

Ph. D. Programme in Geography

Syllabus

(Effective from the July 2019)



Department of General & Applied Geography
School of Applied Sciences
Doctor Harisingh Gour Vishwavidyalaya
(A Central University)
Sagar (M. P.)

Scheme of Ph.D. Course Work in Geography

Ph. D. I Semester

Course Code	Title of the Course	L	T	P	C
GOG CC 141	Research Methodology in Geography	4	0	0	4
GOG CC 142	Application of Geoinformatics in Geographical Studies (Practical)	0	0	8	4
GOG CC 143	Review of Published Work / Project Report	0	0	8	4
Students will opt any one from the following Elective Courses					
GOG EC 141	Advanced Geomorphology	4	0	0	4
GOG EC 142	Population Analysis : Theories & Techniques	4	0	0	4
GOG EC 143	Agricultural Geography: Concepts and Techniques	4	0	0	4
GOG EC 144	Regional Planning and Development	4	0	0	4
GOG EC 145	Cryosphere and Water Resource Assessment	4	0	0	4
GOG EC 146	Geography of Tourism	4	0	0	4
GOG EC 147	Advance methods in Glaciology	4	0	0	4
Total credits = 16 (Core=4+4+4=12 + Elective = 4)					

Notes:

- One Semester Course Work** will have **One Core Theory and Practical., One Elective** course and **One Project Report**.
- There shall be **One Mid Semester Examination and One Internal Assessment** of one hour and two hours duration for theory and practical courses/ papers respectively. This will carry 40% of the total marks of the course work.
- End Semester Examination** will be of 3 hours (Theory) and 4 hours duration (practical) respectively carrying 60% of marks in each course.
- Other instructions and conditions given in the Choice Based Credit System (CBCS) and University Ordinance pertaining to Ph.D. programme shall be applied in the Ph.D. programme.

Ph. D. in Geography
I Semester
GOG CC 141: Research Methodology in Geography

L	T	P	C
4	0	0	4

(Total Lectures: 60)

Unit1

An over view, Meaning , significance and types of Research; Steps in Research; Procedure of Scientific Research; Identification and Selection of Research Problem; Defining Research problem; Review of Literature- Need and Procedure. Research Design/Format; Hypothesis: Need and Procedure to formulate hypothesis.

(12 Lectures)

Unit 2

Sampling: Concept and Need of Sampling, Size of sampling, methods of sampling-merits and demerits; Measurement in Research, Indicators: Selection of Indicators, Selection of statistical methods.

(12 Lectures)

Unit 3

Methods of Data Collection: Nature, need and significance, Sources of data in Geography, Types of Data, Methods of Fieldwork, Methodology and tools of data collection, observation, questionnaire, schedule and interview. Procedure for designing questionnaire/schedule, coding.

Classification and tabulation of data; Processing and Analysis of collected Data: Editing,; Cartographic presentation: Need, significance, Selection of Cartographic methods- maps, diagrams, combination of maps and diagram.

(12 Lectures)

Unit 4

Analysis of data: Measurement of averages, ratios central tendency, dispersion and relationship. Hypothesis testing, use of recent available computer added methodologies;

(12 Lectures)

Unit 5

Report writing: Interpretations: meaning and techniques, steps of report writing, formatting and structuring the content of chapters, procedure to decide the format of chapters, tables, maps and diagrams, Drafting of Report of the research work.

(12 Lectures)

Suggested Readings:

- Kothari C.R. and Garg G. **Research Methodology: Methods and Techniques**, New Age International Publisher, London. 2016.
- Kumar Ranjit, **Research Methodology**, Sage Publication, New Delhi. 2016.
- Misra, Harikesh N. **Research Methodology in Geography**. Rawat Publication. 2015
- Murthy K. L. Narsimha. **Research Methodology in Geography**. Concept Publication. New Delhi. 2014.
- Misra H.N.and V.P.Singh. **Research Methodology in Geography: Social Spatial and Policy Dimensions**. Rawat Publications New Delhi,1998.
- Prasad H. **Research Methods and Techniques in Geography**, Rawat Publication New Delhi 1992
- Sheskin,I.M. **Survey Research for Geographers**, Scientific Publishers, Jodhpur,1987.
- Minshull, R. **Introduction to Models in Geography**, Longman, London,1975.
- Harvey, David. **Explanation in Geography**, Edward Arnold London, 1971.
- Chorley, R.J. and P.Haggett(ed.) **Models in Geography**, Methuen London,1967.
- Goode ,W.I .and P.K.Hatt. **Methods in Social Research**, McGraw Hill, Tokyo,1962

