VIDYASAGAR UNIVERSITY

Midnapore, West Bengal

PROPOSED CURRICULUM&SYLLABUS (DRAFT) OF

B. Sc. (HONOURS/ HONOURS WITH RESEARCH)

MAJOR IN GEOGRAPHY

DRAFT

4-YEAR UNDERGRADUATE PROGRAMME

(w.e.f. Academic Year 2023-2024)

Based on

Curriculum & Credit Framework for Undergraduate Programmes (CCFUP), 2023& NEP, 2020

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VIDYASAGAR UNIVERSITY
BACHELOR OF SCIENCE (HONOURS/ HONOURS WITH RESEARCH) MAJOR IN GEOGRAPHY
(under CCFUP, 2023)

Level	YR.	SEM	Course Type	Course Code	Course Title		Credit	L-T-P	Marks		
									CA	ESE	TOTAL
B.Sc. (Hons./ Hons. with Research)	4th	VII	SEMESTER-VII								
			Major-14	GEOHMJ14	T: Foundations in Biogeography & Environmental Sustainability; P: Thematic Mapping (Practical)		4	3-0-1	15	60	75
			Major-15	GEOHMJ15	T: Population Geography, Global Economic Crisis & Geopolitics		4	3-1-0	15	60	75
			CRM	GEOHCRM	T: Research Methodology and Ethics; P: Practical		4	3-0-1	15	60	75
			Major Elective-03	GEOHDSE 03	Regional Geomorphology of India & West Bengal OR Water Resource Management		4	3-1-0	15	60	75
			Minor-07 (Disc.-I)	GEOMIN07	T: Landscape Ecology and Planning; *(To be taken by the other Discipline)*		4	3-1-0	15	60	75
						Semester-VII Total	20				375
		VIII	SEMESTER-VIII								
			Major-16	GEOHMJ16	T: Geographical Thought & Environmental Ethics; P: Spatial Analysis and Modelling (Practical)		4	3-0-1	15	60	75
			Major Elective-04	GEOHDSE04	T: Hydrology & Oceanography; P: Hydrological Techniques (Practical)		4	3-0-1	15	60	75
			Major Elective-05	GEOHDSE05	Regional planning & Development OR Settlement & Transport Geography	FOR HONOURS STUDENTS	4	3-1-0	15	60	75
			Major Elective-06	GEOHDSE06	Rural Development OR Agricultural Geography		4	3-1-0	15	60	75
			Research	GEOHRD	DISSERTATION:	*FOR HONOURS WITH RESEARCH STUDENTS*	*8*	*0-0-8*	*-*	*150*	*150*
			Minor-8 (Disc.-II)	GEOMIN08	T: Social & Cultural Geography; *(To be taken by the other Discipline)*		4	3-1-0	15	60	75
						Semester-VIII Total	20				375
						YEAR-4	40				750
			To be awarded *B.Sc. (Honours / Honours with Research) Major in Geography* on Completion				166	Marks (Year: I+II+III+IV)			3075

MJ = Major, MI = Minor Course, DSE = Discipline Specific Elective Course, CRM= Compulsory Research Methodology, CA= Continuous Assessment, ESE= End Semester Examination, T = Theory, P= Practical, L-T-P = Lecture-Tutorial-Practical

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SEMESTER-VII

MAJOR (MJ)

MJ-14: Foundations in Biogeography and Environmental Sustainability

Credits 04 (Full Marks:75)

MJ-14T: Foundations in Biogeography and Environmental Sustainability (Theory) *Credits 03 (45 hrs.)*

Course Outcome:

- Understand ecological and environmental principles by exploring interactions among living organisms and non-living components like soil, water, rocks, and atmosphere.
- Develop scientific and interdisciplinary problem-solving skills to analyze and address complex environmental issues effectively.
- Apply ecological concepts and methods in real-world contexts to support sustainable environmental decision-making and leadership.

Course Content:

1. Content and Scope in Biogeography; Environmental factors: Atmosphere, Hydrosphere, Lithosphere and Biosphere and their relationships. Holistic Concept, Environment Complex, tolerances, amplitude, limiting and inhibiting effects
2. Biosphere as an ecosystem; Eco-physiological adaptations in plants and animals for stressed environments, anthropogenic impact on life support systems including flora, fauna, soil, terrestrial and aquatic ecosystems
3. Population dynamics; factors leading to rarity, vulnerability and extinction of species, migration of species, patterns of survival, K and R selected species
4. Role of water, nutrient and energy in determining ecosystem process; concept of interspecific and intraspecific interaction, competition, niche and Keystone species, Flagship species
5. Biogeographic zones of India, Status of Biodiversity, Protected area Network, National Parks and Sanctuaries

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Suggested Readings:

- Briggs, J. C. (1995). Global biogeography. Elsevier.
- Cox, C. B., Moore, P. D., & Ladle, R. J. (2016). Biogeography: an ecological and evolutionary approach. John Wiley & Sons.
- Dansereau, P. (1957). Biogeography. An ecological perspective. Biogeography. An ecological perspective
- Hengeveld, R. (1992). Dynamic biogeography. Cambridge University Press.
- Hominick, W. M. (2002). Biogeography. Entomopathogenic nematology, 1, 115-143.
- Whittaker, R. J., Araújo, M. B., Jepson, P., Ladle, R. J., Watson, J. E., & Willis, K. J. (2005). Conservation biogeography: assessment and prospect. Diversity and distributions, 11(1), 3-23.

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MJ-14P: Thematic Mapping (Practical) *Credits 01 (30 hrs)*

Course Outcome:

Student will develop

- proficiency in cartographic skills to construct and interpret various thematic maps representing physical and social elements.
- Enhance the ability to analyze and depict the spatial distribution of diverse physical and social phenomena accurately.
- Foster holistic understanding by integrating spatial relationships between physical and social elements for comprehensive interpretation

Course Outline:

1. Mapping Agricultural Practices and Patterns: Techniques for mapping crop combinations, diversification, cropping intensity and spatial variability. Use of GIS and remote sensing tools to analyze agricultural landscapes.
2. Mapping Social Vulnerability and Disparities: Integrating demographic and socio-cultural data for comprehensive social mapping, Methods for mapping social vulnerability, ethnic groups, and social disparities
3. Assessment and Mapping of Social Well-being and Poverty: Estimation and mapping of key social indicators: Human Development Index (HDI), Gender Development Index (GDI), Gender Empowerment Measure (GEM).
4. Techniques for calculating and spatially representing Human Poverty Index (HPI-I and HPI-II) across developed and developing countries.

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Suggested Readings:

- Basu, R. and Bhaduri, S. (2007): Contemporary Issues and Techniques in Geography, Progressive Pub.
- Dent., D.B (1993): Cartography: Thematic map design, Sea Brown Publishers
- Misra, R.P and Ramesh, A (1989): Fundamental of Cartography, Concept, Delhi
- Monkhouse F.J. and Wilkinson, H.R. (1971): Maps and Diagrams: Their Compilation and Construction, B.I. Publications Private Limited, New Delhi: 527p.
- Nag, P and Dutta, G.K (1992): Thematic Cartography and Remote Sensing, Concept
- Wilford, J, N (2000): The Map Makers, A.A. Knopf

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MJ-15: Population Geography & Global Economic Crisis and Geopolitics

Credits 04 (Full Marks:75)

MJ-15T: Population Geography & Global Economic Crisis and Geopolitics (Theory) Credits 04 (60 hrs.)

