	50	3
				Introduction to Climate Change	2	2	15	35	50	3
	VAC-4	A, B, C, D	25UN-GEO-VAC402	Environmental Ethics	2	2	15	35	50	3

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CC-4/MCC-6			
Session: 2024-25			
Part A - Introduction			
Subject	Geography		
Semester	IV		
Name of the Course	Fundamentals of Economic Geography		
Course Code	25UN -GEO-401		
Course Type: (CC/MCC/MDC/CCM/DSEC/VOC/ DSE/PC/AEC/VAC)	CC/MCC		
Level of the course (As per Annexure-I)	200-299		
Pre-requisite for the course (if any)	N.A.		
Course Learning Outcomes (CLOs):	After completing this course, the learner will be able to: 1. provides knowledge about the fundamental concepts of economic geography. 2. acquisition of knowledge about resources and their conservation. 3. enrichment of knowledge about distribution of crops, minerals and energy resources 4. acquaintance with global industries, transport, communication and trade. 5* attain skills in solving practical problems associated with economic geography.		
Credits	Theory	Practical	Total
	3	1	4
Contact Hours	3	2	5
Max. Marks: 100 Internal Assessment Marks: 20+10 = 30 End Term Exam Marks: 50+20 = 70		Time: 03 Hours	

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Part B- Contents of the Course**Instructions for Paper- Setter**

Question 1 is compulsory comprising of five sub parts spread over entire syllabus (two marks for each sub part). There will be eight long questions, two from each unit. The candidate has to answer four long questions, at least one question from each unit. All questions carry equal marks.

Unit	Topics	Contact Hours
I	1. Nature, scope, and major branches of economic geography. 2. Classification of economic activities and their impact on environment.	11
II	3. Natural resources: types, bases of classification. 4. Utilization and conservation of natural resources.	11
III	5. World distribution of food crops (rice and wheat), commercial crops (cotton and sugarcane) and plantation crops (tea and coffee). 6. World distribution and production of coal, petroleum and natural gas, iron ore and bauxite.	11
IV	7. World distribution and production of iron and steel industry, textile industry, sugar industry, automobile & IT industry. 8. International trade and transport and major oceanic trade routes.	12

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V*	Instructions for external practical examiner: There will be three questions in all and candidate has to attempt two exercises. Distribution of marks for evaluation Exercise = 10 marks File record = 5 marks Viva-Voce = 5 marks Practical Record: A project file consisting of 8 exercises on the below mentioned themes: - 1. Choropleth mapping of state/country-wise variation in GDP and PCI (2 exercises). 2. Computation of rail and road transport network accessibility index (2 exercises). 3. Time series analysis of world food, commercial and plantation crops production and trade using polygraph method (2 exercises). 4. Representation of coal and sugar production of major countries of the world using compound bar diagram (1	30
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	exercise). 5. Representation of decadal production of major petroleum and iron and steel producing countries using multiple bar diagram (1 exercise).	
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Suggested Evaluation Methods

Internal Assessment: ➤ Theory • Class Participation: 05 Marks • Seminar/presentation/assignment/quiz/class test etc.: 05 Marks • Mid-Term Exam: 10 Marks ➤ Practicum • Class Participation: NIL • Seminar/Demonstration/Viva-voce/Lab records etc.: 10 Marks • Mid-Term Exam: NIL	End Term Examination: 50 Marks 20 Marks
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Part C-Learning Resources**Recommended Books/e-resources/LMS:**

1. Gautam, A. 2010. Advanced Economic Geography. Sharda Pustak Bhawan, Allahabad.
2. Hartshorne, T. A. and Alexander, J. W. 2001. Economic Geography. Prentice Hall of India. New Delhi.
3. Hudson, R. 2005. Economic Geography. Sage Publication, New Delhi.
4. Jones, C. F. and Drakenwarld, G. G. Economic Geography. The Macmillan and Company. New York.
5. Knowled, R. and Wareing, J. 1992. Economic and Social Geography. Rupa and Company, Calcutta.
6. Knox, P. 2003. The Geography of World Economy. Arnold, London.
7. Saxena, H.M. 2013. Economic Geography. Rawat Publications, Jaipur.
8. Thomas, RS. 1962. The Geography of Economic Activities. McGraw Hill, New York.
9. Wheeler, J.O. and Muller, P.O. 1995. Economic Geography. John Wiley and Sons. New York.

*Applicable for courses having practical component.

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MCC-7			
Session: 2024-25			
Part A - Introduction			
Subject	Geography		
Semester	IV		
Name of the Course	Introduction to Social Geography		
Course Code	25UN -GEO-402		
Course Type: (CC/MCC/MDC/CC- M/DSEC/VOC/DSE/PC/AEC/VA C)	MCC		
Level of the course (As per Annexure-I	200-299		
Pre-requisite for the course (if any)	N.A.		
Course Learning Outcomes (CLO):	After completing this course, the learner will be able to: 1. acquaint with social structure in spatial context. 2. gain knowledge about ethnic and social groups in India. 3. understand the social structure and religious diversity of India. 4. be well versed with concept of well-being and its indicators. 5* develop the skill to process social data.		
Credits	Theory	Practical	Total
	03	01	04
Contact Hours	3	2	5
Max. Marks: 100 Internal Assessment Marks: 20+10=30 End Term Exam Marks: 50+20=70		Time: 3 hours	

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Part B- Contents of the Course

Question 1 is compulsory and comprise five sub-parts spread over the entire syllabus (two marks for each sub-part). There will be eight questions, two from each unit. The candidate has to answer four questions from these by selecting at least one question from each unit. All questions carry equal marks.

