INDIRA GANDHI NATIONAL TRIBAL UNIVERSITY, AMARKANTAK

DEPARTMENT OF GEOGRAPHY

COURSE STRUCTURE AND SYLLABUS FOR Ph.D. 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.

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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

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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)
18.7.2025

Prof. Tarun Kumar Thakur
(Member)
18/7/2025

Dr. Chandramauli
(Member)
18.07.25

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

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

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

Department of Geography

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

Ph.D. Course Work

Paper Code	Paper Name	Credits	Exam Pattern		
			Internal Assessment	End Sem. Exam	Total
Compulsory					
GRPC-101	Research Methodology in Geography	4	40	60	100
GRPC-102	Research and Publication Ethics	2	20	30	50
RCS- 103	Computer Application	4	40	60	100
Major Elective (Optional)					
GRPC- 104	Applied Geomorphology	4	40	60	100
GRPC-105	Regional Development and Planning	4	40	60	100
GRPC-106	Agriculture and Rural Development	4	40	60	100
GRPC- 107	Urban Geography	4	40	60	100
GRPC- 108	Population Geography	4	40	60	100
Minor Elective (Optional)					
GRPC- 109	Applied Climatology	2	20	30	50
GRPC- 110	Cartographical Techniques	2	20	30	50
GRPC- 111	Quantitative Techniques	2	20	30	50
GRPC-112	Models and Theories in Urban Geography	2	20	30	50
GRPC-113	Indian Census	2	20	30	50

Abbreviation: GRPC: Geography Ph.D. Coursework

Computer Science Department is declared as the nodal department to teach Computer Application (RCS 103) paper.

Prof. Shrikamal Sharma
(External Subject Expert)

Prof. Byomakesh Tripathy
(Member)

18/07/2025
Prof. Tarun Kumar Thakur
(Member)

19.07.25
Dr. Chandramauli
(Member)

18/7/25
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

Ph.D. Course Work

Paper Code	Paper Name	Credit: 04
GRPC-101	Research Methodology in Geography	Contact hours: 60

1. Research Methodology in Geography

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/thesis 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

Introduction to Research: Meaning of Research, Nature of Geographic research, Method and Sources of Geographic Information, Major steps in Geographic research.

Unit II

Problem Identification, Objectives, Formulation of hypothesis/Research Questions, and Literature Review; Research Design: Meaning and Types of Research Design.

Unit III

Geographic Data: Nature and classification of Geographic Data; Methods for the collection of primary data: Observation, Questionnaire, Schedule, & Interview; Census and Sample survey, Sampling Techniques; Group Discussion.

Unit IV

Evaluation and Processing of Data: Measurement scales of data; Data Processing: Editing, coding, organization and classification. **Tabulation and Analysis**: Preparation of tables- Statistical and cartographic, Analysis and Interpretation of data.

Unit V

Report Writing: Organizing the writing, Preliminary section, Content section, Chapters, Appendix, References, & Bibliography.

Suggesting Readings

1. Ahuja, Ram 2001. Research Methods. Rawat Publications, Jaipur and New Delhi.
2. Bolton, T. and Newbury, P.A 1968. Geography Through Fieldwork. Blandford Press, London.
3. Flowerdew, R. And Martin, D. (eds.) 1997. Methods in Human Geography. A Guide for Student Doing a Research Project. Longman, Harlow.
4. Knight, Peter G. And Parsons, Tony 2003. How to do your Essays Exams and Coursework in Geography and Related Disciplines. Nelson Thornes, Cheltonham U. K.
5. Limb, Mclaine 2001, Qualitative Methodologies for Geographers. Issue and Debates. Arnold, London.
6. Singh, R. L. And Singh, Singh, Rana P. B. 1993. Elements of Practicle Geography. Kalyani Publishers, Ludhiana and New Delhi. (English and Hindi editions; several edition).

7. Lee, Roger Smith, David M. (eds.) 2004, Geographies and Moralities: International Perspectives on Development, Justice and Place. Wiley-Blackwell, Oxford.
8. Limb, Mclanie 2001, Qualitative Methodologies for Geographers. Issue and Debates. Arnold, London.
9. Stoddard, Robert H. 1982. Field Techniques and Research Methods in Geography. Kendall/Hunt Pub. Dubuque.

Ph.D. Course Work

Paper Code	Paper Name	Credit: 02
GRPC-102	Research and Publication Ethics	Contact Hours: 30

Objectives

1. To provide students with a comprehensive understanding of research philosophy, and the principles of ethics, including moral philosophy and the nature of moral judgments, to foster critical thinking about ethical dilemmas.
2. To Equip students with the knowledge and skills to uphold intellectual honesty, research integrity, and ethical standards in scientific research, addressing issues like falsification, fabrication, and plagiarism.
3. To Enable students to navigate publication ethics, understand open access publishing, utilize journal selection tools, and interpret research metrics to ensure responsible dissemination of research.

