INDIRA GANDHI NATIONAL TRIBAL UNIVERSITY, AMARKANTAK

DEPARTMENT OF GEOGRAPHY

इन्दिरा गाँधी राष्ट्रीय जनजातीय विश्वविद्यालय
INDIRA GANDHI NATIONAL TRIBAL UNIVERSITY
AMARKANTAK (M.P.)
विद्यया विन्दतेऽखिलम्

COURSE STRUCTURE AND SYLLABUS FOR UG AND PG PROGRAMME

(As per National Education Policy-2020)

DEPARTMENT OF GEOGRAPHY
Indira Gandhi National Tribal University, Amarkantak
(Madhya Pradesh)
(A Central University Established by an Act of Parliament of India)

Minutes of Board of Studies Meeting

The BOS meeting of the Department of Geography was held on 18 July 2025 at 2:00 P.M. through a blended mode in the office of the Head, Department of Geography and the following members were present in the meeting:

1. Prof. Richa Chaturvedi (Chairman)
2. Prof. Shrikamal Sharma (External Expert)
3. Prof. Byomakesh Tripathy (Member)
4. Prof. Tarun Kumar Thakur (Member)
5. Dr. Chandramauli (Member)
6. Dr. Janki Prasad (Member)

Agenda of the meeting

The BoS meeting of the Department of Geography was held on 18 July 2025 for the preparation of the syllabus of U.G., P.G., and Ph.D. coursework as per the guidelines of NEP 2020. The meeting was held in the department of Geography in blended mode. Prof. Shrikamal Sharma (external subject expert), formerly Professor & Head, Department of Geography & Director, Population Research Centre, Dr. Hari Singh Gour University, Sagar, connected through an online mode.

The Chairman of BoS welcomed the members of the Board of Studies and the external expert and laid out the agenda for the deliberation of the members. The following points were discussed in the meeting.

Minutes of the Meeting

1. Syllabus of U.G. and P.G. Programmes and the Ph.D. Coursework for the Department of Geography is prepared according to the National Education Policy 2020, guidelines of UGC, and objectives of the University.
2. Two types of Master's Degree Courses are offered in the department as per the guidelines of NEP 2020. The two-year Master's Degree will be completed in four Semesters, whereas the One-Year Master's Degree will be completed in two semesters.

3. The two-year Master's Degree course contains 80 credits (Semester-wise distribution of credits: I-24, II-16, III-20 & IV-20) and the One-Year Master's Degree course contains 40 credits (I-20 & II-20).
4. The Fourth Semester of a Two-year Master's degree course is devoted to a field-based dissertation of 20 credits, whereas the second semester of the One-Year Master's Degree is devoted to a field-based dissertation of 20 credits.
5. The two-year Master's degree will be completed with 2000 marks, and the One-Year Master's Degree will be completed with 1000 marks accordingly.
6. Each Theory Paper will be evaluated as internals (40%) and semester-end examination (60%), whereas the practical papers will be evaluated with a 100% in the semester-end exam, including viva-voce examination.
7. Three types of undergraduate degree courses are designed as per NEP 2020, namely undergraduate (3 years/ 6 semesters), undergraduate (honours) 4 years/ 8 semesters, and undergraduate (honours) with research degree 4 years/ 8 semesters.
8. A three-year UG Programme with 6 semesters has 120 credits, whereas the undergraduate (honours) 4 years/ 8 semesters and the undergraduate (honours) with research degree 4 years/ 8 semesters have 160 credits. Each semester of the UG programme uniformly has 20 credits.
9. Undergraduate (honours) with research degree contains a component of research of 12 credits in the 8th semester.
10. As per the NEP 2020, an Undergraduate syllabus contains value-added courses, courses related to the Indian knowledge system, skill enhancement courses, ability enhancement courses, and multidisciplinary courses, along with the major core and practical courses. The internship/community engagement component is also a specific aspect of all three types of the U.G. programmes.
11. The evaluation pattern is similar to the P.G. programme, such as theory papers will be evaluated as internals (40%) and semester-end examination (60%), whereas the practical papers will be evaluated 100% in the semester-end examination, including viva-voce examination.
12. Ph.D. Coursework will be for one semester of six months with 16 credits.
13. Ph.D. Coursework contains three types of papers: Compulsory, Major Elective and Minor Elective. Each Major Elective paper has 4 credits, and Minor Elective paper has 2 credits each, whereas Research Methodology and Computer Application papers are

compulsory in nature and have 4 credits each, and the Research and Publication Ethics paper will be for 2 credits.

14. All papers of Ph.D. coursework will be evaluated as internals (40%) and 60% semester-end examination.
15. Syllabus prepared according to National Education Policy 2022 will be deemed an effective Programme from the academic session 2024-25 and will be applicable to the batch admitted to U.G. and P.G.
16. In addition, consent has been made that any future change suggested by UGC/University will be incorporated into the structure, and can be approved by the internal members of the Board of Studies.
17. The allotted paper codes in this syllabus may change as per the university policy to maintain the uniformity of the syllabi.
18. As per the National Education Policy (NEP), the Structure and Syllabus of U.G. and P.G. programs and Ph.D. Coursework were discussed and approved after the corrections suggested by the expert and the rest of the BoS members.

The Chairman thanked all the members of BoS for their suggestions and substantial inputs provided in the meeting.

Prof. Shrikamal Sharma
(External Subject Expert)

Prof. Byomakesh Tripathy
(Member)

Prof. Tarun Kumar Thakur
(Member)

Dr. Chandramauli
(Member)

18/7/2025
Dr. Janki Prasad
(Member)

18/07/2025
Prof. Richa Chaturvedi
(Chairman)

Head
Department of Geography
Indira Gandhi National Tribal University
Amarkantak (M.P.)

COURSE STRUCTURE AND SYLLABUS

DEPARTMENT OF GEOGRAPHY

Indira Gandhi National Tribal University, Amarkantak, M.P.

Structure of U.G. Course (National Education Policy-2020)

SEMESTER- I					
Paper Cod	Paper Name	Credits	Exam Pattern		
			Internal Assessment	End Sem. Exam	Total
GOGMT- 101	Fundamentals of Geography	4	40	60	100
GOGMI- 102	Introduction to Lithosphere and Hydrosphere	4	40	60	100
GOGSECT-103	Maps and Diagrams	2	20	30	50
GOGSECP-103	Maps and Diagrams	1	-	50	50
GOGMDC-104 MDC Earth Science, Geography	Introduction to Geography	3	40	60	100
VAC-IKS (Value Added-1)	Indian Knowledge System (At the University Level)	2	20	30	50
VAC-HYW (Value Added-2)	Health, Yoga & Wellness (At the University Level)	2	20	30	50
AEC-GH	General Hindi (At the University Level)	2	20	30	50
	Total Credits	**20**	-		

SEMESTER- II					
Paper Code	Paper Name	Credits	Exam Pattern		
GOGMT- 201	Human Geography	4	40	60	100
GOGMI- 202	Introduction to Atmosphere and Biosphere	4	40	60	100
GOGSECT- 203	Geographical Data Analysis	2	20	30	50
GOGSECP- 203	Techniques of Data Analysis	1	-	-	50
GOGMDC-204 MDC Earth Science, Geology	Geological Process	3	40	60	100
VAC-EEDM (Value Added-1)	Environmental Education & Disaster Management (At the University Level)	2	20	30	50
VAC-TAC (Value Added-2)	Tribal Art and Culture (At the University Level)	2	20	30	50
AEC-GE	General English (At the University Level)	2	20	30	50
	Total Credits	**20**	-		

SEMESTER- III					
Paper Code	Paper Name	Credits	Exam Pattern		
GOGMT- 301	Geotectonics	4	40	60	100
GOGMP- 302	Map Reading and Interpretation of Topographical Maps	4	-	-	100
GOGMI- 303	Geography of Asia	4	40	60	100
GOGSECT- 304	Terrestrial Surveying	2	20	30	50
GOGSECP- 304	Terrestrial Surveying	1	-	-	50
GOGMDC-305 MDC Earth Science & Geography	Environment and Ecosystem	3	40	60	100
AEC-CS	Communication Skill (At the University Level)	2	20	30	50
	Total Credits	**20**	-		

SEMESTER- IV					
Paper Code	Paper Name	Credits	Exam Pattern		
GOGMT-401	Economic Geography	4	40	60	100
GOGMT-402	Geography of India	4	40	60	100
GOGMT-403	Fundamentals of Remote Sensing	4	40	60	100
GOGMP-404	Remote Sensing	2	-	-	50
GOGMI-405	Population and Environment	4	40	60	50
AEC-ICT	Information and Communication Technology (At the University Level)	2	20	30	50
	Total Credits	**20**	-		

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SEMESTER- V					
Paper Code	**Paper Name**	**Credits**	**Exam Pattern**		
GOGMT- 501	Climatology	4	40	60	100
GOGMT- 502	Rural Settlement Geography	4	40	60	100
GOGMT- 503	Agriculture Geography	4	40	60	100
GOGMP- 504	Interpretation of Weather Maps	2	-	-	50
GOGMI- 505	Political Geography	4	40	60	100
GOGINT-506	Internship	2	-	-	50
	Total Credits	**20**	-		

SEMESTER- VI					
Paper Code	**Paper Name**	**Credits**	**Exam Pattern**		
GOGMT-601	Natural Hazards and Disaster Management	4	40	60	100
GOGMT-602	Environmental Geography	4	40	60	100
GOGMT-603	Evolution of Geographical Thoughts	4	40	60	100
GOGMP-604	Map Projections	4	-	-	100
GOGMI- 606	Water Resource Management	4	40	60	50
	Total Credits	**20**	-		

SEMESTER- VII (UG Honours)					
Paper Code	**Paper Name**	**Credits**	**Exam Pattern**		
GOGMT-701	Research Methodology	4	40	60	100
GOGMT-702	Emerging Geographical Thoughts	4	40	60	100
GOGMP-703	Quantitative Methods and Techniques	4	-	-	100
GOGMP-704	Field Study Tour	4	-	-	100
GOGMI-705	Climatology	4	40	60	100
	Total Credits	**20**	-		

SEMESTER- VIII					
(8th Sem. UG Honours)					
Paper Code	**Paper Name**	**Credits**	**Exam Pattern**		
GOGMT-801	Advanced Geography of India	4	40	60	100
GOGMT-802	Population Geography	4	40	60	100
GOGMT-803	Urban Geography	4	40	60	100
GOGMP-804	Instrumental Field Survey	4	-	-	100
GOGMI- 805	Urban Management	4	40	60	100
	Total Credits	**20**	-		
(8th Sem. Honours with Research)					
Paper Code	**Paper Name**	**Credits**	**Exam Pattern**		
GOGMP-801	Instrumental Field Survey	4	-	-	100
GOGMI-802	Urban Management	4	40	60	50
GOGD- 803	Dissertation (Fieldwork: 4, Data Analysis & Writing of Thesis: 6, Viva-voce: 2)	12	-	-	300
	Total Credits	**20**	-		

18/07/2025

DEPARTMENT OF GEOGRAPHY
Indira Gandhi National Tribal University, Amarkantak, M.P.

Course Structure for the Two-Year P.G. Programme (NEP-2020)

SEMESTER- I

Paper Code	Papers	Credits	Exam Pattern		
			Internal Assessment	End Sem. Exam.	Total
MGOGMT-101	Research Methodology	4	40	60	100
MGOGMT-102	Emerging Geographical Thoughts	4	40	60	100
MGOGMT-103	Hydrology and Oceanography	4	40	60	100
MGOGMT-104	Climatology	4	40	60	100
MGOGMP-105	Quantitative Methods and Techniques	4	-	-	100
MGOGMP-106	Field Study Tour	4	-	-	100
	Total Credits	**24**			**600**

SEMESTER- II

Paper Code	Paper Name	Credits	Exam Pattern		
MGOGMT-201	Advanced Geography of India	4	40	60	100
MGOGMT-202	Population Geography	4	40	60	100
MGOGMT-203	Urban Geography	4	40	60	100
MGOGMP-204	Instrumental Field Survey	4	-	-	100
	Total Credits	**16**			**400**

SEMESTER- III

Paper Code	Paper Name	Credits	Exam Pattern		
MGOGMT-301	Geomorphology	4	40	60	100
MGOGMT-302	Regional Development and Planning	4	40	60	100
MGOGMT-303	Geography of Indian Tribes	4	40	60	100
MGOGMT-304	Remote Sensing and GIS	4	40	60	100
MGOGMP-305	Cartographic Techniques	4	-	-	100
	Total Credits	**20**			**500**

SEMESTER- IV

Paper Code	Dissertation	Credits	Exam Pattern		
MGOGD-401 (A)	Lab Work/Field Work/Field Survey/Industrial Visit/Institutional Visit/Data Collection/Internship etc.	4	-	-	100
(B)	Pre-Submission Presentation (After Completion of Writing Work)	4	-	-	100
(C)	Report Writing/Write-up/Dissertation Report (After the Incorporating the Changes Suggested in Pre-Submission Presentation)	8	-	-	200
(D)	Viva- voce	4	-	-	100
	Total Credits	**20**			**500**

Course Structure for the One-Year P.G. Programme (NEP-2020)

SEMESTER- I

Paper Code	Paper Name	Credits	Exam Pattern		
MGOGMT-101	Geomorphology	4	40	60	100
MGOGMT-102	Regional Development and Planning	4	40	60	100
MGOGMT-103	Geography of Indian Tribes	4	40	60	100
MGOGMT-104	Remote Sensing and GIS	4	40	60	100
MGOGMP-105	Cartographic Techniques	4	-	-	100
	Total Credits	**20**			**500**

SEMESTER- II

Paper Code	Dissertation	Credits	Exam Pattern		
MGOGD-201 (A)	Lab Work/Field Work/Field Survey/Industrial Visit/Institutional Visit/Data Collection/Internship etc.	4	-	-	100
(B)	Pre-Submission Presentation (After Completion of Writing Work)	4	-	-	100
(C)	Report Writing/Write-up/Dissertation Report (After the Incorporating the Changes Suggested in Pre-Submission Presentation)	8	-	-	200
(D)	Viva- voce	4	-	-	100
	Total Credits	**20**			**500**

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Abbreviation:

GOGMT	**Geography Major Theory**
GOGMI	**Geography Minor Theory**
GOGSECT	**Geography Skill Enhancement Course Theory**
GOGSECP	**Geography Skill Enhancement Course Practical**
GOGMDC	**Geography Multi-Disciplinary**
GOGMP	**Geography Major Practical**
GOGINT	**Geography Internship**
GOGD	**Geography Dissertation**
In PG Course 'M' indicate the Master Course	

Prof. Shrikamal Sharma
(External Subject Expert)

Prof. Byomakesh Tripathy 18.7.2025
(Member)

Prof. Tarun Kumar Thakur
(Member)

Dr. Chandramauli
(Member)

Dr. Janki Prasad
(Member)

18/07/2025
Prof. Richa Chaturvedi
(Chairman)

Head
Department of Geography
Indira Gandhi National Tribal University
Amarkantak (M.P.)

Semester- I

Major Theory

Paper Code	Paper Name	Credit: 04
GOGMT-101	Fundamentals of Geography	Contact Hours: 60

Objectives

1. The course is designed to introduce Geography as a discipline and provide a basic understanding of the subject and its concepts.
2. To familiarize the students with the Universe, the solar system and the planets.
3. To acquaint students with the Earth as a planet and its surface features, followed by size, shape, and coordinate system.

Learning Outcomes

1. Students will be able to understand Geography as a discipline.
2. Students will understand the planet Earth and its surface features and the Earth's relation to the solar system.
3. Students will be able to locate places and phenomena on the globe.

Unit I

Defining Geography, Subject Matter and Scope of Geography, Branches of Geography, Geography's relations with other disciplines, Tools of Geography.

Unit II

Geographical Concepts: Earth's Surface, Location, Scale, Landscape, Space and Place, Spatial Distribution and Its Patterns.

Unit III

Introduction to Universe and the Solar System; Earth as a Planet: Rotation, Revolution and Associated Phenomena; Earth's Satellite Moon.

Unit IV

The Size and Shape of the Earth (Spherical, Ellipsoidal, and Geoidal); Geographic Coordinate System: Latitudes, Longitudes, and Graticule; World's Time Zones and Local Time.

Unit V

The Surface of the Earth: Continents, Oceans, Seas and Islands of the World; Meaning and Classifications of Mountains, Plains, Plateau, and Lakes.

