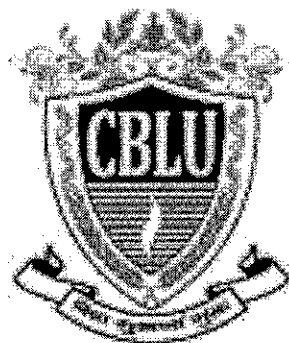


**CHAUDHARY BANSI LAL UNIVERSITY,
BHIWANI, HARYANA**



Scheme of Examination for Under-Graduate Programmes

Subject: Geography

**According to Curriculum Framework for Under-
Graduate Programmes**

As per NEP-2020

**(Multiple Entry-Exit, Internships and
Choice Based Credit System)**

(For the Batches Admitted From 2024-2025)

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Chaudhary Bansi Lal University, Bhiwani
Scheme of Examination for Undergraduate programmes
Subject: Geography

According to Curriculum Framework for Undergraduate Programmes as per NEP 2020

(Multiple Entry-Exit, Internships and Choice Based Credit System)

To be implemented w.e.f. Academic Session 2024-25 in Chaudhary Bansi Lal University and Its Affiliated Colleges

Sem.	Course Type	Applicable Scheme	Course Code	Nomenclature of paper	Credits	Contact hours	Internal marks	End term Marks	Total Marks	Duration of exam (Hrs.) T + P
Sem-1	CC-1 MCC-1	A, B & C	24UN-GEO-101	Physical Geography (Theory)	3	3	20	50	70	3
				Physical Geography (Practical)	1	2	10	20	30	3
	MCC-2	C	24UN-GEO-102	Fundamentals of Resource Geography (Theory)	3	3	20	50	70	3
				Fundamentals of Resource Geography (Practical)	1	2	10	20	30	3
	*CC-M1	A, B & D	24UN-GEO-103	General Geography of Haryana	2	2	15	35	50	3
Sem-2				Physical Geography of India (Theory)	2	2	15	35	50	3
	MDC-I	A, B & C	24UN-GEO-MDC 101	Physical Geography of India (Practical)	1	2	5	15	20	3
				Human Geography (Theory)	3	3	20	50	70	3
	CC-2 MCC-3	A, B & C	24UN-GEO-201	Human Geography (Practical)	1	2	10	20	30	3
				Cartographic Techniques in Geography (Theory)	3	3	20	50	70	3
	DSEC-1	C	24UN-GEO-202	Cartographic Techniques in Geography (Practical)	1	2	10	20	30	3
	*CC-M2	A, B & D	24UN-GEO-203	General Geography of India	2	2	15	35	50	3
				General Geography of India (Theory)	2	2	15	35	50	3
	MDC-II	A, B & C	24UN-GEO- MDC 201	General Geography of India (Practical)	1	2	5	15	20	3

*For students who opt Geography as a minor subject.

Chaudhary Bansi Lal University, Bhiwani
Scheme of Examination for Undergraduate Programmes

Subject: Geography (Skill Enhancement Courses)

According to Curriculum Framework for Undergraduate Programmes as per NEP 2020

(Multiple Entry-Exit, Internships and Choice Based Credit System)

To be implemented w.e.f. Academic Session 2024-25 in Chaudhary Bansi Lal University and Its Affiliated Colleges

Semester	Course Type	Applicable Scheme	Course Code	Nomenclature of paper	Credits	Contact Hours	Internal Marks	End term Marks	Total Marks	Duration of exam (Hrs.) T + P
Sem-I	SEC-1	A, B, C, D	24UN-GEO-SEC101	Digital Cartography (Theory)	2	2	15	35	50	3
				Digital Cartography (Practical)	1	2	5	15	20	3
		A, B, C, D	24UN-GEO-SEC102	IT for Spatial Science (Theory)	2	2	15	35	50	3
				IT for Spatial Science (Practical)	1	2	5	15	20	3
Sem - II	SEC-2	A, B, C, D	24UN-GEO-SEC103	Spatial Data Science and Application (Theory)	2	2	15	35	50	3
				Spatial Data Science and Application (Practical)	1	2	5	15	20	3
		A, B, C, D	24UN-GEO-SEC104	Web GIS (Theory)	2	2	15	35	50	3
				Web GIS (Practical)	1	2	5	15	20	3
		A, B, C, D	24UN-GEO-SEC201	Map Making Techniques (Theory)	2	2	15	35	50	3
				Map Making Techniques (Practical)	1	2	5	15	20	3
		A, B, C, D	24UN-GEO-SEC202	Remote Sensing (Theory)	2	2	15	35	50	3
				Remote Sensing (Practical)	1	2	5	15	20	3
Sem - II	SEC-2	A, B, C, D	24UN-GEO-SEC203	Geospatial Technology and Resource Management (Theory)	2	2	15	35	50	3
				Geospatial Technology and Resource Management (Practical)	1	2	5	15	20	3
		A, B, C, D	24UN-GEO-SEC204	GIS, Mapping and Spatial Analysis (Theory)	2	2	15	35	50	3
				GIS, Mapping and Spatial Analysis (Practical)	1	2	5	15	20	3

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Chaudhary Bansi Lal University Bhiwani
Syllabus for Under Graduate Programmes as per NEP- 2020
(Multiple Entry – Exit, Internships and Choice Based Credit System)
w.e.f. 2024-25

CC-I/MCC-I			
Session: 2024-25			
Part A - Introduction			
Subject	Geography		
Semester	I		
Name of the Course	Physical Geography		
Course Code	24UN-GEO-101		
Course Type: (CC/MCC/MDC/CCM/DSEC/VOC/ DSE/PC/AEC/VAC)	CC/MCC		
Level of the course (As per Annexure-I)	100-199		
Pre-requisite for the course (if any)	N.A.		
Course Learning Outcomes (CLOs):	After completing this course, the learner will be able to: 1. acquire the knowledge about basic concepts of geo-tectonics. 2. understand about the agents and processes of change on the surface of earth. 3. enrich knowledge about atmosphere and its climate. 4. attain knowledge about ocean surface configuration and circulation in oceanic water. 5* attain skills in solving practical problems associated with physical 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		
<u>Instructions for Paper- Setter</u>		
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. Interior of the earth, geological time scale, rocks and their types. 2. Theory of isostasy, continental drift and plate tectonic; earthquakes and volcanoes.	11
II	3. Degradational processes: weathering, mass wasting and resultant landforms. 4. Landforms generated by following geomorphic agents: river, under-ground water, wind and glacier.	11
III	5. Weather and climate: Atmosphere-composition and structure. 6. Atmospheric temperature, pressure and moisture: measurement and distribution.	11
IV	7. Surface configuration of ocean floors: surface relief of the Pacific, Atlantic and Indian Ocean. 8. Circulation of oceanic waters: current of the Pacific, Atlantic and Indian Ocean.	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. Identification and collection of rock samples: granite, basalt, laterite, limestone, shale, sandstone, conglomerate, slate, phyllite, schist, gneiss, quartzite (1 exercise). 2. Extraction of physiographic information from Survey of India 1:50000 topographical maps of mountain, plateau	30