Course Outcome:

- Through this module student will learn the various aspects of population growth process, its impact on economy, society and politics.
- Various policy regarding the control and development of human resources, their necessity, and outcome will be understood.
- This understanding will help them to take part in various govt. schemes and programmes relating to population issues.
- Students will develop their understanding on politics of space and spatial patterns of political and economic power distribution.
- They will also know about the nature of conflict at national and global level centered on water and power resources.
- They will develop their interest in analyzing factors and local as well as global implications of economic and political agglomerations in the form of economic and political blocs.

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Course Content:

1. Population growth: logistic and exponential growth; Population composition and structure: Types, spatial and temporal variation and determinants of age, sex, literacy and rural-urban ratio, Population projection
2. Theories and approaches of population growth and regulation: Malthus, Marx and Neo-Malthusianism. Mobility transition model (Zelinsky), Theories of migration (Ravenstein, Lee)
3. Human development and gender issues: SDGs, HDI, GDI, GEM-concept, Contemporary Population issues and policies; population ageing, Maternal and Child health.
4. Concept of Liberalization, Privatization and Globalization (LPG), beginning of the globalization, globalization to glocalilisation.
5. Globalization and Economic Geography: Impact of globalization on agriculture, industry and trade; Globalization and cultural transformations.
6. World economic order: Economic booms and crisis, future of globalization. Globalisation and Geopolitics: Understanding relevance of Heartland and Rimland theory and the present-day geopolitics in the globalized world.

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Suggested Readings:

POPULATION GEOGRAPHY:

- Binde and Kanitkar (2000): The Principle of Population Studies, Himalaya Publication
- Chandna, R.C. (2015): Geography of Population, Rawat, New Delhi.
- Dyson, T. (2010): Population and Development, Rawat publication, Jaipur
- Gould, W. T. S. (2009): Population and Development (Series - Routledge Perspectives on Development); Taylor & Francis.
- Hassan, Mohammad. Izhar, (2015): Population Geography, Rawat publication, Jaipur
- Majumdar, P.K (2010): Fundamentals of Demography, Rawat publication, Jaipur
- Morris, A (1998):Geography and Development, University College London Press, London
- Mourya S.D. (2017): Population Geography, Pravalika Publications, Allahabad
- Muhammad I.H. (2007): Population Geography, Rawat publication, Jaipur
- Mukherji, S. (2013): Migration in India, Rawat publication, Jaipur
- Nag, Prithvish; Kumar, Chandra Shekhar and Sengupta, Smita. (2001): Environment, Population and Development; Concept Publishing Company.
- Newbold K. Bruce (2017): Population Geography: tools and issues, Rawat publication
- Premi, M.K.(2006): Demography and its exposition, Jwahar Publication, New Delhi
- Srivastava, A. K. (2004): Population Development, Environment and Health; Aph Publishing Corporations.
- Sroaff, Meera. (2004): Population and Sustainable Development; Adhyayan Publishers and Distributors.

GLOBAL ECONOMIC CRISIS, GEOPOLITICS:

- Appaduria, A. (2001): Globalization, Duke University Press
- Cofman, E and Youngs, G (1996): Globalization: Theory and Practice, Continum International PublishingGroup.
- Dasgupta, Biplab (2005): Globalization- India's Adjustment Experience; SAGE, New Delhi.
- Goldin, I and Reinert, K (2012) : Globalization for Development, Oxford University Press, New York
- Haggett, P. (2001): Geography: A Global synthesis, Prentice Hall
- Kumar, Y. (2021). GEOPOLITICS IN THE ERA OF GLOBALISATION. Routledge.2 Park
- Square, Milton Park, Abingdon, Oxon OX14 4RN.
- Mackinnon, D. and Cumbess, A. (2007): An Introduction to Economic Geography: Globalization, Unevendevelopment and ……, Prentice Hall
- Mc Cann(Eds)(2004):From Local to the Global, Rawat PublishersTomlinson, J (1999): Globalization and Culture, Cambridge Polity presss
- Potter, R.B and Binns, Tony (Eds) (2001); Globalization and Development, Pearson Education Limited, Harlow
- Vertova, G. (2006): The changing economic geography of Globalization, Routledge
- W.Murray (2006): Geographies of Development, Routhledge Publication
- Youngs, G. (2001): Globalization, Communication and Technology, Cambridge.

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COMPULSORY RESEARCH METHODOLOGY (CRM)

[for both Hons. and Hons. with Research students]

CRM: Research Methodology and Ethics

CRM (T): Research Methodology and Ethics (Theory) ***Credits 03 (45 hrs.)***

Course Outcome:

- The learners will get the initial training on various steps involved in geographical research.
- They will develop the idea on fundamentals of research methodology including data collection, methodology for data analysis and report writing.
- This course will foster fundamental research aptitude among the students

Course Content:

1. Paradigm shift of research methodology in Geography.
2. Need for research, basic research types. Research design in relation to philosophical approach.
3. Identification of research problems, development of theoretical background-literature review, research gap and research question and specification of the objectives of study; hypothesis building, Framework of research writing.
4. Methods of data collection- primary and secondary; Preparation of questionnaire and survey schedule and their differences, research ethics.
5. Methods of writing notes, style of referencing, bibliography and appendices, abstract and synopsis writing.
6. Research ethics: Ethical standards in data collection, Professional Ethics in conduct with co-researchers, Publication ethics

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CRM (P): Research Methodology and Ethics (Practical) ***Credits 01 (30 hrs)***

Course Outcome:

- This course will offer the initial hands-on training on various steps involved in geographical research.
- They will develop practical experience on fundamentals of research methodology including data collection, methodology for data analysis and report writing as well as preparing references using standard software.
- This course will foster fundamental research aptitude among the students

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Course outline:

1. Assignment on identification of research problems, development of theoretical background-literature review, research gap and research question and specification of the objectives of study; hypothesis building, Framework of research writing.
2. Assignment on methods of data collection- primary and secondary; Preparation of questionnaire and survey schedule and their differences, research ethics.
3. Assignment on methods of writing notes, style of referencing, bibliography and appendices, abstract and synopsis writing. Use of referencing software

Suggested Readings:

- Alvi. Z. (1995): Statistical Geography: Methods and Applications, Rawat Publication, New Delhi
- Compton,R.R.(1985): Geology in the Field, John Wiley and Sons.
- Gardiner,V. and Dacombe,R.(1983):Geomorphological Field Mannual,George Allen and Unwin, London
- Ghosh,B.N.(1982): Scientific Methods and Social Research ,Starling Publishers Private Ltd. New Delhi.
- Goudie, A. (1981): Geomorphological Techniques, George Allen and Unwin, London
- John, C. D. (2002): Statistics and Data Analysis in Geology; John Wiley & Sons.
- Kothari,R.C(2004):Research Methodology,New Age International Publishers, New Delhi.
- Mahmood, A (1977): Statistical methods in Geographical studies, Rajesh Pub. New Delhi
- Mishra,H.N(1998): Research Methodology in Geography,Rawat Publication.
- Pal, S.K. (1999): Statistics for Geoscientists, Concept publishing Company, New Delhi: 423p.
- Ramachandran,P.(1971):Training in Research Methodology in Social Sciences in India, ICSSR, New Delhi
- Shama,B.A.V. et al (1983): Research Methods in Social Sciences, Chaitanya Publishing House, Allahabad.
- Sjoberg g. and Nett (2002): Methodology of Social Research, Rawat Publication
- Wang, X and Vonhofe, R.a (2007): Research Method in Urban and Regional Planning, Springer
- Young,P.V.(1960): Scientific Social Surveys and Research 3rd Ed ,Prentice Hall, New York.