Suggested Readings

1. Adhikari, S. (2015): Fundamentals of Geographical Thoughts, Orient BlackSwan, New Delhi.
2. Dikshit, R.D. (2017): Geographical Thought- A Contextual History of Ideas, Prentice Hall of India, New Delhi. (English and Hindi).
3. Husain, M. (2002): Evolution of Geographical Thought, Rawat Publications, Jaipur.
4. Kaushik, S.D. and Sharma, A.K. (1995): Geographic Thought and Methodology (in Hindi), Rastogi Publication, Meerut.
5. Lal, D.S. (2009): Physical Geography, Sharda Pustak Bhawan, Allahabad.
6. Monkhouse, F.J. (1979): Physical Geography, Methuen, London.
7. Robinson, A. H., Morrison, J. L. and Muehrcke, P.C., Kimerling, A. J. and Stephen, C. G. (2010): Elements of Cartography (6th edition), Wiley India (P) Ltd., New Delhi.
8. Sarkar, A. (2015): Practical Geography- A Systematic Approach (3rd edition), Orient BlackSwanPvt. Ltd., New Delhi.
9. Sharma, J.P. (2001): *Prayogik Bhugol* (3rd edition), Rastogi Publication, Meerut.
10. Singh, A.K. and Dikshit, S.K. (2013): *Bhougolik Chintan Ke Ayam*, Vishwavidhyalaya Prakashan, Varanasi.
11. Singh, J. (2001): *Bhougolik Chintan Ke Mool Adhar*, Gyanodaya Prakashan, Gorakhpur.
12. Singh, M.B. (2001): *Bhoutik Bhugol*, Tara Book Agency, Varanasi.
13. Singh, R.L. and Singh, Rana P. B. (1993): Elements of Practical Geography (Hindi and English editions), Kalyani Publishers, New Delhi.
14. Singh, S. (2018): Physical Geography (Hindi and English editions), Pravalika Publication, Prayagraj.
15. Strahler, A.N. and Strahler, A.M. (1992): Modern Physical Geography, John Wiley and Sons, New York.
16. Trewartha, G.T., Robinson, A.H., Hammond, E.H., and Horn, A.T. (1990): Fundamentals of Physical Geography (3rd edition), McGraw-Hill, New York.

Semester- I

Minor Theory

Paper Code	Paper Name	Credit: 04
GOGMI- 102	Introduction to Lithosphere and Hydrosphere	Contact Hours: 60

Objectives

1. To familiarize the students with the earth's physical environment and associated phenomena.
2. To acquaint students with the endogenic forces, processes operating on the earth's surface, and the resultant features.
3. To illuminate the features and processes of hydrosphere

Learning Outcomes

1. Students will be able to understand the Earth's physical environment, movements, and resultant topographic features.
2. Students will be able to appreciate how various forces and processes affect the Earth's surface.
3. Students will be able to comprehend the processes and significance of the hydrosphere

Unit I

Lithosphere and Asthenosphere; Interior of the Earth and Seismic Waves; the Composition of Crust, Mantle, and Core.

Unit II

Vulcanicity and Resultant Features; Classification of Rocks and their Formation; Processes of Crustal Deformation: Folding, Faulting and Joints.

Unit III

Mechanism of Continental Drift and Sea Floor Spreading; Introduction to Plate Tectonics and Subduction Zones.

Unit IV

Introduction to Hydrosphere: Components, Properties, and Significance of Hydrosphere, Distribution, and Quantity of Earth's waters; The Water Cycle; Human Impact on Hydrosphere.

Unit V

Origin and Evolution of Water on the Earth; Relief of Ocean Basin, Distribution of Oceanic Salinity, Density, and Temperature; Marine Deposits, Tides, and Currents.

Suggested Readings

1. Bryant, H. Richard (2001): Physical Geography made Simple, Rupa and Company, New Delhi.
2. Dayal, P. (2019): A Text Book of Geomorphology, Rajesh Publications, New Delhi.
3. Garrison, T. (1998): Oceanography, Wordsworth Company, Belmont.
4. Lal, D.S. (2009): Physical Geography, Sharda Pustak Bhawan, Allahabad.
5. Monkhouse, F.J. (1979): Physical Geography, Methuen, London.
6. Singh, M.B. (2001): *Bhoutik Bhugol*, Tara Book Agency, Varanasi.
7. Singh, S. (2016): Geomorphology (English and Hindi edition), Pravalika Publication, Prayagraj.
8. Singh, S. (2018): Physical Geography (English and Hindi edition), Pravalika Publication, Prayagraj.
9. Strahler, A.N. and Strahler, A.M. (1992): Modern Physical Geography, John Wiley and Sons, New York.
10. Trewartha, G.T., Robinson, A.H., Hammond, E.H., and Horn, A.T. (1990): Fundamentals of Physical Geography (3rd edition), McGraw-Hill, New York.
11. Wooldridge, S.W. and Morgan, R.S. (1959): The Physical Basis of Geography- An Outline of Geomorphology, Longman, London.

Semester- I

Skill Enhancement Course (SEC)

Paper Code	Paper Name	Credit: 02
GOGSECT-103	Maps and Diagrams	Contact Hours: 30

Objectives

1. To understand the basic concepts of Map and Diagrams.
2. To learn methods of making different types of maps and diagrams.

Learning Outcomes

1. Students will be able to understand the basic concepts of Map and Diagrams.
2. Students can perform different methods of mapping and its application.

Unit I

Meaning, Characteristics, Elements, and Classification of Maps.

Unit II

Meaning, Characteristics, and Classification of Diagrams and Graphs.

Unit III

Preparation of Maps: Chorochromatic, Choropleth, Isopleth, and Diagrammatic Maps.

Suggested Readings

1. Kang-Tsung Chang. (2003): Geographic Information Systems. Tata McGraw-Hill, New Delhi.
2. Mishra, R.P. and Ramesh A. (1989): Fundamentals of Cartography. Concept Publishing Company, New Delhi.
3. Monkhouse, F.J. and Wilkinson, H.R. (1969): Maps and Diagrams (3rd edition). Methuen & Co. Ltd.
4. Natrajan, V. (1976): Advanced Surveying. B.I. Publications, Mumbai.
5. Raisz, E. (1962): Principles of Cartography. McGraw-Hill, New York.
6. Robinson, A. H., Sale, R., Morrison, J. and Muehrcke, P.C. (1984): Elements of Cartography. 5th edition, John Wiley and Sons, New York.
7. Sarkar, A. (2013): Quantitative Geography: Techniques and Presentations. Orient BlackSwan Pvt. Ltd., New Delhi.
8. Sarkar, A. (2015): Practical Geography- A Systematic Approach (3rd edition). Orient BlackSwan Pvt. Ltd., New Delhi.
9. Singh, R.L. and Singh, Rana P.B. (1993): Elements of Practical Geography, (Hindi and English editions). Kalyani Publishers, New Delhi.
10. Sharma, J.P. (2001): *Prayogik Bhugol* (3rd edition). Rastogi Publication, Meerut.
11. Star J. and J. Estes (1994): Geographic Information Systems- An Introduction. Prentice Hall, New Jersey.

Semester- I

Skill Enhancement Course (SEC)

Paper Code	Paper Name	Credit: 01
GOGSECP-103	Maps and Diagrams	Contact Hours: 30

Objective

1. To learn methods of making different types of maps and diagrams.

Learning Outcome

1. Students can perform different methods of mapping and its application.

Unit I

Preparation of Maps: Chorochromatic, Choropleth, Isopleth, and Diagrammatic Map.

Unit II

Drawing of Graphs: Line Graphs, Star Graph and Lorenz Curve.

Unit III

Construction of Diagrams: Bar, Pyramid, Circle and Sphere Diagrams.

Suggested Readings

1. Kang-Tsung Chang. (2003): Geographic Information Systems. Tata McGraw-Hill, New Delhi.
2. Mishra, R.P. and Ramesh A. (1989): Fundamentals of Cartography. Concept Publishing Company, New Delhi.
3. Monkhouse, F.J. and Wilkinson, H.R. (1969): Maps and Diagrams (3rd edition). Methuen & Co. Ltd.
4. Natrajan, V. (1976): Advanced Surveying. B.I. Publications, Mumbai.
5. Raisz, E. (1962): Principles of Cartography. McGraw-Hill, New York.
6. Robinson, A. H., Sale, R., Morrison, J. and Muehrcke, P.C. (1984): Elements of Cartography. 5th edition, John Wiley and Sons, New York.
7. Sarkar, A. (2013): Quantitative Geography: Techniques and Presentations. Orient BlackSwan Pvt. Ltd., New Delhi.
8. Sarkar, A. (2015): Practical Geography- A Systematic Approach (3rd edition). Orient BlackSwan Pvt. Ltd., New Delhi.
9. Singh, R.L. and Singh, Rana P.B. (1993): Elements of Practical Geography, (Hindi and English editions). Kalyani Publishers, New Delhi.
10. Sharma, J.P. (2001): *Prayogik Bhugol* (3rd edition). Rastogi Publication, Meerut.
11. Star J. and J. Estes (1994): Geographic Information Systems- An Introduction. Prentice Hall, New Jersey.

Semester-I

Multi-Disciplinary Theory

Paper Code	Paper Name	Credit: 03
GOGMDC-104	Introduction to Geography	Contact Hours: 60

Objectives

1. To familiarize the students with basic concepts of Geography.
2. To introduce the distributional aspects of major geographical phenomena around the world.
3. To train them towards appreciation of geographical phenomena around them.

Learning Outcomes

1. Students will be able to describe the basic concepts in Geography and the distributional aspects of selected physical and human features across the world.
2. They will appreciate the significance of Geography in various life domains.

Unit I

Definition, Nature and Scope of Geography; Evolution of Geography by Greece, Roman, Indian, Arab, German. French, British, and American geographers.

Unit II

Basic Geographic Concepts and their Application: Earth Shape, Location, Longitudes and Latitudes, Region, Place, Size, Spatial Interaction; Tools of Geography: Maps, Scale and Map Projection, Surveying and Techniques.

Unit III

Geological Time Scale, Earth's Interior, Distribution of Ocean and Continents, Distribution of Major Mountains, Rivers and Lakes.

Unit IV

The Role of Geographical Features in Shaping World History. Rocks: Types, Properties and Importance, Geography in the Anthropocene.

Unit V

Changing Relationship between Man and Environment: Determinism, Possibilism and neo-determinism, The importance of culture as a geographical element, Geography and Daily Lives.

Suggested Readings

1. Bryant, H. Richard (2001): Physical Geography Made Simple, Rupa and Company, New Delhi.
2. Bunnett, R.B. (2003): Physical Geography in Diagrams, Fourth GCSE edition, Pearson Education (Singapore).
3. Lake, P. (1979): Physical Geography (English and Hindi editions), Cambridge University Press, Cambridge.
4. Singh, S. (2016): Physical Geography. (English and Hindi editions), Pravalika Publication, Allahabad.
5. Singh, M.B. (2001): Bhoutik Bhugol, Tara Book Agency, Varanasi.
6. Wooldridge, S.W. and Morgan, R.S. (1939): The Physical Basis of Geography- An Outline of Geomorphology. Longman, London. Recent edition and Reprint.
7. Strahler, A.N. and Strahler, A.M. (1992): Modern Physical Geography. John Wiley and Sons, New York.
8. Dikshit, R.D. (2017): Geographical Thought: A Contextual History of Ideas. Prentice Hall of India, New Delhi. (English and Hindi).
9. Dube, B. (1967): Geographical Concepts in Ancient India, National Geographical Society of India, Varanasi.
10. Hartshorne, R. (1939): Nature of Geography, Johan Murray, London.
11. Hartshorne, R. (1959): Perspective on the Nature of Geography, Rand McNally and Co., Chicago.
12. Husain, M. (2002): Evolution of Geographical Thought, Rawat Publications, Jaipur.
13. Kaushik, S.D. and Sharma, A.K. (1995): Geographic Thought and Methodology (in Hindi), Rastogi Publication, Meerut.
14. Singh, J. (2001): *Bhougolik Chintan Ke Mool Adhar*, Gyanodaya Prakashan, Gorakhpur.

Semester- II

Major Theory

Paper Code	Paper Name	Credit: 04
GOGMT-201	Human Geography	Contact Hours: 60

Objectives

1. To provide knowledge about human geography's concepts, ideas and principles.
2. To familiarize the students with the characteristics of human population, migration, and different types of human settlements.
3. To acquaint students with the human-environment relationships, economic activities, and development.

Learning Outcomes

1. Students will be able to understand changing human-environment relationships.
2. Students will be able to know the spatial distribution of human population, economic activities and migration and their consequences.
3. Students will be able to understand the urbanizing world, modern development discourse and sustainable development.

Unit I

Nature and Scope of Human Geography, Principles of Human Geography, Man and Environment Relationship: Determinism, Possibilism, Neo-determinism.

Unit II

World Population: Distributional and Growth Patterns, Migration: Concept, Types and Major Streams.

Types and Patterns of Rural Settlement, Urban: Concept and Classification, Urbanization: Trends and Patterns.

Unit III

Concepts and Classification of Human Races. Primitive Tribes: Pigmy, Eskimo, Bushman and Naga.

Unit IV

Economic Activities: Classification and Distribution of Economic Activities, Resources: Concept, Classification and Conservation, World Agricultural Systems.

Unit V

Modern Discourse on Development, Human Development Index, Concept of Sustainable Development and Sustainable Development Goals.

Suggested Readings

1. Chisholm, M. (1985): Human Geography (2nd edition). Penguin Books, London.
2. Daniels Peter et.al (2005): Human Geography Issues for 21st Century, Pearson Education, Singapore and Delhi, India.
3. Haggett, P. (2004): Geography: A Modern Synthesis, (8th edition). Harper and Row, New York.
4. Husain, Majid (1994): Human Geography. Rawat Publication, Jaipur.
5. Johnston, R.J., Gregory, D., Pratt, G. and Watts, M. (2000): The Dictionary of Human Geography, (4th edition). Basil Blackwell Publishers, Oxford.
6. Kaushik, S.D. (2013): *Manav Bhoogol* (11th edition). Rastogi Publication, Meerut.
7. Michael, C.M. (1997): Process and Change in Human Geography. Nelson, London.
8. Norton, W. (1995): Human Geography. Oxford University Press, New York.
9. Singh, B.N. and Singh, M.K. (2016): *Manav Bhoogol ka Swaroop*. Prayag Pustak Bhavan, Allahabad.
10. Singh, B.N. and Yadav, A.K. (2017): *Manav Evm Arthik Bhoogol*. Prayag Pustak Bhavan, Allahabad.
11. Singh, K. N. and Singh, J. (2001): *Manav Bhugol (2nd* edition). Gyanodaya Prakashan, Gorakhpur.
12. Singh, L.R. (2005): Fundamentals of Human Geography. Sharda Pustak Bhawan, Allahabad.

Semester- II
Minor Theory

Paper Code	Paper Name	Credit: 04
GOGMI-202	Introduction to Atmosphere and Biosphere	Contact Hours: 60

Objectives

1. To familiarize students with the Earth's atmosphere and biosphere.
2. To explain the atmospheric forces, processes and their impacts.

Learning Outcomes

1. Students will be able to understand the Earth's atmospheric and biosphere components.
2. Students will be able to appreciate the practical components of the Earth's atmosphere.

Unit I

Composition and Stratification of Earth's Atmosphere; Insolation: Factor Affecting the Distribution of Insolation; Heat Budget of the Earth and Atmosphere.

Unit II

Humidity, Forms of Condensation, Atmospheric Pressure, and General Circulation of Atmosphere, Horizontal and Vertical Distribution of Temperature.

Unit III

The Precipitation Formation: Types and Distribution; Concept and Classification of Air Masses; Fronts and associated Weather Conditions; Cyclones: Tropical and Temperate.

Unit IV

Biosphere: Definition and Concept, Components of Biosphere: Abiotic and Biotic, Ecosystem and Ecology: Definition, Characteristics and Types.

Unit V

The Biogeochemical Cycle: Hydrological Cycle, Nitrogen Cycle, Oxygen Cycle; Biome: Concept and Classification.

Suggested Readings

1. Barry, R.C. and Carleton, M. (2001). Synoptic and Dynamic Climatology. Routledge, London.
2. Chorley, R.J. (2001). Atmosphere, Weather and Climate. Methuen, London.
3. Finch, J.C., and Trewartha, G.T.: Elements of Weather and Climate. Prentice-Hall, London.
4. Gupta, S.L. (2000). *Jalvayu Vighyan*. Vishvidayalaya Prakashan. Varanasi.
5. Kendrew, W.C. (1998). Climatology (5th edition). Edward Arnold, London.
6. Lal, D. S. (2010). Climatology. Sharda Pustak Bhavan, Prayagraj.
7. Lal, D.S. (2009). Physical Geography. Sharda Pustak Bhavan, Prayagraj.
8. Robinson, P.J. and Henderson, S. (1999). Contemporary Climatology (2nd edition). Pearson Education Ltd., Harlow, UK.
9. Singh, M.B. (1998). *Jalvayu Avam Samudra Vigyan*. Tara Book Agency, Varanasi.
10. Singh, M.B. (1999). *Jalvayu Avam Jal Vigyan*. Tara Book Agency, Varanasi.
11. Singh, S. (2005). Climatology. Prayag Pustak Bhawan. Prayagraj.
12. Singh, S. (2005). *Jalvayu Vigyan*. Prayag Pustak Bhawan. Prayagraj.
13. Singh, S. (2023). *Bhoutik Boogol*. Prayag Pustak Bhawan. Prayagraj.