	and plain regions (2 exercises). 3. Measurement of weather elements using analogue instruments: temperature (maximum, minimum and mean) relative humidity, rainfall and preparation of climograph, hythergraph and hyetograph (3 exercises). 4. Interpretation of a daily weather map of India: Pre-Monsoon, Monsoon and Post-Monsoon (2 exercises).	
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: 1. Barry, RG and Chorley, RJ (1998) Atmosphere, Weather and Climate, Routledge, London. 2. Bunnett, RB (1987) Physical Geography in Diagrams, Pearson Education, New Delhi. 3. Critchfield, H (2002) General Climatology, Prentice-Hall of India, New Delhi. 4. Kale, V and Gupta, A (2001) Element of Geomorphology, Oxford University Press, Calcutta. 5. Khullar, DR (2014) Physical Geography, Kalyani Publishers, New Delhi. 6. Monkhouse, FJ (1960) Principles of Physical Geography. Hodder and Stoughton, London. 7. Singh, S (1998) Geomorphology, Prayag Publication, Allahabad. 8. Singh, S (2012) Physical Geography, Prayag Publication, Allahabad. 9. Thornbury, WD (1969) Principles of Geomorphology, John Wiley and Sons, New York. 10. Trewartha, GT (1981) An Introduction to Climate, Mc-Graw Hill, New York.		

*Applicable for courses having practical component.

MCC-2			
Session: 2024-25			
Part A – Introduction			
Subject	Geography		
Semester	I		
Name of the Course	Fundamentals of Resource Geography		
Course Code	24UN-GEO-102		
Course Type: (CC/MCC/MDC/CCM/DSEC/VOC/ DSE/PC/AEC/VAC)	MCC		
Level of the course (As per Annexure-I)	100-199		
Pre-requisite for the course (if any)	NA		
Course Learning Outcomes (CLOs):	After completing this course, the learner will be able to: 1. acquaint with nature, techniques and field of resource geography. 2. enhance knowledge about classification and development process of natural resources. 3. provide knowledge on location, conservation and management methods of resources for sustainable development. 4. provide knowledge about concepts, policies, problems and models of natural resource utilization. 5* attain skills in mapping and monitoring of land, water, forest and mineral resources.		
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	
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), to be answered in 15-20 words. 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, techniques and importance of resource geography. 2. Concepts of resource: exploitation, accumulation, poverty and resource degradation.	11
II	3. Classification of resources: renewable and non-renewable, biotic and abiotic resources. 4. Relationship between natural resources and development process. Role of technology in natural resource development.	11
III	5. Distribution, utilization, problems and management of land and water resources. 6. Distribution, utilization, problems and management of forest and mineral resources.	12
IV	7. Models of natural resources process: Zimmermann's primitive and Kirk's decision models. 8. Sustainable resource development; Policies and challenges of natural resource management.	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. Preparation of land use/land cover map of an area from topographical sheets and aerial photographs (2 exercises). 2. Mapping of forest cover of an area from topographical sheets and aerial photographs (2 exercises). 3. Mapping of water bodies of an area from topographical sheets and aerial photographs (2 exercises). 4. Decadal changes in country-wise production of coal and iron ore with comparative decadal changes (2 exercises).	30

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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
Part C-Learning Resources	
Recommended Books/e-resources/LMS: 1. Barbier, EB (2005) Natural Resources and Economic Development, Cambridge University Press, Cambridge. 2. Bhatta, B (2011) Remote Sensing and GIS, Oxford University Press, New Delhi. 3. Borton, I and Kates, RW (1984) Readings in Resource Management and Conservation, University of Chicago Press, Chicago. 4. Bruce, M (1989) Geography and Resource Analysis, John Wiley and Son, New York. 5. Chiras, DD and Reganold, JP (2009) Natural Resource Conservation: Management for a Sustainable Future, Pearson, New Delhi. 6. Cutter SN, Renwick HL and Renwick W (1991) Exploitation, Conservation, Preservation: A Geographical Perspective on Natural Resources Use, John Wiley and Sons, New York. 7. Gadgil M and Guha R (2005) The Use and Abuse of Nature: Incorporating This Fissured Land: An Ecological History of India and Ecology and Equity, Oxford University Press, USA. 8. Gautam, A (2013) Geography of Resources: Exploitation, Conservation and Management. Sharda Pustak Bhawan, Allahabad. 9. Guha, JL and PR Chattroj (1994) Economic Geography-A Study of Resources, The World Press, Calcutta. 10. Holechek JLC, Richard A, Fisher JT and Valdez R (2003) Natural Resources: Ecology, Economics and Policy, Prentice Hall, New Jersey. 11. Jones G and Hollier G (1997) Resources, Society and Environmental Management, Paul Chapman, London. 12. Klee G (1991) Conservation of Natural Resources, Prentice Hall, Englewood. 13. Lillesand, TM, Kiefer, RW and Chipman, JW (2015) Remote Sensing and Image Interpretation, John Wiley and Sons, New York. 14. Martino, RL (1969) Resource Management. Mc Graw Hill Book Company, London. 15. Mather AS and Chapman K (1995) Environmental Resources, John Wiley and Sons, New York. 16. Mitchell B (1997) Resource and Environmental Management, Longman Harlow, England.	

17. Negi, BS (2000) Geography of Resources, Kedar Nath and Ram Nath Publications, Meerut.
18. Owen, OS (1971) Natural Resource Conservation: An Ecological Approach, McMillan, New Delhi.
19. Owen S and Owen PL (1991) Environment, Resources and Conservation, Cambridge University Press, New York.
20. Raja, M (1989) Renewable Resources, Development, Concept Publication, New Delhi.
21. Rees J (1990) Natural Resources: Allocation, Economics and Policy, Routledge, London.
22. Roy, PK (2006) Resource Studies, New Central Book Agency, Calcutta.
23. Shetty, R (2009) An Analysis of World Resources with reference to India, Sarala Raj Ria Publishers, Mysore.
24. Zimmermann, EW (1951) World Resources and Industries, Harper and Brothers, New Delhi.

*Applicable for courses having practical component.



CC-M1			
Session: 2024-25			
Part A - Introduction			
Subject	Geography		
Semester	I		
Name of the Course	General Geography of Haryana		
Course Code	24UN-GEO-103		
Course Type: (CC/MCC/MDC/CC-M/DSEC/VOC/DSE/PC/AEC/VAC)	CC-M		
Level of the course (As per Annexure-I)	100-199		
Pre-requisite for the course (if any)	NA		
Course Learning Outcomes (CLO):	After completing this course, the learner will be able to: 1. acquaint with physiography and climate of state. 2. understand the agriculture and industrial status of the state. 3. familiarize with population distribution and literacy of the state. 4. gain knowledge of trade and transport of Haryana. 5*. NA		
Credits	Theory	Practical	Total
	02	00	02
Contact Hours	2	-	2
Max. Marks:50 Internal Assessment Marks:15 End-Term Exam Marks: 35		Time:3 hours	
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 10-15 words. 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. Physiography, relief and climate of Haryana. 2. Drainage, soils and natural vegetation.	7
II	3. Agriculture: cropping pattern and challenges. 4. Major industries and industrial centres of Haryana.	8
III	5. Population: distribution, density and growth. 6. Population composition: structure and literacy.	8
IV	7. Pattern of trade and transport. 8. Cultural regions of Haryana.	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

1. Census of India (1981) Regional Division in Haryana.
2. Census of India (2001) Administrative Atlas of Haryana.
3. Deshpande CD (1992) India: A Regional Interpretation, ICSSR and Northern Book Centre.
4. FICCI (2007) State of Infrastructure in Haryana.
5. Singh, Jasbir (1976) Agricultural Geography of Haryana, Vishal Publishers, Kurukshetra.
6. Singh, R.L. (1971) India-A Regional Geography, National Geographical Society, Varanasi

7. Spate OHK and ATA Learmonth (1971) India and Pakistan, Methuen, London.
8. Tirtha R and Gopal Krishna (1996) Emerging India, Rawat Publications, Jaipur.
9. Regional division of Haryana, census of India, Chandigarh

* Applicable for courses having practical components.

