



Post-Graduate (M.A./M.Sc.) Course Structure

Semester-1	Paper I	Title	Code	Nature
	I	Advanced Geomorphology	GEO-101	Core
	II	Geographical Thought	GEO-102	Core
	III	Social & Cultural Geography	GEO-103	Core
	IV	North America	GEO-104-E1	Elective
		South America	GEO-104-E2	Elective
	V	Practical	GEO-105	Core

Semester-2	Paper I	Title	Code	Nature
	I	Advanced Climatology	GEO-201	Core
	II	Population Geography	GEO-202	Core
	III	Agricultural & Industrial Geography	GEO-203	Core
	IV	West Asia	GEO-204-E1	Elective
		East Asia	GEO-204-E2	Elective
	V	Practical	GEO-205	Core

Semester-3	Paper I	Title	Code	Nature
	I	Advanced Oceanography	GEO-301	Core
	II	Urban Geography	GEO-302	Core
	III	Regional Planning & Development	GEO-303	Core
	IV	Sub-Sahara Africa	GEO-304-E1	Elective
		Australia	GEO-304-E2	Elective
	V	Practical	GEO-305	Core

Semester-4	Paper I	Title	Code	Nature
	I	Environmental Geography	GEO-401	Core
	II	Political Geography	GEO-402	Core
	III	Geography of Water Resource	GEO-403	Core
	IV	West Europe	GEO-404-E1	Elective
		East Europe	GEO-404-E2	Elective
	V	Practical	GEO-405	Core



Programme Outcome (PO)

PO1. Disciplinary Knowledge: Demonstrate advanced and critical understanding of the core fields of geography — physical, human, regional, environmental, and geospatial — along with emerging theories, concepts, and interdisciplinary linkages.

PO2. Research Methodology and Scientific Reasoning: Apply research principles, scientific reasoning, and analytical methods to investigate geographical phenomena, formulate hypotheses, and interpret spatial and social processes using empirical evidence.

PO3. Technical and Spatial Analysis Skills: Use geospatial technologies (GIS, Remote Sensing, GPS) and quantitative/qualitative tools for spatial data collection, mapping, visualization, and analysis to address geographical and environmental challenges.

PO4. Fieldwork and Practical Competence: Design and conduct field-based studies through observation, sampling, surveying, and data recording; prepare field reports, maps, and diagrams to represent spatial patterns and relationships accurately.

PO5. Data Handling and Statistical Interpretation: Process, analyze, and interpret quantitative and qualitative data using statistical techniques and digital tools; generate valid inferences and visual representations to support geographical research and policy.

PO6. Critical Thinking and Problem Solving: Integrate information from multiple disciplines to critically analyze complex geographical problems and propose sustainable and evidence-based solutions in areas such as resource management, urbanization, and environmental hazards.

PO7. Ethical and Environmental Awareness: Demonstrate ethical responsibility, environmental consciousness, and sustainability-oriented thinking while conducting research, teaching, or professional practice, adhering to national and global environmental goals (e.g., SDGs).

PO8. Communication and Presentation Skills: Communicate effectively through written reports, cartographic outputs, data visualizations, and oral presentations, presenting complex geographical information clearly to academic, professional, and public audiences.

PO9. Independent Learning and Research Innovation: Pursue self-directed and lifelong learning, applying innovative approaches to research design, proposal writing, and project execution for advancing geographical knowledge and professional development.

PO10. Leadership, Teamwork, and Project Management: Work collaboratively and responsibly in field, laboratory, and community-based projects; demonstrate leadership, coordination, and organizational skills in managing research or development initiatives.

PO11. Application of Knowledge to Real-world Problems: Apply theoretical and technical knowledge of geography to identify, analyze, and solve real-world problems such as land-use planning, climate adaptation, disaster management, and regional development.



PO12. Professional Readiness and Employability: Show readiness for diverse career pathways including teaching, research, geospatial analysis, environmental consultancy, urban and regional planning, disaster risk management, and policy-making.

PO13. Values, Integrity, and Sustainable Citizenship: Uphold constitutional, humanistic, and ethical values; promote social inclusivity, scientific integrity, and environmental stewardship, contributing positively to sustainable and equitable societal development.

Programme Specific Outcomes (PSOs)

PSO1 – Knowledge: Learners will demonstrate in-depth and systematic knowledge of the core areas of geography, including physical geography, human geography, and geospatial technologies. They will also develop an understanding of the philosophical, ecological, socio-political, and economic foundations of geographic thought and practice.

PSO2 – Attitude: Learners will develop a critical and inclusive attitude towards environmental sustainability, cultural diversity, and spatial justice. They will demonstrate ethical awareness and responsibility in dealing with both natural and human environments.

PSO3 – Communication: Learners will exhibit strong communication skills, including effective reading, academic writing, oral presentation, map interpretation, and digital literacy. These skills will enable them to engage meaningfully with academic, professional, and community stakeholders.

PSO4 – Collaboration: Learners will display the ability to work collaboratively in interdisciplinary and diverse teams. They will contribute to collective efforts in research, field studies, and community-based projects, fostering teamwork and cooperative learning in geographic contexts.

PSO5 – Skills: Learners will acquire proficiency in spatial analysis, geospatial technologies (GIS, remote sensing), data collection and interpretation, environmental assessment, and regional planning. They will be able to conduct independent research, develop policy-relevant insights, and apply both traditional and modern tools in solving geographic problems.



Post-Graduate (M.A./M.Sc.) Semester-1

The Post-Graduate (M.A./M.Sc.) Semester-1, Degree Course in Geography will comprise four theory papers and one practical examination. Each theory paper will be of 100 marks divided into three parts: T1/T2 test of 20 marks, Mid Semester evaluation of 20 marks and End Semester examination of 60 marks. The practical examination will be of six hours duration (in two parts of three hours duration) and will carry 100 marks. The practical examination will be conducted by two examiners (One internal and one external examiners in University Centre) and two examiners in case of Constituent Colleges (One examiner from the Constituent College and one from University Centre). It is obligatory to pass in the aggregate marks of the theory examination and in the practical examinations separately.

The details of theory papers and practical courses are given below:

Paper	Title	Nature	Code	Credit			Teaching Hour/Week			Assessment			
Part-A Theory Courses				L/T	L/F	Total	L/T	L/F	Total	T1/T2	M.S.	E.S.	Total
I	Advanced Geomorphology	Core	GEO-101	04	-	04	04	-	04	20	20	60	100
II	Geographical Thought	Core	GEO-102	04	-	04	04	-	04	20	20	60	100
III	Social & Cultural Geography	Core	GEO-103	04	-	04	04	-	04	20	20	60	100
IV	North America	Elective	GEO-104-E1	04	-	04	04	-	04	20	20	60	100
	South America		GEO-104-E2										
Part-B Practical										File Record	V.V. & Survey	Desk Work	
V	Practical	Core	GEO-105	04	02	06	04	04	08	20	20	60	100
TOTAL				20	02	22	20	04	24	100	100	300	500



PG Semester I-Paper I
GEO-101: Advanced Geomorphology

T1/T2	M.S.	E.S.	Total
20 Marks	20 Marks	60 Marks	100 Marks
T1/T2: Internal Assessment Tests, M.S.: Mid Semester Test, E.S.: End Semester Test			

Syllabus: End Semester Examination

Time: 3 Hours

Max. Marks: 60

The question paper will consist of 09 questions. The candidate will be required to attempt 05 questions in all. Question No. 1 will be compulsory and short – note type consisting of four topics one from each unit. The remaining 8 questions will be from the four units – two from each unit. The candidate will be required to attempt one question from each unit. The purpose of this course is to inculcate self-reading and the teachers are required to motivate the students towards that end.

Course Objectives

1. To develop an in-depth understanding of the fundamental and advanced concepts of geomorphology and the processes shaping the Earth's surface.
2. To examine the theoretical frameworks and models related to landform development and landscape evolution.
3. To analyze the interaction between endogenic and exogenic forces and their geomorphic implications.
4. To understand the application of geomorphological knowledge in environmental management, hazard assessment, and land use planning.
5. To equip students with skills in interpreting geomorphic features through field observation, remote sensing, and GIS techniques.
6. To foster critical thinking on contemporary geomorphological issues such as climate change impacts, fluvial dynamics, and human-induced landscape modifications.

Course Learning Outcome

CO1: Understand and explain the fundamental and advanced concepts of geomorphology, including earth surface processes, landform development, and geomorphic systems.

CO2: Analyze the interrelationship between endogenic and exogenic forces shaping the earth's surface through theoretical and field-based perspectives.



CO3: Interpret geomorphic processes using modern tools such as aerial photographs, satellite imagery, and GIS-based terrain analysis.

CO4: Evaluate models and theories of landform evolution (e.g., Davisian, Penckian, and Hack's dynamic equilibrium models) in various environmental contexts.

CO5: Assess the influence of structure, process, and time on the evolution of different landform types (fluvial, glacial, aeolian, coastal, and karst).

CO6: Develop critical research and analytical skills by interpreting geomorphological data, maps, and case studies.

Mapping of Course Outcomes (COs) with Programme Specific Outcomes (PSOs) & Programme Outcomes (POs):

COs / POs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO5	PO6	PO8	PO11	PO12
CO1	3	2	—	—	3	3	2	—	—	2	—	2	—
CO2	3	—	—	2	3	3	—	—	—	2	—	2	—
CO3	—	—	3	—	3	—	—	3	2	—	3	—	3
CO4	3	2	—	—	3	3	2	—	—	3	—	2	—
CO5	3	2	—	—	3	3	2	—	—	3	—	3	—
CO6	—	—	3	3	3	—	3	3	3	3	3	—	3

Course Content

UNIT I: Methods and approaches to the study of landforms; Basic concepts in Geomorphology: Structures, Processes and Scales (Stage/Time); Theories of Landscape development.

UNIT II: Concept of Plate Tectonics; Mass Movement of rock waste and resultant landforms; Concept, Evolution and Classification slopes; Theories of Slope development.

UNIT III: Fluvial (Process) Geomorphology – Morphometry of Drainage basins; Profile of Equilibrium; Channel Morphology; Climatic Geomorphology and Morphogenetic regions.

UNIT IV: Structural Geomorphology–Fold, Fault and Domal Structures and Landforms; Paleo and Neo–Geomorphology – Denudation Chronology of Peninsular India and Himalayas.

Suggested Readings:

1. A. L. Bloom (1998): Geomorphology: Prentice Hall
2. J. F. Shroder, (2013): Treatise on Geomorphology, Academic Press
3. K. J. Gregory & A. S. Goudie (2011): The SAGE Handbook of Geomorphology
4. P. R. Bierman & D. R. Montgomery (2014): Key Concepts in Geomorphology, Freeman Publication



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5. R. J. Chorley & Kennedy, (1971): Physical Geography: A Systems Approach, Prentice Hall,
 6. R. J. Huggett (2007): Fundamentals of Geomorphology, Routledge
 7. Savindra Singh (2020): Geomorphology, Pravalika Publication
 8. V. S. Kale & A. Gupta (2018): Introduction to Geomorphology, Orient Longman
 9. सी मामोरिया और एचएस गर्ग (2020): भू-आकृति विज्ञान, एसबीपीडी प्रकाशन
 10. सविन्द्र सिंह (2023): भू आकृति विज्ञान, प्रवालिका प्रकाशन



PG Semester I-Paper II
GEO-102: Geographical Thought

T1/T2	M.S.	E.S.	Total
20 Marks	20 Marks	60 Marks	100 Marks
T1/T2: Internal Assessment Tests, M.S.: Mid Semester Test, E.S.: End Semester Test			

Syllabus: End Semester Examination

Time: 3 Hours

Max. Marks: 60

The question paper will consist of 09 questions. The candidate will be required to attempt 05 questions in all. Question No. 1 will be compulsory and short – note type consisting of four topics one from each unit. The remaining 8 questions will be from the four units – two from each unit. The candidate will be required to attempt one question from each unit. The purpose of this course is to inculcate self-reading and the teachers are required to motivate the students towards that end.

Course Objectives

1. To trace the historical evolution and development of geographical ideas from ancient to contemporary periods.
2. To examine the contributions of major geographical thinkers and schools of thought in shaping the discipline.
3. To understand the philosophical and methodological foundations underlying geographical inquiry.
4. To analyze shifts in paradigms and approaches in geography – regional, quantitative, behavioral, humanistic, and radical.
5. To develop critical thinking for applying geographical theories to current spatial, social, and environmental issues.

Course Learning Outcome

CO1: Understand the evolution of geographical ideas – trace the development of geographical thought from the ancient to the modern period, identifying key milestones and paradigm shifts.

CO2: Critically analyze contributions of major thinkers – evaluate the works of classical, modern, and contemporary geographers and their influence on the discipline's theoretical and methodological foundations.



CO3: Differentiate between schools of thought – explain and compare various approaches such as environmental determinism, possibilism, regionalism, spatial analysis, behavioralism, humanism, radicalism, and postmodernism in geography.

CO4: Interpret the changing nature and scope of geography – assess how geography transitioned from descriptive and regional studies to analytical, quantitative, and critical frameworks.

CO5: Develop philosophical and methodological understanding – comprehend the epistemological bases (positivism, idealism, realism, Marxism, feminism, etc.) that underlie geographical inquiry.

Mapping of Course Outcomes (COs) with Programme Specific Outcomes (PSOs) & Programme Outcomes (POs):

COs / POs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO6	PO7	PO8	PO9	PO11
CO1	3	2	–	–	–	3	2	2	–	–	2	2
CO2	3	3	–	–	–	3	3	3	2	–	2	–
CO3	3	3	2	–	–	3	2	3	2	2	–	–
CO4	3	2	–	–	2	3	2	3	–	–	2	2
CO5	3	3	–	–	–	3	3	3	2	–	2	–

Course Content

UNIT I: Development of Geography in second half of the 20th century; Concept of Paradigm; Paradigm shift, Positivism & Logical Positivism, Quantitative Revolution, Models, System Analysis in Geography.

UNIT II: Reactions to Quantitative Revolution, Behavioural Geography - Cognition, Perception, Mental Maps, Decision making and Behaviour, Time - Space Geography, Humanistic Geography - Idealist & Phenomenological Approaches.

UNIT III: Radical Geography, Structuralism, Realism, Functionalism, Welfare Geography, Post - Modernism

UNIT IV: Modern Developments, Applied Geography and Relevance Debate, Spatial Inequality and Regional Imbalances, Geographers and Policy, Regional Planning, Feminist Geography, Future of Geography.