Ph. D. in Geography
I Semester
GOG CC 142 Application of Geoinformatics in Geographical Studies
(Practical)

L	T	P	C
0	0	8	4

Unit I

Introduction to geoinformatics. Importance of geoinformatics in geographical studies. Basics of remote sensing, GIS and GPS. (12 Lectures)

Unit II

Remote sensing and application. Image processing, enhancement. Methods of image classification; supervised, unsupervised and hybrid classification, their merits and demerits. Band Ratio and Indexes; NDVI, NDSI. (12 Lectures)

Unit III

Meta Data; Data base management system (DBMS). Generation of DBMS; point, line, polygon. Spatial analysis; buffer, intersect, dissolve, clip, mask. Conversion from raster to vector, vector to raster. (12 Lectures)

Unit IV

Components of GPS. Errors and accuracy in positioning. GPS surveying; Rapid and Standard mobile mapping. Processing and integration of GPS data. (12 Lectures)

Unit V

Prepare a project report as assigned by the course instructor. (12 Lectures)

Suggested Readings:

- Lillesand, Thomas M. *Remote Sensing and Image Interpretation*. Wiley India, New Delhi. 2016.
 Joseph, G. *Fundamentals of Remote Sensing*, Universities Press, India. 2016.
 Nath Sandhu. *An Introduction to Remote Sensing*, Koross Press, London. 2015.
 Michael, N. Demers. *Fundamentals of Geographic Information System*, Wiley India. New Delhi. 2015.
 Lawrence Fox III. *Essentials Earth Imaging for GIS*. ESRI Press. 2015.
 Schowengerdt, R. A. *Remote Sensing: Models and Methods for Image Processing*. Elsevier, Amsterdam. 2013
 Walter Fisher. *Remote Sensing for GIS*, NYX Academics, New Castle. 2012.
 Campbell J. B., *Introduction to Remote Sensing*, Guildford Press, 2007.
 Joseph, G. *Fundamentals of Remote Sensing*, United Press, India, 2005.
 Jensen J. R., *Introductory Digital Image Processing: A Remote Sensing Perspective*, Prentice Hall, 2004.
 Lillesand T. M., Kiefer R. W. and Chipman J. W., *Remote Sensing and Image Interpretation*, Wiley. (Wiley Student Edition), 2004.
 Rees W. G., *Physical Principles of Remote Sensing*, Cambridge University Press, 2001.
 Wolf P. R. & Dewitt B. A., *Elements of Photogrammetry: With Applications in GIS*, McGraw-Hill, 2000.
 Rampal, K. K. *Handbook of aerial Photography & Interpretation*, Concept Publication, New Delhi. 1999.
 Nag P. & Kudra, M., *Digital Remote Sensing*, Concept, New Delhi, 1998.
 Singh R. B. & Murai S., *Space-informatics for Sustainable Development*, Oxford and IBH Pub, 1998.

Ph. D. in Geography
I Semester
GOG CC 143: Review of Published Work

Total Credits: 04

Course content:

1. Review of Literature
2. Field Visit and Pilot Survey
3. Presentation of Project Report
4. Viva- Voce

There shall be an Evaluation Committee to evaluate the Review of Literature. The evaluation process shall involve seminar presentation by the candidates followed by viva-voce.

The Ph. D. student shall be required to submit two copies of typed project report.

The distribution of marks for the review of published work will be as follows:

Review of Literature	= 40 Marks
Presentation of Project Report	= 50 Marks
Viva-voce	= 10 Marks
Total marks	= 100 Marks

Note: Review of published work will be valued as per university ordinance pertaining to Ph.D. Programme.