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MAJOR ELECTIVE (DSE)

Major Elective – 03:

(Regional Geomorphology of India & West Bengal
OR
Water Resource Management)

MJDSE-03: Regional Geomorphology of India & West Bengal **Credits 04 (FM:75)**

MJDSE-03T: Regional Geomorphology of India & West Bengal (Theory) *Credits 04 (60 hrs)*

Course Outcome:

- Students will be able to learn about the regional boundaries of geomorphological regions in India and also understand the physiographic diversity of India and West Bengal
- This course will generate interest on the unique characteristics and regional importance of physiographic regions.
- Students will develop their understanding on the distribution of geomorphic hazards in India and West Bengal and the criticality involved in their management.

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Course Content:

1. Evolution of Landforms in India through tectonic history. Geological History of Bengal Basin
2. Geomorphology and soil-landform assemblages of Chhotanagpur Plateau and its adjacent areas of West Bengal.
3. Tectonics, drainage and geomorphology of Western Ghats with special reference to Deccan Trap.
4. Geomorphology of Darjeeling Himalaya and Terai Region.
5. Form, process and evolution of Ganga and Subarnarekha delta.
6. Geomorphic Hazards in India

Suggested Readings:

- Ahmad, Enayat. (1972): Coastal geomorphology of India; Orient Longman.
- Biswas, A. (1987): Laterites and lateritoids, Explorations in the tropics: V.S. Datyeet. al., Prof.K.R.Dikshit felicitation Committee, Pune, PP.137-140.
- Mukhopadhyay, S.C: Geomorphology Of The Subarnarekha Basin: The Chota Nagpur Plateau (easternIndia, the University of Burdwan,

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- Rawat, T. (2008): Environment of the Himalayas, Eastern Book Corporation
- Sehgal, J and Blum, W.E et al. (1998): Red and Lateritic Soils, Oxford and IBH pub.
- Sharma, H. S. (1991): Indian Geomorphology, Concept Publishing Company. Starkel, L. and Basu,
- S. 2000 Rains, Landslides and Floods in the Darjeeling Himalaya, Indian NationalScience academy, New Delhi: 168p
- Sharma, HariShanker. (1982): Perspectives in Geomorphology; Concept.

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OR

MJDSE-03: Water Resource Management **Credits 04 (Full Marks: 75)**

MJDSE-03T: Water Resource Management (Theory) *Credits 04 (60 hrs)*

Course outcome:

This course provides an in-depth understanding of water resources management from a geographical perspective. Students will explore the distribution, availability, and utilization of water resources, as well as the challenges and strategies involved in managing water sustainably in reference to India. The syllabus covers theoretical concepts, case studies, and practical applications of water resources management.

- To comprehend the geographical distribution and availability of water resources in India.
- To analyze the socio-economic, political, and environmental factors influencing water resources management.
- To explore the challenges and conflicts arising from water scarcity, pollution, and climate change.
- To examine sustainable strategies, tools and best practices for water resources management.
- To develop critical thinking and problem-solving skills for addressing water-related issues.

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Course Content:

1. Distribution and demand of water resources: Surface and Ground water resources distribution in India, factors affecting water availability (climate, topography, etc.), water demand and population growth, water scarcity and stress.
2. Water Resources Management: definitions, scope, principles and interdisciplinary nature. Significance of water resources management in socio-economic development
3. Challenges in water resource management: water quantity and quality, water-related disasters (floods, droughts, etc.).
4. Climate change and its impact on water resources, politics of water allocation and conflicts (national and international).
5. Sustainable Water Resources Management: integrated water resources management (IWRM), water conservation, reuse, restoration, and protection, Water Infrastructure.
6. Water Governance and Policy: tools and techniques of water governance (remote sensing and GIS, artificial intelligence, internet of things and participatory approaches), role of institutions and policies in managing water resources.

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Suggested Readings:

- Bogardi, J. J., Aureli, A., & Bogardi, J. F. M. (Eds.). (2021). Integrated Water Resources Management: Concepts, Research, and Implementation. Springer.
- Cech, T. V. (2016). Principles of Water Resources: History, Development, Management, and Policy. John Wiley & Sons.
- Daniel P. Loucks , Eelco van Beek (2017) Water Resources Systems Planning and Management: An Introduction to Methods, Models, and Applications. Springer.
- Jain, R.K. (2021) Overview of Water Resources Management in India. Springer.
- Jan Hassing, Niels Ipsen, Torkil Jønch Clausen, Henrik Larsen and Palle Lindgaard-Jørgensen (2009) "Integrated Water Resources Management in Action". prepared by DHI Water Policy and UNEP-DHI Centre for Water and Environment, UN World Water Assessment Programme Dialogue Paper.
- Khadse GK, Labhasetwar PK, Wate SR. (2012) Water resource management: an Indian perspective. J Environ Sci Eng.
- Pennington, K. L., Cech, T. V., & Heins, C. (2021). Introduction to Water Resources and Environmental Issues. Cambridge University Press.
- Wolfram, M. (2009). Water Resources: Efficient, Sustainable, and Equitable Use. London : Haus Pub.

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MINOR (MI)

Minor (MI)-07: Landscape Ecology and Planning **Credits 04 (Full Marks:75)**

MI-07T: Landscape Ecology and Planning (Theory) *Credits 04 (60 hrs)*

Course Outcome:

- Understand the core principles of landscape ecology, including spatial patterns, ecosystem interactions, and the effects of spatial heterogeneity on ecological processes.
- Develop skills to analyze and model landscape dynamics, such as detecting and simulating landscape changes and modeling populations or communities in landscape mosaics.
- Apply landscape ecology concepts professionally, preparing for careers in ecological research, environmental planning, and landscape management.

Course Contents-

1. Landscape: Definition, concept, nature and role, ecological description of landscape.
2. Structure of Landscape: Patches (shape, size, nature and boundary), corridors (type, network, matrix) and mosaics, habitat arrangement measuring metrices (Shanon Diversity Index and Simpson Diversity Index).
3. Landscape Dynamics: Energy flow, species movement, nutrient movement.
4. Anthropogenic Modification: Impacts on Agricultural ecosystem and Forest ecosystem: Landscape assessment methods.
5. Landscape management and planning: Role of keystone species, conservation of fragmented habitats, sustainable landscape, and role of Traditional Ecological Knowledge (TEK) in conserving landscape. Role of GIS in landscape planning

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Suggested Readings:

- Farina, Almo:Principles and Methods in Landscape Ecology Towards a Science of the LandscapeSeries: Landscape Series, Vol. 3,Springer
- Forman R.T.T.: Land mosaic. The ecology of landscape and region. Academic press Cambridge UK
- Frohn Robert C. (1997): Remote Sensing for Landscape Ecology: New Metric Indicators for Monitoring,Modeling, and Assessment of Ecosystems, Taylor & Francis
- GadgilMadhav , Guha Ramachandra : The Use and Abuse of Nature: incorporating This Fissured Land:An Ecological History of India and Ecology and Equity, Oxford University Press.
- Hutchinson and Smith, D. (1996) : Ethnicity : Oxford University Press, Delhi
- Jones, Emrys (1965): Human Geography, Chatto and Windies, London. Jones, E. and Eyles, J. (1977): AnIntroduction to Social Geography, Oxford University Press, Oxford
- Jordon and Lester, G. (1995) : The Human Mosaic, Harper and Row, New York