Suggested Readings:

1. D. Harvey (1986): Explanations in Geography, Edward Arnold.
2. M. Hussain (2014): Evolution of Geographical Thought, Rawat Publication
3. P. Haggett: Geography (1984): A Modern Synthesis, Longman
4. R. Dickinson (1969): The Makers of Modern Geography, Routledge
5. R. D. Dixit (1994): Geographical Thought, Prentice Hall of India



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6. R. Hartshorne (2002): Perspective on the Nature of Geography, Rawat Publication
 7. R. J. Chorley & P. Haggett (1967): Models in Geography, SAGE Publication
 8. S. W. Wooldridge & W. G. East (2024): The Spirit and Purpose of Geography, Routledge
 9. एम हुसैन (2015): भौगोलिक चिंतन का इतिहास, रावत प्रकाशन
 10. एस. डी. मौर्य (2022): भौगोलिक चिंतन का इतिहास, प्रवालिका प्रकाशन



PG Semester I-Paper III
GEO-103 Social & Cultural Geography

T1/T2	M.S.	E.S.	Total
20 Marks	20 Marks	60 Marks	100 Marks
T1/T2: Internal Assessment Tests, M.S.: Mid Semester Test, E.S.: End Semester Test			

Syllabus: End Semester Examination

Time: 3 Hours

Max. Marks: 60

The question paper will consist of 09 questions. The candidate will be required to attempt 05 questions in all. Question No. 1 will be compulsory and short – note type consisting of four topics one from each unit. The remaining 8 questions will be from the four units – two from each unit. The candidate will be required to attempt one question from each unit. The purpose of this course is to inculcate self-reading and the teachers are required to motivate the students towards that end.

Course Objectives

1. To develop an in-depth understanding of India's physical setting, geological structure, and climatic characteristics.
2. To study the spatial distribution and interrelationship of natural resources such as soil, vegetation, and water.
3. To understand the demographic characteristics, population dynamics, and settlement patterns of India.
4. To examine the spatial patterns of agriculture, industries, transport, and regional development in India.
5. To identify and evaluate major environmental and socio-economic challenges and their implications for sustainable development in India.

Course Learning Outcome

- CO1:** Explain the concepts of social geography and spatial formation of socio-cultural regions.
- CO2:** Apply cultural geography concepts to analyze environment-culture relationships and regional patterns.
- CO3:** Analyze identity, power, and spatial relations within socio-cultural contexts.
- CO4:** Evaluate processes of ácultural transformation, diffusion, and globalization.
- CO5:** Create conceptual or spatial models linking culture and geography.



Mapping of Course Outcomes (COs) with Programme Specific Outcomes (PSOs) & Programme Outcomes (POs):

COs / POs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5	PO6	PO8	PO9	PO11
CO1	3	—	—	—	3	3	3	—	—	—	2	—	2	—
CO2	3	—	—	2	3	3	3	—	—	3	3	—	2	2
CO3	3	—	—	3	3	—	3	3	2	3	3	—	—	2
CO4	3	3	3	—	3	—	3	2	—	3	3	3	3	—
CO5	3	—	3	3	3	—	3	3	3	—	3	3	3	3

Course Content

UNIT I: Social Geography; Social Space, Elements of Society: Social Structure, Social Organization, Social Process and Spatial Form - Origin of Socio-Cultural Regions

UNIT II: Meaning & Scope of Cultural Geography, Environment and Culture; Concept of Culture-areas and Cultural Regions; Theories of tribal groups; Dwelling places as cultural expressions

UNIT III: Concept of culture, politics, identity, space, place, ideology, hegemony, gender, class, race and caste.

UNIT IV: Cultural landscape; Cultural Hearth and Realm, Cultural Landscape, Cultural Diffusion, Cultural Segregation & Regeneration, Socio-Cultural Transformations: Westernisation & Globalisation

Suggested Readings:

1. A. Ahmad (1999): Social Geography, Rawat Publications
2. D. Gregory, R. Johnston & G. Pratt (2009): The Dictionary of Human Geography, Wiley-Blackwell
3. C. Hammett (1996): Social Geography: A Reader, Arnold, London
4. D. Mitchell (2000): Cultural Geography: A Critical Introduction, Blackwell
5. G. Valentine (2014): Social Geographies: Space and Society, Routledge.
6. J. M. Rubenstein (2018): Contemporary Human Geography, Pearson
7. M. Hussain (2016): Human Geography, Rawat Publications
8. V. J. D. Casino (2009): Social Geography: A Critical Introduction, Wiley-Blackwell
9. एस. डी. मौर्य (2022): सामाजिक भूगोल, शारदा पुस्तक भवन
10. एस. डी. मौर्य (2022): सांस्कृतिक भूगोल, शारदा पुस्तक भवन



PG Semester I-Paper IV
GEO-104-E1 North America (Elective-1)

T1/T2	M.S.	E.S.	Total
20 Marks	20 Marks	60 Marks	100 Marks
T1/T2: Internal Assessment Tests, M.S.: Mid Semester Test, E.S.: End Semester Test			

Syllabus: End Semester Examination

Time: 3 Hours

Max. Marks: 60

The question paper will consist of 09 questions. The candidate will be required to attempt 05 questions in all. Question No. 1 will be compulsory and short – note type consisting of four topics one from each unit. The remaining 8 questions will be from the four units – two from each unit. The candidate will be required to attempt one question from each unit. The purpose of this course is to inculcate self-reading and the teachers are required to motivate the students towards that end.

Course Objectives

1. To understand the physical framework of North America, including its geology, relief, drainage, and climatic regions.
2. To study the spatial distribution and utilization of natural resources such as minerals, soils, forests, and water.
3. To analyze the demographic characteristics, migration trends, and settlement patterns across North American regions.
4. To examine the patterns of agriculture, industry, trade, and transport networks shaping the continent's economic geography.
5. To evaluate regional development, environmental issues, and the role of North America in the global economic and environmental context.

Course Learning Outcome

CO1: Students will be able to describe the physical features, climatic regions, and drainage systems of North America.

CO2: Students will be able to analyze the spatial distribution of natural resources and their impact on economic development.



CO3: Students will be able to interpret demographic trends, cultural patterns, and settlement structures across the continent.

CO4: Students will be able to evaluate the patterns of agriculture, industry, transport, and trade in relation to regional development.

CO5: Students will be able to assess environmental issues and regional disparities to propose sustainable development approaches for North America.

Mapping of Course Outcomes (COs) with Programme Specific Outcomes (PSOs) & Programme Outcomes (POs):

COs / POs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO6	PO7	PO9	PO11
CO1	3	—	—	—	3	3	2	3	—	—	—	2
CO2	3	—	—	—	3	3	3	2	2	—	—	3
CO3	3	3	2	—	2	3	2	—	3	2	—	3
CO4	3	—	—	—	3	3	3	3	3	—	2	3
CO5	3	3	—	—	3	3	3	—	3	3	2	3

Course Content

UNIT I: Physical Framework & Human Modification: Physiography; Drainage Network; Climate, Soil and Natural Vegetation.

UNIT II: Economic Activities & Development: Agricultural practices, Mineral, Energy resources, Industries, and Industrial Development.

UNIT III: Demographic Features & Urbanisation: Demographic Growth, Migration; Ethnic composition, Major Tribes, Urbanisation & Major Cities

UNIT IV: Sub-regions & Contemporary Issues: Importance as a Region, Sub-regions, Environmental issues, and Geopolitical challenges.

Suggested Readings:

1. D. L. Johnson & M. L. Johnson (2014): A Development Approach: World Regional Geography, Pearson
2. H. J. de Blij, P. O. Muller, J. Nijman (2014): Geography: Realms, Regions, and Concepts, Wiley
3. J. M. Rubenstein, W. H. Renwick, C. T. Dahlman (2020): Contemporary Human Geography, Pearson
4. J. M. Rubenstein (2019): An Introduction to Human Geography: The Cultural Landscape, Pearson
5. J. Cole, D. Pepper (2019): Regional Geography of the World-Issues for Today, Routledge
6. J. J. Hobbs (2020): World Regional Geography, Cengage Learning Publication
7. L. M. Pulsipher, A Pulsipher (2019): World Regional Geography: Global Patterns, Freeman
8. L. Rowntree, M. Lewis, M. Price, W. Wyckoff (2019): Diversity Amid Globalization, Pearson
9. एम हुसैन (2010): विश्व भूगोल, रावत प्रकाशन
10. एस डी मौर्य (2022): विश्व का प्रादेशिक भूगोल, प्रवालिका प्रकाशन





PG Semester I-Paper IV
GEO-104-E2 South America (Elective-2)

T1/T2	M.S.	E.S.	Total
20 Marks	20 Marks	60 Marks	100 Marks
T1/T2: Internal Assessment Tests, M.S.: Mid Semester Test, E.S.: End Semester Test			

Syllabus: End Semester Examination

Time: 3 Hours

Max. Marks: 60

The question paper will consist of 09 questions. The candidate will be required to attempt 05 questions in all. Question No. 1 will be compulsory and short – note type consisting of four topics one from each unit. The remaining 8 questions will be from the four units – two from each unit. The candidate will be required to attempt one question from each unit. The purpose of this course is to inculcate self-reading and the teachers are required to motivate the students towards that end.

Course Objectives

1. To understand the physical framework of South America, including its geology, relief, drainage, and climatic regions.
2. To study the spatial distribution and utilization of natural resources such as minerals, soils, forests, and water.
3. To analyze the demographic characteristics, migration trends, and settlement patterns across South American regions.
4. To examine the patterns of agriculture, industry, trade, and transport networks shaping the continent's economic geography.
5. To evaluate regional development, environmental issues, and the role of South America in the global economic and environmental context.

Course Learning Outcome

CO1: Students will be able to describe the physical features, climatic regions, and drainage systems of North America.

CO2: Students will be able to analyze the spatial distribution of natural resources and their impact on economic development.



CO3: Students will be able to interpret demographic trends, cultural patterns, and settlement structures across the continent.

CO4: Students will be able to evaluate the patterns of agriculture, industry, transport, and trade in relation to regional development.

CO5: Students will be able to assess environmental issues and regional disparities to propose sustainable development approaches for South America.

Mapping of Course Outcomes (COs) with Programme Specific Outcomes (PSOs) & Programme Outcomes (POs):

COs / POs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO6	PO7	PO8	PO9	PO11
CO1	3	—	—	—	3	3	2	3	—	—	—	—	2
CO2	3	—	—	—	3	3	3	2	2	—	—	—	3
CO3	3	3	2	—	2	3	2	—	3	2	2	—	3
CO4	3	—	—	—	3	3	3	3	3	—	—	2	3
CO5	3	3	—	—	3	3	3	—	3	3	—	2	3

Course Content

UNIT I: Physical Framework & Human Modification: Physiography; Drainage Network; Climate, Soil and Natural Vegetation.

UNIT II: Economic Activities & Development: Agricultural practices, Mineral, Energy resources, Industries, and Industrial Development.

UNIT III: Demographic Features & Urbanisation: Demographic Growth, Migration; Ethnic composition, Major Tribes, Urbanisation & Major Cities

UNIT IV: Sub-regions & Contemporary Issues: Importance as a Region, Sub-regions, Environmental issues, and Geopolitical challenges.

Suggested Readings:

1. D. L. Johnson & M. L. Johnson (2014): A Development Approach: World Regional Geography, Pearson
2. H. J. de Blij, P. O. Muller, J. Nijman (2014): Geography: Realms, Regions, and Concepts, Wiley
3. J. M. Rubenstein, W. H. Renwick, C. T. Dahlman (2020): Contemporary Human Geography, Pearson
4. J. M. Rubenstein (2019): An Introduction to Human Geography: The Cultural Landscape, Pearson
5. J. Cole, D. Pepper (2019): Regional Geography of the World-Issues for Today, Routledge
6. J. J. Hobbs (2020): World Regional Geography, Cengage Learning Publication
7. L. M. Pulsipher, A Pulsipher (2019): World Regional Geography: Global Patterns, Freeman
8. L. Rowntree, M. Lewis, M. Price, W. Wyckoff (2019): Diversity Amid Globalization, Pearson
9. एम हुसैन (2010): विश्व भूगोल, रावत प्रकाशन



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10. एस डी मौर्य (2022): विश्व का प्रादेशिक भूगोल, प्रवालिका प्रकाशन



PG Semester I-Paper V
GEO-105: Practical
Syllabus: End Semester Examination

Time: 3 Hours

Max. Marks: 60

The practical examination will be conducted by two examiners (One internal and one external examiners in University Centre) and two examiners in case of Constituent Colleges i.e., one examiner from the concerned Constituent College (Internal examiner) and one from University Centre. It is obligatory to pass in the aggregate marks of practical examinations separately. The practical examination will be of six hours duration (in two parts of three hours duration) and will carry 100 marks as the maximum marks. Lab Work examination shall be from Unit I & II and shall be of three hours duration. The candidate will be given four questions (Two questions from each Unit I & II) and will be required to attempt three questions in all. Question Paper preparation for Lab work Examination and evaluation of answer books for Lab Work examination will be carried out by the examiner from the University centre. Viva-voce evaluation will be based on Field Survey and shall be carried out by both internal and external examiners. Evaluation of sessional record file will be carried out by the internal examiner.

The division of marks in the practical shall be as follows:

- Lab Work (Unit I & II) 60 marks
- Field Survey 15 marks
- Viva-voce based on Field survey: 15 marks
- Evaluation of Sessional Record File: 10 marks.

Course Objectives

1. To develop a clear understanding of the Earth's coordinate systems and map projections for practical applications.
2. To acquire skills in analyzing drainage networks, including bifurcation ratios, drainage density, and hypsometric analysis.
3. To understand the principles and stages of remote sensing and its applications in geographical analysis.
4. To gain hands-on experience in surveying techniques, including graphic triangulation, plane table plotting, and resection methods.
5. To enhance practical fieldwork and laboratory skills for accurate recording, interpretation, and presentation of geospatial data.

Course Learning Outcomes

CO1: To develop a clear understanding of the Earth's coordinate systems and map projections for practical applications.

CO2: To acquire skills in analyzing drainage networks, including bifurcation ratios, drainage density, and hypsometric analysis.



