

INDIRA GANDHI UNIVERSITY
MEERPUR-REWARI, HARYANA-122502
(A State University Established under Haryana Act No.29 of 2013)
(Recognized u/s 12(B) & 2(f) of UGC Act, 1956)

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Scheme of Examination & Syllabus
(in accordance with National Educational Policy 2020)
for
Post Graduate Programme
in
Geography

Effective from Academic Session 2026-27

Department of Geography
Faculty of Earth and Space Sciences
Indira Gandhi University
Meerpur-Rewari (122502)
Haryana, India

DETAILS OF APPROVALS

Council/Board	Date	Remark
Staff Council	05.08.2026	
Board of Studies	13.08.2026	(online mode)
Faculty		
Academic Council		
Year of implementation 2026-27		

**Chairperson****(Signature with Stamp)**

VISION AND MISSION OF THE UNIVERSITY

VISION

To be a globally renowned university, recognized for excellence in teaching, innovative research, and welfare of the society, imbining the spirit of “*Vasudhaiv kutumbkam*”.

MISSION

- To introduce and implement innovation in teaching and learning process matching up the global standards to strengthen academic delivery through curriculum design, teaching pedagogy and usage of ICT.
- To develop a mechanism that attracts talented, qualified and experienced faculty from across the globe for pursuing their academic and research careers at the University.
- To offer academic programs at UG, PG, doctoral, Post-Doctoral levels which are learner- centric, industry focused, and adhere to outcome based international models.
- To create an ambiance that is conducive for undertaking sponsored research, innovation and consultancy services to a wide spectrum of societal and industrial requirements while encouraging interdisciplinary approach of learning, team work, and research.
- To establish state of art centers of excellence in frontier areas of research and design innovation through industry collaboration to innovate and incubate the products and services.
- To establish smart campus and promote e-governance activities in the university for the digitally empowered society and knowledge economy.
- To provide a hygienic, modern, environment friendly and vivacious campus attuned to the urgent needs of Green Technology.
- To consider and implement norms, metrics, standards, procedures and benchmarks for assessing and improving the quality in every aspect of University system and achieve quality certifications by National and International bodies.
- To make society self-reliant by organizing various programmes including literacy, gender sensitization, health awareness, and dissemination of information about livelihood generation.

VISION AND MISSION OF THE DEPARTMENT

OUR VISION

The Department of Geography enlightens students to develop their knowledge and skills to understand real world problems and contribute to global development in a meaningful way.

OUR MISSION

Our mission is to develop multidisciplinary thinking among future geographers and inspire them to provide sustainable solutions to physical and social problems.

ABOUT THE PROGRAMME

Programme Introduction

The **Postgraduate (PG) Programme in Geography** is a two-year (four-semester) programme designed to provide students with an in-depth understanding of the diverse branches of Physical Geography, Human Geography, and Geospatial Technology. The programme integrates rigorous academic coursework with research, fieldwork, and practical training to develop students' analytical, technical, and problem-solving skills. The curriculum has been designed in accordance with the provisions and objectives of the **National Education Policy (NEP) 2020**, ensuring a multidisciplinary, skill-oriented, and research-driven approach to geography education.

The curriculum offers a comprehensive and scientific study of the Earth's physical and human environments, covering areas such as geomorphology, climatology, ecology, natural resource management, disaster management, settlement and regional planning, cartography, remote sensing, Geographic Information Systems (GIS), and other geospatial technologies. Along with a strong foundation in core courses, the programme provides opportunities for students to pursue specialized areas of interest through elective courses, research projects, and field-based learning.

The programme is designed to equip students with the knowledge and practical competencies required for higher education, research, professional careers, and decision-making in geography and allied disciplines.

General Objectives of the Programme

Geography has emerged as an interdisciplinary discipline with applications across the physical, social, environmental, and technological domains. The programme aims to enable students to understand contemporary theoretical concepts and practical applications while developing an integrated perspective on the interactions between physical and human environments. It also prepares students to address contemporary environmental and societal challenges through scientific inquiry, technological applications, and sustainable planning.

Programme Aims

The programme aims to:

- Develop a comprehensive understanding of the concepts, principles, theories, and processes of Physical Geography, Human Geography, and Geospatial Technology.
- Enable students to identify, analyze, and interpret geographical features, patterns, processes, and spatial relationships at local, regional, national, and global scales.

- Develop the ability to investigate and solve real-world geographical problems through field surveys, spatial analysis, and geospatial technologies, including Remote Sensing and Geographic Information Systems (GIS).
- Equip students with the skills to collect, process, analyze, interpret, and present spatial and non-spatial data using appropriate quantitative, qualitative, and geospatial techniques.
- Provide practical exposure to modern geospatial tools, digital cartography, GPS, GIS, remote sensing, and spatial modelling for research and professional applications.
- Foster critical thinking and research aptitude for addressing contemporary issues related to environmental management, climate change, natural resource conservation, disaster risk reduction, urban and regional planning, and sustainable development.
- Promote interdisciplinary learning and encourage the integration of geographical knowledge with emerging technologies and societal needs.
- Prepare students for higher education, research, public service, industry, and professional careers in geography and allied disciplines while nurturing ethical values and a commitment to sustainable development.

MINIMUM ELIGIBILITY CRITERIA

As per university ordinance/information brochure

PASSING CRITERIA

As per university ordinance/information brochure

ELIGIBILITY FOR EXAMINATION

As per university ordinance/information brochure

PROGRAMME LEARNING OUTCOMES (PLOs)

PLO 1	Knowledge	Capable of demonstrating comprehensive disciplinary knowledge gained during course of study
PLO 2	Research Aptitude	Capability to ask relevant/appropriate questions for identifying, formulating and analysing the research problems and to draw conclusion from the analysis
PLO 3	Communication	Ability to communicate effectively on general and scientific topics with the scientific community and with society at large
PLO 4	Problem-Solving	Capability of applying knowledge to solve scientific and other problems
PLO 5	Individual and Team Work	Capable to learn and work effectively as an individual, and as a member or leader in diverse teams, in multidisciplinary settings.
PLO 6	Investigation of Problems	Ability of critical thinking, analytical reasoning and research- based knowledge including design of experiments, analysis and interpretation of data to provide conclusions
PLO 7	Modern Tool Usage	Ability to use and learn techniques, skills and modern tools for scientific practices
PLO 8	Scientific temperament	Ability to apply reasoning to assess the different issues related to society and the consequent responsibilities relevant to the professional scientific practices
PLO 9	Life-Long Learning	Aptitude to apply knowledge and skills that are necessary for participating in learning activities throughout life
PLO 10	Ethics	Capability to identify and apply ethical issues related to one's work, avoid unethical behaviour such as fabrication of data, committing plagiarism and unbiased truthful actions in all aspects of work
PLO 11	Project Management	Ability to demonstrate knowledge and understanding of the scientific principles and apply the projects

Scheme of Examination for Postgraduate Programme	
Subject	Geography
Total number of Semesters	4
Total Marks	2600
Total Credit	104
Framework	2
Scheme	Q

Semester	Course Type	Course Code	Nomenclature ofcourse	Theory (T)/ Practical (P)	Credits		Contact hours per week L: Lecture P: Practical T: Tutorial To: Total				Internal Assessment Marks	End Term Examination Marks	Total Marks	Examination Hours
						To	L	T	P	To				
1	CC-1	26L6.0-GEO-101	Fundamentals of Geomorphology	T	4	26	4	0	0	4	30	70	100	3
	CC-2	26L6.0-GEO-102	Principles of Climatology	T	4		4	0	0	4	30	70	100	3
	CC-3	26L6.0-GEO-103	Geography of World Economic System	T	4		4	0	0	4	30	70	100	3
	CC-4	26L6.0-GEO-104	Advanced Geography of India	T	4		4	0	0	4	30	70	100	3
	CC-5	26L6.0-GEO-105	Statistical Methods in Geography	T	4		0	0	4	4	30	70	100	3
	PC-1	26L6.0-GEO-106	Advanced Cartography	P	4		0	0	8	8	30	70	100	3
	SEM	26L6.0-GEO-107	Seminar	S	2		0	0	0	2	0	50	50	-
2	CC-6	26L6.0-GEO-201	Oceanography	T	4	26	4	0	0	4	30	70	100	3
	CC-7	26L6.0-GEO-202	Geographical Thought	T	4		0	0		4	30	70	100	3
	CC-8	26L6.0-GEO-203	Agricultural Geography	T	4		0	0		4	30	70	100	3
	CC-9	26L6.0-GEO-204	Population Geography	T	4		0	0		4	30	70	100	3
	CC-10	26L6.0-GEO-205	Environmental Geography	T	4		0	0		4	30	70	100	3
	PC-2	24L6.0-GEO-206	Interpretation of Topographical Sheets and Morphometric Analysis	P	4		0	0		8	30	70	100	3
	CHM	26L6.0-CHM-201	Constitutional, Human and Moral Values and IPR	T	2		2	0	0	2	15	35	50	2
	Interns hip	26L6.0-GEO-207	An internship course of 4 Credits of 4-6 weeks duration during summer vacation after 2 nd semester is to be completed by every student. Internship can be either for enhancing the employability or for developing the research aptitude.								50	50	100	