Semester- II

Skill Enhancement Course (SEC)

Paper Code	Paper Name	Credit: 02
GOGSECT- 203	Geographical Data Analysis	Contact Hours: 30

Objectives

1. To understand the nature, characteristics, and source of Geographical Data.
2. To acquire knowledge about geographical data analysis and database management system.

Learning Outcomes

1. Comprehend the nature, characteristics and source of Geographical Data.
2. Acquire knowledge about geographical data analysis and database management system.

Unit I

Nature and Characteristics of Geographical Data; Sources of Geographical Data: Primary and Secondary.

Unit II

Methods and Tools of Acquisition of Geographical Data: Observation, Questionnaires/Interview Schedules and Interview with Focus Groups.

Units III

Classification and Tabulation of Geographical Data; Database Organization and Management; Spatial Analysis of Geographical Data.

Suggested Readings

1. Kanetker, T.P. and Kulkarni, S.V. (1967): Surveying and Levelling (Vol. I and II). V.G. Prakashan, Poona, India.
2. Kang-Tsung Chang. (2003): Geographic Information Systems. Tata McGraw-Hill, New Delhi.
3. Mishra, R.P. and Ramesh A. (1989): Fundamentals of Cartography. Concept Publishing Company, New Delhi.
4. Natrajan, V. (1976): Advanced Surveying. B.I. Publications, Mumbai.
5. Pugh, J.C. (1975): Surveying for Field Scientists. Methuen and Company Ltd., London, First Publication.
6. Punmia, B.C. (1994): Surveying (Vol. I). Laxmi Publications Private Ltd, New Delhi.
7. Raisz, E. (1962): Principles of Cartography. McGraw-Hill, New York.
8. Robinson, A. H., Sale, R., Morrison, J. and Muehrcke, P.C. (1984): Elements of Cartography (5th edition). John Wiley and Sons, New York.
9. Sarkar, A. (2013): Quantitative Geography: Techniques and Presentations. Orient BlackSwan Pvt. Ltd. New Delhi.
10. Sarkar, A. (2015): Practical Geography: A Systematic Approach (3rd edition). Orient BlackSwan Pvt. Ltd. New Delhi.
11. Sharma, J.P. (2001): *Prayogik Bhugol* (3rd edition). Rastogi Publication, Meerut.
12. Shephard, F.A. (1968): Surveying Problems and Solutions. Edward Arnold Ltd, London.
13. Singh, R.L. and Singh, Rana P.B. (1993): Elements of Practical Geography (Hindi and English editions). Kalyani Publishers, New Delhi.
14. Star J. and J. Estes (1994): Geographic Information Systems: An Introduction, Prentice Hall, New Jersey.

Semester- II

Skill Enhancement Course (SEC)

Paper Code	Paper Name	Credit: 01
GOGSECP-203	Techniques of Data Analysis	Contact Hours: 30

Objective

1. To acquire knowledge about the techniques of geographical data analysis.

Learning Outcome

1. Acquire knowledge about the techniques of geographical data analysis.

Unit I

Univariate Methods: Description of Tabular, Graphical and Numerical Data; Frequency Curves, Frequency Polygon.

Unit II

Techniques of Bivariate Analysis: Correlation, Regression and Chi-square analysis.

Unit III

Spatial and Regional Pattern Analysis: Network Analysis, Nearest Neighbourhood Analysis.

Suggested Readings

1. Kanetker, T.P. and Kulkarni, S.V. (1967): Surveying and Levelling (Vol. I and II). V.G. Prakashan, Poona, India.
2. Kang-Tsung Chang. (2003): Geographic Information Systems. Tata McGraw-Hill, New Delhi.
3. Mishra, R.P. and Ramesh A. (1989): Fundamentals of Cartography. Concept Publishing Company, New Delhi.
4. Natrajan, V. (1976): Advanced Surveying. B.I. Publications, Mumbai.
5. Pugh, J.C. (1975): Surveying for Field Scientists. Methuen and Company Ltd., London, First Publication.
6. Punmia, B.C. (1994): Surveying (Vol. I). Laxmi Publications Private Ltd, New Delhi.
7. Raisz, E. (1962): Principles of Cartography. McGraw-Hill, New York.
8. Robinson, A. H., Sale, R., Morrison, J. and Muehrcke, P.C. (1984): Elements of Cartography (5th edition). John Wiley and Sons, New York.
9. Sarkar, A. (2013): Quantitative Geography: Techniques and Presentations. Orient BlackSwan Pvt. Ltd. New Delhi.
10. Sarkar, A. (2015): Practical Geography: A Systematic Approach (3rd edition). Orient Black Swan Pvt. Ltd. New Delhi.
11. Sharma, J.P. (2001): *Prayogik Bhugol* (3rd edition). Rastogi Publication, Meerut.
12. Shephard, F.A. (1968): Surveying Problems and Solutions. Edward Arnold Ltd, London.
13. Singh, R.L. and Singh, Rana P.B. (1993): Elements of Practical Geography (Hindi and English editions). Kalyani Publishers, New Delhi.
14. Star J. and J. Estes (1994): Geographic Information Systems: An Introduction, Prentice Hall, New Jersey.

Semester- II
Multi-Disciplinary Theory

Paper Code	Paper Name	Credit: 04
GOGMDC-204	Geological Processes	Contact Hours: 60

Objectives

1. To develop an understanding of the origin and development of the Earth and its components.
2. To comprehend the economic importance of the processes and Earth's resources.

Learning Outcomes

1. The students will learn about the development of the Earth and its components like minerals, rocks, fuels and ore resources.
2. The processes responsible for shaping the Earth's internal and external features and its various components will be comprehended by the students.

Unit I

Origin of the Earth; Internal Structure of the Earth; Plate Tectonics; Continental Drift Hypothesis; Formation of Minerals: Silicate Minerals, Non-silicate Minerals, Identification of Minerals; Geological Time Scale.

Unit II

Concept of Igneous Petrology; Origin and Nature of the Magma; Bowen's Reaction Series; Modes of Formation of Igneous Rocks; Classification of Igneous Rocks and Examples; Textures and Structures of Igneous Rocks.

Unit III

Weathering and Erosion-Processes and Agents; Origin of Sediments, Sedimentary Textures, and Structures; Grain Size Scale; Particle Size Distribution; Processes Involved in Formation of Sedimentary Rocks and Examples; Sedimentary Environments.

Unit IV

Metamorphism: Definition, Agents of Metamorphism and Factors Controlling Metamorphism; Types of Metamorphism: Contact, Regional, Fault Zone Metamorphism, Impact Metamorphism; Concept of Metamorphic Facies; Structure and Textures of Metamorphic Rocks.

Unit V

Stress and Strain; Deformation; Folds; Faults; Joints; Fossil Fuels; Mineral Resources.

Suggested Readings

1.Holmes, A. (1993): Principles of Physical Geology., Ed. By David Duff, Nelson Thornes Ltd.,
2.Ghosh, S.K. (1993): Structural Geology: Fundamental and Modern Development Pergamon Press.
3. Hatcher Jr. R.D., (1990): Structural Geology, Merrill Publishing Company
4.Windley, B. (1973): The Evolving continents, John Wiley and Sons, New York.
5.Robert, M. (1980): Stratigraphy: Principles and Methods, Van Nostrand Reinhold, New York.
6.Wadia, D.N. (1984): Geology of India; Tata McGraw – Hill Publishing Co., Lt., New Delhi.
7. Pettijohn, F.J.(1975): Sedimentary Rocks (3rd Ed.,), Harper and Row Publ., New Delhi.
8.Tucker, M.E., (2001): Sedimentary Petrology: An Introduction, Wiley and Sons, New York.
9.Dana, E.S. and Ford, W.E.: A text book of Mineralogy. Wiley Eastern Limited.
10.Philpotts, A and Ague, J (2009): Principles of Igneous and Metamorphic Petrology, Cambridge University Press Publishers.
11.Winter, J.D., Principles of Igneous and Metamorphic Petrology, Cambridge University Press.

Semester- III

Major Theory

Paper Code	Paper Name	Credit: 04
GOGMT -301	Geotectonics	Contact Hours: 60

Objectives

1. To introduce basic ideas, hypotheses and theories of the origin and evolution of the earth.
2. To acquaint with geotectonic concepts.
3. To familiarise with basic principles and theories of geotectonics.

Learning Outcomes

1. Students will understand the Earth's origin and evolution
2. Students will be able to know the basic concepts of geotectonics.
3. Students will be able to appraise the basic principles and theories of geotectonics.

Unit I

Introduction to Geotectonics; The Origin and Evolution of the Earth: Laplace's Nebular Hypothesis, Jean and Jeffrey's Tidal Hypothesis, Schmidt's Interstellar Dust Hypothesis, and the Big Bang Theory.

Unit II

Seismic Waves and Interior of the Earth; Composition of the Crust, the Mantle and the Core; Geological Time Scale; Minerals; Classification of Rocks and their Formation.

Unit III

Isostatic Adjustment and Theories: Pratt and Airy; Continental Drift and Sea Floor Spreading: Evidences and Mechanism; Wilson Cycle; Plate Tectonics and Subduction Zones.

Unit IV

Vulcanicity and Resultant Features; Earthquakes; Tsunami; Processes of Crustal Deformation: Folding, Faulting, and Joints.

Unit V

Mechanism of Mountain Building: Theories of Kober, Jefferys, Jolly, Daly, and Holmes.

Suggested Readings

1. Bloom A.L. (2012): Geomorphology, A Systematic Analysis of Late Cenozoic Landforms.
2. Bryant, H. Richard (2001): Physical Geography made Simple, Rupa and Company, New Delhi.
3. Dayal, P. (2019): A Text Book of Geomorphology, Rajesh Publications, New Delhi.
4. Lal, D.S. (2009): Physical Geography, Sharda Pustak Bhawan, Allahabad.
5. Monkhouse, F.J. (1979): Physical Geography, Methuen, London.
6. Singh, M.B. (2001): *Bhoutik Bhugol*, Tara Book Agency, Varanasi.
7. Singh, S. (2022): Geomorphology (English and Hindi editions), Pravalika Publications, Prayagraj.
8. Singh, S. (2023): Physical Geography (English and Hindi editions), Pravalika Publications, Prayagraj.
9. Strahler, A.N. and Strahler, A.M. (1992): Modern Physical Geography, John Wiley and Sons, New York.
10. Thornbury, W.D. (1960): Principles of Geomorphology. John Wiley, New York.
11. Trewartha, G.T., Robinson, A.H., Hammond, E.H., and Horn, A.T. (1990): Fundamentals of Physical Geography (3rd edition), McGraw-Hill, New York.
12. Wooldridge, S.W. and Morgan, R.S. (1959): The Physical Basis of Geography- An Outline of Geomorphology, Longman, London.

Semester- III

Course Code	Paper Name	Credit: 04
GOGMP-302	Map Reading and Interpretation of Topographical Maps	Contact hours: 60

Objectives

1. To introduce the basic concept of maps, scale and legends.
2. To introduce the student of Topographical Map and its interpretation.

Learning Outcomes

1. Students will be able to understand the basic concepts of maps, scale and legends.
2. Students will be able to understand the Topographical Map and its interpretation.

Unit I

Maps: Definition, Basic Concepts, Purpose and Classification.

Unit II

Meaning and Importance of Scale; Types of Scale: Statement Scale, Graphical Scale and Representative Fraction.

Unit III

Map Legends: Significance of Map Legends, Legends of Physical and Cultural Maps.

Unit IV

Topographical Maps: Introduction and Development; Nomenclature and Numbering of Topographical Sheet.

Unit V

Interpretation of Topographical Maps: Conventional Symbols and Colour tint, Identifications of Natural and man-made Features.

Suggested Readings

1. Monkhouse, F.J. and Wilkinson, F.J. (1985): Maps and Diagrams. Methuen, London.
2. Raisz, E. (1962): General Geography. John Wiley and Sons, New York, 5th edition.
3. Sarkar, Ashis (2015): Practical Geography: A Systematic Approach. OrientBlackSwan, New Delhi.
4. Sharma, J.P. (2001): *Prayogik Bhugol*. Rastogi Publication, Meerut 3rd edition.
5. Singh, L.R. (2006): Fundamentals of Practical Geography. Sharda Pustak Bhawan, Allahabad.
6. Singh, R.L. and Singh, Rana P.B. (1993): Elements of Practical Geography. (Hindi and English editions). Kalyani Publishers, New Delhi.

Semester- III

Minor Theory

Paper Code
GOGMI-303

Paper Name
Geography of Asia

Credit: 04
Contact Hours: 60

Objectives

1. The aim is to understand the physical aspects of Asia.
2. To know the status of mineral, power and agricultural resources.
3. It also helps the students with the growth of industries and transport systems.

Learning Outcome

1. The students will learn about the physical aspects of Asia.
2. The students will study the different minerals, power and agricultural resources.
3. Students will be able to examine the growth of industries and transport systems.

Unit I

Asia: Introduction, Location and Extent, Countries.

Unit II

Relief, Drainage, Climate, Vegetation and Soil of Asia.

Unit III

Mineral and Power Resources of Asia.

Unit IV

Agricultural Crops and Industries of Asia.

Unit V

Population and major Industries of Asia.

Suggested Readings

1. Hartshorne, T.N., and Alexander, J.W. (1988): Asian Geography. Prentice Hall, New Delhi.
2. Husain, Majid. (2013): World Geography. Rawat Publications, New Delhi.
3. Jones C.F. and Darkenwald G.G. (1975): Asian Geography. Mc. Millan Company, New York.
4. Manku, Darshan Singh. (2010): A Regional Geography of the World. Kalyani Publishers, N. Delhi.
5. Maurya, S. D. (2010): Regional Geography of the World. Prayag Pushtak Bhawan, Prayagraj.
6. Thomas, R.S. (1962): The Geography of Asia. McGraw-Hill, New York.
7. Wheeler J. et al. (1995): Asian Geography. John Wiley, New York.

Semester- III

Skill Enhancement Course (SEC)

Paper Code	Paper Name	Credit: 02
GOGSECT-304	Terrestrial Surveying	Contact Hours: 30

Objectives

1. To inculcate the diverse methods of land surveying methods, their usefulness and drawbacks.
2. To develop an understanding of how this knowledge may be applied in practice for the optimum and efficient utilization of space.

Learning Outcomes

1. The students will be able to explain the basic principles and types of land surveying.
2. The students will be able to know important techniques of situation and relief representation.

Unit I

Surveying: Introduction, Types of Surveying and Principles, Chain and Tape Survey, Plane Table Surveying: Introduction, Methods and Processing of Surveying.

Unit II

Prismatic Compass Surveying: Introduction, Requirements and Functions of Instruments in Survey, Survey Types and Methods, Preparation of Field Book and Plotting.

Unit III

Indian Clinometer: Methods and Processing of Surveying.

Suggested Readings

1. Ayyar, N.P. (2010) Sarvekshan. Madhya Pradesh Hindi Academy, Bhopal.
2. Kanetker, T.P. and Kulkarni, S.V. (1967): Surveying and Levelling, Vol. I and II, V.G. Prakashan, Poona, India.
3. Natrajan, V. (1976): Advanced Surveying, B.I. Publications, Mumbai.
4. Pugh, J.C. (1975): Surveying for Field Scientists, Methuen and Company Ltd., London, First Edition.
5. Punmia, B.C. (1994): Surveying, Vol I, Laxmi Publications Private Ltd, New Delhi.
6. Sharma, J.P. (2005): Practical Geography (Hindi). Rastogi Publications.
7. Shephard, F.A. (1968): Surveying Problems and Solutions, Edward Arnold (Publishers) Ltd, London.
8. Singh, R.L. and Singh, Rana P.B. (1993): Elements of Practical Geography, (Hindi and English editions), Kalyani Publishers, New Delhi.

Semester- III

Skill Enhancement Course (SEC)

Paper Code	Paper Name	Credit: 01
GOGSECP- 304	Terrestrial Surveying	Contact Hours: 30

Objectives

1. To inculcate the diverse methods of land surveying, their usefulness and drawbacks.
2. To develop an understanding of how this knowledge may be applied in practice for the optimum and efficient utilization of space.

Learning Outcomes

1. The students will be able to explain the basic principles and types of land surveying.
2. The students will be able to know important techniques of situation and relief representation.

Unit I

Chain and Tape Survey, Plane Table Surveying: Introduction, Methods and Processing of Surveying.

Unit II

Prismatic Compass Surveying, Preparation of Field Book and Plotting.

Unit III

Indian Clinometer and Preparation of Field Book.