Suggested Readings:

- Ridley, Daina. *The Literature Review: A Step-by-Step Guide for Students*, SAGE Publication Ltd. 2012.
- Kothari C.R. and Garg G. *Research Methodology: Methods and Techniques*, New Age International Publisher, London. 2016.
- Kumar Ranjit, *Research Methodology*, Sage Publication, New Delhi. 2016.
- Misra, Harikesh N. *Research Methodology in Geography*. Rawat Publication. 2015
- Murthy K. L. Narsimha. *Research Methodology in Geography*. Concept Publication. New Delhi. 2014.
- Misra H.N.and V.P.Singh. *Research Methodology in Geography: Social Spatial and Policy Dimensions*. Rawat Publications New Delhi,1998.
- Prasad H. *Research Methods and Techniques in Geography*, Rawat Publication New Delhi 1992

Ph. D. in Geography
I Semester
GOG EC 141: Advanced Geomorphology

L	T	P	C
4	0	0	4

(Total Lectures: 60)

Unit 1

Introduction to Geomorphology: Scope and significance; Climatic elements and Geomorphic process in Tropics – Nature of rocks and their impacts on relief in Tropics; Natural vegetation and their impact on relief in Tropics- Morphogenetic regions

Weathering process and products- factors defining depth of weathering-profile of weathering-Duricrust and Laterites: Structure, Morphology, Profile, Distribution and Origin with special reference to India- Denudational processes, Mechanical and Chemical- Mass Movement- Slope wash and Stream erosion- Slope development. (12 Lectures)

Unit 2

Tropical Terrain: Relief, Drainage and Landform- Slopes, Valleys, Domes, Inselbergs, Tors and Ventifacts- Pediment characters, Distribution and origin and theories of development- plane surface in Tropical Region. Tropical landforms: Mapping and identification of Tropical Landforms, Tropical Landforms and their utility. (12 Lectures)

Unit 3

Fluvial Geomorphology and Geography: Hydrological cycle and sub-cycle, Drainage pattern evolution; limits of drainage development, channel changes with time, Genetic classification of Streams, phases of drainage network development; Drainage modification and rearrangement. River and Stream and River Valleys. (12 Lectures)

Unit 4

River erosion and river transport; work of river, water and channels, river energy, river erosion, sediments transport, river valleys, graded river and profile of equilibrium, Interruptions and accidents- movement of base level. Depositional work of river, landform produced by river, incised meanders, Flood plain, Natural levels, Depth- Ideal condition for the formation, structure, growth and classification, major deltas of Indian river. (12 Lectures)

Unit 5

Drainage basin as a fundamental geomorphic unit; Drainage basin forms and processes, drainage basin morphometry, Morphometric interrelations, linear aspects, stream ordering, bifurcation ratio, law of stream numbers, length ratio, law of stream length, sinuosity indices. Areal aspect: geometry of basin shape and law of basin areas. Relief aspect: Relative reliefs, dissection index law of channel slope, profile analysis. (12 Lectures)

Suggested Readings:

- Kale, V.S. & Gupta, A.: **Introduction of Geomorphology**, Quent pub. 2001.
 Kandolf, M. & Pigay, H.: **Methods in fluvial Geomorphology**, New York, Jon Wiley, 2001
 Garner, H.F. The Origin of Landscape – **A Synthesis of Geomorphology**, Oxford University Press, London 1974
 Hugget, R. J. **Fundamentals of geomorphology**, Routledge Taylor & Francis, London, 2017.
 Strahler, A.N. and Stahler, A.M. **Modern Physical Geography**. Wiley India, New Delhi, 2016.
 Singh, S. **Physical Geography**. Pravalika Publications, Allahabad, 2016.
 Bryant Richard, H. **Physical Geography**. Rupa Publication. New Delhi, 2016.
 Hussain M. **Physical Geography**. Anmol Publication. New Delhi. 2014.
 Summerfield, M. **Global Geomorphology**. Routledge, New York. 2013.
 Bloom A. L. **Geomorphology**. Rawat Pulication, Jaipur, 2012.
 Robinson, P.J. & S. Henderson. **Contemporary Climatology**. Henlow, 1999.
 Singh, S. **Geomorphology**. Prayag Publications, Allahabad, 1998.
 Stoddart, D. R. **Process and Form in Geomorphology (Edited)**. Routledge, New York, 1996.
 Chorley, R.J. **Spatial Analysis in Geomorphology**. Methuen, London. 1972.
 Sparks, B.W. **Geomorphology**. Longman, London, 1960.
 Thornbury, W. D. **Principles of Geomorphology**. John Wiley, New York, 1960.
 Mitchell, C.W., **Terrain Evaluation**. Longman, London, 1973.
 Wooldridge, S.W. and Morgan, R. S. The Physical Basis of Geography- An Outline of Geomorphology. Longman, London, 1959.