CO3: To understand the principles and stages of remote sensing and its applications in geographical analysis.

CO4: To gain hands-on experience in surveying techniques, including graphic triangulation, plane table plotting, and resection methods.

CO5: To enhance practical fieldwork and laboratory skills for accurate recording, interpretation, and presentation of geospatial data.

Mapping of Course Outcomes (COs) with Programme Specific Outcomes (PSOs) & Programme Outcomes (POs):

COs / POs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5	PO6	PO8	PO9	PO11
CO1	3	—	—	—	3	3	—	3	2	—	—	2	—	3
CO2	3	—	—	—	3	3	3	3	—	3	2	—	—	3
CO3	3	—	3	—	3	3	3	3	—	2	—	—	2	3
CO4	3	—	—	3	3	3	—	3	3	—	—	2	—	3
CO5	3	—	3	3	3	3	—	3	3	3	2	3	2	3

Course Content

Unit I: Topographical maps of India: Conventional Signs, Scales of different topographical maps, observing physical features, observing man-made features.

Analysis of Drainage network: Stream ordering, Bifurcation Ratio and Length Ratio.

Analysis of Relief: Area-Height diagram, Relative relief, Slope analysis.

Analysis of Settlement- Mean Centre, Standard Distance and Nearest Neighbour method.

Analysis of Transport: Cyclometric number, Alpha Beta Gamma indices; Connectivity matrix.

Unit II: Aerial Photographs-Aerial photos: types, scale, resolution; Geometric properties of aerial photos; Basics of Remote Sensing: Stages of Remote Sensing, Electromagnetic Radiation & Radiation laws, Spectral Regions, Atmospheric windows, Platforms & Sensors and their Spatial, Spectral, Temporal & Radiometric resolutions.

Unit III: Surveying: Planimetric details - Graphic triangulation, plotting of details by plane table and Resection: Two and Three Point problems.

Suggested Readings:

1. A. Sarkar (2015): Practical Geography: A Systematic Approach, Orient Black Swan
2. F. F. Sabins (2007): Remote Sensing: Principles and Interpretation, Waveland Press
3. F. J. Monkhouse & R. H. Williamson (1971): Maps and Diagrams, Methuen, London
4. M. R. Spingel (2008): Theory and Problems of Statistics, McGraw Hill International.
5. P. K. Saha & P. Basu (2021): Advanced Practical Geography, Books and Allied (P) Ltd
6. R. L. Singh & R. P. B. Singh (2015): Elements of Practical Geography, Kalyani Publishers
7. T. M. Lillesand & R. W. Kiefer (2000): Remote Sensing and Image Interpretation, Wiley
8. R. P. Misra (2015): Research Methodology: A Handbook, Concept Publishing Company
9. देवी दत्त चौनियाल (2016): सुदूर संवेदन एवं भौगोलिक सूचना प्रणाली के सिद्धांत, शारदा पुस्तक भवन
10. रामचन्द्र तिवारी एवं सुधाकर तिवारी, (2013): अभिनव प्रयोगात्मक भूगोल, प्रयाग पुस्तक भवन





Post-Graduate (M.A./M.Sc.) Semester-2

The Post-Graduate (M.A./M.Sc.) Semester-1, Degree Course in Geography will comprise four theory papers and one practical examination. Each theory paper will be of 100 marks divided into three parts: T1/T2 test of 20 marks, Mid Semester evaluation of 20 marks and End Semester examination of 60 marks. The practical examination will be of six hours duration (in two parts of three hours duration) and will carry 100 marks. The practical examination will be conducted by two examiners (One internal and one external examiners in University Centre) and two examiners in case of Constituent Colleges (One examiner from the Constituent College and one from University Centre). It is obligatory to pass in the aggregate marks of the theory examination and in the practical examinations separately.

The details of theory papers and practical courses are given below:

Paper	Title	Nature	Code	Credit			Teaching Hour/Week			Assessment			
Part-A Theory Courses				L/T	L/F	Total	L/T	L/F	Total	T1/T2	M.S.	E.S.	Total
I	Advanced Climatology	Core	GEO-201	04	-	04	04	-	04	20	20	60	100
II	Population Geography	Core	GEO-202	04	-	04	04	-	04	20	20	60	100
III	Agriculture & Industrial Geog.	Core	GEO-203	04	-	04	04	-	04	20	20	60	100
IV	West Asia	Elective	GEO-204-E1	04	-	04	04	-	04	20	20	60	100
	East Asia		GEO-204-E2										
Part-B Practical										File Record	V.V. & Survey	Desk Work	
V	Practical	Core	GEO-205	04	02	06	04	04	08	20	20	60	100
TOTAL				20	02	22	20	04	24	100	100	300	500



PG Semester II-Paper I
GEO-201: Advanced Climatology

T1/T2	M.S.	E.S.	Total
20 Marks	20 Marks	60 Marks	100 Marks
T1/T2: Internal Assessment Tests, M.S.: Mid Semester Test, E.S.: End Semester Test			

Syllabus: End Semester Examination

Time: 3 Hours

Max. Marks: 60

The question paper will consist of 09 questions. The candidate will be required to attempt 05 questions in all. Question No. 1 will be compulsory and short – note type consisting of four topics one from each unit. The remaining 8 questions will be from the four units – two from each unit. The candidate will be required to attempt one question from each unit. The purpose of this course is to inculcate self-reading and the teachers are required to motivate the students towards that end.

Course Objectives:

1. To acquaint the students with the fundamental concepts related to atmosphere.
2. To make the students understand the process regulating global climate.
3. To help the students to analyze the origin, growth and mechanism of different air circulations in atmosphere.
4. To acquaint students about major climatic classification systems and their application in categorizing global climate zones.
5. To help the student to explore global climatic phenomenon and their impacts on regional and global weather pattern.
6. To help students to examine various weather forecasting types and enable students to interpret different meteorological data.
7. To make students comprehend the consequences of human activities over global climate changes.

Course Outcome

After completion of the course the students will be able to:

- CO1: Describe the structure, composition and basic processes of the atmosphere including radiation laws, solar constant, and principles of stability and instability
- CO2: Classify and analyze the origin, growth, distribution of air masses, as well as the development of fronts, frontogenesis, cyclones, and anticyclones using relevant theories.
- CO3: Apply major climatic classification systems (Koppen, Thornthwaite, and Strahler) to categorize and interpret global climate zones.
- CO4: Assess the causes, effects, and evidence of climatic changes, distinguishing between natural and anthropogenic factors.
- CO5: Explain the mechanisms, interrelationships, and global impacts of major climatic phenomena such as El Niño, La Niña, Walker Circulation, and the Southern Oscillation.



CO6: Integrate concepts from atmospheric processes, climatic classifications, and global phenomena to conduct comprehensive analyses of regional weather patterns and their implications for environmental management.

Mapping of Course Outcomes (COs) with Programme Specific Outcomes (PSOs) & Programme Outcomes (POs):

COs / POs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO5	PO6	PO7	PO9	PO11
CO1	3	—	—	—	3	3	3	2	—	2	—	—	3
CO2	3	—	—	—	3	3	3	3	2	3	—	—	3
CO3	3	—	—	—	3	3	3	3	3	3	—	—	3
CO4	3	3	—	—	3	3	3	—	—	3	3	2	3
CO5	3	—	—	—	3	3	3	2	—	3	—	2	3
CO6	3	2	—	—	3	3	3	3	2	3	2	2	3

Course Content

UNIT I: Meaning and Scope of Climatology; Radiation Laws – Wave, Particle, Stefan-Boltzmann & Wiens Law; Solar Constant; Precipitation; Adiabatic temperature change; Stability and Instability.

UNIT II: Air masses – Origin, classification and distribution. Fronts and frontogenesis; Cyclones and Anticyclones – Theories of the origin of Temperate Cyclones; Upper air circulation and Jet Stream.

UNIT III: Climatic Classification of Koeppen, Thornthwaite and Strahler; Major climate types; Weather analysis and Weather forecasting; Weather and human behaviour; Weather modification.

UNIT IV: Climatic Change – Causes and Theories; Global warming; Atmospheric Hazards & Disasters, Tornadoes, Thunderstorms & Cloudburst; El-Nino, Walker Circulation, Southern Oscillation.

Suggested Readings:

1. A. H. Strahler & A. N. Strahler (2013): Physical Geography: Science of the Human Environment, Wiley
2. E. Aguado & J. E. Burt (2018): Understanding Weather and Climate, Pearson
3. J. N. Rayner (2001): Dynamic Climatology, Blackwell Publishers Ltd., Oxford
4. R. G. Barry & R. J. Chorley (2003): Atmosphere, Weather and Climate, Routledge
5. R. Mcilveen (2010): Fundamentals of Weather and Climate, Oxford University Press, Oxford
6. R. V. Rohli & A. J. Vega (2017): Climatology, Jones & Bartlett Learning
7. S. G. David & A. Goudie (2013): The Dictionary of Physical Geography, Wiley-Blackwell
8. Savindra Singh (2020): Physical Geography, Pravalika Publication
9. डी एस लाल (2015): जलवायु विज्ञान, शारदा पुस्तक भवन
10. सविन्द्र सिंह (2020): भौतिक भूगोल, प्रवालिका प्रकाशन



PG Semester II-Paper II
GEO-202: Population Geography

T1/T2	M.S.	E.S.	Total
20 Marks	20 Marks	60 Marks	100 Marks
T1/T2: Internal Assessment Tests, M.S.: Mid Semester Test, E.S.: End Semester Test			

Syllabus: End Semester Examination

Time: 3 Hours

Max. Marks: 60

The question paper will consist of 09 questions. The candidate will be required to attempt 05 questions in all. Question No. 1 will be compulsory and short – note type consisting of four topics one from each unit. The remaining 8 questions will be from the four units – two from each unit. The candidate will be required to attempt one question from each unit. The purpose of this course is to inculcate self-reading and the teachers are required to motivate the students towards that end.

Course Objectives:

1. To make students understand the nature, scope, and fundamental concepts of population geography as a sub-discipline within human geography.
2. To help students to examine various sources of population data and evaluate recent developments and trends in population geography, with a focus on its evolution in India.
3. To help students to analyze classical and modern theories explaining population growth, distribution, and the concepts of 'under', 'over', and 'optimum' population.
4. To develop among students the skill to measure and interpret key demographic indicators such as fertility and mortality rates and their implications for population dynamics.
5. To develop among students the knowledge to compare population policies in under-developed and developed countries and their effectiveness in managing demographic challenges.
6. To acquaint students with the technique to evaluate the role of population in socio-economic development and the application of the Human Development Index (HDI) as a measure of well-being.
7. To develop among students the critical thinking skills for analyzing population issues in the context of sustainable development and policy formulation.

Course Outcome:

After completion of the course the students will be able to:

CO1: explain the nature and significance of population geography, including the evaluation of various sources of population data and recent developments in the field, especially from Indian perspective.

CO2: analyze classical and modern theories of population growth and distribution, critically assessing concepts of 'under', 'over', and 'optimum' population in relation to spatial patterns.

CO3: measure and interpret key demographic indicators such as fertility and mortality rates, applying them to understand population dynamics at local, national, and global scales.

CO4: examine the causes, types, and patterns of migration, including national and international dimensions, and evaluate their socio-economic and environmental impacts.



CO5: compare and critique population policies in under-developed and developed countries, identifying their role in addressing demographic challenges and promoting balanced growth.

CO6: apply the Human Development Index (HDI) and other metrics to evaluate population's influence on socio-economic development, integrating demographic data for policy recommendations and sustainable planning.

Mapping of Course Outcomes (COs) with Programme Specific Outcomes (PSOs) & Programme Outcomes (POs):

COs / POs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO5	PO6	PO7	PO9	PO11	PO13
CO1	3	—	—	—	3	3	3	3	2	—	—	3	—
CO2	3	3	—	—	3	3	3	2	3	—	2	3	—
CO3	3	—	3	—	3	3	3	3	3	—	—	3	—
CO4	3	3	3	—	3	3	3	2	3	2	2	3	—
CO5	3	3	—	—	3	3	3	—	3	3	2	3	2
CO6	3	3	3	—	3	3	3	3	3	3	2	3	2

Course Content

UNIT I: Meaning & Scope of Population Geography; Sources of population data; Methodological problems; Development of Population Geography in India.

UNIT II: Population Growth and Distribution – Classical and Modern Theories; World patterns and their determinants; Concepts of ‘under’, ‘over’ and ‘optimum’ population; Population composition.

UNIT III: Population Dynamics – Measurement of Fertility and Mortality; Migration – Causes, types, national and international patterns, rural and urban dimensions.

UNIT IV: Population-Resource regions; Population planning; Population policies in under-developed and developed countries; Population and socio-economic development; Human Development Index.

Suggested Readings:

1. D. Gregory, R. Johnston & G. Pratt (2009): The Dictionary of Human Geography, Wiley-Blackwell
2. E. Zacharia & V. C. Sinha (1986): Elements of Demography, Allied Publishers Pvt. Ltd., New Delhi
3. G. T. Trewartha (1972): A Population Geography, McGraw Hill, New York
4. H. R. Jones (2000): Population Geography, Paul Chapman, London
5. J. Garnier (1966): Geography of Population, Longman, London
6. R. C. Chandna (2015): A Geography of Population, Kalyani Publishers, New Delhi
7. R. Woods (1997): Theoretical Population Geography, Longman, London
8. W. Zelinsky (1966): A Prologue to Population Geography, Prentice Hall India, New Delhi
9. सी. मामोरिया और एस. के. डांगी (2019): जनसंख्या भूगोल, साहित्य भवन प्रकाशन
10. एस. डी. मौर्य (2022): जनसंख्या भूगोल, शारदा पुस्तक भवन



PG Semester II-Paper III
GEO-203: Agriculture and Industrial Geography

T1/T2	M.S.	E.S.	Total
20 Marks	20 Marks	60 Marks	100 Marks
T1/T2: Internal Assessment Tests, M.S.: Mid Semester Test, E.S.: End Semester Test			

Syllabus: End Semester Examination

Time: 3 Hours

Max. Marks: 60

The question paper will consist of 09 questions. The candidate will be required to attempt 05 questions in all. Question No. 1 will be compulsory and short – note type consisting of four topics one from each unit. The remaining 8 questions will be from the four units – two from each unit. The candidate will be required to attempt one question from each unit. The purpose of this course is to inculcate self-reading and the teachers are required to motivate the students towards that end.