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- Knoy, P. L. (1988) : Social Well-being – A Spatial Perspective, Oxford University Press, London
- Rubenstain, J. M. and Becon, J. M. (1990): Cultural Geography, John Wiley and Sons Inc., New York.
- Spencer, J. E. and Thomas, W. L. (1969): Cultural Geography, John Wileyand Sons Inc., New York.
- Turner M.G. & Gardner R.H .: Quantitative method in landscape ecology Springer-Verlag New York
- Turner M.G. :Landscape Heterogeneity and disturbanceSpringer-Verlag , Germany
- Turner, Monica G., Gardner, Robert H., O'Neill, Robert V.:Landscape Ecology in Theory and PracticePattern and Process,Springer
- Vink A.P.A.: Landscape ecology and land use, Longman, London & New York
- Wu jianguo and Hobbs Richard j. (2007): Key Topics in Landscape Ecology, Cambridge University Press

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SEMESTER-VIII

MAJOR (MJ)

MJ-16: Geographical Thought and Environmental Ethics **Credits 04 (FM:75)**

MJ-16T: Geographical Thought and Environmental Ethics (Theory) *Credits 03 (45 hrs.)*

Course Outcome:

- The students will understand the changing nature of geography as a distinct discourse and its development as a science of synthesis.
- Students will learn about the philosophical background that guides the approaches and ways of thinking to design teaching-learning and research under different discourses of Geography.
- Students will achieve a clear insight into the theoretical foundation of the subject that is articulated among different courses and guides to design objectives and methodological framework of geographical enquiry. This understanding helps the learners to locate themselves in the wide and dynamic philosophical domain of the discipline and help them to concentrate towards developing geography as a science of holistic synthesis.
- Understand and explain key principles of environmental ethics, including the moral relationship between humans, non-human beings, and the environment.
- Apply philosophical concepts and ethical theories to real-world environmental issues and critically assess arguments and policy decisions.
- Demonstrate ethical conduct in scientific and environmental decision-making, recognizing moral obligations and the value of all life forms and ecosystems.

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Course Contents:

1. Geography as a science of synthesis. Changing nature of Geography: paradigm shift. Quantitative revolution and development of critical social theories: Humanistic geography, Radicalism and Feminist geography
2. Spatial and Temporal dimensions: Space - relevance in geography; temporal geography Structuralism and Post-structuralism, Modernism and Postmodernism
3. Applied Geography. Scope and opportunities under modern technology
4. Environmental Ethics, Education, and Philosophy: Concept and development of environmental philosophy, Ecocentrism vs. Anthropocentrism, Land Ethic (Aldo Leopold), Gaia Hypothesis, and Ecofeminism. Environmental education and global initiatives (Tbilisi conference). Conservation Approaches and stewardship: Landscape ecology and ethno-ecology, environmental stewardship.
5. Environmental Governance, Assessment, and Global Issues: Environmental Impact Assessment (EIA), Environmental Management Planning (EMP), Environmental

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Performance Assessment (EPA), Environmental Audit, Major international conferences, Achievements and Contradictions.

6. Environmental Laws in India: Wild life Act, Forest Acts, Environmental Protection Act, National Environmental Tribunal Act.

Suggested Readings:

GEOGRAPHICAL THOUGHT:

- Berry, B.L.J.(1973) A Paradigm of Modern Geography. In R.J. Chorley(ed), Directions in Geography. Lodon, Methuen 3-22.
- Chorley,R.J.andHagget,P.(editors)(1965):FrontiersinGeographicalTeaching,OUP,Oxford:231p. Delhi
- Golledge,R.G. and Stimson, R.S. (1997) Spatial Behaviour: a geographic perspective, New York: Guilford Press
- Gould, P.R. (1999) Becoming a Geographer, Syracuse: Syracuse University Press
- Gregory D. and Walford, R. (editors) (1988): Horizons in Human Geography, Macmillan, London: 390p.
- Hussain, M. (1995): Evolution of Geographical thought,3rdedition, Rawat Pub.Co., New Delhi:432p.
- Hartshorne, R. (1939): Nature of Geography, Association of American Geographers, Lancester, PA.
- Harvey D. (1996): Justice, Nature and the Geography of Difference, Oxford: Blackwell
- Harvey, D. (1969): Explanations in Geography, London, Edward Arnold
- James, P. (1972): All possible worlds: Ahistory of geographical ideas. Indianapolis: Bobbs Merrill.
- Johnston, R..J (1997): Geography and Geographer: Anglo American Human Geography, Arnold pub.
- Johnston,R.J. (ed.)(2006):Dictionaryof Human Geography,Blackwell.
- Maiti, R.K. and MoitraMaiti, M. (2018): Development of Geographical Thought, Contexualisation and Synthesis of Philosophies, Nabodaya Publications, Kolkata: 576P.
- Peet, R. (1978): Radical Geography: Alternative viewpoints on contemporary social issue. London: Methuen
- Peet, R. (1998): Modern Geographical Thought, Oxford: Blackwell.
- Soja, E.W.(1989): Post modern Geographies: The reassertion of space in social theory. London: Verso
- Stoddart,D.R. (1986):OnGeographyanditsHistory,Basil Blackwell,Oxford:236p.

ENVIRONMENTAL ETHICS:

- Farmer, A. (1997): Managing Environmental Pollution, Routledge, London: 246p.
- Ghosh, S.K. (2007): Environmental Act in India, Joshi, A. (2008): Global Environmental Agreements: Insight and Implication, Eastern Book Corporation
- Marsh, W.M. and Grossa, J.M. (1996): Environmental Geography: Science, Landuse and Earth Systems, John Wiley & Sons.

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- Maryk, Theodore (1996): Major Environmental Issues Facing 21st Century, Prentice Hall
- Park, C. (1998): The Environment: Principles and Applications, Routledge, London:
- Pickering, K. and Owen, L.A.(1997) : An Introduction to Global Environmental Issues, 2nd edition, Routledge, London. Prabhakar, V.R. (1998): Social and Community Forestry, Indian Pub. Distrb., New Delhi: 224p.
- Roberts, N. (editor) (1994): The Changing Global Environment, 3rd edition, Blackwell Pub. Co., London: 531 p.
- Santra, S.C. (2001): Environmental Science; New Central Book Agency, Kolkata.

MJ-16P: Spatial Analysis and Modelling (Practical) *Credits 01 (30 hrs.)*

Course Outline:

1. Transport network analysis: Centrality Indices, Shortest path analysis (Transport and allocation problems), Detour and spread. Distance Matrix (Aggregate Travel Distance).
2. Point pattern analysis: Uniformity, randomness and compactness.
3. Analysis of directionality and shape: wind vector analysis; measures based on axial ratios, perimeters to areas, areas to axial length of the river basins.
4. Basic concept of spatial modelling; database creation, running ArcSWAT; model calibration and validation with SWAT-CUP
5. Morphometric analysis with ArcMAP and other open source packages.