Ph. D. in Geography
I Semester
GOG EC 142: Population Analysis: Theories and Techniques

L	T	P	C
4	0	0	4

(Total Lectures: 60)

Unit 1

Approaches and Methodology to Population Analysis: Systematic, Regional, temporal, System and Behaviour Approach; Sources of Demographic Statistics, their reliability and removal of discrepancies, errors emanating from boundary changes, local data and problems of comparability of data;

(12 Lectures)

Unit 2

Methods and Techniques of primary data collection; Tabulation and processing of demographic data; Methods of calculation of rates and ratios particularly Fertility, Mortality and Growth rates.

(12 Lectures)

Unit 3

Problem of mapping and classification; Regionalization of population attributes: Dot patterns, density patterns and population characteristics.

Temporal attributes of population: Birth, Death and Migration, Theories of Migration, Demographic Transition model.

(12 Lectures)

Unit 4

Population and Resources: Concepts of over population, under population and optimum population. Theories of Malthus and Boserup; Implications of Population change. (12 Lectures)

Unit 5

Population characteristics and dynamics in India; population ageing; Population problems and prospects in India; population and development; Population policies of India; Population regions of India; food, Nutrition and Health in India.

(12 Lectures)

Suggested Readings:

- Chandna, R.C.: **Population Geography**. Kalyani Publisher, New Delhi. 2015.
- Roy, R. **A Handbook of Population Geography**. Anmol Publication, New Delhi. 2013.
- Hussain A. **Population geography**, Vishwabharti Publication. New Delhi. 2013.
- Kulkarni, K. C. **Population and Settlement Geography**. Pacific Publication, Delhi, 2012.
- Agrawal, K. **Population Ecology**, Pacific Publication, Delhi, 2010.
- UNDP: **Human Development Report**: Oxford University Press, Oxford 2002.
- Srinivasan, K.: **Basic Demographic Techniques and Applications**, Sage Publications, Delhi, 1998.
- Daugherty, H.G., Kenneth C.W. Kammeyir: **An Introduction to Population**. The Guilford Press, New York, 1998
- Crooch, Nigel: **Principles of Population and Development**. Pergamon, New York, 1997.
- Mishra, R.P. **Demographic Upsurge**. Book Centre, New Delhi, 1995.
- Sundaram, K.V. and Sudesh Nagia (ed.): **Population Geography**. Heritage Publications, Delhi, 1986.
- Woods, R.: **Population Analysis in Geography**. Longman, London. 1979.
- Wunsch, G.L. & Termote M.G., **Introduction to Demographic Analysis- Principles and Methods**. Plenum Press New York, 1978.
- Shryock, H.S. and others, **Methods and Material of Demography**. Academic Press, New York, 1976.
- Thompson, W.S. and Lewis, D.T. **Population Problems**. Tata McGraw Hill Publishing Co., New Delhi, 1976.
- Clark, J.I. **Population Geography**. Pergamon Press, Oxford, 1973
- United Nations: **Determinants and Consequences of Population Trends**. New York, 1973.
- Garnier, B.J.: **Geography of Population**. Longman London, 1970.
- Trewartha, G.T.: **Geography of Population: World Patterns**, Pergamon Press, New York, 1969.
- Bogue, D.J.: **Principles of Demography**. John Wiley, New York, 1969.
- Zelinsley, Wilbur: **A Prologue to Population Geography**. Prentice Hall, 1966.
- Boserup, E. **The Conditions of Agricultural Growth**. George. Allen & Unwin, London, 1965.
- Barclay, G.W. **Techniques of Population Analysis**. John Wiley, New York, 1959.
- चौदना, आर सी : **जनसंख्या भूगोल**, कल्याणी पब्लिशर्स नयी दिल्ली,
- पण्डा, बी पी : **जनसंख्या भूगोल**, मध्यप्रदेश हिन्दी ग्रंथ अकादमी, भोपाल
- मौर्य, एस. डी. : **जनसंख्या भूगोल**. शारदा पुस्तक भवन, इलाहाबाद