Suggested Readings

1. Ayyar, N.P. (2010) Sarvekshan. Madhya Pradesh Hindi Academy, Bhopal.
2. Kanetker, T.P. and Kulkarni, S.V. (1967): Surveying and Levelling, Vol. I and II, V.G. Prakashan, Poona, India.
3. Natrajan, V. (1976): Advanced Surveying, B.I. Publications, Mumbai.
4. Pugh, J.C. (1975): Surveying for Field Scientists, Methuen and Company Ltd., London, First Edition.
5. Punmia, B.C. (1994): Surveying, Vol I, Laxmi Publications Private Ltd, New Delhi.
6. Sharma, J.P. (2005): Practical Geography (Hindi). Rastogi Publications.
7. Shephard, F.A. (1968): Surveying Problems and Solutions, Edward Arnold (Publishers) Ltd, London.
8. Singh, R.L. and Singh, Rana P.B. (1993): Elements of Practical Geography, (Hindi and English editions), Kalyani Publishers, New Delhi.

Semester- III

Multi-Disciplinary Course

Paper Code	Paper Name	Credit: 03
GOGMDC- 305	Environment and Ecosystem	Contact Hours: 60

Objectives

1. To provide exposure to students in gaining knowledge about the concept of environment and ecology.
2. To become acquainted with various programs and policies related to environmental monitoring and management.

Learning Outcomes

1. Students will be able to understand the basic concepts of environment and ecology.
2. Students will be able to aware of various programs and policies related to environmental monitoring and management.

Unit I

Environment: Meaning, Structure and Types; Components of Environment; Approaches to the Study of Environment.

Unit II

Environmental Pollution and its Management: Land and Water; Ecology: Meaning, Aim and Scope; Ecological Concepts and Principles.

Unit III

Ecosystem: Meaning, Definition and Characteristics; Types of Ecosystems; Functions and Productivity of Ecosystems.

Unit IV

Geobiochemical Cycle: Hydrological Cycle; Gaseous Cycle: Nitrogen Cycle, Oxygen Cycle and Carbon Cycle.

Unit V

Environmental Monitoring and Management; Environmental Programmes and Policies: Global, National and Local levels.

Suggested Readings

1. Anji Reddy, M. (2008): Textbook of Remote Sensing and Geographic Information Systems.
2. Campbell, J. B. (2007): Introduction to Remote Sensing. Guildford Press.
3. Chauniyal, D.D. (2010): *Sudur Samvedan evam Bhogolik Suchana Pranali* (Hindi). Sharda Pustak Bhawan, Prayagraj.
4. Jensen, J. R. (2004): Introductory Digital Image Processing- A Remote Sensing Perspective. Prentice Hall Inc., New Jersey.
5. Jensen, J.R. (2007): Remote Sensing of the Environment- An Earth Resource Perspective. Prentice-Hall Inc., New Jersey.
6. Joseph, G. (2005): Fundamentals of Remote Sensing. United Press India.
7. Kumar, Dilip, Singh, R.B. and Kaur, Ranjeet (2019): Spatial Information Technology for Sustainable Development Goals. Springer.
8. Lillisand, T.M., and Kiefer, P.W. (2007): Remote Sensing and Image Interpretation (6th Edition). John Wiley and Sons, New York.
9. Nag, P. and Kudra, M. (1998): Digital Remote Sensing. Concept, New Delhi. B.S. Publication, Hyderabad.
10. Rees, W. G. (2001): Physical Principles of Remote Sensing. Cambridge University Press.
11. Sarkar, A. (2015): Practical Geography- A Systematic Approach. Orient Black Swan Private Ltd., New Delhi.
12. Singh, R. B. and Murai, S. (1998): Space-informatics for Sustainable Development. Oxford and IBH Publication.
13. Wolf, P. R. and Dewitt, B. A. (2000): Elements of Photogrammetry: With Applications in GIS. McGraw-Hill.

Semester- IV

Paper Code
GOGMT-401

Major Theory
Paper Name
Economic Geography

Credit: 04
Contact Hours: 60

Objectives

1. To provide exposure to students in gaining knowledge about the concept of economic activities and models.
2. To become acquainted with various crops, minerals and transportation availability of resources.

Learning Outcomes

1. Students will be able to understand the basic concepts of economic activities and models.
2. Students will be able to know the availability of crops, minerals, trads and transportation.

Unit I

Meaning, Scope, Approaches and Development of Economic Geography; Concept of Economic Activities.

Unit II

Factors affecting Location of Economic Activities with Special reference to Agriculture (Von Thunen Theory), Industry (Weber, Hoover and Losch Theories) and Tertiary Activities (Christaller's Theory).

Unit III

Distribution and Production of Primary Economic Activities: Rice, Wheat, Cotton, Tea, Coffee, Forestry, Fishing and Mining (Iron ore, Bauxite, Coal & Petroleum).

Unit IV

Secondary Activities: Manufacturing (Cotton Textile, Iron and Steel); Industrial Regions of India; Special Economic Zones and Technology Parks; Petro-chemical industries.

Unit V

Tertiary Activities: Transport (Road, Rail, Air and Water); International Trade.

Suggested Readings

1. Alexander J. W. (1963): Economic Geography. Prentice-Hall Inc., Englewood Cliffs, New Jersey.
2. Coe N. M., Kelly P. F. and Yeung H. W., (2007): Economic Geography: A Contemporary Introduction. Wiley-Blackwell.
3. Hodder B. W. and Lee Roger, (1974): Economic Geography. Taylor and Francis.
4. Combes P., Mayer T. and Thisse J. F., (2008): Economic Geography: The Integration of Regions and Nations. Princeton University Press.
5. Wheeler J. O., (1998) Economic Geography. Wiley.
6. Durand L., (1961). Economic Geography. Crowell.
7. Bagchi-Sen S. & Smith H. L., (2006). Economic Geography: Past, Present and Future. Taylor & Francis.
8. Willington D. E. (2008). Economic Geography. Husband Press.
9. Clark, Gordon L.; Feldman, M.P. and Gertler, M.S., eds. (2000). The Oxford
10. Gautam, Alka (2010): Advanced Economic Geography. Sharda Pustak Bhawan. Prayagraj.

Semester- IV
Major Theory

Paper Code	Paper Name	Credit: 04
GOGMT- 402	Geography of India	Contact Hours: 60

Objectives

1. This course on the geography of India assumes that the student should be familiar with the features of India's basic landforms, climate, soil, vegetation, population, resources and industries.
2. It is a course designed to enable students to broaden and deepen their understanding of India.

Learning Outcomes

1. Students would understand that their country's geography and the spatial variations of mineral and natural biodiversity would help them increase the vitality and vulnerability of the country.
2. The course would help students know India's industrial, trade and transport development.

Unit I

Location of India and its Implications, Geological Structure, Relief, Physical Division, Drainage and Climate.

Unit II

Population: Growth, Distribution, Density, Age and Sex Composition; Trends of Urbanization.

Unit III

Natural Resources (Soil and Forest); Mineral Resources (Iron ore and Bauxite) and Energy Resources (Coal, Petroleum, Hydro-Electricity); Renewable Energy Resources.

Unit IV

Principal Crops (Rice, Wheat, Sugarcane, Cotton, Tea and Coffee); Agro-Climatic Regions.

Unit V

Major Industries: Iron and Steel, Cotton Textile, Sugar and Automobile; Trade and Transport.

Suggested Readings

1. Chauhan, P.R. and Prasad, M. (2003): *Bharat Ka Vrihad Bhugol*. Vasundhara Prakashan, Gorakhpur.
2. Farmer, B.H. (1983): An Introduction to South Asia. Methuen, London.
3. Husain, Majid (2015): Geography of India. McGraw-Hill Publication, New Delhi.
4. Kullar, D.R. (2007): India: A Comprehensive Geography. Kalyani Publishers, New Delhi.
5. Mamoria, Chaturbhuj (2012): Geography of India. Sahitya Bhawan Publication, Agra.
6. Nag, P. and Gupta, S.S. (1992): Geography of India. Concept Publishing Company, New Delhi.
7. Rao, B.P. (2007): *Bharat Kee Bhaugolik Sameeksha*. Vasundhara Prakashan, Gorakhpur.
8. Sharma, T.C. and Coutinho, O. (2003): Economic and Commercial Geography of India. Vikas Publishing House Private Ltd., New Delhi.
9. Singh, J. (2001): *Bharat: Bhaugolik Adhar Avam Ayam*. Gyanodaya Prakashan, Gorakhpur.
10. Singh, J. (2003): India: A Comprehensive Systematic Geography. Gyanodaya Prakashan, Gorakhpur.
11. Singh, R.L. (ed.) (1971): India: A Regional Geography. National Geographical Society of India, Varanasi.
12. Tiwari, R.C. (2007): Geography of India. Prayag Pustak Bhawan, Prayagraj.
13. Wadia, D.N. (1959): Geology of India. Macmillan and Company. London and Student edition, Madras.

Semester- IV

Major Theory

Paper Code	Paper Name	Credit: 04
GOGMT- 403	Fundamentals of Remote Sensing	Contact Hours: 60

Objectives

1. To provide exposure to students in gaining knowledge about the concept, process, and application of Remote Sensing.
2. To familiarise the students with aerial photography and methods of digital image processing.

Learning Outcomes

1. Students will be able to understand the basic concepts, processes, and applications of Remote Sensing.
2. Students will be able to aware with aerial photography and methods of digital image processing.

Unit I

Remote Sensing: Meaning, Concept and Process; Historical Development of Remote Sensing; Concept of EMR and signatures.

Unit II

Remote Sensing Platforms: Types and their Characteristics; Types of Remote Sensing.

Unit III

Aerial Photography: Concept and Its Types; Concept of Sensor Resolution: Spatial, Radiometric, Spectral, and Temporal.

Unit IV

Remote Sensing Data: Pre-processing Operations, Image Enhancements and Image Classifications.

Unit V

Digital Image; Elements of Image Interpretation; Application of Remote Sensing.

Suggested Readings

1. Anji Reddy, M. (2008): Textbook of Remote Sensing and Geographic Information Systems.
2. Campbell, J. B. (2007): Introduction to Remote Sensing. Guildford Press.
3. Chauniyal, D.D. (2010): *Sudur Samvedan evam Bhogolik Suchana Pranali* (Hindi). Sharda Pustak Bhawan, Prayagraj.
4. Jensen, J. R. (2004): Introductory Digital Image Processing- A Remote Sensing Perspective. Prentice Hall Inc., New Jersey.
5. Jensen, J.R. (2007): Remote Sensing of the Environment- An Earth Resource Perspective. Prentice-Hall Inc., New Jersey.
6. Joseph, G. (2005): Fundamentals of Remote Sensing. United Press India.
7. Kumar, Dilip, Singh, R.B. and Kaur, Ranjeet (2019): Spatial Information Technology for Sustainable Development Goals. Springer.
8. Lillisand, T.M., and Kiefer, P.W. (2007): Remote Sensing and Image Interpretation (6th Edition). John Wiley and Sons, New York.
9. Nag, P. and Kudra, M. (1998): Digital Remote Sensing. Concept, New Delhi. B.S. Publication, Hyderabad.
10. Rees, W. G. (2001): Physical Principles of Remote Sensing. Cambridge University Press.
11. Sarkar, A. (2015): Practical Geography- A Systematic Approach. Orient Black Swan Private Ltd., New Delhi.
12. Singh, R. B. and Murai, S. (1998): Space-informatics for Sustainable Development. Oxford and IBH Publication.
13. Wolf, P. R. and Dewitt, B. A. (2000): Elements of Photogrammetry: With Applications in GIS. McGraw-Hill.

Semester IV

Major Practical

Paper Code	Paper Name	Credit: 02
GOGMP- 404	Remote Sensing	Contact Hours: 45

Objectives

1. To give exposure through practical learning in remote sensing technologies.
2. To acquire practical knowledge of remote sensing on applications of the real world.

Learning Outcomes

1. Students will be able to analyse the remote sensing data.
2. Students will be able to know the practical knowledge of remote sensing applicability.

Unit I

Remote Sensing: Development and Application; Platforms and their Implications.

Unit II

General Characteristics of Remote Sensing Sensors: Landsat, IRS, LISS.

Unit III

Determination of Aerial Photo Scale; Interpretation of Aerial Photographs; Application of Remote Sensing: Land Use/ Land Cover, Geomorphological Mapping.

Suggested Readings

1. Anji Reddy, M. (2008): Textbook of Remote Sensing and Geographic Information Systems. B.S. Publication, Hyderabad.
2. Campbell, J. B. (2007): Introduction to Remote Sensing. Guildford Press.
3. Chauniyal, D.D. (2010): *Sudur Samvedan evam Bhogolik Suchana Pranali* (Hindi). Sharda Pustak Bhawan, Prayagraj.
4. Jensen, J. R. (2004): Introductory Digital Image Processing- A Remote Sensing Perspective. Prentice Hall Inc., New Jersey.
5. Jensen, J.R. (2007): Remote Sensing of the Environment: An Earth Resource Perspective. Prentice-Hall Inc., New Jersey.
6. Joseph, G. (2005): Fundamentals of Remote Sensing. United Press India.
7. Kumar, Dilip, Singh, R.B. and Kaur, Ranjeet. (2019): Spatial Information Technology for Sustainable Development Goals. Springer.
8. Lillisand, T.M., and Kiefer, P.W. (2007): Remote Sensing and Image Interpretation (6th Edition). John Wiley and Sons, New York.
9. Nag, P. and Kudra, M. (1998): Digital Remote Sensing. Concept, New Delhi.
10. Rees, W. G. (2001): Physical Principles of Remote Sensing. Cambridge University Press.
11. Sarkar, A. (2015): Practical Geography: A systematic approach. Orient Black Swan Private Ltd., New Delhi.
12. Singh, R. B. and Murai, S. (1998): Space-informatics for Sustainable Development. Oxford and IBH Publication.
13. Wolf, P. R. and Dewitt, B. A. (2000): Elements of Photogrammetry: With Applications in GIS. McGraw-Hill.

Semester- IV
Minor Theory

Paper Code
GOGMI- 405

Paper Name
Population and Environment

Credit: 04
Contact Hours: 60

Objectives

1. To introduce the relation between population and environment.
2. To discuss the ongoing discourse on environmental issues.

Learning Outcomes

1. Students will be able to understand the issues related to population and environment.
2. Students will be able to understand the ongoing discourse on environmental issues.

Unit I

World Population Growth and Distribution, Population Dynamics, Concepts and Trends of Fertility, Mortality and Migration.

Unit II

Theories of Population Growth: Malthus, Ester Boserup and Demographic Transition, Under, Over, Optimum and Zero Population Growth.

Unit III

Environmental Issues: Climate Change, Global Warming, Ozone Layer Depletion, and Acid Rain.

Unit IV

Environmental Issues related to Urbanization, Agriculture, Industrial Growth, Biodiversity and Global Warming.

Unit V

Recent Debates in Population and Environment, Limits to Growth, Neo-Malthusian, Sustainable Development.

Suggested Readings

1. Bhende, A. A. and Kanetkar, T. (2003): Principles of Population Studies, Himalaya Publishing House, Mumbai.
2. Champion, T. (ed.) (1993): Population Matters. Paul Chapman, London.
3. Chandna, R. C. (2006): Geography of Population. Kalyani Publishers, New Delhi.
4. Clark, J.I. (1972): Population Geography. Pergamon Press, Oxford Publication, Jaipur & N. Delhi.
5. Ehrlich, P.R. and Ehrlich, A. H. (1996): Eco-science: Population, Resources, And Environment 6th ed. W.H. Freeman and Company, San Francisco.
6. Odum, E.P. (1975): Ecology. Rowman and Littlefield, Lanham, USA.
7. Rajagopalan, R. (2005): Environmental Studies: From Crisis to Cure, Oxford University Press, New Delhi.
8. Saxena, H.M. (2004): Environmental Management. Rawat Publications, Jaipur & N Delhi.
9. Singh, S. (2006): Environmental Geography, Prayag Pustak Bhawan, Allahabad.
10. Singh, S. (2007): Paryavaran Bhugol, Prayag Pustak Bhawan, Allahabad.
11. Srinivasan, K. and Vlassoff, M. (2001): Population Development Nexus in India: Challenges for the New Millennium. Tata McGraw-Hill, New Delhi.

Semester- V

Major Theory

Paper Code	Paper Name	Credit: 04
GOGMT 501	Climatology	Contact Hours: 60

Objective

1. To provide students with a comprehensive knowledge of earth's climate and its impacts.
2. To understand the general circulation of the atmosphere and mechanism of monsoon.
3. To understand the extreme events and their impacts.

Learning Outcomes

1. The students will be able to understand the earth's climate and its impacts.
2. The students will be able to comprehend the circulation of the atmosphere and mechanism of monsoon
3. The students will be able to understand the extreme events and their impacts.

Unit I

Elements of Weather and Climate; Composition and Stratification of Earth's Atmosphere; Insolation: Factor Affecting the Distribution of Insolation; Heat Budget of the Earth and Atmosphere.