MDC-1			
Session: 2024-25			
Part A – Introduction			
Subject	Geography		
Semester	I		
Name of the Course	Physical Geography of India		
Course Code	24UN-GEO-MDC101		
Course Type: (CC/MCC/MDC/CC- M/DSEC/VOC/DSE/PC/AEC/VA C)	MDC		
Level of the course (As per Annexure-I	100-199		
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 geological and physiographic structure of India. 2. enrich skills about drainage system and various hydrological regimes. 3. understand the climate and its characteristics. 4. acquire knowledge about different types of flora and soils found in India. 5* attain skills in solving various practical problem associated with physical aspects of India.		
Credits	Theory	Practical	Total
	2	1	3
Contact Hours	2	2	4
Max. Marks:70 Internal Assessment Marks: 5+15 =20 End-Term Exam Marks: 35+15 = 50		Time:3 hours	
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 10-15 words. 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. Geological history and regions of India. 2. Physiographic structure and divisions.	7
II	3. Drainage system and its evolution. 4. Hydrological regimes of Indian rivers.	7
III	5. Climate: distribution of temperature, pressure and rainfall; classification and affecting factors. 6. Monsoon: circulation, mechanism and theories.	8
IV	7. Natural vegetation: classification, distribution and inter-relationships 8. Soils: classification, distribution and inter-relationships.	8
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 = 05 marks File record = 5 marks Viva-Voce = 5 marks Practical Record: A project file consisting of 8 exercises on the below mentioned themes: - 1. Hydrological regimes of peninsular and Himalayan rivers (2 exercises). 2. Annual trend of temperature for more than three decades (maximum, minimum and mean) (2 exercises). 3. Comparative analysis of seasonal variability of rainfall from different climatic reasons of India (2 exercises). 4. Preparation of an inventory of flora and fauna in India (1 exercise). 5. Preparation of an inventory of major geological disasters in past one decade in India (1 exercise).	30
Suggested Evaluation Methods		

Internal Assessment: > Theory • Class Participation: 04 Marks • Seminar/presentation/assignment/quiz/class test etc.: 04 Marks • Mid-Term Exam: 07 Marks	End-Term Examination: 35 Marks
> Practicum • Class Participation: NIL • Seminar/Demonstration/Viva-voce/Lab records etc.: 05 Marks • Mid-Term Exam: NIL	15 Marks
Part C-Learning Resources	
Recommended Books/e-resources/LMS: 1. Deshpande, C.D. (1992) India-A Regional Interpretation, Northern Book Depot, New Delhi. 2. Hussain Majid (2015) Geography of India, Mc Graw Hill Education. 3. Shafi, M. (2000) Geography of South Asia, McMillan and Company, Calcutta. 4. Singh, Gopal (2006) Geography of India, Atma Ram and Sons, New Delhi. 5. Singh, R.L. (1971) India: A Regional Geography, National Geographical Society, India, Varanasi.	

*Applicable for courses having practical components.

CC-2/MCC-3			
Session: 2024-25			
Part A - Introduction			
Subject	Geography		
Semester	II		
Name of the Course	Human Geography		
Course Code	24UN-GEO-201		
Course Type: (CC/MCC/MDC/CC-M/DSEC/VOC/DSE/PC/AEC/VAC)	CC/MCC		
Level of the course (As per Annexure-I)	100-199		
Pre-requisite for the course (if any)	N.A.		
Course Learning Outcomes (CLO):	After completing this course, the learner will be able to: 1. gain knowledge about the fundamentals of human geography. 2. enhance the knowledge of race and religion. 3. understand the organization of space. 4. familiarize with world economic systems. 5* gain knowledge of mapping socio – economic and demographic data.		
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	
Part B- Contents of the Course			

<u>Instructions for Paper- Setter</u>		
Question 1 is compulsory consisting of five sub parts spread over entire syllabus (two marks for each sub parts), to be answered in 15-20 words. 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 and scope of human geography. 2. Development of human geography approaches to study human geography, branches and relation with other social sciences.	11
II	3. Human race: Meaning, classification of races and their global diffusion and distribution. 4. Religion: Meaning, nature and classification. Evolution and global distribution of major religions in the world.	11
III	5. Organization of space: central place theory, agricultural location model and industrial location model. 6. Distribution, density and growth of population: Determinants and world pattern.	11
IV	7. World pattern of development: economy and polity 8. World pattern of migration: streams and determinants	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

12. Michael, C. (1996) New Patterns: Process and Change in Human Geography, Nelson.
13. Qazi, S.A. (2010) Population Geography, APH publishers.
14. Ramachandra, R. (1992) Urbanization and Urban System in India, Oxford, London.
15. Sharma, Y.K. (2017). Human Geography, Narain publishers.
16. Singh, N. (2015) A Text Book of Human Geography, Rajesh Publishing.

*Applicable for courses having practical component.



DSEC-1			
Session: 2024-25			
Part A – Introduction			
Subject	Geography		
Semester	II		
Name of the Course	Cartographic Techniques in Geography		
Course Code	24UN-GEO-202		
Course Type: (CC/MCC/MDC/CC-M/DSEC/VOC/DSE/PC/AEC/VAC)	DSEC		
Level of the course (As per Annexure-I)	100-199		
Pre-requisite for the course (if any)	N.A.		
Course Learning Outcomes (CLO):	After the completion of course, the students will have ability to: 1. understand and differentiate types of map scales. 2. become aware about the applications of map scales. 3. gains the basic understanding of map making and will be able to prepare different kinds of thematic maps. 4. apprehend the knowledge about surveying and survey tools. 5* acquire skills to make use of scales and making thematic maps and diagrams		
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:3 hours	