Ph. D. in Geography
I Semester
GOG EC 143: Agricultural Geography: Concepts and Techniques

L	T	P	C
4	0	0	4

(Total Lectures: 60)

Unit 1

Approaches to the study of agricultural geography: Commodity approach, regional approach, systematic approach, behavioural approach and ecological approach; Concepts of agricultural geography.

(12 Lectures)

Unit 2

Theories of agricultural location: Theory of Von Thunen, Losch, optimum physical conditions and limits, Optimum economic conditions and limits and game theory.

(12 Lectures)

Unit 3

Agricultural productivity: Concepts and methods – Ranking coefficient method of Kendall, Land Carrying capacity methods, efficiency index method, crop concentration and crop diversification.

(12 Lectures)

Unit 4

Agricultural regionalization-concepts and techniques, methods of agricultural regionalization: Whittlesy classification of world agricultural. Agricultural types- concepts and methods (Kostrowicki- world type of agriculture); Field studies and surveys-techniques of land use survey, land capability survey, soil surveys and land classification; Techniques of mapping of agricultural data.

(12 Lectures)

Unit 5

The concept of agricultural development, determinants of agricultural development, methods of determination of level of development, agricultural development of socio-economic structure; Agricultural Policies and Programmes in India.

(12 Lectures)

Suggested Readings:

- Banarjee, D. **Agricultural Geography**. Random Publications New Delhi. 2014.
 Gupta, Rajiv. **Agricultural Geography**, Sonali Publication. New delhi. 2014.
 Noor Mohammad. **Agricultural Diversification, Food security in the Mountain Ecosystem**, Concept Publishing Company, New Delhi. 2014.
 Hussain, Majid, **Systematic Agricultural Geography**. Rawat Publication jaipur, New Delhi, 2010.
 Noor Mohammad, ed, **New Dimensions in Agricultural Geography**. Concept Pub.Co., New Delhi, 1992.
 Singh, J. and Dhillon S.S., **Agricultural Geography**. Tata McGraw Hill Pub.New Delhi, 1988.
 Grigg, D.B. **Agricultural Systems of the World**. Cambridge University Press, New York, 1974.
 Tarrant, J.R. **Agricultural Geography**. Wiley, New York, 1974.
 Morgan, W.B. and Norton. R.J.C., **Agricultural Geography**. Matheun, London, 1971.
 Gregor, H.P. **Geography of Agriculture**. Prentice Hall, New York, 1970.
 कुमार, प्रमीला एवं श्रीकमल शर्मा: कृषि भूगोल, मध्यप्रदेश हिन्दी ग्रन्थ अकादमी भोपाल, 2015.
 तिवारी आर सी तथा बी एन सिंह कृषि भूगोल प्रयाग पुस्तक सदन इलाहाबाद 2012

Ph. D. in Geography
I Semester
GOG EC 144: Regional Planning and Development

L	T	P	C
4	0	0	4

(Total Lectures: 60)

Unit 1

Regional concepts in geography; Types and Delineation of region; Regional development: concepts, levels, and indicators; Regional Planning: concepts and scope; Concept of planning regions and their types; Planning regions of India; Regional policies in India.

(12 Lectures)

Unit 2

Models for Regional Planning: Growth Pole Theory; Core Periphery Model and Growth Foci Concept in Indian Context; Rural Growth centers for micro-level regional planning and integrated area development. Planning for sustainable development.

