

Structure with Course Titles

M.A. Geography Sem. III and IV

Year II

Code	Courses	Type of Course	Credits	Marks	Int	Ext
	Semester III					
310721	Internship	Major (Core)	4	100	50	50
310722	Internship	Major (Core)	4	100	50	50
310723	Advanced Cartography	Major (Core)	4	100	50	50
310714	Fundamentals of RS and GIS	Major (Core)	2	50	0	50
320711/ 320712	Regional Study of India / Geography of Rural Development	Major (Elective)	4	100	50	50
350731	Research Project	RP	4	100	50	50
			22	550	250	300
	Semester IV					
410711	Urban Geography	Major (Core)	4	100	50	50
410712	Soil Geography	Major (Core)	4	100	50	50
410723	Practicals in Remote Sensing	Major (Core)	4	100	50	50
420711/ 420712	Gender Geography/ Agriculture Geography	Major (Elective)	4	100	50	50
450731	Research Project	RP	6	150	100	50
			22	550	300	250

Course Syllabus

Semester III

Major (Core): Internship

Course Credits: 8

Major (Core): Advanced Cartography

Course Title	Advanced Cartography
Course Credits	4
Course Outcomes	After going through the course, learners will be able to
	Assess various tools and techniques of geographical analysis.
	Differentiate various tools and techniques of Cartography.
	Create various thematic maps through cartography.
Module 1(Credit 1) Cartographic Techniques	
Learning Outcomes	After learning the module, learners will be able to
	Apply appropriate cartographic techniques to analyze any geographical data in their further research.
Content Outline	1. Cartographic Techniques 1.1 Definition of Cartography, History and Development of Cartography 1.2 Representation of Statistical Data 1.3 One Dimensional figures, Two Dimensional figures and Three dimensional figures
Module 2(Credit 1) Thematic Maps and Computer Cartography	
Learning Outcomes	After learning the module, learners will be able to
	Handle online free softwares to prepare various thematic maps.
Content Outline	Thematic Maps and Computer Cartography 1.1 Thematic Maps: Isopleth, Choropleth, Choroschematic, Dot maps. 1.2 Tabulation and Representation of data using MS-Excel 1.3 Data Interpretation
Module 3(Credit 1) Introduction to GIS	
Learning Outcomes	After learning the module, learners will be able to
	Assess various sources of data in GIS.

Content Outline	3. Introduction to GIS 3.1 Definition, History and Development of GIS, Components of GIS 3.2 GIS Data types & Sources of Data 3.3 Georeferencing – Co-ordinate systems 3.4 Digitization of Features, 3.5 GIS Database and Data Attachment
1. Module 4 (Credit 1) GIS Open-Source Software and Map Making	
Learning Outcomes	After learning the module, learners will be able to Achieve the skill of modern geographical tool like GIS and GPS
Content Outline	1. GIS Open-Source Software and Map Making 1.1 Introduction of Open-Source Software 1.2 Map making through Open-Source Software 1.3 GPS mapping 4.4 Application of GIS

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE):

Assignments: Data download, Representation with appropriate cartographic method and its interpretation

Group Discussion: Applications of Cartographic techniques and GIS Techniques

Group Activities: Application of MS Excel and data analysis, Application of GIS in various fields

Project: Map making with Open Source Software and its analysis

References

Bernhardsen, Tor (1999): *“Geographic Information Systems: An Introduction”*, John Wiley and Sons.

Burroughs, P. A (1986): *“Principles of Geographical Information Systems for land Resources Assessment”*, Oxford University Press.

Chang, Kang-taung (2002): *“Introduction to Geographic Information Systems”*, Tata McGraw-Hill.

Clarke, Keith C. (1999): *“Getting Started with Geographic Information Systems”*, Prentice Hall.

Demers, Michael N. (2000): *“Fundamentals of Geographic Information Systems”*, John Wiley.

Environmental Systems Research Institute (1993): *“Understanding GIS: The Arc Info method”*.

Haywood, Ian (2000): *“Geographical Information Systems”*, Longman.

Sarkar Ashis (1997): *“Practical Geography: A Systematic Approach”*, Orient Black-Swan.

Singh R. L. & Rana P. B. Singh (2005): *“Elements of Practical Geography”*, Kalyani Publisher, New Delhi.

Training Course for GIS for resource management and development planning: Lecture notes, V1: *“GIS Fundamentals and Techniques”*, Government of India.

Major (Core): Fundamentals of RS and GIS

Course Title	Fundamentals of RS and GIS
Course Credits	2
Course Outcomes	After going through the course, learners will be able to
	Analyze the basic concepts Remote Sensing and Geographical Information System.
	Assess the modern techniques, tools of RS and GIS.
	Analyze Satellite Image and GIS Data.
Module 1(Credit 1): Fundamentals of Remote Sensing	
Learning Outcomes	After learning the module, learners will be able to
	Apply appropriate cartographic techniques to analyze any geographical data in their further research.
Content Outline	<p>Fundamentals of Remote Sensing</p> <p>1.1 Definition of Remote Sensing, History and Development of Remote Sensing</p> <p>1.2 Elements of RS - Electro - Magnetic - Spectrum, platform and sensor</p> <p>1.3 Interaction with Atmosphere and Earth surface</p> <p>1.4 Types of satellite and Satellite orbits</p> <p>1.5 Resolution types- Spatial, Temporal, Spectral and Radiometric</p> <p>1.6 Application of Remote Sensing</p>
Module 2(Credit 1) Fundamentals of GIS	
Learning Outcomes	After learning the module, learners will be able to
	Differentiate the types of data applied in GIS and its application. Handle online free softwares to prepare various thematic maps.
Content Outline	<p>Fundamentals of GIS</p> <p>2.1 Definition, History and Development of GIS</p> <p>2.2 Components of GIS: hardware, software, data, people, and methods.</p> <p>2.3 Sources of data: Maps, Images and other records</p> <p>2.4 GIS Data types - Spatial and non-spatial, Raster and Vector</p>

	<p>data</p> <p>2.5 Map Making- Georeferencing, Coordinate systems, Digitization of Features, Data Attachment, GIS Database, Map Making</p> <p>2.5 Application of GIS</p>
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Internal Assessment Total:

50 Marks

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE):

Assignments : History and development of Remote Sensing and GIS

Group Discussion : Applications of RS and GIS in the various fields

Group Activities: Data types in RS and GIS, Satellites and its main objectives, Data analysis in softwares

Project : Map making with Free Softwares and its analysis

References

Bernhardsen, Tor (1999): *“Geographic Information Systems: An Introduction”*, John Wiley and Sons.