Part B- Contents of the Course		
<u>Instructions for Paper-Setter</u> Question 1 is compulsory comprising five sub-parts spread over the entire syllabus (two marks for each sub-part), to be answered in 15-20 words. 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 and scope of cartography, historical and recent development. 2. Drawing instruments: properties and characteristics; drawing techniques.	11
II	3. Scale: types, significance and applications. 4. Maps: classification, characteristics, significance and limitations.	11
III	5. Basic concepts of surveying and survey equipment's, coordinate system and map: magnetic and true north, polar and rectangular. 6. Techniques of map enlargement and reduction; map producing agencies in India (GSI, SOI, FSI, NATMO, NBBSLUP, NRSC, AISSLUP and IMD).	11
IV	7. Methods and representation of climatic data. 8. Methods and representation of socio-economic data.	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. Graphical representation of scales (2 exercises) 2. Construction of thematic maps (3 exercises) 3. Representation of data by one, two and three-dimensional diagrams (3 exercises)	30

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: - Dent, B.D. (1999) Cartography: Thematic Map Design, (Vol. 1), McGraw Hill. - Gupta, K.K. and Tyagi, V.C (1992) Working with Maps, Survey of India, DST, New Delhi. - Monkhouse, F.J and Wilkinson, H.R (1971) Maps and Diagrams. Methuen and Co. Ltd., London - Ramamurthy, K (1982) Map Interpretation, Rex Printers, Madras. - Robinson A (1953) Elements of Cartography, John Wiley. - Siddhartha, K (2006) Geography through maps, Kisalaya Publications Pvt. Ltd, Delhi - Singh, G (2005) Map work and practical geography. Vikas Publishing House Pvt. Ltd., New Delhi - Singh, L.R and Singh, R (1973) Map work and practical geography, Central Book Allahabad - Singh, R.L (2005) Elements of Practical Geography. Kalyani Publishers, New Delhi. India.	

*Applicable for courses having practical components.

CC-M2			
Session: 2024-25			
Part A - Introduction			
Subject	Geography		
Semester	II		
Name of the Course	General Geography of India		
Course Code	24UN-GEO-203		
Course Type: (CC/MCC/MDC/CC-M/DSEC/VOC/DSE/PC/AEC/VAC)	CC-M		
Level of the course (As per Annexure-I)	100-199		
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 location, geographical expansion, and physiography. 2. have acquaintance with the drainage and climate. 3. enrich knowledge about peopling of the nation. 4. internalize the concept of unity in diversity of our nation. 5* NA		
Credits	Theory	Practical	Total
	02	00	02
Contact Hours	2	-	2
Max. Marks:50 Internal Assessment Marks:15 End-Term Exam Marks: 35		Time:3 hours	
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 10-15 words. 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. India: Locational setting and geographical expansion. 2. Physiographic divisions of India.	8
II	3. Drainage system and climate. 4. Soil and natural vegetation.	8
III	5. The Peopling of India. 6. Population distribution, density and growth.	7
IV	7. Population composition: ethnic and socio-cultural attributes (castes and tribes). 8. Unity in diversity in India.	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: 7 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. Bose, A. et. al. eds (2001) Population in India's Development, 1947-2000, Vikas, New Delhi.
2. Deshpande C. D. (1992) India: A Regional Interpretation, ICSSR, New Delhi.
3. Johnson, B. L. C., ed. (2001) Geographical Dictionary of India. Vision Books, New Delhi.
4. Mandal R. B. (ed.) (1990) Patterns of Regional Geography – An International Perspective. Vol. 3 – Indian Perspective.
5. Sdyasuk Galina and P Sengupta (1967) Economic Regionalisation of India, Census of India
6. Sharma, T. C. (2003) India - Economic and Commercial Geography. Vikas Publ., New Delhi.
7. Singh R. L. (1971) India: A Regional Geography, National Geographical Society of India.
8. Singh, Jagdish (2003) India - A Comprehensive & Systematic Geography, Gyanodaya Prakashan, Gorakhpur.
9. Spate O. H. K. and Learmonth A. T. A. (1967) India and Pakistan: A General and Regional Geography, Methuen

10. Pathak, C. R. (2003) Spatial Structure and Processes of Development in India. Regional Science Assoc., Kolkata.
11. Tirtha, Ranjit (2002) Geography of India, Rawat Publs., Jaipur & New Delhi.

*Applicable for courses having practical components.



MDC-II			
Session: 2024-25			
Part A - Introduction			
Subject	Geography		
Semester	II		
Name of the Course	General Geography of India		
Course Code	24UN-GEO-MDC201		
Course Type: (CC/MCC/MDC/CC- M/DSEC/VOC/DSE/PC/AEC/VA C)	MDC		
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. gain knowledge about population characteristics of India. 2. have understanding about distribution of tribes in India 3. acquaint with distribution of religion in India 4. gain insight into intricacies of caste structure of India 5* understand the mapping of racial and cultural characteristics of Indian population		
Credits	Theory	Practical	Total
	2	1	3
Contact Hours	2	2	4
Max. Marks: 70 Internal Assessment Marks: 15+05=20 End Term Exam Marks: 35+15=50		Time: 03 Hours	
Part B- Contents of the Course			
Instructions for Paper- Setter			

Question 1 is compulsory comprising of seven sub parts spread over entire syllabus (one mark for each sub part), to be answered in 10-15 words. There will be eight long questions, two from each unit. All questions carry equal marks.

Unit	Topics	Contact Hours
I	1. Population distribution, density and growth. 2. Population composition, sex ratio and literacy.	11
II	3. Pattern and growth of urbanization. 4. Working population: composition and distribution.	11
III	5. Distribution of scheduled tribe population in India 6. Religion: distribution of major religions in India.	11
IV	7. Linguistic and cultural diversity in India. 8. Unity and diversity in India.	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. Age and sex pyramid of Indian population (1 exercise). 2. State wise distribution and composition of working population in India (1 exercises). 3. Map the scheduled tribe population distribution in India (1 exercises). 4. Concentration of urban population by location quotient (1 exercise). 5. Distribution of scheduled caste population (1 exercises). 6. Composition of the major religions in India (1 exercises). 7. Distribution of literacy –rural - urban and male-female (2 exercises).	30

Chaudhary Bansi Lal University, Bhiwani
Syllabus of Examination for Undergraduate Programmes
Subject: Geography (Skill Enhancement Courses)
According to Curriculum Framework for Undergraduate Programmes as per NEP 2020
(Multiple Entry-Exit, Internships and Choice Based Credit System)
To be implemented w.e.f. Academic Session 2024-25 in CBLU and Its Affiliated Colleges

SEC-1			
Session: 2024-25			
Part A – Introduction			
Subject	Geography		
Semester	I		
Name of the Course	Digital Cartography		
Course Code	24UN-GEO- SEC-101		
Course Type: (CC/MCC/MDC/CC- M/DSEC/VOC/DSE/PC/AEC/VA C/SEC-1)	SEC		
Level of the course (As per Annexure-I)	100-199		
Pre-requisite for the course (if any)	N.A.		
Course Learning Outcomes (CLO):	1. understand the principles of cartographic design and digital map-making. 2. learn the use of GIS software for creating and analyzing digital maps. 3. explore the role of data visualization in cartography. 4. develop skills in using digital tools for spatial data representation. 5*.integrate spatial data from various sources for digital mapping.		
Credits	Theory	Practical	Total
	2	1	3
Contact Hours	2	2	4