(12 Lectures)

Unit 3

Approaches to integrated regional planning at different levels- local, regional and national; Multi-level planning in India- State, District and Block level planning.

(12 Lectures)

Unit 4

Development Perspective: Service and market centre planning; Growth centre and regional development with reference to India. Decentralized planning: themes and issues; Regional planning: Development strategies in the 21st century in context of India.

(12 Lectures)

Unit 5

Planning for tribal, agricultural, industrial and urban (metropolitan) regions- a case of Bundelkhand region; Regional Development strategies in the 21st century; NITI Ayog: Its role in Regional Development.

(12 Lectures)

Suggested Readings:

- Gupta, H. S. **Regional Development and Planning**. Kalyanai Publication, New Delhi. 2017.
 Chand, M. and Puri, V.K. **Regional planning in India**; Allied Publishers, New Delhi, 2016.
 Chandana, R. C. **Regional Planning and Development**, Kalyani Publication. 2016.
 Sundram K. V. **Geography of Planning**. Concept Publishing Co. New Delhi, 2012.
 Sundram K. V. **Development Planning at the Grass Roots**, Concept Publishing Co. New Delhi, 2012.
 Haynes J., **Development Studies**, Polity Short Introduction Series, 2008.
 Chandana, R.C., **Regional Development and Planning**. Kalyani Publishers, New Delhi, 2005.
 Bhat, L.S. **Micro Planning: A Case Study of Karnal Area**, KB Publications, New Delhi, 2003.
 Mahapatra, A.C. and Pathak, C. R. (eds.) *Economic liberalisation and Regional Disparities in India. Special Focus on the North Eastern Region*. Star Publishing House, Shillong, 2003.
 Pathak, C. R., **Spatial Structure and Processes of Development in India**. Regional Science Association, Kolkata, 2003.
 Mishra R. P. **Regional Planning: Concepts, Techniques, Policies and Case Studies**. Concept Publishing, New Delhi, 2002.
 Sen, A., **Development as Freedom**. Oxford University Press, Oxford, 1999.
 Smith, D. and Nārman, A. (eds.) **Development Theory and Practice: Current Perspectives on Development and Development Co-operation**. Longman, London, 1999.
 Claval P.I., **An Introduction to Regional Geography**, Blackwell Publishers, Delhi, 1998.
 Sen, A. and Dreze, J. (eds.), **Indian Development: Selected Regional Perspectives**. Oxford University Press, Oxford, 1996.
 Dube, K.K. and Singh, M.B. **Pradeshik Niyojan**. Tara Book Agency, Varanasi, 1986.
 Mishra, R.P, Sundaram, K.V., and Prakasarao, V.L.S. **Regional Development** MIT Press, Massachusetts, 1976.
 Kuklinski, A.R. (ed.), **Regional Development and Planning: International Perspective**, Sijthoff-Leydor, 1975.
 Moseley, M.J., **Growth Centres in Spatial Planning**. Pergamon Press, Oxford, 1974.
 Kuklinski, A.R. **Growth Centres in Regional Planning**. Mouton & Company, Paris, 1972.
 Bhat, L.S. **Regional Planning in India**, Indian Statistical Institute, Calcutta, 1972.
 Blij H. J. De, **Geography: Regions and Concepts**, John Wiley and Sons, 1971.
 Johnson E. A. J. **The Organization of Space in Developing Countries**, MIT Press, 1970.
 Friedman, J. and Alonson, W. (eds.), **Regional Development and Planning**, M.I.T. Press, Cambridge-Massachusetts, 1968.
 Isard, W., **Methods of Regional Analysis**. MIT Press, Cambridge, MA, 1960

Ph.D. in Geography
I Semester
GOG EC 145 Cryosphere and Water Resource Assessment

L	T	P	C
4	0	0	4

(Total Lectures: 60)

Unit I

Introduction to cryospheric studies. Climate change and its impact on future water resources. Global and regional distribution of glaciers and associated issues.