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Suggested Readings:

- Basins, T., & Basin, G. (n.d.). Water availability, demand and adaptation option assessment of the Ganges Basin under climate change Technical Report-Hydrological Modelling.
- Clark, C.D. and Wilson, C.(1994): Spatial Analysis of Lineaments: Computer and Geosciences, V.20.No.7/8,p. 1237-1258.
- Cliff, A.D. and J.K.Ord (1981): Spatial Processes: Models and Applications. London, Pion Ltd.
- Foresman,T.W.(ed) (1998): History of GIS, Prentice-Hall, Upper saddle river, NJ,
- Getis, A. and B. Boots (1978): Models of Spatial Processes: An Approach to the study of Point, Line andArea Patterns. Cambridge, Cambridge University Press.
- John, J.C.(2002):Statistics and data nalysis in Geology, Singapore, JohnWiley& Sons(Asia).
- Kibii, J. K., Kipkorir, E. C., &Kosgei, J. R. (2021). Application of soil and water assessment tool (SWAT) to evaluate the impact of land use and climate variability on the kaptagat catchment river discharge. Sustainability (Switzerland), 13(4), 1–19. https://doi.org/10.3390/su13041802
- Marcolongo, B. And Mantorani, F. (1997): Photogeology: Remote Sensing Application in Earth Science, Oxford and IBH Pub. Pvt. Ltd., New Delhi: 195p.
- Martin, D. (1991): Geographical Information Systems and their Socioeconomic Applications. London, Routledge.
- Masser, Ian and Blakemore, Michael (1991): Handling Geographical Information: Methodology and Potential Application, 3rd ed., Longman Scientific and Technical.

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- Neitsch, S. ., Arnold, J. ., Kiniry, J. ., & Williams, J. . (2011). Soil & Water Assessment Tool Theoretical Documentation Version 2009. Texas Water Resources Institute, 1–647. https://doi.org/10.1016/j.scitotenv.2015.11.063
- Online: https://swat.tamu.edu/media/114860/usermanual_swatcup.pdf
- Robert A. Schowengerdt,(1997): Techniques for Image Processing and Classification in Remote Sensing, Academic Press.
- Watson, D.F. (1992): Contouring: A Guide to the Analysis and Display of Spatial Data, Oxford, PergamonPress.
- Watson, G.S. (1970): Orientation Statistics in the Earth Sciences, Bull.Geol. Inst.Uppsala, V.2. No. 9,p.73-89.
- Watson, G.S. (1983): Statistics on Spheres, New York, John Wiley & Sons

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MAJOR ELECTIVE (DSE)

Major Elective – 04:
(Hydrology & Oceanography)

MJDSE-04: Hydrology & Oceanography **Credits 04 (Full Marks:75)**

MJDSE-04T: Hydrology & Oceanography (Theory) *Credits 03 (45 hrs)*

Course Outcome:

- This course seeks to make the learners informed about the principles of hydrological systems operating at watershed level which leads to water availability and water budget. Magnitude frequency of hydrological extreme events and their trends under the context of global climate change are included.
- Learners will be appraised on how different hydrological parameters interact as an interacting whole.
- Students will learn about the working principle of earth system processes that lead to hydrological hazards like drought and flood.
- The students will be able to understand the cyclic nature of ocean basins and land-ocean-atmosphere interactions leading to world climate change.
- An aptitude on the distribution of temperature and salinity of ocean waters and their role in oceanic circulations will be developed among the students.
- They will be informed about the marine environment and oceanographic processes that leads to earth system processes.

DRAFT

Course Content:

1. Hydrological systems, estimating water potential, and water budgeting at the watershed level. Hydrologic frequency analysis (Gumbel's equation and log probability law)
2. Estimating hydrological parameters: Precipitation estimates, runoff, infiltration and evapotranspiration.
3. Groundwater: storage structure, flow, recharge, and discharge. Flood and drought as hydrological hazards
4. The opening and closing of ocean basins (Wilson Model); Land-ocean-atmosphere interactions; Ocean Climate Zones
5. Temperature, and Salinity distribution; TS Diagram. Types and transport of ocean sediments.
6. Ocean Ecosystems: Coral Reefs; Rocky intertidal communities; Biology of coastal upwelling zones; Algal Blooms; Waste Disposal; National and International Law applied to the Oceans

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Suggested Readings:

HYDROLOGY:

- Abdul Aziz, O. I., & Burn, D. H. (2006). Trends and variability in the hydrological regime of the Mackenzie River Basin. Journal of Hydrology, 319(1–4), 282–294. https://doi.org/10.1016/j.jhydrol.2005.06.039
- Alternate Water Reuse, New society publishers, Gabriola Island.
- Aridity index. https://en.wikipedia.org/wiki/Aridity_index
- Bedinent, P.B.et.al. (2008): Hydrology and Floodplain Management, Prentice Hall,Upper Saddle River, NJ07458.
- Biswas,A.K. (1972): History of Hydrology, North Holland Pub.Cc. Amsterdam.
- Boca Raton, F.L Viessman and Lewis (1996): Introduction to Hydrology, Harper Collins, Newyork.
- Chow V.T., Maidment ,D.R. and Mays, L.W. (1988): Applied Hydrology, Mc Graw Hill, Newyork.
- Dingman, SL. (2002): Physical Hydrology, 2nd Edition, Prientice Hall, EnglewoodCliffs
- Hamed, K. H. (2008). Trend detection in hydrologic data: The Mann-Kendall trend test under the scaling hypothesis. Journal of Hydrology, 349(3–4), 350–363. https://doi.org/10.1016/j.jhydrol.2007.11.009
- Hatfield, J. L., &Dold, C. (2019). Water-Use Efficiency: Advances and Challenges in a Changing Climate. Frontiers in Plant Science, 10. https://doi.org/10.3389/fpls.2019.00103
- Hyot, W.G. and W. Langbain (1955): Floods, Prentice Hall University Press, Princeton.
- International Ltd., New Delhi: 198p.
- Keith, D. and Mays,L.W. (2004): Ground water hydrology, 3rd Edition, Wiley, Chichester.
- Kintede-Levario, H. (2007): Design for Water: Rain Water Harvesting, Storm Water Catchment and
- Mays, L.W. (1996): Water Resources Handbook, Mc Graw Hill, Newyork.
- Murthy, K.S. (1998): Watershed Management in India, 3rd edition, Wiely Eastern Ltd. / New Age
- Pal, I., & Al-Tabbaa, A. (2010). Regional changes in extreme monsoon rainfall deficit and excess in India. Dynamics of Atmospheres and Oceans, 49(2–3), 206–214. https://doi.org/10.1016/j.dynatmoce.2009.07.001
- Pethick, J. (1984): An Introduction to Coastal Geomorphology, Edward Arnold, London: 259 p
- Pohlert, T. 2020. Non-parametric change point analysis of time series data. https://cran.r project.org/web/packages/trend/vignettes/trend.pdf
- RMaity, 2022 Statistical Methods in Hydrology and Hydroclimatology, Springer, https://link.springer.com/book/10.1007/978-981-16-5517-3
- Singh, V.P. and D.K. Frevest (2006): Watershed Models, CRC Press,
- Taylor, WA. Change point analysis. https://variation.com/wp-content/uploads/change-point-analyzer/change-point-analysis-a-powerful-new-tool-for-detecting-changes.pdf
- Todd, D.K. (2004): Groundwater Hydrology, 3re Edition, Wiley, Chichester
- Water use efficiency and indices. http://eagri.org/eagri50/AGRO103/lec09.pdf

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OCEANOGRAPHY:

- Introduction to Ocean Sciences (Second Edition), 2007: Douglas A. Segar W.W. NORTON AND COMPANY, New York
- Invitation to Oceanography (Fourth Edition), 2006: Paul R. Pinet; Jones And Bartlett Publishers
- The World's Oceans (International Edition), 2005: Keith A. Sverdrup, Alyn C. Duxbury, Alison B. Duxbury. McRAW-HILL

MJDSE-04P Hydrological Techniques (Practical) *Credits 01 (30 hrs)*

Course Outcome:

- Students will develop skills in application of theoretical knowledge of hydrology. They will learn on field as well as laboratory techniques for estimating different hydrological attributes such as rainfall, run off, infiltration etc. in order to construct a water budget.
- Students are enabled to analyse magnitude frequency of different hydrological hazards like fold and droughts and their social and economic applications.
- This knowledge will help them in formulating various hydrological projects and their successful management.