Learning Outcomes

1. Students will be able to define and discuss the nature, scope, and branches of research philosophy, as well as apply ethical theories to evaluate moral judgments and reactions in real-world scenarios.
2. Students will identify and address scientific misconducts (e.g., falsification, fabrication, plagiarism) and publication ethics violations.
3. Students will effectively use tools like Turnitin, SHERPA/RoMEO, and journal finders (e.g., JANE, Elsevier Journal Finder) to assess publication options and interpret research metrics.

Unit-I

Philosophy and Ethics:

- Introduction to philosophy: definition, nature and scope, concept, branches
- Ethics: definition, moral philosophy, nature of moral judgements and reactions

Scientific Conduct

- Ethics with respect to science and research
- Intellectual honesty and research integrity
- Scientific misconducts: Falsification, Fabrication, and Plagiarism (FFP)
- Redundant publications: duplicate and overlapping publications, salami slicing
- Selective reporting and misrepresentation of data

Unit-II

Publication Ethics

- Publication ethics: definition, introduction and importance
- Best practices / standards setting initiatives and guidelines: COPE, WAME, etc.
- Conflicts of interest
- Publication misconduct: definition, concept, problems that lead to unethical behavior and vice versa, types
- Violation of publication ethics, authorship and contributorship
- Identification of publication misconduct, complaints and appeals
- Predatory publishers and journals

Unit-III

Open Access Publishing

- Open access publications and initiatives
- SHERPA/RoME0 online resource to check publisher copyright & self-archiving policies
- Software tool to identify predatory publications developed by SPPU
- Journal finder / journal suggestion tools viz. JANE, Elsevier Journal Finder, Springer Journal Suggester, etc.

Group Discussions

- Subject specific ethical issues, FFP, authorship
- Conflicts of interest
- Complaints and appeals: examples and fraud from India and abroad

Software tools (2 hrs.)

- Use of plagiarism software like Turnitin, Urkund and other open-source software tools

Unit-IV

A. Databases

- Indexing databases
- Citation databases: Web of Science, Scopus, etc.

B. Research Metrics

- Impact Factor of journal as per Journal Citation Report, SNIP, SJR, IPP, Cite Score
- Metrics: h-index, g index, il 0 index, altimetric

Suggesting Readings

1. Bird, A. (2006). *Philosophy of Science.* Routledge.
2. MacIrityre, Alasdair (1967) *A Short History of Ethics.* London.
3. P. Chaddah, (2018) Ethics in Competitive Research: Do not get scooped; do not get plagiarized, ISBN:978-9387480865.
4. National Academy of Sciences, National Academy of Engineering and Institute of Medicine. (2009). *On Being a Scientist: A Guide to Responsible Conduct in Research: Third Edition.* National Academies Press.
5. Resnik, D. B. (2011). What is ethics in research & why is it important. *National Institute of Environmental Health Sciences,* 1-10. Retrieved from https://www.niehs.nih.gov/research/resources/bioethics/whatis/index.cfm
6. Beall, J. (2012). Predatory publishers are corrupting open access. Nature, 489(7415), 179-179.
7. https://doi.org/10.1038/489179a
8. Indian National Science Academy (INSA), Ethics in Science Education, Research and Governance (2019), ISBN:978-81-939482-1-7. http://www

Paper Code
RCS-103

Ph.D. Course Work
Paper Name
Computer Application

Credit: 04
Contact hours: 60

Objectives

1. To equip students with a comprehensive understanding of computer fundamentals, to build a strong foundation for technological proficiency in academic world.
2. To provide students with the skills to use ICT tools, reference management software, and research writing platforms to create, format, and manage research documents effectively.

Learning Outcomes

1. Students will be able to explain the characteristics, evolution, and organization of computers, install operating systems, configure hardware, and troubleshoot basic network connectivity issues using tools like BIOS and peer-to-peer network setups.
2. Students will proficiently use tools like LaTeX, Zotero, Grammarly, and plagiarism checkers to create, convert, and manage research documents in various formats and ensure proper referencing and academic integrity in their work.

Unit I

Fundamental of Computer:

Characteristics of Computers, Evolution of computers, computer generations, Basic computer organization; System software, Application software, Application packages, I/O devices, computer memory, introduction to operating system and characteristics, Windows, Mac etc.