(12 Lectures)

Unit II

Glaciers and their classification. Different zones of glaciers and their significance. Palaeo- glacial reconstruction methods; landforms and Equilibrium Line Altitude (ELA). Methods of ELA reconstructions; THAR, TSAM, MELM, AAR etc.

(12 Lectures)

Unit III

Dating methods of glacial reconstruction. Relative and absolute dating methods. Radiocarbon, Optical Stimulated Luminescence (OSL) and Cosmogenic Radio Nuclide (CRN) dating methods and their strength and limitation in dating the palaeo-glaciation in the Himalayas.

(12 Lectures)

Unit IV

Snow and Glacier monitoring in Himalayas. Terminus and mass balance monitoring techniques. Remote sensing and GIS application in glacier monitoring.

(12 Lectures)

Unit V

Alpine glaciers and their asynchronous character throughout the geological time period. Global Last Glacial Maximum (LGM) and its regional patterns. Little Ice Age and its presence in Himalayan glaciers.

(12 Lectures)

Suggested Readings: Books

Barry, R. G. and Chorley, R. J. 2003: Atmosphere, weather and climate, Routledge, 8th edition. London: Methuen.

Huddart, D. and Stott, T. 2010: Earth environments past, present and future, Wiley Blackwell, 1st edition, West Sussex.

Shroder, J.F. (edited) 2005: Himalaya to the sea geology, geomorphology and the Quaternary, Taylor & Francis, London.

Anderson, G.D.; Maasch, K.A.; Sandweiss, D.H. (edited) 2007: Climate Change and cultural dynamics, a global perspective on Mid-Holocene Transition, Academic Press, London. Walker, Mike 2005: Quaternary Dating Methods, John Wiley & Sons, West Sussex. Last, W.M. and Smol, J.P. (edited) 2002: Tracking Environmental change using lake sediment vol I, Kluwer Academic Publishing, New York.

Bennet, M.R. and Glasser, N.F. 2009: Glacial geology ice sheets and landforms, Wiley Blackwell, West Sussex.

Journals: Quaternary International, Quaternary International Review, Journal of Quaternary Science, Quaternary, Climate of the Past, Nature Geoscience

Ph. D. in Geography I Semester

GOG EC 146: Geo - Tourism

Objectives: Tourism is one of the important physio-cultural economic aspect of any region. Geography can provide better way and opportunities for the development of tourism. To make students aware about ecotourism and new dimensions of tourism in the changing Global scenario. This course/ programme also covers impact of geographical aspects on the tourism development in India.

L	T	P	C
4	0	0	4

(Total Lectures: 60)

Unit 1

Tourism: meaning, scope and concepts. Recent trends of tourism. Geographical factors of tourism: Physio-Cultural, Economical and Ecological. Motivating factors of tourists: Leisure and Recreational. Elements of tourism as an Industry. (12 Lectures)

Unit 2

Tourism: Types-Regional, Domestic, International, inbound and outbound. Forms of tourism: Heritage, adventure, Health, Sports, Green, Rural and MICE. Ecotourism: nature, scope, Principles, Basic components, Classification, Impact, planning and development. (12 Lectures)

Unit 3

Indian tourism: Regional Dimensions of tourist Attraction. History and Development. Barriers of tourism. Recent planning of development in tourist places. National Parks and Wildlife Sanctuaries with Special Reference to Madhya Pradesh. Tourism ethics and Indigenous Culture in India. Tourism Policies in India. Future of tourism in India. (12 Lectures)

Unit 4

Tourism Infrastructure: Different Modes: Land, Water and Air. Accommodation- Meaning and Definition, Types of Accommodation and their Significances. Attraction, Accessibility Amenities, and Administration. Tour package: Definitions, components and types. Impact of Tourism; Physical, Social, Economical, Ecological and Employment. (12 Lectures)

Unit 5

Tourism Circuits: Popular Tourism circuits in India. Case Studies of Different Geo-tourists Places: Natural Landscape-Himalayan tourist places, Coastal Belt of India, Vindhyans, Hill Stations-Pachmarhi and Amarkantak, Waterfalls of Madhya Pradesh, etc. Biosphere Reserve and Biodiversity in Madhya Pradesh. (12 Lectures)

Essential Readings:

Kamra, K.K. & Chand, M.- **Basics of Tourism: Theory, Operators and Practices**. Kanishka Publishers, Distributors, New Delhi. 2015

Bhatia, A.K. **International Tourism Management**, Sterling Publishers Pvt. Ltd. New Delhi. 2014

Nelson, Velvet, **An Introduction to the Geography of Tourism**, Rawat Publications, Jaipur, New Delhi.