Course Objectives

The main objectives of this course are to:

1. **Understand** the major approaches, concepts, and theoretical frameworks in Agricultural and Industrial Geography.
2. **Examine** the determinants of agricultural and industrial development, including physical, technological, institutional, and locational factors.
3. **Analyze** spatial patterns and processes of agricultural innovation diffusion, agribusiness models, and industrial location theories.
4. **Evaluate** the interrelationship between agriculture, industry, environment, and economic development under globalization.
5. **Develop** the ability to critically assess agricultural and industrial policies, sustainability issues, and regional development strategies.

Course Outcomes

CO1: Explain the major approaches in Agricultural Geography (commodity, systematic, regional, ecological) and identify key determinants (physical, technological, institutional) influencing agricultural development and contribution to GDP.

CO2: Examine the diffusion of agricultural innovations and evaluate modern agribusiness systems including contract and corporate farming in terms of productivity, sustainability, and socio-economic impacts.

CO3: Interpret the concepts of industrial location and critically apply classical and modern location theories (Weber, Losch, Isard, Hoover) to explain industrial distribution patterns.

CO4: Assess industrial development problems and evaluate the environmental, socio-economic, and policy dimensions of industrialization in the context of globalization and sustainable development.



CO5: Formulate integrated perspectives on agricultural and industrial linkages and propose strategic recommendations for sustainable regional and economic development.

Course Content

Mapping of Course Outcomes (COs) with Programme Specific Outcomes (PSOs) & Programme Outcomes (POs):

COs / POs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO5	PO6	PO7	PO9	PO11
CO1	3	3	3	—	3	3	3	2	3	2	—	—	3
CO2	3	3	—	3	3	3	3	—	3	3	2	2	3
CO3	3	3	3	—	3	3	3	3	3	3	—	2	3
CO4	3	3	—	3	3	3	3	—	3	3	3	2	3
CO5	3	3	3	3	3	3	3	2	3	3	3	3	3

Course Content

UNIT I: Approaches to Agriculture Geography: Commodity, Systematic, Regional and Ecological, Determinants of Agricultural development: Physical, Technological, Institutional; Agriculture in GDP

UNIT II: Diffusion of Agricultural Innovations, Agribusiness; Contract farming; Corporate agriculture; Risk and Uncertainty in Production: Input related risk and risk aversion.

UNIT III: Factors of industrial location; Centralization and decentralization of industries; Theories and models of industrial location: Weber, Losch, Isard and Hoover

UNIT IV: Problems of industrial development; Industrial development and Environmental degradation; Industries and Economic development; Impact of Globalisation on Industrialisation; Industrial Policy.

Suggested Readings:

1. A. Miller (1962): Geography of Manufacturing, Prentice Hall, Englewood Cliffs, New Jersey.
2. A. Weber, (1957): Theory of Location of Industries, Chicago University Press, Chicago.
3. D. B. Grigg (1984): Introduction to Agricultural Geography, Hutchinson, London.
4. D. M. Smith, (1982): Industrial Location: An Economic Geographic Analysis, John Wiley & Sons
5. J. Singh & S. S. Dhillon (1994): Agricultural Geography, Tata McGraw Hill, New
6. M Pacione, (1985): Progress in Industrial Geography, Croom Helm
7. M. Shafi (2006): Agricultural Geography, Pearson Education, Delhi.
8. P. White (2007): Emergence of Agriculture: A global view, Routledge, London
9. एम. हुसैन (2016): कृषि भूगोल, रावत प्रकाशन
10. एस. डी. मौर्य (2020): औद्योगिक भूगोल, प्रवालिका प्रकाशन



PG Semester II-Paper IV
GEO-204-E1 West Asia (Elective-1)

T1/T2	M.S.	E.S.	Total
20 Marks	20 Marks	60 Marks	100 Marks
T1/T2: Internal Assessment Tests, M.S.: Mid Semester Test, E.S.: End Semester Test			

Syllabus: End Semester Examination

Time: 3 Hours

Max. Marks: 60

The question paper will consist of 09 questions. The candidate will be required to attempt 05 questions in all. Question No. 1 will be compulsory and short – note type consisting of four topics one from each unit. The remaining 8 questions will be from the four units – two from each unit. The candidate will be required to attempt one question from each unit. The purpose of this course is to inculcate self-reading and the teachers are required to motivate the students towards that end.

Course Objectives:

1. To help students to develop knowledge about the location of different countries of West Asia.
2. To make students understand the physical geography of West Asia, including physiographic regions, drainage networks, climatic patterns, soil types, and natural vegetation distributions.
3. To help students to evaluate the salient economic features of West Asia, with a focus on agricultural systems, mineral and energy resources, and spatial patterns of industrial development.
4. To develop skills among students to examine the demographic dynamics of West Asia, including population growth trends, migration patterns, ethnic compositions, cultural landscapes, and characteristics of major tribes.
5. To help students to recognize the geostrategic importance of west Asian countries from the perspective of global geopolitics.
6. To help students to comprehend the geographical context of Iran and Iraq, applying concepts to contemporary geopolitical issues such as resource conflicts, border disputes, and regional stability.

Course Outcome:

After completion of the course the students will be able to:

- CO1:** Identify and map the key geographical location and physiographic regions of West Asia, demonstrating an understanding of their spatial interrelationships.
- CO2:** Analyze the drainage networks of West Asia, including major river systems and their hydrological significance to regional water resources.
- CO3:** Evaluate the climatic variations across West Asia, explaining how factors like latitude, altitude, and proximity to seas influence weather patterns and seasonal changes.
- CO4:** Classify soil types in West Asia and assess their suitability for agriculture, linking soil characteristics to land use and environmental challenges.



CO5: Describe the distribution of natural vegetation and agriculture in West Asia, correlating it with climatic zones and human impacts on ecosystems.

CO6: Assess the mineral and energy resources and industries of West Asia, such as oil and natural gas reserves, and their role in shaping global energy markets.

CO7: Identify the importance of ethnicity as an integrating factor in the countries of West Asia.

Mapping of Course Outcomes (COs) with Programme Specific Outcomes (PSOs) & Programme Outcomes (POs):

COs / POs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO5	PO6	PO7	PO11
CO1	3	—	3	—	3	3	—	3	3	2	—	3
CO2	3	3	—	—	3	3	3	2	3	3	—	3
CO3	3	3	—	—	3	3	3	3	3	3	—	3
CO4	3	3	—	—	3	3	3	—	3	3	2	3
CO5	3	3	—	—	3	3	3	—	3	3	3	3
CO6	3	3	—	3	3	3	3	—	3	3	3	3
CO7	3	3	3	3	—	3	3	—	—	2	3	—

Course Content

UNIT I: Physical Framework & Human Modification: Physiography; Drainage Network; Climate, Soil and Natural Vegetation.

UNIT II: Economic Activities & Development: Agricultural practices, Mineral, Energy resources, Industries, and Industrial Development.

UNIT III: Demographic Features & Urbanisation: Demographic Growth, Migration; Ethnic composition, Major Tribes, Urbanisation & Major Cities

UNIT IV: Sub-regions & Contemporary Issues: Importance as a Region, Sub-regions, Environmental issues, and Geopolitical challenges.

Suggested Readings:

1. D. L. Johnson & M. L. Johnson (2014): A Development Approach: World Regional Geography, Pearson
2. H. J. de Blij, P. O. Muller, J. Nijman (2014): Geography: Realms, Regions, and Concepts, Wiley
3. J. M. Rubenstein, W. H. Renwick, C. T. Dahlgren (2020): Contemporary Human Geography, Pearson
4. J. M. Rubenstein (2019): An Introduction to Human Geography: The Cultural Landscape, Pearson
5. J. Cole, D. Pepper (2019): Regional Geography of the World-Issues for Today, Routledge
6. J. J. Hobbs (2020): World Regional Geography, Cengage Learning Publication
7. L. M. Pulsipher, A. Pulsipher (2019): World Regional Geography: Global Patterns, Freeman
8. L. Rowntree, M. Lewis, M. Price, W. Wyckoff (2019): Diversity Amid Globalization, Pearson
9. एम ह्यूसन (2010): विश्व भूगोल, रावत प्रकाशन



10. एस डी मौर्य (2022): विश्व का प्रादेशिक भूगोल, प्रवालिका प्रकाशन



PG Semester II-Paper IV
GEO-204-E2 East Asia (Elective-2)

T1/T2	M.S.	E.S.	Total
20 Marks	20 Marks	60 Marks	100 Marks
T1/T2: Internal Assessment Tests, M.S.: Mid Semester Test, E.S.: End Semester Test			

Syllabus: End Semester Examination

Time: 3 Hours

Max. Marks: 60

The question paper will consist of 09 questions. The candidate will be required to attempt 05 questions in all. Question No. 1 will be compulsory and short – note type consisting of four topics one from each unit. The remaining 8 questions will be from the four units – two from each unit. The candidate will be required to attempt one question from each unit. The purpose of this course is to inculcate self-reading and the teachers are required to motivate the students towards that end.

Course Objectives:

1. To help students to develop knowledge about the location of different countries of West Asia.
2. To make students understand the physical geography of East Asia, including physiographic regions, drainage networks, climatic patterns, soil types, and natural vegetation distributions.
3. To help students to evaluate the salient economic features of East Asia, with a focus on agricultural systems, mineral and energy resources, and spatial patterns of industrial development.
4. To develop skills among students to examine the demographic dynamics of East Asia, including population growth trends, migration patterns, ethnic compositions, cultural landscapes, and characteristics of major tribes.
5. To help students to recognize the geostrategic importance of East Asian countries from the perspective of global geopolitics.

Course Learning Outcome:

After completion of the course the students will be able to:

- CO1:** Identify and map the key geographical location and physiographic regions of East Asia, demonstrating an understanding of their spatial interrelationships.
- CO2:** Analyze the drainage networks of East Asia, including major river systems and their hydrological significance to regional water resources.
- CO3:** Evaluate the climatic variations across East Asia, explaining how factors like latitude, altitude, and proximity to seas influence weather patterns and seasonal changes.
- CO4:** Classify soil types in East Asia and assess their suitability for agriculture, linking soil characteristics to land use and environmental challenges.
- CO5:** Describe the distribution of natural vegetation and agriculture in East Asia, correlating it with climatic zones and human impacts on ecosystems.
- CO6:** Assess the mineral and energy resources and industries of East Asia, such as oil and



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natural gas reserves, and their role in shaping global energy markets.

CO7: Identify the importance of ethnicity as an integrating factor in the countries of East Asia.

Mapping of Course Outcomes (COs) with Programme Specific Outcomes (PSOs) & Programme Outcomes (POs):

COs / POs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO5	PO6	PO7	PO11
CO1	3	—	3	—	3	3	—	3	3	2	—	3
CO2	3	3	—	—	3	3	3	2	3	3	—	3
CO3	3	3	—	—	3	3	3	3	3	3	—	3
CO4	3	3	—	—	3	3	3	—	3	3	2	3
CO5	3	3	—	—	3	3	3	—	3	3	3	3
CO6	3	3	—	3	3	3	3	—	3	3	3	3
CO7	3	3	3	3	—	3	3	—	—	2	3	—

Course Content

UNIT I: Physical Framework & Human Modification: Physiography; Drainage Network; Climate, Soil and Natural Vegetation.

UNIT II: Economic Activities & Development: Agricultural practices, Mineral, Energy resources, Industries, and Industrial Development.

UNIT III: Demographic Features & Urbanisation: Demographic Growth, Migration; Ethnic composition, Major Tribes, Urbanisation & Major Cities

UNIT IV: Sub-regions & Contemporary Issues: Importance as a Region, Sub-regions, Environmental issues, and Geopolitical challenges.

Suggested Readings:

1. D. L. Johnson & M. L. Johnson (2014): A Development Approach: World Regional Geography, Pearson
2. H. J. de Blij, P. O. Muller, J. Nijman (2014): Geography: Realms, Regions, and Concepts, Wiley
3. J. M. Rubenstein, W. H. Renwick, C. T. Dahlman (2020): Contemporary Human Geography, Pearson
4. J. M. Rubenstein (2019): An Introduction to Human Geography: The Cultural Landscape, Pearson
5. J. Cole, D. Pepper (2019): Regional Geography of the World-Issues for Today, Routledge
6. J. J. Hobbs (2020): World Regional Geography, Cengage Learning Publication
7. L. M. Pulsipher, A Pulsipher (2019): World Regional Geography: Global Patterns, Freeman
8. L. Rowntree, M. Lewis, M. Price, W. Wyckoff (2019): Diversity Amid Globalization, Pearson
9. एम हुसैन (2010): विश्व भूगोल, रावत प्रकाशन
10. एस डी मोर्य (2022): विश्व का प्रादेशिक भूगोल, प्रवालिका प्रकाशन



PG Semester II-Paper V
GEO-205: Practical
Syllabus: End Semester Examination

Time: 3 Hours

Max. Marks: 60

The practical examination will be conducted by two examiners (One internal and one external examiners in University Centre) and two examiners in case of Constituent Colleges i.e., one examiner from the concerned Constituent College (Internal examiner) and one from University Centre. It is obligatory to pass in the aggregate marks of practical examinations separately. The practical examination will be of six hours duration (in two parts of three hours duration) and will carry 100 marks as the maximum marks. Lab Work examination shall be from Unit I & II and shall be of three hours duration. The candidate will be given four questions (Two questions from each Unit I & II) and will be required to attempt three questions in all. Question Paper preparation for Lab work Examination and evaluation of answer books for Lab Work examination will be carried out by the examiner from the University centre. Viva-voce evaluation will be based on Field Survey and shall be carried out by both internal and external examiners. Evaluation of sessional record file will be carried out by the internal examiner.

The division of marks in the practical shall be as follows:

- Lab Work (Unit I & II) 60 marks
- Field Survey 15 marks
- Viva-voce based on Field survey: 15 marks
- Evaluation of Sessional Record File: 10 marks.

Course Objectives:

1. To help students to understand the basic principles and types of map projection.
2. To develop skills among the students to construct and analyse different mathematical projections.
3. To familiarize students with the techniques of collection, compilation, and analysis of population data.
4. To make students comprehend the structure and processing of Digital Satellite Imagery:
5. To help students understand the application of surveying for the different topographic representations and their interpretations.

Course Learning Outcome:

After completion of the course the students will be able to:

CO1: Construct and interpret conical two standard, Bonne's, and polyconic projections mathematically, and explain their characteristics.