3	CC-11	26L6.5-GEO-301	Fundamentals of Photogrammetry and Remote Sensing	T	4	26	4	0	0	4	30	70	100	3
	CC-12	26L6.5-GEO-302	Regional Development and Planning with Special Reference to India	T	4		4	0	0	4	30	70	100	3
	DEC-1	26L6.5-GEO-303	Urban Geography	T	4		4	0	0	4	30	70	100	3
		26L6.5-GEO-304	Resource Geography	T	4		4	0	0	4	30	70	100	3
		26L6.5-GEO-305	Geography of Haryana	T	4		4	0	0	4	30	70	100	3
		26L6.5-GEO-306	MOOC/SWAYAM	T	4		4	0	0	4			100	3
	DEC-2	26L6.5-GEO-307	Geography of Disaster Management	T	4		4	0	0	4	30	70	100	3
		26L6.5-GEO-308	World Regional Geography	T	4		4	0	0	4	30	70	100	3
		26L6.5-GEO-309	Geography of Health	T	4		4	0	0	4	30	70	100	3
		26L6.5-GEO-310	MOOC/SWAYAM	T	4		4	0	0	4			100	3
	DEC-3	26L6.5-GEO-311	Social Geography	T	4		4	0	0	4	30	70	100	3
		26L6.5-GEO-312	Geography of Hydrology	T	4		4	0	0	4	30	70	100	3
		26L6.5-GEO-313	Political Geography	T	4		4	0	0	4	30	70	100	3
		26L6.5-GEO-314	MOOC/SWAYAM	T	4		4	0	0	4			100	3
	PC-3	26L6.5-GEO-315	Field Survey	P	4		0	0	8	8	30	70	100	3
	OEC	26L6.5-OEC-GEO-301	Fundamentals of Geography* (*for the students of other than PG Programme Geography) Students of PG Programme Geography will choose from the pool of open elective offered by the university	T	2		2	0	0	2	15	35	50	2
4	CC-13	26L6.5-GEO-401	Research Methodology in Geography	T	4	26	4	0	0	4	30	70	100	3
	CC-14	26L6.5-GEO-402	Geographical Information System	T	4		4	0	0	4	30	70	100	3
	DEC-4	26L6.5-GEO-403	Biogeography and Soil Geography	T	4		4	0	0	4	30	70	100	3
		26L6.5-GEO-404	Global Environmental Issues	T	4		4	0	0	4	30	70	100	3
		26L6.5-GEO-405	Geoinformatics	T	4		4	0	0	4	30	70	100	3
		26L6.5-GEO-406	MOOC/SWAYAM	T	4		4	0	0	4			100	3
	DEC-5	26L6.5-GEO-407	Rural Geography	T	4		4	0	0	4	30	70	100	3
		26L6.5-GEO-408	Gender Geography	T	4		4	0	0	4	30	70	100	3
		26L6.5-GEO-409	Geography of Tourism	T	4		4	0	0	4	30	70	100	3
		26L6.5-GEO-410	MOOC/SWAYAM	T	4		4	0	0	4			100	3

	DEC-6	26L6.5-GEO-411	Settlement Geography	T	4	26	4	0	0	4	30	70	100	3
		26L6.5-GEO-412	Industrial and Transport Geography	T	4		4	0	0	4	30	70	100	3
		26L6.5-GEO-413	Geography of Himalayas	T	4		4	0	0	4	30	70	100	3
		26L6.5-GEO-414	MOOC/SWAYAM	T	4		4	0	0	4			100	3
	PC-4	26L6.5-GEO-415	Remote Sensing and Digital Image Processing	P	4		0	0	0	8	30	70	100	3
	EEC	26L6.5-GEO-416	Geo-spatial Analysis in Geography	T	2		2	0	0	2	15	35	50	2
Scheme of Semester IV when a student opts for Dissertation Work or Project Work														
	CC-13	26L6.5-GEO-401	Research Methodology in Geography	T	4	26	4	0	0	4	30	70	100	3
	DEC-4	26L6.5-GEO-403	Biogeography and Soil Geography	T	4		4	0	0	4	30	70	100	3
		26L6.5-GEO-404	Global Environmental Issues	T	4		4	0	0	4	30	70	100	3
		26L6.5-GEO-405	Geoinformatics	T	4		4	0	0	4	30	70	100	3
		26L6.5-GEO-406	MOOC/SWAYAM	T	4		4	0	0	4			100	3
	DEC- 5	26L6.5-GEO-407	Rural Geography	T	4		4	0	0	4	30	70	100	3
		26L6.5-GEO-408	Gender Geography	T	4		4	0	0	4	30	70	100	3
		26L6.5-GEO-409	Geography of Tourism	T	4		4	0	0	4	30	70	100	3
		26L6.5-GEO-410	MOOC/SWAYAM	T	4		4	0	0	4			100	3
	EEC	26L6.5-GEO-416	Geo-spatial Analysis in Geography	T	2		2	0	0	2	15	35	50	2
	Dissert ation/ Project work	26L6.5-GEO-417		D	12		0	0	0	12	0	300	300	

Part A - Introduction			
Name of Subject	M.Sc. Geography		
Semester	I		
Nature of Course	Theory		
Nomenclature of the Course	Fundamentals of Geomorphology		
Course Code	26L6.0-GEO-101		
Course Type	CC		
Course Level	400-499		
Pre-requisite for the course (if any)	N. A		
Course Learning Outcomes (CLOs ₁) After completing this course, the learner will be able to:	CLO ₁	Understand the concepts and theories in Geomorphology	
	CLO ₂	Examine the processes in Geomorphology	
	CLO ₃	Understand different processes of landforms and Slope development.	
	CLO ₄	Aware about applied geomorphology and its application	
	Theory	Practical	Total
Credits	4	0	4
Teaching Hours per week	4	0	4
Internal Assessment Marks	30	0	30
End Term Exam Marks	70	0	70
Max. Marks	100	0	100
Examination Duration (in Hours)	3		
Part B- Contents of the Course			
<u>Instructions for Paper- Setter:</u> The paper setter shall prepare 9 questions selecting two questions from each unit with consideration given to the Course Learning Outcomes. Among these, question number 1 will be compulsory, comprising 7 short answer type questions carrying two marks each (total 14 marks) and covering the entire syllabus. The remaining questions will be carrying 14 marks each. Examinees will be required to attempt five questions: the compulsory question no. 1 and 1 question from the each of the four units.			
Unit	Topics	CLO/s Attempt	Contact Hours
I	Nature and Development of Geomorphology Fundamental concepts in Geomorphology (given by Thornbury), Geological Time Scale. Convection current theory, Sea floor spreading, Geosynclines, Isostasy, Continental drift and Plate tectonic.	CLO ₁	15
II	Endogenetic Processes: Earthquakes, Volcanic, Fault and Folds Exogenetic Processes: Erosion, Weathering and Mass wasting	CLO ₂	15
III	Fluvial, Glacial, Aeolian, Waves and Karst: nature, processes and landforms. Slope processes and Models of slope development: Davis, Penk, King, Wood and Strahler	CLO ₃	15
IV	Applied Geomorphology: role of geomorphology in environmental management; accelerated erosion and sedimentation.	CLO ₄	15

	Applications of geomorphology in Landuse, construction of large dams, and urban development		
	Total Contact hours		60
Evaluation Methods			
Internal Assessment: 30 Marks		End Term Examination: 70 Marks	
• Class Participation:	5	Written Examination: 70	
• Seminar/presentation/assignment/quiz/ class test etc.:	10		
• Mid-Term Exam:	15		
Part C-Learning Resources			
Recommended Books/Journals/ e-resources/ Learning Management Systems (LMS):			
1. Allison, Robert (2002): Applied Geomorphology: Theory and Practice (Ed.), John Wiley & Sons, Ltd., Chichester, U.K.			
2. Bloom, A.L. (2002): Geomorphology, Private Limited, New Delhi.			
3. Cooke, R.U. and Dounkamp, J.C. (1990): Geomorphology in Environmental Management: A NewIntroduction, Clarendon Press.			
4. Dayal P. (2010): A Text Book of Geomorphology, Rajesh Publication, Delhi (Hindi and English)			
5. Goudie, A., (1984): The nature of the environment: an advanced physical geography, Basil Blackwell Publishers, Oxford.			
6. Hamblin W.K., (1995): Earth’s Dynamic System, Prentice Hall, N J.			
7. Kale, V.S. and Gupta A. (2001): Introduction to Geomorphology. Orient Longman, Hyderabad.			
8. Michael A. Summerfield (1991): Global Geomorphology, Prentice Hall.			
9. Monkhouse F.J. (2009), Principals of Physical Geography, Platinum Publishers, Kolkata.			
10. Pickering, K.T and Owen, L.A. (1997): An Introduction to Global Environmental Issues, Routledge.			
11. Robert S. Anderson and Suzanne P. Anderson (2010): Geomorphology: The Mechanics and Chemistry of Landscapes, Cambridge University Press			
12. Sharma, H.S. and Kale, VS (2009): Geomorphology in India, Prayag Pustak Bhawan, Allahabad.			
13. Sharma, V.K. (2010): Introduction to Process Geomorphology. Tayler and Francis’s, London.			
14. Strahler, A.H. (2013): Introducing Physical Geography, Wiley and Sons, New York.			
15. शर्मा, जे. पी. (2020): भू-आकृतिक विज्ञान, रस्तोगी प्रकाशन, मेरठ (उ.प्र.)			

Mapping of Course Learning Outcomes (CLOs) to Program Learning Outcomes (PLOs)

CLOs	PLO ₁	PLO ₂	PLO ₃	PLO ₄	PLO ₅	PLO ₆	PLO ₇	PLO ₈	PLO ₉	PLO ₁₀	PLO ₁₁
CLO ₁	3	2	-	2	1	1	1	3	3	-	3
CLO ₂	3	2	-	2	1	1	1	3	3	-	3
CLO ₃	3	2	-	2	1	1	1	3	3	-	3
CLO ₄	3	2	-	2	1	1	1	3	3	-	3

Content Mapping with NEP thrust areas

Field	Hours devoted
Employability	7 hours
Entrepreneurship	
Skill Enhancement	
Communication Development	
Indian Knowledge System	
Environmental Awareness	7 hours
Current Issues and Social Awareness	7 hours
Gender issues	
Public policies	
Any Other	

Part A - Introduction				
Name of Subject	M.Sc. Geography			
Semester	I			
Nature of Course	Theory			
Nomenclature of the Course	Principles of Climatology			
Course Code	26L6.0-GEO-102			
Course Type	CC			
Course Level	400-499			
Pre-requisite for the course (if any)	N.A.			
Course Learning Outcomes (CLOs ₁) After completing this course, the learner will be able to:	CLO ₁	Enhance the knowledge about Climatology and the atmospheric structure		
	CLO ₂	Develop the scientific understanding about general circulation and Planetary winds		
	CLO ₃	Sharpens the understanding about different atmospheric phenomena		
	CLO ₄	Enrich the knowledge about climatic Classification and climate change.		
	Theory	Tutorial	Total	
Credits	4	0	4	
Teaching Hours per week	4	0	4	
Internal Assessment Marks	30	0	30	
End Term Exam Marks	70	0	70	
Max. Marks	100	0	100	
Examination Duration (in Hours)	3			
Part B- Contents of the Course				
<u>Instructions for Paper- Setter:</u> The paper setter shall prepare 9 questions selecting two questions from each unit with consideration given to the Course Learning Outcomes. Among these, question number 1 will be compulsory, comprising 7 short answer type questions carrying two marks each (total 14 marks) and covering the entire syllabus. The remaining questions will be carrying 14 marks each. Examinees will be required to attempt five questions: the compulsory question no. 1 and 1 question from the each of the four units.				
Unit	Topics		CLO/s Attempt	Contact Hours
I	Introduction to climatology and meteorology; Concepts of weather and climate. Origin, composition and structure of atmosphere. Temperature, Solar radiation, insolation and heat budget. Atmospheric pressure and its distribution pattern.		CLO ₁	15
II	Theories of general circulation and planetary winds. Monsoons and Jet streams Walker circulation- La Nina, El Nino and ENSO		CLO ₂	15
III	Atmospheric Moisture: humidity, evaporation, condensation; Precipitation formation theories, types of precipitation and clouds Stability and instability of atmosphere, air masses and fronts Cyclones: origin, types and characteristics.		CLO ₃	15
IV	Climatic classification: bases of climatic classification by Koeppen, Trewartha and Thornthwaite. Climatic change: pattern, evidences and theories of climate change.		CLO ₄	15