Burroughs, P. A (1986): *“Principles of Geographical Information Systems for land Resources Assessment”*, Oxford University Press.

Chang, Kang-taung (2002): *“Introduction to Geographic Information Systems”*, Tata McGraw-Hill.

Clarke, Keith C. (1999): *“Getting Started with Geographic Information Systems”*, Prentice Hall.

Demers, Michael N. (2000): *“Fundamentals of Geographic Information Systems”*, John Wiley.

Guha P.K. (2003): *“Remote Sensing for the Beginner”*, Affiliated East-West Press Pvt. Ltd. New Delhi.

Haywood, Ian (2000): *“Geographical Information Systems”*, Longman.

Lillesand T.M. and Kiefer R.W. (2010): *“Remote Sensing and Image Interpretation”*, John Wiley & Sons Pvt. Ltd.

Training Course for GIS for resource management and development planning: Lecture notes, V1: *“GIS Fundamentals and Techniques”*, Government of India.

कार्लेकर श्रीकांत (२००७): *“दुरसंवेदन”*, डायमंड पब्लिकेशन, पुणे.

Major (Elective): Regional Study of India

Course Title	Regional Study of India
Course Credits	4
Course Outcomes	After going through the course, learners will be able to
	1. Analyze the various regional divisions of India, their important characteristics, Intra-regional and inter-regional linkages.
	2. Analyse the natural and human resource endowments, their conservation and management
	3. Sensitize with development issues and policies and programmes designed for regional development.
Module 1 (Credit 1)	
Learning Outcomes	After learning the module, learners will be able to
	Delineate various regional divisions of India, their important characteristics, Intra-regional and inter-regional linkages
Content Outline	<p>1. Regionalization and Physiographic Regions</p> <p>1.1 Regionalization: Concept of regional personality and perception of regional issues.</p> <p>1.2 Elements of regional enquiry</p> <p>1.3 Physiographic Regions, Drainage Systems, Climatic Characteristics, Natural Vegetation and Soil.</p> <p>1.4 Geopolitical conditions/characteristics</p>
Module 2 (Credit 1)	
Learning Outcomes	After learning the module, learners will be able to
	1. Evaluate agricultural regions and issues in the region
	2. Analyze the agriculture developments through implementation of government initiatives
Content Outline	<p>2. Agriculture:</p> <p>2.1 Nature, problems and prospects</p> <p>2.2 Infrastructure: Irrigation, fertilizers, power, seeds and farm technology</p> <p>2.3 Green revolution and its socio-economic and ecological implications</p> <p>2.4 Livestock resources and white revolution</p> <p>2.5 Aquaculture; Sericulture; Apiculture and poultry</p> <p>2.6 Agricultural regionalization; Agro-climatic regions; Agro-ecological zones.</p>
Module 3 (Credit 1)	
Learning Outcomes	After learning the module, learners will be able to

	Analyze the natural and human resource endowments, their conservation and management
Content Outline	3. Industries: 3.1 New industrial policy: Globalization and liberalization 3.2 Industrial complexes and industrial regions; Industrial houses and complexes including public sector undertakings; 3.3 Industrial regionalization; multi-nationals and liberalization 3.4 Special economic zones.
Module 4(Credit 1)	
Learning Outcomes	After learning the module, learners will be able to
	Evaluate development issues, policies and programmes designed for regional development.
Content Outline	4. Population characteristics and composition 4.1 Age, Sex, Literacy, Sex, work structure, etc. 4.2 Population problems and policies. 4.3 Contemporary Issues: Environmental Pollution and degradation 4.4 Natural Disasters – Pandemic, Regional Disparities, Globalization and Indian Economy.

Internal Assessment Total: 50 Marks

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE):

Seminar, Group Discussion , Home Assignments , Group Activities , Field Visit and Observation ,Project Work and Presentation

References

Alka Gautam (2009): *Geography of India*, Sharada pustakbhawan, University Road, Allahabad – UP.

Centre for Science & Environment (1988): *State of India's, Environment*, New Delhi

Deshpande, C.D. (1992): *India: A Regional Interpretation*, ICSSR & Northern Book Centre, New Delhi.

Dreze, J. & Sen A. (ed.) (1996): *India's Economic Development and Social Opportunity*, Oxford University Press, New Delhi.

Gautam, A. (2009): *Advanced Geography of India*, Second Edition, Sharada Pustak Bhawan, Allahabad.

Husain, M. (2008): *Geography of India*, Tata McGraw-Hill, New Delhi.

Khullar, D.R. (2009): *India: A Comprehensive Geography*, Kalyani Pub., New Delhi.