DRAFT

Course content:

1. Point rainfall analysis, area-depth curves, Thiessenpolygon and Isohyetal methods to determine rainfall depth. Time series analysis of precipitation; Mann-Kendall test, Sen's slope and change point analysis.
2. Estimating infiltration using infiltrometer and other field techniques. Drawing infiltration curve.
3. Evaporation estimation: Use of evaporation pan and empirical equations using climatic data. Estimation of aridity index using climate data.
4. Runoff and discharge estimation: Curve Number methods for estimating runoff: area-velocity method for discharge estimate.
5. Construction of hydrograph, unit-hydrograph and rating curves.

Suggested Readings:

- Abdul Aziz, O. I., & Burn, D. H. (2006). Trends and variability in the hydrological regime of the Mackenzie River Basin. Journal of Hydrology, 319(1–4), 282–294. https://doi.org/10.1016/j.jhydrol.2005.06.039
- Aridity index. https://en.wikipedia.org/wiki/Aridity_index
- Bedinent, P.B.et.al. (2008): Hydrology and Floodplain Management, Prentice Hall,Upper Saddle River, NJ07458.
- Biswas,A.K. (1972): History of Hydrology, North Holland Pub.Cc. Amsterdam

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- Boca Raton, F.L Viessman and Lewis (1996): Introduction to Hydrology, Harper Collins, Newyork.
- Chow V.T., Maidment ,D.R. and Mays, L.W. (1988): Applied Hydrology, Mc Graw Hill, Newyork.
- Dingman, SL. (2002): Physical Hydrology, 2nd Edition, Prientice Hall, EnglewoodCliffs
- Hamed, K. H. (2008). Trend detection in hydrologic data: The Mann-Kendall trend test under the scaling hypothesis. Journal of Hydrology, 349(3–4), 350–363. https://doi.org/10.1016/j.jhydrol.2007.11.009
- Hyot, W.G. and W. Langbain (1955): Floods, Prentice Hall University Press, Princeton.
- Keith, D. and Mays,L.W. (2004): Ground water hydrology, 3rd Edition, Wiley, Chichester.
- Kintede-Levario, H. (2007): Design for Water: Rain Water Harvesting, Storm Water Catchment, and alternate Water Reuse, New society publishers, Gabriola Island.
- Mays, L.W. (1996): Water Resources Handbook, Mc Graw Hill, Newyork.
- Murthy, K.S. (1998): Watershed Management in India, 3rd edition, Wiely Eastern Ltd. / New Age International Ltd., New Delhi: 198p.
- Pal, I., & Al-Tabbaa, A. (2010). Regional changes in extreme monsoon rainfall deficit and excess in India. Dynamics of Atmospheres and Oceans, 49(2–3), 206–214. https://doi.org/10.1016/j.dynatmoce.2009.07.001
- Pethick, J. (1984): An Introduction to Coastal Geomorphology, Edward Arnold, London: 259 p
- Pohlert, T. 2020. Non-parametric change point analysis of time series data. https://cran.r-project.org/web/packages/trend/vignettes/trend.pdf
- RMaity, 2022 Statistical Methods in Hydrology and Hydroclimatology, Springer, https://link.springer.com/book/10.1007/978-981-16-5517-3
- Singh, V.P. and D.K. Frevest (2006): Watershed Models, CRC Press,
- Taylor, WA. Change point analysis. https://variation.com/wp-content/uploads/change-point-analyzer/change-point-analysis-a-powerful-new-tool-for-detecting-changes.pdf
- Todd, D.K. (2004): Groundwater Hydrology, 3re Edition, Wiley, Chichester

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MAJOR ELECTIVE- 05

[to be studied by Honours students only]

(Regional planning & Development OR Settlement & Transport Geography)

MJDSE-05: Regional planning & Development **Credits 04 (Full Marks: 75)**

MJDSE-05T: Regional planning & Development (Theory) *Credits 04 (60 hrs)*

Course Outcome:

- This paper will provide knowledge on spatial analysis of functions of urban areas. Social and economic characteristics of cities and suburbs will be discussed under this paper.
- Urban land use and its impact on environment and ecology will be addressed. This paper will introduce students to the basics of urban geography, such as definition of cities, central place theory, National urban systems, and traditional models of urban spatial structure.
- Students will be exposed to contemporary urban topics such as global cities, urban sprawling, urban green space, urban ecology and footprints etc.
- Emphasis will be placed on the urban experience of developing countries, especially India.
- The students will be able to assemble knowledge of urbanism and urbanization as historic, geographic, social, and cultural processes, historical development, contemporary condition, and environmental impact of cities and urban related issues growing from exposure to the disciplines of Geography and Planning.

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Course Content:

1. Concept and types of planning; planning regions in India: Purpose, types and methods of delineating planning regions,
2. Basic principles and methodology of regional planning.
3. Regional planning strategies: Centralized, decentralized and multilevel planning for rural and urban areas.
4. Regional disparities: Concept, Types; Demographic, social and economic disparities in India.
5. Planning of problem regions: Tribal, coastal, drought prone area, flood prone area.
6. Regional planning models: Growth Foci, Service Centre Approach, Rural-Urban Integration. NITI Aayog's strategies and Rurban Mission.

Suggested reading:

- Agarwal S.K. (2012): Regional Development and Planning in India, selected Essays by V. Nath.
- Bhat, L.S. (1973): Regional Planning in India, Statistical Pub. Society.

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- Chand, M. and Puri, V.K. (2012): Regional Planning in India, Vikas, New Delhi
- Chandana, R.C.(2000): Regional Planning and Development, Kalyani Publishers.
- Glasson, J. (1974): An Introduction to Regional Planning, Hutchinson, London.
- Greed (2000): Introducing Planning, Athlone Press, London.
- Hall, P. (1974): Urban and Regional Planning, Penguin, London.
- Kulshresta S.K. (2012): Urban and Regional Planning in India, Sage, India
- Mishra, R.P. (1969): Regional Planning, Concept, Techniques, Policies, the University of Mysore Press.
- Misra,R.P,Sundaram and Rao (1974): Regional Planning In India, Viking, Delhi.
- Mitra, A. (1971): Levels of Regional Development India, Census of India.
- Tim, Hall (2006): Urban Geography, Routledge.

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MJDSE-05: Settlement and Transport Geography **Credits 04 (Full Marks: 75)**

MJDSE-05T: Settlement and Transport Geography (Theory) *Credits 04 (60 hrs)*

Course Outcome:

- The students will be able to understand the role of transport in overcoming distance barriers, including cost structures, comparative advantages of different transport modes, and the impact of communication technology on transport demand.
- The students will learn to analyze the significance of transport in economic and social processes, emphasizing locational advantages and the role of public transport in mitigating congestion and air pollution.
- Develop the ability to apply transport principles in regional development and economic regeneration through effective transport planning and sustainable mobility solutions.