Unit II

Computer Hardware basics and Software Installation:

PC Boot Process and BIOS, Description of Different parts of a computer, personal computer configuration, performing installation of operating system and other application, Usage of relevant tools and recovery using various tools/ software, perform cabling, connecting, and configuring of a peer-to-peer network (Wi- Fi/Broadband), Use of identifying different Desktop Icons. My Computer, My Documents, Changing Desktop Backgrounds, Mouse Pointer, Screen Saver and Notepad, WordPad, MS Paint, Operating System Installations and Procedures/ Booting Procedures, Windows Configurations & Adding Device Drivers.

Unit III

Introduction to Internet, WWW and Web Browsers:

Basic of Computer networks; LAN, WAN; Concept of Internet; Applications of Internet; connecting to internet; What is ISP; Knowing the Internet; Basics of internet connectivity related troubleshooting, World Wide Web; Web Browsing software(s), Search Engines; Understanding URL; Domain name; IP Address; Basics of electronicmail; Getting an email account; Sending and receiving emails; Accessing sent emails; Using Emails; Document collaboration; Instant Messaging; Netiquettes. Using e-governance website, website for journal access, website for research applications: Shodhganga, Shodh Gangotri, ResearchGate, SWAYAM, NPTEL, UGC-CARE etc.

Unit IV

ICT Tools for Documentation of Research Work:

Various format of e-research paper, e-book and e-document: .cbr, .cbz, .cb7, .cbt, .cba, .djvu, .doc, .docx, .epub, .fb2, .html, .ibook, .cdr, .inf, .azw, .lit, .prc, .mobi, .exe, .pkg, .pdb, .txt, .pdb,

.pdf, .ps, .tr2, .tr3, .oxps, .xps; Various useful Software for imageto text, .pdf to .doc/.docx, Voice to text/.docx, text to image, .pdf to jpeg/png, .doc/.docx to image and other type of conversion; E-document Conversion Tools Compatible withMultiple Formats, Plagiarism Checker software and its utilization.

Unit V

Research Writing Tools and Software:

General Purpose Software Package: REF-N-WRITE, Microsoft office: Word, Power Point, Excel; Software for Writing Your Dissertation: LaTeX, LyX, Scrivener; Referencing Tools and Reference Management Software: Zotero, Mendeley, Docear etc; Grammar Checkers and Sentence Correction Tools: MS Word Spelling & Grammar checker S/W: Grammarly Desktop Apps and Online Grammar checking sites; Image and Video editing software.

Text Books

1. Grotenhuis, Manfred te, and Matthijssen, Anneke. Basic SPSS Tutorial. United States, SAGE Publications, 2015.
2. Raubenheimer, Jacques. Mendeley: Crowd-sourced Reference and Citation Management in the Information Era. United Kingdom, True Insight Publishing, 2014.
3. Goel, Anita. Computer Fundamentals. India, Pearson Education, 2010.
4. Maidasani, Dinesh. Learning Computer Fundamentals, Ms Office and Internet& Web Tech. India, Laxmi Publications, 2005.

Reference Books

1. Wishnietsky, Dan H. Internet Basics: An Educator's Guide to Traveling the Information Highway. United States, Phi Delta Kappa Educational Foundation, 1997.
2. McCormick, Keith, and Salcedo, Jesus. SPSS Statistics for Data Analysis and Visualization. Germany, Wiley, 2017.

Major Elective (Optional)

Ph.D. Course Work

Paper Code
GRPC- 104

Paper Name
Applied Geomorphology

Credit: 04
Contact Hours: 60

Objectives

1. To provide students with a comprehensive understanding of the nature, scope, and fundamental concepts of geomorphology, including recent trends and classical models of landscape evolution.
2. To equip students with the ability to analyse slope forms, processes, and relief characteristics using established methods and tools to interpret geomorphic landscapes.
3. To enable students to apply geomorphic principles to real-world applications such as mineral exploration, engineering, hydrology, and hazards management.

Learning Outcomes

1. Students will be able to articulate the nature, scope, and recent trends in geomorphology, and critically compare the landscape evolution models.
2. Students will demonstrate proficiency in applying slope analysis and constructing relief diagrams, such as hypsometric curves and altimetric frequency histograms, to interpret landscape characteristics.
3. Students will effectively apply geomorphic principles to mineral exploration, engineering projects, groundwater prospecting, land use/land cover mapping, and hazards management.

Unit I

Geomorphology: Nature and Scope, Fundamental Concepts, Recent Trends in Geomorphology.

Unit II

Models of Landscape Evolution, Slope forms, Processes, Classification and Development: Ideas of Davis, Penck, and King.

Unit III

Slope Analysis: C.K. Wentworth's Method and G.H. Smith's Method, Relief Diagram: Hypsometric Curve and Altimetric Frequency Histogram.