CO2: Create, design and produce choropleth and isopleth maps using spatial data, applying appropriate classification methods and colour schemes to visualize quantitative and qualitative distributions effectively.

CO3: Collect and compile population data via census and sample survey methods; perform point pattern analysis using mean-center, standard deviation, and nearest neighbour techniques; and assess transport network efficiency through cyclometric numbers and L.B.V. indices.

CO4: Describe the structure of satellite imagery and digital data formats (BSQ, BIP, BIL); convert hard copy materials to digital formats via digitization; and apply histogram equalization



for contrast enhancement to improve image interpretability.

CO5: Establish benchmarks and spot heights; conduct planimetric and altimetric surveys using levels, telescopic alidades, and plane tables; and profile terrain features to generate accurate topographic maps, demonstrating proficiency through lab records and field-based viva-voce presentations.

Mapping of Course Outcomes (COs) with Programme Specific Outcomes (PSOs) & Programme Outcomes (POs):

COs / POs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO5	PO6	PO8	PO11
CO1	3	—	3	—	3	3	—	3	3	2	—	3
CO2	3	—	3	—	3	3	—	3	3	3	2	3
CO3	3	3	3	—	3	3	3	3	3	3	—	3
CO4	3	—	3	3	3	3	3	3	3	3	—	3
CO5	3	—	3	3	3	3	—	3	3	3	2	3

Course Content

Unit I: Earth and its coordinate System: Definition and classification of projections; Mathematical construction, characteristics and properties of Polar Zenithal Gnomonic, Polar Zenithal Stereographic, Polar Zenithal Orthomorphic, Conical Two Standard, Bonne's projection, Polyconic Projections, Sinusoidal projection, Gall's projection, Universal Transverse Mercator's, Cylindrical Equal Area, Orthomorphic & Mollweide projection.

Unit II: Digital Image Enhancement: Methods of Contrast Enhancements: Histogram Equalization and Band Ratioing, Filtering techniques, High Pass, Low pass, Directional, Edge Enhancement. Digital Image Rectification: Definition, Types of errors in satellite images: Scan line dropouts, scan line banding, atmospheric corrections, geometric corrections – systematic, non-systematic. Digital Image Classification, concept of supervised and unsupervised classification, accuracy assessment.

Unit III: Levelling- Survey using Auto Level

Suggested Readings:

1. A. Sarkar (2015): Practical Geography: A Systematic Approach, Orient Black Swan
2. F. F. Sabins (2007): Remote Sensing: Principles and Interpretation, Waveland Press
3. F. J. Monkhouse & R. H. Williamson (1971): Maps and Diagrams, Methuen, London
4. M. R. Spingel (2008): Theory and Problems of Statistics, McGraw Hill International.
5. P. K. Saha & P. Basu (2021): Advanced Practical Geography, Books and Allied (P) Ltd
6. R. L. Singh & R. P. B. Singh (2015): Elements of Practical Geography, Kalyani Publishers
7. T. M. Lillesand & R. W. Kiefer (2000): Remote Sensing and Image Interpretation, Wiley
8. R. P. Misra (2015): Research Methodology: A Handbook, Concept Publishing Company
9. देवी दत्त चौनियाल (2016): सुदूर संवेदन एवं भौगोलिक सूचना प्रणाली के सिद्धांत, शारदा पुस्तक भवन
10. रामचन्द्र तिवारी एवं सुधाकर तिवारी, (2013): अभिनव प्रयोगात्मक भूगोल, प्रयाग पुस्तक भवन





Post-Graduate (M.A./M.Sc.) Semester-3

The Post-Graduate (M.A./M.Sc.) Semester-1, Degree Course in Geography will comprise four theory papers and one practical examination. Each theory paper will be of 100 marks divided into three parts: T1/T2 test of 20 marks, Mid Semester evaluation of 20 marks and End Semester examination of 60 marks. The practical examination will be of six hours duration (in two parts of three hours duration) and will carry 100 marks. The practical examination will be conducted by two examiners (One internal and one external examiners in University Centre) and two examiners in case of Constituent Colleges (One examiner from the Constituent College and one from University Centre). It is obligatory to pass in the aggregate marks of the theory examination and in the practical examinations separately.

The details of theory papers and practical courses are given below:

Paper	Title	Nature	Code	Credit			Teaching Hour/Week			Assessment			
Part-A Theory Courses				L/T	L/F	Total	L/T	L/F	Total	T1/T2	M.S.	E.S.	Total
I	Advanced Oceanography	Core	GEO-301	04	-	04	04	-	04	20	20	60	100
II	Urban Geography	Core	GEO-302	04	-	04	04	-	04	20	20	60	100
III	Regional Planning & Development	Core	GEO-303	04	-	04	04	-	04	20	20	60	100
IV	Sub-Sahara Africa	Elective	GEO-304-E1	04	-	04	04	-	04	20	20	60	100
	Australia		GEO-304-E2										
Part-B Practical										File Record	V.V. & Survey	Desk Work	
V	Practical	Core	GEO-305	04	02	06	04	04	08	20	20	60	100
TOTAL				20	02	22	20	04	24	100	100	300	500



PG Semester III-Paper I
GEO-301: Advanced Oceanography

T1/T2	M.S.	E.S.	Total
20 Marks	20 Marks	60 Marks	100 Marks
T1/T2: Internal Assessment Tests, M.S.: Mid Semester Test, E.S.: End Semester Test			

Syllabus: End Semester Examination

Time: 3 Hours

Max. Marks: 60

The question paper will consist of 09 questions. The candidate will be required to attempt 05 questions in all. Question No. 1 will be compulsory and short – note type consisting of four topics one from each unit. The remaining 8 questions will be from the four units – two from each unit. The candidate will be required to attempt one question from each unit. The purpose of this course is to inculcate self-reading and the teachers are required to motivate the students towards that end.

Course Objectives

This course aims to enable the learners to:

1. Understand the fundamental nature, scope, and evolution of oceanography as an interdisciplinary science.
2. Explain the physical, chemical, biological, and geological aspects of the world's oceans.
3. Analyze ocean circulation, temperature, density, and climate interactions with emphasis on El Niño and La Niña phenomena.
4. Examine marine ecosystems, their structure, functioning, and challenges including pollution and conservation.
5. Evaluate marine resources and develop insight into sustainable management and policy frameworks governing marine and coastal areas.

Course Outcome

After completion of the course, learners will be able to:

CO1: Explain the meaning, scope, and branches of oceanography, and describe global distributional patterns of land and oceans.

CO2: Interpret the processes of plate tectonics and the origin of oceans, and analyze ocean depth zones and deposits using the hypsometric curve.

CO3: Examine the physical characteristics of sea water—temperature, density, heat budget—and evaluate their role in oceanic circulation and global climate systems such as El Niño and La Niña.

CO4: Analyze the structure and functioning of marine ecosystems, assess the dynamics of food chains, coral reefs, and mangroves, and evaluate the causes and impacts of marine pollution.



CO5: Evaluate marine resource types, extraction techniques, and economic value, and formulate strategies for sustainable management under EEZ, CRZ, and ICZM frameworks.

Mapping of Course Outcomes (COs) with Programme Specific Outcomes (PSOs) & Programme Outcomes (POs):

COs / POs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5	PO6	PO8	PO9	PO11
CO1	3	—	3	—	3	3	—	3	—	3	2	—	—	3
CO2	3	3	3	—	3	3	3	3	—	3	3	—	—	3
CO3	3	—	3	3	3	3	3	3	—	3	3	—	2	3
CO4	3	3	3	3	3	3	3	3	—	3	3	2	2	3
CO5	3	—	3	3	3	3	3	3	3	3	3	2	2	3

Course Content

UNIT I: Meaning and Scope of Oceanography; Distributional patterns of land and oceans; Plate Tectonics and origin of oceans; Depth Zones and Hypsometric Curve; Ocean Deposits.

UNIT II: Sea-Waters: Temperature; Instability and Ocean Heat Budget, Density and Water Masses; Vorticity, Deep Ocean Circulation and Waves, General Patterns of Circulation; El Nino and La Nina

UNIT III: Oceans as Ecosystems; Marine Biota; Zonation of the sea; Energy flow: Food Chains and Food Webs; Mangroves and Estuarine Ecology; Coral Reefs; Marine Pollution; Marine Ecosystem.

UNIT IV: Marine Resources: Types, extraction methods and economic significance, Management and conservation of marine resources, Marine and Coastal Area Management Policies: EEZ, CRZ, ICZM

Suggested Readings:

1. A. H. Strahler & A. N. Strahler (2013): Physical Geography: Science of Human Environment, Wiley
2. C. A. King (1962): Oceanography for Geographers, Edward Arnold
3. F. Press and R. Siever (2004): The Earth, W. H. Freeman and Co.
4. J. Petersen, D. Sack & R. Gabler (2016): Fundamentals of Physical Geography, Cengage Learning
5. L. R. Kump, J. F. Kasting & R. G. Crane (2009): The Earth System, Pearson
6. P. R. Pinet (2009): Invitation to Oceanography, Jones and Bartlett Publishers
7. S. Singh: Oceanography (2020): Pravalika Publication
8. T. Garrison (2009): Essentials of Oceanography, Brooks/Cole, Belmont
9. डी एस लाल (2018): समुद्र विज्ञान, शारदा पुस्तक भवन
10. सविन्द्र सिंह (2020): भौतिक भूगोल, प्रवालिका प्रकाशन



PG Semester III-Paper II GEO-302: Urban Geography

T1/T2	M.S.	E.S.	Total
20 Marks	20 Marks	60 Marks	100 Marks
T1/T2: Internal Assessment Tests, M.S.: Mid Semester Test, E.S.: End Semester Test			

Syllabus: End Semester Examination

Time: 3 Hours

Max. Marks: 60

The question paper will consist of 09 questions. The candidate will be required to attempt 05 questions in all. Question No. 1 will be compulsory and short – note type consisting of four topics one from each unit. The remaining 8 questions will be from the four units – two from each unit. The candidate will be required to attempt one question from each unit. The purpose of this course is to inculcate self-reading and the teachers are required to motivate the students towards that end.

Course Objectives

The course aims to enable learners to:

1. Understand the nature, scope, and evolution of Urban Geography as a subfield of human geography.
2. Explain theories and models related to urban origin, growth, and structure.
3. Analyze spatial patterns of urban settlements and urban morphology.
4. Evaluate contemporary trends in urban development, management, and sustainability.
5. Formulate strategies for sustainable and resilient urban planning.

Course Outcomes

After completion of the course, learners will be able to:

CO1: Explain the meaning, scope, and significance of Urban Geography and describe major theories of urban origin and urban development models.

CO2: Analyze the ecological models of Burgess, Hoyt, Harris and Ullman, Manu, Vance, and White, and interpret the internal structure of South Asian cities and rural–urban fringe dynamics.

CO3: Classify and compare different types, sizes, and spacing patterns of urban settlements and apply Central Place Theory to understand urban hierarchy and functional organization.

CO4: Evaluate the concept and processes of urban development and assess the role of Master Plans, City Development Plans, and contemporary urban models (Smart, Green, Resilient Cities).

CO5: Design sustainable and livable urban development strategies through an integrated understanding of urban ecology, management, and planning.



Mapping of Course Outcomes (COs) with Programme Specific Outcomes (PSOs) & Programme Outcomes (POs):

COs / POs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5	PO6	PO9	PO11
CO1	3	3	3	—	—	3	3	3	—	3	2	—	3
CO2	3	3	3	—	3	3	3	3	—	3	3	2	3
CO3	3	3	3	—	3	3	3	3	—	3	3	2	3
CO4	3	—	3	3	3	3	3	3	3	3	3	2	3
CO5	3	—	3	3	3	3	3	3	3	3	3	3	3

Course Content

UNIT I: Meaning and Scope of Urban Geography: Theories of urban origin: Early urban hearths, Forms of Post-Modern City; Urban Development Model - Cycle and Stages; Types of urbanised regions.

UNIT II: Ecological models of Burgess, Hoyt, Harris and Ullman, Manu, Vance and White; Internal structure of city in South Asia; Rural – urban fringe; Concept of city region and its delimitation

UNIT III: Urban settlements: Types and patterns, Size, Spacing and Morphology, Classification of towns Hierarchy of towns, Central Place Theory; Urban fields, Suburbs, Rural-urban fringe.

UNIT IV: Concept of Urban Development and Management: Master Plan, City Development Plan; New Town, Smart Growth/Compact City, Green City and Urban Agriculture, Resilient City, Liveability

Suggested Readings:

1. D. Gregory, R. Johnston & G. Pratt (2009): The Dictionary of Human Geography, Wiley-Blackwell
2. E. G. J. Andrew & E. McCann (2015): Urban Geography: A Critical Introduction, Wiley Blackwell
3. G. Bridge & S. Watson (2010): The Blackwell City Reader, Wiley-Blackwell, UK.
4. N. R. Fyfe & J. T. Kenny (2005): The Urban Geography Reader, Routledge
5. P. Knox & S. Pinch (2010): Urban Social Geography, Pearson
6. R. B. Singh (2006): Sustainable Urban Development, Concept Publishing Company
7. S. M. Wheeler & T. Beatley (2014): Sustainable Urban Development, Routledge, New York.
8. T. Hall (2002): Urban Geography (2nd Edition), Routledge: London and New York.
9. एस. डी. मोर्य (2022): नगरीय भूगोल, शारदा पुस्तक भवन
10. आर जोशी (2020): नगरीय भूगोल, राजस्थान हिंदी ग्रंथ अकादमी



PG Semester III-Paper III
GEO-303: Regional Planning and Development

T1/T2	M.S.	E.S.	Total
20 Marks	20 Marks	60 Marks	100 Marks
T1/T2: Internal Assessment Tests, M.S.: Mid Semester Test, E.S.: End Semester Test			

Syllabus: End Semester Examination

Time: 3 Hours

Max. Marks: 60

The question paper will consist of 09 questions. The candidate will be required to attempt 05 questions in all. Question No. 1 will be compulsory and short – note type consisting of four topics one from each unit. The remaining 8 questions will be from the four units – two from each unit. The candidate will be required to attempt one question from each unit. The purpose of this course is to inculcate self-reading and the teachers are required to motivate the students towards that end.