Dixit, M. **Tourism Geography and Trends**, Royal Publication

Gupta.V.K, **Tourism in India**. Gian Publishing House, Delhi.

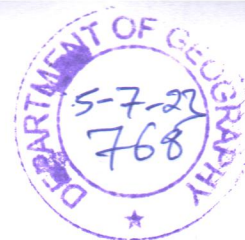
Sharma, J.K. **Tourism Planning and Development- A New Perspective**, Kanishka Publishers, NewDelhi.

Suggested Readings:

Bhatia, A.K. **Tourism Development: Principles and Practices**. Sterling Publishers.

Swain, S.K. and Mishra, J.M. **Tourism: Principles and Practices**.

Duval David Timothy. **Tourism and Transport: Modes, Networks and flows**. Channel view Publications.



Ph.D. in Geography
GOG EC 147 Advance Methods in Glaciology

Objective: To train students in the field of glaciology.

L	T	P	C
4	0	0	4

(Total Lectures: 60)

Unit 1

(12 Lectures)

Introduction to glaciology; Importance of glaciology; glaciers; Glacier-climate interaction; Glacier landform system, Snow and Glacier in the Himalayas. trends of glacial studies in the Himalayas.

Unit 2

(12 Lectures)

Mapping and Monitoring glaciers and glacial landforms; Remote sensing of glaciers; glacier mapping and satellite sensor characteristics; semi/automatic/manual glacier mapping method: Satellite/drone-based Glacial Geomorphological mapping.

Unit 3

(12 Lectures)

Glacier mass balance and motion; Methods of mass balance: glaciological, geodetic and hydrological; Equilibrium line altitude; assessment of length, area, mass changes in glaciers; Glacier motion and ice velocity.

Unit 4

(12 Lectures)

Reconstructing glacier fluctuations; historical-geospatial data sets and documents; Dating glacier fluctuations using absolute and relative age estimates; Paleoclimatic reconstruction: Glacial landscape evolution in the Himalayas; Current development in glacial landscape dating in India.

Unit 5

(12 Lectures)

Fieldwork in glaciology; The role of fieldwork in glaciology and glacial geomorphology; Planning and conducting glaciological fieldwork, Logistical preparations for fieldwork; Fieldwork data; Field mapping and measurement of landforms change over time; Field surveying tools and techniques.

Suggested Readings:

- Hubbard, B. and Glasser, N.F., 2005. Field techniques in glaciology and glacial geomorphology. John Wiley & Sons.
- Benn, D. and Evans, D.J.A. 2010: Glaciers and Glaciation, Hodder Arnold Publication, Routledge, London.
- McCoy, R. M. (2005). Field methods in remote sensing. Guilford Press.
- Embleton and Cuchlaine A.M. King 1968: Glacial and Periglacial Geomorphology, Edward Arnold, London.
- Barry, R.G. and Chorley, R.J. 2003: Atmosphere, weather and climate, Routledge. 8th edition. London: Methuen.
- Huddart, D. and Stott, T. 2010: Earth environments past, present and future, Wiley Blackwell. 1st edition, West Sussex.
- Shroder, J.F. (edited) 2005 :Himalaya to the sea geology, geomorphology and the Quaternary. Taylor & Francis, London.
- Walker, Mike 2005: Quaternary Dating Methods, John Wiley & Sons, West Sussex.
- Last, W.M. and Smol, J.P. (edited) 2002: Tracking Environmental change using lake sediment vol I. Kluwer Academic Publishing, New York.
- Bennet, M.R. and Glasser, N.F. 2009: Glacial geology icesheets and landforms, Wiley Blackwell, West Sussex.

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