- Kundu A. and Raza, M. (1982): *Indian Economy: The Regional Dimension*. Spectrum Publishers, New Delhi.
- Majid Husain (2008): *Geography of India*, Tata Mc. Graw hill publishing co. ltd. N. Delhi.
- Robinson, F. (1989): *The Cambridge Encyclopedia of India, Pakistan, Bangladesh, Sri Lanka, Nepal, Bhutan & Maldives*, Cambridge University Press, London.
- Pritivish Nag and Smita Sengupta (1992) *Geography of India*, Concept Publishing Company, New Delhi – 59.
- Sharma TC and Coutinho O (2005): *Economic and Commercial geography of India*, Vikas Publishing House Ltd., New Delhi-14
- Singh R.L. (ed.) (1971): *India-A Regional Geography*, National Geographical Society of India, Varanasi.
- Spate, O.H.K. & Learmonth, A.T.A. (1967): *India & Pakistan*, Methuen, London.
- Tirtha R. and Gopal Krishna, (1996): *“Emerging India”* Rawat Publications, Jaipur.
- Tiwari, R.C. (2010): *Geography of India*, Prayag Pustak Bhawan, Allahabad.
- India: Year Books- 2015-2020.

Major (Elective): Geography of Rural Development

Course Title	Geography of Rural Development
Course Credits	4
Course Outcomes	After going through the course, learners will be able to 1. Overview of the Geography of Rural Development and the role of geography in rural development. 2. Evaluate the factors affecting the rural development, changing dimensions of the rural society and rural economy, and 3. Criticize various problems of the rural areas, its planning and rural development strategies in India.
Module 1(Credit 1) Introduction to Geography of Rural Development	
Learning Outcomes	After learning the module, learners will be able to Differentiate the indicators and factors affecting rural development.
Content Outline	1. Introduction to Geography of Rural Development 1.1 Definition, Nature and Scope of Geography of Rural Development 1.2 Meaning of Rural Areas, Development, Definition of Rural Development 1.3 Approaches to Rural Development – Sectoral Approach, Area Approach, Target Group Approach, Integrated / Holistic Approach 1.4 Factors affecting rural development - Geographical, Economic, Demographic, Social, Government Policy, etc.
Module 2(Credit 1) Rural Society and Economy	
Learning Outcomes	After learning the module, learners will be able to Assess the changing dimensions of the rural society and rural economy.
Content Outline	2. Rural Society and Economy 2.1 Concept of Rural Society and changing dimensions of the rural society 2.2 Basic Rural services and Infrastructural facilities 2.3 Contribution of Agriculture, Forestry, Animal Husbandry, Other Allied Agricultural Activities in Rural Development 2.4 Changing Rural Economic Structure
Module 3(Credit 1) Rural Development Problems in India	
Learning Outcomes	After learning the module, learners will be able to Evaluate major rural development problems with reference to

	India.
Content Outline	3.Major Rural Development Problems in India 3.1 Rural Unemployment 3.2 Rural poverty 3.3 Rural Housing 3.4 Transport Connectivity problem
Module 4(Credit 1) Rural Development Strategies in India	
Learning Outcomes	After learning the module, learners will be able to Classify different types of rural development and evaluate the strategies impact on rural development in India.
Content Outline	4.Rural Planning and Development Strategies in India - 4.1 Rural Planning - Types of rural planning 4.2 Integrated Watershed Management for Integrated Rural Development, Success story of Ralegan Siddhi 4.3 Rural Development Programmes in India: Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), Deen Dayal Upadhyay Grameen Kaushal Yojna: Swachhh Bharat Mission, Sansad Adarsh Gram Yojna 4.5 Applications of Remote Sensing and GIS in Rural Planning and Development

Internal Assessment Total: 50 Marks

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE):

Seminar : Approaches to Rural Development, Basic Rural services and Rural Development

Assignments : Participation of community in Rural Development,

Group Discussion : Rural issues and rural development, Rural Development Programmes and Rural development

Group Activities: Role of Government policies and rural Development, Applications of Remote Sensing and GIS

Project : Visit to native place and analysis of rural development, Rural Planning and Rural Development,

References

Chaudhari Shankar R. (2018): "Research Techniques and Applications in Rural Settlement Geography", Prashant Publications, Jalgaon.

Chaudhari C. B. (2015): "Geographical Study of Rural Service Centres in Ahmednagar District of Maharashtra State, Unpublished thesis submitted to North Maharashtra University, Jalgaon.

- Daniel, P. and Hopkinson, M. (1986): "*The Geography of Settlement*" Oliver & Boyd, Edinburgh.
- Grover, N. (1985): "*Rural Settlements - A Cultural Geographical Analysis*", Inter-India Publication, Delhi.
- Jha, Hetukar (1991): "*Social Structure of Indian Villages: A Study of Rural Bihar*", New Delhi, Sage Publications.
- Lalith, N. (2004): "*Rural Development in India Emerging Issues and trends*", Dominant Publications, New Delhi.
- M. V. Rao, V. Suresh Babu, K. Suman Chandra, Ravindra Chary, "*Integrated Land Use Planning for Sustainable Agriculture and Rural Development*" Apple Academic Press;
- Madan, Vandana (ed.) (2002): "*The village in India*" Oxford University Press.
- Mandal R. B. (1978), "Introduction to Rural Settlements" Concept Publishing Company, New Delhi.
- Mandal, R.B. (1989): '*Systems of Rural Settlements in Developing Countries*', Concept Publishing Company, New Delhi.
- Okore F.C., and Onokerhoraye A.G., (1994): "*Rural Systems and land Resources Evaluation for Africa*", Benin, City Social Science for Africa University of Benin.
- Patil Sardar A. (2015): "*Application of Geo-Spatial Technology for the Sustainable Rural Development: A Case study of Village Panutre*", An unpublished Minor Research Project Funded by the University of Mumbai during the academic year 2014-15.
- Ramchandran, H. (1985): "*Village Clusters and Rural Development*", Concept Publication, New Delhi.
- Rao, E.N. (1986): "*Strategy for Integrated Rural Development*". B.R. Publication Cor., Delhi.
- Sandanshiv L.P. (2010): "Levels of Economic Development Western Satpura region India", Unpublished thesis submitted to North Maharashtra University, Jalgaon.
- Sharma, K. L. (ed) (2001), "*Social Inequality in India*", Berkeley, University of California Press.
- Singh Katar (1986) "*Rural Development Principles and Policies and Management*", Sage Publication, New Delhi.
- Srinivas, M.N. (1996), "*Village, Caste, Gender and Method*", Delhi, Oxford University Press.
- Wanmali, S. (1983): "*Service Centres in Rural India*", B.R. Publication Cor., New Delhi.