Course Objectives

This course aims to enable the learners to:

1. Understand the concept, need, and evolution of regional planning.
2. Explain different types, theories, and approaches of regional planning.
3. Analyze regional disparities using suitable indicators and planning techniques.
4. Evaluate regional development strategies and models applied to different regions.
5. Formulate suitable regional planning strategies for balanced and sustainable development.

Course Outcomes

After completion of the course, the learners will be able to:

CO1: Explain the concept, types, and evolution of regional planning, and **discuss** its historical development and relevance in spatial development.

CO2: Interpret and analyze major theories, approaches, and processes of regional planning, including policy cycles, regional growth, and spatial structure.

CO3: Apply techniques and indicators for assessing regional disparities, evaluate principles of rationalization, and compare multi-regional and multi-level planning approaches.

CO4: Examine regional development strategies such as Growth Poles and Growth Centres, and evaluate planning models for diverse regional contexts (backward, hill, drought-prone, and tribal areas).

CO5: Design integrated and sustainable regional planning frameworks addressing spatial equity and inclusive growth.



Mapping of Course Outcomes (COs) with Programme Specific Outcomes (PSOs) & Programme Outcomes (POs):

COs / POs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5	PO6	PO9	PO11
CO1	3	3	2	—	—	3	3	—	—	3	2	—	2
CO2	3	—	3	—	3	3	3	3	—	3	3	2	3
CO3	3	—	3	3	3	2	3	3	2	3	3	2	3
CO4	3	3	3	3	3	3	3	3	2	3	3	2	3
CO5	3	3	3	3	3	3	3	3	3	3	3	3	3

Course Content

UNIT I: Concept of Planning; Types of planning; Concept of Regional Planning; Types of Regional Planning; Approaches to Regional Planning; Historical development of Regional Planning.

UNIT II: Theorizing Regional Planning: Introduction, Approaches, Controls, Policy cycle and planning process, Regional growth and development, Regional spatial structure.

UNIT III: Techniques of Regional Planning; Principles of rationalisation; Indicators of development; Regional disparities; Sectoral and spatial planning; Multi regional and Multilevel planning.

UNIT IV: Regional Development strategies: Growth Poles and Growth Centres; Planning Regions; Regional plans for Backward areas, Drought Prone Area, Hill Area, Tribal Area, and Rural Area.

Suggested Readings:

1. B. M. Sanyal (2001): India: Decentralized Planning; Concept Publishing Company
2. D. Gregory, R. Johnston & G. Pratt (2009): The Dictionary of Human Geography, Wiley-Blackwell
3. G. John & M. Tim (2007): Regional Planning, Taylor and Francis, London
4. H. Peter & T. Jones (2010): Urban and Regional Planning, Routledge, London and New York.
5. J. Raychaudhuri (2001): An Introduction to Development and Regional Planning: Orient Black swan
6. M. Chand & V. K. Puri (1983): Regional Planning in India, Allied Publishers
7. P. Claval (1998): An Introduction to Regional Geography, Blackwell Publishers
8. R. C. Chandna (2005): Regional Planning and Development, Kalyani Publishers
9. आर.सी. चंदना (2022): प्रदेशिक नियोजन एवं विकास, कल्याणी प्रकाशन
10. एस. डी. मौर्य (2020): प्रदेशिक नियोजन एवं विकास, प्रवालिका प्रकाशन



PG Semester III-Paper IV
GEO-304-E1 Sub Sahara Africa (Elective-1)

T1/T2	M.S.	E.S.	Total
20 Marks	20 Marks	60 Marks	100 Marks
T1/T2: Internal Assessment Tests, M.S.: Mid Semester Test, E.S.: End Semester Test			

Syllabus: End Semester Examination

Time: 3 Hours

Max. Marks: 60

The question paper will consist of 09 questions. The candidate will be required to attempt 05 questions in all. Question No. 1 will be compulsory and short – note type consisting of four topics one from each unit. The remaining 8 questions will be from the four units – two from each unit. The candidate will be required to attempt one question from each unit. The purpose of this course is to inculcate self-reading and the teachers are required to motivate the students towards that end.

Course Objectives:

The course aims to enable learners to:

1. Understand the physical, environmental, and human dimensions of regional geography.
2. Explain the interrelationship between physical framework and human activities within a region.
3. Analyze patterns of economic development and spatial organization of human activities.
4. Evaluate demographic patterns, cultural characteristics, and urbanization trends.
5. Assess the environmental and geopolitical issues of the region and formulate sustainable strategies for regional development.

Course Outcomes

After completion of the course, the learners will be able to:

- CO1:** Describe the physical framework of the region—physiography, drainage, climate, soil, and vegetation—and explain how these influence human settlement and development.
- CO2:** Analyze patterns of agricultural practices, mineral and energy resource distribution, and evaluate industrial development and economic transformation in the region.
- CO3:** Examine demographic characteristics, migration trends, ethnic composition, and interpret the spatial dimensions of urbanization and major cities.
- CO4:** Evaluate the regional importance, sub-regional diversity, and environmental and geopolitical challenges shaping regional identity.
- CO5:** Design sustainable regional development strategies addressing environmental issues, resource utilization, and human welfare.



Mapping of Course Outcomes (COs) with Programme Specific Outcomes (PSOs) & Programme Outcomes (POs):

COs / POs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO5	PO6	PO8	PO11
CO1	3	2	—	—	3	3	—	—	2	3	—	2
CO2	3	—	2	—	3	3	3	3	3	3	—	3
CO3	3	3	3	—	3	3	2	—	3	3	2	3
CO4	3	3	3	—	2	3	3	—	3	3	—	3
CO5	3	3	3	3	3	3	3	3	3	3	3	3

Course Content

UNIT I: Physical Framework & Human Modification: Physiography; Drainage Network; Climate, Soil and Natural Vegetation.

UNIT II: Economic Activities & Development: Agricultural practices, Mineral, Energy resources, Industries, and Industrial Development.

UNIT III: Demographic Features & Urbanisation: Demographic Growth, Migration; Ethnic composition, Major Tribes, Urbanisation & Major Cities

UNIT IV: Sub-regions & Contemporary Issues: Importance as a Region, Sub-regions, Environmental issues, and Geopolitical challenges.

Suggested Readings:

1. D. L. Johnson & M. L. Johnson (2014): A Development Approach: World Regional Geography, Pearson
2. H. J. de Blij, P. O. Muller, J. Nijman (2014): Geography: Realms, Regions, and Concepts, Wiley
3. J. M. Rubenstein, W. H. Renwick, C. T. Dahlman (2020): Contemporary Human Geography, Pearson
4. J. M. Rubenstein (2019): An Introduction to Human Geography: The Cultural Landscape, Pearson
5. J. Cole, D. Pepper (2019): Regional Geography of the World-Issues for Today, Routledge
6. J. J. Hobbs (2020): World Regional Geography, Cengage Learning Publication
7. L. M. Pulsipher, A Pulsipher (2019): World Regional Geography: Global Patterns, Freeman
8. L. Rowntree, M. Lewis, M. Price, W. Wyckoff (2019): Diversity Amid Globalization, Pearson
9. एम हुसैन (2010): विश्व भूगोल, रावत प्रकाशन
10. एस डी मौर्य (2022): विश्व का प्रादेशिक भूगोल, प्रवालिका प्रकाशन



PG Semester III-Paper IV
GEO-304-E2 Australia (Elective-2)

T1/T2	M.S.	E.S.	Total
20 Marks	20 Marks	60 Marks	100 Marks
T1/T2: Internal Assessment Tests, M.S.: Mid Semester Test, E.S.: End Semester Test			

Syllabus: End Semester Examination

Time: 3 Hours

Max. Marks: 60

The question paper will consist of 09 questions. The candidate will be required to attempt 05 questions in all. Question No. 1 will be compulsory and short – note type consisting of four topics one from each unit. The remaining 8 questions will be from the four units – two from each unit. The candidate will be required to attempt one question from each unit. The purpose of this course is to inculcate self-reading and the teachers are required to motivate the students towards that end.

Course Objectives:

The course aims to enable learners to:

1. Understand the physical, environmental, and human dimensions of regional geography.
2. Explain the interrelationship between physical framework and human activities within a region.
3. Analyze patterns of economic development and spatial organization of human activities.
4. Evaluate demographic patterns, cultural characteristics, and urbanization trends.
5. Assess the environmental and geopolitical issues of the region and formulate sustainable strategies for regional development.

Course Outcomes

After completion of the course, the learners will be able to:

- CO1:** Describe the physical framework of the region—physiography, drainage, climate, soil, and vegetation—and explain how these influence human settlement and development.
- CO2:** Analyze patterns of agricultural practices, mineral and energy resource distribution, and evaluate industrial development and economic transformation in the region.
- CO3:** Examine demographic characteristics, migration trends, ethnic composition, and interpret the spatial dimensions of urbanization and major cities.
- CO4:** Evaluate the regional importance, sub-regional diversity, and environmental and geopolitical challenges shaping regional identity.
- CO5:** Design sustainable regional development strategies addressing environmental issues, resource utilization, and human welfare.



Mapping of Course Outcomes (COs) with Programme Specific Outcomes (PSOs) & Programme Outcomes (POs):

COs / POs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO5	PO6	PO8	PO11
CO1	3	2	—	—	3	3	—	—	2	3	—	3
CO2	3	—	2	—	3	3	3	3	3	3	—	3
CO3	3	3	3	—	3	3	2	—	3	3	2	3
CO4	3	3	3	—	2	3	3	—	3	3	—	3
CO5	3	3	3	3	3	3	3	3	3	3	3	3

Course Content

UNIT I: Physical Framework & Human Modification: Physiography; Drainage Network; Climate, Soil and Natural Vegetation.

UNIT II: Economic Activities & Development: Agricultural practices, Mineral, Energy resources, Industries, and Industrial Development.

UNIT III: Demographic Features & Urbanisation: Demographic Growth, Migration; Ethnic composition, Major Tribes, Urbanisation & Major Cities

UNIT IV: Sub-regions & Contemporary Issues: Importance as a Region, Sub-regions, Environmental issues, and Geopolitical challenges.

Suggested Readings:

1. D. L. Johnson & M. L. Johnson (2014): A Development Approach: World Regional Geography, Pearson
2. H. J. de Blij, P. O. Muller, J. Nijman (2014): Geography: Realms, Regions, and Concepts, Wiley
3. J. M. Rubenstein, W. H. Renwick, C. T. Dahlman (2020): Contemporary Human Geography, Pearson
4. J. M. Rubenstein (2019): An Introduction to Human Geography: The Cultural Landscape, Pearson
5. J. Cole, D. Pepper (2019): Regional Geography of the World-Issues for Today, Routledge
6. J. J. Hobbs (2020): World Regional Geography, Cengage Learning Publication
7. L. M. Pulsipher, A. Pulsipher (2019): World Regional Geography: Global Patterns, W. H. Freeman Publication
8. L. Rowntree, M. Lewis, M. Price, W. Wyckoff (2019): Diversity Amid Globalization, Pearson
9. एम हुसैन (2010): विश्व भूगोल, रावत प्रकाशन
10. एस डी मौर्य (2022): विश्व का प्रादेशिक भूगोल, प्रवालिका प्रकाशन



PG Semester III-Paper V
GEO-305: Practical
Syllabus: End Semester Examination

Time: 3 Hours

Max. Marks: 60

The practical examination will be conducted by two examiners (One internal and one external examiners in University Centre) and two examiners in case of Constituent Colleges i.e., one examiner from the concerned Constituent College (Internal examiner) and one from University Centre. It is obligatory to pass in the aggregate marks of practical examinations separately. The practical examination will be of six hours duration (in two parts of three hours duration) and will carry 100 marks as the maximum marks. Lab Work examination shall be from Unit I & II and shall be of three hours duration. The candidate will be given four questions (Two questions from each Unit I & II) and will be required to attempt three questions in all. Question Paper preparation for Lab work Examination and evaluation of answer books for Lab Work examination will be carried out by the examiner from the University centre. Viva-voce evaluation will be based on Field Survey and shall be carried out by both internal and external examiners. Evaluation of sessional record file will be carried out by the internal examiner.

The division of marks in the practical shall be as follows:

- Lab Work (Unit I & II) 60 marks
- Field Survey 15 marks
- Viva-voce based on Field survey: 15 marks
- Evaluation of Sessional Record File: 10 marks.

Course Objectives

This course aims to enable the learners to:

1. Understand statistical and spatial analytical techniques used in geographical research.
2. Apply regression, correlation, and multivariate techniques to interpret geographical data.
3. Develop knowledge of GIS concepts, data structures, and analytical tools for spatial decision-making.
4. Examine field survey techniques and the use of instruments like clinometer and theodolite for spatial measurements.
5. Integrate quantitative, spatial, and field-based methods to design applied research in geography.

Course Outcomes

After completion of the course, the learners will be able to:

CO1: Explain the principles and methods of multiple regression, correlation, ANOVA, and factor analysis, and interpret their applications in spatial data analysis.

CO2: Apply quantitative techniques such as stepwise regression and principal component analysis to investigate spatial and socio-economic relationships.

CO3: Describe the structure, components, and data models of GIS and analyze spatial data using tools such as overlay analysis, network analysis, and geo-processing.

CO4: Evaluate GIS-based analytical models (multi-criteria evaluation, AHP) and assess their applications in environmental management, disaster mitigation, and social research.



CO5: Perform field surveying using levelling instruments and theodolite, calculate spot heights, and construct contour maps through interpolation and triangulation techniques.

Mapping of Course Outcomes (COs) with Programme Specific Outcomes (PSOs) & Programme Outcomes (POs):

COs / POs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO5	PO6	PO7	PO9	PO11	PO13
CO1	3	2	—	—	3	3	3	2	3	3	—	—	3	—
CO2	3	—	3	—	3	3	3	3	3	3	—	2	3	—
CO3	3	—	3	3	3	3	3	3	3	3	2	2	3	—
CO4	3	3	3	3	3	3	3	3	3	3	3	3	3	3
CO5	3	—	3	3	3	3	—	3	3	3	—	2	3	—

Course Content

Unit I: Multiple Linear Regression, Multiple and Partial Correlation Coefficients, Step wise Regression, Basic principles and elements of Factor analysis, Principal Component Analysis and Anova Test.