Unit IV

Applied Geomorphology: Nature and Scope, Geomorphology in Mineral Exploration, Engineering, and Hydrology.

Unit V

Human effects on Geomorphic Process, Geomorphology in Ground Water Prospecting, Land use/ Land cover Mapping, Hazards Management.

Suggested Readings

1. Ahmed, E. (1985): Geomorphology. Kalyani Publishers, New Delhi.
2. Allison, Robert J. (ed.) (2002): Applied Geomorphology: Theory and Practice. John Wiley, Chichester U. K.
3. Bloom, A. L. 1998/ 2001. Geomorphology. 3rd edition. Prentice Hall of India, New Delhi.
4. Chorley, R.J., Schumm, S. A. and Sugden, D. E. (1984): Geomorphology. Methuen and Company Ltd., London.
5. Thornbury, W.D. (2005): Principles of Geomorphology. John Wiley, New York. Rev. Ed.
6. Goudie, Andrew (ed.) (2004): Encyclopedia of Geomorphology. Volume 2. Routledge, London.
7. King, C.A.M. (1966): Techniques in Geomorphology. Edward Arnold, London.
8. Kale, V. and Gupta, A. (2001): Introduction to Geomorphology. Orient Longman, Hyderabad.
9. Sparks, B.W. (1986): Geomorphology. Longmans, London.
10. Wooldridge, S.W. and Morgan, R.S. (1959): The Physical Basis of Geography: An Out Line of Geomorphology. Longman, London.

Paper Code **Ph.D. Course Work**
GRPC- 105 **Paper Name** **Credit: 04**
Regional Development and Planning **Contact Hours: 60**

Objectives

1. The aim is to understand and evaluate the concept of region in geography and its role and relevance in regional planning.
2. To identify the issues relating to the region's development through the spatial organization of various attributes and their interrelationship.
3. It also means helping students identify the causes of regional disparities in development, perspectives and policy imperatives.

Learning Outcome

1. The students will learn about the basic principles of regional planning.
2. The students will study the regional planning process's different theoretical backgrounds and structures.
3. Students will be able to examine the different programs and policies in force for the overall development of rural society in India.

Unit I

Meaning & Concepts of Development, Methods and Strategies of Regional Development, Theories of Development (Rostov, Myrdal, Harshman and Friedman).

Unit II

Meaning and concepts of Regional Planning, Approaches of Regional Planning, Techniques of Regional Planning.

Unit III

Planning Strategies: Micro Regional Planning, Multilevel Planning. Central Place Theory (Christaller and Losch) and Growth Pole Theory.

Unit IV

Integrated Area Development Approach. Measures of Development: Various Measures and Indices of Development.

Unit V

Regional Disparities and Planning in India, Role of Planning Commission and NITI Aayog in Planning.

Suggested Readings

1. Barkin and King 1970; Regional Economic Development. Cambridge University Press.
2. Basu, K. 2000; Analytical Development Economics: The Less Developed Economy Revisited OUP.
3. Behrman, J. and Srinivas, T.N. 1998; Handbook of Development Economics. Vol. III
4. Berberoglu, B. 1992; The Political Economy of Development. Status University of N York Press.
5. Bhat, L.S. 1972; Reginal Planning in India. Indian Statistical Institute, Calcutta.
6. Bhat, L.S. 2003; Micro Planning: A Case Study of Karnal Area. KB Publs., New Delhi.
7. Chandana, R.C. 2014; Reginal Development and Planning, Kalyani Publications, N. Delhi.
8. Crush, J. 1995; Power of Development. Routledge, London.
9. Friedman, J. and Alonse, W. eds. 1968; Regional Development and Planning. M.I.T. Press.
10. Datta, B 1997; Indian Planning at Crossroad, OUP.
11. Harrish, J. 2004; Depoliticizing Development, Left World.
12. Mishra, R. P. 2002; Regional Planning, Concept, Techniques, Policies and Case Studies. Concept Publishing Company, New Delhi.
13. Munshi, S.K. 1984; India Resource Regional Disparity. PPH.
14. Rajalakshmi, N. 2000; Environment and Economic Development. Manak.
15. Ray Choudhary, J 2001; An Introduction to Development and Regional planning. Orient Longman.
16. Sharma P.R. (ed.) 1991; Perspective on the Third World Development. Rishi Publs., Varanasi.
17. Singh, B.N. 1988; Integrated Rural Area Development and Planning. Anupama Publs., Delhi.

Paper Code **Ph.D. Course Work**
GRPC-106 **Paper Name** **Credit: 04**
Agriculture and Rural Development **Contact Hours: 60**

Objectives

1. This course introduces the students to agriculture typology and different methods for the combination, productivity, and carrying capacity of the land in the area.
2. The course examines the characteristics, problem causes, and consequences, policy, and planning of rural India.