Unit II

Humidity; Forms of Condensation; Atmospheric Pressure and General Circulation of Atmosphere; Horizontal and Vertical Distribution of Temperature.

Unit III

The Mechanism of Precipitation Formation: Types and Distribution; Air Masses: Concept and Classification; Fronts and Associated Weather Conditions; Cyclones: Tropical and Temperate.

Unit IV

Concepts of the Origin of Monsoons: Thermal, Dynamic and Recent Concept; Jet-Streams; El-Nino-La-Nina; Distribution and Characteristics of Rainfall in India.

Unit V

General Climatic Classification of the World; Climatic Classification: Koppen and Thornthwaite; Climate Change; Applied Climatology: Climate and Agriculture, Climate and Urbanization.

Suggested Readings

1. Barry, R.C. and Carleton, M. (2001): Synoptic and Dynamic Climatology. Routledge, London.
2. Chorley, R.J. (2001): Atmosphere, Weather and Climate. Methuen, London.
3. Finchm J.C. and Trewartha, G.T.: Elements of Weather and Climate. Prentice-Hall, London.
4. Gupta, S.L. (2000): *Jalvayu Vighyan*. Vishvidayalaya Prakashan. Varanasi.
5. Kendrew, W.C. (1998): Climatology (5th edition). Edward Arnold, London.
6. Lal, D. S. (2010): Climatology. Sharda Pustak Bhaval, Prayagraj.
7. Robinson, P.J. and Henderson, S. (1999): Contemporary Climatology (2nd edition). Pearson Education Ltd., Harlow, UK.
8. Singh, M.B. (1998): *Jalvayu Avam Samudra Vigyan*. Tara Book Agency, Varanasi.
9. Singh, M.B. (1999): *Jalvayu Avam Jal Vigyan*. Tara Book Agency, Varanasi.
10. Singh, S. (2005): Climatology. Prayag Pustak Bhawan. Prayagraj.
11. Singh, S. (2005): *Jalvayu Vigyan*. Prayag Pustak Bhawan. Prayagraj.

Semester- V
Major Theory

Paper Code	Paper Name	Credit: 04
GOGMT- 502	Rural Settlement Geography	Contact hours: 60

Objectives

1. To familiarize the students with rural settlement geography's concepts, approaches, and scope.
2. To acquaint the students with the evolution, patterns, dispersion, and morphology of rural settlements and rural dwellings.
3. To describe Indian villages in the context of social and morphological patterns.

Learning Outcomes

1. The students will be able to comprehend basic concepts, characteristics, and patterns of rural settlements in socioeconomic and environmental terms.
2. The students will be able to understand village morphology and processes of settlement diffusion.
3. The students will be able to learn about the housing ground plans, architectural style, and construction materials in the context of society and environmental relations.

Unit I

Meaning and Scope of Rural Settlement Geography; Approaches and Principles of Rural Settlement Study; Concepts of Village and Rural; Human Settlement as a System.

Unit II

Evolution and Growth of Rural Settlements; Theories and Models of Settlement Diffusion: Eric Bylund (Sweden), Gunnar Olsson (Sweden), David Grossman (Nigeria), and John Hudson (USA).

Unit III

Types and Patterns of Rural Settlements; Size, Spacing and Dispersion of Rural Settlements; Village Histogenesis and Morphology.

Unit IV

Rural Dwellings: Traditional Rural House Types, Typology of Rural Houses based on Building Materials, Plans and Architectural Style; House Types and Ground Plans of Houses in India; House Types and their Characteristics in Monsoon Asia.

Unit V

Indian Villages: Characteristics and Morphology; Morphological Interaction Models: Religio-ritual, Secular Dominance and Economic Space; Tribal Settlements in Central India: Characteristics, Organisation of Rural Space, Village Morphology and House Ground Plan.

Suggested Readings

1. Bansal, S.C. (2015): Rural Settlement Geography (in Hindi), Meenakshi Publication, Meerut.
2. Daniel, P. (2002): Geography of Settlement, Rawat Publications, Jaipur and New Delhi.
3. Ghosh, S. (1999): A Geography of Settlements, Orient Longman, Kolkata.
4. Hudson, F. S. (1976): A Geography of Settlements, MacDonald and Evans, New York.
5. Mandal, R.B. (2001): Introduction to Rural Settlement, Concept Publishing Company, New Delhi.
6. Mitra, A. (1960): Report on House Types and Village Settlement Patterns in India, Publication Division, Govt. of India, New Delhi.
7. Mosley, M.J. (2005): Rural Development- Principles and Practice, Sage Publications, London.
8. Oliver, P. (1987): Dwellings- The House across the World, University of Texas Press, Austin.
9. Rapoport, A. (1969): House, Form and Culture, Prentice-Hall, Inc., Englewood Cliffs, NJ.
10. Rykwert, J. (ed.) (2004): Settlements, University of Pennsylvania Press, University Park, USA.
11. Singh, R. L., Singh, K.N. and Singh, Rana P.B. (eds.) (1975): Readings in Rural Settlement Geography, National Geographical Society of India, Varanasi.
12. Singh, R.L. (eds.) (1973): Rural Settlements in Monsoon Asia, National Geographical Society of India, Varanasi.
13. Singh, R.L., Singh, K.N., and Singh Rana, P.B. (eds.) (1976): Geographic Dimensions of Rural Settlements, National Geographical Society of India, Varanasi.
14. Singh, R.Y. (2005): Geography of Settlements, Rawat Publications, Jaipur and New Delhi.
15. Singh, Rana P.B. and Singh, R.B. (1981): Changing Frontiers of Indian Village Ecology, National Geographical Society of India, Varanasi, Pub. 27.
16. Singh, S.B. (1977): Rural Settlement Geography, U.B.B.P. Publications, Gorakhpur.
17. Sinha, V.N.P., Verma, U. and Sahay, A. (2017): Introduction to Settlement Geography, Rajesh Publication, New Delhi.
18. Tiwari, R. C. (2000): Settlement Geography (in Hindi), Prayag Pustak Bhawan, Allahabad.
19. Wanmali, S. (1983): Service Centres in Rural India, B.R. Publications Corporation, New Delhi.
20. Wood, M. (2005): Rural Geography- Processes, Responses and Experiences of Rural Restructuring, Sage Publications, London.

Semester-V
Major Theory

Paper Code
GOGMT- 503

Paper Name
Agriculture Geography

Credit: 04
Contact Hours: 60

Objectives

1. This course introduces the students to the nature and origin of agriculture and its regions.
2. The course examines the questions related to agricultural development and productivity in India.
3. It also critically evaluates the environmental consequences, emerging perspectives, policies, and interventions aimed at sustainable agriculture.

Learning Outcomes

1. The students will be able to understand and analyze the historical perspective of agriculture.
2. They will be able to analyze agriculture productivity, development and its impacts on various sectors.
3. The students will be able to get updated knowledge of contemporary issues and strategies.

Unit I

Nature, Scope, Concept and Significance of Agriculture Geography; Approaches to the Study of Agricultural Geography; Origin and Dispersion of Agriculture.

Unit II

Concepts and Their Measurements: Cropping Pattern, Crop Combination, Cropping Intensity and Agricultural Productivity.

Unit III

Von Thunen's Agricultural Location Model, Whittlesey's Classification of Agricultural Systems and Kostrowicki's Agricultural Typology.

Unit IV

Agriculture in India: Land Use Pattern and its Determinants; Agro-Climatic Regions of India; Agricultural Policy in India.

Unit V

Modernization of Indian Agriculture; Contemporary Issues: Food, Nutrition, Food Security and Poverty; Agricultural Problems and their Management in India; Land Evaluation and Land Capability.

Suggested Readings

1. Gautam, Alka (2016): Agricultural geography. Sharda Pustak Bhawan. Prayagraj.
2. Gregor, H. P. (1970): Geography of Agriculture. Prentice Hall, New York,
3. Grigg, D.B., The Agricultural Systems of the World: An Evolutionary Approach, Cambridge University Press, Cambridge, 1978.
4. Hussain, M. (1996): Systematic Agricultural Geography, Rawat Publications, Jaipur.
5. Hussain, Majid (2010): Agricultural Geography. Concept Publications, New Delhi.
6. Ilbery. B. W., Agricultural Geography, Oxford University Press, Oxford, 1985.
7. Mannion, A. M. (1995): Agriculture and Environment Change. John Wiley, London.
8. Morgan, B.W. and Munton, J.C., (1971): Agricultural Geography, Methuen, London.
9. Pandey, J.N. and Kamlesh S.R., (2012): *Krishi Bhugol*. Vasundhra Publication, Gorakhpur.
10. Sauer, C.O. (1969): Agricultural Origins and Dispersals. M.I.T. Press, Mass, U.S.A.
11. Shafi Mohammad (2006): Agricultural Geography, Dorling Kindersley (India), Delhi.
12. Singh, J. and Dhillon, S.S. (1988): Agricultural Geography. Tata McGraw-Hill Pub., New Delhi.
13. Singh, U.B. (2009): Agricultural Geography. Kedarnath & Ramnath Publication, Meerut.
14. Symons, L. (1967): Agricultural Geography, G. Bell, London.
15. Tarrant, J.R. (1974): Agricultural Geography. Wiley New York.
16. Tarrant, J.R. (1974): Agricultural Geography, Davis and Charles, Newton Abbot.
17. Tiwari, R.C. & Singh, B.N. (2023): Agriculture Geography. Pravalika Publications, Prayagraj.

Semester- V

Major Practical

Paper Code	Paper Name	Credit: 02
GOGMP- 504	Interpretation of Weather Maps	Contact Hours: 45

Objectives

1. To understand the weather map and conventional weather symbols.
2. To understand the construction of climatic diagrams and perform interpretation of weather maps.

Learning Outcomes

1. Students will be able to analyse the weather map and conventional weather symbols.
2. Students will be able to understand the construction of climatic diagrams and interpretation of weather maps.

Unit I

Introduction to Weather Maps; Elements of Weather and Climate; Conventional Weather Symbols and their Representation.

Unit II

Climograph; Hythergraph; Simple Wind Rose Diagrams; Wind and Visibility Rose Diagrams.

Unit III

Weather Maps: Interpretation and Forecasting (Indian Daily Weather Maps).

Suggested Readings

1. Mishra, R.P. and Ramesh A. (1989): Fundamentals of Cartography. Concept Publishing Company, New Delhi.
2. Natrajan, V. (1976): Advanced Surveying. B.I. Publications, Mumbai.
3. Pugh, J.C. (1975): Surveying for Field Scientists. Methuen and Company Ltd., London.
4. Punmia, B.C. (1994): Surveying (Vol I). Laxmi Publications Private Ltd, New Delhi.
5. Raisz, E. (1962): Principles of Cartography. McGraw Hill, New York.
6. Robinson, A. H., Sale, R., Morrison, J. and Muehrcke, P.C. (1984): Elements of Cartography (5th edition). John Wiley and Sons, New York.
7. Sarkar, Ashis. (2013): Quantitative Geography- Techniques and Presentation. Orient BlackSwan, New Delhi.
8. Sharma, J.P. (2001): *Prayogik Bhugol* (3rd edition). Rastogi Publication, Meerut.

Semester- V

Minor Theory

Paper Code	Paper Name	Credit: 04
GOGMI- 505	Political Geography	Contact Hours: 60

Objectives

1. To introduce the concepts and theories of Political Geography.
2. To discuss the contemporary geopolitical issues.

Learning Outcomes

1. Students will be able to understand theories of Political Geography.
2. Students will be able to appreciate the contemporary geopolitical issues.

Unit I

Meaning, Scope and Approaches of Political Geography; Evolution of the Concept of Geopolitics.

Unit II

Geopolitical Theories: Alfred Thayer Mahan's Theory, Mackinder's Heartland, Spykman's Rimland and Stephen B. Jones's Unified Field Theory.

Unit III

Geopolitical World Orders: Imperialist and Cold War Geopolitics, Emergence of New World Order; Geography of International Terrorism.

Unit IV

Geography of International Terrorism; International Water Sharing Disputes, World Oil Crisis.

Unit V

Contemporary Issues in Global Geopolitics: Israel-Palestine Conflict, Border Disputes of India, Other Contemporary Issues.

Suggested Readings

1. Agnew, J. A., Mitchell, K., and Toal, G. (Eds.). (2008): A Companion to Political Geography. John Wiley and Sons.
2. Agnew, J. A. (2000): Global Political Geography beyond Geopolitics. *International Studies Review*, *2*(1), 91-99.
3. Dalby, S., and Tuathail, G. O. (Eds.). (2002): Rethinking Geopolitics. Routledge.
4. Riches, C., and Palmowski, J. (2021): A Dictionary of Contemporary World History. Oxford University Press.
5. Baylis, J., Wirtz, J. J., and Johnson, J. L. (Eds.). (2022): *Strategy in the contemporary world.* Oxford University Press.
6. Cox, K.R. (2022): Political Geography- Territory, State and Society Wiley-Blackwell
7. Adhikari, S. (2017). Political Geography, Rawat Books
8. R. L. Dwivedi and H. N. Misra (2019): Fundamentals of Political Geography, Surjeet Publications.
9. Dixit, R. D. (2020). Political Geography: Politics of Place and Spatiality of Politics, Macmillan Education, Noida, India.
10. Smith, S. (2020). Political Geography- A Critical Introduction (Critical Introductions to Geography).

Semester- V

Paper Code	Paper Name	Credit: 02
GOGINT- 506	Internship	Contact Hours: 45

Objectives

1. To provide practical experiences, develop their skill and explore career options.
2. To gain theoretical knowledge to real world situation and build professional efficiency.

Learning Outcomes

1. Students will able to gain practical experiences through real world situations.
2. Students will able to develop skill and explore career options.

Note:

1. Students will do an internship related to their subject domain in this semester.
2. Each student will be allotted a supervisor/guide/for his work who will assign the topic to the student.
3. It is mandatory for each student to engage in the Internship and engagement for minimum 10 days
4. Each student has to prepare own report in a prescribed format and submit to the department for evaluation and the viva-voce examination.

Semester- VI
Major Theory

Paper Code
GOGMT- 601

Paper Name
Natural Hazards and Disaster Management

Credit: 04
Contact Hours: 60

Objectives

1. The aim is to understand and evaluate the impacts of natural hazards and disasters.
2. To know the mitigation and preparedness of natural hazards and disasters.

Learning Outcomes

1. After completing the course, students will be able to understand and evaluate the impacts of natural hazards and disasters.
2. At the end of the course, the students will be able to learn how to mitigate and preparedness for natural hazards and disasters.

Unit I

Natural Hazards: Concept, Types and Causes of Hazards, Theories of Disaster.

Unit II

Natural Disasters: Concept, Types, Causes, Distribution and Impacts.

Unit III

Man-made Disasters: Concept, Types, Causes and Impacts. Case Studies on Man-Made Disasters: World War I & II, Partition of India, Bhopal Gas Tragedy.

Unit IV

Hazards and Disasters: Risk and Vulnerability, Destructions and Damages by the Hazards, Displacement and Economic Activities.

Unit V

Disaster Management: Mitigation and Preparedness, Damage Assessment, Monitoring, Disaster Mapping, Reconstruction and Rehabilitation and Case Studies in Disaster Response and Relief, Disaster Management in India.

Suggested Readings

1. Blaikie, P., Cannon, T., Davis, I., et al. (1994): At Risk: Natural Hazards, People's Vulnerability, Routledge, London.
2. Burton, I., Kates, R.W. and White, G.F., (1993): Environment as Hazards, 2nd ed., Guilford Press, New York.
3. Hewitt, K. (1997): Regions of Risk- A Geographical Introduction to Disasters, Longman, London.
4. Godschalk, D.R. (et. al.) (1999): Natural Hazard Mitigation: Recasting Disaster Policy and Planning, Island Press, Washington, D.C.
5. Smith, Keith (1996): Environmental hazards; Assessing Risk and Reducing Disaster, Routledge, London and New York.
6. Gupta, Vishwajit (2006): Natural Disaster and Environment, S.S. Publications, New Delhi.
7. Paul, Bimal K. (2011): Environmental hazards and Disasters, Wiley-Blackwell, Oxford, UK.
8. Coppola, D. P. (2006): *Introduction to international disaster management*. Elsevier.
9. Van Oosterom, P., Zlatanova, S., & Fendel, E. (Eds.). (2006): *Geo-information for disaster management*. Springer Science & Business Media.
10. Moe, T. L., & Pathranarakul, P. (2006): An integrated approach to natural disaster management. *Disaster Prevention and Management: An International Journal*.
11. Singh, R. B. (Ed.). (2006): *Natural hazards and disaster management: vulnerability and mitigation*. Rawat Publications.
12. Hoffman, S. M., & Oliver-Smith, A. (Eds.). (2002). *Catastrophe & culture: the anthropology of disaster* (p. 113). Santa Fe, NM: School of American Research Press.