Unit II: Geographical Information System (GIS): Definition, components of GIS, forms of spatial data storage-node, arc, polygon; formats of spatial data – raster and vector; attribute data; database management systems – network, hierarchical and relational. Geo-processing, spatial Analysis, network analysis, overlay analysis; Analytical modelling in GIS, multi-criteria evaluation, analytical hierarchic process; Applications of GIS: environmental modelling, disaster management, social science etc.

Unit III: Levelling- Differential and profile levelling, Use of Indian Clinometers- Determination of spot heights; Interpolation of Contours. Use of Theodolite – Triangulation and Traversing.

Suggested Readings:

1. A. Sarkar (2015): Practical Geography: A Systematic Approach, Orient Black Swan
2. F. F. Sabins (2007): Remote Sensing: Principles and Interpretation, Waveland Press
3. F. J. Monkhouse & R. H. Williamson (1971): Maps and Diagrams, Methuen, London
4. M. R. Spingel (2008): Theory and Problems of Statistics, McGraw Hill International.
5. P. K. Saha & P. Basu (2021): Advanced Practical Geography, Books and Allied (P) Ltd
6. R. L. Singh & R. P. B. Singh (2015): Elements of Practical Geography, Kalyani Publishers
7. T. M. Lillesand & R. W. Kiefer (2000): Remote Sensing and Image Interpretation, Wiley
8. R. P. Misra (2015): Research Methodology: A Handbook, Concept Publishing Company
9. देवी दत्त चौनियाल (2016): सुदूर संवेदन एवं भौगोलिक सूचना प्रणाली के सिद्धांत, शारदा पुस्तक भवन
10. रामचन्द्र तिवारी एवं सुधाकर तिवारी, (2013): अभिनव प्रयोगात्मक भूगोल, प्रयाग पुस्तक भवन



Post-Graduate (M.A./M.Sc.) Semester-4

The Post-Graduate (M.A./M.Sc.) Semester-4, Degree Course in Geography will comprise four theory papers and one practical examination. Each theory paper will be of 100 marks divided into three parts: T1/T2 test of 20 marks, Mid Semester evaluation of 20 marks and End Semester examination of 60 marks. The practical examination will be of six hours duration (in two parts of three hours duration) and will carry 100 marks. The practical examination will be conducted by two examiners (One internal and one external examiners in University Centre) and two examiners in case of Constituent Colleges (One examiner from the Constituent College and one from University Centre). It is obligatory to pass in the aggregate marks of the theory examination and in the practical examinations separately.

The details of theory papers and practical courses are given below:

Paper	Title	Nature	Code	Credit			Teaching Hour/Week			Assessment			
Part-A Theory Courses				L/T	L/F	Total	L/T	L/F	Total	T1/T2	M.S.	E.S.	Total
I	Environmental Geography	Core	GEO-401	04	-	04	04	-	04	20	20	60	100
II	Political Geography	Core	GEO-402	04	-	04	04	-	04	20	20	60	100
III	Geography of Water Resources	Core	GEO-403	04	-	04	04	-	04	20	20	60	100
IV	West Europe	Elective	GEO-404-E1	04	-	04	04	-	04	20	20	60	100
	East Europe		GEO-404-E2										
Part-B Practical										File Record	V.V. & Survey	Desk Work	
V	Practical	Core	GEO-405	04	02	06	04	04	08	20	20	60	100
TOTAL				20	02	22	20	04	24	100	100	300	500



PG Semester IV-Paper I
GEO-401: Environmental Geography

T1/T2	M.S.	E.S.	Total
20 Marks	20 Marks	60 Marks	100 Marks
T1/T2: Internal Assessment Tests, M.S.: Mid Semester Test, E.S.: End Semester Test			

Syllabus: End Semester Examination

Time: 3 Hours

Max. Marks: 60

The question paper will consist of 09 questions. The candidate will be required to attempt 05 questions in all. Question No. 1 will be compulsory and short – note type consisting of four topics one from each unit. The remaining 8 questions will be from the four units – two from each unit. The candidate will be required to attempt one question from each unit. The purpose of this course is to inculcate self-reading and the teachers are required to motivate the students towards that end.

Course Objectives

This course aims to enable learners to:

1. Understand the interrelationship between humans and the environment and its role in sustainable development.
2. Explain the nature, causes, and consequences of environmental degradation and disasters.
3. Analyze human vulnerability, resilience, and adaptive capacities to environmental hazards.
4. Evaluate environmental management practices, laws, and policies for sustainability.
5. Develop environmental awareness and planning approaches aligned with global sustainable goals (SDGs).

Course Outcomes

After completion of the course, the learners will be able to:

CO1: Explain the interrelationship between humans and the environment and analyze the concepts of ecological balance, resource management, and sustainable development in the context of SDGs.

CO2: Differentiate between hazards and disasters and assess concepts of vulnerability, resilience, and adaptability within the framework of disaster management.

CO3: Identify the major forms and causes of environmental degradation and evaluate the impacts of pollution and global environmental issues such as climate change, ozone depletion, and biodiversity loss.

CO4: Examine environmental policies, legislation, and the process of Environmental Impact Assessment (EIA) and evaluate their effectiveness in promoting environmental justice.

CO5: Design sustainable environmental management strategies and propose awareness initiatives and policy recommendations for ecological conservation and sustainable futures.



Mapping of Course Outcomes (COs) with Programme Specific Outcomes (PSOs) & Programme Outcomes (POs):

COs / POs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO6	PO7	PO9	PO11	PO13
CO1	3	3	—	—	3	3	3	—	3	3	—	3	3
CO2	3	3	—	3	3	3	3	2	3	3	—	3	—
CO3	3	3	—	—	3	3	3	3	3	3	—	3	3
CO4	3	3	3	—	3	3	3	—	3	3	2	3	3
CO5	3	3	3	3	3	3	3	—	3	3	3	3	3

Course Content

UNIT I: Man-Environment relationships; Environmental Change; Social and Economic Vulnerability; Ecological balance; Natural Resource Management, Sustainable development, and the SDGs

UNIT II: Hazard and Disaster: Concepts and Classifications, Frequency and Magnitude, Extreme events; Vulnerability, Resilience and Adaptability, Disaster Management.

UNIT III: Environmental degradation; Pollution (Air, Water, Solid waste, Soil and Noise pollution); Environmental Issues – Global warming, Ozone depletion, Land degradation, Loss of biodiversity.

UNIT IV: Environmental Management and Planning –; Environmental consciousness, Environmental Justice, Environmental policy; Environmental legislation; Environmental impact assessment.

Suggested Readings:

1. A. H. Strahler & A. N. Strahler (2013): Physical Geography, Wiley
2. A. Goudie (1989): The Nature of the Environment, Oxford
3. B. Gervais (2016): Living Physical Geography, Macmillan Learning
4. C. C. Park (1980): Ecology and Environmental Management, Butterworths, London.
5. E. P. Odum (1971): Fundamental of Ecology, W. B. Saunders Co. Philadelphia, 1971.
6. J. Petersen, D. Sack & R. Gabler (2016): Fundamentals of Physical Geography, Cengage Learning
7. S. Mather and K. Chapman (1995): Environmental Resources, Longman Group Ltd.
8. Savindra Singh (2020): Environmental Geography, Pravalika Publication
9. आर जोशी (2020), पर्यावरण भूगोल, साहित्य भवन प्रकाशन
10. सविन्द्र सिंह (2020): पर्यावरण भूगोल का स्वरूप, प्रवालिका प्रकाशन



PG Semester IV-Paper II
GEO-402: Political Geography

T1/T2	M.S.	E.S.	Total
20 Marks	20 Marks	60 Marks	100 Marks
T1/T2: Internal Assessment Tests, M.S.: Mid Semester Test, E.S.: End Semester Test			

Syllabus: End Semester Examination

Time: 3 Hours

Max. Marks: 60

The question paper will consist of 09 questions. The candidate will be required to attempt 05 questions in all. Question No. 1 will be compulsory and short – note type consisting of four topics one from each unit. The remaining 8 questions will be from the four units – two from each unit. The candidate will be required to attempt one question from each unit. The purpose of this course is to inculcate self-reading and the teachers are required to motivate the students towards that end.

Course Objectives

This course aims to enable learners to:

1. Understand the evolution, nature, and scope of Political Geography as a sub-discipline of Human Geography.
2. Explain the spatial dimensions of political entities, boundaries, and frontiers.
3. Analyze geopolitical theories and evaluate their relevance to global and regional politics.
4. Examine the structure and role of global political and economic organizations.
5. Evaluate India's geopolitical position and foreign relations in a global context.

Course Outcomes

After completion of the course, learners will be able to:

CO1: Explain the meaning, scope, and development of Political Geography and describe key concepts such as state, nation, frontier, boundary, and buffer state.

CO2: Analyze major geopolitical theories of Mahan, Mackinder, Spykman, Cohen, and Seversky and evaluate their relevance to contemporary world politics.

CO3: Identify and compare the structure, functions, and significance of global political and economic blocs such as OPEC, NATO, BRICS, NAFTA, and AU.

CO4: Assess the geopolitical issues of India including insurgency, terrorism, and foreign relations, and evaluate India's position and aspirations as a global power.

CO5: Design strategic perspectives and policy-oriented solutions to contemporary geopolitical challenges at regional and global scales.



Mapping of Course Outcomes (COs) with Programme Specific Outcomes (PSOs) & Programme Outcomes (POs):

COs / POs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO6	PO7	PO8	PO9	PO11	PO13
CO1	3	3	—	—	3	3	3	3	2	—	—	—	3
CO2	3	—	—	—	3	3	3	3	—	—	2	3	—
CO3	3	3	—	3	3	3	3	3	—	—	—	3	—
CO4	3	3	—	3	3	3	3	3	3	—	2	3	3
CO5	3	3	3	3	3	3	3	3	3	3	3	3	3

Course Content

UNIT I: Meaning and Scope of Political Geography; Major schools of thought; Concept of State and Nation; Spatial factors of state; Buffer state, Core area, Ecumene, Capital city, Frontiers, and Boundaries.

UNIT II: Concepts of Geo-strategy; World geopolitics in changing perspectives - Colonialism to Federalism; Geostrategic ideas of Mahan, Mackinder, Spykman, Cohen and Seversky.

UNIT III: Global Political and Economic Blocks; OPEC, NATO, BRIC, NAFTA, COMSEA, APEC, IORA, Arab League, Pacific Island Forum, African Union.

UNIT IV: Geopolitics of India and the World: Geopolitics of Insurgency and Terrorism; India's Relationships with Neighbours; Global Power: India's Aspiration and Challenges

Suggested Readings:

1. H. J. Blij & M. Glassner (1968): Systematic Political Geography, John Wiley & Sons, New York
2. J. Agnew (2002): Making Political Geography, Arnold, London
3. J. Painter & A. Jeffrey (2009): Political Geography, SAGE Publications Ltd., London
4. J. R. V. Prescott (1972): The Political Geography, Methuen, London
5. M. Glassner (1993): Political Geography, John Wiley & Sons, New York
6. M. Jones (2004): An Introduction to Political Geography: Space, Place and Politics, Routledge, London
7. P. Taylor & C. Flint (2000): Political Geography, Pearson Education
8. R. D. Dikshit (1987): Political Geography and Geopolitics, Tata McGraw Hill, New Delhi
9. एस अधिकारी (2022): राजनीतिक भूगोल, रावत प्रकाशन
10. एच. एस. गर्ग (2022): राजनीतिक भूगोल, एसबीपीडी प्रकाशन



PG Semester IV-Paper III
GEO-403: Geography of Water Resources

T1/T2	M.S.	E.S.	Total
20 Marks	20 Marks	60 Marks	100 Marks
T1/T2: Internal Assessment Tests, M.S.: Mid Semester Test, E.S.: End Semester Test			

Syllabus: End Semester Examination

Time: 3 Hours

Max. Marks: 60

The question paper will consist of 09 questions. The candidate will be required to attempt 05 questions in all. Question No. 1 will be compulsory and short – note type consisting of four topics one from each unit. The remaining 8 questions will be from the four units – two from each unit. The candidate will be required to attempt one question from each unit. The purpose of this course is to inculcate self-reading and the teachers are required to motivate the students towards that end.

Course Objectives

This course aims to enable the learners to:

1. Understand the hydrological cycle, global water distribution, and the multidimensional nature of water resources.
2. Analyze surface and groundwater systems and their management at various scales.
3. Examine water governance, policy frameworks, and technological innovations in water monitoring and management.
4. Evaluate the impacts of climate change on water systems and transboundary water management issues.
5. Formulate sustainable and integrated strategies for efficient water resource development and conservation.

Course Outcomes

After completion of the course, the learners will be able to:

CO1: Explain the concepts of hydrological cycle, water balance, and global water distribution, and analyze the economic, environmental, and social dimensions of water resource development.

CO2: Describe surface and groundwater systems, apply techniques of integrated watershed management, and evaluate sustainable water conservation practices.

CO3: Analyze water governance frameworks, interpret national and international water laws and policies, and assess the role of technological innovations such as GIS, remote sensing, and water quality monitoring.

CO4: Evaluate the impacts of climate change on water resources and propose adaptation and mitigation strategies.

CO5: Design sustainable water resource management frameworks incorporating transboundary cooperation, conflict resolution, and community-based conservation practices.



Mapping of Course Outcomes (COs) with Programme Specific Outcomes (PSOs) & Programme Outcomes (POs):

COs / POs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO5	PO6	PO7	PO8	PO9	PO11	PO13
CO1	3	3	—	—	3	3	3	—	3	3	3	—	—	3	3
CO2	3	3	—	3	3	3	3	3	3	3	3	—	—	3	—
CO3	3	3	3	3	3	3	3	3	—	3	3	3	3	3	3
CO4	3	3	—	3	3	3	3	—	—	3	3	—	2	3	3
CO5	3	3	3	3	3	3	3	—	—	3	3	3	3	3	3

Course Content

UNIT I: Concepts in Water Resources: Hydrological Cycle and Water Balance, Global Water Distribution, Water Resources and Development: Economic, environmental, and social dimensions.

UNIT II: Surface Water Systems: Study of river basins, lakes, reservoirs, and wetlands, Groundwater Hydrology: Aquifer characteristics, Integrated Watershed Management: Techniques and best practices.

UNIT III: Water Governance and Policy: National and international water laws, policy analysis, Technological Innovations: Advanced GIS, remote sensing, and water quality monitoring tools.