RP: Research Project

Course Credits: 4

Internal Assessment Total:

50 Marks

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE):

Group Activity : Downloading of Research Papers, Government Reports, Data etc.,

Assignment : Selection of Research Topic, Writing of review of literature, Writing of Book Review, Writing of Research Proposal etc.

Presentation : Presentation of Research Proposal

References

Basil Gomez and John Paul Jones, (2010): "*Research Methods in Geography: A Critical Introduction (Critical Introductions to Geography)*", Wiley-Blackwell.

Davies Wayne K.D. (ed.), (1972): "*The Conceptual Revolution in Geography*", University of London Press Ltd., London.

Dydia DeLyser, Steve Herbert, Stuart Aitken and Mike A Crang, (2009) : "*The SAGE Handbook of Qualitative Geography*", Sage Publications Ltd.

Har Prasad, (1992): "*Research Methods and Techniques in Geography*", Rawat Publications.

Harvey D., (1973): "*Explanation in Geography*", Edward Arnold, London.

Iain Hay, (2010): "*Qualitative Research Methods in Human Geography*", Oxford University Press, USA.

Keith Hoggart, Loretta Lees and Anna Davies, (2002): "*Researching Human Geography*", Oxford University Press, USA.

Misra R. P., (1989): "*Research Methodology: A Handbook*", Concept Publishing Company, New Delhi.

Murthy, K.L. Narasimha (1999): *Geographical Research*, Concept Publishing company

Nicholas Clifford, Shaun French and Gill Valentine, (2010): "*Key Methods in Geography*", Sage Publications Ltd.

Robert Kitchin and Nick Tate, (1999): "*Conducting Research in Human Geography: theory, methodology and practice*", Benjamin Cummings.

Course Syllabus

Semester IV

Major (Core): Urban Geography

Course Title	Urban Geography
Course Credits	4
Course Outcomes	After going through the course, learners will be able to <ul style="list-style-type: none"><input type="checkbox"/> Acquaint the students with the spatial and structural characteristics of urban settlements.<input type="checkbox"/> Create awareness of/on special issues related to urban settlements enabling them to research and understand the practical applications of the same.<input type="checkbox"/> Develop ability to evaluate critically different theories and analytical approaches in process of urbanization
Module 1(Credit 1) Introduction to Urban Geography	
Learning Outcomes	After learning the module, learners will be able to <ul style="list-style-type: none">Develop various concepts of urban geography.Analyze the process of urbanization and trends of urbanization.
Content Outline	1.Introduction to Urban Geography <ul style="list-style-type: none">1.1 Definition, nature and scope of urban geography1.2 Definition of urban places: Global, including UN and India: problem in defining an urban Place1.3 Process of Urbanization, World Urbanization1.4 Trends and patterns of urbanization in India.
Module 2(Credit 1) Urban Functions and Theories	
Learning Outcomes	After learning the module, learners will be able to <ul style="list-style-type: none">1. Evaluate functional classification of urban towns.2. Relevance of urban growth theories with urban functions in present situation.
Content Outline	2.Urban Functions and Theories <ul style="list-style-type: none">2.1 Site and situations of urban places,2.2 Functional classification of towns.2.3 Urban growth and various theories by Christaller's, Losch, Perroux etc.
Module 3(Credit 1) Urban morphology	
Learning Outcomes	After learning the module, learners will be able to <ul style="list-style-type: none">1. Examine changing patterns of urban morphology and relevance of various city models of urban areas.2. Associate the hierarchy of urban settlements in the context of India.

Content Outline	3. Urban morphology 1.1 Urban morphology and land use structure, 1.2 Classic models of the city: Contemporary models of the city 1.3 New urban order, gentrification and Suburbanization 1.4 Hierarchy of Urban settlements, City - Region concept, Urban Expansion and Umland.
Module 4(Credit 1)Contemporary Urban Issues	
Learning Outcomes	After learning the module, learners will be able to
	1. Analyze contemporary urban issues at local and national level.
	2. Apply GIS and RS techniques in studying urban issues.
Content Outline	4.Contemporary Urban Issues 4.1Urban poverty, urban renewal, urban sprawl, slums; 4.2 Urban infrastructure; Urban crime and Issues of Urban health 4.3 Trends of Urban Research in India 4.4 Smart cities and sustainability of cities 4.5 Application of GIS and RS in Urban issues

Internal Assessment Total: 50 Marks

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE):

Seminar, Group Discussion , Home Assignments , Group Activities , Field Visit and Observation ,Project Work and Presentation

References

- Apte Madhusdhan (2013) Urban Growth Strategies: Mumbai Lessons, Leadstart Publishing Pvt Ltd, Mumbai –India
- Carter: The Study of Urban Geography, Edward Arnold Publishers, London, 1972.
- Chandana R C (2006): *“Regional Planning”*, Kalyani Publication, New Delhi.
- Doniwal H K (2009): *“Urban Geography”*, Gnosis, Delhi.
- Dutt Ashok, Misra H N and Chatterjee (2008): *“Explorations in Applied Geography”*, Prentice Hall of India Private Limited, New Delhi.
- Fyfe Nick & Kenny Judith (2005) The Urban Geography Reader, Routledge, Abindgon, UK
- Jonas Andrew, McCann Eugene & Thomas Mary (2015) Urban Geography: A Critical Introduction, 1st Edition, Wiley-Blackwell, New Jersey, USA
- Kundu A (1992): *“Urban Development and Urban research in India”*, Khanna Publication, New Delhi.