Semester- VI

Major Theory

Paper Code	Paper Name	Credit: 04
GOGMT 602	**Environmental Geography**	Contact Hours: 60

Objectives

1. To demonstrate knowledge of basic concepts of environment and ecology.
2. To discuss the environmental problems and relevant management strategies.
3. To describe the different environmental monitoring and management policies.

Learning Outcomes

1. Students will be able to appreciate the basic concepts of environment and ecology.
2. Students will be able to understand the environmental problems and relevant management strategies.
3. Students will be able to understand the different environmental monitoring and management policies.

Unit I

Meaning and Scope of Environmental Geography; Approaches to Study of Environment; Types of Environments; Ecosystem: Concept, Structure and Functions.

Unit II

Basic Ecological Principles; Biogeochemical Cycle: Carbon, Nitrogen and Oxygen; Biomes and Biomass.

Unit III

Concept of Biodiversity; Losses of Biodiversity and its Conservation; Environmental Pollution and its Management: Air and Water.

Unit IV

Classification of Natural Hazards and Disasters; Natural Hazards: Landslides, Floods and Earthquakes; Global Warming; Green House Effects; Impacts of Climate Change.

Unit V

Environmental Monitoring and Management; Environmental Impact Assessment (EIA); Environmental Policy and Legislation of India; Environmental Movements: Chipko and Narmada.

Suggested Readings

1. Anjuneyulu, Y. (2002): Environmental Impact Assessment Methodologies. B. S. Publication,Hyderabad.
2. Anjuneyulu, Y. (2004): Introduction to Environmental Science. B.S. Pub., Hyderabad.
3. Athavale, R.N. (2003): Water Harvesting and Sustainable Supply in India. Rawat Publications, Jaipur.
4. Gautam, A. (2007): Environmental Geography. Sharda Pustak Bhawan, Prayagraj
5. Huggett, R.J. (1998): Fundamental of Biogeography. Routledge, London.
6. Kayastha, S.L. and Kumra, V.K. (1986): Environmental Studies. Tara Book Agency, Varanasi.
7. Khoshoo, T. N. (1981): Environmental Concerns and Strategies. Ashish Publishing House, New Delhi.
8. Kumra, V.K. (1982): Kanpur City: A Study in Environmental Pollution. Tara Book Agency, Varanasi.
9. Nag, P., Kumra, V.K. and Singh, J. (1990): Geography and Environmental Issues at Local, Regional and National Levels (3 vols.). Concept Publishing Company, New Delhi.
10. Odum, E.P. (1975): Ecology. Rowman and Littlefield, Lanham USA.
11. Rajagopalan, R. (2005): Environmental Studies: From Crisis to Cure. Oxford University Press, N. Delhi.
12. Saxena, H.M. (2004): Environmental Management. Rawat Publications, Jaipur and New Delhi.
13. Singh, J (2001): *Paryavaran Evam Samvikas*. Gyanodaya Prakashan, Gorakhpur.
14. Singh, R. B. (ed.) (1990): Environmental Geography. Heritage Publication, New Delhi.
15. Singh, S. (2006): Environmental Geography. Prayag Pustak Bhawan, Prayagraj.
16. Singh, S. (2007): *Paryavaran Bhugol*. Prayag Pustak Bhawan, Prayagraj.
17. Singh, S.N. (1993): Elements of Environmental Geography and Ecology (in Hindi). Tara Book Agency, Varanasi.

Semester- VI

Major Theory

Paper Code	Paper Name	Credit: 04
GOGMT-603	Evolution of Geographical Thoughts	Contact Hours: 60

Objectives

1. To develop students' philosophical and historical aptitude in developing geographical ideas, themes, and approaches.
2. To become acquainted with the scholars of different schools of thought.
3. To inform the students about dualism/dichotomies in geography and other contemporary approaches.

Learning Outcomes

1. Students will be able to understand the philosophical basis of geography.
2. Students will be able to comprehend the discipline's historical development.
3. Students will be able to know about the contemporary approaches in geography.

Unit I

Nature and Scope of Geography; Relations of Geography with other disciplines; Concept of Areal Differentiation; Geographical Perspectives of Society-Nature Relations.

Unit II

Geographical Contributions of Greek, Roman, Chinese, and Russian Scholars.

Unit III

Geographical Contributions of Ancient Indian and Arab Scholars; Period of European Renaissance: Explorations and Discoveries; The Contribution of Immanuel Kant.

Unit IV

Classical Period of Modern Geography: Alexander Von Humboldt and Carl Ritter; The Contribution of Ratzel, Vidal de La Blache, H. J. Mackinder, and E.C. Semple.

Unit V

Dualism/ Dichotomies in Geography; Modern and Recent Approaches in Geography: Quantitative, Behavioural, Marxist, Humanistic, Welfare and Postmodernism.

Suggested Readings

1. Adhikari, S. (2015): Fundamentals of Geographical Thoughts, Orient BlackSwan, New Delhi.
2. Dikshit, R.D. (2017): Geographical Thought-A Contextual History of Ideas, Prentice Hall of India, New Delhi. (English and Hindi).
3. Dube, B. (1967): Geographical Concepts in Ancient India, National Geographical Society of India, Varanasi.
4. Hartshorne, R. (1959): Perspective on the Nature of Geography, Rand McNally and Co., Chicago.
5. Hartshorne, R. (1939): Nature of Geography, Johan Murray, London.
6. Harvey, D. (1969): Explanation in Geography, Edward Arnold, London.
7. Holt-Jenson, A. (1980): Geography- Its History and Concepts, Harper and Row, London.
8. Husain, M. (2002): Evolution of Geographical Thought, Rawat Publications, Jaipur.
9. Kaushik, S.D. and Sharma, A.K. (1995): Geographic Thought and Methodology (in Hindi), Rastogi Publication, Meerut.
10. Livingstone, D.N. (1998): Modern Geographical Thought, Blackwell Publishers.
11. Parry, J.H. (1981): Age of Reconnaissance: Discovery, Explanation and Settlement 1450-1650, Berkeley, University of California Press.
12. Peet, R. (2011): Modern Geographical Thoughts, Rawat Publications, Jaipur.
13. Rana, L. (2014): Geographical Thought- Classical to Contemporary, Concept Publishing Company Pvt. Ltd., New Delhi.
14. Singh, A.K. and Dikshit, S.K. (2013): *Bhougolik Chintan Ke Ayam*, Vishwavidhyalaya Prakashan, Varanasi.
15. Singh, J. (2001): *Bhougolik Chintan Ke Mool Adhar*, Gyanodaya Prakashan, Gorakhpur.
16. Stoddart, D.R. (1986): On Geography and its History, Oxford: Basil Blackwell.

Semester- VI

Major Practical

Paper Code	Paper Name	Credit: 04
GOGMP- 604	Map Projections	Contact Hours: 60

Objectives

1. To provide theoretical understand of map projections and their uses.
2. To learn practical aspects of construction of map projections.

Learning Outcomes

1. Students will be able to understand of map projections and their uses.
2. Students will be able learn practical aspects of construction of map projections.

Unit I

Meaning and Classification and Importance of Map Projections; Characteristics of Latitudes, Longitudes and Graticules.

Unit II

Conical Map Projection: Simple with One and Two Standard Parallels, Bonne's and Polyconic.

Unit III

Cylindrical Map Projection: Equidistant, Equal Area, Mercator's Projection and Gall's Projection.

Unit IV

Zenithal Map Projection (Polar Case): Stereographic, Gnomonic and Orthographic.

Unit V

Mollweide's Homolographic Projection, Sinusoidal Projection.

Suggested Readings

1. Hinks, A.R. (1992): Map Projection. Cambridge University Press, London.
2. Monkhouse, F.J. and Wilkinson, F.J. (1985): Maps and Diagrams. Methuen, London.
3. Robinson, A., Sale, R. Morrison, J. and Muehrcke, P.C. (1984): Elements of Cartography. John Wiley and Sons, New York.
4. Sharma, J.P. (2001): *Prayogik Bhugol,* (3rd edition). Rastogi Publication, Meerut.
5. Singh, R.L. and Singh, Rana P. B. (1993): Elements of Practical Geography. (Hindi and English edition) Kalyani Publishers, New Delhi.
6. Steers, J. A. (1965): An Introduction to the Study of Map Projection. University of London Press, London.

Semester- VI
Minor Theory

Paper Code	Paper Name	Credit: 04
GOGMI-606	Water Resource Management	Contact Hours: 60

Objectives

1. To know the water status on the Earth, its components, their current use and sustainable management for living organisms.
2. Know diverse methods of collecting hydrological information essential to understanding surface and groundwater hydrology.

Learning Outcomes

1. After completing the course, students will know the holistic view of the water environment, water circulation and their components.
2. At the end of the course, the students will be able to learn how human activities affect the water cycle and also know various approaches to water resource management for ecology.

Unit I

Perspectives and Key Issues in Water Resources Management; Status of Water on the Earth; Hydrological Cycle: Process, Importance and affecting factors; Hydrological Input & Output.

Unit II

Precipitation: Types and Characteristics; Factors Affecting Evaporation from Water Surface and Soil; Affecting Factors of Evapotranspiration.

Unit III

Meaning and Affecting Factors of Infiltration; Surface Runoff: Source and Components; Factors Affecting Runoff.

Unit IV

Groundwater Recharge; Artificial Groundwater Recharge; Aquifer Storage and Recovery; Uses of Water Resources: Domestic, Agriculture, Industrial, Transportation, Construction areas.

Unit V

Methods of Management of Water Resources: Rainwater Harvesting, Desilting, Drip/Shower Irrigation System, Greywater Systems, Sewage Treatment Plant, Desalination and Behavioural Practices; Conjunctive Use of Water.

Suggested Readings

1. Chatterjee, S.N. (2020): Water Resources, Conservation & Management. Atlantic Publishers and Distributors, Ltd.
2. Chorley, R.J. (1967): Introduction to Physical Hydrology, Methuen, London.
3. Chow, V.T. (1980): Applied Hydrology, McGraw-Hill Book Company.
4. Das, M.M. and Saikia, M.D. (2009): Hydrology, PHI Learning Private Limited, Delhi.
5. Gupta, B. L. and Gupta, Amit (2008): Water Resources Systems & Management. Standard Publishers Distributors.
6. Karnath, K.R. (1990): Ground Water Assessment, Development and Management, Tata McGraw-Hill Publishing Co. Ltd., New Delhi.
7. Kateja, Alpana (2018): Water Resource Management: Problems and Prospects. Rawat Publications.
8. Prasad, H. and Abate, K. (2005): Sustainable Management of Water Resources: Issues and Challenges, Tara Publications, Varanasi, India.
9. Reddy, P.J. (1986): A Text Book of Hydrology, Lakshmi Publications, New Delhi.
10. Singh, M.B. (1999): Climatology and Hydrology, Tara Book Agency, Varanasi.
11. Singh, Savindra (2015): Fundamentals of Hydrology, Pravalika Publications, Allahabad.
12. Spoon, Raven (2017): Integrated Water Resources Management. Callisto Reference.
13. Todd, D.K. and Mays, L.W. (2003) Groundwater Hydrology, Wiley Publications.

Semester- VII

Major Theory

Paper Code	Paper Name	Credit: 04
GOGMT-701	Research Methodology	Contact Hours: 60

Objectives

1. To familiarize students with the Identification and selection of research problems in Geography.
2. To acquaint students with different research methods and techniques applicable in Geography.
3. To enable students to understand the data collection tools, procedures, and data processing and analysis. Students further familiarize themselves with the report writing.

Learning Outcomes

1. Students will be able to understand geography's research problems and their selection.
2. Students will be able to understand the tools of data collection and their procedures for different research themes in Geography.
3. Students will be able to learn different methods and techniques of data processing and analysis applicable in the discipline. They are also able to write the research report.

Unit I

Meaning and Characteristics of Research; Steps in Research Process; Selection of the Research Problem; Identification of Objectives and Formulation of Research Questions/Hypotheses; Literature Review.

Unit II

Methods of Research: Basic, Applied, and Action Research; Approaches of Research: Qualitative, Quantitative, Inductive, and Deductive; Drafting a Research Proposal.

Unit III

Research Design: Variables and Their Selection; Tools of Primary Data Collection: Questionnaire and Schedule (Characteristics, Qualities, and Preparation).

Unit IV

Meaning of Population and Sample; Determination of Sample Size; Sampling Techniques: Probability and Non-Probability; Measurement Scales of Data, Data Processing: Editing, Coding, Organization and Classification; Analysis of Data and their Representation.

Unit V

Report Writing: Preliminary Section, Content Section, Chapters, Supplementary Section (Appendices, References, Abstract), Format and Style of Referencing.

Suggested Readings

1. Agrawal, Y. P. (1988): Better Sampling: Concepts, Techniques and Evaluation. Sterling Publishers Private Ltd., New Delhi.
2. Broota, K. D. (1992): Experimental Design in Behavioral Research (2nd ed.). Wiley EasternLimited, New Delhi.
3. David de Vaus. (2014): Survey in Social Research (Sixth Edition). Routledge Publication.
4. Edwards, A. L. (1957): Techniques of Attitude Scale construction. Appleton-Country, New York.
5. Garrett, H. E. and Woodworth, R. S. (1969): Statistics in Psychology and Education. Vakils, Feeffer and Simons Pvt. Ltd. Bombay.
6. Goode, W. J. and Hatt, Paul K. (1952): Methods in Social Research. McGraw-Hill, New York.
7. Gopal, M. H. (1964): An Introduction to Research Procedure in Social Sciences. Bombay AsiaPublishing House.
8. John. W. (1993): Research in Education (6th ed.), Prentice-Hall of India Pvt. Ltd, New Delhi.
9. Kumar, Ranjit. (2011): Research Methodology: A Step-by-Step Guide for Beginners. LosAngeles: SAGE.
10. Payne, Geoff and Payne, Judy. (2005): Key Concepts in Social Research. Sage Publications,London.
11. Rawntree, D. (2018): Statistics without Tears, Penguin Books.
12. Sahu, P. K. (2013): Research methodology: A Guide for Researchers in Agricultural Science, Social Science and other Related Fields (Vol. 432). Nadia: Springer.
13. Sansanwal, D.N. (2020): Research Methodology and Applied Statistics, Shipra Publications.

Semester-VII
Major Theory

Paper Code	Paper Name	Credit: 04
GOGMT-702	Emerging Geographical Thoughts	Contact hours: 60

Objectives

1. To familiarize students with emerging geographical concepts, ideas, approaches, and philosophy.
2. To acquaint students with the locational analysis, models, and systems in geography.
3. To enable students to learn about contemporary trends and advancements in geography.

Learning Outcomes

1. Students will be able to understand and apply geography's recent theoretical and philosophical aspects.
2. Students will be able to learn systematically about the growth, development, philosophical influences, and relevance of geography from the 1950s to the present.
3. Students will be able to describe the theoretical and philosophical traditions and methodological standpoints of leading geographers.

Unit I

Nature and Scope of Geography, Aims and Approaches of Geography; Modern Schools of Geographical Thought.

Unit II

Concept of Chorology; Concepts of Space and Place; Concept and Classification of Regions; Geography as a Science of Morphology of Landscape.

Unit III

Modern Trends: Philosophy of Positivism, Quantitative Revolution, Locational Analysis, Models and System Analysis.

Unit IV

Contemporary Geographical Approaches: Behavioural, Radical, Marxist, Humanist, Structural and Post-modernism.

Unit V

Cultural Turn in Geography; Concept of Development and Sustainable Development; Changing Paradigms in Geography; Contemporary Trends in Indian Geography.