Unit	Topics	Contact Hours
I	1. Definition, nature and scope of social geography. 2. Development of social geography and approaches to study.	12
II	3. Social Structure and Processes: Tribes, and their spatial distribution. 4. Caste: origin, form and its distribution.	11
III	5. Language and dialects: origin and linguistic diversity. 6. Religion: major religion and religious plurality in India.	11
IV	7. Social problems: geography of poverty and human development index. 8. Gender inequality and gender development index	11
V*	Instructions for external practical examiner: There will be three questions in all and candidate has to attempt two exercises. Distribution of marks for evaluation Exercise = 10 marks File record = 5 marks Viva-Voce = 5 marks	30

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Practical Record: A project file consisting of 8 exercises on the below mentioned themes: - 1. Computation and mapping of human development index (1 exercise) 2. Computation and mapping of gender development index (1 exercise). 3. Concentration of S.C. population: Location Quotient & dissimilarity index (2 exercises). 4. Graphical representation of income inequality: Lorenz curve (2 exercises). 5. Construction of composite index by ranking and standardization method (2 exercises).
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Suggested Evaluation Methods	
Internal Assessment: ➤ Theory • Class Participation: 5 • Seminar/presentation/assignment/quiz/class test etc.:5 • Mid-Term Exam: 10 ➤ Practicum • Class Participation: NIL • Seminar/Demonstration/Viva-voce/Lab records etc.:10 • Mid-Term Exam: NIL	End Term Examination: 70 30

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Part C-Learning Resources

Recommended Books/e-resources/LMS:

1. Ahmad, A. (1993) Social Structure and Regional Development, Rawat Publications, Jaipur
2. Ahmad, A. (1999) Social Geography, Rawat Publications, Jaipur
3. Ahmad, A. (2012) Social Geography of India, Concept Publishing Company, New Delhi
4. Knox, P. L. (1975) Social Wellbeing- A Spatial Perspective, Oxford University Press, London
5. Pain, R., Barke, M., Fuller, D., Gough, J., MacFarlane, R. and Mowl, G. (2001) Introducing Social Geographies, Arnold and Oxford University Press, New York
6. Panelli, R. (2004) Social Geographies: From Difference to Action, Sage Publications, London
7. Sopher, D. (1980) An Exploration of India: Geographical Perspectives on Society and Culture, Cornell Press, New York
8. Smith, D.M. (1977) Human Geography: A Welfare Approach, Arnold Heinemann.
9. Smith, D.M. (1973) The Geography of Social Well-being in the United States. McGraw Hill, New York.
10. Smith, D.M. (1977) Where the Grass is Greener: Geographical Perspectives on Inequality, Penguin.

*Applicable for courses having practical component.

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MCC-8			
Session: 2024-25			
Part A - Introduction			
Subject	Geography		
Semester	IV		
Name of the Course	Geography of Settlements		
Course Code	254UN -GEO-403		
Course Type: (CC/MCC/MDC/CC- M/DSEC/VOC/DSE/PC/AEC/VAC)	MCC		
Level of the course (As per Annexure-I)	200-299		
Pre-requisite for the course (if any)	NA		
Course Learning Outcomes (CLO):	After completing this course, the learner will be able to: 1. provide knowledge about the fundamentals of settlements geography. 2. enrich knowledge about the distribution of rural and urban settlements. 3. familiarized with the types and patterns of rural and urban settlements. 4. acquaint with the issues and policies regarding settlement. 5* develop skill of mapping socio-economic and demographic data.		
Credits	Theory	Practical	Total
	03	01	04
	3	2	5
Contact Hours	Time:3 hours		
Max. Marks:100			
Internal Assessment Marks:20+10=30			
End-Term Exam Marks: 70			

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Part B- Contents of the Course**Instructions for Paper-Setter**

Question 1 is compulsory comprising five sub-parts spread over the entire syllabus (two marks for each sub-part), to be answered in brief. There will be eight long questions, two from each unit. The candidate has to answer four long questions, at least one question from each unit. All questions carry equal marks.

Unit	Topics	Contact Hours
I	1. Definition, nature, scope, significance and approaches to study settlement geography. 2. Theories of evolution and development of settlements.	12
II	3. Geographical factors affecting the growth of settlements distribution, importance of settlement studies in geography 4. Types of settlement: rural and urban, rural-urban dichotomy and continuum.	11
III	5. Rural settlement: shape, site, types and pattern. 6. Urban settlement: Characteristics of ancient and medieval cities.	11
IV	7. Hierarchy of urban settlement: rank-size rule and primate city. 8. Issues and policies in settlements.	11
V*	Instructions for external practical examiner: There will be three questions in all and candidate has to attempt two exercises. Distribution of marks for evaluation Exercise = 10 marks File record = 5 marks Viva-Voce = 5 marks Practical Record: A project file consisting of 8 exercises on the below mentioned themes: - 1. Location and distribution of urban and rural settlements using toposheets (1 exercises). 2. Graphical representation of rank size rule (1 exercise). 3. Identification of settlement pattern (2 exercises). 4. Traffic flow diagram (1 exercise). 5. Diagrammatic distribution of different class towns (1 exercise).	30