UNIT IV: Climate Change and Water Resources: Impacts, adaptation, and mitigation strategies, Transboundary Water Management: Conflict resolution, cooperation mechanisms, Sustainable Water Resource Practices.

Suggested Readings:

1. C. Tortajada (2016): Global Water Resources: Sustainability, Management and Policy, Springer
2. D. K. Todd & L. W. Mays (2010): Groundwater Hydrology, Wiley India
3. D. P. Loucks & V. B. Eelco (2017): Water Resource Planning & Management, Springer
4. I. W. Heathcote (2009): Integrated Watershed Management: Principles and Practice, Wiley
5. J. Holden (2013): Water Resources: An Integrated Approach, Routledge
6. K. R. Gupta (2008): Water Resources and Management, Atlantic Publishers & Distributors
7. L. W. Mays (2011): Water Resources Engineering, Wiley India Pvt. Ltd.
8. R. C. Chandna (2019): Water Resources Geography, Kalyani Publishers
9. आर के गुर्जर एवं बी सी जाट (2005): जल संसाधन भूगोल, रावत प्रकाशन
10. आर सिंह एवं एस सिंह (2010): भूमि एवं जल संसाधन प्रबंधन, एक्सोटिक प्रकाशन



PG Semester IV-Paper IV
GEO-404-E1 West Europe (Elective-1)

T1/T2	M.S.	E.S.	Total
20 Marks	20 Marks	60 Marks	100 Marks
T1/T2: Internal Assessment Tests, M.S.: Mid Semester Test, E.S.: End Semester Test			

Syllabus: End Semester Examination

Time: 3 Hours

Max. Marks: 60

The question paper will consist of 09 questions. The candidate will be required to attempt 05 questions in all. Question No. 1 will be compulsory and short – note type consisting of four topics one from each unit. The remaining 8 questions will be from the four units – two from each unit. The candidate will be required to attempt one question from each unit. The purpose of this course is to inculcate self-reading and the teachers are required to motivate the students towards that end.

Course Objectives

The course aims to enable learners to:

1. Understand the physical and human framework of regions and their interrelationships.
2. Explain how physiographic, climatic, and resource factors influence regional development.
3. Analyze the demographic and urban characteristics of a region and their spatial implications.
4. Evaluate regional disparities, environmental issues, and geopolitical challenges.
5. Formulate sustainable and inclusive strategies for regional development and planning.

Course Outcomes

After completion of the course, learners will be able to:

CO1: Describe the physical framework of the region — physiography, drainage, climate, soil, and natural vegetation — and explain how these elements influence human activities and spatial organization.

CO2: Analyze the patterns of agriculture, mineral, and energy resources, and evaluate the processes of industrial development and their role in shaping regional economies.

CO3: Interpret demographic patterns, migration trends, and ethnic composition, and examine the process of urbanization and development of major cities.

CO4: Assess the importance of the region, identify its sub-regional variations, and evaluate contemporary issues including environmental degradation and geopolitical challenges.

CO5: Design strategies for sustainable regional development integrating physical, economic, and socio-political dimensions.



Mapping of Course Outcomes (COs) with Programme Specific Outcomes (PSOs) & Programme Outcomes (POs):

COs / POs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO5	PO6	PO7	PO8	PO9	PO11	PO13
CO1	3	3	—	2	3	3	3	2	3	3	3	—	—	3	—
CO2	3	3	—	3	3	3	3	3	3	3	3	—	—	3	3
CO3	3	3	3	3	3	3	3	3	—	3	3	3	3	3	—
CO4	3	3	—	3	3	3	3	—	—	3	3	—	3	3	3
CO5	3	3	3	3	3	3	3	—	—	3	3	3	3	3	3

Course Content

UNIT I: Physical Framework & Human Modification: Physiography; Drainage Network; Climate, Soil and Natural Vegetation.

UNIT II: Economic Activities & Development: Agricultural practices, Mineral, Energy resources, Industries, and Industrial Development.

UNIT III: Demographic Features & Urbanisation: Demographic Growth, Migration; Ethnic composition, Major Tribes, Urbanisation & Major Cities

UNIT IV: Sub-regions & Contemporary Issues: Importance as a Region, Sub-regions, Environmental issues, and Geopolitical challenges.

Suggested Readings:

1. D. L. Johnson & M. L. Johnson (2014): A Development Approach: World Regional Geography, Pearson
2. H. J. de Blij, P. O. Muller, J. Nijman (2014): Geography: Realms, Regions, and Concepts, Wiley
3. J. M. Rubenstein, W. H. Renwick, C. T. Dahlman (2020): Contemporary Human Geography, Pearson
4. J. M. Rubenstein (2019): An Introduction to Human Geography: The Cultural Landscape, Pearson
5. J. Cole, D. Pepper (2019): Regional Geography of the World-Issues for Today, Routledge
6. J. J. Hobbs (2020): World Regional Geography, Cengage Learning Publication
7. L. M. Pulsipher, A Pulsipher (2019): World Regional Geography: Global Patterns, W. H. Freeman Publication
8. L. Rowntree, M. Lewis, M. Price, W. Wyckoff (2019): Diversity Amid Globalization, Pearson
9. एम हुसैन (2010): विश्व भूगोल, रावत प्रकाशन
10. एस डी मौर्य (2022): विश्व का प्रादेशिक भूगोल, प्रवालिका प्रकाशन



PG Semester IV-Paper IV
GEO-404-E2 East Europe (Elective-2)

T1/T2	M.S.	E.S.	Total
20 Marks	20 Marks	60 Marks	100 Marks
T1/T2: Internal Assessment Tests, M.S.: Mid Semester Test, E.S.: End Semester Test			

Syllabus: End Semester Examination

Time: 3 Hours

Max. Marks: 60

The question paper will consist of 09 questions. The candidate will be required to attempt 05 questions in all. Question No. 1 will be compulsory and short – note type consisting of four topics one from each unit. The remaining 8 questions will be from the four units – two from each unit. The candidate will be required to attempt one question from each unit. The purpose of this course is to inculcate self-reading and the teachers are required to motivate the students towards that end.

Course Objectives

The course aims to enable learners to:

1. Understand the physical and human framework of regions.
2. Explain how physiographic, climatic, and natural factors influence regional development.
3. Analyze the spatial patterns of economic, demographic, and urban structures.
4. Evaluate environmental and geopolitical challenges in different sub-regions.
5. Develop an integrated understanding of regional sustainability and planning.

Course Outcomes

After completion of the course, learners will be able to:

CO1: Describe the physical framework of the region including physiography, drainage, climate, soil, and natural vegetation, and explain how these components shape human modification of the environment.

CO2: Analyze agricultural, mineral, and energy resource distribution, and evaluate the industrial development patterns influencing regional economies.

CO3: Interpret demographic characteristics, migration patterns, and ethnic composition, and examine the dynamics of urbanisation and major urban centres.

CO4: Assess sub-regional variations, environmental issues, and geopolitical challenges that determine the region's significance and development.

CO5: Design sustainable and inclusive regional strategies integrating physical, economic, demographic, and political dimensions.



Mapping of Course Outcomes (COs) with Programme Specific Outcomes (PSOs) & Programme Outcomes (POs):

COs / POs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO6	PO7	PO9	PO11	PO13
CO1	3	3	—	2	3	3	3	2	3	3	—	3	—
CO2	3	3	—	3	3	3	3	3	3	3	—	3	3
CO3	3	3	3	3	3	3	3	3	3	3	3	3	—
CO4	3	3	—	3	3	3	3	—	3	3	3	3	3
CO5	3	3	3	3	3	3	3	—	3	3	3	3	3

Course Content

UNIT I: Physical Framework & Human Modification: Physiography; Drainage Network; Climate, Soil and Natural Vegetation.

UNIT II: Economic Activities & Development: Agricultural practices, Mineral, Energy resources, Industries, and Industrial Development.

UNIT III: Demographic Features & Urbanisation: Demographic Growth, Migration; Ethnic composition, Major Tribes, Urbanisation & Major Cities

UNIT IV: Sub-regions & Contemporary Issues: Importance as a Region, Sub-regions, Environmental issues, and Geopolitical challenges.

Suggested Readings:

1. D. L. Johnson & M. L. Johnson (2014): A Development Approach: World Regional Geography, Pearson
2. H. J. de Blij, P. O. Muller, J. Nijman (2014): Geography: Realms, Regions, and Concepts, Wiley
3. J. M. Rubenstein, W. H. Renwick, C. T. Dahlman (2020): Contemporary Human Geography, Pearson
4. J. M. Rubenstein (2019): An Introduction to Human Geography: The Cultural Landscape, Pearson
5. J. Cole, D. Pepper (2019): Regional Geography of the World-Issues for Today, Routledge
6. J. J. Hobbs (2020): World Regional Geography, Cengage Learning Publication
7. L. M. Pulsipher, A Pulsipher (2019): World Regional Geography: Global Patterns, W. H. Freeman Publication
8. L. Rowntree, M. Lewis, M. Price, W. Wyckoff (2019): Diversity Amid Globalization, Pearson
9. एम हुसैन (2010): विश्व भूगोल, रावत प्रकाशन
10. एस डी मौर्य (2022): विश्व का प्रादेशिक भूगोल, प्रवालिका प्रकाशन



PG Semester IV-Paper V
GEO-405: Practical
Syllabus: End Semester Examination

Time: 3 Hours

Max. Marks: 60

The practical examination will be conducted by two examiners (One internal and one external examiners in University Centre) and two examiners in case of Constituent Colleges i.e., one examiner from the concerned Constituent College (Internal examiner) and one from University Centre. It is obligatory to pass in the aggregate marks of practical examinations separately. The practical examination will be of six hours duration (in two parts of three hours duration) and will carry 100 marks as the maximum marks. Lab Work examination shall be from Unit I & II and shall be of three hours duration. The candidate will be given four questions (Two questions from each Unit I & II) and will be required to attempt three questions in all. Question Paper preparation for Lab work Examination and evaluation of answer books for Lab Work examination will be carried out by the examiner from the University centre. Viva-voce evaluation will be based on Area based Project Report and shall be carried out by both internal and external examiners. Evaluation of Area based Project Report will be carried out by the internal examiner.

The division of marks in the practical shall be as follows:

- Lab Work (Unit I & II) 60 marks
- Viva-voce based on Area based Project Report: 20 marks
- Evaluation of Area based Project Report: 20 marks.

Course Objectives

The course aims to enable learners to:

1. Understand the meaning, scope, and importance of geographical research and its various types and approaches.
2. Develop the ability to formulate research problems, objectives, and hypotheses.
3. Acquire skills in data collection, sampling, processing, and analysis using qualitative and quantitative methods.
4. Learn the structure, format, and ethics of scientific reporting and referencing.
5. Design and execute a field-based research project, demonstrating analytical and interpretive competence.

Course Outcomes

After completion of the course, learners will be able to:

CO1: Explain the concept, significance, and approaches of geographical research and differentiate between descriptive, analytical, pure, applied, qualitative, and quantitative methods.

CO2: Formulate research problems, develop aims, objectives, and hypotheses, and design appropriate research methodologies and testing frameworks.

CO3: Select suitable data sources and apply appropriate methods of data collection, sampling, and statistical analysis for both qualitative and quantitative data.

CO4: Analyze and interpret data through graphical and statistical methods and demonstrate proficiency in referencing, citation styles, and research ethics.



CO5: Design, conduct, and present an area-based field research project integrating conceptual understanding, empirical data, and spatial analysis.

Mapping of Course Outcomes (COs) with Programme Specific Outcomes (PSOs) & Programme Outcomes (POs):

COs / POs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5	PO6	PO8	PO9	PO11
CO1	3	—	—	—	3	3	3	—	—	—	2	—	2	—
CO2	3	—	—	2	3	3	3	—	—	3	3	—	2	2
CO3	3	—	—	3	3	—	3	3	2	3	3	—	—	2
CO4	3	3	3	—	3	—	3	2	—	3	3	3	3	—
CO5	3	—	3	3	3	—	3	3	3	—	3	3	3	3

Course Content

Unit I: Introduction to Geographical Research: Concept, Significance, Types and Approaches: descriptive-analytical, pure-applied, conceptual-empirical, qualitative-quantitative; Literature survey: Needs and objectives of Literature Review; developing theoretical and conceptual frameworks, Reporting literature review; Research Design: Steps, Identification and formulation of Research Problem; Research questions; Aims and Objectives. Hypothesis: Definition, sources, roles and types of hypotheses; Tests of hypothesis with small and large samples

Unit II: Data Sources and Methods of Data Collection: Questionnaire, Interview, Focus Group, Participant Observation; Sampling- Concept, principles, factors affecting inferences drawn from a sample; Types of sampling-random and probability sampling designs, systematic sampling; Sample size calculation. Nature of Data: qualitative and quantitative, Primary Data: Field survey, Data Analysis: Processing of Data; tabulation, graphic presentation and analysis of Data; Referencing: Citation methods- foot note, text note, end note, bibliography, annotated bibliography and citation rules; Structure of dissertation. Research Ethics; Limitations.

Unit III: Students will carry out an Area based Project (Uttar Pradesh or adjoining states) in group under supervision of a faculty members. The students in the group will be expected to work on different aspects of the same area. Every student will have to prepare a separate project report upon which his/her viva voce evaluation will be carried out.

Suggested Readings:

1. A. Sarkar (2015): Practical Geography: A Systematic Approach, Orient Black Swan
2. F. F. Sabins (2007): Remote Sensing: Principles and Interpretation, Waveland Press
3. F. J. Monkhouse & R. H. Williamson (1971): Maps and Diagrams, Methuen, London
4. M. R. Spingel (2008): Theory and Problems of Statistics, McGraw Hill International.
5. P. K. Saha & P. Basu (2021): Advanced Practical Geography, Books and Allied (P) Ltd
6. R. L. Singh & R. P. B. Singh (2015): Elements of Practical Geography, Kalyani Publishers
7. T. M. Lillesand & R. W. Kiefer (2000): Remote Sensing and Image Interpretation, Wiley
8. R. P. Misra (2015): Research Methodology: A Handbook, Concept Publishing Company
9. देवी दत्त चौनियाल (2016): सुदूर संवेदन एवं भौगोलिक सूचना प्रणाली के सिद्धांत, शारदा पुस्तक भवन
10. रामचन्द्र तिवारी एवं सुधाकर तिवारी, (2013): अभिनव प्रयोगात्मक भूगोल, प्रयाग पुस्तक भवन