	Global warming: theories, causes and impacts on earth systems. Greenhouse effect and acid rain: causes, consequences and remedies, glacial lake outburst.		
	Total Contact hours		60
Evaluation Methods			
Internal Assessment: 30 Marks		End Term Examination: 70 Marks	
• Class Participation:	5	Written Examination: 70	
• Seminar/presentation/assignment/quiz/ class test etc.:	10		
• Mid-Term Exam:	15		
Part C-Learning Resources			
Recommended Books/Journals/ e-resources/ Learning Management Systems (LMS):			
Instructions			
1. Athrens, C.D. (1994): Meteorology Today: An Introduction to Weather, Climate and Environment, West Publishing Co., Minnesota, USA.			
2. Barry, R.G. and Chorley, R.J. (2010): Atmosphere, Weather and Climate, Marthren.			
3. Collins, J.M. (2014): Climatology, Oxford.			
4. Critchfield, H.J. (1987): General Climatology, Printice Hall of India, New Delhi.			
5. Das, P.K. (1984): The Monsoons, National Book Trust, New Delhi.			
6. John J. Hidore (2010): Climatology: An Atmospheric Science, Pearsons			
7. Lal, D.S. (2001): Climatology, Chaitanya Publishing House, Allahabad			
8. Lutgens, F.K. and Tarbuck, E.J. (2010): The Atmosphere: An Introduction to Meteorology, Prentice Hall of India, New Delhi.			
9. Miller, A.A. (1979): Climatology, Methuen and Co., London.			
10. Oliver, J.E. and Hidore, J.J. (2003): Climatology: An Atmospheric Science, Pearson Education Inc. New Delhi.			
11. Rama Sastry, A.A. (1984): Weather and Weather Forecasting, Publication Division, New Delhi.			
12. Singh S. (2017): Climatology, Pravalika Publication, Prayagraj (U.P.)			
13. Trewartha, G.T. (1980): An Introduction to Climate, McGraw Hill Company, New York.			
14. लाल, डी. एस. (2000): जलवायु विज्ञान, शारदा पुस्तक भवन, प्रयागराज (उ.प्र.) ।			
15. शर्मा, जे. पी. (2020): भू-आकृतिक विज्ञान, रस्तोगी प्रकाशन, मेरठ (उ.प्र.) ।			

Mapping of Course Learning Outcomes (CLOs) to Program Learning Outcomes (PLOs)

CLOs	PLO ₁	PLO ₂	PLO ₃	PLO ₄	PLO ₅	PLO ₆	PLO ₇	PLO ₈	PLO ₉	PLO ₁₀	PLO ₁₁
CLO ₁	3	2	-	2	1	1	1	3	3	-	3
CLO ₂	3	2	-	2	1	1	1	3	3	-	3
CLO ₃	3	2	-	2	1	1	1	3	3	-	3
CLO ₄	3	2	-	2	1	1	1	3	3	-	3

Content Mapping with NEP thrust areas

Field	Hours devoted
Employability	15 hours
Entrepreneurship	
Skill Enhancement	
Communication Development	
Indian Knowledge System	
Environmental Awareness/SDGs	15 hours
Current Issues and Social Awareness	15 hours
Gender issues	
Public policies	
Any Other	

Part A - Introduction				
Name of Subject	M.Sc. Geography			
Semester	I			
Nature of Course	Theory			
Nomenclature of the Course	Geography of World Economic System			
Course Code	26L6.0-GEO-103			
Course Type	CC			
Course Level	400-499			
Pre-requisite for the course (if any)	N.A.			
Course Learning Outcomes (CLOs ₁) After completing this course, the learner will be able to:	CLO ₁	Provide understanding about the location and distribution of economic activities		
	CLO ₂	Acquaint with the spatial organization of world economies		
	CLO ₃	Familiarize with location theories of economic activities		
	CLO ₄	Acquire knowledge about trade blocs, trends in trade and various processes of globalization		
	Theory	Tutorial	Total	
Credits	4	0	4	
Teaching Hours per week	4	0	4	
Internal Assessment Marks	30	0	30	
End Term Exam Marks	70	0	70	
Max. Marks	100	0	100	
Examination Duration (in Hours)	3			
Part B- Contents of the Course				
<u>Instructions for Paper- Setter:</u> The paper setter shall prepare 9 questions selecting two questions from each unit with consideration given to the Course Learning Outcomes. Among these, question number 1 will be compulsory, comprising 7 short answer type questions carrying two marks each (total 14 marks) and covering the entire syllabus. The remaining questions will be carrying 14 marks each. Examinees will be required to attempt five questions: the compulsory question no. 1 and 1 question from the each of the four units.				
Unit	Topics		CLO/s Attempt	Contact Hours
I	Nature of Economic Geography, Basic Concepts: economic man, goods and services, production, exchange and consumption. Consumption process: significance of consumption in economy, Spaces of consumption: store, street, mall and theme parks. Impact of changing economic landscapes.		CLO ₁	15
II	World economies: bases of classification, patterns and characteristics of developed and developing economies of the world. Economic development: evolution, goals, measures, patterns, and problems. Stages of economic development (classical and contemporary): Rostow's and Romer's models		CLO ₂	15
III	Network structure and economic activities, impact of transport on economic activities, transport cost. Location theories of Weber, Loach, Smith, Christaller and Ullman		CLO ₃	15
IV	Globalization and recent trends in pattern of international trade;		CLO ₄	15

	major regional trade blocks of the world. Emerging new world economics groups; GATT, WTO, EU TRIPS and OPEC: functions and relevance		
	Total Contact hours		60
Evaluation Methods			
Internal Assessment: 30 Marks		End Term Examination: 70 Marks	
• Class Participation:	5	Written Examination: 70	
• Seminar/presentation/assignment/quiz/ class test etc.:	10		
• Mid-Term Exam:	15		
Part C-Learning Resources			
Recommended Books/Journals/ e-resources/ Learning Management Systems (LMS):			
Instructions			
1. Aoyama, Y., Murphy, J. and Hanson, S. (2010): Key Concepts in Economic Geography, London: Sage.			
2. Bagchi-Sen, S. and Smith, H.L. (2006): Economic Geography: Past, Present and Future, London and New York: Taylor and Francis.			
3. Barnes, T., Peck, J., Sheppard, E. and Tickell, A. (2003): Reading Economic Geography (Ed.), London: Wiley-Blackwell.			
4. Coe, N., Kelly, P. and Yeung, H. (2007): Economic Geography: A Contemporary Introduction, John Wiley & Sons, London.			
5. Combes, P., Mayer, T. and Thisse, J.F. (2008): Economic Geography: The Integration of Regions and Nations, Princeton University.			
6. Gautam, A. (2010): Advanced Economic Geography, Sharda Pustak Bhawan, Allahabad.			
7. Hudson, R. (2005): Economic Geographies: Circuits, Flows and Spaces, London: Sage.			
8. Jones, C.F. and Dickenwarld, G.G. Economic Geography (2007), The Macmillan andCompany, New York.			
9. Karlsson, C., Andersson, M. and Norman, T. (2015): Handbook of Research Methods and Applications in Economic Geography, Edward Elgar Publishing, Cheltenham, UK.			
10. Knox, P. (2003): The Geography of World Economy, Arnold, London.			
11. Saxena, H.M. (2013): Economic Geography, Rawat Publications, Jaipur.			
12. Willington, D.E. (2008): Economic Geography, Husband Press.			
13. Wood, A. and Roberts, A. (2010): Economic Geography: Places, Networks and Flows, Routledge, London and New York.			
14. कौशिक, एस. डी. (2019): आर्थिक भूगोल के सरल सिद्धांत, रस्तोगी प्रकाशन, मेरठ (उ.प्र.)।			
15. सक्सेना, एच. एम. (2019): आर्थिक भूगोल, राजस्थान हिंदी ग्रंथ अकादमी, जयपुर।			

Mapping of Course Learning Outcomes (CLOs) to Program Learning Outcomes (PLOs)

CLOs	PLO ₁	PLO ₂	PLO ₃	PLO ₄	PLO ₅	PLO ₆	PLO ₇	PLO ₈	PLO ₉	PLO ₁₀	PLO ₁₁
CLO ₁	2	2	-	3	1	2	1	3	3	-	1
CLO ₂	2	2	-	3	1	2	1	3	3	-	1
CLO ₃	2	2	-	3	1	2	1	3	3	-	1
CLO ₄	2	2	-	3	1	2	1	3	3	-	1

Content Mapping with NEP thrust areas

Field	Hours
Employability	15 hours
Entrepreneurship	
Skill Enhancement	
Communication Development	
Indian Knowledge System	
Environmental Awareness/SDGs	
Current Issues and Social	
Gender issues	
Public policies	15 hours
Any Other	

Part A - Introduction				
Name of Subject	M.Sc. Geography			
Semester	I			
Nature of Course	Theory			
Nomenclature of the Course	Advanced Geography of India			
Course Code	26L6.0-GEO-104			
Course Type	CC			
Course Level	400-499			
Pre-requisite for the course (if any)	N.A.			
Course Learning Outcomes (CLOs ₁) After completing this course, the learner will be able to:	CLO ₁	Understand the relief and monsoon system in India		
	CLO ₂	Acquaint with drainage, soil and vegetation characteristics in India.		
	CLO ₃	Enrich about spatial organization of agriculture, marketing and loan facilities.		
	CLO ₄	Enhance knowledge about the spatial distribution of industries, transportation, and trade in India		
	Theory	Tutorial	Total	
Credits	4	0	4	
Teaching Hours per week	4	0	4	
Internal Assessment Marks	30	0	30	
End Term Exam Marks	70	0	70	
Max. Marks	100	0	100	
Examination Duration (in Hours)	3			
Part B- Contents of the Course				
<u>Instructions for Paper- Setter:</u> The paper setter shall prepare 9 questions selecting two questions from each unit with consideration given to the Course Learning Outcomes. Among these, question number 1 will be compulsory, comprising 7 short answer type questions carrying two marks each (total 14 marks) and covering the entire syllabus. The remaining questions will be carrying 14 marks each. Examinees will be required to attempt five questions: the compulsory question no. 1 and 1 question from the each of the four units.				
Unit	Topics		CLO/s Attempt	Contact Hours
I	India as a Geographical Entity & land of diversity Physiographic divisions and regionalization schemes of India. Indian monsoon, climatic regions and concept of seasons.		CLO ₁	15
II	Drainage: patterns, type and distribution; water regime of Indian rivers. Soils and vegetation: distribution, characteristics and associated problems		CLO ₂	15
III	Social basis of identity: regional dimensions. Demographic Trends (density, age and sex composition, literacy, urbanization, population change); Socio-cultural regions of India by Sopher Agriculture: traditional and modern farming, agricultural market and credit: significance and challenges.		CLO ₃	15
IV	Allied sectors of Indian agriculture and its impact on economy-fishery, horticulture, poultry, animal husbandry and milk production.		CLO ₄	15