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	6. Composition of urban & rural population (1 exercise). 7. Distribution of types of houses by bar diagram (1 exercise).	
Suggested Evaluation Methods		
Internal Assessment: ➤ Theory - Class Participation: 05 marks - Seminar/presentation/assignment/quiz/class test etc.: 05 Marks - Mid-Term Exam: 10 Marks ➤ Practicum - Class Participation: NIL - Seminar/Demonstration/Viva-voce/Lab records etc.: 10 Marks - Mid-Term Exam: NIL		End-Term Examination: 50 Marks 20 Marks
Part C-Learning Resources		
Recommended Books/e-resources/LMS: - Desphande, C. D. (2005) "Cities: A Geographical Study", Translated by V. G. Amrita, Manan Prakashan, Mumbai - Gharpure, V. (2013) "Nagari Bhugol", (Marathi) Pimpalpure and Company Publishers, Nagpur - Gharpure, V. (2013) "Vasti Bhugol", (Marathi) Pimpalpure and Company Publishers, Nagpur - Gharpure, V. (2017) "Manavi Bhugol", (Marathi) Pimpalpure and Company Publishers, Nagpur - Ghosh. S. (2015) "Introduction to Settlement Geography", Orient Blackswan Private Limited, Hyderabad - Jyptirmoy Sen (2007) A Text Book of Social and Cultural Geography," Kalyani Publishers, New Delhi. - Knowles, R, and Wareing, J. (1996) "Economic and Social Geography", the Made Simple Series, Rupa & Co., Calcutta - Leong, Goh-Cheng and Morgan, G. (1994) "Human and Economic Geography", Oxford University Press, Oxford - Misra, R. P. & Misra, K. eds. (1998) Million Cities of India, Sustainable Development Foundation, New Delhi. - Siddhartha, K and Mukherjee, S. (2016) "Cities, Urbanisation and Urban Systems (Settlement Geography)", Kitab Mahal, Allahabad - Singh, L. R. (2009) "Fundamentals of Human Geography", Sharda Pustak Bhawan, Allahabad - Singh, R. Y. (2012) "Geography of Settlements", Rawat Publications, Jaipur - Thakur S. A. (2012) "Settlement Geography"/ Vasti Bhugol- Konkan Geographers, Publication - Tiwari, R. C. (2016) "Geography of India", Pravalika Publications, Allahabad		

*Applicable for courses having practical components.

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DSE-1			
Session: 2024-25			
Part A - Introduction			
Subject	Geography		
Semester	IV		
Name of the Course	Fundamentals of Biogeography		
Course Code	25UN-GEO-DSE-404		
Course Type: (CC/MCC/MDC/CC-M/DSEC/VOC/DSE/PC/AEC/VAC)	DSE		
Level of the course (As per Annexure-I)	200-299		
Pre-requisite for the course (if any)	N.A.		
Course Learning Outcomes (CLO):	After completing this course, the learner will be able to: 1. understand the basic ecological principles. 2. enrich understanding about distribution of plants and animals' life on the earth. 3. aware about conservation of biotic resources and effects of industrial effluents on ecosystems. 4. acquaint with environmental hazards and bio reserves. 5* develop the skill of mapping ecological areas, flora and fauna.		
Credits	Theory	Practical	Total
	3	1	4
Contact Hours	3	2	5
Max. Marks: 100 Internal Assessment Marks: 20+10=30 End Term Exam Marks: 50+20=70		Time: 03 Hours	

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Part B- Contents of the Course**Instructions for Paper- Setter**

Question 1 is compulsory consisting of five sub parts spread over entire syllabus (two marks for each sub parts), to be answered in brief. There will be eight long questions, two from each unit. The candidate has to answer four long questions, at least one question from each unit. All questions carry equal marks.

Unit	Topics	Contact Hours
I	1. Nature, scope and significance of biogeography. 2. Basic ecological principles: Bio-energy cycle in territorial ecosystem; trophic levels, food web and energy budget.	11
II	3. Distribution of plant life on the earth and its relation to soil, climate and human activities. 4. Geographical distribution of animal life on the earth and its relation to vegetation types, climate and human activities.	12
III	5. Communities: nature of communities and ecosystems: bio-diversities; human induced communities' change; habitat decay and conservation of biotic resources. 6. Environmental Pollution and its effect on geosphere.	11
IV	7. Environmental hazards: ecological consequences; human perception and adjustment with respect to flood, drought and earthquake. 8. Bio-Reserves in India; distribution and characteristics.	11
V*	Instructions for external practical examiner: There will be three questions in all and candidate has to attempt two exercises. Distribution of marks for evaluation Exercise = 10 marks File record = 5 marks Viva-Voce = 5 marks	30

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CBO - Syllabus Unit - Geography : 2024-25	
Practical Record: A project file consisting of 8 exercises on the below mentioned themes: - 1. Identification of natural vegetation of neighborhood environment and interpretation of their characteristics. 2. Identification of wild animals of neighborhood environment and interpretation of their characteristics. 3. Mapping of forest area and percent of forest to geographical area of selected individual countries.	
4. Trend in population of selected wild animal species. 5. Trends in flood frequency and casualties in India for at least 2-3 decades. 6. Mapping of national parks and sanctuaries of India by suitable method. 7. Mapping the ecological hot spots of the world and interpretation of their characteristics. 8. Mapping the water bodies based on topographical sheets of an area. 9. Mapping the frequency or intensity of earthquakes and casualties of a geographical area. 10. Comparative analysis of seasonal variability of rainfall from different climatic reasons of India.	
Suggested Evaluation Methods	
Internal Assessment: ➤ Theory • Class Participation: 05 Marks • Seminar/presentation/assignment/quiz/class test etc.:05 Marks • Mid-Term Exam: 10 Marks ➤ Practicum: • Class Participation: NIL • Seminar/Demonstration/Viva-voce/Lab records etc.: 10 Marks • Mid-Term Exam: NIL	End Term Examination: 50 Marks 20 Marks