Section

Max. Marks:70 Internal Assessment Marks: 15+05 =20 End-Term Exam Marks: 35+15 = 50		Time:3 hours
Part B- Contents of the Course		
<u>Instructions for Paper-Setter</u> Question 1 is compulsory comprising seven sub-parts spread over the entire syllabus (one mark for each sub-part), to be answered in 10-15 words. 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, scope and significance of cartography 2. History and evolution of cartographic techniques	7
II	3. Analog vs. Digital Cartography 4. Basic Elements of Map Design: Scale, Projections, Symbols, etc.	7
III	5. Vector and Raster Data 6. Data Acquisition: Sources of Spatial Data	8
IV	7. Thematic Maps: Choropleth, Isoline, Proportional Symbols, etc. 8. Integration and Overlay of Raster and Vector Data	8
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 = 05 marks File record = 05 marks Viva-Voce = 05 marks Practical Record: A project file consisting of 8 exercises on the below mentioned themes: - 1. Interpretation of Analogue & Digital Maps (1 exercises). 2. Geo-referencing of Topographical Sheets (2 exercises). 3. Digitization of Geographic Features (Point, Line and Polygon) (3 exercises). 4. Preparation of Layout of Map (1 exercise). 5. Preparation of Choropleth Map from Socio-Economic Data (1 exercise).	30
Suggested Evaluation Methods		

Internal Assessment: > Theory • Class Participation: 04 Marks • Seminar/presentation/assignment/quiz/class test etc.: 04 Marks • Mid-Term Exam: 07 Marks	End-Term Examination: 35 Marks
> Practicum • Class Participation: NIL • Seminar/Demonstration/Viva-voce/Lab records etc.: 05 Marks • Mid-Term Exam: NIL	15 Marks
Part C-Learning Resources	
Recommended Books/e-resources/LMS: 1. Kraak, M.-J., & Ormeling, F. (2010) <i>Cartography: Visualization of Geospatial Data</i>, Pearson Education Limited, Harlow. 2. Peterson, G.N. (2015) <i>GIS Cartography: A Guide to Effective Map Design</i>, CRC Press, Boca Raton. 3. Robinson, A.H., Morrison, J.L., Muehrcke, P.C., Kimerling, A.J., & Guptill, S.C. (1995) <i>Elements of Cartography</i> (6th ed.), John Wiley & Sons, New York. 4. Slocum, T.A., McMaster, R.B., Kessler, F.C., & Howard, H.H. (2009) <i>Thematic Cartography and Geovisualization</i>, Pearson Prentice Hall, Upper Saddle River. 5. Tyner, J.A. (2010) <i>Principles of Map Design</i>, The Guilford Press, New York. 6. Dent, B.D., Torguson, J.S., & Hodler, T.W. (2009) <i>Cartography: Thematic Map Design</i> (6th ed.), McGraw-Hill, New York. 7. Slocum, T.A. (1999) <i>Thematic Cartography and Visualization</i>, Prentice Hall, Upper Saddle River. 8. MacEachren, A.M. (1995) <i>How Maps Work: Representation, Visualization, and Design</i>, The Guilford Press, New York.	

*Applicable for courses having practical components.

SEC-1			
Session: 2024-25			
Part A – Introduction			
Subject	Geography		
Semester	I		
Name of the Course	IT for Spatial Science		
Course Code	24UN-GEO- SEC-102		
Course Type: (CC/MCC/MDC/CC- M/DSEC/VOC/DSE/PC/AEC/VA C/SEC-1)	SEC		
Level of the course (As per Annexure-I	100-199		
Pre-requisite for the course (if any)	N.A.		
Course Learning Outcomes (CLO):	1. understand the role of IT in spatial data collection, analysis, and visualization. 2. introduce students to software tools and technologies used in spatial sciences, such as GIS, remote sensing, and databases. 3. develop skills in data acquisition, management, and spatial analysis. 4. develop skills in using digital tools for spatial data representation. 5*. interpretation of the spatial data, spatial data management and map making,		
Credits	Theory	Practical	Total
	2	1	3
Contact Hours	2	2	4
Max. Marks:70 Internal Assessment Marks: 15+05 =20 End-Term Exam Marks: 35+15 = 50		Time:3 hours	
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 10-15 words. 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 IT in Spatial Science 2. Spatial Data: Types, Formats, and Sources	7
II	3. Introduction to GIS: Concepts, Components, and Applications 4. Spatial Data Acquisition, Storage, and Management in GIS	7
III	5. Introduction to Remote Sensing: Principles and Techniques 6. Applications of Remote Sensing in Environmental Monitoring	8
IV	7. Introduction to Database Management Systems (DBMS), Data Visualization Techniques for Spatial Science 8. Mobile and Web GIS and its Application	8
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 = 05 marks File record = 05 marks Viva-Voce = 05 marks Practical Record: A project file consisting of 8 exercises on the below mentioned themes: - 1. Interpretation of Vector Data (2 exercises). 2. Interpretation of Raster Data (2 exercises). 3. Introduction to GIS Software (ArcGIS/QGIS): Data Import, Analysis, and Visualization (2 exercises). 4. Spatial Database Management: Querying and Managing Spatial Data (2 exercises).	30
Suggested Evaluation Methods		

Internal Assessment: ➤ Theory • Class Participation: 04 Marks • Seminar/presentation/assignment/quiz/class test etc.: 04 Marks • Mid-Term Exam: 07 Marks	End-Term Examination: 35 Marks
➤ Practicum • Class Participation: NIL • Seminar/Demonstration/Viva-voce/Lab records etc.: 05 Marks • Mid-Term Exam: NIL	15 Marks
Part C-Learning Resources	
Recommended Books/e-resources/LMS: 1. Longley, P.A., Goodchild, M.F., Maguire, D.J., & Rhind, D.W. (2015) <i>Geographic Information Systems and Science</i>, John Wiley & Sons, New York. 2. Burrough, P.A., & McDonnell, R.A. (1998) <i>Principles of Geographical Information Systems</i>, Oxford University Press, Oxford. 3. Jensen, J.R. (2007) <i>Remote Sensing of the Environment: An Earth Resource Perspective</i>, Pearson Education, Upper Saddle River. 4. Heywood, I., Cornelius, S., & Carver, S. (2011) <i>An Introduction to Geographical Information Systems</i>, Pearson Education, Harlow. 5. Chang, K.-T. (2018) <i>Introduction to Geographic Information Systems</i>, McGraw-Hill, New York. 6. DeMers, M.N. (2008) <i>Fundamentals of Geographic Information Systems</i>, John Wiley & Sons, Hoboken. 7. Shekhar, S., & Chawla, S. (2003) <i>Spatial Databases: A Tour</i>, Prentice Hall, Upper Saddle River. 8. Schowengerdt, R.A. (2007) <i>Remote Sensing: Models and Methods for Image Processing</i>, Elsevier, Amsterdam. 9. Li, S., Dragicevic, S., & Veenendaal, B. (2011) <i>Advances in Web-based GIS, Mapping Services and Applications</i>, CRC Press, Boca Raton. 10. Tomlin, C.D. (1990) <i>Geographic Information Systems and Cartographic Modeling</i>, Prentice Hall, Englewood Cliffs.	