	Green revolution, White revolution and blue revolution; impact and challenges Industrial complexes and industrial regions, challenges to industrial development, industrial policies, and start-up programs in India. Trade and transport: significance and status.		
	Total Contact hours		60
Evaluation Methods			
Internal Assessment: 30 Marks		End Term Examination: 70 Marks	
• Class Participation:	5	Written Examination: 70	
• Seminar/presentation/assignment/quiz/ class test etc.:	10		
• Mid-Term Exam:	15		
Part C-Learning Resources			
Recommended Books/Journals/ e-resources/ Learning Management Systems (LMS):			
1. Instructions Dubey, R. N., (1974): Economic Geography of India, Kitab Mahal, Allahabad			
2. Husain M. and Zaidi T.H. (2022): Geography of India- 10 Ed., Mc Graw Hill			
3. Hussain Majid., (2015): Geography of India, Mc Graw Hill Education.			
4. Joshi, H. L., (1990): Industrial Geography of India, Rawat Publications, Jaipur			
5. Krishan, Gopal. 2017. The Vitality of India: A Regional Perspective, Rawat Publications.			
6. Nag, P. and Sengupta, S., (1992): Geography of India, Concept publications. Co., New Delhi.			
7. Sharma, T. C. and Coutinho, O. (1988): Economic and Commercial Geography of India. Vikas Publishing House Pt. Ltd, New Delhi.			
8. Singh, R. L. (1971): India: A Regional Geography, N.G.S.I., Varanasi,			
9. Singh, S. and Saroha, J. (2019) Geography of India, Mc Graw Hill Education.			
10. Tiwari, R. C. (1996): Geography of India, Prayag Pustak Bhawan, Allahabad.			
11. गौतम, अलका. (2017). भारत का बृहद् भूगोल: भारत का उन्नत भूगोल (Advanced Geography of India). इलाहाबाद: शारदा पुस्तक भवन।			
12. माजिद हुसैन. (2022). भारत का भूगोल (10वाँ संस्करण). नई दिल्ली: मैकग्रा-हिल एजुकेशन (इंडिया) प्राइवेट लिमिटेड।			

Mapping of Course Learning Outcomes (CLOs) to Program Learning Outcomes (PLOs)

CLOs	PLO ₁	PLO ₂	PLO ₃	PLO ₄	PLO ₅	PLO ₆	PLO ₇	PLO ₈	PLO ₉	PLO ₁₀	PLO ₁₁
CLO ₁	3	2	-	3	1	2	-	3	3	1	2
CLO ₂	3	2	-	3	1	2	-	3	3	1	2
CLO ₃	3	2	--	3	1	2	-	3	3	1	2
CLO ₄	3	2		3	1	2	-	3	3	1	2

Content Mapping with NEP thrust areas

Field	Hours devoted
Employability	7 Hours
Entrepreneurship	7 hours
Skill Enhancement	
Communication Development	
Indian Knowledge System	15 Hours
Environmental Awareness/SDGs	10 hours
Current Issues and Social	7 hours
Gender issues	
Public policies	10 hours
Any Other	

Part A - Introduction				
Name of Subject	M.Sc. Geography			
Semester	I			
Nature of Course	Theory			
Nomenclature of the Course	Statistical Methods in Geography			
Course Code	24L6.0-GEO-105			
Course Type	CC			
Course Level	400-499			
Pre-requisite for the course (if any)	N.A.			
Course Learning Outcomes (CLOs ₁) After completing this course, the learner will be able to:	CLO ₁	Understand tools of quantitative information and data		
	CLO ₂	Gain knowledge about statistical analysis of spatial pattern from geographical data.		
	CLO ₃	Acquaintance with bivariate and Regression equation		
	CLO ₄	Acquaintance with hypothesis testing, time series analysis and multivariate analytical techniques		
	Theory	Tutorial	Total	
Credits	4	0	4	
Teaching Hours per week	4	0	4	
Internal Assessment Marks	30	0	30	
End Term Exam Marks	70	0	70	
Max. Marks	100	0	100	
Examination Duration (in Hours)	3			
Part B- Contents of the Course				
<u>Instructions for Paper- Setter:</u> The paper setter shall prepare 9 questions selecting two questions from each unit with consideration given to the Course Learning Outcomes. Among these, question number 1 will be compulsory, comprising 7 short answer type questions carrying two marks each (total 14 marks) and covering the entire syllabus. The remaining questions will be carrying 14 marks each. Examinees will be required to attempt five questions: the compulsory question no. 1 and 1 question from the each of the four units.				
Unit	Topics		CLO/s Attempt	Contact Hours
I	Measures of central tendency: mean, median, mode, partitioned values: quartiles and percentiles, comparison of mean, median and mode. Measures of dispersion: absolute measures: range, quartile deviation, mean deviation, standard deviation, relative measure of dispersion: coefficient of variation.		CLO ₁	15
II	Measures of inequality: location quotient, and Lorenz curve. Normal curve as a probability distribution: characteristics and area under curve. Sampling theory and chance error.		CLO ₂	15
III	Bivariate analysis in geographical studies: scatter diagram, correlation analysis, Spearman's rank correlation and Karl Pearson's correlation coefficient, test of significance (t test, F test), coefficient of determination. Simple linear regression model: estimation of regression equation (least square method), interpretation and significance in geographical studies.		CLO ₃	15

IV	Hypothesis testing and chi square: utility in geographical studies, significance test and interpretation. Time Series Analysis, Nearest Neighbour Analysis, Residuals and their mapping, basics of multivariate and correlation matrix.	CLO ₄	15
	Total Contact hours		60
Evaluation Methods			
Internal Assessment: 30 Marks		End Term Examination: 70 Marks	
• Class Participation:	5	Written Examination: 70	
• Seminar/presentation/assignment/quiz/ class test etc.:	10		
• Mid-Term Exam:	15		
Part C-Learning Resources			
Recommended Books/Journals/ e-resources/ Learning Management Systems (LMS):			
Instructions			
1. Gupta, C. B. (1974: An Introduction to Statistical Methods, Vikas Publishing House, Delhi.			
2. Johnston, R.J. (1989): Multivariate Statistical Analysis in Geography, Longman Scientific and Technical, John Wiley & Sons.			
3. Levin, J and Fox, J.A. (2006): Elementary Statistics in Social Research, Pearson Education, New Delhi.			
4. Mahmood, A. (1993) Statistical Methods in Geographical Studies, Rajesh Publications, New Delhi.			
5. Mishra R N and Sharma P.K. (2019): Practical Geography, Pareek Publication, Jaipur			
6. Pal, S.K. (1998): Statistics for Geoscientists: Techniques and Applications, Concept Publishing Company, New Delhi, 1998.			
7. Rogerson. P.A. (2010): Statistical Methods for Geography, Sage Publication, New Delhi.			
8. Sarkar, A. (20113): Quantitative Geography: Techniques and Presentations			
9. शर्मा, पी. एम. (2021): भूगोल में सांख्यिकीय विधियाँ, राजस्थान हिंदी ग्रंथ अकादमी, जयपुर।			
10. मिश्रा, आर. एन., शर्मा, एस. एवं शर्मा, पी. के. (2021): प्रयोगिक भूगोल, रावत पब्लिकेशन्स, जयपुर।			

Mapping of Course Learning Outcomes (CLOs) to Program Learning Outcomes (PLOs)

CLOs	PLO ₁	PLO ₂	PLO ₃	PLO ₄	PLO ₅	PLO ₆	PLO ₇	PLO ₈	PLO ₉	PLO ₁₀	PLO ₁₁
CLO ₁	3	3	-	3	-	3	1	2	3	-	-
CLO ₂	3	3	-	3	-	3	1	2	3	-	-
CLO ₃	3	3	-	3	-	3	1	2	3	-	-
CLO ₄	3	3	-	3	-	3	1	2	3	-	-

Content Mapping with NEP thrust areas

Field	Hours devoted
Employability	15 hours
Entrepreneurship	
Skill Enhancement	15 hours
Communication Development	
Indian Knowledge System	
Environmental Awareness/SDGs	
Current Issues and Social Awareness	
Gender issues	
Public policies	
Any Other	

Part A – Introduction			
Name of the Programme	M.Sc. Geography		
Semester	I		
Nature of Course/Course Composition	Practical		
Nomenclature of the Course	Advanced Cartography		
Course Code	26L6.0-GEO-106		
Course Type	PC		
Course Level	400-499		
Pre-requisite for the course (if any)	N.A.		
Course Learning Outcomes (CLOs) After completing this course, the learner will be able to:	CLO ₁	Understand the basic concepts of cartographic techniques	
	CLO ₂	Assess the representation of Climatic data	
	CLO ₃	Assess the representation socio-economic data	
	CLO ₄	Develop the skill of representation of data through computer/software	
	Theory	Practical	Total
Credits	0	4	4
Teaching hours per week	0	8	8
Internal Assessment Marks	0	30	30
End Term Exam Marks	0	70	70
Max. Marks	0	100	100
Examination Duration (in Hours)	0	03	
Part B- Contents of the Course			
<u>Instructions for Examiner:</u>			
Write-up and execution of the practical will be conducted as per the nature of the practical by the external examiner, with consideration given to the Course Learning Outcomes.			
Unit	Topics	CLO/s Attempt	Contact Hours
Unit-I	Cartography Nature, History and scope of Cartography, Recent advancement in cartography. Types and characteristics of distribution maps: Chorochromatic, Choroschematic, Isopleths, Choropleth, Dot and Diagrammatic. Types and characteristics of statistical diagrams: One dimensional (bar, line), Two dimensional (circular, rectangular, square), Three dimensional (sphere, cube) and other diagrams (Snail, pyramid, flow diagram/cartogram). Characteristics of graph/diagrams/maps representing climatic data: Rainfall deviation, Climograph (Taylor and Foster), Hythergraph, Star/Wind rose diagram, Isopleths, Line and bar and polygraph	CLO ₁	30
Unit-II	Representation of climatic Climograph Hythergraph Ergograph Wind rose diagram	CLO ₂	30
Unit-III	Representation of socio-economic data:	CLO ₃	30