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Part C-Learning Resources**Recommended Books/e-resources/LMS:**

1. Chandna R. C., (2002) Environmental Geography, Kalyani, Ludhiana.
2. Cox, C.D. and Moore, P.D. (1993) Biogeography: An Ecological and Evolutionary Approach, Blackwell.
3. Cunningham W. P. and Cunningham M. A., (2004) Principals of Environmental Science, McGraw hill, London.
4. Huggett, R.J. (1998) Fundamentals of Biogeography. Routledge, U.S.A.
5. Khushoo, T.N. and Sharma, M. (1991) Indian Geosphere-Biosphere Har-Anand Publication, Delhi.
6. Lillies, J. (1974) Introduction of Zoogeography, McMillan. London.
7. Mathur, H.S. (1998) Essentials of Biogeography, Anuj Printers, Jaipur.
8. MOEF (2006) National Environmental Policy-2006, Ministry of Environment and Forests, Government of India.
9. Odum, E. P. et al. (2005) Fundamentals of Ecology, Ceneage Learning India.
10. Pears, N. (1985) Basic Biogeography, Longman, London.
11. Simmon, I.G. (1974) Biogeography, Natural and Cultural, Longman, London.
12. Singh S. (1997) Environmental Geography, Prayag Pustak Bhawan. Allahabad.
13. Tivy, J. (1992) Biogeography: A study of Plants in Ecosphere, Oliver and Boyd, U.S.A.
14. UNEP (2007) Global Environment Outlook: GEO4: Environment for Development,
15. United Nations Environment Programme.

Hindi Reading List

16. Singh, Savindra (2001) Paryavaran Bhugol, Prayag Pustak Bhawan, Allahabad.
17. Singh, Shri Narayan (1993) Vatavaran Bhugol, Tara Book Agency.

*Applicable for courses having practical component.

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DSE-1			
Session: 2024-25			
Part A – Introduction			
Subject	Geography		
Semester	IV		
Name of the Course	Geography of Tourism		
Course Code	25UN-GEO-DSE-405		
Course Type: (CC/MCC/MDC/CC-M/DSEC/VOC/DSE/PC/AEC/VAC)	DSE		
Level of the course (As per Annexure-I)	200-299		
Pre-requisite for the course (if any)	NA		
Course Learning Outcomes (CLO):	After completing this course, the learner will be able to: 1. familiarization with the fundamentals of tourism geography 2. understand the types of tourism and their trend 3. acquaintance with tourism infrastructure and its impact 4. provide awareness of the carrying capacity of tourism destinations 5* attain skills in solving practical problems associated with tourism.		
Credits	Theory	Practical	Total
	03	01	04
Contact Hours	3	2	5
Max. Marks:100 Internal Assessment Marks:20+10=30 End-Term Exam Marks:50+20=70		Time: 3 hours	

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Part B- Contents of the Course**Instructions for Paper-Setter**

Question 1 is compulsory comprising five sub-parts spread over the entire syllabus (two marks for each sub-part), to be answered in brief. There will be eight long questions, two from each unit. The candidate has to answer four long questions, at least one question from each unit. All questions carry equal marks.

Unit	Topics	Contact Hours
I	1. Tourists and tourism. Nature, scope, approaches and significance of tourism. 2. Travel and tourism through ages. Role of geography in tourism industry.	11
II	3. Types of tourism and its importance. Development of tourism in India and other major tourist countries. 4. Trends of international and domestic tourism. Tourism motivation and tourism demand.	11
III	5. Tourism infrastructure; transport, accommodation, hospitality and other facilities. 6. Positive and negative impact of tourism: economic, political, socio-cultural and environmental.	11
IV	7. Carrying capacity: a tool for sustainable development 8. Tourism planning and policies.	12
V*	Instructions for external practical examiner: There will be three questions in all and candidate has to attempt two exercises. Distribution of marks for evaluation Exercise = 10 marks File record = 5 marks Viva-Voce = 5 marks	30

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	Practical Record: A project file consisting of 8 exercises on the below mentioned themes: - 1. State-wise distribution of tourists (Bar diagram). 2. Development of accommodations in India (comparative bar diagram). 3. Composition of tourists - states wise or of different tourist destinations (comparative bar). 4. Total, domestic, and foreign tourists (Compound bar diagram). 5. Tourism infrastructure (Trend graph). 6. Location and characteristics of highway tourism	
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	resorts of Haryana (dot method). 7. Tourist-population pressure (Bivariate method). 8. Explored and unexplored tourist destinations (Point method).	
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Suggested Evaluation Methods

Internal Assessment: ➤ Theory • Class Participation: 05 Marks • Seminar/presentation/assignment/quiz/class test etc.: 05 Marks • Mid-Term Exam: 10 Marks ➤ Practicum • Class Participation: NIL • Seminar/Demonstration/Viva-voce/Lab records etc.: 10 Marks • Mid-Term Exam: NIL	End-Term Examination: 50 Marks 20 Marks
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Part C-Learning Resources

Recommended Books/e-resources/LMS:

1. Bhatia, A. K., (1991) International Tourism: Fundamentals and Practices, Sterling Publishers, New Delhi.
2. Dhar, P.N. (2006) International Tourism: Emerging Challenges and Future Prospects. Kanishka, New Delhi.
3. Kaul R. N., Dynamics of Tourism: Sterline Publisher Ltd.
4. Shinde S.B., Geography of Tourism, Phadke Prakashan, Kolhapur.
5. Hall, M. and Stephen, P. (2006) Geography of Tourism and Recreation – Environment, Place and Space, Routledge, London.
6. Kamra, K. K. and Chand, M. (2007) Basics of Tourism: Theory, Operation and Practise, Kanishka Publishers, Pune.
7. Muluk, Musmade, Doke, More, (2021) Geography of Tourism-I, Nirali Publication, Pune.
8. Page, S. J. (2011) Tourism Management: An Introduction, Butterworth-Heinemann USA. Chapter 2.
9. Singh Jagbir (2014) "Eco-Tourism" Published by - I.K. International Pvt. Ltd. S-25, Green Park Extension, Uphaar Cinema Market, New Delhi, India (www.ikbooks.com).
10. Seth P.N. (1985) Successful Tourism Management: Sterling Publisher Ltd., New Delhi.

*Applicable for courses having practical components.

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VOC-4			
Session: 2024-25			
Part A - Introduction			
Subject	Geography		
Semester	IV		
Name of the Course	Web GIS		
Course Code	25UN-GEO-VOC-401		
Course Type: (CC/MCC/MDC/CCM/DSEC/VOC/ DSE/PC/AEC/VAC)	VOC		
Level of the course (As per Annexure-I)	200-299		
Pre-requisite for the course (if any)	N.A.		
Course Learning Outcomes (CLOs):	After completing this course, the learner will be able to: 1. understand the fundamentals and architecture of Web GIS and web mapping technologies. 2. differentiate between desktop GIS and Web GIS, and identify suitable platforms for online spatial applications. 3. use open-source tools and APIs (e.g., Leaflet, OpenLayers) to publish interactive web maps. 4. develop and deploy simple Web GIS applications using geospatial data and web frameworks 5* attain skills in using WebGIS for the Geospatial mapping and analysis.		
Credits	Theory	Practical	Total
	3	1	4
Contact Hours	3	2	5
Max. Marks: 100 Internal Assessment Marks: 20+10 = 30 End Term Exam Marks: 50+20 = 70		Time: 03 Hours	

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Part B- Contents of the Course**Instructions for Paper- Setter**

Question 1 is compulsory comprising of five sub parts spread over entire syllabus (two marks for each sub part). There will be eight long questions, two from each unit. The candidate has to answer four long questions, at least one question from each unit. All questions carry equal marks.

Unit	Topics	Contact Hours
I	1. Introduction to Web GIS: Concepts, Components, and Evolution 2. Web GIS Architecture: Client-Server Model, Services (WMS, WFS, WMTS), APIs	11
II	3. Data for Web GIS: Spatial Data Formats (GeoJSON, KML, Tiles, etc.) 4. Web Mapping Services and Standards: OGC, WMS/WFS/WCS, REST APIs	11
III	5. Platforms for Web GIS: ArcGIS Online, QGIS2Web, GeoServer, Leaflet, OpenLayers 6. Designing Web Maps: UI Elements, Map Styling, Legends, Basemaps	11
IV	7. Introduction to HTML, CSS, and JavaScript for Web Mapping 8. Web GIS Applications: Case Studies (Urban Planning, Disaster Management, Environment Monitoring).	12
V*	Instructions for external practical examiner: There will be three questions in all and candidate has to attempt two exercises. Distribution of marks for evaluation Exercise = 10 marks File record = 5 marks Viva-Voce = 5 marks Practical Record: A project file consisting of 8 exercises on the below mentioned themes: - 1. Explore Web GIS Interface (Access and navigate ArcGIS Online / QGIS2Web; publish base layers) 2. Data Conversion for Web Use (Convert shapefiles to GeoJSON and visualize in browser) 3. Create Basic Web Map with Leaflet (build a basic HTML	30

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web map using Leaflet.js with markers and popups)	
4. Add Interactive Layers (Add multiple layers (vector/raster) with controls and toggle options)	
5. Style Map Elements (Customize basemaps, symbols, and overlays using CSS and JavaScript)	
6. Integrate Open Data (Import OSM/remote sensing data and overlay with local GIS data)	
7. Publish with QGIS2Web or Mapbox (Export QGIS project to interactive web map and host on GitHub Pages)	
8. Final Mini Project [Build a Web GIS application for a chosen theme (e.g., tourism, utilities)]	

Suggested Evaluation Methods

Internal Assessment: ➤ Theory • Class Participation: 05 Marks • Seminar/presentation/assignment/quiz/class test etc.: 05 Marks • Mid-Term Exam: 10 Marks ➤ Practicum • Class Participation: NIL • Seminar/Demonstration/Viva-voce/Lab records etc.: 10 Marks • Mid-Term Exam: NIL	End Term Examination: 50 Marks 20 Marks
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Part C-Learning Resources

Recommended Books/e-resources/LMS:

1. Kraak, M. J., & Brown, A. (2001). *Web Cartography: Developments and Prospects*, CRC Press.
2. Fu, P., & Sun, J. (2011). *Web GIS: Principles and Applications*, ESRI Press.
3. Hall, B. (2016). *Leaflet.js Essentials*, Packt Publishing.
4. QGIS Plugin (QGIS2Web) – <https://plugins.qgis.org/plugins/qgis2web/>
5. GitHub Pages for Hosting Web Maps – <https://pages.github.com>
6. Open-Source Tools:
 - <https://leafletjs.com>
 - <https://openlayers.org>
 - <https://geojson.io>
 - <https://qgis.org>

*Applicable for courses having practical component.