Suggested Readings

1. Adhikari, S. (2015): Fundamentals of Geographical Thoughts, Orient BlackSwan, New Delhi.
2. Amedeo, D. (1971): An Introduction to Scientific Reasoning in Geography, John Wiley, USA.
3. Barnes, T.&Gregory, D.(eds.)(1997): Readings in Human Geography-The Poetics and Politics of Inquiry, Arnold, London.
4. Bunkse, E. V. (2004): Geography and the Art of Life, Johns Hopkins University Press, Baltimore.
5. Buttimer, A. (1971): Society and Milieu in the French Geographic Tradition, Rand McNally, Chicago.
6. Dear, M. J. and Flusty, S. (2002): The Spaces of Postmodernity- Reading in Human Geography, Blackwell Pub., Oxford.
7. Dikshit, R. D. (2017): Geographical Thought- A Contextual History of Ideas, Prentice-Hall of India, Delhi.
8. Dikshit, R.D. (ed.) (1959): The Art and Science of Geography, Rand Me Nally & Co.
9. Doel, M. (1999): Poststructuralist Geographies-The Diabolical Art of Spatial Science, Edinburgh Uity. Press, Edinburgh.
10. Hartshorne, R. (1959): Perspectives on Nature of Geography, Rand Me Nally & Co.
11. Harvey, D. (1969): Explanation in Geography, Arnold, London.
12. Harvey, H. E. and Holly, P.B. (2002): Themes in Geographic Thought, Rawat Publications, Jaipur and New Delhi.
13. Holt-Jenson, A. (1980): Geography- Its History and Concepts, Harper and Row, London.
14. Hubbard, P., Kitchin, R., Bartley, B. and Fuller, D. (2002): Thinking Geographically- Space, Theory and Contemporary Human Geography, Continuum, London.
15. Husain, M. (1984): Evolution of Geographic Thought, Rawat Publication, Jaipur.
16. Johnston, R.J. (1983): Philosophy and Human Geography, Edward Arnold, London.
17. Johnston, R.J. (2003): The Future of Geography, Methuen and Company Ltd., New York.
18. Johnston, R.J. and Sidaway, J.D. (2004): Geography and Geographers (6th edition), Edward Arnold, London.
19. Kaushik, S.D. (2003): Geographical Thought and Methodology (in Hindi), Rastogi Publication, Meerut.
20. Livingstone, D.N. (1998): Modern Geographical Thought, Blackwell Publishers.
21. Martin, G.J. (2005): All Possible Worlds, Oxford University Press, London.
22. Minshull, R. (1970): The Changing Nature of Geography, Hutchinson University Library, London.
23. Peet, R. (2011): Modern Geographical Thoughts, Rawat Publications, Jaipur.
24. Rana, L. (2014): Geographical Thoughts- Classical to Contemporary, Concept Publishing Company. Ltd., New Delhi.
25. Samuel's M.S. eds. (1978): Humanistic Geography-Problems and Prospects, Maroufa Press, Chicago.

Semester-VII
Major Practical

Paper Code
GOGMP-703

Credit: 04
Contact Hours: 60

Paper Name
Quantitative Methods and Techniques

Objectives

1. To know the various statistical methods in geographical research.
2. To know the analysis of the calculation results of various quantitative methods in geography.

Learning Outcomes

1. After completing the course, students will know the calculation and utilization of quantitative methods.
2. At the end of the course, the students will be able to learn how to analyse the result of the calculation.

Unit I

Geographical Survey: Meaning, Importance and Process of Questionnaire; Differences between Different Methods of Survey; Sources of Quantitative Data Collection: Primary and Secondary.

Unit II

Sampling: Meaning, Definition and Importance; Probability Sampling: Simple Random, Stratified Random, Systematic and Cluster; Non- Non-Probability Sampling: Convenience, Judgement, Quota and Snowball.

Unit III

Theory of Distribution: Normal Distribution, Properties, Computation and its Limitations.

Unit IV

Hypothesis: Meaning, Types and Procedure of Testing Hypothesis; Test of Significance: Chi-Square Test, Student 't' Test, Analysis of Variance.

Unit V

Time Series Analysis; Component of Time Series Analysis; Application of Remote Sensing and GIS in Geographical Research.

Suggested Readings

1. Ahuja, R. (2001): Research Methods, Rawat Publication. Jaipur and New Delhi.
2. Bhattacharyya, D.K. (2005): Research Methodology. Excel Books, New Delhi.
3. Denzin, N. K. and Lincoln, Y.S., (eds.) (2000): Handbook of Qualitative Research. Thousand Oaks, CA. Sage Publications.
4. Eyles J. and Smith D. M. (1988): Qualitative Methods in Human Geography. Polity Press, Dales Brewering, Cambridge.
5. Flowerdew, R. and Martin, D. (eds.) (1997): Methods in Geography. A Guide for Students Doing a Research Project, Longman Harlow.
6. Hay, I. (ed.) (2000): Qualitative Research Methods in Human Geography. Oxford University Press, New York.
7. Kitchin, R. and Tata, N., (2001): Conducting Research into Human Geography: Theory, Methodology and Practice. Prentice-Hall, London.
8. Limb, M. (2001): Qualitative Methodologies for Geographers: Issues and Debates. Edward Arnold, London.
9. Longley, P., Goodchild, M.F., Maguire, D. and Rhind, D. (1999): Geographic Information Systems: Principles, Techniques, Management, Applications. John Wiley and Sons, New York.
10. Mikkelsen, B. (2005): Methods for Development Work and Research: A New Guide for Practitioners. Sage Publications, London.
11. O'Leary, Z. (2005): The Essential Guide in Doing Research. Vistaar Publication, New Delhi.
12. Peet, R. and Thrift, N. (ed) (2002): New Models in Geography (2 vols.). Rawat Publishers, Jaipur and New Delhi.
13. Robson, C. (1993): Real World Research: A Resource for Social Scientists and Practitioners- Researchers. Blackwell Publishers, Oxford.

Semester- VII

Major Practical

Paper Code	Paper Name	Credit: 04
GOGMP 704	Field Study Tour	Contact Hours: 60

Objective

To provide students with field learning opportunities outside of the classroom setting, allowing them to observe, analyze, and understand geographical processes, and phenomena in diversified natural and social environment.

Learning Outcome

Students will be able to learn about geographical phenomena through their field experiences. They will also prepare themselves how to write field report.

1. Field study tour of any Regions of India based on physical and socio-economic aspects.
2. Tour will be 10 to 15 days.
3. Students will prepare their own field report and appear in the viva -voce examination.

NOTE: If any student fails to attend the field study tour in unavoidable circumstances, then he/she can be given a Village or Town for Socio-Economic Survey/ Land Use study or Morphological Studies. Student must submit his/her report to the concerning teacher and will appear in Viva-Voce for the award of field study tour marks.

Suggested Readings

1. Archer, J.E. and Dalton, T.H. (1968): Field Work in Geography. William Clowes and Sons Ltd. London and Beccles.
2. Hay, Iain (ed.) (2005): Qualitative Research Methods in Human Geography. Oxford University Press, Melbourne. 2nd Ed.
3. Kitchen, Rob and Tate, Nicholas J. (2009): Conducting Research into Human Geography: Theory, Methodology & Practice. Prentice Hall-Pearson, Harlow U.K. 2nd Ed.
4. Mishra,R,N. and Shatrma, P.K. (2023): Practical Geography Methods and Techniques. Pareek Publication, Jaipur.
5. Pugh, J.C. (1975): Surveying for Field Scientists. Methuen and Company Ltd. London.
6. Parsons, Tony and Knight, Peter G. (2005): How to do your Dissertation in Geography and Related Disciplines. Routledge, London. 2nd Ed.
7. Stoddard, Robert H. (1982): Field Techniques and Research Methods in Geography. Kendall/Hunt Pub. Dubuque IO.

Semester- VII
Minor Theory

Paper Code	**Paper Name**	**Credit: 04**
GOGMI-705	**Climatology**	**Contact Hours: 60**

Objectives

1. To provide students with a comprehensive knowledge of climatology and relationship with meteorology.
2. To understand the general circulation of the atmosphere and mechanism of monsoon.
3. To understand the extreme events and their impacts.

Learning Outcomes

1. The students will be able to understand the earth's climate and relationship with meteorology.
2. The students will be able to comprehend the circulation of the atmosphere and mechanism of monsoon
3. The students will be able to understand the extreme events and their impacts.

Unit I

Nature and Scope of Climatology and its Relationship with Meteorology, Composition and Structure of Atmosphere.

Unit II

General Circulation of the Atmosphere, Local and Seasonal Winds, Insolation: Factors affecting the Distribution of Insolation.

Unit III

Atmospheric Depletion of Solar Radiation, Process of Heat Energy Transfer, Heat Budget, Clouds: Formation and Classification.

Unit IV

Ocean- Atmospheric Interaction, Mechanism of Monsoon: Jet- Streams, Southern Oscillation, El-Nino, La-Nina. Concept of Air Masses and Fronts, Origin of Cyclones: Tropical and Temperate, Anticyclones.

Unit V

Climatic Classification of Koppen, Thornthwaite, Human Impact on Global Climate, Global Warming.

Suggested Readings

1. Barry, R.G. and Chorley P.J. (1998): Atmosphere, Weather and Climate, Routledge, London and New York.
2. Richfield, J.H. (1993): General Climatology, Prentice Hall, India, New York.
3. Das, P.K. (1987): Monsoons National Trust, New Delhi.
4. Fein. J.S. and Stephens, P.N. (1987): Monsoons. Wiley Inter science.
5. Lal. D.S. (1986): Climatology Chaitanya Publication, Allahabad.
6. Lydolph, P.E. (1985): The Climate of the Earth, Rowman.
7. Menon, P.A. (1989): Our Weather, N.B.T., New Delhi.
8. Robinson, P.J. and Henderson S. (1999): Contemporary Climatology, Henlow.
9. Thompson, R.D. and Perry, A (ed.) (1997): Applied Climatology, Principles and Practice, Routledge, London.
10. Reddy, J.P. (1998): A Textbook of Hydrology, Laxmi Publication, New Delhi. 4th edition.
11. Singh, M.B. (1998): Climatology and Hydrology. Tara Book Agency, Varanasi. (in Hindi).
12. Singh,S. (2018): Climatology. Pravalika Publication, Allahabad,
13. Singh, S. (2008): Jalvay evm Samundra Vigyan. Prayag Pustak Bhavan, Allahabad (In Hindi).
14. Trewartha, G.T. (1980): An Introduction to Climatology. McGraw-Hill Student Edition. New York.
15. Gupta, S. L., Jalvayu Vigyan, (in Hindi), Vishvvidyalaya Prakashan.

Semester- VIII
Major Theory

Course Code
GOGMT- 801

Paper Name
Advanced Geography of India

Credit: 04
Contact Hours: 60

Objectives

1. This course on the geography of India assumes' that the students will be familiar with the basic landforms, climate, soil, vegetation, population, resources and industry characteristics of India.
1. It is a course designed to enable students to broaden and deepen their understanding of India.

Learning Outcomes

1. Students will learn about the physical and resource diversities and interrelationships of India.
2. The spatial variations of mineral and natural biodiversity would help them to increase the vitality and vulnerability of the country.
3. Students will understand India's agricultural, industrial, trade and transport aspects.

Unit I

Introduction, Geological Structure; Physiographic Divisions; Drainage Systems; Climatic Characteristics: Mechanism of the Indian Monsoon.

Unit II

Population Growth: Trends and Patterns; Population: Distribution and Density; Patterns and Trends of Urbanization.

Unit III

Land Use Pattern, Major Crops and their Distribution (Wheat, Rice, Sugarcane, Cotton and Tea), Modernization in Indian Agriculture: Green, White, Yellow Revolutions, Agro-climatic regions in India.

Unit IV

Distribution and Production of Major Minerals (Iron ore, Manganese and Bauxite) and Power Resources (Coal, Petroleum and Natural Gas, Hydroelectricity and Solar).

Unit V

Spatial distribution of Industries (Iron and Steel, Cotton Textile and Sugar), Trade and Transport.

Suggested Readings

1. Chauhan, P.R. & Prasad, M. (2003): *Bharat Ka Vrihad Bhugol*. Vasundhara Prakashan, Gorakhpur.
2. Gautam, Alka: Advanced Geography of India. Sarada Pustak Bhawan, Prayagraj.
3. Husain, Majid (2015): Geography of India, McGraw-Hill publication, New Delhi.
4. Khullar, D.R. (2007): India. A Comprehensive Geography, Kalyani Publishers, New Delhi.
5. Krishnan, M.S. (1968): Geology of India and Burma. 4th edition, Higgins Bothams Pvt. Ltd, Madras.
6. Mamoria, Chaturbhuj (2012): Geography of India. Sahitya Bhawan Publication, Agra.
7. Nag. P. and Gupta, S.S. (1992): Geography of India. Concept Publishing Company, New Delhi.
8. Sharma, T. C. (2003): India: Economic and Commercial Geography, Vikas Publication, New Delhi.
9. Singh, J. (2001): *Bharat: Bhaugolik Adhar Avam Ayam*. Gyanodaya Prakashan, Gorakhpur.
10. Singh, J. (2003): India: A Comprehensive & Systematic Geography, Gyanodaya Prakashan, Gorakhpur.
11. Singh, R.L. (ed.) (1971): India A Regional Geography, National Geographical Society of India, Varanasi.
12. Tirtha, R. (2002): Geography of India, Rawat Publications, Jaipur and New Delhi.
13. Tiwari, R. C. (2007): Geography of India, Pustak Bhawan, Allahabad.
14. Tiwari, R.C. (2007): Geography of India. Prayag Pustak Bhawan, Prayagraj.
15. Wadia, D. N. (1959): Geology of India. MacMillan and Company, London and Madras.

Paper Code
GOGMT- 802

Semester- VIII
Major Theory
Paper Name
Population Geography

Credit: 04
Contact Hours: 60

Objectives

1. To introduce the basic concepts of population geography and their measurement.
2. To familiarize the theories of population geography.
3. To analyses the contemporary issues in population geography.

Learning Outcomes

1. Students will be able to understand concepts of population geography.
2. Students will familiarize with the theories of population geography.
3. Students will be able develop understanding of contemporary issues in population geography.

Unit I

Nature and Scope of Population Geography; Sources of Data: Census, Vital Statistics, Population Registers and Sample Surveys; World Population: Distribution and Growth; World Urbanization.

Unit II

Concept and Measures of Fertility, Mortality and Migration.

Unit III

Theories of Population Growth: Malthus and Neo-Malthusian, Ester Boserup, Demographic Transition; Theories of Migration: Ravenstien, Reilly and Everett's Lee.

Unit IV

Population and Resources: Under, Over, Optimum Population; Concepts of Human Development and Human Development Index; Sustainable Development Goals.

Unit V

Concepts and Definitions in Indian Census; Characteristics of Population of India: Age-Sex Structure, Urbanization, Literacy, Social and Religious Profile, Language; National Population Policy-2000.

Suggested Readings

1. Bhende, A. A. and Kanetkar T. (2003): Principles of Population Studies. Himalaya Publishing House, Mumbai.
2. Bose, A. (ed.) (2001): Population in India's Development, 1947-2000. Vikas Publications, New Delhi.
3. Champion, T. (ed.) (1993): Population Matters. Paul Chapman, London.
4. Chandna, R. C. (2006): Geography of Population. Kalyani Publishers, New Delhi.
5. Clark, J.I. (1972): Population Geography. Pergamon Press, Oxford Publication, Jaipur and New Delhi.
6. Ehrlich, P.R. and Ehrlich, A. H. (1996): Eco-science- Population, Resources and Environment (6th ed.). W.H. Freeman and Company, San Francisco.
7. Garnier, B.J. (1993): Geography of Population (3rd edition). Longman, London.
8. Jones, H. R. (2000): Population Geography (3rd edition). Paul Chapman, London.
9. Pathak, L.P. (ed.) (1998): Population Studies. Rawat Publications, Jaipur and New Delhi.
10. Peters, G.L. and Larkin, R.P. (1983): Population Geography. Problems, Concepts and Prospects. Kendall/Hunt, Dubuque, IA.
11. Poston, D. L. and Michael, M. (2005): Handbook of Population, Springer Heidelberg, Germany.
12. Singh, K.N. and Singh, D.N. (eds.) (1992): Population Growth, Environment and Development. EDSC, Varanasi.
13. Srinivasan, K. and Vlassoff, M. (2001): Population Development Nexus in India: Challenges for the New Millennium. Tata McGraw Hill, New Delhi.
14. Trewartha, G.T. (1985): Geography of Population: World Patterns. John Wiley and Sons, New York.
15. Woods, R. (1979): Population Analysis in Geography. Longman, London.

Semester- VIII

Major Theory

Paper Code	Paper Name	Credit: 04
GOGMT-803	Urban Geography	Contact Hours: 60

Objectives

1. To familiarize students with the towns and cities and the complexities of urban landscapes.
2. To supplement theories and models regarding the origin, internal structure, and morphology of cities.
3. To explain urbanization, urban system, urban planning, and governance.

Learning Outcomes

1. Students will be able to comprehend the typology of towns and cities and their structure, functions, and morphology.
2. Students will be able to understand various theories and models, urban systems, and the spatial, societal, and economic processes that operate in urban areas and their surrounding areas.
3. Students will be able to critically analyse contemporary urban problems from a geographical perspective and will understand the urban planning, policies, and programs for urban development.

Unit I

Meaning and Scope of Urban Geography; Theories of Origin of Towns: Gordon Childe, Henri Pirenne and Lewis Mumford; Concepts and Classification of Towns and Cities.

Unit II

Models of Internal Structure of Cities: Burgess, Hoyt, Ullman, Mann, and White; City Models of Latin America, Africa, and South Asia; Morphology of Indian Cities.

Unit III

Trends and Patterns of Urbanisation in the World and India; Functional Classification of Towns; Hierarchy of Urban Settlements; Rank-Size Rule; Concepts of Rural-Urban Fringe and Periurban Area.

Unit IV

Urban Problems: Urban Sprawl, Housing, Slums and Squatters, Pollution, Sanitation, and Solid Waste Generation.

Unit V

Urban Planning: Meaning, Types and Approaches (Garden City, New Town, Urban Renewal, and Master Plan); Urban Development Programmes in India: AMRUT, Smart Cities Mission, Swachh Bharat Mission, and Urban Housing Schemes.