Course Content:

1. Concept of shelter; Dwelling places as cultural expression, Census categories of settlements; Types, building materials and architectural design of houses- dependence on climate.
2. Site, situation and spacing of settlements- dependence on terrain characteristics and water availability, Concepts and components of rural and urban morphology, Socio-economic segregation of rural settlements, Cities as melting pot of culture.
3. Concept of distance, space-time relation through transportation. Principles of transport cost fixation, comparative cost advantage
4. Planning for public transport, desired characteristics, modes and optimal pricing, services, ownership and regulation.
5. Transport Policy: Problem oriented and objective-led approach;
6. Communication Technology- roles in reducing transport demand.

DRAFT

Suggested reading:

- Adler, H.A (1987): Economic Appraisal of Transport Project, John Hapkins Press. Washington.
- Adler, H.A (1987): Economic Appraisal of Transport Project, John Hapkins Press. Washington.
- Brian, K.R (1996): Landscapes of Settlements: Prehistory to the Present, Routledge, London
- Dasgupta, A.K. and Pearee, D.W. (1972); Cost Benefit analysis, theory and practice; Mac Millan, London. Flahesly CAO (2006): Transport Planning and Traffic Engineering, Butterworth-Heinemann
- Dasgupta, A.K. and Pearee, D.W. (1972); Cost Benefit analysis, theory and practice; Mac Millan, London.
- De Blij H.J. (1995): The Earth: An Introduction to its Physical and Human Geography, John Wiley and Sons Inc.,nNew

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- De Blij H.J. (1996): Human Geography: Culture, Society and Space, John Wiley and Sons Inc., New York:531 p.
- Flahesly CAO (2006): Transport Planning and Traffic Engineering, Butterworth- Heinemann
- Ghosh, S. (1998): Introduction to Settlement Geography, Orient Longman Ltd., Calcutta: 158p.
- Gwillian, K.M. (Ed.) (1993): Transport Policy and Global Warming, European Conference of Ministers of Transport, Paris.
- Gwillian, K.M. (Ed.) (1993): Transport Policy and Global Warming, European Conference of Ministers ofTransport, Paris.
- Hudson, F.S. (1970): Geography of Settlements, Macdonald and Evans Ltd., Plymouth
- Hussain, M. (1994): Human Geography, Rawat Pub. Co., New Delhi: 485p.
- Lays M.G. (1993): Wags of the World, Primarera Press, Sydwen
- Lays M.G. (1993): Ways of the World, Primarera Press, Sydwen
- Misra. H.N. (ed) (1987): Contributions to Indian Geography, Volume 9: Rural Geography, Heritage Pub.,New Delhi.
- Orient Blackshawn, Hyderaband.
- Pearce D.W. and Markyanda, A. (1989): Environmental policy Benefits, Manetany valuation OECD ,Paris. While, P. (1986): Public Transport Planning, Management and operation, Hatechinson, London.
- Pearce D.W. and Markyanda, A. (1989): Environmental policy Benefits, Manetany valuation OECD ,Paris.
- Racine, J. (ed) : Calcutta 1981, Concept Pub. Co., New Delhi.
- Ramachandram, R. (1999): Urbanization and urban systems in India, Oxford University Press, New DelhiVerma, L (2009): Urban Geography, Rawat publication, Jaipur
- Rodwin (2006): Shelter, Settlement and Development, Rawat Pub.
- Roy Chaudhuri, J. (2001): An Introduction to Development and Regional Planning-with special reference to India,
- Singh, R. Y. (1994): Geography of Settlements, Rawat Pub. Co., New Delhi: 335p.
- Singh, R.L. et. al. (ed) (1976): Geographic Dimensions of Rural Settlements, National GeographicalSociety of India, Varanasi.
- While, P. (1986): Public Transport Planning, Management and operation, Hatechinson, London.

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MAJOR ELECTIVE- 06

[to be studied by Honours students only]

(Rural Development OR Agricultural Geography)

MJDSE-06: Rural Development **Credits 04 (Full Marks: 75)**

MJDSE-06T: Rural Development (Theory) *Credits 04 (60 hrs)*

Course Outcome:

- The focus of the course is to develop an idea about the approach to understanding the rural development.
- It includes the status report of the rural development in India on various accounts, i.e. agriculture, health, education, rural employment, infrastructure and rural electrification.
- The role of micro finance is also included to give students an understanding of the rural economic development.
- The students get an inclusive understanding of the rural development and its dynamics upon completion of this course.

DRAFT

Course content:

1. Concept and indicators of Rural Development and their measurements.
2. Land Reform and agricultural development in India. Rural governance: Panchayet Raj System - structure and their functioning
3. Rural Economy and industrial development:Rural Micro-finance, self-help group and women empowerment. Rural Industries and entrepreneurship with special reference to Food Processing and Tourism.
4. Rural poverty alleviation programmes - National Rural Employment Guarantee Act, Jawahar Rozgar Yojana, Sampoorna Grameen Rozgar Yojana, Provisions of Urban Amenities in Rural Area (PURA);
5. Infrastructural development programmes - Pradhan Mantri Awas Yojna; Transport Development: Pradhan Mantri Gram Sadak Yojana
6. Political economy of the welfare programmes and developmental schemes.

Suggested Readings:

- Ahmed, Rais (1996). Comparatives and integrated rural development programme, Mittal Publications, NewDelhi.
- Chand, M. and Puri, V.K. (1988): Regional Planning in India, Vikas, New Delhi
- Desai, Vasant (1991). Fundamentals of rural development: a system approach, Himalaya

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PublishingHouse, Bombay.
- Dutta, Siba kanta (1986). Co-operative societies & rural development, Mittal Publications, New Delhi.
- Kar, Samit (1991). Rural development in West Bengal : a quest, Sarat Book House, Kolkata.
- Kumar, Sunil (1990). Regional rural banks and rural development, Deep and Deep Publications, New Delhi
- Lakshman, T.K.., Narayan, B.K.. (1984). Rural development in India : a multi-demensional analysis, Himalaya Publishing House, Bombay
- Mahajan, V.S(1996). Agriculture,rural development and panchayati raj, Deep and Deep Publications, NewDelhi.
- Ministry of rural development, Government of India, web add: http://rural.nic.in/
- Ray, C.N (1994). Politics of rural development : The case of anti-Poverty programme in West Bengal andGujarat, Rawat Publications, Jaipur.
- Reddy, K. Venkata(1988). Rural development in India, Himalaya Publishing House, Bombay.
- Riley, John M (2002). Stakeholders in rural development : critical collaboration in state-NGO partnerships, Sage Publications India, New Delhi
- Saudhu, Baldere S (1996). Banking and rural development, Deep and Deep Publications, New Delhi.
- Singh, Katar (1986). Rural development : principles, policies and management, Sage Publications IndiaNew Delhi.
- Subramanian, S (1988). Rural development : an inside Look at Problems and prospects, Yatan Publications, New Delhi.
- Upadhyay, H.C (1991). Modernization and rural development, Anmol Publications, New Delhi.
- Vijay, Chand Mal (1989). Rural development administration in India, Akashdeep Publishing House, NewDelhi.
- Yadav, Subah Singh., Gurjar, Ram Kumar (1997). Rural development and poverty alleviation, PointerPublishers, Jaipur.
- Yugandhar, B.N., Mukherjee, Neela (1991). Studies in village India : Issues in rural development, ConceptPublishing, New Delhi.