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VOC-4			
Session: 2024-25			
Part A - Introduction			
Subject	Geography		
Semester	IV		
Name of the Course	Basic of Professional GIS		
Course Code	25UN-GEO-VOC-402		
Course Type: (CC/MCC/MDC/CCM/DSEC/VOC/ DSE/PC/AEC/VAC)	VOC		
Level of the course (As per Annexure-I)	200-299		
Pre-requisite for the course (if any)	N.A.		
Course Learning Outcomes (CLOs):	After completing this course, the learner will be able to: 1. understand the core concepts of GIS and the ArcGIS environment. 2. perform basic spatial data handling, map creation, and data visualization using ArcGIS. 3. apply ArcGIS tools to digitize features, create thematic maps, and manage spatial data. 4. conduct simple spatial queries and geo-processing tasks for real-world applications. 5* attain skills in solving practical problems associated with mapping and spatial analysis with ArcGIS.		
Credits	Theory	Practical	Total
	3	1	4
Contact Hours	3	2	5
Max. Marks: 100 Internal Assessment Marks: 20+10 = 30 End Term Exam Marks: 50+20 = 70		Time: 03 Hours	

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Part B- Contents of the Course**Instructions for Paper- Setter**

Question 1 is compulsory comprising of five sub parts spread over entire syllabus (two marks for each sub part). There will be eight long questions, two from each unit. The candidate has to answer four long questions, at least one question from each unit. All questions carry equal marks.

Unit	Topics	Contact Hours
I	1. Introduction to GIS and ArcGIS: Overview, Interface, Features 2. Types of Spatial Data: Raster vs Vector, Coordinate Reference Systems (CRS)	11
II	3. Spatial Data: Shapefiles, GeoJSON, CSV, Raster files 4. Attribute Table, Field Calculator, and Data Queries	11
III	5. Digitization and Editing Tools: Creating Point, Line, and Polygon Layers 6. Processing of Raster Data in ArcGIS and Its application	11
IV	7. Symbolology and Thematic Mapping: Graduated Symbols, Categorized Maps, Layout Manager: Creating Map Layouts, Legends, and Exporting Maps 8. Case Studies and Applications: Urban Planning, Disaster Management, Environmental Monitoring.	12
V*	Instructions for external practical examiner: There will be three questions in all and candidate has to attempt two exercises. Distribution of marks for evaluation Exercise = 10 marks File record = 5 marks Viva-Voce = 5 marks Practical Record: A project file consisting of 8 exercises on the below mentioned themes: - 1. ArcGIS Interface and Project Setup (Load vector/raster layers, set CRS, navigate map tools) 2. Data Import and Attribute Handling (Join CSV with spatial data, use Field Calculator for basic operations) 3. Digitization and Feature Editing (Create and edit shapefiles; draw roads, rivers, land use) 4. Georeferencing (Georeference scanned map using ground control points) 5. Thematic Mapping (Create choropleth and symbol maps)	30

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	using attribute data) 6. Map Layout and Export (Add north arrow, legend, scale bar, and export high-quality map) 7. Buffer and Overlay Analysis (Perform buffer zones for schools or hospitals; intersect analysis) 8. Final Project (Neighborhood Mapping) & Digitize and map local features (roads, land use, services) and present map)	
Suggested Evaluation Methods		
Internal Assessment: ➤ Theory - Class Participation: 05 Marks - Seminar/presentation/assignment/quiz/class test etc.: 05 Marks - Mid-Term Exam: 10 Marks ➤ Practicum - Class Participation: NIL - Seminar/Demonstration/Viva-voce/Lab records etc.: 10 Marks - Mid-Term Exam: NIL		End Term Examination: 50 Marks 20 Marks
Part C-Learning Resources		
Recommended Books/e-resources/LMS: Chang, Kang-Tsung (2018). <i>Introduction to Geographic Information Systems</i>, McGraw-Hill Education. DeMers, Michael N. (2008). <i>Fundamentals of Geographic Information Systems</i>, John Wiley & Sons. Longley, Paul A., Goodchild, M.F., Maguire, D.J., & Rhind, D.W. (2015). <i>Geographic Information Science and Systems</i>, Wiley. Bolstad, Paul (2016). <i>GIS Fundamentals: A First Text on Geographic Information Systems</i>, Eider Press. Burrough, P.A., & McDonnell, R.A. (1998). <i>Principles of Geographical Information Systems</i>, Oxford University Press. Esri Training Portal: https://www.esri.com/training Learn ArcGIS: https://learn.arcgis.com ArcGIS Documentation: https://pro.arcgis.com Esri Community (GeoNet): https://community.esri.com GISGeography Tutorials: https://gisgeography.com YouTube Channels Esri Events & Training – https://www.youtube.com/user/esritv GeoDelta Labs:		

*Applicable for courses having practical component.