Kundu, A.: Urban Development and Urban Research in India, Khanna Publication, 1992.

Mayer and Kohn (2000): *"Readings in Urban Geography"*, University of Chicago Press, Chicago.

Meyor, H.M. Kohn C.F. (eds.): Readings in Urban Geography, University of Chicago Press, Chicago, 1955.

Ramachandran R (2007): *"Urbanization and Urban Systems in India"*, Oxford University Press, New Delhi.

Rao V.L.S.P.: Urbanization in India: Spatial Dimensions. Concept Publishing Co. New Delhi Concept, New Delhi.

Rao V.L.S.P.: The Structure of an Indian Metropolis: A study of Bangalore Allied Publishers Bangalore, 1979.

Schwanen Tim & Kempen Ronald (2019) Handbook of Urban Geography, Edward Elger Publishing, Cheltenham, UK

Sidhartha and Mukherjee (2007): *"Cities, Urbanization and Urban System"*, Kishalaya Publications, New Delhi

Verma L N (2006): *"Urban Geography"*, Rawat Publications, New Delhi

Major (Core) Soil Geography

Course Title	Soil Geography
Course Credits	4
Course Outcomes	After going through the course, learners will be able to
	1. Analyze the process of soil formation, distribution of soil in India and Maharashtra.
	2. Classify and differentiate physical, chemical and biological properties of soils and their significance in soil fertility and productivity
	3. Examine the Plant-water-soil relationship and evaluate the soil erosion
	4. Create awareness of soil conservation plans for the regions in India.
Module 1(Credit 1)	
Learning Outcomes	After learning the module, learners will be able to
	1. Examine the concepts of land and soil
	2. Associate the Plant-water-soil relationship and evaluate the soil erosion
Content Outline	<p>Introduction</p> <p>1.1 Soil and Soil Science, Concept of land and soil; Soil and Land relationship.</p> <p>1.2 Plant-water-soil relationship;</p> <p>1.3 Constituents of Soil- soil minerals, organic components, soil air, soil water, soil organism.</p> <p>1.4 Soil as a system of Dynamic Equilibrium in Nature</p>
Module 2(Credit 1)	
Learning Outcomes	After learning the module, learners will be able to
	1. Evaluate soil formation processes
	2. Analyze factors of soil formation and classify the soils.
Content Outline	<p>2. Soil Formation and Classification</p> <p>2.1 Soil formation factors - Physical: parent rock, time, topography and climate;</p> <p>2.2 Process of soil formation- weathering, humification, in-situ and transported soils;</p> <p>2.3 Soil Profile;</p> <p>2.4 Genesis and Classification of soils</p> <p>2.5 Types of soils in India and Maharashtra.</p>
Module 3(Credit 1)	
Learning Outcomes	After learning the module, learners will be able to
	1. Classify and differentiate physical, chemical and biological properties of soils and their significance in soil fertility and productivity
	2. Evaluate role of physico-chemical properties in soil fertility and productivity.

Content Outline	3. Soil Properties: 3.1 Physical properties - colour, texture, pore space, bulk density, infiltration, moisture content; 3.2 Chemical properties - pH, salinity, ion-exchange capacity; 3.3 Biological properties - soil organisms; Soil organic matter - total organic matter, humus, effect of organic matter on physical and chemical properties of soil; 3.4 Concept of soil fertility and plant productivity 3.5 Role of physico-chemical properties in soil fertility and productivity.
Module 4(Credit 1)	
Learning Outcomes	After learning the module, learners will be able to
	1. Evaluate soil degradation in different regions
	2. Develop the soil conservation plans for the regions in India
Content Outline	4. Soils of India: 4.1 Soils in Agro-climatic regions of Maharashtra 4.2 Problems and prospect of utilization of different soils in India; 4.3 Soil Degradation- Factors, process and resultant forms in different parts of India. 4.4 Conservation of major soils of India with special reference to Maharashtra.

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE):

Seminar, Group Discussion , Home Assignments , Group Activities , Field Visit and Observation ,Project Work and Presentation, Project Work and Presentation

References

- Biswas, T.D., and Mukherjee, S.K. (1987). *Textbook of soil science*. New York: McGraw-Hill.
- Boul, S.W., Hole, F.D., and McCracken, R.J. (1993). *Soil genesis and classification*. New Delhi: Affiliated East-West Press.
- Brady, N.C., and Weil, R.R. (1996). *The nature and properties of soil*. London: Longman
- Bridges, E. M. (1970): *World Soils*, Cambridge University Press, U.K.
- Chapman, J.L., and Reiss, M.J. (1993). *Ecology: principles and applications*. Cambridge: Cambridge University Press.
- Coleman, D.C., and Crosby, J. (1996). *Fundamentals of soil ecology*. San Diego: Academic Press.
- Daji, J.A. (1970): *A Text Book of Soil Science*, Asia Publication House, Mumbai.
- De, N.K. and Sarkar, H.K. (1993): *Soil Geography*, Sribhumi Publishing Company, Calcutta.
- Dohahue, E.L., et. al., (1987): *Soils: An Introduction to Soil and Plant Growth*, Prentice Hall of India, New Delhi.
- Foth, H.D. & Turk, L.M.(1972): *Fundamentals of Soil Science*, John Wiley & Sons, Inc., Canada.
- Foth, H.D. & Schafer, F.W. (1980): *Soil Geography and Landuse*, John Wiley & Sons, Inc., Canada.

Khan T.O. (2013): *Soil: Principles, Properties and Management*, Springer, New York

Miller, R.W. et. al., (1995): *Soil in Our Environment*, Prentice Hall, U.S.A.