Learning Outcomes

1. The students will be able to understand agriculture typology and different methods for the combination, productivity, and carrying capacity of the land in the area.
2. They will be able to examine the characteristics, problem causes, and consequences, policy, and planning of rural India.

Unit I

Agricultural Geography: Meaning, Definition and Scope, Land-use and its Classification, Agricultural Systems of the World (Whittlesey's classification), Agricultural Land use model (Von Thuenen, modification and relevance), Kostrowicki's Agriculture Typology.

Unit II

Agricultural Concepts and their Measurements: Cropping Pattern, Cropping Intensity, Crop Combination, Agricultural policy and Rural Development.

Unit III

Rural Development: Concept and Approaches, Rural Development in Five Year Plans, Rural Economic Base: Agriculture and Allied Sectors.

Unit IV

Rural Poverty: Meaning, Types and Causes, Government Policy to Rural Poverty Alleviation, Rural Development in India; Policies, Programs and Implementation at the local/ micro level.

Unit V

People's Participation in Rural Development and Planning, Role of Panchayati Raj Institutions.

Suggested Readings

1. Bhat, L.S. (1976): Micro Level Planning in India, K.B. Pub. New Delhi.
2. Bhat, L.S. (1988): Strategy for Integrated Area Development: Case Study of North Kanara District (Karnataka), Concept Publishing. Company, New Delhi.
3. Desai, A. R. (1990): Rural Development, Popular Prakashan, Bombay.
4. Gregor, H. P. (1970): Geography of Agriculture, Prentice- Hall, New York.
5. Krishnamurthy, J. (2000): Rural Development, Problems and Prospects, Rawat Publications, Jaipur.
6. Long, C. (2001): Participation of Poor in Development Initiatives: Taking Their Rightful Place, Earthscan, London.
7. Mishra, R.P. and Achyutha, R.N. (1998): Micro- Level Rural Planning: Principles, Methods and Case Studies, Concept Publishing Company, New Delhi.
8. Tiwari, R.C. and Singh, B.N. (2010). Krishi Bhoogol, Prayaag Pustak Bhawan, Allahabad.
9. Majid Husain (2000). Krishi Bhoogol, Rawat Publication, Jaipur.

Paper Code GRPC-107

Ph.D. Course work

Paper Name

Urban Geography

Credit: 04

Contact hours: 60

Objectives

1. To familiarize students with the concepts, features, and types of towns and cities.
2. To familiarize students with the complexities of urban landscapes, forms, functions, land use, and morphology of towns.
3. To supplement urban systems, urban spatial processes, and planning of urban areas. **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 urban systems and urban spatial processes.
3. Students will be able to learn about various aspects and principles of urban planning.

Unit I

Meaning, Scope and Approaches of Urban Geography, Evolution and Growth of Towns. Concepts of City, Megacity, Cosmopolitan, and Global cities.

Unit II

Concept of Urban Morphology, Urban Land Use, Social Segregation and Polarization in Urban Areas, Social Area Analysis.

Unit III

City-Region, Rural-urban fringe, Urban System: Concept of Primate city, and Rank-size rule.

Unit IV

Urbanisation, Urban Housing, Slums and Squatters, Urban Sprawl.

Unit V

Rural-Urban Linkages, Urban Planning, Master Plan, Neighbourhood planning.

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. Dutt, K.L. (1971): Morphology of Indian Cities, NGSI, Varanasi.
4. Haggett, Peter, Andrew, D. Cliff and Allen (ed.) 1979: Locational Models Arnold Heinemann.
5. Hall, T. and Barrptt, H. (2012): Urban Geography, Routledge, London.
6. Handbook of Urban Statistics (2016), Ministry of Urban Development, Govt. of India.
7. King, Leslie, (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 (editors), (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, Annapurna (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), Pryag Bhawan, Allahabad.
17. Ucko, M.J., Ruth Tringham and G.W. Dimbleby (ed.) (1972): Man, Settlement and Urbanism, Duckworth.
18. Verma, L N (2016): Urban Geography, Rawat Publications, Jaipur.

Ph.D. Course Work

Paper Code
GRPC- 108

Paper Name
Population Geography

Credit: 04
Contact Hours: 60

Objectives

1. To introduce the basic concepts of population and its measurement.
2. To familiarize the structure and composition of population and Population theories.
3. To analyze the contemporary issues of population and to explain the implications of various population policies and programs.

Learning Outcomes

1. Students will be able to understand concepts, characteristics, and measurements of population.
2. To acquaint Students with various theories of population and migration.
3. Students will be able to develop an understanding of contemporary population issues and their policies to address them.