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CBLO-Syllabus VI-Geography: 2024-25 VAC-4			
Session: 2024-25			
Part A - Introduction			
Subject	Geography		
Semester	IV		
Name of the Course	Population, Environment and Ecology		
Course Code	25UN-GEO-VAC-401		
Course Type: (CC/MCC/MDC/CC-M/DSEC/VOC/DSE/PC/AEC/VAC)	VAC		
Level of the course (As per Annexure-I)	200-299		
Pre-requisite for the course (if any)	NA		
Course Learning Outcomes (CLO):	After completing this course, the learner will be able to: 1. understand the interrelationship between population, environment, and ecological systems. 2. analyze demographic dynamics and their impact on environmental sustainability. 3. examine ecological concepts through both modern and traditional (IKS) perspectives. 4. evaluate environmental issues and conservation strategies by integrating scientific and indigenous approaches		
Credits	Theory	Practical	Total
	02	00	02
Contact Hours	02	-	02
Max. Marks:50 Internal Assessment Marks:15 End-Term Exam Marks: 35		Time:3 hours	

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Part B- Contents of the Course		
<u>Instructions for Paper-Setter</u>		
Question I is compulsory comprising seven sub-parts spread over the entire syllabus (one mark for each sub-part), to be answered in brief. There will be eight long questions, two from each unit. The candidate has to answer four long questions, at least one question from each unit. All questions carry equal marks.		
Unit	Topics	Contact Hours
I	1. Introduction to Population Studies: Concepts, Growth, Distribution, and Demographic Transition 2. Population and Resource Relationship: Carrying Capacity, Population Pressure	7
II	3. Basic Concepts of Ecology: Ecosystems, Food Chains, Trophic Levels 4. Ecological Balance and Indigenous Conservation Practices (e.g., Bishnoi community, sacred groves)	8
III	5. Man-Environment Interaction: Environmental Determinism, Possibilism, Human Adaptation 6. Environmental Challenges in India: Pollution, Deforestation, Urbanization	8
IV	7. Sustainable Development: Goals, Principles, and Approaches 8. Indigenous Ecological Wisdom: Water harvesting, Biodiversity conservation, Agro-ecological Practices	7
V*	NA	
Suggested Evaluation Methods		
Internal Assessment: > Theory - Class Participation: 04 Marks - Seminar/presentation/assignment/quiz/class test etc.: 04 Marks - Mid-Term Exam: 07 Marks > Practicum - Class Participation: NIL - Seminar/Demonstration/Viva-voce/Lab records etc.: NIL - Mid-Term Exam: NIL		End-Term Examination: 35 Marks NIL

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Part C-Learning Resources

Recommended Books/e-resources/LMS:

1. **Singh, R.B. (2009).** *Environmental Geography*, Rawat Publications, Jaipur.
2. **Chandna, R.C. (2022).** *Population Geography*, Kalyani Publishers, Ludhiana.
3. **Dash, M.C. (2001).** *Fundamentals of Ecology*, Tata McGraw-Hill, New Delhi.
4. **Gadgil, M., & Guha, R. (1992).** *This Fissured Land: An Ecological History of India*, Oxford University Press.
5. **Mishra, S.N. (2019).** *Environment and Ecology*, McGraw Hill Education.
6. **UNDP & NITI Aayog Reports** on Sustainable Development Goals in India – <https://niti.gov.in>
7. **IKS Division, Ministry of Education (GoI)** – <https://iksindia.org>
8. **Documentary Resources:**
 - *India's Healing Forests* (YouTube)
 - *Sacred Groves of India* (Films Division/IGNCA)

*Applicable for courses having practical components.

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VAC-4			
Session: 2024-25			
Part A - Introduction			
Subject	Geography		
Semester	IV		
Name of the Course	Introduction to Climate Change		
Course Code	25UN-GEO-VAC-402		
Course Type: (CC/MCC/MDC/CC-M/DSEC/VOC/DSE/PC/AEC/VA C)	VAC		
Level of the course (As per Annexure-I)	200-299		
Pre-requisite for the course (if any)	NA		
Course Learning Outcomes (CLO):	After completing this course, the learner will be able to: 1. understand the science behind climate change and the Earth's climate system. 2. identify the causes and consequences of climate change at global, regional, and local levels. 3. analyze the impact of climate change on natural systems, societies, and economies. 4. examine global, national, and community-level responses to climate change, including mitigation and adaptation strategies.		
Credits	Theory	Practical	Total
	02	00	02
Contact Hours	02	-	02
Max. Marks:50 Internal Assessment Marks:15 End-Term Exam Marks: 35		Time:3 hours	

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Part B- Contents of the Course

Instructions for Paper-Setter

Question 1 is compulsory comprising seven sub-parts spread over the entire syllabus (one mark for each sub-part), to be answered in brief. There will be eight long questions, two from each unit. The candidate has to answer four long questions, at least one question from each unit. All questions carry equal marks.