	Dot method Choropleth (mono-variate, bi-variate) Age and sex pyramid Snail diagram Triangle diagram Cartogram (Traffic flow, rectangular)		
Unit-IV	Representation of data using Excel program: Time series analysis: moving average of rainfall and temperature data. Poly and trend graphs; line and bar, rainfall deviation diagram, bar graphs	CLO ₄	30
	Contact Hours	120	
Evaluation Methods			
Internal Assessment	MM-30	End Term Examination: 70	MM- 70
Class Participation:	5	Lab record	10
Seminar/Demonstration/Viva-voce/Lab records etc.:	10	Viva-Voce	20
Mid-Term Exam:	15	Write-up and execution of the practical	40
Part C-Learning Resources			
Recommended Books/Journals/ e-resources/ Learning Management Systems (LMS):			
Instructions			
1. Dent, B.D. (1999): Cartography: Thematic Map Design, (Vol. 1), McGraw Hill.			
2. Gupta, K.K. and Tyagi, V.C (1992): Working with Maps, Survey of India, DST, New Delhi.			
3. Mishra R N and Sharma P.K. (2019): Practical Geography, Pareek Publication, Jaipur			
4. Monkhouse, F.J and Wilkinson, H.R (1971): Maps and Diagrams. Methuen and Co. Ltd., London			
5. Ramamurthy, K (1982): Map Interpretation, Rex Printers, Madras.			
6. Robinson A (1953): Elements of Cartography, John Wiley.			
7. Siddhartha, K (2006): Geography through maps, Kisalaya Publications Pt. Ltd, Delhi			
8. Singh, G (2005): Map work and practical geography. Vikas Publishing House Pvt. Ltd.,New Delhi			
9. Singh, L.R and Singh, R (1973): Map work and practical geography, Central Book, Allahabad			
10. Singh, R.L (2005): Elements of Practical Geography. Kalyani Publishers, New Delhi, India. (English and Hindi			
11. मिश्रा, आर. एन. एवं शर्मा, पी. के. (2021): प्रयोगिक भूगोल, रावत पब्लिकेशन्स, जयपुर।.			

Mapping of Course Learning Outcomes (CLOs) to Program Learning Outcomes (PLOs)

CLOs	PLO ₁	PLO ₂	PLO ₃	PLO ₄	PLO ₅	PLO ₆	PLO ₇	PLO ₈	PLO ₉	PLO ₁₀	PLO ₁₁
CLO ₁	3	2	1	3	2	2	3	2	3	-	1
CLO ₂	3	2	1	3	2	2	3	2	3	-	1
CLO ₃	3	2	1	3	2	2	3	2	3	-	1
CLO ₄	3	2	1	3	2	2	3	2	3	-	1

Content Mapping with NEP thrust areas

Field	Hours devoted
Employability	15 hours
Entrepreneurship	
Skill Enhancement	30 hours
Communication Development	
Indian Knowledge System	
Environmental Awareness/SDGs	30 hours
Current Issues and Social Awareness	
Gender issues	
Public policies	
Any Other	

Part A - Introduction				
Name of Subject	M.Sc. Geography			
Semester	II			
Nature of Course	Theory			
Nomenclature of the Course	Oceanography			
Course Code	26L6.0-GEO-201			
Course Type	CC			
Course Level	400-499			
Pre-requisite for the course (if any)	N.A.			
Course Learning Outcomes (CLOs ₁) After completing this course, the learner will be able to:	CLO ₁	Understand the concept of origin of Oceans and distribution of land and water		
	CLO ₂	Enrich knowledge about oceanic floor and coral reefs		
	CLO ₃	Understand the circulation of oceanic water		
	CLO ₄	Gain knowledge about oceanic resources		
	Theory	Tutorial	Total	
Credits	4	0	4	
Teaching Hours per week	4	0	4	
Internal Assessment Marks	30	0	30	
End Term Exam Marks	70	0	70	
Max. Marks	100	0	100	
Examination Duration (in Hours)	3			
Part B- Contents of the Course				
<u>Instructions for Paper- Setter:</u>				
The paper setter shall prepare 9 questions selecting two questions from each unit with consideration given to the Course Learning Outcomes. Among these, question number 1 will be compulsory, comprising 7 short answer type questions carrying two marks each (total 14 marks) and covering the entire syllabus. The remaining questions will be carrying 14 marks each. Examinees will be required to attempt five questions: the compulsory question no. 1 and 1 question from the each of the four units.				
Unit	Topics		CLO/s Attempt	Contact Hours
I	Nature and Scope of Oceanography, Distribution Pattern of Land and Water. Origin of Ocean Basins: with special reference to Wegner ‘s Drift Hypothesis, Sea Floor Spreading and Plate tectonics		CLO ₁	15
II	Features of Ocean Basins; Continental Margins and Deep Oceanic Basins; Oceanic Floor Profile: Continental self, Slope, Ridge and Deeps, Abyssal Plains; Submarine Canyons; Configuration of Ocean Floor of Indian, Atlantic and Pacific Ocean. Coral reefs: Types, Origin and Distribution		CLO ₂	15
III	Physical properties (Temperature and Density) and Chemical properties: (Salinity and Dissolved Gases) of Oceanic water; Ocean Currents: origin, types and Impact, Currents of Pacific, Atlantic, and Indian ocean, Ebb and Tide: Origin and impact		CLO ₃	15
IV	Ocean as storehouse of food, minerals and energy sources Oceanic deposits- types, distribution and significance		CLO ₄	15

	Sea-level changes Evidences and impacts, Territorial water and Exclusive Economic Zones (EEZ), United Nations Convention on Law of Sea (UNCLOS).		
	Total Contact hours		60
Evaluation Methods			
Internal Assessment: 30 Marks		End Term Examination: 70 Marks	
• Class Participation:	5	Written Examination: 70	
• Seminar/presentation/assignment/quiz/ class test etc.:	10		
• Mid-Term Exam:	15		
Part C-Learning Resources			
Recommended Books/Journals/ e-resources/ Learning Management Systems (LMS):			
Instructions			
1. Alan P. Trujillo, Harold V. Thurman (2017) : Essentials of Oceanography, Pearsons			
2. C. Brown, Iowa. Garrison, T. (1995): Essentials of Oceanography, Wards worth Pub. Co., London.			
3. Davis, Richard J. A. (1986): Oceanography–An Introduction to the Marine Environment, Wm. C. Brown, Iowa.			
4. Denny, M. (2008): How the Ocean Works: An Introduction to Oceanography, Princeton University Press, New Jersey.			
5. Duxbury, C.A and Duxbury, B. (1996): An Introduction to the world’s Oceans, 2nd Edition,			
6. Garrison, T. (2001): Oceanography-An Introduction to Marine Science, Books/Cole, Pacific Grove, USA.			
7. Gross, M. Grant (1987): Oceanography: A View of the Earth, Prentice-Hall Inc. New Jersey.			
8. Kennel, J.P. (1982): Marine Geology, Prentice Hall, Englewood Cliff, NewJ ersey.			
9. Kerhsaw, S. (2004): Oceanography: An Earth Science Perspective, Routledge, UK. 9.			
10. Sharma, R.C. (1985): The Oceans, Rajesh Publications, NewDelhi.			
11. Shepart, F. (1969): The Earth Beneath the Sea, Rev. ed., Athneum, NewYork.			
12. Sieboldt, E. and W.H. Berger (1994): The Sea Floor, 2nd ed., Freeman, NewYork.			
13. Singh, Savindra., (2014): Oceanography, Pravalika Publications, Allahabad.			
14. लाल, डी. एस. (2013): जलवायु एवं समुद्र विज्ञान, शारदा पुस्तक भवन, प्रयागराज।			
15. लाल, डी. एस. (2013): समुद्र विज्ञान, शारदा पुस्तक भवन, प्रयागराज।			

Mapping of Course Learning Outcomes (CLOs) to Program Learning Outcomes (PLOs)

CLOs	PLO ₁	PLO ₂	PLO ₃	PLO ₄	PLO ₅	PLO ₆	PLO ₇	PLO ₈	PLO ₉	PLO ₁₀	PLO ₁₁
CLO ₁	3	2	-	3	1	2	-	3	3	-	1
CLO ₂	3	2	-	3	1	2	-	3	3	-	1
CLO ₃	3	2	-	3	1	2	-	3	3	-	1
CLO ₄	3	2	-	3	1	2	-	3	3	-	1

Content Mapping with NEP thrust areas

Field	Hours devoted
Employability	2 Hour
Entrepreneurship	
Skill Enhancement	
Communication Development	
Indian Knowledge System	
Environmental Awareness/SDGs	15 hours
Current Issues and Social Awareness	15 hours
Gender issues	
Public policies	
Any Other	

Part A - Introduction			
Name of Subject	M.Sc. Geography		
Semester	II		
Nature of Course	Theory (Theory + Tutorial)		
Nomenclature of the Course	Geographical Thought		
Course Code	26L6.5-GEO-202		
Course Level	400-499		
Course Type	CC		
Pre-requisite for the course (if any)	N.A.		
Course Learning Outcomes (CLOs ₁) After completing this course, the learner will be able to:	CLO ₁	Understand the nature and development of geographical thoughts	
	CLO ₂	Build an idea about the concepts of geography	
	CLO ₃	Know about the trends of geographical thought	
	CLO ₄	Assess the paradigm and of social relevance in geography	
	Theory	Tutorial	Total
Credits	4	0	4
Teaching Hours per week	4	0	4
Internal Assessment Marks	30	0	30
End Term Exam Marks	70	0	70
Max. Marks	100	0	100
Examination Duration (in Hours)	3		
Part B- Contents of the Course			
Instructions for Paper- Setter: The paper setter shall prepare 9 questions selecting two questions from each unit with consideration given to the Course Learning Outcomes. Among these, question number 1 will be compulsory, comprising 7 short answer type questions carrying two marks each (total 14 marks) and covering the entire syllabus. The remaining questions will be carrying 14 marks each. Examinees will be required to attempt five questions: the compulsory question no. 1 and 1 question from the each of the four units.			
Unit	Topics	CLO/s Attempt	Contact Hours
I	Geography- Nature and place of geography in the classification of science, Historical Development; contribution of Indian Knowledge System (IKS) and Indian philosophers and major proponents in geography in the ancient world; the Greeks, the Romans (Strabo & Ptolemy) and the Arabs (Al- Masudi, Al- Baruni, Ibn Battuta).	CLO ₁	15
II	Broadening horizons: Impact of voyages and discoveries; Renaissance and its impact on Geographical Thought; Foundation of scientific geography: contributions of Varenius and Kant. Founders of modern geography; contribution of German school of thought (Humboldt and Ritter) and French School of Thought (Vidal De La Blache, and Jean Brunhes) Contribution of American, British, and Russian	CLO ₂	15
III	Concepts in Geography- Chorology, Landscapes, aerial differentiation	CLO ₃	15