Unit I

Evolution and Development of Population Geography, Sources of Population Data: India and World, World Growth Trends and Pattern, Population Growth Trends in India

Unit II

Fertility: Concepts, Trends and Pattern. Determinants of Fertility Mortality: Concepts, Trends and Pattern. Mortality and Morbidity: Migration: Concepts, Trends and Pattern. Migration Streams

Unit III

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

Unit IV

Problems of Population; Family Welfare Programmes in India: A critical appraisal; Population Policy in Five Years Plans, National Population Policy-2000.

Unit V

Characteristics of India's Population: Age-Sex Structure, Rural-Urban, Literacy, Work Force and Occupational Structure.

Suggested Readings

1. Behura, Nab Kishore and Mohanty, Ramesh P. 2005. Family Welfare in India: A Cross- Cultural Study. Discovery Publication House, New Delhi.
2. Birdisall, Nancy; Kelley, Allen C. and Sinding, Steven W. (eds.) 2001. Population Matters: Demographic Change, Economic Growth, and Poverty in the Developing World. Oxford University Press, Oxford.
3. Cassen, R. (eds.) 1994. Population and Development: Old Debate, New Conclusions. Transaction Publishers. New Brunswick and Oxford.
4. Chandra, Shanta Kohli 1987. Family Planning Programme in India: Its Impact in Rural and Urban Areas. Mittal Publication, New Delhi.
5. Chu, C.Y. Cyrus 1998. Population Dynamics: A New Economic Approach. Oxford University Press, New York.
6. Dyson, Tim (ed.) 1998. India's Historical Demography: Studies in Famine, Disease and Society. Curzon Press. London.
7. Hummel, Diana 2008. Population Dynamics and Supply Systems: A Transdisciplinary Approach. Campus Verlag, Frankfurt.
8. Hunter, Lori M. 2000. The Environmental Implications of Population Dynamics. Rand Corporation, New York.
9. Kar, Bimal Kumar 2002. Women Population of North East India: A Study in Gender Geography. Regency Publication, New Delhi.
10. Namboodiri, Narayanan Krishan 1996. A Primer of Population Dynamics. Springer, N York.
11. Prasad, B.K. 2004. Population and Family Life Education. Anmol Publication, New York.
12. Ranade, Prabha Shastri 1990. Population Dynamics in India. APH Publishing, New Delhi.

Minor Elective (Optional)

Ph.D. Course Work

Paper Code GRPC-109

Paper Name Applied Climatology

Credit: 02

Contact Hours: 30

Objective

1. To equip students with a comprehensive understanding of applied climatology.
2. to enable students to utilize remote sensing, climate models, and statistical tools to analyse climatic data, water balance, and geomorphic processes, while exploring paleoclimates and climate change.
3. to foster the ability to apply climatic data in real-world contexts such as agriculture, urban planning, disaster management, and water resource management, emphasizing human-climate interactions.

Learning Outcomes

1. Students will be able to define applied climatology, identify types and sources of climate data, and create graphical representations to analyse climatic patterns effectively.
2. Students will demonstrate proficiency in using remote sensing, climate models, and statistical software to calculate water and surface energy balances, and assess geomorphic processes.
3. Students will effectively apply climatic data to support decision-making in agriculture, urban planning, and disaster management, while evaluating hydrological processes and human climatology to address environmental challenges.

Unit I

Definition and Nature of Applied Climatology, Climate Data: Types and Sources, Graphical Representation of Climatic Data, Weather Maps.

Unit II

Application Remote Sensing in Climatology, Climate models, Surface water balance, Water balance calculation, Geomorphic processes and landforms, Paleoclimates and climate change.

Unit III

Hydrological processes and water resources, Surface energy balance, Human climatology.

Unit IV

Statistics in climatology, Statistical software in processing of climatic data, Application of Climatic data in agriculture and urban planning, Application of Climatic data in Disaster Management.

Suggested Readings

1. Perry, A., Thompson, R., Thompson, R., (1997). Applied Climatology, Routledge Publication, London.
2. Sullivan, D., (2019). Advances in Climatology, Callisto Reference.
3. Holden, J., (2011). Physical Geography: The Basics, Routledge Publication, London.
4. Hobbs, O.E., Gregory, K.J., (1980), Applied Climatology, A Study of Atmospheric Resources (1st Edition), Elsevier Publication.
5. World Meteorological Organization (WMO), (2009). Global Framework for Climate Services: Brief note.
6. Skaggs, R. H., (2004). Climatology in American geography. Annals of the Association of American Geographers 94: 446–457.
7. Smith, K., (1975). Principles of Applied Climatology. Maidenhead: McGraw-Hill.
8. Mills, G., (2006). Progress toward sustainable settlements: A role for urban climatology. Theoretical and Applied Climatology 84: 69–76.
9. Huntington, E. (1924). Civilization and climate. New Haven, CT: Yale University Press.
10. Gregory, D. (1978) Ideology, Science and Human Geography. London: Hutchinson and Co.
11. Gregory, K.J., (2000) The Changing Nature of Physical Geography. London: Arnold.