Myers, A.A., and Giller, P.S. (1988). *Analytical biogeography: an integrated approach to the study of animal and plant distributions*. London: Chapman and Hall.

Odum, E.P. (1997). *Ecology: a bridge between science and society*. Sunderland: Sinauer Associates Inc. Publishers.

Pitty, A.F. (1978): *Geography and Soil Properties*, Methuen and Co. Ltd., London.

Paton, T. R., Humphreys, G.S., Mitchell, P. B. (1995): *Soils: A New Global View*, U.C.L. Press, London.

Rajan, G.S.V. and Rao G.H.G. (1978): *Studies on Soils of India*, Vikas, New Delhi.

Raychaudhari, S.P. (1958): *Soils of India*, ICAR, New Delhi.

Sharma, P.D., and Sharma, P.D. (2010). *Ecology and environment*. UP:Rastogi Publications.

Steila, D. (1976): *The Geography of Soils*, Prentice Hall, New Jersey.

U.S. Department of Agriculture (1957): *Soil, The Year Book of Agriculture*, New York.

Websites:

Soil and Land Use Survey of India (<http://slusi.dacnet.nic.in/>)

National Bureau of Soil Survey and Land Use Planning (<https://www.nbsslup.in/>)

IIRS, Agriculture and Soils Department (<https://www.iirs.gov.in/agricultureandsoilsdepartment>)

Farmer's Portal, Govt. of India (<https://farmer.gov.in/>)

Department of Agriculture, Govt. of Maharashtra (<http://krishi.maharashtra.gov.in/1001/Home>)

Major (Core): Practicals in Remote Sensing

Course Title	Practicals in Remote Sensing
Course Credits	4
Course Outcomes	After going through the course, learners will be able to
	1. Apply appropriate cartographic techniques to analyze the any geographical data in their further research.
	2.Handle the open source software to prepare various thematic maps.
Module 1(Credit 1) Basics of Remote Sensing	
Learning Outcomes	After learning the module, learners will be able to
	1.Corelate the basic concepts of Remote Sensing with Geography.
	2. Evaluate appropriate remote sensing data.
Content Outline	1. Basics of Remote Sensing 1.1 Aerial Photographs 1.2 Satellite Images in Remote Sensing 1.3 Global Positioning System (GPS)
Module 2(Credit 1) Elements of Aerial Photography	
Learning Outcomes	After learning the module, learners will be able to
	1. Interpret Aerial Photographs
	2. Analyze and differentiate various physical and cultural features in Aerial photographs
Content Outline	2. Elements of Aerial Photography 1.1 Basic Principles of Aeiral Photography 1.2 Types of Aerial Phtotographs 2.3 Flight management 2.4 3D visualization of Aerial Photos 2.5 Visual Interpretation of Aerial Photo
Module 3(Credit 1) 3. Satellite Images	
Learning Outcomes	After learning the module, learners will be able to
	1. Interpret images visually
	2. Create False and True Color Composite. 3. Analyze and differentiate various physical and cultural features in Satellite Images
Content Outline	3.Satellite Images 3.1 Types of Images: True & False Colour Composite 3.2 Elements of Visual Image Interpretation 3.3 Visual Interpretation of Images (Any Four)

Module 4(Credit 1) Image Analysis	
Learning Outcomes	After learning the module, learners will be able to
	1. Utilize Satellite data from the archives
	2. Create dataset using Digital Image Processing
Content Outline	4.Image Analysis 4.1 Download different satellite data 4.2 Introduction to Image Analysis Software / Portal 4.3 Digital Image Analysis

Internal Assessment Total: 50 Marks

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE):

Seminar : Importance of Toposheet and Satellite image

Group Discussion : Modern techniques in Geography

Home Assignments : Types of Aerial Photographs, Satellite Remote Sensing, Global Positioning System (GPS)

Group Activities : Download different satellite data , Interpretation of Images, GPS Survey , Explore tools and functions of Software

Project Work and Presentation : Image Analysis in RS Software

References

Burroughs, P. A (1986): *“Principles of Geographical Information Systems for land Resources Assessment”*, Oxford University Press.

Guha P.K. (2003): *“Remote Sensing for the Beginner”*, Affiliated East-West Press Pvt. Ltd. New Delhi.

Lillesand T.M. and Kiefer R.W. (2010): *“Remote Sensing and Image Interpretation”*, John Wiley & Sons Pvt. Ltd.

F H Moffitt, E M Mikhail (1980), *“Photogrammetry”*, Harper & Row Publishers, New York,.

Dasgupta, A. R. GD IPDPG, SAC (1998), *“An overview of data pre-processing of remotely sensed data – A tutorial on Image Pre-Processing”*, delivered at ISPRS Commission I conference during February, at Bangalore.

Karlekar Shrikant (2007): *“Door Samvedan”*, Daimond Publication, Pune.

Srivastava P. K. (1998), *“Specifications of data products and their relation with sensor and platform characteristics – A tutorial on ‘Image Pre-Processing”* IPPD/IPDPG/SAC, ISPRS Commission I conference, Bangalore.