	Dichotomy and dualism in Geography, Concept of Environmental determinism, possibilism and neo-determinism		
IV	Positivism and Quantitative revolution- Impacts and challenges, Qualitative Paradigm- Humanism and Behaviouralist. Social relevance in Geography- welfare, radical and feminist perspectives, postmodernism in Geography	CLO ₄	15
	Total Contact hours		60
Evaluation Methods			
Internal Assessment: 30 Marks		End Term Examination: 70 Marks	
• Class Participation:		5	Written Examination: 70
• Seminar/presentation/assignment/quiz/class test etc.:		10	
• Mid-Term Exam:		15	
Part C-Learning Resources			
Recommended Books/Journals/ e-resources/ Learning Management Systems (LMS):			
Instructions			
1. Bonnett, Alastair, (2008): What is geography? Sage Publications.			
2. Castree, R, A. Rogers and D. Sherman, (2005): Questioning Geography: Fundamental Debates, Blackwell.			
3. Crang, Mike and Nigel Thrift, (2000): Thinking Space, Routledge. 8. Holt Jensen Arid, 1999. Geography: History and Concepts, Sage Publications.			
4. Cresswell, Tim, (2013): Geographic Thought: A Critical Introduction, Wiley Blackwell.			
5. Harvey David (1989): Explanation in Geography, Edward Arnold, London.			
6. Dikshit, R. D. (2004): Geographical Thought. A Critical History of Ideas. Prentice-Hall of India, New Delhi. (in English and Hindi).			
7. Gregory, Derek; Johnston, Ron; Pratt, Geraldine; Watts, Michael; Whatmore, Sarah, (2009): The Dictionary of Human Geography, Wiley-Blackwell.			
8. Hubbard, Phil., Kitchin, Rob, and Gill Valentine, (2008): Key Texts in Human Geography, Sage Publications.			
9. Hubbard, Phil., Kitchin, Rob., Bartley Brendan and Duncan Fuller, (eds) (2002): Thinking Geographically: Space, Theory and Contemporary Human Geography, Continuum.			
10. Husain. M, (2015): Evolution of Geographical Thought (6 th ed.), Rawat Publication, India			
11. Johnston, Ron, and James D. Sidaway. (2015): Geography and geographers: AngloAmerican human geography since 1945. London: Routledge.			
12. Nayak, Anoop & Jeffrey Alex, (2011): Geographical Thought: An Introduction to Ideas in Human Geography, Harlow: Prentice Hall.			
13. Peet, Richard, (1998): Geographical Thought, Blackwell			
14. Singh, Ravi S (2009): Indian Geography: Perspectives, Concerns and Issues (ed.). Jaipur/New Delhi: Rawat Publications			
15. कौशिक, एस. डी. एवं रावत, डी. एस. (2015): भौगोलिक विचारधारा एवं विधि तंत्र, रस्तोगी पब्लिकेशन, मेरठ।			
16. मौर्य, एस. डी. (2023): भौगोलिक चिंतन का इतिहास, प्रवालिका प्रकाशन, इलाहाबाद।			

Mapping of Course Learning Outcomes (CLOs) to Program Learning Outcomes (PLOs)

CLOs	PLO ₁	PLO ₂	PLO ₃	PLO ₄	PLO ₅	PLO ₆	PLO ₇	PLO ₈	PLO ₉	PLO ₁₀	PLO ₁₁
CLO ₁	3	-	-	3	-	2	-	-	3	-	1
CLO ₂	3	-	-	3	-	2	-	-	3	-	1
CLO ₃	3	-	-	3	-	2	-	-	3	-	1
CLO ₄	3	-	-	3	-	2	-	-	3	-	1

Content Mapping with NEP thrust areas

Field	Hours devoted
Employability	15 hours
Entrepreneurship	
Skill Enhancement	
Communication Development	
Indian Knowledge System	15 hours
Environmental Awareness/SDGs	7 Hours
Current Issues and Social Awareness	15 Hours
Gender issues	
Public policies	
Any Other	

Part A - Introduction				
Name of Subject	M.Sc. Geography			
Semester	II			
Nature of Course	Theory			
Nomenclature of the Course	Agricultural Geography			
Course Code	26L6.0-GEO-203			
Course Type	CC			
Course Level	400-499			
Pre-requisite for the course (if any)	N.A.			
Course Learning Outcomes (CLOs ₁) After completing this course, the learner will be able to:	CLO ₁	Gain knowledge about the concepts of agriculture geography and its origin and determinants & approaches		
	CLO ₂	Enhance the knowledge of agriculture concepts and land capability classification		
	CLO ₃	Understand the agricultural regionalization, agro-regions and its major revolutions in India.		
	CLO ₄	Familiarize with the problems, prospects and policies of Indian agriculture		
	Theory	Tutorial	Total	
Credits	4	0	4	
Teaching Hours per week	4	0	4	
Internal Assessment Marks	30	0	30	
End Term Exam Marks	70	0	70	
Max. Marks	100	0	100	
Examination Duration (in Hours)	3			
Part B- Contents of the Course				
<u>Instructions for Paper- Setter:</u> The paper setter shall prepare 9 questions selecting two questions from each unit with consideration given to the Course Learning Outcomes. Among these, question number 1 will be compulsory, comprising 7 short answer type questions carrying two marks each (total 14 marks) and covering the entire syllabus. The remaining questions will be carrying 14 marks each. Examinees will be required to attempt five questions: the compulsory question no. 1 and 1 question from the each of the four units.				
Unit	Topics		CLO/s Attempt	Contact Hours
I	Nature, scope and significance of agricultural geography; origin and dispersal of agriculture; determinants of agricultural patterns: physical, technological and cultural factors. Approaches to the study of agricultural geography - regional and systematic approach, ecological and commodity approach.		CLO ₁	15
II	Concepts of land capability classification; land use survey and classification. Concepts of intensity of cropping, degree of commercialization, cropping diversification and concentration, crop combination; Von Thunen model of agricultural land use.		CLO ₂	15
III	Agricultural regionalization: concept and criteria; Whittlesey's agricultural systems; measurement of agricultural efficiency and productivity. Agro-climatic zonation: concept and Indian experiences.		CLO ₃	15

IV	Perspectives in agriculture: urban agriculture, dry farming, vertical farming, community farming, organic farming, contract farming, agri-business. Sustainable agricultural development; agriculture and climate change: impacts and adaptation Neo-liberalization and Indian agriculture; problems of Indian agriculture; food security in India. Indian agricultural policies and challenges.	CLO ₄	15
	Total Contact hours		60
Evaluation Methods			
Internal Assessment: 30 Marks		End Term Examination: 70 Marks	
• Class Participation:	5	Written Examination: 70	
• Seminar/presentation/assignment/quiz/class test etc.:	10		
• Mid-Term Exam:	15		
Part C-Learning Resources			
Recommended Books/Journals/ e-resources/ Learning Management Systems (LMS):			
Instructions			
1. Bowler TR (1992): The Geography of Agriculture in Developed Market Economics. Longman.			
2. Ferroni, Marco, (2013): Transforming Indian agriculture- India 2040: Productivity, Markets and Institutions, Sage Publications, New Delhi.			
3. Grigg D (1995): Introduction to Agricultural Geography. Routledge, London.			
4. Husain, Majid (1996): Systematic Agricultural Geography. Rawat Publications, Jaipur.			
5. Mohammad, N. (1992): New Dimension in Agriculture Geography, Vol. I to VIII, Concept Publishing Company, New Delhi.			
6. Mohammad, N. and Rai, S.C. (2014): Agricultural Diversification and Food Security in the Mountain Ecosystem, Concept Publishing Company, New Delhi.			
7. Morgon, W.B. and Munton, R.J.C. (1971): Agricultural Geography. Methuen, London.			
8. Safi, Mohammad (2007): Agricultural Geography. Prentice-Hall of India.			
9. Shafi, M. (2006): Agricultural Geography. Pearson Education, Delhi.			
10. Singh J and Dillon S.S. (1994): Agricultural Geography, Tata Mc Graw Hill			
11. Symons, Leslic (1967): Agricultural Geography, G. Bell and Sons, London.			
12. Tarrant, J.R. (1974): Agricultural Geography, Willey, New York.			
13. White P. (2007): Emergence of agriculture: A global view, Routledge, London.			
14. Wright J. (2009): Sustainable agriculture and food security in an era of oil scarcity, Earthscan, London			
15. Young, A. (1998): Landuse Resources: Now and for the Future, Cambridge University Press, Cambridge			
16. हुसैन, माजिद (2013): कृषि भूगोल, रावत पब्लिकेशन, जयपुर।			

Mapping of Course Learning Outcomes (CLOs) to Program Learning Outcomes (PLOs)

CLOs	PLO ₁	PLO ₂	PLO ₃	PLO ₄	PLO ₅	PLO ₆	PLO ₇	PLO ₈	PLO ₉	PLO ₁₀	PLO ₁₁
CLO ₁	3	1	-	3	-	2	2	2	3	1	2
CLO ₂	3	1	-	3	-	2	2	2	3	1	2
CLO ₃	3	1	-	3	-	2	2	2	3	1	2
CLO ₄	3	1	-	3	-	2	2	2	3	1	2

Content Mapping with NEP thrust areas

Field	Hours devoted
Employability	7 Hours
Entrepreneurship	10 Hours
Skill Enhancement	
Communication Development	
Indian Knowledge System	10 hours
Environmental Awareness/SDGs	7 hours
Current Issues and Social Awareness	7 hours
Gender issues	
Public policies	4 hours
Any Other	