*Applicable for courses having practical components.

SEC-1			
Session: 2024-25			
Part A – Introduction			
Subject	Geography		
Semester	I		
Name of the Course	Spatial Data Science and Application		
Course Code	24UN-GEO- SEC-103		
Course Type: (CC/MCC/MDC/CC- M/DSEC/VOC/DSE/PC/AEC/VA C/SEC-1)	SEC		
Level of the course (As per Annexure-I	100-199		
Pre-requisite for the course (if any)	N.A.		
Course Learning Outcomes (CLO):	1. introduce the concepts and methodologies of spatial data science. 2. develop skills in handling and analyzing spatial data using modern data science techniques. 3. explore machine learning, statistics, and big data tools for spatial analysis. 4. provide hands-on experience with geospatial data and its applications in various fields. 5*. develop acutance in visualisation, analysis and interpretation of the spatial data and its application		
Credits	Theory	Practical	Total
	2	1	3
Contact Hours	2	2	4
Max. Marks:70 Internal Assessment Marks: 15+05 =20 End-Term Exam Marks: 35+15 = 50		Time:3 hours	
Part B- Contents of the Course			

Section

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 10-15 words. 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. Overview of Spatial Data Science & Role of Spatial Data in Data Science 2. Sources of Spatial Data: Remote Sensing, GPS, and Surveys	7
II	3. Geocoding and Spatial Data Integration, Spatial Databases and Big Data Management for Geospatial Data 4. Introduction to Open-Source Tools and Platforms (i.e. QGIS)	7
III	5. Exploratory Spatial Data Analysis (ESDA) 6. Spatial Statistics and Geostatistics	8
IV	7. Spatial Data Visualization and Web Mapping 8. Application of Spatial Data for Earth Resource Mapping	8
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 = 05 marks File record = 05 marks Viva-Voce = 05 marks Practical Record: A project file consisting of 8 exercises on the below mentioned themes: - 1. Collection of Spatial Data (2 exercises). 2. Representation of Spatial data on Map with QGIS (2 exercises). 3. Integration & Overlay of Spatial Data (2 exercises). 4. Application of Spatial Data for Earth Resource mapping (2 exercises).	30
Suggested Evaluation Methods		
Internal Assessment: > Theory • Class Participation: 04 Marks • Seminar/presentation/assignment/quiz/class test etc.: 04 Marks • Mid-Term Exam: 07 Marks		End-Term Examination: 35 Marks



➤ Practicum • Class Participation: NIL • Seminar/Demonstration/Viva-voce/Lab records etc.: 05 Marks • Mid-Term Exam: NIL	15 Marks
Part C-Learning Resources	
Recommended Books/e-resources/LMS: 1. Longley, P.A., Goodchild, M.F., Maguire, D.J., & Rhind, D.W. (2015) <i>Geographic Information Systems and Science</i>, John Wiley & Sons, New York. 2. Burrough, P.A., & McDonnell, R.A. (1998) <i>Principles of Geographical Information Systems</i>, Oxford University Press, Oxford. 3. Jensen, J.R. (2007) <i>Remote Sensing of the Environment: An Earth Resource Perspective</i>, Pearson Education, Upper Saddle River. 4. Heywood, I., Cornelius, S., & Carver, S. (2011) <i>An Introduction to Geographical Information Systems</i>, Pearson Education, Harlow. 5. Chang, K.-T. (2018) <i>Introduction to Geographic Information Systems</i>, McGraw-Hill, New York. 6. DeMers, M.N. (2008) <i>Fundamentals of Geographic Information Systems</i>, John Wiley & Sons, Hoboken. 7. Shekhar, S., & Chawla, S. (2003) <i>Spatial Databases: A Tour</i>, Prentice Hall, Upper Saddle River. 8. Schowengerdt, R.A. (2007) <i>Remote Sensing: Models and Methods for Image Processing</i>, Elsevier, Amsterdam. 9. Li, S., Dragicevic, S., & Veenendaal, B. (2011) <i>Advances in Web-based GIS, Mapping Services and Applications</i>, CRC Press, Boca Raton. 10. Tomlin, C.D. (1990) <i>Geographic Information Systems and Cartographic Modeling</i>, Prentice Hall, Englewood Cliffs.	

*Applicable for courses having practical components.



SEC-1			
Session: 2024-25			
Part A – Introduction			
Subject	Geography		
Semester	I		
Name of the Course	Web GIS		
Course Code	24UN-GEO- SEC-104		
Course Type: (CC/MCC/MDC/CC- M/DSEC/VOC/DSE/PC/AEC/VA C/SEC-1)	SEC		
Level of the course (As per Annexure-I	100-199		
Pre-requisite for the course (if any)	N.A.		
Course Learning Outcomes (CLO):	1. understand the principles and architecture of Web GIS. 2. Explore the various web-GIS portals and their application 3. learn how to publish, visualize, and interact with geospatial data on the web. 4. develop skills in using Web GIS platforms, such as Leaflet, OpenLayers, and ArcGIS Online. 5*. explore the applications of Web GIS in fields like urban planning, environmental monitoring, and disaster management.		
Credits	Theory	Practical	Total
	2	1	3
Contact Hours	2	2	4
Max. Marks:70 Internal Assessment Marks: 15+05 =20 End-Term Exam Marks: 35+15 = 50		Time:3 hours	
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 10-15 words. 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. Overview of Web GIS: Definition, Components, and Applications 2. Evolution of Web GIS: From Desktop GIS to Web GIS	7
II	3. Key Concepts: Servers, Clients, APIs, and Web Services 4. Spatial Data Formats for the Web: GeoJSON, KML, GML, Shapefiles	7
III	5. Spatial Data Infrastructure (SDI) and Data Sharing Protocols 6. Open-Source Web GIS Platforms: GeoServer, MapServer, PostGIS	8
IV	7. Explore the various Web_GIS Portals 8. Applications of Web GIS Urban Planning and Management Disaster Management and Crisis Mapping Citizen Science and Participatory GIS	8
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 = 05 marks File record = 05 marks Viva-Voce = 05 marks Practical Record: A project file consisting of 8 exercises on the below mentioned themes: - 1. Exploration of Various Web-GIS Portal and Their Application (2 exercises). 2. Create a Simple Web Map Using Leaflet/OpenLayers (2 exercises). 3. Interactive Mapping Using Mapbox API (2 exercises). 4. Application of Web-GIS for Urban Area (2 exercises).	30
Suggested Evaluation Methods		

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Internal Assessment: ➤ Theory • Class Participation: 04 Marks • Seminar/presentation/assignment/quiz/class test etc.: 04 Marks • Mid-Term Exam: 07 Marks	End-Term Examination: 35 Marks
➤ Practicum • Class Participation: NIL • Seminar/Demonstration/Viva-voce/Lab records etc.: 05 Marks • Mid-Term Exam: NIL	15 Marks
Part C-Learning Resources	
Recommended Books/e-resources/LMS: 1. Fu, P., & Sun, J. (2010) <i>Web GIS: Principles and Applications</i>, Esri Press, Redlands. 2. Mitchell, T. (2005) <i>Web Mapping Illustrated Using Open Source GIS Toolkits</i>, O'Reilly Media, Sebastopol. 3. Zhang, P. (2014) <i>Developing Web Applications with ArcGIS API for JavaScript and HTML5</i>, Packt Publishing, Birmingham. 4. Anderson, C. (2012) <i>Designing Maps for the Web</i>, Packt Publishing, Birmingham. 5. Peng, Z.-R., & Tsou, M.-H. (2003) <i>Internet GIS: Distributed Geographic Information Services for the Internet and Wireless Networks</i>, Wiley, Hoboken.	