Paper Code **Ph.D. Course Work**
GRPC-110 **Paper Name** **Credit: 02**
Cartographical Techniques **Contact Hours: 30**

Objectives

1. To know the various cartographical methods in map-making in geographical research.
2. To know the various cartographical symbols and the scaling of map-making in geography.

Learning Outcomes

1. After completing the course, students will be able to understand the cartographical methods in map-making in geographical research.
2. At the end of the course, the students will be able to learn how to use various cartographical symbols and the scaling of map-making in geography.

Unit I

Principles and Applications of Cartography.

Unit II

Basic Characteristics and Classification of Maps, Principles of Map Design, Sources of Cartographical Data.

Unit III

Cartographical Techniques and Methods in Preparation of Diagrams and Thematic Maps (Indexing, Colour, Scale, Graphing, Shading, Legend, Symbol, Shape and Size).

Unit IV

Introduction of Cartography, Digital Cartography, Digital Representation of Geographic Data. Geographic Information System.

Suggested Readings

1. Dent. Borden, Torguson. Jeff , Hodler. Thomas (2008): Cartography: Thematic Map Design 6th Edition, McGraw-Hill Education; 6th edition.
2. Field. Kenneth, (2008): Cartography, Esri Press; 1st edition.
3. Burrough P.A. (1986): Principles of Geographic information Systems for Land Resource Assessment Oxford University Press, New York.
4. Campbell, J. B. (2002): Introduction to Remote Sensing. 5th edition. Taylor and Francis, London.
5. Cracknell, A and Hayes, L. (1990): Remote Sensing Year Book, Taylor and Francis, London.
6. Curran, P.J. (1985): Principles of Remote Sensing, Longman, London.
7. Deekshatulu, B.L. and Rajan, Y.S. (ed.) (1984): Remote Sensing. Indian Academy of Science, Bangalore.
8. Floyd, F. and Sabins, Jr. (1986): Remote Sensing: Principles and Interpretation, W.H. Freeman, New York.
9. Hallert, B. (1960): Photogrammetric McGraw Hill Book Company Inc., New York.
10. Harry, C.A (ed.) (1978): Digital Image Processing, IEEE Company Society, California.
11. Hord, R.M. (1982): Digital Image Processing of Remotely Sensed Data, Academic Press, New York.
12. Leuder, D.R. (1959): Aerial Photographic Interpretation: Principles and Application. McGraw Hill, New York.
13. Maguire D.J. M.F. Goodchild and D. W. Rhind (eds.) 1991. Geographic information Systems: Principles and Application. Taylor and Francis, Washington.
14. Nag, P. (ed.) 1992: Thematic Cartography and Remote Sensing Concept Publishing. Company, New Delhi.
15. Silver, M. and Balmori, D. (eds.) (2003): Mapping in an Age of Digital Media. Wiley- Academy, New York.
16. Spurr, R. (1960): Photogrammetric and Photo Interpretation, the Roland Press Company, London.
17. Star J and J. Estes (1994): Geographic Information Systems: An Introduction. Prentice Hall, Englewood Cliff, New Jersey.
18. Survey of India, (1973): Photogrammetry, Survey of India, Dehradun.

Paper Code	Ph.D. Course Work	
GRPC-111	Paper Name	Credit: 02
	Quantitative Techniques	**Contact Hours: 30**

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 be able to understand 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

Standard Deviation, Correlation and Regression Analysis.

Unit II

Z' Score and Analysis of Variance (ANOVA).

Unit III

Hypothesis Testing: Significance and Confidence Level, Chi Square test and 't' Test.

Unit IV

Statistical Software: SPSS and MS Excel.