Unit	Topics	Contact Hours
I	1. Climate and Weather: Concepts, Components of Climate System (Atmosphere, Hydrosphere, Biosphere) 2. Evidence of Climate Change: Global Temperature Rise, Melting Glaciers, Sea Level Rise, Extreme Events	7
II	3. Causes of Climate Change: Natural vs Anthropogenic (GHG Emissions, Fossil Fuels, Deforestation) 4. Carbon Cycle and Feedback Mechanisms	8
III	5. Impacts of Climate Change: On Water Resources, Agriculture, Biodiversity, and Health 6. Climate Vulnerability of India: Regional Impacts, Urban Heat Islands, Droughts and Floods	7
IV	7. Climate Action and Global Frameworks: UNFCCC, IPCC, COP Summits, Paris Agreement 8. Adaptation & Mitigation Strategies: Renewable Energy, Afforestation, Lifestyle for Environment (LiFE), Climate Justice	8
V*	NA	

Suggested Evaluation Methods

Internal Assessment:	End-Term Examination:
➤ Theory • Class Participation: 04 Marks • Seminar/presentation/assignment/quiz/class test etc.: 04 Marks • Mid-Term Exam: 07 Marks ➤ Practicum • Class Participation: NIL • Seminar/Demonstration/Viva-voce/Lab records etc.: NIL • Mid-Term Exam: NIL	35 Marks NIL

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Part C-Learning Resources

Recommended Books/e-resources/LMS:

1. IPCC Reports (AR6 Synthesis Report) – <https://www.ipcc.ch>
2. Kump, L.R., Kasting, J.F., & Crane, R.G. (2010). *The Earth System*, Pearson.
3. Singh, M. (2020). *Climate Change and Environmental Ethics*, Rawat Publications.
4. Mark Maslin (2021). *Climate Change: A Very Short Introduction*, Oxford University Press.
5. National Action Plan on Climate Change (NAPCC) – <https://moef.gov.in>
6. NASA Climate Change Portal – <https://climate.nasa.gov>
7. UNDP India – Climate Resilience Programs – <https://www.in.undp.org>
8. TED Talks & Documentaries:
 - i. *Before the Flood* (NatGeo)
 - ii. *An Inconvenient Truth* (Al Gore)
 - iii. *Our Planet* (Netflix/WWF)

*Applicable for courses having practical components.

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Reaction

VAC-4			
Session: 2024-25			
Part A - Introduction			
Subject	Geography		
Semester	IV		
Name of the Course	Environmental Ethics		
Course Code	25UN-GEO-VAC-403		
Course Type: (CC/MCC/MDC/CC-M/DSEC/VOC/DSE/PC/AEC/VAC)	VAC		
Level of the course (As per Annexure-I)	200-299		
Pre-requisite for the course (if any)	NA		
Course Learning Outcomes (CLO):	After completing this course, the learner will be able to: 1. understand key concepts and schools of thought in environmental ethics. 2. analyze the moral dimensions of human-environment relationships. 3. evaluate contemporary environmental problems through ethical frameworks. 4. reflect on indigenous, cultural, and spiritual values related to nature and sustainability.		
Credits	Theory	Practical	Total
	02	00	02
Contact Hours	02	-	02
Max. Marks:50 Internal Assessment Marks:15 End-Term Exam Marks: 35		Time:3 hours	

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Part B- Contents of the Course

Instructions for Paper-Setter

Question 1 is compulsory comprising seven sub-parts spread over the entire syllabus (one mark for each sub-part), to be answered in brief. There will be eight long questions, two from each unit. The candidate has to answer four long questions, at least one question from each unit. All questions carry equal marks.

Unit	Topics	Contact Hours
I	1. Introduction to Environmental Ethics: Meaning, Scope, and Historical Development 2. Major Ethical Theories: Anthropocentrism, Biocentrism, Eco-centrism, Deep Ecology	7
II	3. Moral Standing of Nature: Intrinsic vs Instrumental Value, Rights of Nature 4. Ethics of Environmental Responsibility: Duties toward Non-Human Beings, Future Generations	8
III	5. Environmental Justice and Sustainable Development: Equity, Climate Ethics, Ecological Justice 6. Environmental Movements: Indian (e.g., Chipko, Narmada Bachao Andolan)	7
IV	7. Indian Philosophical Traditions and Indigenous Worldviews: Vedic, Jain, Buddhist, Tribal Ethics. 8. Spiritual Ecology and Ecological Citizenship: Ethics of Simplicity, Harmony with Nature.	8
V*	NA	

Suggested Evaluation Methods

Internal Assessment:	End-Term Examination:
➤ Theory • Class Participation: 04 Marks • Seminar/presentation/assignment/quiz/class test etc.: 04 Marks • Mid-Term Exam: 07 Marks ➤ Practicum • Class Participation: NIL • Seminar/Demonstration/Viva-voce/Lab records etc.: NIL • Mid-Term Exam: NIL	35 Marks NIL

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K. S. Chatterjee

Part C-Learning Resources

Recommended Books/e-resources/LMS:

1. Des Jardins, J.R. (2012). *Environmental Ethics: An Introduction to Environmental Philosophy*, Wadsworth.
2. Palmer, C. (2003). *Environmental Ethics*, ABC-CLIO.
3. Guha, R. (2006). *How Much Should a Person Consume? Environmentalism in India and the United States*, Permanent Black.
4. Sessions, G. (Ed.) (1995). *Deep Ecology for the 21st Century*, Shambhala Publications.
5. Dwivedi, O.P. (1997). *India's Environmental Policies, Programmes, and Stewardship*, Macmillan.
6. E-resources:
 - i. Stanford Encyclopedia of Philosophy – *Environmental Ethics* <https://plato.stanford.edu>
 - ii. United Nations Environment Programme (UNEP) – <https://www.unep.org>
 - iii. IGNCA & IKS Division – for Indigenous Knowledge and Nature-Human Harmony
7. **Documentary Resources:**
 - i. *The 11th Hour* (Narrated by Leonardo DiCaprio)
 - ii. *The Story of Stuff* (Annie Leonard)
 - iii. *Sacred Groves: India's Spiritual Forests* (Films Division)

*Applicable for courses having practical components.

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