*Applicable for courses having practical components.

SEC-2			
Session: 2024-25			
Part A – Introduction			
Subject	Geography		
Semester	I		
Name of the Course	Map Making Techniques		
Course Code	24UN-GEO- SEC-201		
Course Type: (CC/MCC/MDC/CC- M/DSEC/VOC/DSE/PC/AEC/VA C/SEC-1)	SEC		
Level of the course (As per Annexure-I	100-199		
Pre-requisite for the course (if any)	N.A.		
Course Learning Outcomes (CLO):	1. provide a comprehensive understanding of cartographic principles and map design. 2. develop skills in both traditional and digital map-making techniques. 3. explore thematic and analytical cartography for representing spatial data. 4. introduce students to digital tools for producing high-quality maps. 5*. understand the role of maps in communicating spatial information effectively		
Credits	Theory	Practical	Total
	2	1	3
Contact Hours	2	2	4
Max. Marks:70 Internal Assessment Marks: 15+05 =20 End-Term Exam Marks: 35+15 = 50		Time:3 hours	
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 10-15 words. 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. Cartography: Definition, Scope, and History of Cartography 2. Importance of Maps in Spatial Analysis and Communication	7
II	3. Types of Maps: General Reference, Thematic, and Topographic 4. Elements of a Map: Scale, Symbols, Legend, North Arrow, and Grid	7
III	5. Cartographic Design Principles for Map Making 6. Digital Map Making Tools and Techniques	8
IV	7. Techniques for Making Thematic Maps 8. Techniques for Making Topographic Maps	8
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 = 05 marks File record = 05 marks Viva-Voce = 05 marks Practical Record: A project file consisting of 8 exercises on the below mentioned themes: - 1. Creating Hand-Drawn Maps and Understanding Traditional Techniques (2 exercises). 2. Using GIS Software (ArcGIS/QGIS) for Map Creation and Layout (2 exercises). 3. Developing Topographic Maps with Contours, Hillshading, and Elevation 4. Creating Physical and Thematic Maps for a Given Region Using Different Techniques (2 exercises).	30
Suggested Evaluation Methods		
Internal Assessment: > Theory • Class Participation: 04 Marks • Seminar/presentation/assignment/quiz/class test etc.: 04 Marks • Mid-Term Exam: 07 Marks		End-Term Examination: 35 Marks

➤ Practicum • Class Participation: NIL • Seminar/Demonstration/Viva-voce/Lab records etc.: 05 Marks • Mid-Term Exam: NIL	15 Marks
Part C-Learning Resources	
Recommended Books/e-resources/LMS: 1. Dent, B.D., Torguson, J.S., & Hodler, T.W. (2009) <i>Cartography: Thematic Map Design</i> (6th ed.), McGraw-Hill, New York. 2. Slocum, T.A., McMaster, R.B., Kessler, F.C., & Howard, H.H. (2009) <i>Thematic Cartography and Geovisualization</i>, Pearson Prentice Hall, Upper Saddle River. 3. Tyner, J.A. (2010) <i>Principles of Map Design</i>, The Guilford Press, New York. 4. Robinson, A.H., Morrison, J.L., Muehrcke, P.C., & Kimerling, A.J. (1995) <i>Elements of Cartography</i> (6th ed.), John Wiley & Sons, New York. 5. Kraak, M.-J., & Ormeling, F. (2010) <i>Cartography: Visualization of Geospatial Data</i>, Pearson Education Limited, Harlow..	

*Applicable for courses having practical components.

SEC-2			
Session: 2024-25			
Part A – Introduction			
Subject	Geography		
Semester	I		
Name of the Course	Remote Sensing		
Course Code	24UN-GEO- SEC-202		
Course Type: (CC/MCC/MDC/CC- M/DSEC/VOC/DSE/PC/AEC/VA C/SEC-1)	SEC		
Level of the course (As per Annexure-I	100-199		
Pre-requisite for the course (if any)	N.A.		
Course Learning Outcomes (CLO):	1. provide a comprehensive understanding of cartographic principles and map design. 2. develop skills in both traditional and digital map- making techniques. 3. explore thematic and analytical cartography for representing spatial data. 4. introduce students to digital tools for producing high- quality maps. 5*. understand the role of maps in communicating spatial information effectively		
Credits	Theory	Practical	Total
	2	1	3
Contact Hours	2	2	4
Max. Marks:70 Internal Assessment Marks: 15+05 =20 End-Term Exam Marks: 35+15 = 50		Time:3 hours	
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 10-15 words. 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. Remote Sensing: Definition, History and Scope 2. Electromagnetic Spectrum: Wavelengths and Frequencies & Interaction of EM Radiation with Atmosphere and Earth's Surface	7
II	3. Types of Remote Sensing: Active vs. Passive 4. Platforms and Sensors in Remote Sensing	7
III	5. Remote Sensing Software and Tools 6. Data Acquisition from Remote Sensing Portals (USGS Earth Explorer, Copernicus Open Access Hub, BHUVAN)	8
IV	7. Remote Sensing Data Interpretation and Processing 8. Applications of Remote Sensing	8
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 = 05 marks File record = 05 marks Viva-Voce = 05 marks Practical Record: A project file consisting of 8 exercises on the below mentioned themes: - 1. Interpretation of Spectral Reflectance Curve (2 exercises). 2. Interpretation of Optical and Thermal Image (2 exercises). 3. Hands-on Training with Remote Sensing Software (QGIS, ERDAS, ENVI etc.) (2 exercises). 4. Satellite Data Acquisition and Preprocessing (2 exercises).	30
Suggested Evaluation Methods		
Internal Assessment: > Theory • Class Participation: 04 Marks • Seminar/presentation/assignment/quiz/class test etc.: 04 Marks • Mid-Term Exam: 07 Marks		End-Term Examination: 35 Marks

Signature

➤ Practicum • Class Participation: NIL • Seminar/Demonstration/Viva-voce/Lab records etc.: 05 Marks • Mid-Term Exam: NIL	15 Marks
Part C-Learning Resources	
Recommended Books/e-resources/LMS: 1. Lillesand, T.M., Kiefer, R.W., & Chipman, J. (2015) <i>Remote Sensing and Image Interpretation</i>, John Wiley & Sons, New York. 2. Jensen, J.R. (2016) <i>Introductory Digital Image Processing: A Remote Sensing Perspective</i>, Pearson Education, Upper Saddle River. 3. Campbell, J.B., & Wynne, R.H. (2011) <i>Introduction to Remote Sensing</i>, The Guilford Press, New York. 4. Richards, J.A., & Jia, X. (2006) <i>Remote Sensing Digital Image Analysis</i>, Springer, Berlin. 5. Schowengerdt, R.A. (2007) <i>Remote Sensing: Models and Methods for Image Processing</i>, Elsevier, Amsterdam.	