Suggested Readings

1. Ambrose, Peter (1970): Concepts in Geography (Vol. I) Settlement Pattern, Longman.
2. Carter, H. (1973): The Study of Urban Geography, London.
3. Taneja, K.L. (1971): Morphology of Indian Cities, NGSI, Varanasi.
4. Haggett, P., Andrew, D., Cliff and Allen, ed. (1979): Locational Models, Arnold Heinemann.
5. Hall, T. and Barrett, H. (2012): Urban Geography, Routledge, London.
6. Ministry of Urban Development, Govt. of India (2016): Handbook of Urban Statistics.
7. King, L. (1986): Central Place Theory, Saga Publications, New Delhi.
8. Knox, P. and Pinch, S. (2010): Urban Social Geography, Pearson, London.
9. Mandal, R.B. (2001): Urban Geography, Concept Publishing Company, New Delhi.
10. Mayer, M. Harold and Clyde F. Kohn, eds. (1967): Readings in Urban Geography, Central Book Depot, Allahabad.
11. Pacione, M. (2009): Urban Geography-A Global Perspective. Routledge, London and New York.
12. Prakasa, Rao, V.L.S. (1983): Urbanisation in India-Spatial Dimensions, Concept Publishing Co., New Delhi.
13. Ramachandran, R. (1992): Urbanisation and Urban Systems in India, Oxford University Press, New Delhi.
14. Shaw, A. (2012): Indian Cities, Oxford University Press, New Delhi.
15. Singh, O.P. (2016): Urban Geography (in Hindi), Sharda Pustak Bhawan, Allahabad.
16. Tiwari, R.C. (2009): Settlement Geography (Hindi), Prayag Pustak Bhawan, Allahabad.
17. Verma, L.N. (2016): Urban Geography, Rawat Publications, Jaipur.

Semester- VIII
Major Practical

Paper Code	Paper Name	Credit: 04
GOGMP-804	Instrumental Field Survey	Contact Hours: 60

Objectives

1. To inculcate the diverse methods of land surveying methods, their usefulness and drawbacks.
2. To develop an understanding of how this knowledge may be applied in practice for the optimum and efficient utilization of space.

Learning Outcomes

1. The students will be able to explain the basic principles and types of land surveying.
2. The students will be able to know important techniques of situation and relief representation.

Unit I

Surveying: Introduction, Types of Surveying, Precautions and Principles.

Unit II

Nautical Sextant: Introduction, Parts and Functions, Methods and Processing of Surveying, Preparation of Field Book and Plotting.

Unit III

Abney Level: Introduction, Methods and Processing of Surveying, Preparation of Field Book.

Unit IV

Dumpy Level: Introduction, Parts and Functions, Methods and Processing of Surveying, Preparation of Field Book and Plotting.

Unit V

Theodolite: Introduction, Methods and Processing of Surveying, Preparation of Field Book.

Suggested Readings

1. Singh, R.L. and Singh, Rana P.B. (1993): Elements of Practical Geography, (Hindi and English editions), Kalyani Publishers, New Delhi.
2. Kanetker, T.P. and Kulkarni, S.V. (1967): Surveying and Levelling, Vol. I and II, V.G. Prakashan, Poona, India.
3. Natrajan, V. (1976): Advanced Surveying, B.I. Publications, Mumbai.
4. Pugh, J.C. (1975): Surveying for Field Scientists, Methuen and Company Ltd., London, First Edition.
5. Punmia, B.C. (1994): Surveying, Vol I, Laxmi Publications Private Ltd, New Delhi.
6. Shephard, F.A. (1968): Surveying Problems and Solutions, Edward Arnold (Publishers) Ltd, London.

Semester- VIII
Minor Theory

Paper Code
GOGMI-805

Paper Name
Urban Management

Credit: 04
Contact Hours: 60

Objectives

1. To familiarise students with urban management and urban governance in India and abroad.
2. To inform the students about urban infrastructure and related problems
3. To teach students how to overcome various urban issues with effective management

Learning Outcomes

1. Students will be able to understand the structure and the functioning of urban governance.
2. Students will be able to comprehend issues related urban infrastructure and services.
3. Students will be able to address urban issues with their better management

Unit I

Meaning and Scope of Urban Management; Urban Local Government: Nature, Objectives, Importance and Theories (Constitutional Approach, Pluralist Approach and Marxist Approach). Features of Urban Local Governance in USA, Britain and India: Evolution, Structure and Their Functions.

Unit II

Urban Infrastructure Policies and Programmes in India: Water Supply, Health and Sanitation, Drainage, Roads, and Urban Transport.

Unit III

Urban Wastes (Solid, liquid, & hospital) and Their Management (Rules and Regulations). Fiscal Federalism in India; Municipal Financial Resources and Their Mobilization in India.

Unit IV

Urban Development: Renewal, Redevelopment, & Relocation; Urban Housing in an Indian Context; Slums and Their Improvements.

Unit V

Project Management; Mater Planning; Sustainable Urban Management; Disaster Management and Risk Reduction in Urban Areas.

Suggested Readings

1. A. Badshah and J.E. Perlman, (1991): Megacities and the Urban Future, Zed Books, London.
2. A. Ghosh (ed), 2003: Urban Environment Management, Concept, New Delhi.
3. A.K. Mukhopadhyay, (1985): Municipal Personnel System in India, IIPA, New Delhi
4. Arvind K. Sharma, (2004): Bureaucracy and Decentralization, Mittal, New Delhi
5. Avasthi, A P & Avasthi A (2017): Indian Administration, Lakshmi Narayan Agarwal Educational Publishers.
6. B. Mohanty (ed), 2001: Financing the Grassroot Governments, APH, New Delhi. 5. S. Bhatnagar, E-Government, Sage, New Delhi, 2004.

7. B.R. Verma, (1998): Bureaucracy and Administration: Studies in Policy Perspective and Reform, S.Chand & Co., New Delhi
8. Burns, N.E., (1994): The Formation of American Local Governments, OCIP, New York
9. C.P. Barthwal, (2002): Understanding Local Government, Bharat Book, Lucknow.
10. Chan, N. W., Imura, H., Nakamura, A., and Ao, M. (2016): Sustainable Urban Development Textbook, Water Watch Penang and Yokohama City University.
11. Connors, K.O., (1997): American Government (continuity and change), Allyn and Bacon, Boston
12. D.D. Basu, (2024). Introduction to the Constitution of India, 27th Edition, LexisNexis.
13. Hoshiar Singh, (1997): Local Government, Kitab Mahal, Allahabad
14. J. Brotchie, M. Batty, et. al. (eds), 1995: Cities in Competition: Productive and Sustainable Cities for the 21st Century, Longman, Melbourne
15. J. Steward and G. Stroker (ads), 1989: The Future of Local Government, Macmillan, London
16. J.S. Mishra, (2002): A Quest for Dream Cities, Har Anand, New Delhi
17. K. Jain, (1999): Bureaucracy Citizen Interface, Gyan, Delhi.
18. K.R. Gupta (ed), 2004: Urban Development Debates in the New Millennium, Altantic, New Delhi
19. M. Bhattacharya, (1976): Management of Urban Government in India, Uppal, Delhi
20. M.A. Muttalib and A.A. Khan, (1983): Theory of Local Government, Sterling, New Delhi
21. Marnia, Kenzer, (1998): Healthy Cities: A Guide to the Literature, Boyn Mawr, Pennsylvania
22. M. S.L. Goel, (2002): Advanced Public Administration in India, Deep & Deep, Delhi
23. Narayan, Rajeev, (2006): Human Resource Management in Urban Local Bodies, Serials, New Delhi.
24. Nicolas Hall et. al., (1996): The Urban Opportunity, Intermediate Technology Publications Ltd., London
25. Pacione, M. (2009): Urban Geography-A Global Perspective, Routledge, London and New York.
26. Pattanaik, B.K. (2020): Introduction to Urban Development and Planning, Sage Publications.
27. Peter Hall and Ulrich Pfeiffer, (2000): Urban Future 21, E&FN Spon, New York 15
28. Ramachandran, R. (1992): Urbanisation and Urban Systems in India, Oxford University Press, New Delhi.
29. Report of National Commission on Urbanisation, Government of India, 1988
30. Robert Cervero, Erick Guerra, Stefan Al. (2017): Beyond Mobility-Planning Cities for People and Places.
31. Smellie, K.B., (1963): A History of Local Government, Allen, London.
32. U.B. Singh, (2003): Fiscal Federalism in Indian Union, Concept, New Delhi.
33. UNCHS, (2001): Cities in a Globalizing World, Earthscan, London 9. Seth, J.L., 1988, Urban Environment and Conservation, Pnar Mudrak, Lucknow

Semester- VIII
Major Practical

Paper Code
GOGMP-801

Paper Name
Instrumental Field Survey

Credit: 04
Contact Hours: 60

Objectives

1. To inculcate the diverse methods of land surveying methods, their usefulness and drawbacks.
2. To develop an understanding of how this knowledge may be applied in practice for the optimum and efficient utilization of space.

Learning Outcomes

1. The students will be able to explain the basic principles and types of land surveying.
2. The students will be able to know important techniques of situation and relief representation.

Unit I

Surveying: Introduction, Types of Surveying, Precautions and Principles.

Unit II

Nautical Sextant: Introduction, Parts and Functions, Methods and Processing of Surveying, Preparation of Field Book and Plotting.

Unit III

Abney Level: Introduction, Methods and Processing of Surveying, Preparation of Field Book.

Unit IV

Dumpy Level: Introduction, Parts and Functions, Methods and Processing of Surveying, Preparation of Field Book and Plotting.

Unit V

Theodolite: Introduction, Methods and Processing of Surveying, Preparation of Field Book.

Suggested Readings

1. Singh, R.L. and Singh, Rana P.B. (1993): Elements of Practical Geography, (Hindi and English editions), Kalyani Publishers, New Delhi.
2. Kanetker, T.P. and Kulkarni, S.V. (1967): Surveying and Levelling, Vol. I and II, V.G. Prakashan, Poona, India.
3. Natrajan, V. (1976): Advanced Surveying, B.I. Publications, Mumbai.
4. Pugh, J.C. (1975): Surveying for Field Scientists, Methuen and Company Ltd., London, First Edition. Punmia, B.C. (1994): Surveying, Vol I, Laxmi Publications Private Ltd, New Delhi.
5. Shephard, F.A. (1968): Surveying Problems and Solutions, Edward Arnold (Publishers) Ltd, London.

Semester- VIII
Minor Theory

Paper Code
GOGMI-802

Paper Name
Urban Management

Credit: 04
Contact Hours: 60

Objectives

1. To familiarise students with urban management and urban governance in India and abroad.
2. To inform the students about urban infrastructure and related problems
3. To teach students how to overcome various urban issues with effective management

Learning Outcomes

1. Students will be able to understand the structure and the functioning of urban governance.
2. Students will be able to comprehend issues related urban infrastructure and services.
3. Students will be able to address urban issues with their better management

Unit I

Meaning and Scope of Urban Management; Urban Local Government: Nature, Objectives, Importance and Theories (Constitutional Approach, Pluralist Approach and Marxist Approach). Features of Urban Local Governance in USA, Britain and India: Evolution, Structure and Their Functions.

Unit II

Urban Infrastructure Policies and Programmes in India: Water Supply, Health and Sanitation, Drainage, Roads, and Urban Transport.

Unit III

Urban Wastes (Solid, liquid, & hospital) and Their Management (Rules and Regulations). Fiscal Federalism in India; Municipal Financial Resources and Their Mobilization in India.

Unit IV

Urban Development: Renewal, Redevelopment, & Relocation; Urban Housing in an Indian Context; Slums and Their Improvements.

Unit V

Project Management; Mater Planning; Sustainable Urban Management; Disaster Management and Risk Reduction in Urban Areas.

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2. A. Ghosh (ed), (2003): Urban Environment Management, Concept, New Delhi.
3. A.K. Mukhopadhyay, (1985): Municipal Personnel System in India, IIPA, New Delhi
4. Arvind K. Sharma, (2004): Bureaucracy and Decentralization, Mittal, New Delhi
5. Avasthi, A P & Avasthi A (2017): Indian Administration, Lakshmi Narayan Agarwal Educational Publishers.
6. B. Mohanty (ed), 2001: Financing the Grassroot Governments, APH, New Delhi. 5. S. Bhatnagar, E-Government, Sage, New Delhi, 2004.

7. B.R. Verma, (1998): Bureaucracy and Administration: Studies in Policy Perspective and Reform, S.Chand & Co., New Delhi
8. Burns, N.E., (1994): The Formation of American Local Governments, OCIP, New York
9. C.P. Barthwal, (2002): Understanding Local Government, Bharat Book, Lucknow.
10. Chan, N. W., Imura, H., Nakamura, A., and Ao, M. (2016): Sustainable Urban Development Textbook, Water Watch Penang and Yokohama City University.
11. Connors, K.O., (1997): American Government (continuity and change), Allyn and Bacon, Boston
12. D.D. Basu, (2024). Introduction to the Constitution of India, 27th Edition, LexisNexis.
13. Hoshiar Singh, (1997): Local Government, Kitab Mahal, Allahabad
14. J. Brotchie, M. Batty, et. al. (eds), 1995: Cities in Competition: Productive and Sustainable Cities for the 21st Century, Longman, Melbourne
15. J. Steward and G. Stroker (ads), 1989: The Future of Local Government, Macmillan, London
16. J.S. Mishra, (2002): A Quest for Dream Cities, Har Anand, New Delhi
17. K. Jain, (1999): Bureaucracy Citizen Interface, Gyan, Delhi.
18. K.R. Gupta (ed), 2004: Urban Development Debates in the New Millennium, Altantic, New Delhi
19. M. Bhattacharya, (1976): Management of Urban Government in India, Uppal, Delhi
20. M.A. Muttalib and A.A. Khan, (1983): Theory of Local Government, Sterling, New Delhi
21. Marnia, Kenzer, (1998): Healthy Cities: A Guide to the Literature, Boyn Mawr, Pennsylvania
22. M. S.L. Goel, (2002): Advanced Public Administration in India, Deep & Deep, Delhi
23. Narayan, Rajeev, (2006): Human Resource Management in Urban Local Bodies, Serials, New Delhi.
24. Nicolas Hall et. al., (1996): The Urban Opportunity, Intermediate Technology Publications Ltd., London
25. Pacione, M. (2009): Urban Geography-A Global Perspective, Routledge, London and New York.
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27. Peter Hall and Ulrich Pfeiffer, (2000): Urban Future 21, E&FN Spon, New York 15.
28. Ramachandran, R. (1992): Urbanisation and Urban Systems in India, Oxford University Press,New Delhi.
29. Report of National Commission on Urbanisation, Government of India, 1988.
30. Robert Cervero, Erick Guerra, Stefan Al. (2017): Beyond Mobility-Planning Cities for People and Places.
31. Smellie, K.B., (1963): A History of Local Government, Allen, London.
32. U.B. Singh, (2003): Fiscal Federalism in Indian Union, Concept, New Delhi.
33. UNCHS, (2001): Cities in a Globalizing World, Earthscan, London 9. Seth, J.L., 1988, Urban Environment and Conservation, Pnar Mudrak, Lucknow.

Semester- VIII

Paper Code
GOGD-803

Paper Name
Dissertation

Credit: 12
Contact Hours: 180

Objectives

1. To enable students to conduct in depth research on a specific geographical topic research, demonstrating their ability to apply to geographical theories and methodologies.
2. To acquaint the students with tools of Geography and its practical applicability.

Learning Outcomes

1. Students will be able to conduct in depth research on a specific geographical topic research, demonstrating their ability to apply to geographical theories and methodologies.
2. Students will be able to acquaint the students with tools of Geography and its practical applicability.

Each student will do field-based dissertation work on different themes/areas and he/she will submit his/her dissertation report to the Department. Dissertation is divided into four Parts:

	Dissertation	Marks
1.	Lab Work/Field Work/Field Survey/Industrial Visit/Institutional Visit/Data Collection/Internship etc.	100
2.	Data Analysis and Writing of Thesis	100
3.	Presentation and Viva- Voce Examination	100
	Total	**300**

Suggested Readings

1. Hart, Chris (2005): Doing Your Master Dissertation, Visttar Bublication, New Delhi, India.
2. Roberts, Carol (2004):The Dissertation Journey: A Practical and Comprehensive Guide To Planning, Writing and Defending your Dissertation, SAGE India Pt. Limited, New Delhi.
3. Singh, R.L. and Singh, Rana P.B. (1993): Elements of Practical Geography. (Hindi and English editions), Kalyani Publishers, Ludhiana and New Delhi.
4. Sternberg, David (1981): How to Complete and Survive a Doctoral Dissertation, St Martin's Griffin New York, USA.
5. Zamir, A. (2002): Statistical Geography: Methods and Applications, Rawat Publications, Jaipur.