Part A - Introduction			
Name of Subject	M.Sc. Geography		
Semester	II		
Nature of Course	Theory		
Nomenclature of the Course	Population Geography		
Course Code	26L6.0-GEO-204		
Course Type	CC		
Course Level	400-499		
Pre-requisite for the course (if any)	N.A		
Course Learning Outcomes (CLOs ₁) After completing this course, the learner will be able to:	CLO ₁	Gain knowledge about population data base, methodological issues and mapping	
	CLO ₂	Gain knowledge about population data base, methodological issues and mapping	
	CLO ₃	Acquire knowledge about population theories and models	
	CLO ₄	Aware about population policies of different countries and relation between population and environment.	
	Theory	Tutorial	Total
Credits	4	0	4
Teaching Hours per week	4	0	4
Internal Assessment Marks	30	0	30
End Term Exam Marks	70	0	70
Max. Marks	100	0	100
Examination Duration (in Hours)	3		
Part B- Contents of the Course			
<u>Instructions for Paper- Setter:</u> The paper setter shall prepare 9 questions selecting two questions from each unit with consideration given to the Course Learning Outcomes. Among these, question number 1 will be compulsory, comprising 7 short answer type questions carrying two marks each (total 14 marks) and covering the entire syllabus. The remaining questions will be carrying 14 marks each. Examinees will be required to attempt five questions: the compulsory question no. 1 and 1 question from the each of the four units.			
Unit	Topics	CLO/s Attempt	Contact Hours
I	Population Geography; Nature and recent trends Sources, quality, reliability and applications of population data. Methodological problems in population geography	CLO ₁	15
II	Concepts, measurements, determinants, and patterns of fertility and mortality, Migration- Types, Causes, consequences and Concept of Lee, Ravenstein and Zelinsky. Population growth and Composition: concepts, measurements, determinants, and world patterns of age and sex, occupational structure and workforce. Demographic dividend: linkages between population and economic development.	CLO ₂	15
III	Demographic transition: Views of Malthus, Marx and Ricardo, Demographic transition model, Population resource relations: concepts of over population, under population and optimum population, population resource regions.	CLO ₃	15

	Limits to growth: concept and application		
IV	Comparative study of population problems and policies of developed and developing countries- a) Developed Countries: U.S.A., Australia, and Canada. b) Developing Countries: India, China and Brazil. Population problems and environmental implications.	CLO ₄	15
	Total Contact hours		60
Evaluation Methods			
Internal Assessment: 30 Marks		End Term Examination: 70 Marks	
• Class Participation:	5	Written Examination: 70	
• Seminar/presentation/assignment/quiz/ class test etc.:	10		
• Mid-Term Exam:	15		
Part C-Learning Resources			
Recommended Books/Journals/ e-resources/ Learning Management Systems (LMS):			
Instructions			
1. Bhende, A. A. and Kanitkar, T. (2011): Principles of Population Studies, Himalaya Publishing House, Mumbai.			
2. Cassen, Robert & Bates, Lisa M. (1994): Population Policy: A New Consensus Overseas Development Council, Washington, D.C.			
3. Chandana, R. C. (2015): Geography of Population- Concepts, Determinants and Pattern, Kalyani Publishers, Ludhiana, Punjab			
4. Chandna, R. C. (2016): Population Geography: Concepts, Determinants and Patterns, Kalyani Publishers, New Delhi.			
5. Graff, M., and Bremner, J. (2014): A Practical Guide to Population and Development, Washington DC: Population Reference Bureau.			
6. Hassan, M.I. (2020): Population Geography: A Systematic Exposition, Routledge, London.			
7. Mahajan, N(2014): Population Geography, R.K. publishers, Delhi.			
8. May, J.F. (2012): World population policies: their origin, evolution, and impact, WashingtonDC: Springer.			
9. Qazi, S.A(2010): Population Geography, APH publishers.			
10. Trewartha, G. T. (1972): The Less Developed Realm-A Geography of its Population, John Wiley & Sons, Inc., New York.			
11. Trewartha, G. T. (1978): The More Developed Realm-A Geography of its Population, PergamonPress, New York.			
12. United Nations (1997): Health and Mortality Issues of Global Concern, Proceeding of the Symposium on Health and Mortality, Brussels, 19-22 November 1997.			
13. एस. डी. मौर्य (2013): जनसंख्या भूगोल, शारदा पुस्तक भवन, प्रयागराज।			
14. चांदना, आर. सी. (2015): जनसंख्या का भूगोल, कल्याणी पब्लिशर्स, लुधियाना, पंजाब।			

Mapping of Course Learning Outcomes (CLOs) to Program Learning Outcomes (PLOs)

CLOs	PLO ₁	PLO ₂	PLO ₃	PLO ₄	PLO ₅	PLO ₆	PLO ₇	PLO ₈	PLO ₉	PLO ₁₀	PLO ₁₁
CLO ₁	3	2	-	3	-	3	1	2	3	1	3
CLO ₂	3	2	-	3	-	3	1	2	3	1	3
CLO ₃	3	2	-	3	-	3	1	2	3	1	3
CLO ₄	3	2	-	3	-	3	1	2	3	1	3

Content Mapping with NEP thrust areas

Field	Hours devoted
Employability	7 hours
Entrepreneurship	
Skill Enhancement	
Communication Development	
Indian Knowledge System	4 hours
Environmental Awareness/SDGs	7 hours
Current Issues and Social Awareness	10 Hours
Gender issues	
Public policies	15 Hours
Any Other	

Part A - Introduction				
Name of Subject	M.Sc. Geography			
Semester	II			
Nature of Course	Theory			
Nomenclature of the Course	Environmental Geography			
Course Code	26L6.0-GEO-205			
Course Type	CC			
Course Level	400-499			
Pre-requisite for the course (if any)	N.A			
Course Learning Outcomes (CLOs ₁) After completing this course, the learner will be able to:	CLO ₁	Detailed exposure to the concept of Environment Ecology and Ecosystem.		
	CLO ₂	Aware about natural and anthropogenic interventions and impacts		
	CLO ₃	Familiarize with the environmental pollutants and pollution		
	CLO ₄	Aware about planning and policies for environmental conservation		
	Theory	Tutorial	Total	
Credits	4	0	4	
Teaching Hours per week	4	0	4	
Internal Assessment Marks	30	0	30	
End Term Exam Marks	70	0	70	
Max. Marks	100	0	100	
Examination Duration (in Hours)	3			
Part B- Contents of the Course				
<u>Instructions for Paper- Setter:</u> The paper setter shall prepare 9 questions selecting two questions from each unit with consideration given to the Course Learning Outcomes. Among these, question number 1 will be compulsory, comprising 7 short answer type questions carrying two marks each (total 14 marks) and covering the entire syllabus. The remaining questions will be carrying 14 marks each. Examinees will be required to attempt five questions: the compulsory question no. 1 and 1 question from the each of the four units.				
Unit	Topics		CLO/s Attempt	Contact Hours
I	Environmental Geography: Nature, scope, and approaches Ecology: Concept, subdivisions and approaches in Ecology Ecosystem: Components, Habitat and ecological niche, Spatial and temporal dimensions of ecosystem.		CLO ₁	15
II	Nature and types of degradation: Natural and Anthropogenic degradation, Causes and effects of environmental degradation/problems with special reference to the Indian scenario		CLO ₂	15
III	Pollution and Pollutants: Air, Water, Land and Noise- Types, causes and consequences. Desertification, Deforestation and Disposal of Urban Solid waste Ozone layer depletion, Greenhouse effect and Global warming-causes, impacts and measures		CLO ₃	15
IV	International conventions: The Stockholm Convention, The Earth Summit, Rio Declaration and Agenda 21		CLO ₄	15

	Environmental Impact Assessment (EIA), Sustainable development, management of environmental quality.		
	Total Contact hours		60
Evaluation Methods			
Internal Assessment: 30 Marks		End Term Examination: 70 Marks	
• Class Participation:	5	Written Examination: 70	
• Seminar/presentation/assignment/quiz/class test etc.:	10		
• Mid-Term Exam:	15		
Part C-Learning Resources			
Recommended Books/Journals/ e-resources/ Learning Management Systems (LMS):			
1. Balakrishnan, M., (1998): Environmental Problems and Prospects in India, in Das, R.C., et. al. Oxford & IBH Pub., New Delhi.			
2. Castree Noel et. al. (2009): A Companion to Environmental Geography (Ed.), A John Wiley & Sons, Ltd.			
3. Das, R. C., (1998): The Environmental Divide: The Dilemma of Developing Countries, A.P.H. Pub., New Delhi.			
4. Freedman, Bill. (1995): Environmental Ecology: The Ecological Effects of Pollution, Disturbance, and Other Stresses, Academic Press. London.			
5. Gautam Alka (2024): Environmental Geography, Sharda Pustak Bhawan, Prayagraj (U.P.) (Hindi and English)			
6. Gole, P., (2001): Nature Conservation and Sustainable Development in India, Rawat Pub., Jaipur.			
7. Hooja, R., et. al., (ed.) (1999): Desert, Drought and Development: Studies in Resource Management and Sustainability, Rawat Pub, Jaipur			
8. Hussain, M., (ed.) (1996), Environmental Management in India, Rawat Pub., Jaipur			
9. Marsh, W.M., Grossa, J. (2005): Environmental Geography: Science, land use, and Earth Systems. John Wiley, New York.			
10. Munn, T., (ed.) (2001): Encyclopaedia of Global Environmental Change, John Wiley & Sons, West Sussex 7.			
11. Ramakrishanan, P. S. (1997): Conservation and Management of Biological Resources in Himalaya, Oxford & IBH Pub., New Delhi.			
12. Saxena, H.M (2000): Environmental Geography, Rawat publication, New Delhi			
13. Singh, R.B., (ed.) (1990), Environmental Geography, Heritage Pub., New Delhi.			
14. Singh, S (2015): Environmental Geography, Prayag Pustak Bhawan, Allahabad (U.P.)			
15. सिंह, सविन्द्र (2015): पर्यावरण भूगोल, प्रयाग पुस्तक भवन, प्रयागराज।			

Mapping of Course Learning Outcomes (CLOs) to Program Learning Outcomes (PLOs)

CLOs	PLO ₁	PLO ₂	PLO ₃	PLO ₄	PLO ₅	PLO ₆	PLO ₇	PLO ₈	PLO ₉	PLO ₁₀	PLO ₁₁
CLO ₁	3	2	-	3	1	3	1	3	3	1	2
CLO ₂	3	2	-	3	1	3	1	3	3	1	2
CLO ₃	3	2	-	3	1	3	1	3	3	1	2
CLO ₄	3	2	-	3	1	3	1	3	3	1	2