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MJDSE-06: Agricultural Geography **Credits 04 (Full Marks: 75)**

MJDSE-06T Agricultural Geography (Theory) *Credits 04 (60 hrs.)*

Course outcome:

- This undergraduate course provides an in-depth exploration of agricultural geography, focusing on the spatial patterns, processes, and interactions between agriculture and the physical and human environments.
- This course gives special emphasis on the agro-ecological zones and green revolution in India. Students will examine key topics such as agricultural systems, land use, rural development, agro-social dynamics, food security and policies from a geographical perspective.
- By the end of this course, students will have a comprehensive understanding of the spatial aspects of agriculture, including the interactions between agriculture, environment, and society.
- To understand the role of green revolution in Indian agriculture.
- To learn critically analyzing agricultural systems and land use patterns, evaluate the environmental impacts of agriculture, and identify challenges and opportunities in agriculture, rural development, food security and policies in Indian context.

DRAFT

Course content:

1. Agricultural Geography and Land Use: concepts and theories in agricultural geography.
2. Agro-climatic zones in India and significance, spatial patterns of agricultural systems and agricultural intensification, agricultural land use and landscape alteration.
3. Agriculture and Society: Role of agriculture and green revolution in India in rural development, farming systems and technologies (e.g., precision farming, genetic engineering, protein farm), agriculture and social structures in reference to caste and gender.
4. Agriculture, Environment and sustainability: Impacts of agriculture on natural resources (e.g., soil, water, biodiversity).
5. Climate change and its effects on agriculture, sustainable agricultural practices, Food security, Agricultural policies and institutions, their implications in India.
6. Agro-marketing and insurance: importance, prospects and challenges in India

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Suggested Reading:

- Agrawal A.N (2005): Indian agriculture: problems, progress and prospects, Vani Educational Books New Delhi
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- Hussain, Majid (2003): Agricultural Geography, Anmol Publications Pvt Ltd, India.
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- Joshi, V. Mahesh (1999): Green revolution and its impacts. New Apcon, New Delhi.
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- Rao C H Hanumantha (2005): Agriculture, food security, poverty, and environment: essays on post-reform India, Oxford University Press New Delhi.
- Report: Asian Development Bank (2010): Agriculture, food security, and rural development, Oxford University Press New Delhi.
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PROJECT / DISSERTATION (RD)

[to be undertaken by students opting for and eligible for Hons. with Research]

DISSERTATION:
Credit: 8; Full Marks: 150

Guidelines:

- Students will prepare a **dissertation of 10,000 words (approx.)** with a suitable title
- **Writing the Dissertation**:
  Introducing the area of research, Literature Review, Locating research gaps, Spelling out the central argument/hypothesis, Preparing the theoretical framework, Making the core chapters, Conclusion and Scope for further research, Endnotes to individual chapters, List of Works Cited/Bibliography, Appendix, if any.

Structure of the dissertation

DRAFT

Preliminary Pages

- Title Page: Includes name of the student, university, degree, and submission date.
- Certificate/Declaration: Signed statement of originality and supervisor's approval
- Abstract: A 250-350 word summary covering research problem, methodology, and core findings.
- Acknowledgements: To supervisors and others, if any.
- Table of Contents: Clear hierarchical mapping of chapters with page number
- List of Abbreviations: Specialized terms, if any

Introduction

- Background & Context: Situates the topic in historical or theoretical context.
- Research Problem & Objectives: The specific question or gap the research is addressing.
- Thesis Statement/Hypothesis: The core argument the dissertation intends to prove.
- Scope and Significance: Why the study matters.
- Literature Review & Theoretical Framework

Literature Review: Analyzes existing scholarly works to show the gap the study fills.

- Theoretical Framework: Identifies the philosophers, critics, or schools of thought shaping the analysis in the dissertation.

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Methodology

- Describes *how* the research was conducted - Anyone or a combination of textual analysis/ archival research/ conducting interviews/ ethnographic/semi-ethno-graphic research involving both textual analysis and field visit etc.
- Thematic or Analytical Chapters

The Core Body: Usually 3 to 4 chapters focusing on the core concerns of the study.

- Structure: Each chapter introduces its specific theme, analyzes primary and secondary sources, and contributes to the overarching thesis.

Conclusion

- Summary & Synthesis: Recaps your main points without simply repeating them.

Final Verdict: Answers the research questions posed in the introduction.

Future Scope: Suggests how future scholars can build upon your work.

- Works Cited/ Reference, and/or Bibliography: A comprehensive list of all primary and secondary sources cited as per the latest MLA style.

Appendices: Transcripts, interview logs, or raw archival data, if any.

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Marks distribution-

Sl. No	Particulars	Marks
1	Research Project / Dissertation Report	70
	▪ Proposal and Abstract (along with some keywords)	10
	▪ Literature Review &Theoretical Framework	10
	▪ Methodology and Research design	10
	▪ Thematic Analysis (Chapter-wise)	20
	▪ Report Quality	20
2	Seminar Presentation	30
3	Viva-Voce	50
Total		**150**

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MINOR (MI)

Minor (MI)-08: Social & Cultural Geography **Credits 04 (Full Marks: 75)**

MI-08T: Social & Cultural Geography (Theory) *Credits 04 (60 hrs)*

Course Outcome:

- The paper is based on the nature, scope and content of social and cultural Geography.
- The paper will examine the role of social divisions such as class, 'race'/ethnicity, gender and sexuality in shaping the social geographies of regions.
- Emphasis is given on cross- disciplinary, critical engagement with current events.
- On completion of the course, students are able to understand the nature, scope, and concept, relationship between culture and social environment, and right of information act, the cultural complex and traits of culture and its concepts, evolution to civilization and cultural system according to religion, language and geography, and global cultural changes.

Course content:

1. Nature, scope and content of social Geography; Ethnicity, tribe, dialect, language, caste and religion.
2. Social structure and processes, social exclusion, geographies of social well-being with special reference to India.
3. Cultural Geography: Definition, scope and nature. Race, religion, language as cultural attributes with special reference to India, North-South, social -cultural divide.
4. World cultural Realms, Morphology of cultural landscape (Carl O Sauer) and cultural diversity. Cities as melting pot of culture. Traditional folk culture- crisis and transformation.
5. Cultural processes: Diffusion, acculturation, assimilation and cultural pluralism.
6. Culture, Landscape, and Globalization:.Globalization, hybrid cultures, migration, and diasporic geographies.

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Suggested Reading:

- Alison,B et.al (2003): Cultural Geography in practice, Arnold, New Delhi
- Bist,B.S.andPanth,V.K(1998): Backward Communities in India, Rawat Pub.
- Carter, J. And Jones, T. (1989):Social Geography: An Introduction to Contemporary Issues , EdwardArnold, London
- De Blij H.J. (1996): Human Geography: Culture, Society and Space, John Wiley and Sons Inc., New York:531 p.
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- Hussain, M. (2005): Cultural Geography, Anmol Publication, New Delhi
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- Mitchell, D. (2000): Cultural Geography: A Critical Introduction, Wiley
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- Perry, A.J and Perry, E.K (2010) : Contemporary Society: An Introduction to Social Science, Pearson Education,Noida, India
- Sahu, C.(2006): Encyclopedia of Indian tribes
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