Srivastava P. K., T. G. B. Srikant, T. P. Srinivasan, M. P. T. Chamy, P. M. Udani (1989), *“SPOT Stereo Data Processing: Determination of Digital Terrain Model from SPOT stereo pairs, Mathematical formulation and functional design”*

Major (Elective)

Course Title	Gender Geography
Course Credits	4
Course Outcomes	After going through the course, learners will be able to
	1. To introduce the fundamental concepts of Gender Geography.
	2. To comprehend various variables of gender and its impact on the development.
	3. To explore how gender relations and geography are mutually structured and transformed spatially.
	4. To analyze the gender inequality and bridging gender gap in the context of India.
Module 1(Credit 1) Introduction to Gender Geography	
Learning Outcomes	After learning the module, learners will be able to
	Differentiate the approaches of gender geography while studying various gender issues.
Content Outline	1.Introduction to Gender Geography 1.1 Definition, nature and Scope of Gender Geography 1.2 Emergence of Gender Geography 1.3Concept of interdependence between men and women 1.4 Approaches and trends in Gender Geography
Module 2(Credit 1) Gender Variables and Gender Development:	
Learning Outcomes	After learning the module, learners will be able to
	Analyze various variables of gender development.
Content Outline	2. Gender Variables and Gender Development 2.1 Historical Variables, Socio-Cultural, Demographic, economic, Political etc. 2.2 Administrative and institutional variables 2.3 Role of gender variables in development
Module 3(Credit 1) Gender Gap	
Learning Outcomes	After learning the module, learners will be able to
	Analyze the parameters of gender gap and the causes of gender inequality in context of Indian scenario.
Content Outline	2.Gender Gap 2.1 Concept of Gender Gaps, Parameters of Gender Gap 2.2 Gender Gap Analysis-Education, Education attainment, Health care and nutrition, Life expectancy, livelihood, participation in politics and enfranchisement 2.3 Global Scenario of Gender Inequality

	2.4 Spatial Gender Inequality in India
Module 4(Credit 1) Bridging Gender Gap	
Learning Outcomes	After learning the module, learners will be able to
	1. Analyze the Gender Audit
Content Outline	4.Bridging Gender Gap 4.1 Concept of Gender Audit 4.2 Role of Gender Budget in bridging Gender Gap 4.3 Bridging Gender Gap - Empowerment of women with education, economic opportunities, access to reproductive health services, involvement in decision making processes in various sectors

Internal Assessment Total: 50 Marks

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE):

Seminar : Role of gender variables in development of Maharashtra, Pune District

Home Assignments : . Gender Variables and Gender Development

Group Discussion : Gender equality in India, Home Assignments : Approaches and trends in Gender Geography

Group Activities : Overview of Government policies for Bridging Gender Gap

Project Work and Presentation : State-wise Gender Gap Analysis, Changing scenario to bridge the gender gap

References

Boserup, E. (1989): “*Women’s Role in Economic Development*”. Earthscan, London.

Dankelman, I. & Davidson, J. (1989): “*Women and Environment in the Third World*” Earthscan, London.

Deblig, H. J. (1996): “*Human Geography-Culture, Society and Space*”, 5th ed., John Wiley, New York.

Haraway, D. (1991): “*Simians, Cyborgs and Women*”, The Reinvention of Nature, Routledge, New York.

Johnston, R.J. et.al (eds.) (1996): “*The Dictionary of Human Geography*”, Blackwell, Oxford.

James K. S. (2010): “*Population, Gender and Health in India*”, Academic Foundation Radiant Book.

Koblinsky, M. et.al (eds.) (1993): “*The Health of Women-A Global Perspective*”, Westview Press, Boulder.

- Lee, D. (1988): *Women in Geography-A Comprehensive Bibliography*. Boca Raton, Florida.
- Lewis, R. (1995): *“Race, Femininity and Representation”*, Routledge, New York.
- Momsen, J. H. & Townsend, J. (eds.) (1987): *Geography of Gender in the Third World*, Albany, New York
- Reagent, A.C. & Monk J.J. (eds.) (1982): *“Women and Spatial change”* Kendall & Hunt, Dubuque, Iowa.
- Rhodda, A. (1991): *“Women and Environment”*, Zed, London.
- Seager, J.& Olson, A.: *“Women in the world - An International Atlas”*.
- Sharma, K. L. (ed) (2001), *“Social Inequality in India”*, Berkeley, University of California Press.
- Sivant, R.L.: *Women-A World Survey*. World Priorities Washington, D.C., 1985.
- Skjelsback, I & Smith, D.: *Gender, Peace and Conflict*. Sage, London, 2001.
- Sowell, T.: *Race and culture -A World View*. Basic Books, New York, 1994.
- UNICEF: *The Lesser Child-the Girl in India*. United Nations, Geneva, 1990.
- United Nations: *The World’s Women, 1970-1990*. United Nations, New York, 1991.
- United Nations: *World Resources 1994-95. Chapter 3: Women and Sustainable Development*. United Nations, New York, 1995.

Major (Core): Agriculture Geography

Course Title	Agriculture Geography
Course Credits	4
Course Outcomes	<p>After going through the course, learners will be able to</p> <p>1.Evaluate the origin and development of agriculture in India.</p> <p>2.Analyze physical, economic, technological and institutional factors and its impact on the agricultural sector with special reference to India.</p> <p>3.Examine the characteristics of agricultural types, agriculture regionalization and the problems and prospects of Indian agriculture.</p>
Module 1(Credit 1) Introduction to Agriculture Geography	
Learning Outcomes	<p>After learning the module, learners will be able to</p> <p>Analyze Agriculture in Spatial perspective and will able to create agricultural plans for different regions.</p> <p>Evaluate role of agriculture in Indian economy</p>
Content Outline	<p>1. Introduction to Agriculture Geography</p> <p>1.1 Definition, Nature and Scope of Agriculture Geography,</p> <p>1.2 Development of agriculture geography</p> <p>1.3 Approaches to the study of Agricultural Geography</p> <p>1.4 Significance of Agriculture in World Regions</p> <p>1.5 Role of Agriculture in Indian Economy.</p>
Module 2(Credit 1) Determinants of Agriculture	
Learning Outcomes	<p>After learning the module, learners will be able to</p> <p>Analyze the impact of various determinants on types of agriculture and its importance in economic development.</p>
Content Outline	<p>2. Determinants of Agriculture</p> <p>2.1 Factors influencing agriculture -Physical- Relief, Climate, Soil</p> <p>2.2 Economic factors-Landholding, marketing, Transport</p> <p>2.3 Technological factors- Irrigation, Seeds, Fertilizers, Power</p> <p>2.4 Institutional factors- Land Reforms,Von Thunen’s Theory of Agricultural Location</p>
Module 3(Credit 1)World Agricultural Typology	
Learning Outcomes	<p>After learning the module, learners will be able to</p> <p>Classify farming systems and practices based on various criteria like climate, soil, technology etc.</p> <p>Differentiate characteristics and role of various types of agriculture in economy.</p>