Content Mapping with NEP thrust areas

Field	Hours devoted
Employability	7 hours
Entrepreneurship	
Skill Enhancement	
Communication Development	
Indian Knowledge System	7 Hours
Environmental Awareness/SDGs	15 Hours
Current Issues and Social Awareness	7 Hours
Gender issues	
Public policies	7 Hours
Any Other	

Part A – Introduction			
Name of the Programme	M.Sc. Geography		
Semester	II		
Nature of Course/Course Composition	Practical		
Nomenclature of the Course	Interpretation of topographical sheets and Morphometric Analysis		
Course Code	24L6.0-GEO-206		
Course Type	PC		
Course Level	400-499		
Pre-requisite for the course (if any)	N.A.		
Course Learning Outcomes (CLOs) After completing this course, the learner will be able to:	CLO ₁	Understand basic of topographical sheets and representation of features	
	CLO ₂	Aware about the history and basic aspects of morphometry and watershed	
	CLO ₃	Study the areal aspects of drainage basin	
	CLO ₄	Study the relief properties of drainage basin.	
	Theory	Practical	Total
Credits	0	4	4
Teaching hours per week	0	8	8
Internal Assessment Marks	0	30	30
End Term Exam Marks	0	70	70
Max. Marks	0	100	100
Examination Duration (in Hours)	0	03	
Part B- Contents of the Course			
<u>Instructions for Examiner:</u>			
Write-up and execution of the practical will be conducted as per the nature of the practical by the external examiner, with consideration given to the Course Learning Outcomes.			
Unit	Topics	CLO/s Attempt	Contact Hours
Unit-I	Topographical Maps- Essential information, Indexing and numbering, Symbolization Representation and Interpretation of Physical features from topographical maps Representation and Interpretation of Cultural features from topographical maps.	CLO ₁	30 Hours
Unit-II	Nature, significance and aspects of morphometric analysis. Delineation of watershed (all exercises shall be based on it) Linear aspect: Stream number and Stream ordering methods: Horton and Strahler, relationship between stream order and number, average stream length and bifurcation ratio.	CLO ₂	30 Hours
Unit-III	Areal aspects: drainage frequency and drainage density Profile: Transverse and longitudinal	CLO ₃	30 Hours
Unit-IV	Relief aspect: area height curve, altimetric frequency curve, hypsographic curve, hypsographic integral curve and clinographic curve. Slope analysis: average slope (Wentworth's) and relative relief (G.H Smith's method).	CLO ₄	30 Hours

	Contact Hours	120
Evaluation Methods		
Internal Assessment	MM-30	End Term Examination: 70
Class Participation:	5	Lab record
Seminar/Demonstration/Viva-voce/Lab records etc.:	10	Viva-Voce
Mid-Term Exam:	15	Write-up and execution of the practical
Part C-Learning Resources		
Recommended Books/Journals/ e-resources/ Learning Management Systems (LMS):		
Instructions		
Das Madan Mohan and Saikia Mimi Das (2013): Watershed Management, PHI Learning Private Limited, Delhi 2. Dury, G.H. (1966): Essays in Geomorphology. Heinmann, London. 3. Misra, R.P. and Ramesh, A. (1999): Fundamentals of Cartography, Concept Publishing Company, New Delhi. 4. Monkhouse, F. J. and Wilkinson, H.R. (1980): Maps and Diagrams. B.I. Publications, NewDelhi. 5. Singh, R. L. (1986): Elements of Practical Geography, Kalyani Publications, New Delhi. 6. Singh. S. (2022): Geomorphology, Prayag Pustak Bhawan, Allahabad. 7. Strahler and Strahler (2000), Physical Geography, Wiley. 8. मिश्रा, आर. एन. एवं शर्मा, पी. के. (2021): प्रायोगिक भूगोल, रावत पब्लिकेशन, जयपुर।		

Mapping of Course Learning Outcomes (CLOs) to Program Learning Outcomes (PLOs)

CLOs	PLO ₁	PLO ₂	PLO ₃	PLO ₄	PLO ₅	PLO ₆	PLO ₇	PLO ₈	PLO ₉	PLO ₁₀	PLO ₁₁
CLO ₁	3	2	3	3	3	3	3	3	3	-	2
CLO ₂	3	2	3	3	3	3	3	3	3	-	2
CLO ₃	3	2	3	3	3	3	3	3	3	-	2
CLO ₄	3	2	3	3	3	3	3	3	3	-	2

Content Mapping with NEP thrust areas

Field	Hours devoted
Employability	8 hours
Entrepreneurship	
Skill Enhancement	15 hours
Communication Development	
Indian Knowledge System	
Environmental Awareness	7 Hours
Current Issues and Social Awareness	
Gender issues	
Public policies	
Any Other	

Part A - Introduction			
Name of Subject	M.Sc. Geography		
Semester	II		
Nature of Course	Theory		
Nomenclature of the Course	Constitutional, Human and Moral values, and IPR		
Course Code	24L6.0-CHM-201		
Course Type	CHM		
Course Level	400-499		
Pre-requisite for the course (if any)	NA		
Course Learning Outcomes (CLOs ₁) After completing this course, the learner will be able to:	CLO ₁	Learn the different Constitutional Values, Fundamental Rights and duties enshrined in the Indian Constitution.	
	CLO ₂	Understand Humanism, human virtues and values, and ide of international peace.	
	CLO ₃	Grasp the basic concepts of Moral Values and Professional Conduct Which are required to become a part of the civil society and for developing professionalism	
	CLO ₄	Understand concept of Intellectual Property Rights, Copyright, Patent, Trademark etc and about threats of Plagiarism	
	Theory	Tutorial	Total
Credits	2	0	2
Teaching Hours per week	2	0	2
Internal Assessment Marks	15	0	15
End Term Exam Marks	35	0	35
Max. Marks	50	0	50
Examination Duration (in Hours)	2		
Part B- Contents of the Course (As per university guidelines)			
Instructions for Paper- Setter:			
The paper setter shall prepare 9 questions selecting two questions from each unit with consideration given to the Course Learning Outcomes. Among these, question number 1 will be compulsory, comprising 7 short answer type questions carrying two marks each (total 14 marks) and covering the entire syllabus. The remaining questions will be carrying 14 marks each. Examinees will be required to attempt five questions: the compulsory question no. 1 and 1 question from the each of the four units.			
Unit	Topics		Contact Hours
I	Constitutional Values (8 Contact Hours) Historical Perspective of Indian Constitution; Basic Values enshrined in the Preamble of the Indian Constitution; Concept of Constitutional Morality; Patriotic Values and Ingredients Nation Building; Fundamental Rights and Duties; Directive Principles of the State Policy		8
II	Humanistic Values Humanism, Human Virtues and Civic Sense; Social Responsibilities of Human Beings; Ethical ways to deal with human aspirations; Harmony with society and nature; Idea of International Peace and Brotherhood (Vasudhaiv		7

	Kutumbkam).		
III	Moral Values and Professional Conduct (8 Contact Hours) Understanding Morality and Moral Values; Moral Education and Character Building; Ethics of Relations: Personal, Social and Professional; Introduction to Gender Sensitization; Affirmative approach towards Weaker Sections (SCs, STs, OBCs, EWS & DAs); Ethical Conduct in Higher Education Institutions; Professional Ethics.	CLO 3	8
IV	Intellectual Property Rights Meaning, Origins and Nature of Intellectual Property Rights (IPRs); Different Kinds of IPRs – Copyright, Patent, Trademark, Trade Secret/Dress, Design, Traditional Knowledge; Infringement and Offences of IPRs – Remedies and Penalties; Basics of Plagiarism policy of UGC.	CLO 4	7
	Total Contact hours		30
Evaluation Methods			
Internal Assessment: 15 Marks		End Term Examination: 35 Marks	
• Class Participation:	4	Written Examination: 70	
• Seminar/presentation/assignment/quiz/class test etc.:	4		
• Mid-Term Exam:	7		
Part C-Learning Resources			
Recommended Books/Journals/ e-resources/ Learning Management Systems (LMS):			
Instructions			
1. Ahuja, V. K. (2017). Law relating to Intellectual Property Rights, India. Lexis Nexis			
2. Basu, D.D., Introduction to the Constitution of India (Students Edition). Prentice Hall of India Pvt. Ltd., New Delhi, 20th ed., 200 3.			
3. Dhar, P.L. & R.R. Gaur, Science and Humanism. Commonwealth Publishers, New Delhi, 1990. 4.			
4. George, Susan, How the Other Half Dies. Penguin Press, 1976.			
5. Govindarajan, M., S. Natarajan & V.S. Senthil Kumar (eds.), Engineering Ethics (including Human Values).			
6. Reddy, B. Intellectual Property Rights and the Law. Gogia Law Agency.			
7. Govindarajan, M. et al. Engineering Ethics Including Human Values.			
8. Charles E. Harris et al. (2003). Engineering Ethics. Thomson Asia.			
9. Reddy, N.H. & Ajmera, S. Ethics, Integrity and Aptitude. McGraw Hill.			
10. Tripathi, A.N. (2003). Human Values. New Age International.			
11. Dhar, P.L. & Gaur, R.R. Science and Humanism. Commonwealth.			
12. Bajpai, B.L. Indian Ethos and Modern Management.			
13. Narayanan, P. Intellectual Property Rights.			
14. Singles, S. et al. (2018). Constitution of India and Professional Ethics. Cengage.			
15. Schumacher, E.F. Small is Beautiful. 1973.			
16. Government of India. Constitution of India (Latest Edition).			
17. UGC (2022). Promotion of Academic Integrity and Prevention of Plagiarism Regulations.			
18. National Education Policy (NEP) 2020. Ministry of Education.			
19. WIPO (2023). World Intellectual Property Indicators.			

Mapping of Course Learning Outcomes (CLOs) to Program Learning Outcomes (PLOs)

CLOs	PLO ₁	PLO ₂	PLO ₃	PLO ₄	PLO ₅	PLO ₆	PLO ₇	PLO ₈	PLO ₉	PLO ₁₀	PLO ₁₁
CLO ₁	3	1	2	2	3	1	-	-	3	3	-
CLO ₂	3	1	2	2	3	1	-	-	3	3	-
CLO ₃	3	1	2	2	3	1	-	-	3	3	-
CLO ₄	3	1	2	2	3	1	-	-	3	3	-

Content Mapping with NEP thrust areas

Field	Hours devoted
Employability	6 hours
Entrepreneurship	
Skill Enhancement	
Communication Development	
Indian Knowledge System	07 hours
Environmental Awareness/SDGs	
Current Issues and Social Awareness	05 hours
Gender issues	7 hours
Public policies	7 hours
Any Other	