*Applicable for courses having practical components.

SEC-2			
Session: 2024-25			
Part A – Introduction			
Subject	Geography		
Semester	I		
Name of the Course	Geospatial Technology and Resource Management		
Course Code	24UN-GEO- SEC-203		
Course Type: (CC/MCC/MDC/CC-M/DSEC/VOC/DSE/PC/AEC/VAC/SEC-1)	SEC		
Level of the course (As per Annexure-I	100-199		
Pre-requisite for the course (if any)	N.A.		
Course Learning Outcomes (CLO):	1. provide an understanding of the principles and applications of geospatial technology. 2. develop skills in using GIS and remote sensing tools for resource management. 3. explore applications of geospatial technology in environmental conservation and sustainable resource management. 4. enhance decision-making skills through spatial data analysis and geospatial modeling. 5*. Application of geospatial technology in resource management		
Credits	Theory	Practical	Total
	2	1	3
Contact Hours	2	2	4
Max. Marks:70 Internal Assessment Marks: 15+05 =20 End-Term Exam Marks: 35+15 = 50		Time:3 hours	
Part B- Contents of the Course			

Section

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 10-15 words. 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 Geospatial Technology, Components and Scope of Geospatial Technology 2. Overview of GIS, Remote Sensing, and GPS	7
II	3. Role of Geospatial Technology in Resource Management 4. Platforms and Sensors in Remote Sensing	7
III	5. Remote Sensing Software and Tools 6. Remote Sensing for Environmental Monitoring	8
IV	7. Geospatial Applications in Water and Land Resource Management 8. Geospatial Technology in Disaster and Hazard Management	8
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 = 05 marks File record = 05 marks Viva-Voce = 05 marks Practical Record: A project file consisting of 8 exercises on the below mentioned themes: - 1. Hands-on GIS Software (ArcGIS/QGIS): Data Visualization and Spatial Analysis (2 exercises). 2. Remote Sensing Data Acquisition and Interpretation for Resource Management (2 exercises). 3. GPS-Based Field Surveys for Resource Mapping (2 exercises). 4. Geospatial Analysis of Land Use and Water Resource Changes (2 exercises).	30
Suggested Evaluation Methods		
Internal Assessment: > Theory • Class Participation: 04 Marks • Seminar/presentation/assignment/quiz/class test etc.: 04 Marks • Mid-Term Exam: 07 Marks		End-Term Examination: 35 Marks

➤ Practicum • Class Participation: NIL • Seminar/Demonstration/Viva-voce/Lab records etc.: 05 Marks • Mid-Term Exam: NIL	15 Marks
Part C-Learning Resources	
Recommended Books/e-resources/LMS: 1. Chang, K.-T. (2018) <i>Introduction to Geographic Information Systems</i>, McGraw-Hill, New York. 2. Jensen, J.R. (2016) <i>Remote Sensing of the Environment: An Earth Resource Perspective</i>, Pearson Education, Upper Saddle River. 3. Burrough, P.A., & McDonnell, R.A. (1998) <i>Principles of Geographical Information Systems</i>, Oxford University Press, Oxford. 4. Schowengerdt, R.A. (2007) <i>Remote Sensing: Models and Methods for Image Processing</i>, Elsevier, Amsterdam. 5. Goodchild, M.F. (2000) <i>Geographical Information Systems and Science</i>, John Wiley & Sons, New York.	

*Applicable for courses having practical components.

SEC-2			
Session: 2024-25			
Part A – Introduction			
Subject	Geography		
Semester	I		
Name of the Course	GIS, Mapping and Spatial Analysis		
Course Code	24UN-GEO-SEC-204		
Course Type: (CC/MCC/MDC/CC- M/DSEC/VOC/DSE/PC/AEC/VA C/SEC-1)	SEC		
Level of the course (As per Annexure-I	100-199		
Pre-requisite for the course (if any)	N.A.		
Course Learning Outcomes (CLO):	1. introduce the fundamental concepts of GIS and spatial data management. 2. develop skills in mapping and spatial data visualization. 3. explore spatial analysis techniques for solving geographic problems. 4. To gain hands-on experience in GIS software for geospatial analysis and mapping. 5*. application of geospatial technology in mapping and spatial analysis.		
Credits	Theory	Practical	Total
	2	1	3
Contact Hours	2	2	4
Max. Marks:70 Internal Assessment Marks: 15+05 =20 End-Term Exam Marks: 35+15 = 50		Time:3 hours	
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 10-15 words. 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 Spatial Data 2. Sources of Spatial Data: Remote Sensing, GPS, Surveys, and Open-Source Data	7
II	3. Cartography and Map Design 4. Spatial Data Management	7
III	5. Basic Spatial Analysis Techniques (IDW, Kriging, Spline) 6. Advanced Spatial Analysis	8
IV	7. GIS Applications in Various Sectors 8. Geospatial Technology in Disaster and Hazard Management	8
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 = 05 marks File record = 05 marks Viva-Voce = 05 marks Practical Record: A project file consisting of 8 exercises on the below mentioned themes: - 1. Introduction to GIS Software (ArcGIS/QGIS): Data Import, Editing, and Mapping (2 exercises). 2. Thematic Map Creation and Design Techniques (2 exercises). 3. Spatial Analysis: Buffering, Overlay, and Distance Calculations (2 exercises). 4. Hotspot and Density Analysis for Urban Planning (2 exercises). 5. Application of GIS and Spatial Analysis for Solving a Real-World Problem (2 exercises).	30
Suggested Evaluation Methods		
Internal Assessment: ➤ Theory • Class Participation: 04 Marks • Seminar/presentation/assignment/quiz/class test etc.: 04 Marks • Mid-Term Exam: 07 Marks		End-Term Examination: 35 Marks

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➤ Practicum • Class Participation: NIL • Seminar/Demonstration/Viva-voce/Lab records etc.: 05 Marks • Mid-Term Exam: NIL	15 Marks
Part C-Learning Resources	
Recommended Books/e-resources/LMS: 1. Longley, P.A., Goodchild, M.F., Maguire, D.J., & Rhind, D.W. (2015) <i>Geographic Information Systems and Science</i>, John Wiley & Sons, New York. 2. Chang, K.-T. (2018) <i>Introduction to Geographic Information Systems</i>, McGraw-Hill, New York. 3. Burrough, P.A., & McDonnell, R. A. (1998) <i>Principles of Geographical Information Systems</i>, Oxford University Press, Oxford. 4. Heywood, I., Cornelius, S., & Carver, S. (2011) <i>An Introduction to Geographical Information Systems</i>, Pearson Education, Harlow. 5. Mitchell, A. (1999) <i>The ESRI Guide to GIS Analysis, Volume 1: Geographic Patterns & Relationships</i>, ESRI Press, Redlands.	

*Applicable for courses having practical components.

GEOG/UGBOS/28.08.2024