Content Outline	<p>3. World Agricultural Typology</p> <p>3.1 Shifting cultivation</p> <p>3.2 Intensive Subsistence Tillage</p> <p>3.3 Mixed farming</p> <p>3.4 Commercial grain farming</p> <p>3.5 Plantation agriculture</p>
Module 4(Credit 1)Agricultural regions, Problems and Prospects	
Learning Outcomes	<p>After learning the module, learners will be able to</p> <p>Evaluate the problems and emerging perspectives in agriculture and role of Government Initiatives for Sustainable agriculture.</p>
Content Outline	<p>4. Agricultural regions, Problems and Prospects</p> <p>4.1 Regionalization: Concept and Criteria, Methods of regionalization</p> <p>4.2 Agricultural regions of India</p> <p>4.3 Problems and Prospects of Indian Agriculture</p> <p>4.4 Emerging Perspectives in Agriculture and Government Initiatives for Sustainable agriculture</p> <p>4.5 National agriculture policy</p>

Internal Assessment Total: 50 Marks

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE):

Seminar : Agricultural regions of India, Problems and Prospects of Indian Agriculture

Group Discussion : Role of Agriculture in Indian Economy, Agriculture type and characteristics

Group Activities : National agriculture policy and agriculture development

Project Work and Presentation : Changing cropping pattern and agriculture development.

References

- Alka Gautam (2012): "*Agricultural Geography*" Sharda Pustak Bhawan, Allahabad.
- Bryant, C.R., Johnston, T.R. (1992), "*Agriculture in the City Countryside*", Belhaven Press, London.
- Burch, D., Gross, J. and Lawrence, G. (eds.) (1999), "*Restructuring Global and Regional Agriculture*", Ashgate Publishing Company, Burlington.
- Cakmak, I. and Welch, R. M. (eds) (2009), "*Impacts of agriculture on Human Health and Nutrition*", EOLSS Publications, UK.
- Ferroni, Marco (2013): "*Transforming Indian agriculture- India 2040: Productivity, Markets and Institutions*", Sage Publications, New Delhi.
- Grigg David (1995): "*An introduction to agricultural geography*", (second

- edition), Routledge, London and New York.
- Ilbert, B.E.T.W.E.E.N. (1985): "Agricultural Geography, Social and Economic Analysis", Oxford University Press.
- Mohammad, N. (1992): "*New Dimension in Agriculture Geography*", Vol. I to VIII, Concept Publishing Company, New Delhi.
- Mohammad, N. and Rai, S.C. (2014): "*Agricultural Diversification and Food Security in the Mountain Ecosystem*", Concept Publishing Company, New Delhi.
- Randhawa, M.S. (1980): "*A History of Agriculture in India*", Vols. I, II, III, IV ICAR, New Delhi.
- Roling, N.G., and Wageruters, M.A.E. (eds.) (1998): "*Facilitating Sustainable Agriculture*", Cambridge University Press, Cambridge.
- Shafi, M. (2006): "*Agricultural Geography*", Pearson Education, Delhi.
- Sing Jasbir and Dhillon, S.S. (1994): "*Agricultural Geography*" Tata McGraw Hill, New Delhi.
- Shrivastava, Sahay, Vidyarti and Singh (2010): "*Second Green Revolution Vs. Rainbow Revolution*".
- Tiwari, R. and Singh, B. (1994): "*Krishi Bhoogol*", Prayag Pustak Bhandar, Allahabad. (Hindi). 15. White P. (2007): "*Emergence of agriculture: A global view*", Routledge, London.
- Wright J. (2009): "*Sustainable agriculture and food security in an era of oil scarcity*", Earthscan, London.
- Young, A. (1998): "*Landuse Resources: Now and for the Future*", Cambridge University Press, Cambridge.

RP: Research Project

Course Credits: 6

Internal Assessment Total:

150 Marks

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE):

Assignment: Writing of Research Proposal, Data Collection and Analysis.

Research Project and Representation: Research paper presentation and publication, Research Project Chapter writing, Research Project submission

References

Basil Gomez and John Paul Jones, (2010): "*Research Methods in Geography: A Critical Introduction (Critical Introductions to Geography)*", Wiley-Blackwell.

Davies Wayne K.D. (ed.), (1972): "*The Conceptual Revolution in Geography*", University of London Press Ltd., London.

Dydia DeLyser, Steve Herbert, Stuart Aitken and Mike A Crang, (2009) : "*The SAGE Handbook of Qualitative Geography*", Sage Publications Ltd.

Har Prasad, (1992): "*Research Methods and Techniques in Geography*", Rawat Publications.

Harvey D., (1973): "*Explanation in Geography*", Edward Arnold, London.

Iain Hay, (2010): "*Qualitative Research Methods in Human Geography*", Oxford University Press, USA.

Keith Hoggart, Loretta Lees and Anna Davies, (2002): "*Researching Human Geography*", Oxford University Press, USA.

Misra R. P., (1989): "*Research Methodology: A Handbook*", Concept Publishing Company, New Delhi.

Murthy, K.L. Narasimha (1999): *Geographical Research*, Concept Publishing company

Nicholas Clifford, Shaun French and Gill Valentine, (2010): "*Key Methods in Geography*", Sage Publications Ltd.

Robert Kitchin and Nick Tate, (1999): "*Conducting Research in Human Geography: theory, methodology and practice*", Benjamin Cummings.