Suggested Readings

1. Arora P. N. & Arora S. (1994): Foundation Course in Statistics, S. Chand and Company Ltd, New Delhi.
2. Aslam Mehmood (1976): Statistical Techniques in Geographical Studies, Rajesh Publication, New Delhi.
3. Durrenberger, R. W. (1971): Geographical Research and Writing, Thomas Y. Cromwell & Co. New York.
4. Gregory, S. (1963): Statistical Methods and the Geographer, Longman, London.
5. Hammond, R. and Mc Cullagh P. (1974): Quantitative Techniques in Geography, Clarendon Press, Oxford.
6. Haring, L. L. and Loundbury, J. F. (1975): Introduction to Scientific Geographic Research, W.C. Brow Company, U.S.A.
7. Haring, Lloyd (1975): Scientific Geographic Research, W.C. Brow Company, U.S.A.
8. Elhance, D.N., Elhance,V. and Aggarwal, B.M. (2019): Fundamentals of Statistics, Kitab Mahal.
9. Sharma, P.M. (2009): *Bhoogol Me Sankhikiya Vidhiya*, Rajasthan Hindi Granth Academy, Jaipur.
10. Sharma, J.P. (2003): *Prayuogik Bhoogol*, Rastogi Publication, Meruth.

Ph.D. Course work

Semester- I

Paper Code GRPC-112

Paper Name Models and Theories in Urban Geography

Credit: 02

Contact hours: 30

Objectives

1. To familiarize students with the theories of the evolution of towns
2. To explain different models of the internal structure of towns and cities.

Learning Outcomes

1. Students will be able to understand how towns originated and evolved due course of time.
2. Students will be acquainted with how societies and functions take place within cities

Unit I

Theories of Origin of Towns: Gordon Childe, Henri Pirenne, Lewis Mumford.

Unit II

Traditional Models of Urban Structure: Burgess's Concentric Zone model, Hoyt's Sector model and Ullman's Multiple-Nuclei model.

Unit III

Modified Models of City Structure: Mann's model of Urban Structure, Vance's Urban Realms model, White's model of the twenty-first-century.

Unit IV

The Central Place Theories: Walter Christaller and A. Losch, Bid Rent theory.

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. Dutt, K.L. (1971): Morphology of Indian Cities, NGSI, Varanasi.
4. Haggett, Peter, Andrew, D. Cliff and Allen (ed.) 1979: Locational Models Arnold Heinemann.
5. Hall, T. and Barrptt, H. (2012): Urban Geography, Routledge, London.
6. Handbook of Urban Statistics (2016), Ministry of Urban Development, Govt. of India.
7. King, Leslie, (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 (editors), (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, Annapurna (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), Pryag Bhawan, Allahabad.
17. Ucko, M.J., Ruth Tringham and G.W. Dimbleby (ed.) (1972): Man, Settlement and Urbanism, Duckworth.
18. Verma, L N (2016): Urban Geography, Rawat Publications, Jaipur.

Paper Code	Ph.D. Course Work Paper Name	Credit: 02
GRPC-113	Indian Census	Contact Hours: 30

Objectives

1. To familiarize students with the Indian Census and its historical journey
2. To supplement the components and procedure of the Indian census enumeration

Learning Outcomes

1. Students will be able to understand what the Indian Census is and its historical journey
2. Students will be acquainted with the various components of the Indian Census and the enumeration process of the Indian Census.

Unit I

Census Definition, Types of Census Operations, Indian Census in Historical Context.

Unit II

Census as Social Document, Fundamental Concepts in Indian Census, Census Enumeration: Some Practical Concerns.

Unit III

Utilization of Census Data: Primary Census Abstract, District Census Handbook, Town Directory, Use of Census Website.

Unit IV

Trend Analysis from Census Data: Population Growth, Sex Ratio, Child Sex Ratio, Literacy, Urbanization, Social and Religious Population.

Suggested Readings

1. Mahendra K. Premi and Dipendra Nath Das, (2012): Population of India 2011, BR Publisher.
2. Mahendra K. Premi , (2011): Population of India in the Millennium: Census 2001, National Book Trust.
3. India Census Commissioner, (2012): Census of India, 1901, Volume 9, Part 1, Nabu Press.
4. Dr. C. Chandramaouli, (2014): Handbook on Census 2011 Results India Volume 1 H, Registrar General & Census Commissioner, Govt. of India.
5. N. Gerald Barrier (ed.), (2019): The Census in British India: New Perspectives, Manohar Publishers.
6. S. R. Swaroop, (2018): Truth about Muslim Population Explosion in India: Evidence From Census 2011, Kindle Store.
7. Ashish Bose, (1997): Population Profile of Religion in India: District wise date from 1991, sus B.R. Pub. Corporation.
8. Govt. of India, (2001): Census of India 2001: The First Report on Religion Data, Registrar General & Census Commissioner, Govt. of India.
9. Chinmoy Chakravorty Suman Prashar, (2018): The Scheduled Castes of India: Legal Provisions and Analysis of Census Data, Bookwell Publications.
10. Prakash C. Jain, (2019): Reconceptualising caste, class and tribe, Rawat Publication.
11. K.C. Sivaramakrishnan, Amitabh Kundu and B.N. Singh, (2007): Handbook of Urbanization in India, Oxford University Press.